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Photography by Gerard Hughes

Top 10 Mini Problems

Dr Minimag diagnoses the most common Mini ailments ... and tells you how to fix them.

Reliability is one of the Minis' strongest and most celebrated traits. After all, how else do we manage to run them around all summer, happily driving from show to show without any hiccups? Then of course there's the unforgettable giant-killing nature of the Mini in its '60s heyday, proving its endurance and reliability with wins against bigger cars on the Monte Carlo Rally and on the track.

Unfortunately this doesn't mean that things don't ever go wrong; as we all know, they often do. However, you do usually get plenty of warning signs before the failure of a Mini component. If you ignore these then things will usually end up going badly wrong and might mean you're left stuck on the side of the road miles from home. Know what these warning signs are, though, and you've got a good chance of fixing the problem well before things go bang.

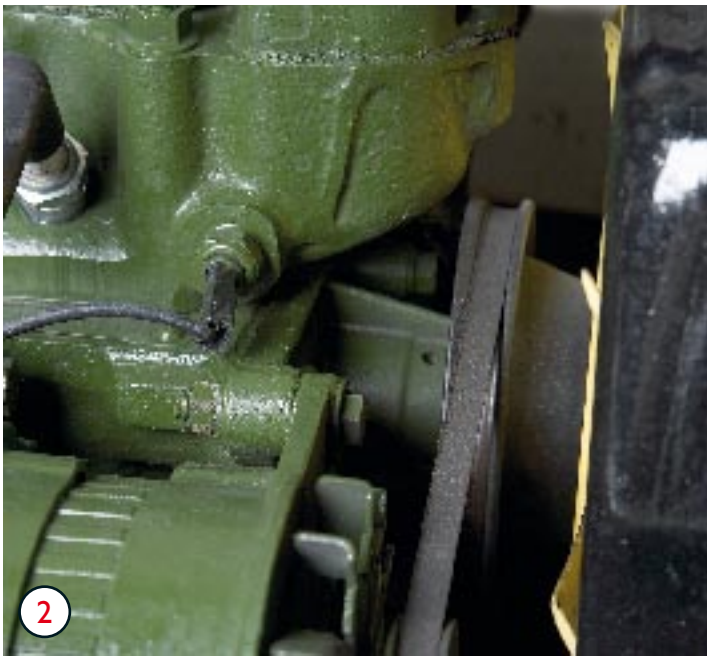
This month *Minimag* rounds up 10 of the most commonplace ways your Mini can get you pulling your hair out; tells you what the warning signs of an impending problem are; and, most usefully, explains how you can fix them yourself.

Symptoms: Knocking noise during engine acceleration/deceleration
Diagnosis: Deteriorated engine steady mounts

The A-Series engine on a Mini is held in with two main engine mounts and one or two steady bars made of a combination of rubber and metal. In the case of the main engine mounts, this is two pieces of metal sandwiching a rubber block. Over the course of time the rubber gets affected by heat, oil and fluid and shaken by the power of the engine. If the rubber breaks up it allows movement in the mounts, causing a knocking or clicking noise when you press the accelerator down in gear or lift off. This noise is the engine moving backwards and forwards, and the only way to remedy this is by fitting new mounts.

To do this you need to remove the steady bars, release the first section of exhaust and, if you are replacing the mount on the driver's side, take out the top radiator bracket. Support the weight of the engine with a jack and undo the mounting bolts on the subframe, then slowly raise the engine until you have enough clearance to access the bolts. You may find, however, that removing the clutch cover is easier than trying to get to the bolts or the subframe. To do this, remove all the bolts around the outer edge then pull out the plunger for the clutch slave cylinder.

Refitting is the reverse of removal. New mounts are available that have a captive nut built into them, making fitting the subframe bolts back in again easier.



Symptoms: Squealing noise on start up
Diagnosis: Faulty water pump

If there's a squealing noise coming from the alternator end of the engine, check the tension of the drive belt. It should deflect when pushed no more than 1 to 1.5 cm on its longest point, so re-tension the belt if need be to see if it solves the problem. If it doesn't, the water pump may be at fault.

