Principles of Helicopter Flight
Private Pilot Syllabus

A Flight & Ground Training Course for Private Pilot Helicopter Certification

14 CFR Part 141 and CFR Part 61 Rotorcraft/Helicopter Private Pilot Certification Course

STAR-PPHS
Star Helicopters LLC
3670 W 120th Street
Hawthorne, CA 90250
Principles of Helicopter Flight Private Pilot Syllabus
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Written by Keith Harter

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PART NUMBER: STAR-PPHS
## Log of Revisions

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About this Syllabus

This syllabus Principles of Helicopter Flight Private Pilot Syllabus is used for the ground and flight training Private Pilot Certification Course. This syllabus uses Principles of Helicopter Flight for the ground training program. The review following each chapter should be finished with the assigned reading. Certain ground lessons are supplemented with reading assignments from Pilot's Handbook of Aeronautical Knowledge, Helicopter Flying Handbook and Helicopter Maneuvers Manual, FAR/AIM, Robinson Pilot Operating Handbook and other materials listed on the Training Materials list. Each book contains an index that will help pinpoint the material for the subject you are working on. The Dauntless FAA Private Pilot Knowledge Test Prep software is recommended to enhance the program. Use of the Test Prep will ensure that the student is completely prepared for the FAA Knowledge Exam upon completion of the course. Instructors using this syllabus must ensure current Practical Test Standards are upheld.

Course Objective:
The objective of this syllabus is for the student to gain the necessary aeronautical skill, knowledge and experience to meet the requirements of a Private Pilot certificate with a Rotorcraft Category and a Helicopter class rating.

Prerequisites:
The student must be able to read, speak and understand the English language, meet the physical standards for a third class medical certificate, and possess a valid student pilot certificate. Student must be 16 years old to solo, and 17 years old to gain certification.

Private Pilot Certification Course:
The Private License is made up of 2 requirements: Aeronautical Skill and Aeronautical Knowledge. This syllabus is written to satisfy 14 CFR Appendix B of Part 141 requirements. With the addition of 5 hours of flight, this syllabus will be equally effective for 14 CFR Part 61 programs. The syllabus is in four stages, containing modules. Each stage must be completed within 90 days. Each module contains both a flight and ground lesson. This presents an integrated flight training process and will promote easier learning and a more efficient flight training program. Ideally, the ground lesson will be completed prior to the flight. Each flight lesson must include a pre- and post-flight briefing.

Testing Procedures:
Each module contains a reading assignment associated with the ground training program. The review questions following each chapter will test the students understanding of the material covered throughout the ground lesson, and must be answered prior to moving on to the next module. There are quizzes in many of the modules and they should be completed prior to that ground lesson and they should be reconciled to 100%. A stage exam is included with each stage, testing the student on both the ground and flight training material covered throughout the stage. This exam must be passed with a minimum score of 80%, and reconciled to 100%, in order to proceed to the next stage. There is also a Pre-Solo exam that must be reconciled to 100% prior to the student doing any solo flights. It is essential that the objective of each module be accomplished before moving on to the next module.

Note to Instructors: Answers to the Quizzes and Stage Exams are available from the Chief Instructor.

Minimum Requirements:
The time necessary for the syllabus to qualify for 141 operations includes meeting 35 hours of both ground and flight instruction (40 hours flight training for Part 61 programs). This is a minimum time — the national average for completion of the Private certificate is 73 flight hours. Many factors play into the finishing flight time: frequency of flying, cooperative weather, helicopter and instructor scheduling, and lapses in the flight training process. It is recommended the student fly at least twice a week. This type of schedule produces the most efficient training, and cuts down on review time. If there is a lapse in between flights, it may be necessary to review maneuvers: In this case review flights should be scheduled to make sure flight skills are mastered before moving on. (This will allow the student to continue following the syllabus, which is necessary for a 141 program.) The student should feel comfortable performing each task in all previous modules before progressing to the next stage. If the student exceeds more than 2 hours of the minimum 141 recommended time allotted per module, the chief flight instructor must be informed. The times listed for each stage are the recommended minimum times and may be changed at the discretion of the instructor, (example if a student flies a 1.2 for a lesson that lists 1.3 and the student meets the stage requirements the lesson may be marked as completed and the missing .1 may be picked up in a future stage). These deviations shall not disturb the course continuity or objective. In addition, these deviations should be noted in the student’s flight training record.

Completion Standards:
The student will demonstrate through quizzes, exams, oral test and practical tests and school records that he/she has the necessary aeronautical skill and experience to obtain a private pilot certificate with a rotorcraft category and helicopter class rating.

Flight Training Device
Instruction in a pilot ground trainer that meets the requirements for Part 141.41(c), a portion of instruction in a pilot ground trainer that meets the requirements of Part 141.41(c) may be credited towards the total flight training hour requirements. When a ground training device is used, the ideal sequence is to learn in the ground training device and practice in the helicopter.
Private Pilot Helicopter
FAR Requirements Part 141 & Part 61

Flight Training Course
The flight training is divided into four sequential stages. To provide a degree of flexibility for adapting to individual student needs and the training environment, the sequence may be altered within the individual stages at the discretion of the flight instructor. The times listed for each stage are the recommended minimum times and may be changed at the discretion of the instructor, (example if a student flies a 1.2 for a lesson that lists 1.3 and the student meets the stage requirements the lesson may be marked as completed and the missing .1 may be picked up in a future stage). These deviations shall not disturb the course continuity or objective. In addition, these deviations should be noted in the student’s flight training record.

