

The PPL Cheat Sheet

P80 Aircraft General Knowledge

The facts that actually get tested in the EASA PPL(A) theory exams, stripped to the bone: definitions, key numbers, formulas, mnemonics and the classic traps for each subject. Built for the night before, the commute, and the last scroll before you walk into the exam hall.

P80 Aircraft General Knowledge

29 memory items

One of 9 subjects; the full set is free at skystudyatpl.com/ppl-cheat-sheet

You are reading the static PDF. The interactive web version of this cheat sheet at skystudyatpl.com/ppl-cheat-sheet adds a light and dark theme, a quiz mode that covers every key value so you can test your recall, instant search across every memory item, and hover or tap explanations for every aviation abbreviation. Like the rest of SkyStudy, it is free to use in the browser while the beta is open.

Study aid only. This is an independently authored revision summary, not exam material and not affiliated with EASA or any CAA. Figures marked **VERIFY** and all regulatory limits change over time and vary by aircraft type, so always confirm against the current EASA regulations, AMC/GM and your aircraft POH or flight manual. No pass is guaranteed. Copyright SkyStudy, skystudyatpl.com. Free to share unmodified.

Aircraft General Knowledge

Airframe and systems, piston engine, fuel and ignition, propellers, electrics, pitot-static instruments, compass and gyroscopic instruments.

◆ THE FOUR-STROKE CYCLE

1. INDUCTION

inlet open, piston down

2. COMPRESSION

valves shut, piston up

3. POWER

spark, gas expands

4. EXHAUST

exhaust open, piston up

Only the power stroke drives the crankshaft; the flywheel carries it through the other three.

Dual magnetos: two spark plugs per cylinder, each fed by an independent, engine-driven magneto.

Compass errors: turning UNOS (Undershoot North, Overshoot South) and acceleration ANDS (Accelerate North, Decelerate South) in the northern hemisphere.

◆ MUST-KNOW DEFINITIONS AND CONCEPTS

- The **four-stroke cycle** is induction, compression, power, exhaust; only the power stroke drives the crankshaft, and the flywheel carries it through the rest.
- **Detonation** is uncontrolled explosive burning (from low-grade fuel, high temperature or over-lean mixture); **pre-ignition** is ignition before the spark. Both damage the engine.
- **Carburettor icing** forms as fuel vaporises and pressure drops in the venturi, cooling the air below freezing even on a warm humid day; carb heat clears it.
- The **mixture control** sets the fuel-to-air ratio; at altitude the air thins, so you **lean** the mixture to keep it correct.
- A **dual magneto** ignition gives two independent sparks per cylinder for redundancy and a more complete burn; magnetos are self-powered, driven by the engine.
- The **pitot-static system** feeds the ASI (pitot and static), the altimeter and the VSI (static only).
- A **gyroscope** has rigidity in space and precession; it drives the attitude indicator, the heading indicator and the turn coordinator.
- The **direct-reading magnetic compass** seeks magnetic north but suffers dip and turning and acceleration errors near the magnetic poles.

◆ KEY NUMBERS, LIMITS AND VALUES

- **AVGAS 100LL** is dyed **blue**; the newer **UL91** is for suitable engines. Always check fuel colour and drain for water and sediment before flight.
- The ASI reads **IAS**; corrected for instrument and position error it is **CAS**, and corrected for density it is **TAS**, which exceeds IAS with altitude.
- Static blockage: the altimeter **freezes**, the VSI reads **zero**, and the ASI under-reads in a climb; use alternate static if fitted.
- Pitot blockage (with the drain blocked): the ASI behaves like an **altimeter**, over-reading in a climb and under-reading in a descent.
- Compass turning error is greatest near **north and south** and zero near east and west; it grows with latitude.
- A typical light-aircraft electrical system is **14 V** (12 V battery) or **28 V** (24 V battery), with an alternator or generator and a battery.
- Magneto check: a small RPM drop on each magneto is normal; **no drop** may mean a live (hot) magneto, and a large drop or rough running means a fault.

◆ FORMULAS AND RELATIONSHIPS

- **Indicated to true airspeed:** IAS to CAS (instrument and position error), CAS to TAS (density); **TAS exceeds IAS with altitude.**
- **Ohm's law:** **Voltage = Current x Resistance** for the aircraft's DC circuits.

◆ MNEMONICS AND MEMORY ITEMS

- Four-stroke **Suck, Squeeze, Bang, Blow**: induction, compression, power, exhaust.
- Compass turning **UNOS**: Undershoot North, Overshoot South (northern hemisphere).
- Compass acceleration **ANDS**: Accelerate North, Decelerate South (on east/west headings).
- Pitot feeds the ASI only; **static feeds all three** (ASI, altimeter, VSI).
- Magneto check drop is normal; a **zero drop means a hot magneto**, treat the prop as live.

◆ COMMON EXAM TRAPS

- Carburettor icing can form at **positive** temperatures in humid air; the first sign in a fixed-pitch engine is a gradual RPM loss.
- A **static blockage freezes the altimeter and zeroes the VSI**; a pitot blockage makes the ASI act like an altimeter. Know which instrument fails.
- **TAS is greater than IAS at altitude**; do not read the airspeed indicator as your true speed for navigation.
- The compass is only steady in **straight, level, unaccelerated** flight; turn or accelerate and it lies (UNOS and ANDS).
- Treat every propeller as **live**: a magneto can fire even with the master off, so never hand-swing or stand in the arc.
- Over-leaning causes **high temperatures and detonation**; enrich the mixture for high power settings and climbs.
- The heading indicator is **not north-seeking**; realign it to the compass regularly for its apparent wander.

FREE WHILE SKYSTUDY IS IN BETA

Keep studying free, while the beta is open

This cheat sheet is built and maintained by **SkyStudy**. SkyStudy is currently in **beta**, and during the beta every study tool below is free to use in the browser at skystudyatpl.com. This will not always be the case: when the beta ends, parts of SkyStudy will move to a paid subscription. If you want the full toolset free, now is the time to try it.

PPL Question Bank

2,830 independently authored PPL(A) revision questions across all 9 subjects, with worked explanations and spaced repetition.

Free PPL Quiz

See where your theory stands across all nine subjects, no account needed.

ICAO English Test

Check where you stand with a realistic ICAO English self-assessment.

Pilot Aptitude Training

Timed cognitive exercises across memory, spatial, numerical and multitasking domains, built for airline selection preparation.

Pilot CV Maker

Build a clean, airline-ready pilot CV in your browser, free.

And much more

Aviation weather tools, a free demo question bank, study guides and the rest of the free tool family.



On paper? Scan to open SkyStudy and every free tool on this page: skystudyatpl.com

Found this useful? Share the cheat sheet unmodified with your study group or forum of choice. And if you are reading this on paper or PDF: the web version at skystudyatpl.com/ppl-cheat-sheet adds light and dark themes, quiz mode and tap-to-expand abbreviations.

Copyright SkyStudy. Independently authored PPL revision aid. Not affiliated with EASA or any CAA. Free to share unmodified. SkyStudy is in beta; free access to the full toolset is a beta offer and will not always be available.

skystudyatpl.com