

Helicopter Flying Handbook



U.S. Department
of Transportation
Federal Aviation
Administration



A

Drag

B

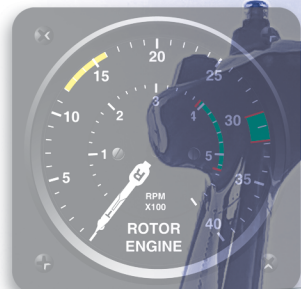
Autorotative Force

C

D

E

Drag



Pitch Change Axis (Feathering)

Pitch Horn

Flapping Hinge

Drag Hinge

Damper

Helicopter Flying Handbook

2019

U.S. Department of Transportation
FEDERAL AVIATION ADMINISTRATION
Flight Standards Service

Preface

The Helicopter Flying Handbook is designed as a technical manual for applicants who are preparing for their private, commercial, or flight instructor pilot certificates with a helicopter class rating. Certificated flight instructors may find this handbook a valuable training aid, since detailed coverage of aerodynamics, flight controls, systems, performance, flight maneuvers, emergencies, and aeronautical decision-making is included. Topics such as weather, navigation, radio navigation and communications, use of flight information publications, and regulations are available in other Federal Aviation Administration (FAA) publications.

This handbook conforms to pilot training and certification concepts established by the FAA. There are different ways of teaching, as well as performing, flight procedures and maneuvers, and many variations in the explanations of aerodynamic theories and principles. This handbook adopts a selective method and concept to flying helicopters. The discussion and explanations reflect the most commonly used practices and principles. Occasionally the word “must” or similar language is used where the desired action is deemed critical. The use of such language is not intended to add to, interpret, or relieve a duty imposed by Title 14 of the Code of Federal Regulations (14 CFR). Persons working towards a helicopter rating are advised to review the references from the applicable practical test standards (FAA-S-8081-3 for recreational applicants, FAA-S-8081-15 for private applicants, and FAA-S-8081-16 for commercial applicants). Resources for study include FAA-H-8083-25, Pilot’s Handbook of Aeronautical Knowledge, and FAA-H-8083-1, Weight and Balance Handbook, as these documents contain basic material not duplicated herein. All beginning applicants should refer to FAA-H-8083-25, Pilot’s Handbook of Aeronautical Knowledge, for study and basic library reference.

It is essential for persons using this handbook to become familiar with and apply the pertinent parts of 14 CFR and the Aeronautical Information Manual (AIM). The AIM is available online at www.faa.gov. The current Flight Standards Service airman training and testing material and learning statements for all airman certificates and ratings can be obtained from www.faa.gov.

This handbook supersedes FAA-H-8083-21A, Helicopter Flying Handbook, dated 2012. Gyroplane information can be found in the FAA-H-8083-20, Gyroplane Flying Handbook.

This handbook is available for download, in PDF format, from www.faa.gov.

This handbook is published by the United States Department of Transportation, Federal Aviation Administration, Airman Testing Branch, P.O. Box 25082, Oklahoma City, OK 73125.

Comments regarding this publication should be emailed to AFS630comments@faa.gov.

Acknowledgments

The Helicopter Flying Handbook was produced by the Federal Aviation Administration (FAA) with the assistance of Safety Research Corporation of America (SRCA). The FAA wishes to acknowledge the following contributors:

Federation of American Scientists (www.fas.org) for rotor system content used in Chapter 5

Kaman Aerospace, Helicopters Division for image of Kaman used in Chapter 5

Burkhard Domke (www.b-domke.de) for images of rotor systems (Chapters 1 and 4)

New Zealand Civil Aviation Authority for image of safety procedures for approaching a helicopter (Chapter 9)

Shawn Coyle of Eagle Eye Solutions, LLC for images and content used in Chapter 10

Dr. Pat Veillette for information used on decision-making (Chapter 13)

Additional appreciation is extended to the Helicopter Association International (HAI), United States Helicopter Safety Team (USHST), Leonardo Helicopters, Aircraft Owners and Pilots Association (AOPA), and the AOPA Air Safety Foundation for their technical support and input.