PRIVATE-H 141 FAR Requirements
Initial Private Pilot Certificate
- 30 hours dual, including:
  - 3 hours of cross-country training in a helicopter.
  - 3 hours of night training in a helicopter that includes:
    - One cross-country flight in a helicopter of at least 50 nautical miles total distance.
    - 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.
    - 3 hours in a helicopter in preparation for the practical test within 60 days preceding the date of the test.
- 5 hours of solo flight training in a helicopter, including at least:
  - 3 hours cross-country time.
  - One solo cross-country flight off 100 nautical miles total distance, with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of more than 25 nautical miles between the takeoff and landing locations, and 3 takeoffs and 3 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

PRIVATE-H 61 FAR Requirements
Initial Private Pilot Certificate
- 30 hours dual, including:
  - 3 hours of cross-country training in a helicopter.
  - 3 hours of night training in a helicopter that includes:
    - One cross-country flight in a helicopter of at least 50 nautical miles total distance.
    - 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.
    - 3 hours in a helicopter in preparation for the practical test within 2 calendar months preceding the date of the test.
- 10 hours of solo flight training in a helicopter, including at least:
  - 3 hours cross-country time.
  - One solo cross-country flight off 100 nautical miles total distance, with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of more than 25 nautical miles between the takeoff and landing locations, and 3 takeoffs and 3 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

Add-on Private Pilot Certificate
- 20 hours dual, including:
  - 3 hours of cross-country training in a helicopter.
  - 3 hours of night training in a helicopter that includes:
    - One cross-country flight in a helicopter of at least 50 nautical miles total distance.
    - 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport.
    - 3 hours in a helicopter in preparation for the practical test within 2 calendar months preceding the date of the test.
- 10 hours of solo flight training in a helicopter, including at least:
  - 3 hours cross-country time.
  - One solo cross-country flight off 100 nautical miles total distance, with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of more than 25 nautical miles between the takeoff and landing locations, and 3 takeoffs and 3 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower.

Ground Training Course
The ground training is divided into four stages. To provide a degree of flexibility for adapting to individual student needs and the training environment, the sequence may be altered within the individual stages at the discretion of the flight instructor. These deviations shall not disturb the course continuity or objective. In addition, these deviations should be noted in the student’s flight training record.

PRIVATE-H 141 FAR Requirements
- 35 hours of total time ground training

PRIVATE-H 61 FAR Requirements
- No hour requirements for Part 61 initial or Add-on

All ground and quizzes are to be completed prior to each flight. Homework listed at the end of each flight will be completed prior to moving from one module to the next. Quizzes and Exams will be graded by the instructor, corrected to 100% and the score recorded in the Student Flight Record and Ground Completion Record and put into the student file.

Star Helicopters LLC
Revision No: 001
Date: June 1, 2013
Page IV
Private Pilot Minimum Course Hours
For Part 141 Compliance

These course hours are for student/instructor guidance only. They are the minimum time schedule which will ensure the minimum flight and ground training compliance with 14 CFR Appendix B of Part 141.

Note: Ground instruction should include classroom discussion, and pre-flight and post-flight briefings.

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</table>
Ground Stages Overview

Ground Stage 1 – Introduction to Helicopter Flying
23.0 Hours

Objective:
The objective of Stage 1 is for the student to become proficient in, and have an understanding of the Fundamentals of Helicopter Flying, Aerodynamics, Systems, Maneuvers, Emergency Procedures, Flight Physiology, Charts, Airspace and Airports.

Completion Standards:
Stage 1 is complete when the student is ready and endorsed for solo flight. Student shall score at least 80% on the Stage 1 Exam, and all deficient areas shall be reconciled to 100%. Student shall have third-class medical and student pilot certificate upon completion of this stage.

Ground Stage 2 – Cross Country and Solo Flight
2.0 Hours

Objective:
Ground stage 2 covers the Student Solo Policies, the Student Pre-Solo Test and Cross Country Solo.

Completion Standards:
Stage 2 is complete when the student has met all of their Solo and Cross Country requirements. Student shall score at least 80% on the Stage 2 Exam, and all deficient areas shall be reconciled to 100%.

Ground Stage 3 – Advanced Maneuvers
Stage 3 is not required for Part 61 Students who are getting a Private Pilot Add-on Certificate, but it is recommended if they do not have a solid understand of the material presented.
7.0 Hours

Objective:
Ground stage 3 the student continues on building their aviation skills.

Completion Standards:
Stage 3 is complete when the student has met all of their Solo and Cross Country requirements. Student shall score at least 80% on the Stage 3 Exam, and all deficient areas shall be reconciled to 100%.

