MGB and MG Midget Engine Removal

General
This document describes the general method for engine removal for MGB and MG Midget vehicles. However, please note that because of variations between models and years and because of modifications that may have been made to individual cars, the method needed for your vehicle may be slightly different.

There maybe various reasons for engine removal: to carry out major engine work, to change an engine, to carry out body restoration or painting, or to change a clutch are some examples. To fit a new clutch on many rear wheel drive cars, the engine stays in place while the gearbox is dropped out to allow access to the clutch assembly that is bolted to the flywheel. However, the design of the MGB and Midget means that in order to replace the clutch, the engine must be removed. The Midget has a full floor under the transmission tunnel which prevents the gearbox being dropped and the MGB has a welded structural cross member in the way. Some people consider cutting this cross member but this can seriously compromise the structural integrity of the body.

Preparation
Plan room to do the job so that access can be gained to all sides of the vehicle and from above and below. Remember that the engine crane takes up a significant amount of room and will need a smooth surface on which to be rolled in and out of place.

Whether or not the oil needs to be removed from the engine will depend on the purpose at hand. If the engine is not to be stripped and can be kept upright, it may not be necessary to drain it. Remember that hot oil drains more quickly and thoroughly than cold, so if the engine can be run beforehand then it will facility the job. However, also bare in mind that the car must not run in a closed space and cannot be so easily moved once drained of oil. Also remember that the engine must be left for a couple of hours to cool before it will be safe and comfortable to work on the cooling system or exhaust manifold.

Attach a rope to the bonnet latch spring and pull the bonnet into a vertical position. Secure the rope firmly to the rear bumper and use some cloth as padding where the rope contacts the body paint. This measure makes access much easier and helps with clearance of the engine hoist jib when lifting the unit out.

Safety
Remove the battery ground terminal. Removing the ground first ensures that should the wrench touch any bodywork, there will be no short circuits. For added safety, also remove the battery hot connection. Either remove the battery or stow both cable ends so that they cannot accidentally spring back and contact the battery posts.

Place the car securely on axle stands. You can now carry out all ‘under car’ tasks in safety.

Read through the whole of the document and think about what gaskets you will need to procure for when you reinstall the engine,

Removal of Ancillaries
Remove the carburetor air-cleaners. If the car has the original cast exhaust manifold the carburetor(s) may be left in place if preferred. Again the decision depends on the purpose for removing the engine.

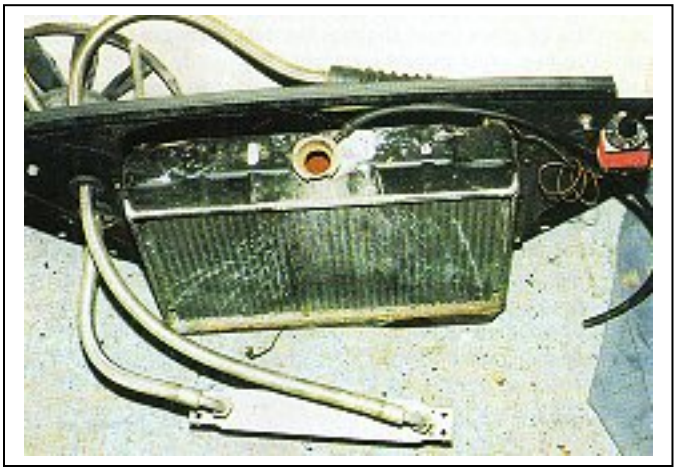
If the carburetor(s) are to remain on the engine, release the fuel pipe and the choke and accelerator cables from their linkages. If you feel you will not need to readjust them on reinstallation, just remove the cotter pins so that the cable lengths are preserved. You will

probably have to replace the cotters, so you may choose to slacken the cable clamp nuts instead; these were often Whitworth sizes and you may need an adjustable wrench. You can then unbolt the joint between the manifold and the exhaust down-pipe; a job often easier said then done. A long socket extension with a wobble or knuckle connection is usually required and you need to be careful that the studs do not shear off in the manifold. If you feel that the nuts are so stubborn that there is a danger of shearing, then you may be better off anyway removing the carburetors and exhaust and inlet manifolds from the engine by removing the six brass ½" A/F nuts that retain the manifolds to the block. Now remove the central and rear exhaust mounts and slide the whole system out from the rear of the car.

Access is now easier to the bolts that secure the engine back-plate to the gearbox. On the left side you will find a bolt at the bottom and another midway up. These can be released and you may now move over to the right side where there is another bottom bolt and the starter motor, which is held in by 2 bolts, one at the top and one at the bottom. The battery having been disconnected, there is no risk of short-circuit so use a ½" A/F wrench to remove the main battery cable and the 2 thick brown wires from the starter terminal. Now the other 1 or 2 wires (depending on model year) can be pulled off from the spade terminals. The starter can be withdrawn from underneath the car by releasing the bottom bolt last and taking the weight as it is passed downward past the engine and chassis rail.

