

## Getting Started in your Helicopter Studies

For those people who seriously intend pursuing a career as a Helicopter Pilot we have compiled a list of topics along with recommended reading within each topic. Treat this list as a guideline only. The more reading you do, the better prepared you will be. There are three levels of recommended reading.

### Level 1:

For somebody wanting a general idea about helicopter operation, but with limited time available.

### Level 2:

For the student who has decided to pursue a career as a helicopter pilot. This list will give you a good start on information you will need to cover in flight training.

### Level 3:

For the well-disciplined student who has adequate time available, and would like to research topics in depth.

*(Most reference materials are available from Helicopter Adventures Inc.)*

### **Level 1**

For those people who have limited time schedules, or would prefer to buy one book to read about helicopter flying, any of the following will give you a good overview of the helicopter and its characteristics:

- Learning To fly Helicopters, R. Randall Padfield
- Cyclic and Collective, Shawn Coyle
- Principles of Helicopter Flight, W. J. Wagtendonk
- Rotary Wing Flight, ASA-RW-4
- Rotorcraft Flying Handbook, FAA-H-8083-21

### **Level 2**

If you have made the decision to enroll in the professional program, and have some time before your training begins, I suggest the following list of topics and references:

- Basic Aerodynamics, Rotorcraft Flying Handbook, Chapters 1, 2 and 3
- Private Pilot Manual, Jeppesen, Chapter 3
- Helicopter Flight Controls, Rotorcraft Flying Handbook, Chapter 4
- Helicopter System/Components, Rotorcraft Flying Handbook, Chapter 5
- Radio Communication FAR/AIM, AIM Chapter 4, Section 2
- Private Pilot Manual, Jeppesen, Chapter 5
- Weather Elements AC 00-6A, Aviation Weather, Chapters 1 through 11, inclusive.
- Private Pilot Manual, Jeppesen, Chapter 6
- Medical Facts for Pilots FAR/AIM, AIM Chapter 8

### **Level 3**

If you are somebody with well disciplined study habits, and would like to cover as much information as possible before starting a Professional Helicopter Pilot Course, I suggest the following:

#### **Basic Physics**

Including Newton's Laws of Motion, Vectors, and Energy

Principles of Helicopter Flight, Wagtendonk - Chapter 1

#### **General Aerodynamics**

Private Pilot Manual, Jeppesen, Chapter 3

Rotorcraft Flying Handbook

#### **Bernoulli's Principle**

Including lift

Principles of Helicopter Flight, Wagtendonk - Chapter 3

#### **Forces Acting Upon a Helicopter**

Rotorcraft Flying Handbook

#### **Helicopter Flight Controls**

Rotorcraft Flying Handbook

#### **Helicopter Components and Systems**

Including the rotor systems, swash-plate, freewheeling unit, and clutch

Rotorcraft Flying Handbook

#### **Torque**

Including relationship between the main rotor and the tail rotor, or anti torque rotor

Rotary Wing Flight, ASA - Chapter 2-33

Principles of Helicopter Flight, Wagtendonk - Chapter 9

#### **Piston Engines**

Rotorcraft Flying Handbook

#### **Aerodynamics of Helicopter Flight**

Gyroscopic Precession, Dissymmetry of Lift, Flapping, Coning, Coriolis Effect, Translating Tendency, Ground Effect, Translational Lift, Transverse Flow Effect, Pendular Action