Ground Stage 4 – Preparation for Checkride
Initial = 3.0 Hours

Objective:
Ground Stage 4 is set up to find the weaknesses in the students ground as determined by the instructor and strengthen them in preparation for the Private Pilot Checkride.

Completion Standards:
Stage 4 is complete when the student achieves the objective of each lesson, and can list or describe the correct process or reference for accomplishing elements, exercises and activities. Student shall score at least 80% on the Stage 4 Exam, and all deficient areas shall be reconciled to 100%. Students must take and pass the FAA Private Knowledge Exam – Rotorcraft. At the completion of this stage, student is signed off to take the Private Pilot checkride.
Flight Stages Overview

Flight Stage 1 – Introduction to Helicopter Flying
19.0 Hours (19hrs dual, 4hrs Dual X-Country, 3hrs Dual Night)

Objective:
The objective of Stage 1 is for the student to become proficient in, and have an understanding of the Fundamentals of Helicopter Flying, Maneuvers, Emergency Procedures, Airport operations, cross country and night flying.

Completion Standards:
Stage 1 is complete when the student has achieved the objective of each lesson and is ready and endorsed for solo flight. Student shall have third-class medical and student pilot certificate upon completion of this stage. Student must take and pass the Pre-Solo exam before their first solo.

Flight Stage 2 – Cross Country and Solo Flight
Part 141 – 7.5 Hours (2.5hrs Dual, 5hrs Solo, 2.5hrs Solo X-Country)
Part 61 – 12.5 Hours (2.5hrs Dual, 10hrs Solo, 5hrs Solo X-Country)

Objective:
Flight stage 2 covers the solo and cross country flying requirements. Student must take and pass the Pre-Solo exam before their first solo.

Completion Standards:
Stage 2 is complete when the student has met all of their Solo and Cross Country requirements, and achieves the objective of each lesson. Student should be flying at or near the Private Pilot PTS standards.

Flight Stage 3 – Advanced Maneuvers
Stage 3 is not required for Part 61 Students who are getting a Private Pilot Add-on Certificate, it is recommended if they are not at private pilot PTS standards.
5.5 Hours Dual

Objective:
Stage 3 the student will continue to increase their helicopter flying skills.

Completion Standards:
Stage 3 is complete when the student is able to perform the maneuvers at or close to Private PTS standards.

Flight Stage 4 – Preparation for Checkride
3.0 Hours Dual

Objective:
Stage 4 will train the student to fly consistently to private pilot PTS standards.

Completion Standards:
Stage 4 is complete when the student has demonstrated all of the flight maneuvers to the PTS private pilot standards on the stage 4 flight check and the student meets all of the requirements for a private pilot and is prepared for the FAA Private Pilot checkride.
Ground and Flight Training Module - STAR-PPHS (Sample)
Ground Tracking Procedure:

**Ground Record Keeping** – Using the Students Master Copy of Student Flight Record & Ground Completion Record (STAR-SFGRH) (This is the one stored in the students file), it is recommended that you complete the Students Copy of the Training records when updating the Students Master Copy. Every ground lesson should include ground time to update the training records.

Using the **Students Principles of Helicopter Syllabus (STAR-PHFS-P)**, at the completion of each ground training session, the instructor will check off the completed contents and sign each module as they are completed.

Using the **Students Master Copy of the Student Flight Record & Ground Completion Record (STAR-SFGRH)**, at the completion of each ground training module the instructor along with the student will sign the completed module.

RETURN THE STUDENT MASTER COPIES TO THE STUDENTS FILE WHEN COMPLETED – THEY ARE NOT TO LEAVE STAR HELICOPTERS
Flight Tracking Procedure:

Flight Record Keeping – Using the Students Master Copy of Student Flight Record & Ground Completion Record (STAR-SFGRH) (This is the one stored in the students file), it is recommended that you complete the Students Copy of the Training records when updating the Students Master Copy. Every ground lesson should include ground time to update the training records. Every flight should include .2 of ground time for pre & post flight discussions & to update the training records.

Using the Students Principles of Helicopter Syllabus (STAR-PHFS-P), at the completion of each flight training session, the instructor will check off the completed contents and sign each module as they are completed.

Using the Students Master Copy of the Student Flight Record & Ground Completion Record (STAR-SFGRH), at the completion of each flight the instructor and student will mark off and evaluate each maneuver completed during the flight training session. Once the Module has been completed the instructor along with the student will sign the completed module record.