Place a large container under the car near to the bottom hose. Slacken the clip retaining the hose to the engine and pull the hose off while trying to catch most of the coolant. By gradually releasing the radiator or expansion tank cap you can control the flow to some extent and minimize splashing. If the cap is released suddenly, the coolant will come out in a rush. Once the fluid level has gone down you can start to remove the radiator top hose from the thermostat housing.

Now remove the oil cooler hoses by first releasing the nut from the block at the bottom of the oil filter and near to the back-plate. Be prepared with some rag to contain spurts of oil that will come from both the pipe and the block. If you have a hydraulic oil pressure gauge, remove the flexi-pipe from the block. This will improve access to the main oil cooler hose, which can now also be removed. If there electrical oil pressure gauge, remove the wire from the sender. The four 7/16" A/F bolts that retain the oil cooler should now be removed



Now release the 4 bolts holding the radiator diaphragm in place: note not the radiator itself. This way the radiator, the oil cooler and any electrical fan and thermostat can all be withdrawn from the engine bay together.

It is now much easier to get to the alternator bottom adjustment bolt, which should now be removed. Disconnect the alternator by removing the electrical connector from the rear and then release the 2 top fixing bolts. The alternator and fan belt can now be removed.

Early cars will require that the temperature gauge capillary tube is unscrewed from the block while on later cars it is only necessary to pull the spade terminal from the electrical sender. Both types are located on the right side of the engine below the thermostat housing.

To prevent damage, it is recommended that the distributor cap, complete with ignition leads and rotor arm are removed. Disconnect the wire from the distributor body.

Finally, remove the heater control valve by releasing the two 7/16” A/F bolts and pulling the unit out of the way. Alternatively, just remove the heater hose and cable but take specially care not to damage the vulnerable protruding heater valve later on.

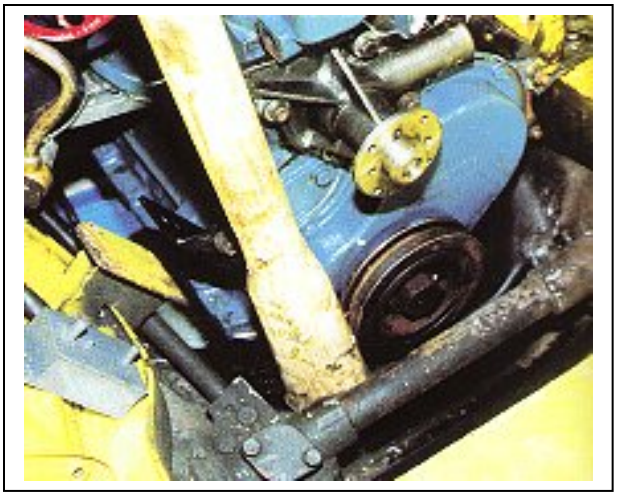
The final bolts will now need releasing from the engine back-plate to bell-housing joint. Provided you were thorough when underneath the car this should mean just 4 that can be reached from the top.

Now the engine mounting bolts can be removed. There are 4 bolts on either side for chrome bumper cars or 2 rather difficult to release bolts on rubber bumper versions.

Engine Removal

Bring the crane in and attach it to the lifting eyes that bolt to the valve cover. Raise the crane so that the weight of the engine is just taken up and the engine moves clear of the mountings. Now place a floor jack under the gearbox bell housing and take its weight on that. This is to ensure that no strain is put on the gearbox input shaft as the engine is separated from the transmission. As the crane is further raised pull the engine forward. The engine and gearbox should separate easily but some gentle persuasion with levers is sometimes needed – but be careful not to cause damage. Once separated the engine can be withdrawn clear of the engine bay and out the front of the car.

Reinstallation



If the clutch has been replaced then it is presumed that it is has been properly aligned. This being the case, the engine can be lifted into place and some firm pushing should make everything mesh. Having the car in gear helps this process. If there is a problem, check that everything looks in-line and try rocking the engine. Some engines slip in really easily and some take an hour or so to coax home. If a lever is needed then a a piece of wood can be used but be careful not to put to much strain on the steering rack (right hand drive shown).

The engine to gearbox securing bolts can be slid into position and gently tightened. If the engine mounts do not fully aligned then some levering may be necessary. Don’t forget to attach the ground strap to the engine mount of chrome bumper cars.

As is usual, reassembly is pretty much the reverse of disassembly. Fit new gaskets where necessary. On rubber bumper cars, the coolant must go in the plug on the top of the thermostat housing, not the expansion tank. On all cars, avoid air locks by opening the heater valve before filling with coolant.

If you have a later vehicle with 2 spade terminals on the starter solenoid the wires should be hard to accidentally cross, one spade terminal being bigger then the other. However, in case of confusion, the White/Light-Green wire goes to the small center terminal and the White/Brown wire goes to the larger terminal closest to the main power feed stud.