

How to safely start your laid-up classic

Bring your project car's engine to life without causing damage

You've dragged a restoration project out of a barn, garage or field. It clearly hasn't run this millennium, but it looks as though it might work with a bit of coaxing. Getting it started is an excellent way of gauging its mechanical condition. It's also good for morale – there's something magical about witnessing a dormant car splutter back to life.

If you fail to take a sensitive approach to reviving your engine, however, there's a chance you'll do more harm than good. Simply connecting a battery and yanking the key can lead to damage and disappointment. Cylinder bores can be scored, piston rings broken, pumps and carburettors clogged with flotsam, bearings ruined and wiring fried. This guide aims to maximise the chance of success and minimise the chance of damage.

Round up a pile of basic spares before you begin. You'll most definitely need an oil filter, air filter, fuel filter, a battery, some fuel hose and clips, and a quantity of fresh petrol, oil and coolant. It's also a good idea to get your hands on a set of points, a condenser, spark plugs, HT leads, a distributor cap, a rotor arm, fuel pump and carburettor rebuild kits, radiator hoses and clips, a gasket set and a fan belt.

If the car doesn't start when you get to the final step in this guide, the fuel system is the first thing you should interrogate. Operating a mechanical fuel pump manually or slowly on the starter motor often isn't enough to burp air out of the system, particularly if its valves and diaphragm are age-hardened.

Give the end of the exhaust pipe a sniff. If it smells of fresh petrol, reinvestigate the ignition system. If it doesn't, dribble a tiny bit of petrol straight into the inlet manifold and try starting the car again. A few seconds' running will hopefully be enough to rid the system of air and prime the pump.



Sam says...

Hoover the engine bay before you begin, to get rid of dust, cobwebs and foreign bodies that could find their way into sensitive places.

SAMGLOVER
TECH EDITOR

TECH TIP

If you can't turn the engine by hand using moderate leverage after a lot of lubrication, don't force the issue. Remove the head and/or sump to investigate.



YOU WILL NEED...

EQUIPMENT Penetrating lubricant, oil can, grease gun, silicone grease, fine wet-and-dry paper, multimeter, feeler gauges, manual or handbook for your car.

TIME

(HRS)
5

MONEY

(£) FROM
30

DIFFICULTY RATING



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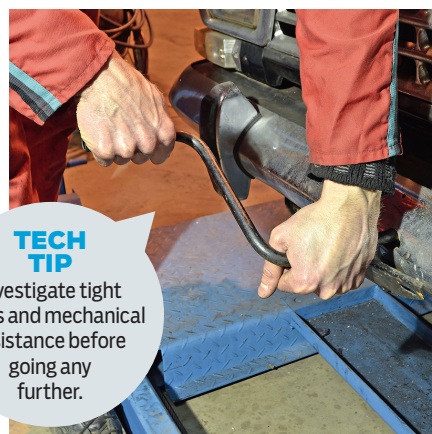
1 Lubricate bores

Extract the spark plugs. Spray penetrating lubricant liberally through each plug hole, trying to swish it around the inside of the bore. Repeat several times over a day or so. Finish with a good slug of engine oil. Leave it to soak overnight.



TECH TIP

Investigate tight spots and mechanical resistance before going any further.



3 Turn engine by hand

Dribble a little more oil into the bores. Ideally, remove the rocker cover and oil the valve gear, too. Try turning the engine using car's starting handle or a socket wrench on the crank pulley. Hopefully, it'll turn easily and smoothly after a couple of rotations.

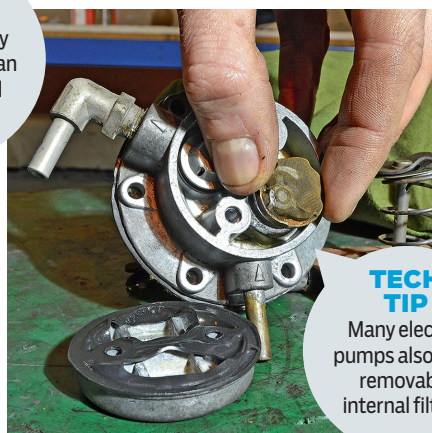


TECH TIP

If you can easily remove and clean the tank's fuel pickup, do so.

4 Flush fuel system

Remove the fuel filler cap. Disconnect the fuel pipe from the fuel pump. Blow air back to the tank through the pipe using an air-line or an airbed adaptor in a pump. Drain the tank. Swill it out with petrol if you can. Add plenty of fresh petrol.



TECH TIP

Many electric pumps also have removable internal filters.

5 Strip fuel pump

Ideally, remove the pump, strip it down, clean it thoroughly and fit a rebuild kit. At the very least clean the internal chambers and filter, and check that the diaphragm is intact. A tiny smear of silicone grease can revive one-way valve rubbers.



6 Clean carburettor(s)

Remove the air box. Clean the carburettor float chamber and any internal filters with carb cleaner or petrol. Make sure the needle valve moves freely. Blow through the jets and passageways with an air-line or pump. Inspect any rubber diaphragms.