RETURN THE STUDENT MASTER COPIES TO THE STUDENTS FILE WHEN COMPLETED – THEY ARE NOT TO LEAVE STAR HELICOPTERS
### Principles of Helicopter Flight Private Pilot Syllabus

**PART 1**

**41 & 61 Training Course**

---

**Student Flight Record (STAR-SFGRH) Flight Maneuvers (Sample)**

---

**Sample Portions of Course Training Record**
Enrollment Certificate (Sample)

This is to certify that

STUDENT NAME

is enrolled in the Federal Aviation Administration approved

FAR PART 141 Rotorcraft/Helicopter COURSE NAME Certification Course

Conducted by

STAR HELICOPTERS LLC

Air Agency Certificate Number 4 SRS 118 L

_____________________________  __________________________
Chief Instructor                                            Date of Enrollment
This is to certify that

STUDENT NAME

has successfully completed ## hours of cross-country training, all stages, tests and course requirements and has graduated from the Federal Aviation Administration approved

FAR PART 141 ROTORCRAFT/HELICOPTER COURSE NAME CERTIFICATION COURSE

Conducted by

STAR HELICOPTERS LLC
Air Agency Certificate Number 4SR518L

______________________________    ____________________________
Chief Instructor                  Date of Enrollment

Graduation Certificate (Sample)
# Training Course Materials

## Required Training Materials

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<thead>
<tr>
<th>No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Principles of Helicopter Syllabus - Private (STAR-PPHS)</td>
</tr>
<tr>
<td>2</td>
<td>Private Pilot Rotorcraft Practical Test Standards (ASA-8081-15A)</td>
</tr>
<tr>
<td>3</td>
<td>Principles of Helicopter Flight (ASA-PHF-2)</td>
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<tr>
<td>4</td>
<td>Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-25A)</td>
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<tr>
<td>5</td>
<td>Commercial Pilot Helicopter Syllabus (STAR-CPHS)</td>
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<tr>
<td>6</td>
<td>Commercial Pilot and Flight Instructor Practical Test Standards (ASA-8081-16B)</td>
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<tr>
<td>7</td>
<td>Instrument Rating Helicopter Syllabus (STAR-IRHS)</td>
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<tr>
<td>8</td>
<td>Instrument Rating Practical Test Standards (ASA-8081-4E)</td>
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<td>9</td>
<td>Flight Instructor Helicopter Syllabus (STAR-CFIHS)</td>
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<td>10</td>
<td>Flight Instructor Instrument Helicopter Syllabus (STAR-CFIHS)</td>
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<tr>
<td>11</td>
<td>Star Helicopters Safety Procedures and Practice Manual (STAR-SPPM)</td>
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<tr>
<td>12</td>
<td>Student Flight &amp; Ground Record (STAR-SFGR-H) = 2 Copies</td>
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<td>13</td>
<td>Pilot Log Book (ASA-SP-30) or equivalent</td>
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<tr>
<td>14</td>
<td>Helicopter Flying Handbook (FAA-H-8083-21A)</td>
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<td>15</td>
<td>FAR/AIM</td>
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<tr>
<td>16</td>
<td>Robinson Pilot's Operating Handbook [R22] [R44]</td>
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<td>17</td>
<td>Los Angeles TAC Chart (TLA)</td>
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<td>18</td>
<td>Los Angeles Sectional Chart (SLA)</td>
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<td>19</td>
<td>Helicopter Route Chart Los Angeles (HELRA)</td>
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<td>20</td>
<td>Airport/Facility Directory Southwest U.S. (AFDSW)</td>
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<td>21</td>
<td>Helicopter Maneuvers Manual (ASA-HELI-fM)</td>
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<td>22</td>
<td>Aviation Weather Handbook (AC 00-6A)</td>
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<td>Aviation Weather Services (AC 00-45D)</td>
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<td>24</td>
<td>Instrument Flying Handbook (ASA-8083-15A)</td>
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<td>25</td>
<td>Aviation Instructors Handbook (FAA-H-8083-9A)</td>
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<td>Approach Plates</td>
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## Recommended Training Materials

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<tr>
<td>27</td>
<td>Pre-Flight and Startup/ShUTDOWN Checklist [R22] [R44]</td>
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<tr>
<td>28</td>
<td>Flight Computer (E6B or CX-2 Pathfinder or equivalent)</td>
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<td>29</td>
<td>Ultimate Rotating Plotter CP-RLX (or equivalent)</td>
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<tr>
<td>30</td>
<td>Kneeboard 9-G</td>
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<tr>
<td>31</td>
<td>Dauftless FAA Knowledge Test Preparation Software</td>
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<tr>
<td>32</td>
<td>Star Helicopters Private Practical Test Standards – Study Guide</td>
</tr>
<tr>
<td>33</td>
<td>Star Helicopters Commercial Practical Test Standards – Study Guide</td>
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<tr>
<td>34</td>
<td>Robinson R22/R44 Safety Awareness DVD (RHC F/N R7943-1)</td>
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<tr>
<td>35</td>
<td>Private Pilot Guided Flight Discovery</td>
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<tr>
<td>36</td>
<td>Oral Exam Guide</td>
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Star Helicopters LLC  
Revision No: 001  
Date: June 1, 2013  
3670 W 120th Street, Hawthorne, CA 90250  
PHONE 310-355-1959 • 888-TO-FLY-STAR • FAX 310-355-1964  
www.3starhelicopters.com

PART 141 & 61 Training Course  
Principles of Helicopter Flight Syllabus  
Private Pilot - STAR-PPHS  
Page XV
LOGBOOK ENDORSEMENTS

The proper use of endorsements

The following example should be used when adding endorsements to the student's logbook. Using this method will result in a neat and organized logbook and will allow you to quickly notice if any endorsements have been skipped.

