



Robinson R44 Guide

Graeme Cash

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Guide to the Robinson R44 - Graeme Cash

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Figure 1.7 is taken from NTSB/SIR-96/03. Figure 1.19, and the charts in sections Limitations and Performance are taken from Robinson R44 Pilot's Operating Handbook RTR 061 including CAA amendments. Figures 1.3, 1.13, 1.15 and 1.38 are based on diagrams taken from the Robinson R44 Maintenance Manual. "Robinson" and "R44" are U.S. registered trademarks ®

Pooleys Flight Equipment Ltd
Elstree Aerodrome
Elstree
Hertfordshire
WD6 3AW
United Kingdom

Telephone: +44(0)20 8953 4870

Email: sales@pooleys.com

Website: www.pooleys.com

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Author - Graeme Cash

Graeme Cash has been flying helicopters for over fifteen years and currently holds a commercial pilot's licence and flight instructors rating. Originally from Wigan, Graeme now lives in Blackpool with his wife and daughter and conducts helicopter flight training in Robinson R22s and R44s.

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Introduction

This guide is designed to supplement and serve as a reference to your formal training.

The Robinson R44 was initially certified in USA by the FAA, in order to be certified in the UK the CAA produced additional limitations and information on the R44. The CAA limitations and information are indicated by a ¹ and supplement or in the case of conflict override those in the Pilots Operating Handbook (POH).

Aircraft Description

The Robinson R44 is a very reliable four-seater, two-blade, piston engine helicopter designed by Frank Robinson. It is a very popular helicopter due to its price and low operating costs; over three thousand have been built since 1992.



Figure 1.1 – Robinson R44 Raven

The first version of the helicopter was called the R44 Astro followed by the R44 Raven and R44 Raven II. The Raven had hydraulic cyclic and collective controls as standard while the Astro had an electric cyclic trim and ground-adjustable collective trim with the option of hydraulically assisted controls. The Raven II has a fuel injected engine, the maximum gross weight increased from 2400lbs to 2500lbs, a longer main blade chord, second

oil cooler, solid-state magneto start booster, rounded tip main and tail rotor blades, hydraulically assisted controls, a 28-volt electrical system and the option of air conditioning. The R44 is also available with fixed or pop-out floats and added anti-corrosion protection; it is called the R44 Clipper if based on the Astro, or the R44 Clipper II if based on the Raven II. Other versions also include an instrument trainer with a larger instrument panel, a police version with a searchlight, camera and police radio and Electronic News Gathering (ENG) version with a nose mounted camera.

Helicopter Structure

The body of the Robinson R44 is constructed from welded steel tubing and riveted aluminum panels. The cabin has a stainless steel firewall at the rear and a plexiglass canopy. The cabin doors are made from fibreglass and split pins on the hinges enable easy removal. The tail boom is an aluminum monocoque construction with the tail rotor control rod and drive shaft running through the centre. The R44 has both a vertical and horizontal fin at the end of the tail boom with a tailskid attached to the bottom of the vertical fin to protect the tail rotor from striking the ground. Like the frame of the R44 the landing gear is made of steel