Rotorcraft Flying Handbook

Principles of Helicopter Flight, Wagtendonk - Chapters 11, 12

Rotary Wing Flight, ASA - Chapter 2

### **Weight and Balance**

Private Pilot Manual, Jeppesen, Chapter 8

Rotorcraft Flying Handbook

### **Hazards of Helicopter Flight**

Retreating Blade Stall, Ground Resonance, Settling with Power

Rotorcraft Flying Handbook

Principles of Helicopter Flight, Wagtendonk - Chapters 17, 19

### **Autorotation**

Principles of Helicopter Flight, Wagtendonk - Chapters 18

Rotorcraft Flying Handbook

### **The Atmosphere**

Including, Density altitude and Performance

Principles of Helicopter Flight, Wagtendonk - Chapter 2

Aviation Weather, Lester - Chapter 1 and 2

Aviation Weather, AC 00-6A - Chapter 1 and 3

Private Pilot Manual, Jeppesen, Chapter 6

### **Temperature and ISA**

Aviation Weather, AC 00-6A - Chapter 2

Aviation Weather, Lester - Chapter 1 and 2

Private Pilot Manual, Jeppesen, Chapter 6

### **Moisture, Clouds, and Precipitation**

Aviation Weather, Lester - Chapter 6

Aviation Weather, AC 00-6A - Chapter 5 and 7

Private Pilot Manual, Jeppesen, Chapter 6

**Wind**

Aviation Weather, Lester - Chapter 4 and 11

Aviation Weather, AC 00-6A - Chapter 4

Private Pilot Manual, Jeppesen, Chapter 6

**Stability**

Aviation Weather, Lester - Chapter 5

Aviation Weather, AC 00-6A - Chapter 6

Private Pilot Manual, Jeppesen, Chapter 6

**Pressure, Altitude, and Density**

Aviation Weather, Lester - Chapter 3

Aviation Weather, AC 00-6A - Chapter 3

Private Pilot Manual, Jeppesen, Chapter 6

**Turbulence**

Aviation Weather, Lester - Chapter 12

Aviation Weather, AC 00-6A - Chapter 9

Private Pilot Manual, Jeppesen, Chapter 6

**Air Masses and Fronts**

Aviation Weather, Lester - Chapter 8

Aviation Weather, AC 00-6A - Chapter 8

Private Pilot Manual, Jeppesen, Chapter 6

**Thunderstorms**

Aviation Weather, Lester - Chapter 9

Aviation Weather, AC 00-6A - Chapter 11

Private Pilot Manual, Jeppesen, Chapter 6

**Icing**

Aviation Weather, Lester - Chapter 13

Aviation Weather, AC 00-6A - Chapter 10

Private Pilot Manual, Jeppesen, Chapter 6

### **Physiology**

FAR/AIM, AIM Chapter 8

Private Pilot Manual, Jeppesen, Chapter 1

### **Radio Communications**

FAR/AIM, AIM Chapter 4, Section 2

Private Pilot Manual, Jeppesen, Chapter 5

### **Phonetic Alphabet**

FAR/AIM, AIM Chapter 4, Section 2

Do you find yourself doing the following things on a regular basis? If not, try a few of them sometime. You might find that they give you a sense of satisfaction and accomplishment, as well as being fun.

- Look at maps of your local area and get used to seeing things from a birds eye view.
- Take time to look up at the clouds and try decide what type and how high they are.
- Find out how your local area is affected by weather patterns, and why it is warm, cold, wet or windy where you live.
- Try to predict the weather based on your experience and local weather patterns.
- Try to estimate distances of distant buildings, or hills, or towers. Measure the distances on a map to check how close you guessed.
- Next time you need to go to an unfamiliar location, use a map to plan your route before you leave. Then summarize your plan onto a small piece of paper for reference. Have a mental picture of where you are on the map, and which direction you are heading.
- Walk around your vehicle before you get in and drive away. Make a point of checking your oil each time you re-fuel. Check your tire pressure, tire wear, and fluid levels at least once a month.
- Calculate the fuel consumption of your vehicle, and always know how much fuel is left in your vehicle.
- Figure out your range, based on consumption and remaining fuel. Challenge yourself.

- Glance at your oil/coolant temperature gauge, fuel gauge, and warning lights in your vehicle more than occasionally.
- Take pride in smooth and confident driving. Don't get rushed or frustrated in traffic. Be alert at all times. Know where the traffic is, what they are doing, and always expect the unexpected.

## **REFERENCE BOOKS:**

### **FAR/AIM**

#### **Principles of Helicopter Flight**

W. J. Wagtendonk ISBN 1-56027-217-1

#### **Aviation Weather**

Peter F. Lester

ISBN 0-88487-178-9

#### **Aviation Weather**

U. S. Department of Transportation, U. S. Department of Commerce  
AC 00-6A

#### **Rotorcraft Flying Handbook**

Federal Aviation Administration

#### **Learning To Fly Helicopters**

R. Randall Padfield

ISBN 0-07-157724-6

#### **Cyclic and Collective**

Shawn Coyle

ISBN 0-8138-2169-X

#### **Helicopter Aerodynamics**

R. W. Prouty

Phillips Publishing, Inc