All logbook entries should be made in black ink and they should be neat and legible. The first few entries should be made by the instructor. The student should be making the rest of the entries and the instructor should review the entry and then sign it.

The student should sign, total the hours on each page and carry forward the hours in their logbook as they complete each page.

Medical Certificate and Student Pilot Certificate - Open Logbook and tape the top of the medical certificate to the first page (Sample)

Endorsements - Starting on the last page (back cover) of the logbook, apply each endorsement as needed working towards the front of the logbook (Sample)
ENGLISH LANGUAGE PROFICIENCY

Flight Training Requirements

It is a FAR requirement that a student read, speak, write and understand the English language in order to obtain a certificate or rating.

Prior to conducting flight and ground training the instructor must insure that the student is proficient in the English language. Once the instructor has determined that the student meets the English proficiency requirements the following endorsement must be added to the students logbook.

00 – English Language Proficiency: 61.103(c), 61.123(b), 61.153(b) and AC 60-28

I certify that
reads, speaks, writes, and understands the English language.
In accordance with 61.103.

Printed Name
Signature Date
CFI# Exp. Date

00-English Language Proficiency (Sample)
TRANSPORTATION SECURITY ADMINISTRATION (TSA)

Flight Training Requirements

The following Information must be completed for students who wish to conduct flight training in an aircraft weighing less than 12,500 lbs.

Prior to any flight training you must complete the following to determine the student’s eligibility to begin flight training.

Is the student a U.S. Citizens or National Seeking Flight Training? If “Yes” go to step “ONE”, if “No” go to step “TWO”

STEP ONE - U.S. Citizen (or National)

The following Information is for U.S. citizens who wish to conduct flight training in an aircraft weighing less than 12,500 lbs. Applicability and Proof of citizenship/citizenship verification

Before a U.S. citizen can begin flight training toward an initial FAA pilot certificate, recreational, sport pilot, or private pilot certificate; instrument rating; or multiengine rating, a CFI must verify citizenship.

1. Determine applicability. The requirements for determining citizenship status for any student, whether U.S. or alien, applies only to flight training towards an initial FAA pilot certificate, including a recreational pilot, sport pilot, or private pilot certificate; instrument rating; or multiengine rating.

2. Proof of citizenship. Student must show evidence of U.S. citizenship to instructor with one of the following:
   1. Valid, unexpired U.S. passport
   2. Original or government-issued birth certificate of the U.S., American Samoa, or Swains Island AND a government-issued picture ID
   3. Original certificate of birth abroad with raised seal (Form FS-545 or DS-1350) AND a government-issued picture ID
   4. Original certificate of U.S. citizenship with raised seal (Form N-560 or N-561) or a Certificate of Repatriation (Form N-581) AND government-issued pictured ID
   5. Original U.S. Naturalization Certificate with raised seal (Form N-550 or N-570) AND a government-issued picture ID

3. Logbook or record-keeping requirements. An instructor must do one of the following:
   1. Keep a copy of the documents used to provide proof of citizenship for five years
   2. Make an endorsement in the instructor’s logbook or other record used by the instructor to record flight student endorsements AND the student’s logbook with the following endorsement:

   | 01 – Transportation Security Administration |
   | U.S. Citizens (or National) Ref: 49 CFR 1552.3(h) |
   | I certify that _____________________________
   | has presented me a ________________________ establishing that
   | he/she is a U.S. Citizen or National in accordance with 49 CFR 1552.3(h) |
   | CFI Printed Name |
   | CFI Signature Date |
   | CFI# Exp. Date |

   01-Transportation Security Administration – U.S. Citizen (or National) (Sample)

4. Students who change flight schools and/or locations will be required to prove citizenship and receive a logbook endorsement. Recurring logbook endorsements are required when students change flight schools or instructors (if the instructor did not know the student when the student received the initial logbook endorsement).
STEP TWO - Aliens (Non-U.S. Citizens)

The following Information is for Aliens (Non-U.S. Citizens) who wish to conduct flight training in an aircraft weighing less than 12,500 lbs.

Before an Alien (Non-U.S. Citizen) can begin flight training toward an initial FAA pilot certificate, recreational, sport pilot, or private pilot certificate; instrument rating; or multiengine rating, The following TSA steps must be completed and final approval granted from TSA before flight training can begin. Step by Step instructions can be found at www.flightschoolcandidates.gov

A. Verify that you have an appropriate visa.
B. Notify the flight school that you want to begin taking flight training.
C. Ensure that you have a valid email address.
D. Create a login account at TSA’s AFSP website.
E. Apply for training on TSA’s AFSP website
F. Wait for the flight school to acknowledge your training request.
G. Pay the nonrefundable $130 processing fee per instructions emailed to you.
H. Look for a “Preliminary Approval” email from TSA.
I. Submit fingerprints to TSA per the instructions emailed to you.
J. Wait for TSA to notify you and the flight school of its decision.
K. Once you have received TSA approval, START FLIGHT TRAINING!