Replacing it involves removing the radiator by draining the cooling system of water, taking out the top bracket to the cylinder head and undoing the bottom mounting bolt(s). Slacken off the drivebelt, then remove the fan from the water pump. When removing the water pump from the engine you'll need to undo the bypass hose — if fitted — from the cylinder head, so you may want to replace this at the same time.

Refitting is the reverse of removal, with the addition of bleeding the coolant system when you fill it back up with antifreeze.

Symptoms: Crabbing (car not going straight)
Diagnosis: Worn radius arm bearings

The rear radius arms on a Mini have a bearing made from a long shaft and two bearings either end — one bronzed bush and one needle roller bearing. When these bearings wear they begin to cut into the shaft and you start to get play in the radius arm, which affects the direction that the car goes in and can be seen from the rear as the car going down the road slightly sideways. Replacing the radius arms, or more importantly the bearing assembly, is the only cure for this. New complete radius arms are very expensive and most Mini specialists sell reconditioned radius arms on an exchange basis, meaning all the hard work has been done for you.

Replacement involves removing the rear brake assembly from the radius arm, which requires the brake fluid to be drained from that side. The brake pipe and flexi hose also need to be removed from the arm (it might be a good idea to check the condition of these two, as replacement is easier at this stage than at a later date) and the shock absorber has to be unbolted. Remove the suspension cone by lowering down the arm, allowing the trumpet to be removed from the knuckle joint (which could also needed replacing). The arm is removed from the subframe by unbolting the bracket on the outer end and undoing the large nut where it's mounted on the inner. Refitting is the reverse except that the brake fluid needs replacing and bleeding and the rear brakes need adjusting.

Symptoms: Car pulling to one side when braking
Diagnosis: Brake dust build-up

The front brakes rely on the four pads making contact with the brake disc at roughly the same time. If the car veers to one side when you brake the likely cause is a pad not reaching the disc at the same time as the rest, which could be due to a build up of brake dust on the pistons of the calliper or where the pads go. This may be cured by simply removing the pads, cleaning the calliper and refitting the pads again, but if the calliper pistons are damaged then the complete calliper will have to be replaced.

Jack the car up, remove the wheel and the split pins that hold the brake pads in, then take out the brake pads. Note which pad goes on which side of the calliper, as it will already be bedded into the brake disc. Also check the amount of friction material that's left on the pad and, if it's low, replace the pads. Using a brake cleaner, spray clean all around the calliper and piston area and use a small wire brush — avoiding going near the piston seals — to remove the build up of brake dust. When refitting the brake pads, add a small amount of copper grease to the back of the pads to eliminate any squeal. Refit the split pins and wheel, remembering to pump the brake pedal back up before you drive off.

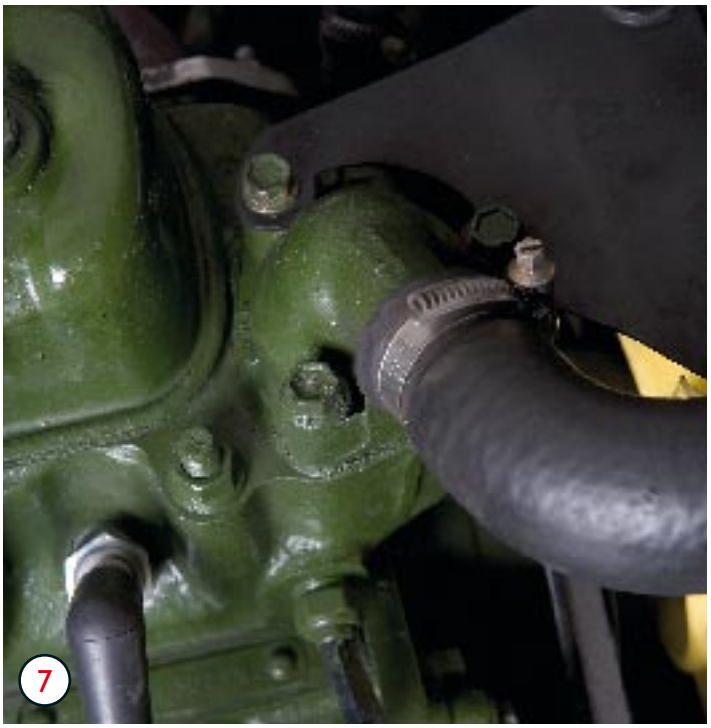
Symptoms: Knocking noise from the front with the steering on lock
Diagnosis: Worn CV joint bearings

Part of the Mini's design, way back before it was born, was the creation of the constant velocity (or CV) joint. This enabled the transmission of power through the front wheels while still being able to turn them, thanks to a combination of ball bearings in cages which allow the joint to turn. When these ball bearings wear there is increased play in the joint, creating a knocking noise as the components of the joint come into contact with each other.

