

# 1 Engine running problems



A total of nine engines span the Series I, II and III model ranges: 1595cc petrol, inlet over exhaust (IOE) valve, 1948-51; 1997cc petrol, IOE valve, 1952-58; 2052cc diesel, overhead valve (OHV), 1957-61; 2286cc petrol, OHV, 3-bearing crankshaft, 1958-80; 2286cc petrol, OHV, 5-bearing crankshaft, 1980-85; 2286cc diesel, OHV, 3-bearing crankshaft, 1961-80; 2286cc diesel, OHV, 5-bearing crankshaft, 1980-84; 2625cc petrol, IOE valve, 1963-80; 2625cc petrol, IOE valve, Weslake cylinder head (fitted for N American market) 1966-67.

## A. Engine will not start from cold

### i. Engine cranks normally and fires, but will not run

Has the slow running screw on the diesel distributor pump, or on the carburettor vibrated out of position? Turn the screw by increments and crank again. If the engine does not run, then back-off the screw to the original setting.

- To diagnose a faulty fuel pump see Chapter 4A.
- To diagnose a fuel filter problem see Chapter 4C-i (diesel) or 4D-iv (petrol).
- The air vent in the fuel tank could be blocked. Remove fuel filler cap and try again.

### Diesel engines

- It could be a heater plug(s) problem (see Chapter 10-viii).
- Is fuel leaking from unions or joints anywhere in the fuel system? This allows air to enter the system. Easier to detect by smell rather than sight in hot climates (see Chapter 4C-i).
- To diagnose an injector problem see Chapter 4C-i.

- Has blue/grey smoke from the exhaust and lack of power also been a problem? It could be lack of compression due to tappet clearances being out of adjustment (Chapter 2-iii), worn cylinder bores, or a broken piston ring or valve spring (Chapter 1D-i).
- Water in the fuel? Open the drain plug at the bottom of the fuel filter, then collect and examine the contents for a layer of water. Most fuel tanks also have a drain plug at the bottom; water is denser than diesel.

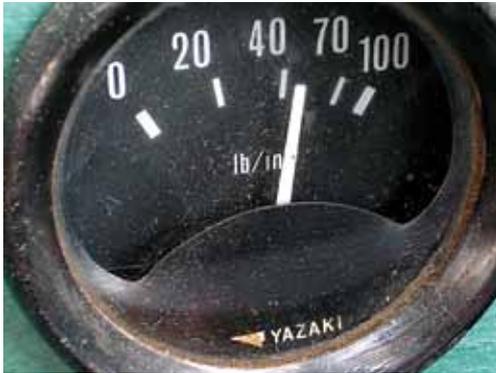
### Petrol engines

- Are ignition leads, sparkplugs and the distributor cap all securely fitted and not damp?
- Points gap problem? Use the starter handle to turn the engine until the points are fully open, then set the gap for Lucas to 0.015in (0.38mm) or Ducellier to 0.017in (0.43mm). If the surfaces of the contact points



**1. Metal connectors are deeply embedded in the plug leads. Check them for corrosion and for a positive 'click' when refitting.**

31. It's worth adding an oil pressure gauge. This example shows an acceptable oil pressure at working temperature when on the move.



engine. Although the crankshaft main bearings (probably also worn) cannot be changed without removing the engine.

- Blocked oilway? The oil filter should have been replaced regularly with the engine oil changes. Otherwise, most likely the pipe connecting the cylinder head and engine block is obstructed internally. It can be removed and blown through.
- Engine overheating? See Chapter 6-i.

#### iv. Oil is spraying from oil filler cap

The condition is usually caused by worn cylinders and/or piston rings, allowing pressure to build up in the crankcase. The lower the engine revs when this is observed the more serious the engine wear. Note that, for petrol models with emissions control systems fitted, the oil blow-back will be observed as a black film inside the carburettor intake. Engine power and running will be affected by this oil/petrol mixture. For diesel engines it will encourage the engine to run on after switching off.



32. This connecting rod (big-end) bearing has been scored by debris in the oil: consequently, oil pressure will be reduced.

- Worn connecting rod bearings? Remove oil sump. Remove a bearing and check. A new set can be fitted from under the

33. Here, dark spots are oil spray, and white deposits are due to spray from leaking radiator coolant.





47. Clean the gauze filter (arrow 1) in the top of the pump, above the sediment bowl. Also remove any sediment (arrow 2) that may have collected in the bowl.

- Pump filter blocked? If there is sediment (as in photo 47) then, for a petrol engine, add an in-line fuel filter between the pump and the carburettor, if you don't already have one fitted. Diesel engines already have one or two large in-line filters as standard.
- Diaphragm punctured? In time, the diaphragm material can become brittle and tear. Repair and overhaul kits are available.
- Valves not seating properly? Remove the top cover, inspect and

clean the valve seats. Replacement valves are included in the overhaul kit.

## B. Fuel smells

### i. Fuel smell (engine running/not running)

Fuel smells should be investigated and cured as soon as possible, particularly with petrol engines.

- Smell from engine? The 'finger-test' on all unions, joints, and along all flexible fuel pipes should identify any serious leak. It's often easier if the engine is switched off after running for some time, as it prevents the cooling fan from increasing evaporation of the fuel. For diesel engines, the unions will be the likely cause, whereas for petrol engines the flexible hoses should be checked first. Export petrol models often had a fuel evaporation control unit fitted; an airtight filler cap is fitted and a charcoal canister is located in the engine compartment, connected to the fuel tank and air intake. A filter is located in the bottom of the canister and should be renewed every 12,000m (20,000km).

