

The full normal checklist lives in your cockpit checklist and the flight manual — you fly by those, not by memory. What this chapter does is teach you the *flow* and the handful of type-specific points that catch pilots moving onto the DA-42 NG. Learn why each step exists and the checklist reads itself.

8.1 Before you get in — the walk-around

The external inspection runs a logical circuit around the aeroplane. On this type pay particular attention to the propeller blades (wood-composite — check the leading-edge protection and never move a propeller by hand), the fuel drains at each nacelle, the pitot and the stall-warning lift detector under the left wing, and the gear doors and struts. Test the gear-warning and fire-detection systems on the ground as the checklist directs — if either test fails to annunciate, the aeroplane is unserviceable.

8.2 Starting a diesel

Starting is nothing like a piston trainer. There is no priming, no mixture, no mag check. With the ELECT. MASTER and the relevant ENGINE MASTER on, the ECU runs a glow-plug pre-heat, and you crank with a single START switch (left or right). The ECU meters the fuel and brings the engine to idle. Then, on the ground at idle and low RPM, you run the **ECU test** — it cycles between ECU A and ECU B with the propeller responding; both caution lights must go out and the engine must run smoothly afterwards.

WHY THE ECU TEST MATTERS

Each engine has two computers for redundancy. The ground test proves both are healthy *before* you need the redundancy in the air. Skipping or rushing it defeats the whole point of the twin-ECU design.

8.3 Taxi and before take-off

Taxi gently — the nose wheel steers through the rudder pedals and you have toe brakes for the mains. In the run-up you confirm the engine indications are in the green, the fuel selectors are ON

(not crossfeed), and the flight controls are full and free. Set the flaps for take-off, and turn **both fuel pumps on** for the take-off itself.

8.4 Take-off and climb

Advance the single power levers smoothly to take-off power — remember that is a **five-minute limit**. Rotate at the schedule speed, and once you have a positive climb and no runway to land back on, select the gear up — but be sure to have it retracted before **152 KIAS**. Reduce to climb power and clean up the flaps on schedule.

TYPE QUIRK — THE VARIABLE ELEVATOR STOP

When both engines are above about 20% power, an actuator limits the elevator's up-travel (to 13° instead of the full 15.5°). It's a built-in protection, invisible in normal handling, but if it malfunctions you'll get a STICK LIMIT caution — you'll meet that in the abnormal chapter.

8.5 Cruise, descent and approach

In the cruise, set continuous power (up to 92% / 2100 RPM) and lean back on the workload — the ECU is managing the engines, the autopilot can fly the profile, and the MFD gives you fuel and range. Keep an eye on fuel balance between the tanks; if you're ever running noticeably uneven, that's what crossfeed is for.

Descending and joining the approach, get back ahead of the aeroplane: brief the approach, slow to gear and flap speeds, and run the landing checklist. Both fuel pumps go on again for the approach and landing. Confirm **three greens** before finals — and if you set full flap or bring the power back with the gear still up, the CHECK GEAR warning and horn will remind you.

8.6 Landing, after-landing and shutdown

Fly the approach speed from the checklist, close the power levers over the threshold and hold off for a main-wheels-first touchdown. After landing, clean up (flaps up, both fuel pumps as required, lights as needed) once clear of the runway. Shut the engines down with the **ENGINE MASTER switches** — never with the fuel selectors — which also feathers the propellers as part of the sequence.

REMEMBER FOR THE EXAM

Diesel start = glow + single START + ECU test on ground · both fuel pumps for take-off and landing · take-off power is a 5-minute limit · gear up before 152 · variable elevator stop active above ~20% power · three greens before landing · shut down on the ENGINE MASTER, which feathers the propeller.

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