Once you have received permission to train, you have 180 days to begin training and 365 days to complete the approved training. Both of these time periods start from the day you receive approval. For example, if you begin flight training 30 days after you have been approved, you now have 335 days to finish. If you do not finish, a new training request must be submitted.

Have your photo taken by the flight school when you arrive for the first day of flight training.

1. Logbook or record-keeping requirements. An instructor must do one of the following:
   1. Keep a copy of the passport used to complete the TSA application for five years
   2. Make an endorsement in the instructor’s logbook or other record used by the instructor to record flight student endorsements AND the student’s logbook with the following endorsement:

   01a – Transportation Security Administration
   Aliens (Non-U.S. Citizens) Ref: 49 CFR 1552.3(h)

   I certify that _____________________________
   has completed the TSA application for Flight Training and has received
   TSA Final Approval to begin flight training beginning on Date __________,
   Training must be completed within 365 days of the approval date.

   _____________________________
   CFI Printed Name

   _____________________________
   CFI Signature Date

   _____________________________
   CFI# Exp. Date

01a-Transportation Security Administration – Aliens (Non-U.S. Citizens) (Sample)
SFAR 73 – Instruction in Robinson Helicopters

SFAR 73 requires that specific training requirements be met for pilots of R22 and R44 helicopters.

1. **Awareness Training.** Awareness training must be given by an endorsed instructor prior to manipulating the controls.

   The instruction must consist of:
   
   - Energy management
   - Mast bumping
   - Low rotor RPM (blade stall)
   - Low G hazards
   - Rotor RPM decay

   Instructor’s note: Use the following endorsement when signing off students for awareness training:

   **02 – SFAR 73 Awareness Training**

   I certify that ____________________________ has received Awareness training required by SFAR 73 (2)(a)(3)(i-v).

   ____________________________
   Printed Name

   ____________________________
   Signature Date

   ____________________________
   CFI# Exp. Date

   **02-SFAR 73 Awareness Training (Sample)**
2. Solo endorsement. Specific requirements must be met within 90 days prior to solo flight (for non-helicopter rated pilots). See SFAR 73 and the pre-solo endorsement for Robinson pilots on page 17.

Training must include:

- 20 hours dual in same model Robinson
- Enhanced training in autorotation procedures
- Engine rotor RPM control without the use of the governor
- Low rotor RPM recognition and recovery
- Effects of low G maneuvers and proper recovery procedures

Instructor's note: Use one of the following endorsements when signing off students to Solo:

03 – SFAR 73 Solo R-22
I certify that _____________________________ meets the experience requirements of 2(b)(3) and has been given training specified by SFAR 73 paragraph 2(b)(3)(i-iv). He/she has been found proficient to solo the R22. Exp. ______/_____/__________

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<td>CFI#</td>
<td>Exp. Date</td>
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04 – SFAR 73 Solo R-44
I certify that _____________________________ meets the experience requirements of 2(b)(4) and has been given training specified by SFAR 73 paragraph 2(b)(4)(i-iv). He/she has been found proficient to solo the R44. Exp. ______/_____/__________

<table>
<thead>
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<tr>
<td>Signature</td>
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<tr>
<td>Date</td>
<td></td>
</tr>
<tr>
<td>CFI#</td>
<td>Exp. Date</td>
</tr>
</tbody>
</table>

03-SFAR 73 Solo R-22 or 04-SFAR 73 Solo R44 – (Use the appropriate endorsement) (Sample)
I have been given a copy of the Star Helicopters LLC Principles of Helicopter Flight Private Pilot Syllabus (STAR-PPHS) and the Safety Procedures and Practices Manual. I have read and understand and agree to comply with the instructions, procedures, terms and conditions set forth in the Star Helicopters LLC Principles of Helicopter Flight Private Pilot Syllabus (STAR-PPHS) and the Safety Procedures and Practices Manual.

Student Signature

Printed Name

Date

Place signed copy in student folder
Principles of Helicopter Flight Syllabus Private Pilot

Flight & Ground Training Course
Stage 1
Introduction to Helicopter Flying

Objective
The objective of Stage 1 is for the student to become proficient in, and have an understanding of the following:

Ground Training
- Course objective
- School requirements, procedures and regulations
- Grading criteria
- Forces acting on a helicopter
- Stability and control
- Training helicopter (airframe, engine, systems, flight instruments)
- Basic flight maneuvers
- Flight information
- Basic weather theory
- Emergency and hazardous conditions
- Aeromedical factors
- Flight physiology
- Regulations

Flight Training
- Flight training process
- Training helicopter
- Preflight
- “Special Emphasis Areas” (per PTS)
- Taxiing
- Four basics of flight (straight and level, turns, climbs, descents)
- Hovering
- Autorotations
- Use of sectional
- Airspace
- Collision avoidance
- Emergencies
- Steep Turns
- Night Flying
- Cross Country Flying

Completion Standards:
Stage 1 is complete when the student is ready and endorsed for solo flight. Student shall score at least 80% on the Stage 1 Exam, and all deficient areas shall be reconciled to 100%. Student shall have third-class medical and student pilot certificate upon completion of this stage.
Stage 1/Module 1

Ground Training

Objective:
For the student to be introduced to the Private Pilot Certification program, and learn the flight school requirements, procedures, regulations, and grading criteria. Student shall also become familiar with the atmosphere and the forces acting on a helicopter.

