

Pre-Flight Briefing (Helicopters) Student Pilot's Work Book

Complies with EASA Part-FCL PPL and the LAPL Training Syllabi

Name:

Nothing in this manual supersedes any legislation, rules, regulations or procedures contained in any operational document issued by Her Majesty's Stationery Office, the Civil Aviation Authority, the European Union, the European Commission, EASA, ICAO, the manufacturers of aircraft, engines and systems, or by the operators of aircraft throughout the world.

Pooleys Air Presentations, Pre-Flight Briefing (Helicopters) Student Pilot's Work Book. Copyright 2016 © Pooleys Flight Equipment Ltd

ISBN: 978-1-84336-241-8

First Edition January 2016

All rights reserved. No part of this publication may be reproduced in any material form (including photocopying or storing it in any medium by electronic means and whether or not transiently or incidentally to some of the use of this publication (without the written permissions of the copyright owner) except in accordance with the provisions of the Copyright, Designs and Patent Act 1988 or under the terms of a licence issued by the Copyright Licensing Agency Limited, 90 Tottenham Court Road, London, England W1P OLP. Applications for the copyright owner's written permission to reproduce any part of this publication should be addressed to the publisher.

Warning: The doing of an unauthorised act in relation to a copyright work may result in both a civil claim for damages and criminal prosecution.

Pooleys Flight Equipment Ltd Elstree Aerodrome Hertfordshire WD6 3AW England, UK.

Tel: +44(0)208 953 4870 Fax: +44(0)208 953 2512 Email: sales@pooleys.com Website: www.pooleys.com

Pooleys Pre-Flight Briefing (Helicopter)

These pre-flight briefing notes have been designed as a training aid for both the student and the Instructor. Used correctly they will form an important part of your training, giving you the ability to reflect upon what you have been taught in the air, and allow you to look forward and study for your next lesson. Used in isolation, you will not gain the necessary knowledge, that is to say, you will need good quality study books like the Air Pilot's Manual series, Helicopters Pilot's manual by Norman Bailey or Principles of Helicopter Flight by H. R. Quantick. Then you need your Instructor(s) to impart their KNOWLEDGE and EXPERIENCE. Your Instructor will use a combination of training aids i.e. these pre-flight briefings, white boards, chalk boards, models and many reference books and other sources of information. Your Instructor will also combine the exercises in this manual to achieve quality training.

To accelerate your learning and to save you money we suggest the following: If your flying school runs a ground school program me - join it. Learning in isolation is not fun, it can leave you with doubts in your mind. The information, explanations and experiences that the Instructor will give you are second to none; talking to other students can also be reassuring. Many assume that ground school is about preparation for your ground exams and not as much fun as flying. In fact, it gives you essential information to do both. That is, pass the ground exams and gives you the knowledge to fly the helicopter safely. Prior Preparation and Planning will save Possible Poor Performance (the 6 P's). Someone should have said, "Prior Preparation and Planning will also save you money". So why do many students arrive for their flying lessons so poorly prepared? Pre-flight briefings, flying lessons and post-flight debriefings are the essential elements of a flying lesson. However, many students think that a pre-flight briefing etc. is the Instructor's responsibility. Well they are! However, your performance will be poor if you have not prepared yourself with pre-flight knowledge. This means giving yourself the essential knowledge and preparation well before your lesson. Reading your study books and these pre-flight briefing notes will give you this information. At your pre-flight briefing, be prepared to take further notes. Your Instructor will give you specific information regarding the characteristics of the helicopter, local area etc. Now you will be able to enjoy your flying lesson far more and get more value from it. At your post-flight debriefing your Instructor will cover how well your lesson went. The Instructor will indicate your strengths, weaknesses and what exercises you will be covering on the next lesson. Take notes, and use them to reflect on. As Editors of Pooleys Air Presentations we would like to thank the person who has made these pre-flight briefings possible: Capt Mike Cull (MRAeS) who has been the SME (su