Replacement of the CV joint bearings involves jacking the car up, then removing the wheel and the hub nut in the centre. The top balljoint needs to be split from the upper arm and the CV boot pulled back from the joint. Knock the joint off the shaft, making sure you locate and retain the clip that goes on the end of the driveshaft. Refitting is the reverse of removal, making sure that the hub nut is tightened up to the correct torque and then tightened up further, until the hole lines up with the castle nut and you can put the pin in again.

Symptom: Handbrake not holding
Diagnosis: Seized handbrake cable

The handbrake is one of the least efficient items on a Mini, but it's important to be able to park your Mini on a hill and come back to find it where you left it! There are two areas that need looking at: the brake unit and the cable. The former is adjusted by turning the adjusting screw in clockwise — as viewed from looking at the back plate — until the drum locks up, then backing off two notches (or until the drum moves freely again). The brake cable is operated by a bracket on the centre of the rear subframe, which should be well greased, and two moving quadrants, one on each of the radius arms. These need to moving freely to allow the cable to be pulled backwards and forwards, which isn't helped by all the muck from the road. Free up and grease these if they're seized. Finally, adjust the cable from the inside of the car on the back of the handbrake lever to give four or give clicks before the brakes hold.



Symptom: Engine not getting warm, or getting too hot
Diagnosis: Thermostat stuck open

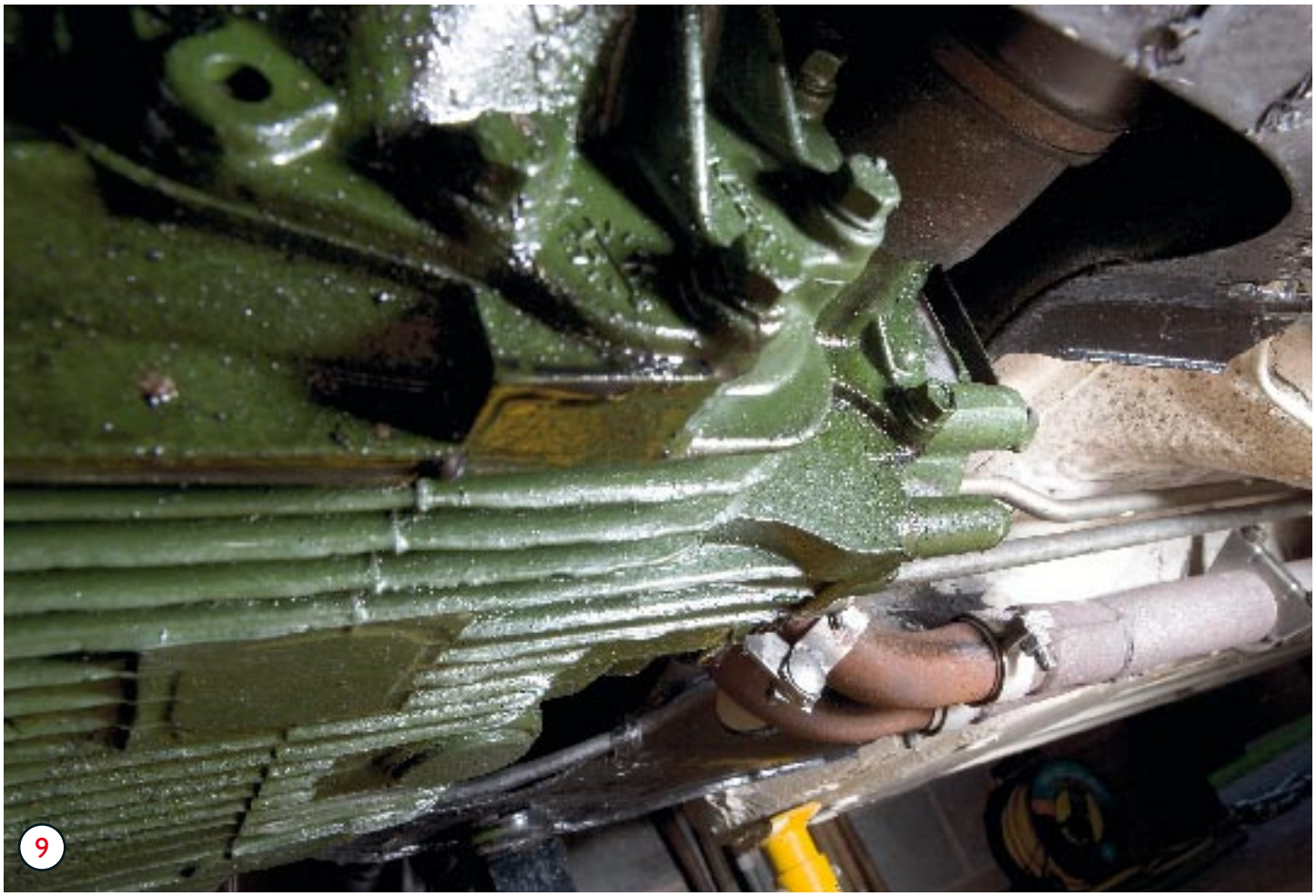
A thermostat in the top of the cylinder head governs the flow of coolant through the engine. If this gets stuck open then the engine won't warm up correctly or may take a long time to do so, but if it doesn't open at all then the coolant won't flow and the engine will overheat. Replacing the thermostat is very simple: take out the top hose between the thermostat housing and the radiator, then the radiator top mount, then undo the three bolts or nuts and remove the thermostat housing.

