

Robinson R44 Cadet Model Guide

The Robinson R44 Cadet is a two-seat configuration of the Robinson R44 piston helicopter. It is built under FAA Type Certificate H11NM and has been in production since 2016. The source documents describe it as basically the same helicopter as the R44, with changes to convert it to two seats. It has a single teetering two-blade main rotor, a conventional tail rotor and skid landing gear. It is powered by a Lycoming O-540-F1B5 engine. The Robinson R44 Cadet has a lower maximum takeoff weight than the four-seat Raven I.

KEY TAKEAWAYS

- The Robinson R44 Cadet is a two-seat R44 with a maximum certificated takeoff weight of 2200 lb (998 kg). The four-seat Raven I is 2400 lb.
- It uses the Lycoming O-540-F1B5 engine, a carbureted six-cylinder with a continuous rating of 205 BHP and a 5-minute takeoff rating of 225 BHP.
- It was type accepted in New Zealand on 26 January 2022 as a specific 2-seat configuration of the R44. Serial numbers start at MSN 30001.
- Australian regulator bulletins on engine intake and exhaust valve distress name the Cadet in their effectivity. Ask for the engine's valve and cylinder history.
- The Robinson maintenance manual has a dedicated Cadet Version chapter, Chapter 36.

WHAT YOU ARE BUYING

The R44 is FAA approved in the normal category under FAR 27 and FAR 21. The Cadet is a 2-seat version of that design, with serial numbers from MSN 30001 up. The airframe is aluminium monocoque cabin and tailboom with a steel-tube structure carrying the engine, transmission and rotor. The Cadet's noise standard is FAR 36-30. Its maximum certificated takeoff weight is 2200 lb (998 kg), against 2400 lb for the Raven I.

ENGINE AND POWER

The Cadet uses the Lycoming O-540-F1B5, an engine type certificated under E-295. The R44 handbook describes it as a six-cylinder, horizontally opposed, direct-drive, air-cooled, carbureted, normally aspirated engine of 541.5 cubic inches. In the R44 its maximum continuous rating is 205 BHP at 2718 RPM (102% on the tachometer), and its 5-minute takeoff rating is 225 BHP. The Cadet's source documents give no cruise speed, range or hover figures, so ask the seller for the current POH performance charts.

WHAT TO CHECK BEFORE BUYING

Check the engine's cylinder health and valve condition. Australian CASA Airworthiness Bulletins 85-024 and 85-025 list the R44 Cadet as affected. They cover exhaust valve and valve guide wear and burned intake valves or valve seats. Both bulletins are advisory only, and neither is treated as an unsafe condition warranting an Airworthiness Directive. Review compression test records (cylinder compression readings below 60 psi led to cylinder changes in reported cases). Confirm that the manufacturer's service documents on intake valves, and the hot-climate cool-down procedure, have been followed. Use the current Robinson Maintenance Manual and its Cadet Version chapter for inspection requirements.

SPECIFICATIONS

Max Takeoff Weight Lbs	2200
Max Seats	2
Engine Displacement Cubic Inches	541.5
Max Continuous Power Hp	205
Takeoff Power 5min Hp	225
Max Continuous Rpm	2718

SAFETY NOTES

- An intake valve failure can cause an induction backfire, engine power loss and airframe yaw. In a severe event this can lead to several uncontrolled power and yaw reactions.
- Heed adverse engine indications or unusual engine behaviour. The bulletins warn that ignoring them can let the problem develop to engine power loss or, for exhaust valves, loss of cylinder compression.
- The bulletins suggest extended ground operation at low manifold pressure and high RPM may contribute to intake valve carbon build-up. This is a theory, not a confirmed cause. The bulletins name hot-climate operation, with the Robinson hot-climate cool-down procedure, as relevant.
- The handbook must be carried in the helicopter. Use the current revision, since the manufacturer states that older printed copies may be outdated.