Some fuel pipes are plastic. If the leak is near a joint, try cutting out the bad section and sealing the remaining pipe onto the joint again, after dipping the end of the plastic pipe into hot water in the radiator to soften it. If not near a joint, it may be possible to seal the leak by melting the hole closed with the soldering iron from your toolkit (Chapter 14).

- Carburettor problem? The float chamber could be flooding due to incorrect float level setting, poorly seated needle valve, or

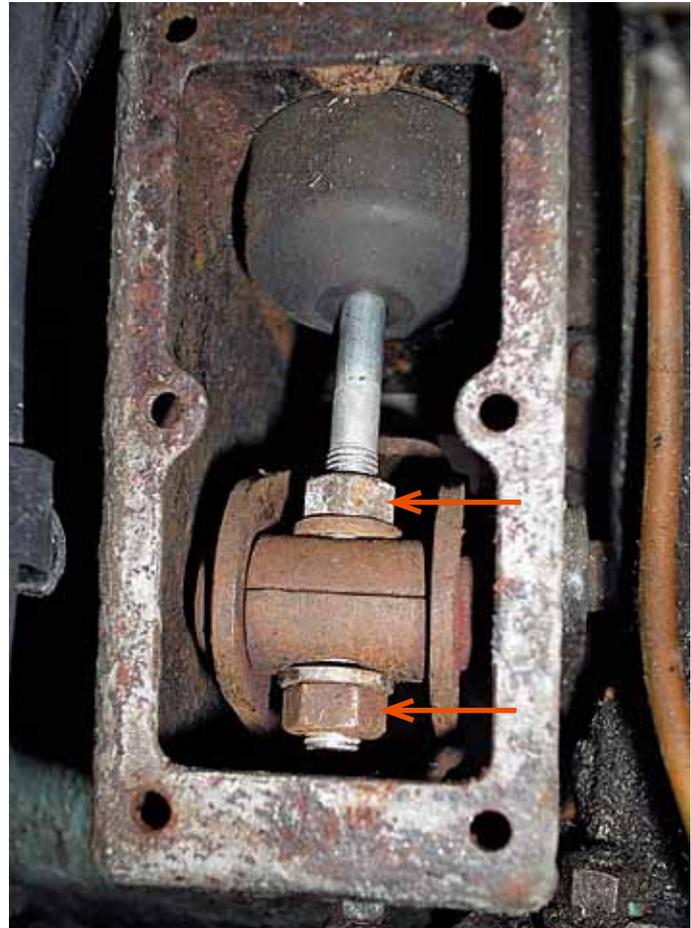
check the two brake shoe pull-off springs are still strong, and not broken.

- Flexible hose problem? There could be a partial collapse of the hose internally, perhaps caused by incorrectly clamping the hose to temporarily block the flow of fluid. With the brake drum removed, ask an assistant to depress the brake pedal **a little**, and watch if the brake shoes retract when the pedal is released. Note that if the pedal is depressed too much, the wheel cylinder piston will admit air, and you will need to bleed the brake system. Follow the same procedure on a wheel that does not involve the same flexible hose along the route as a comparison. Replace the hose if faulty, and bleed the system (for bleeding, see Chapter 8-ix).
- Master cylinder problem? For vehicles without a brake servo, check there is sufficient free play in the master cylinder push rod, and adjust if necessary (see photo).

### iii. Brake pedal travel excessive/feels 'spongy'

- Excessive pedal travel? Check for correct brake shoe adjustment by jacking each wheel in turn, and rotating the wheel whilst turning the brake shoe snail cam adjuster(s) on the backplate. Series I and II LWB models have a single, plunger style adjuster between brake shoes, whereas all others have one snail cam adjuster per brake shoe.
- Too much free play in the pedal? The distance from the bottom of the brake pedal to the floor panel should be 6.25in (158mm). To achieve this, adjust the pedal stop, which is on the back of the brake pedal housing on early models, and at the top of the pedal bracket on later models.
- 'Spongy' feel to brake pedal action? Could be a thin spot in a

**91. These two nuts (on the non-servo type brake system) should be adjusted so that there is  $\frac{1}{16}$ in (1.5mm) of free play in the pushrod.**





**116. Door hinges should be adjusted to give even gaps around the door seals. Notice the water vent hole on the left (arrowed).**

tropical climates. Defender door seals are much more effective, but to fit them you have to grind off the metal lip on the seal mounting flange so the rubber seal can slip on.

- Wet door trim (where fitted)? Doors are designed to collect any water passing by the bottom of the window glass and expelling it via vent holes, which can be clearly seen. These should be kept clear.

## ii. Windscreen/window leaks

- Drips down the inside of the windscreen? If you actually fold your windscreen down sometimes, then you need to replace the rubber seal between it and the roof.
- Window channels rusted through? If so, then water can reach the steel struts of the lower door frame, rusting them and weakening the door. Window channel is available in lengths that can be cut to requirements.
- Sliding windows draughty? The rubber seals perish in time and bits break off. They are available with new metal mounting clips.



**117. If you don't ever fold your Land Rover's windscreen flat, then you could seal any leak with non-hardening sealant, as here.**