

This is a retractable aeroplane, so the gear is now something you operate, monitor and — if it fails — lower by hand. Learn the operating speeds, what the lights tell you, and the free-fall emergency extension; those three come up again and again.

5.1 How the gear works

The DA-42 NG has a fully retractable, hydraulically operated tricycle undercarriage on air-oil struts. Pressure is supplied by an electric hydraulic pump that runs only when a pressure switch says the system needs it. Electrically actuated valves, commanded by the gear selector on the panel, drive the gear up or down. The selector must be **pulled out before** you move it to UP or DOWN. A normal cycle takes about **6–10 seconds**.

Retracted, the main wheels fold inboard into the centre wing and the nose wheel folds forward. Hydraulic pressure holds the gear up, and a gas accumulator keeps that pressure steady so the pump isn't constantly cycling in the cruise. On the way down, springs help push the legs into place and hold the downlocks engaged.

5.2 Reading the indications

Three green lights beside the selector mean each leg is down and locked. A red warning light means the gear is in transit — neither fully up nor fully down. Get into the habit of confirming **three greens** before every landing.

5.3 The operating speeds

Speed	Limit
V_{LO} (retraction)	152 KIAS — retract before exceeding this after take-off
V_{LO} (extension) / V_{LE}	188 KIAS — you may extend, and fly with the gear down, up to this speed

MEMORY HOOK

Retract by 152, extend up to 188. The lower number is the retraction limit; the gear is happy hanging out all the way up to V_{NE} -adjacent 188.

5.4 The gear warning system

The aeroplane actively nags you if you set up to land with the gear still up. If a power lever is brought below about **20%** while the gear is retracted, a warning horn sounds and a CHECK GEAR caution appears on the display. The same warning fires if you select full (landing) flap with the gear up. A squat switch on the ground prevents the gear retracting while the weight is on the wheels.

5.5 Emergency extension — gravity is your friend

Because the gear is held *up* by hydraulic pressure, all you have to do to get it down in a failure is take that pressure away and let gravity do the rest. An emergency gear extension lever under the panel, to the left of the centre console, releases the hydraulic pressure so the gear falls free and locks down.

DO IT IN THE RIGHT ORDER

Put the gear selector **DOWN first**, then pull the emergency extension lever. And once the emergency extension has been used, the system must be checked by maintenance before the lever is pushed back in — don't reset it in flight.

5.6 Steering, brakes and the parking brake

On the ground the nose wheel is steered through the rudder pedals, with a damper to stop shimmy; as the gear retracts the nose wheel centres itself and the steering disconnects to lighten the pedals in flight.

Braking is by hydraulic disc brakes on the main wheels, operated individually through the toe pedals. The parking brake lever sits on the small centre console: pull it down until it catches, build up pressure by pumping the toe brakes, and it holds until you push the lever back up to release.

REMEMBER FOR THE EXAM

Hydraulic retractable tricycle gear · held UP by hydraulic pressure · 6–10 s to cycle · three greens = down and locked, red = in transit · retract by 152, extend/fly to 188 · CHECK GEAR + horn below ~20% power or full flap with gear up · emergency extension = selector DOWN then pull the lever, gravity free-fall.

GHOST AVIATOR

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