

# Vehicle Handling

## 1. Vehicle Checks

### Everyday Pre-Drive Checks

Before every journey, you must confirm your vehicle is **safe and roadworthy**. Check the following daily:

- **Windscreen, windows, mirrors:** must be **clean and undamaged** for full visibility.
- **Lights:** all lights, indicators, and **brake lights** must work. Replace faulty bulbs immediately.
- **Brakes:** test before setting off; they should **feel firm (not spongy)**.
- **Fuel:** ensure enough for your journey. Running out can damage the engine.
- **Tyres:** must be **free from cuts and bulges** and at the correct pressure.
- **Warning lights:** none should stay on after the engine starts.

### Periodic Checks (Weekly/Monthly)

Regular checks prevent faults and maintain high efficiency.

- **Engine oil:** check with the **dipstick**; level must be **between “min” and “max”**.
- **Coolant:** should be a **water/antifreeze mix**; check only when **engine is cool**.
- **Brake fluid:** top up if near minimum; **low level may mean a leak**.
- **Battery:** terminals must be **clean and secure**.
- **Windscreen washers:** keep filled with **screen wash**.
- **Tyre tread:** must be at **least 1.6 mm across** the central three-quarters around the tyre.

### Servicing

Follow the manufacturer's **service schedule**. Regular servicing:

- prevents **engine wear**,
- maintains **fuel economy**,
- reduces **harmful emissions**.

## 2. Fuel Systems

### General Rules

- Always use the **correct type of fuel** for your engine.

- Never fill the wrong fuel — it can **destroy the engine**.
- Use **approved fuel cans only**. Carrying fuel in unapproved containers is **illegal**.

### Petrol Vehicles

- All modern petrol vehicles have a **catalytic converter**.
- You must use **unleaded fuel only**.
- The converter reduces **carbon monoxide, hydrocarbons, and nitrogen oxides**.

### Diesel Vehicles

- Fitted with a **Diesel Particulate Filter (DPF)** – traps soot.
- Some also have **Selective Catalytic Reduction (SCR)** – injects AdBlue to reduce **nitrogen oxides**.
- **Low-speed driving** can block a DPF. Drive longer distances periodically to clear it.
- Avoid **diesel spills** – they make roads extremely **slippery**.
- Never use the wrong fuel. **Petrol in a diesel car** can cause **major engine damage**.

### LPG / Natural Gas

- Stored in **pressurised steel tanks**.
- Not all filling stations have **LPG refuelling** – plan ahead.

### Electric and Hybrid Vehicles

- Always check **battery charge** before driving.
- Charging takes longer than refuelling, **plan charging stops**.
- Use manufacturer-approved cables and avoid running batteries to **zero charge**.

## 3. Oils and Coolant

### Engine Oil

- Lubricates and cools engine components.
- Check **on level ground** when the engine is cold (unless handbook says otherwise).
- The oil must be **between min and max marks** on the dipstick.
- Too little = **engine wear**.
- Too much = **seal damage and oil leaks**.
- Change oil and **oil filter** as per service schedule.

- **Warning:** If oil pressure light comes on → **Stop immediately** and check level.

### Coolant (Antifreeze Mix)

- Keeps engine cool and **prevents freezing**.
- Check **header tank** for correct level.
- Use **water + antifreeze** all year round.
- Check strength yearly (best in **late summer**).
- Never open radiator when **engine is hot** – risk of burns.
- Frequent topping up = **possible leak** → **get checked**.

## 4. Steering and Suspension

### Power Steering

- Uses **hydraulic or electric assistance**.
- If steering **feels heavy**, the system may have **failed**.
- Fluid level (if fitted) must be between **min and max** marks.
- Never run the engine with an **empty steering pump** – causes severe damage.

### Suspension

- Absorbs bumps and maintains **tyre contact** with the road.
- Test by pressing down on a corner – it should **rise once**, then settle.
- Repeated bouncing = **worn shock absorbers** → increases **stopping distance**.

## 5. Braking Systems

### Checks

- Test brakes at **low speed every day**.
- If the vehicle pulls to one side or feels spongy, → fault is **present**.
- Check **brake fluid** regularly; don't overfill.

- Low fluid level = possible leak.
- Warning lights (red or ABS) = seek qualified help immediately.

## Parking Brake

- Should hold the car on a slope.
- If lever travel is excessive, adjustment is needed.

# 6. Tyres

## Legal Requirements

- Minimum tread depth: 1.6 mm across the central ¾ of the tyre, around the entire circumference.
- Must be free of cuts, bulges, or exposed cords.
- Incorrect tyres = fine + penalty points per tyre.

## Tyre Pressure

- Check weekly when cold.
- Use pressures in vehicle handbook or on door frame label.
- Don't forget the spare tyre.
- Under-inflation → more fuel use, longer stopping distance, edge wear.
- Over-inflation → poor grip, centre tread wear.

# 7. Electrical Systems

- Battery: terminals clean, tight, and greased.
- Lights: all must work and be correctly aligned.
- Headlights: must not dazzle others.
- Indicators: flash 1–2 times per second, correct colour.
- Wipers and washers: must work well; keep washer fluid topped up.
- Horn: must sound clearly, used only to warn others.

# 8. Vehicle Handling

## Gradients

- Uphill: select a lower gear early to maintain speed.

- Downhill: **brake early**, then **select lower gear** for **engine braking**.
- Avoid excessive braking → **can cause brake fade**.

## Crosswinds and Large Vehicles

- High-sided vehicles cause **strong draughts** – hold the wheel firmly.
- **Keep safe distance when overtaking**.

## Fog

- **Use dipped headlights**.
- Use fog lights only when visibility < 100 metres (328 ft).
- Switch fog lights off when visibility improves – prevents **dazzle**.
- Increase separation distance.
- If you park in fog, leave parking lights on and face the same direction as traffic.

## Night Driving

- Always use **headlights at night or when visibility is poor**.
- Use **dipped beam** when following traffic.
- Never use full beam where it could **dazzle** others.
- If dazzled by oncoming lights: **slow down, don't swerve, don't flash back**.

## Snow and Ice

- Avoid travel unless **essential**.
- **Stopping distance = up to 10× longer**.
- Drive gently; no harsh braking or acceleration.
- Use **chains or winter tyres** if conditions demand.

## Coasting

- **Coasting** = travelling in **neutral** or with **clutch pressed**.
- Dangerous because:
  - Reduces **steering and braking control**.
  - Increases **speed downhill**.

- Removes **engine braking**.
- Always stay in gear when descending or approaching hazards.

## Water and Fords

- Cross slowly in **low gear**.
- After crossing, apply **brakes gently to dry them**.

## Traffic-Calming Measures

- Speed humps and **chicanes** are for **pedestrian safety**.
- Drive slowly and smoothly through them.

## Forward Planning

- Observe well ahead.
- Plan gear changes early.
- **Smooth driving = safety + fuel efficiency**.

## 9. Key Figures to Memorise

Item	Number	Meaning
Tyre tread depth	1.6 mm	Legal minimum across central ¾
Fog light use	Below 100 m	Only when visibility less than 100 m
Stopping distance in ice	10× longer	Than in dry conditions
Tyre check frequency	Weekly	When cold
Coolant check	Before long trips	Top up if low
Service interval	As per handbook	Usually every 6–12 months