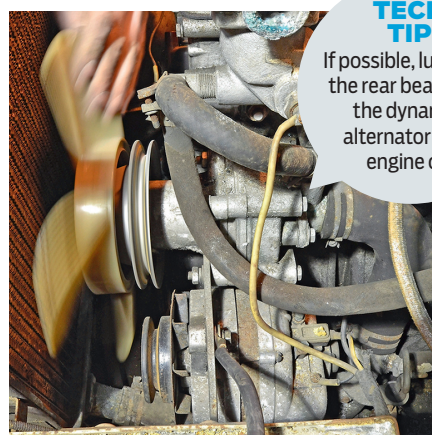
7 Replace air filter

Reassemble the carburettor and lubricate all cables and linkages with a little engine oil. Make sure the choke and throttle open and close fully. Clean out the air box and fit a new air filter. If it's a reusable 'wet' type, clean it in paraffin and refresh the oil.



8 Fit a fuel filter

Replace any dodgy rubber hoses in the engine bay or beneath the car. Fit an in-line filter in the engine bay between the pump and the tank. Use proper fuel pipe clips of the correct diameter for the hose, rather than generic worm-drive clips.



TECH TIP

If possible, lubricate the rear bearing of the dynamo/alternator with engine oil.

9 Check auxiliary items

Remove the fan belt. Make sure the water pump spins freely and wiggle its pulley to check for excessive play. If it has a greasing point – grease it. Also make sure the alternator/dynamo spins freely. Fit a new fan belt if it's chapped, stiff or egg-shaped. ➡



10 Service cooling system
Drain the system. Replace any suspicious looking hoses and clips. Remove the thermostat and test it in boiling water. Flush the engine block through the thermostat housing. Flush the radiator and expansion tank (if fitted). Fill with fresh coolant.



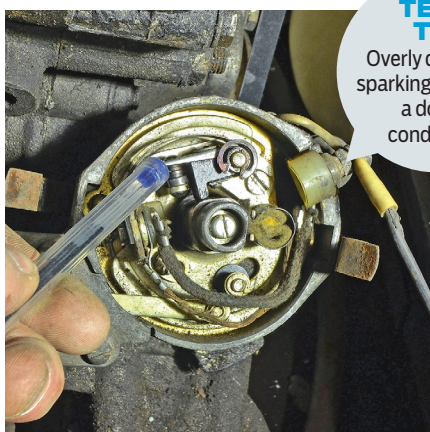
11 Clean connections
Unbolt battery-to-body and engine-to-body earth leads and clean the connections thoroughly with wet-and-dry paper. Also unbolt and clean the connections on the starter motor solenoid. It might be piggybacked on the starter or mounted remotely.



12 Replace battery
Fit a freshly-charged battery. A multimeter should read 12V to 12.5V when connected across the terminals. Clean battery clamps with wet-and-dry paper and treat them to a smear of petroleum jelly or silicone grease before fitting and tightening.



13 Fettle LT system
Remove the distributor cap and rotor arm. Clean the points with fine wet-and-dry paper or replace them. Set the points gap. Lubricate the points cam with a dab of grease and the mechanical advance mechanism with a few drops of engine oil.



TECH TIP

Overly dramatic sparking suggests a dodgy condenser.

14 Check LT system
Check the low-tension ignition wiring for damage, poor insulation and crusty connectors. Turn the engine by hand until the points are closed. Turn on the ignition and push the points open with an insulated object. They should spark.



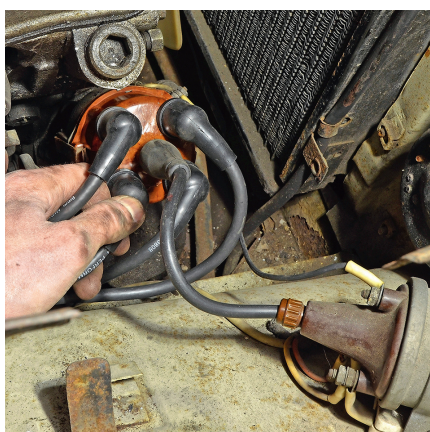
15 Build up oil pressure
Lightly oil the bores again. Make sure the car is out of gear. Turn the engine using the starter motor. It should spin fast and freely. Continue until the oil pressure light goes out or the gauge shows good pressure. Check the fuel system for leaks.

TECH TIP

Remove all dust with a petrol-soaked rag after using abrasive paper.



16 Fettle HT system
Fit a new rotor arm and distributor cap or clean the contacts of the old ones with fine wet-and-dry paper. Inspect and refit the HT leads. Replace them if they're rosey. Clean the spark plugs with a brass wire brush or locate new ones. Set the gaps.



17 Check HT system
Connect one spark plug and wedge it against an earthed section of bare metal. Spin the engine briefly and check that it sparks. Fit the spark plugs with a dab of copper grease. Connect the HT leads, making sure they're in the correct order.



18 Start your engine
Pull the choke partially out and try starting the car. Don't pump the throttle. Hopefully, it'll come to life in a victorious cloud of smoke. If it doesn't, check the basics: fuel flow, spark at the points, spark at the plugs, ignition timing and compression. ■