

# Two-Stroke Or Four-Stroke?

The question everything else depends on, settled from six things you can see without tools. Plus air-cooled or liquid-cooled while you are there.

Six things you can see, no tools. Any three pointing the same way settles it.

## THE SIX OBSERVATIONS

Work down these. The oil arrangement is the strongest single indicator.

| WHAT TO LOOK AT                | TWO-STROKE                                                        | FOUR-STROKE                                                           |
|--------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>Oil</b>                     | A separate oil tank you top up, or fuel you mix oil into yourself | Oil inside the engine, with a filler cap and usually a dipstick on it |
| <b>Draining</b>                | No engine oil drain plug in the crankcase                         | A drain plug in the bottom of the crankcase                           |
| <b>Exhaust on start-up</b>     | Visible blue-ish smoke, which is normal and clears little         | Little or no smoke once running, and any smoke is a fault             |
| <b>Exhaust shape</b>           | Often a fat, bulged expansion chamber                             | Usually a plain pipe into a silencer                                  |
| <b>Sound</b>                   | Higher, sharper, more of a buzz                                   | Deeper, with a distinct beat                                          |
| <b>Engine code on the case</b> | Often begins 1E, e.g. 1E40QMB                                     | Often reads like 139QMB, 152QMI, 157QMJ                               |

### THE ONE THAT DECIDES IT

A separate oil tank, or an instruction to mix oil into the fuel, means two-stroke. An oil filler cap on the engine with a level to check and a drain plug underneath means four-stroke. If the exhaust shape suggests one and the oil arrangement suggests the other, believe the oil.

## WHILE YOU ARE LOOKING — HOW IS IT COOLED?

This decides whether the coolant and overheating sheets apply to you

| WHAT TO LOOK FOR             | AIR-COOLED                              | LIQUID-COOLED                                                         |
|------------------------------|-----------------------------------------|-----------------------------------------------------------------------|
| <b>A radiator</b>            | None                                    | A small radiator, usually behind the front panel or beside the engine |
| <b>Hoses at the cylinder</b> | None                                    | Two rubber hoses running to the cylinder head                         |
| <b>Cooling fins</b>          | Prominent fins on the barrel and head   | Fewer or no fins; the barrel looks smooth                             |
| <b>Plastic shrouding</b>     | Shrouds ducting air from a flywheel fan | Usually none of that ducting                                          |
| <b>A coolant reservoir</b>   | None                                    | A small translucent bottle with level marks                           |

## WHAT THE ANSWER CHANGES

Why this is the first sheet and not an afterthought

|                        | IF TWO-STROKE                                                                | IF FOUR-STROKE                                                   |
|------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>Oil</b>             | Two-stroke oil, in the tank or premixed.<br>Running it dry seizes the engine | Four-stroke engine oil, changed at intervals,<br>level checked   |
| <b>Smoke</b>           | Some is normal. What matters is a change                                     | Any persistent smoke is a fault — see the<br>smoking sheet       |
| <b>Spark plug</b>      | Reads sootier by nature                                                      | Plug colour is a more sensitive mixture<br>indicator             |
| <b>Running lean</b>    | Can seize the engine in seconds at full throttle                             | Runs hot and damages over time                                   |
| <b>Rebuild</b>         | Rings, bore and seals                                                        | Rings, bore, and valves and their seats                          |
| <b>Valve clearance</b> | Does not apply — there are no valves                                         | Checked cold, and the first thing to check<br>when it runs badly |

## YOUR MACHINE

|                           |                             |                              |
|---------------------------|-----------------------------|------------------------------|
| TWO-STROKE OR FOUR-STROKE | AIR-COOLED OR LIQUID-COOLED | HOW MANY OBSERVATIONS AGREED |
| <input type="text"/>      | <input type="text"/>        | <input type="text"/>         |
| ENGINE CODE ON THE CASE   | SEPARATE OIL TANK?          | OIL DRAIN PLUG PRESENT?      |
| <input type="text"/>      | <input type="text"/>        | <input type="text"/>         |
| OIL TYPE IT TAKES         | OIL QUANTITY                | DATE ESTABLISHED             |
| <input type="text"/>      | <input type="text"/> ml     | <input type="text"/>         |

### WRITE IT ON THE MACHINE'S PAPERWORK

Whatever you conclude, put it somewhere that stays with the machine. The next owner will otherwise be doing this exercise from scratch, and the commonest way these engines get damaged is somebody putting the wrong oil in — or no oil at all — because nobody told them which kind it was.

### Need to work out what you actually own?

The Scooter Parts Registry is a free public record of the Chinese factories behind US-market scooters, ATVs and go-karts — brand, engine family, VIN prefix, factory and related machines. No account, no email.

[thescooterparts.com/identify](https://thescooterparts.com/identify)