Content:
____ Review of course and objectives
____ School requirements, procedures, regulations
____ Grading criteria, expectations of student
____ Review objective of Stage 1
____ Weight & Balance Calculation
  _____ Calculate maximum fuel with instructor for each helicopter flown during training
____ Atmosphere
  _____ Atmospheric pressure
  _____ Air temperature
  _____ Combined effects
  _____ Moisture content
  _____ Standard atmosphere
  _____ Pressure altitude
  _____ Density altitude

The forces acting on a helicopter
____ Lift
  _____ Definitions
  _____ Lift formula
  _____ Dynamic energy
  _____ Center of pressure, Aerodynamic center
____ Drag
  _____ Drag formula
  _____ Parasite drag, Profile drag, Form drag
  _____ Skin friction
  _____ Induced drag/methods to reduce
  _____ Tip vortices
  _____ Total drag curve
____ Lift/Drag ratio
  _____ Best L/D ratio, Factors influencing L/D ratio

Completion Standards:
This lesson is complete when the student has successfully completed all review questions following the assigned reading and when the student along with the instructor has performed a weight and balance calculation on each helicopter to be flown and the student completes the Stage 1/Module 1 Quiz on Aerodynamics, Appendix A-2 of this book.

Assignments:
Principles of Helicopter Flight, Chapters 2 – 5, Helicopter Flying Handbook, Chapters 2, 6 and 8, Pilot Operating Handbook (POH), Section 4, Stage 1/Module 1 Quiz on Aerodynamics, Appendix A Page A-2 of this book.

Flight Training

Objective:
For the student to be introduced to and become familiar with preflight inspections, checklist operations, starting and taxi procedures and the function and use of the helicopter controls.

Content:
____ Preflight inspection and aircraft documents
  (certificates and documents, aircraft logbooks, helicopter servicing, aircraft manual)
____ Introduction to PTS and special emphasis areas
____ SFAR 73 training if applicable (see page 17)
____ Positive exchange of flight controls
____ Familiarization with helicopter
____ Starting the engine and rotor engagement
____ Checklists/system checks
____ Normal takeoff
____ Hovering
____ Hover taxi
____ Normal departure and climb
____ Effects of controls
____ Attitude and power changes — power, attitude and speed change
____ Normal approach to landing
____ Post flight procedures

Completion Standards:
This module is complete when the student can conduct the preflight with minimum assistance, properly use all checklists, start the helicopter, and operate the controls.

Assignments:
Helicopters Maneuvers Manual, Pages 2, 6, 10 and 28

---

Stage 1/Module 1 – Ground
Date of Completion: _____________________________
CFI Signature: ________________________________
Ground Time: ________________________________

Stage 1/Module 1 – Flight
Date of Completion: _____________________________
CFI Signature: ________________________________
Time Flown: ________________________________
Stage 1/Module 14
Stage Check

Lesson Time: Dual 1.5 hour flight, or whatever is necessary to meet objective
1.0 hour ground instruction, or whatever is necessary to meet objective

Flight Training

Objective: For the chief instructor, assistant chief instructor or the designated check instructor to review the student’s progress is satisfactory, training can progress to stage 2 and solo operations.

Content:
- Obtaining weather
- Preflight inspection and aircraft documents
- Cockpit management
- Radio communication and ATC light signals
- Pre-takeoff checks
- Surface taxi
- Hover taxi
- Air taxi
- Normal and crosswind takeoffs and landings
- Straight and level flight; turns in both directions
- Straight-in autorotation with power recovery
- Climbs and climbing turns
- Airport traffic patterns
- Power failure
- Settling with power
- Low rotor rpm recovery
- Rapid decelerations
- Partial power failure
- Collision avoidance, wake turbulence
- Equipment malfunctions
- Go-arounds
- Postflight

Completion Standards:
This module is complete when the student can conduct the flight tasks competently enough to leave the pattern. Altitude should be within 150 feet, heading 15 degrees and airspeed 15 knots throughout maneuvering. During hover, altitude should be within 5 feet and ground track kept within 5 feet. Autorotation maneuvers should be stopped within 150 feet of a specified point.
Stage 2
Solo Practice and Solo Cross-Country Flight

Objective
The objective of Stage 2 is for the student to gain knowledge and experience in the following:

The Pre-Solo test must be taken, corrected to 100% and a copy placed in their student file before the student’s first solo.