Editors: Dorothy Saul-Pooley FRAeS

Sebastian Pooley FRIN MRAeS

Daljeet Gill

Contents

Conte	nts	Page 18 Page 19	From straight and level flight climbing with the helicopter Optimum climb speed graph
Exercise Ia	Familiarisation with the Helicopter	Exercise 8	Decending
Page 1 Page 2	General characteristics Main instrumentation	Page 20	Entry from straight and level @ 70kts and approx 20" mp
Page 3	Main systems	Exercise 9	Turning
Page 4	Helicopter checklist, drills and controls	Page 21	Turn maintaining constant level
		Page 22	Climbing and descending turns
Exercise 1b	Emergency Procedures	Page 23	Offset seating effect
Page 5	Fire drills	6	2 8
Page 6	Triangle of fire	Exercise 10	Basic Autorotation
Page 7	System failure	Page 24	Entry to autorotation and recovery from autorotation
Page 8	Emergency equipment and exits	Page 25	Recommended take-off profile
		Page 26	Aerodynamics of autorotation and vortex ring
Exercise 2	Preparation for and action after flight	1 480 20	relocation dates of dates of dates and vertex in g
Page 9	Procedures to prepare pilot and helicopter for flight	Exercise IIa	Hovering
Exercise 3	Air Experience	Page 27	Effects of controls
Page 10	Instructor's Brief	Page 28	Torque Reaction
rage ro	Ilisti uctor s di lei	Page 29	Tail rotor drift
F	Two at a f Commonly	Page 30	Surface appreciation (ground effect)
Exercise 4	Effects of Controls	Page 31	Forward running touchdown
Page II	Cyclic, collective, throttle, RPM governor, yaw pedals etc.	Page 32	FOD
Page 12	Coning angle	Francisco IIII	Harris Tradica Cart Trans
Page 13	Effects of airspeed	Exercise IIb	Hover Taxying, Spot Turns
	D. J.A. et al. Cl	Page 33	Hover taxy and conduct spot turns
Exercise 5	Power and Attitude Changes	Page 34	Illustrating hover taxying and spot turns.
Page 14	Relationship between controls with changes in attitude		
5 15	and airspeed	Exercise IIc	Hovering, Taxying Emergencies
Page 15	Power available graph	Page 35	Procedure in the event of a power failure
Page 16	Accelerative and decelerative attitudes	Page 36	Power failure below 8ft AGL, loss of tail rotor thrust during the hover, power failure while hover taxying
Exercise 6	Straight and Level		
Page 17	Maintaining straight and level flight	Exercise 12	Take-off and Landings
-		Page 37	Take-off and dynamic rollover
		Page 38	Ground resonance
		Page 39	Landing from the hover

Exercise 7

Climbing

Exercise 13 Page 40	Transitions from Hover to Climb & Approach to Hover Procedures and controls used to achieve a transition from the hover to a climb and from a descent back to the hover	Exercise 18 Page 58	Hover out of Ground Effect, Vortex Ring Flight conditions and symptoms of a vortex ring
Page 41 Page 42 Exercise 14 a	Illustrating hover to climb Illustrating approach to hover Circuit, Approach and Landing	Exercise 19 Page 59 Page 60	Simulated Engine Off Landings Correct technique for conducting a safe autorotative landing Standard engine off landing (EOL)
	11	F : 20	A.L. LA
Page 43 Page 44 Page 45	General circuit procedures Circuit diagram right hand Circuit diagram left hand	Exercise 20 Page 61	Advanced Autorotation Correct technique for conducting safe advanced autorotation manoeuvres
		Page 62	"S" turn which naturally incorporates a 90° - 180° turn
Exercise 14b Page 46	Steep and Limited Power Approaches and Landings Illustrating flying a helicopter in a steep and/or	Page 63	Changes in airspeed/rrpm versus distance covered in autorotation
_	limited power landing	Page 64	Constant attitude autorotation
Page 47	Landing power checks, zero-zero landing, running landing	Exercise 21	Practice Forced Landings
Exercise 14c	Circuit Emergency Procedures	Page 65	Conducting a safe forced landing
Page 48	Procedures and techniques to fly the helicopter safely in the event of an emergency in the circuit	Page 66	Power failure, maximum glide distance configuration, air restart procedure
Page 49	List of emergency procedures	Page 67	Illustrating possible actions
Page 50	List of emergency procedures 2	Exercise 22	Steep Turns
Exercise 15	First Solo	Page 68	Turn helicopter steeply
Page 51	Instructor's brief	Page 69	Offset seating effect
1 460 01	mad detail a brief	Page 70	45° turns constant airspeed, autorotative turns
Exercise 16	Sideways and Backwards Hover Manoeuvring	Page 71	Flapback - flap forward, load factors in turning flight
Page 52	Sideways and backwards hover teaching points	Exercise 23	Transitions
o .	,		
Page 53	Illustrating sideways and backwards hover	Page 72	Transitions from the hover to the hover
Exercise 17	Spot Turns	Exercise 24	Quickstops
Page 54	Procedures and techniques to fly in spot turns	Page 73	Enter a hover rapidly from a high forward airspeed
Page 55	Turns around the pilot's position	Page 74	Illustration of quickstops
Page 56	Turns around the tail rotor	Page 75	Flare and turn, turn and flare
Page 57	Turns around a parallel square		
		Exercise 25a	Navigation
		Page 76	Safely complete a cross country flight
		Page 77	Considerations
		Page 78	Diversion to alternate airfield, uncertain of your position, procedure when lost