Don't be tempted to just remove the thermostat if your engine is overheating: this will cause stagnation of water in and around number four bore and may damage your engine internally. Fit a new thermostat, replace the housing, radiator bracket and top hose, then top back up the coolant and run the engine until it's hot to eliminate any air from the system before refitting the radiator cap.

Symptom: Water leak from the heater box
Diagnosis:
Leaking heater matrix

If the screen steams up when you direct the air from the heater to it or if you have a wet carpet but can't work out where the water is coming from, it's likely that the heater matrix is leaking. To replace it, remove the heater box from the car by draining the coolant system — the best place is from the bottom hose in the engine bay — and removing the heater pipes from the side of the heater box.

Then undo the two screws that hold the heater box to the lower dash rail, disconnect the electrical connection and unhook it from the bulkhead. Change the heater matrix, then refit the heater box (simply the reverse of fitting it) with the addition of bleeding the coolant system.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Symptom: Oil leak when parked up
Diagnosis: Perished oil seals

Although there are numerous places that leak oil, some cause more problems than others. The gear selector oil seal and the driveshaft oil seals can be particularly difficult. In both cases, drain the engine of oil first. The gear selector oil seal is fairly simple and involves removing the roll pin from the selector, hooking out the oil seal with a screwdriver and fitting a new one, then replacing the selector and refitting the roll pin.

The driveshaft oil seals are trickier. Remove the wheel and split the top balljoint from the upper suspension arm, then remove the inner pot joint from the gearbox (either with the correct tool or a long lever). Extract the oil seal housings from the side of the gearbox and fit a new seal into the housing. Refit the pot joint back into the gearbox, being careful not to damage the new seal, and bolt the balljoint back onto the upper arm again. Finally, refill the engine with oil.

Symptom: Clutch not disengaging
Diagnosis: Fluid leak in the system

The clutch on a Mini is controlled by two devices. The master cylinder operates off the brake pedal, pushing fluid via a pipe to a cylinder that moves the clutch arm and releases the clutch. If there is a leak in any part of the system then the full clutch releasing action won't happen. If you see fluid running down the pedal then the master cylinder may be leaking, and fluid around the slave cylinder means that could be leaking.

Replace the master cylinder by undoing the split pin and clevis pin that hold it to the brake pedal, then removing the pipe from the top of the master cylinder and unbolting it from the bulkhead. The slave cylinder is changed by removing the flexi hose from it then unbolting it from the bracket on the engine. Refitting on both is the reverse of removal, but don't forget to refill the system with fluid and bleed the air out of it.


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