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How to Change a Headlight Bulb

Identify the correct headlight bulb for your car, decide whether it's a job you can do yourself, replace it safely, and check both beams work and point the right way.

3-day guide · 3 chapters · Self-Directed Learning Framework

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ABOUT THIS GUIDE

Every guide on this site is produced with the Self-Directed Learning Framework: instead of an article that explains a topic at you, it turns the topic into a structure you work through — each chapter with one outcome, a starting action under twelve minutes, the minimum you actually need to know, a worked example, a checklist, and exercises using your own situation. No filler, no re-reading required.

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Finding Your Bulb Code and Whether It's a DIY Job

> **Outcome:** "I have my car's exact headlight bulb code written down, and I know whether my headlights take a bulb I can replace myself."

Micro-start (under 12 minutes)

Open your owner's manual at the bulb or lamp section (often near the back, under specifications) and find the headlight entry. Write down the code you see there, for example H7, H11 or 9005.

The minimum you need to know

Headlight bulbs are identified by a code, such as H4, H7, H11, 9005 (also called HB3) or 9006 (HB4). Low beam and high beam often use different codes, and so can fog lights. You'll find the codes in the owner's manual, in a parts store's lookup by make, model and year, or printed on the base of the old bulb. Get the code before you buy. Two bulbs that look almost the same won't fit each other's sockets. Next, check which kind of headlight your car has. Most cars use halogen bulbs, which are cheap and designed to be replaced by the owner. Xenon (HID) headlights run at very high voltage, and the manual usually tells you to leave them to a garage. Many newer cars have LED headlights built in as a sealed unit, so there's no separate bulb to change. The manual or the parts lookup will say which you have. Finally, look at how you reach the back of the headlight. On many cars you can reach it from the engine bay. On some you need to turn the steering wheel and open a flap in the wheel-arch liner, and a few need the battery, air box or even the bumper moved. If the manual's instructions involve the bumper, a garage is a reasonable choice.

Worked example

Worked example: two bulbs that looked the same. A driver's left low beam is out. They nearly buy a twin pack labelled H7 because it looks like the bulb in a friend's car. The parts store's lookup for their make, model and year shows H11 for low beam and 9005 for high beam. The manual agrees, and also shows that the low-beam bulb is reached by turning the wheel and opening a small flap in the wheel-arch liner. They buy an H11 pair and know in advance where to reach.

Checklist

- [ ] Low-beam (and high-beam) bulb codes written down from the manual or a parts lookup
- [ ] Headlight type identified: halogen, xenon/HID or sealed LED unit
- [ ] Xenon/HID and sealed LED units left to a garage
- [ ] Access route checked: engine bay, wheel-arch flap, or more
- [ ] Correct bulbs bought, ideally as a pair

Exercises

1. Write your low-beam and high-beam bulb codes on a note in the glovebox.
2. Look at the back of a headlight from the engine bay and find the round cover or connector.
3. Check the manual's lamp-replacement instructions for your car's access route.

Swapping the Bulb Without Touching the Glass

> **Outcome:** "I can remove the old headlight bulb and fit the new one without touching the glass or breaking the connector."

Micro-start (under 12 minutes)

Take the new bulb out of its packaging by holding only the plastic or metal base, and look at the tabs on it. Match them to the shape you'll find in the headlight.

The minimum you need to know

Switch off the engine and the lights, and remove the key. If the light has been on, let the old bulb cool for a few minutes, as halogen bulbs get very hot. Reach the back of the headlight (Chapter 1) and remove the rubber or plastic dust cover if there is one. Unplug the electrical connector from the bulb: press its release tab and pull it straight back, by the plastic, not the wires. Then release the bulb. Most twist out a quarter turn anticlockwise. Others are held by a wire spring clip that you press in and swing aside. Lift the old bulb straight out. Hold the new bulb only by its base. Don't touch the glass. Oil from your fingers creates a hot spot on a halogen bulb that can shorten its life or crack it. If you do touch it, clean the glass with a little rubbing alcohol on a clean cloth before fitting. Line the tabs up with the slots, push the bulb in and twist it, or refit the spring clip, until it sits firmly without wobbling. Reconnect the plug until it clicks, refit the dust cover so moisture can't get in, and close any flap you opened.

Worked example

Worked example: the connector that wouldn't let go. Working through the wheel-arch flap, someone can't get the connector off the old bulb by pulling, and pulls harder on the wires. They stop, use a torch, and see a small release tab on top of the plug. Pressing the tab with a thumb, the plug slides off easily. The old bulb twists out a quarter turn. They fit the new one holding it by the base, twist it until it locks, and push the plug back on until it clicks.

Checklist

- [ ] Engine and lights off, key out, old bulb cooled
- [ ] Dust cover removed and connector unplugged by its release tab
- [ ] Old bulb released (quarter turn or spring clip) and lifted out
- [ ] New bulb held only by its base, glass not touched (or cleaned if it was)
- [ ] New bulb locked in, plug clicked on, dust cover refitted

Exercises

1. Practise unplugging and replugging the connector on the working side first.
2. Feel how the old bulb is held (twist or clip) before you buy, so the new one is no surprise.
3. Keep the new bulb's packaging until you've tested it in Chapter 3.

Testing, Changing in Pairs and Checking the Aim

> **Outcome:** "I can test both beams after the change, know why bulbs are best replaced in pairs, and check that the beam points where it should."

Micro-start (under 12 minutes)

Park facing a wall or garage door after dark, switch on the low beams, and look at the two light patches side by side.

The minimum you need to know

Before you put the tools away, switch on the low beams, then the high beams, and walk round the front of the car to check both sides. If the new bulb doesn't light, check that the connector is fully clicked on and the bulb is seated, before suspecting the bulb or a fuse. Bulbs are usually sold in pairs, and there's a good reason to change both together. Halogen bulbs dim with age, so an old bulb next to a new one gives uneven light. And the other bulb, of the same age, is often not far behind. Parked facing a wall or garage door at night, the two low-beam patches should be at the same height, with the top edge of each a little below the height of the headlights themselves. If one side is clearly higher or lower than the other, the bulb may not be seated properly, so check that first. If it still looks wrong, or you've changed a whole headlight unit, have the aim checked at a garage or a test centre, because a beam that's too high dazzles oncoming drivers. Driving with a headlight out can get you stopped in many places, so it's worth carrying the spare bulb from the pair if your car takes a bulb you can reach easily.

Worked example

Worked example: one bright side, one dim side. After replacing only the failed left bulb, a driver notices at a wall that the left patch is whiter and brighter than the right. A week later the right bulb fails on a wet evening. Next time, they change both sides at once, and keep a spare low-beam bulb in its box in the glovebox. On the wall test, both patches now match in colour and height.

Checklist

- [ ] Low and high beams tested on both sides
- [ ] Connector and seating checked before suspecting the bulb or a fuse
- [ ] Both sides replaced together, or the second bulb kept as a spare
- [ ] Beam patches compared on a wall at night
- [ ] Aim checked by a garage if one side is clearly off after re-seating

Exercises

1. Do the wall test tonight and note whether the two patches match.
2. Put a spare bulb of the right code in the glovebox, if yours is easy to reach.
3. Write the date of the change on your glovebox note next to the bulb codes.

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