Exercise 25b Page 79	Navigation Problems at Low Height & Reduced Visibility Navigate safely at lower levels and in poor visibility	Exercise 28 Page 97 Page 98	Limited Power Available power is limited Vertical take-off
Exercise 25c Page 80 Page 81 Page 82	Radio Navigation VOR Use of the VOR 320° to the VOR 140° from the VOR	Page 99 Page 100 Page 101 Page 102 Page 103	Towering take-off Cushion creep take-off Running take-offs Running landing Zero-zero landing
Exercise 25c Page 83 Page 84 Page 85	Radio Navigation ADF Use of the ADF Illustrating ADF Homing and Tracking	Page 104 Exercise 29 Page 105	Hover OGE Confined Areas Procedures and techniques to enter, manoeuvre
Exercise 25c Page 86 Page 87	Radio Navigation VHF/DF Procedures of VHF direction finding VDF Bearing accuracy	Page 106 Page 107	and leave a restricted site Spot the errors! Practice approach and final inspection, final and departing in a confined area
Exercise 25c Page 88 Page 89	Radio Navigation Enroute and Terminal Radar Use of en-route/terminal radar Illustration of Radio	Exercise 30 Page 108 Page 109	Basic Instrument Flight Sensation of flight with sole reference to the instruments and with no external visual reference Simple scan for airspeed and altitude
Exercise 26 Page 90 Page 91 Page 92 Page 93	Advanced Take-Off, Landings & Transitions Procedures for safe take-off, landing and transition out of wind Hovering out of wind Downwind take-off transition Downwind approach	Page III Page III	Simple scan for heading and balance Simple scan for vertical speed and turn rate

Exercise 27

Page 94 Page 95 Page 96 Sloping Ground

Take-off on slope

Take-off and land on sloping or uneven ground Other considerations on landing

POOLE Y

Lesson Aim: To learn the general characteristics of the helicopter.

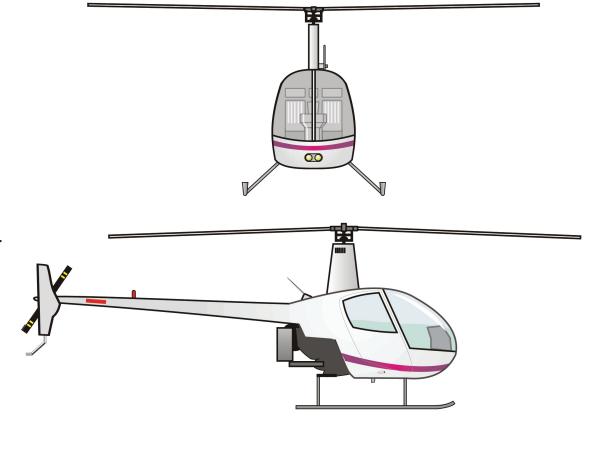
Lesson Objective: By the end of the lesson you will be able to state and identify accurately the main characteristics of your training helicopter.

Airmanship/Threat & Error Management (A'ship/TEM): Pilot knowledge.

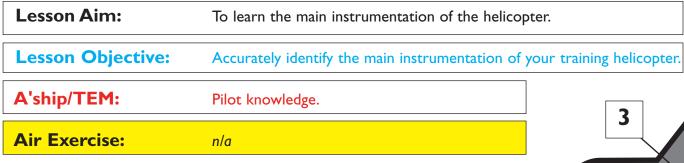
Air Exercise: n/a

Teaching Points:

- I. Helicopter type and general characteristics.
- 2. Description external.
- 3. Description internal.
- 4. Helicopter performance General characteristics.



Notes from:	
Troces from:	
Notes from: Pre-flight Briefings	
110 1118110 2110111180	
Notes from:	
Notes from:	
Notes from: Pre-flight Briefings	



Teaching Points:

Exercise la

- I. Engine and Rotor RPM
- 2. Airspeed Indicator
- 3. Attitude Indicator
- 4. Altimeter
- 5. Manifold Pressure
- 6. Directional Gyro
- 7. Vertical Speed Indicator
- 8. Fuel Gauges
- 9. Oil Temperature & Pressure Gauge
- 10. Magnetic Compass
- II. Balance Ball and String
- 12. Carburettor Temperature
- 13. Ammeter
- 14. Cylinder Head Temperature