Ground Training
- Flight planning
- Radio navigation: VOR, ADF, radar, transponder, DME, RNAV
- Enroute navigation
- Flight Computer

Flight Training
- Pre-cross-country maneuvers (per 14 CFR §61.93)
- Cross-country flight planning
- The required solo and solo cross-country time

Completion Standards:
Stage 2 is complete when the student has met all of their Solo and Cross Country requirements. Achieves the objective of each lesson, and can list or describe the correct process or reference for accomplishing elements, exercises and activities. Student shall score at least 80% on the Stage 2 Exam, and all deficient areas shall be reconciled to 100%.
Stage 2
Required Solo Endorsements

Some or all of the following endorsements will be required prior to any solo flights. Please make sure you are using the correct endorsements prior to each solo flight, depending on the type of solo being conducted and the aircraft being flown. Make sure you are using the following weather minimums on each endorsement. **DO NOT USE ENDORSMENT 09-Repeated Cross Country Route** without permission from Chief Flight Instructor.

Weather Minimums
- **Solo Flights:** The weather minimums for solo flights will be as shown in the following chart.

**First Solo**

<table>
<thead>
<tr>
<th>Endorsement</th>
<th>Ceiling</th>
<th>Visibility</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hovering</td>
<td>1000 feet</td>
<td>3 miles</td>
<td>10 knots or less, No Gusts</td>
</tr>
<tr>
<td>Traffic Pattern</td>
<td>1000 feet</td>
<td>3 miles</td>
<td>10 knots or less, No Gusts</td>
</tr>
</tbody>
</table>

**Solo Advanced**

<table>
<thead>
<tr>
<th>Endorsement</th>
<th>Ceiling</th>
<th>Visibility</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Pattern</td>
<td>1000 feet</td>
<td>3 miles</td>
<td>10 knots or less, No Gusts</td>
</tr>
<tr>
<td>Local Flight</td>
<td>1000 feet</td>
<td>3 miles</td>
<td>10 knots or less, No Gusts</td>
</tr>
<tr>
<td>Airport to Airport</td>
<td>1500 feet</td>
<td>5 miles</td>
<td>10 knots or less, No Gusts</td>
</tr>
<tr>
<td>Cross Country</td>
<td>1500 feet</td>
<td>5 miles</td>
<td>10 knots or less, No Gusts</td>
</tr>
</tbody>
</table>

Cross Country Solo weather must be forecast to be VFR at time of departure and two (2) hours after the estimated time of arrival at final destination.

**Student Pilot Certificate – Must endorse for initial Solo and for initial Cross Country solo (Sample)**

A solo log book entry is required every 90 days. A Private Add-on student will not have a Student Pilot Certificate.
03 – SFAR 73 Solo R-22

I certify that _________________________ meets the experience requirements of 2(b)(3) and has been given training specified by SFAR 73 paragraph 2(b)(3)(i-iv). He/she has been found proficient to solo the R22. Exp. _____/_____/________

Printed Name

Signature Date

CFI# Exp. Date

04 – SFAR 73 Solo R-44

I certify that _________________________ meets the experience requirements of 2(b)(4) and has been given training specified by SFAR 73 paragraph 2(b)(4)(i-iv). He/she has been found proficient to solo the R44. Exp. _____/_____/________

Printed Name

Signature Date

CFI# Exp. Date

03-SFAR 73 Solo R-22 or 04-SFAR 73 Solo R44 – Use the appropriate endorsement (Sample)

05 - Solo Flight  (Expires 90 days from date below)

I have given ________________________ the flight instruction required by FAR 61.87 (c). He/she has demonstrated proficiency in the applicable maneuvers and procedures listed in FAR 61.87 (f) and is competent to make safe solo flights in a _______. Limitations are as follows:

_____________________________________________________________

Printed Name

Signature Date

CFI# Exp. Date

05-Solo Flight – Valid for 90 days, must re-endorse after 90 days (Sample)

06 – Solo at another airport within 25 nm

I certify that _________________________ has received the required training of 61.93 (b)(1). I have determined that he/she is proficient to practice solo takeoffs and landings at ________. The takeoffs and landings at ________ are subject to the following conditions: ____________________________

Printed Name

Signature Date

CFI# Exp. Date

06 – Solo at another airport within 25 nm (Sample)
07 – Initial Solo Cross Country

I certify that ______________________ has received the required solo cross-country training. I find he/she has met the applicable requirements of 61.93 and is proficient to make solo cross-country flights in a ___________.

______________________________
Printed Name

______________________________
Signature Date

______________________________
CFI# Exp. Date

07-Initial Solo Cross Country – Use for initial Solo Cross Country Flight (Sample)

08 – Cross Country Route

I have reviewed the cross country planning of ______________________, I find the planning and preparation to be correct to make the solo flight from ___________ to ___________ via ___________ with landing at ___________ in a ___________ on __/__/_____. Limitations: ______________________.

______________________________
Printed Name

______________________________
Signature Date

______________________________
CFI# Exp. Date

08-Cross Country Route – Use for all additional Solo Cross Country Flights (Sample)

09 - Repeated Cross Country Route

I certify that ______________________ has received the required training in both directions between and at both ___________ / ___________. I have determined that he/she is proficient of 61.93 (b)(2) to conduct repeated solo cross-country flights over that route, subject to the following limitations: ______________________.

______________________________
Printed Name

______________________________
Signature Date

______________________________
CFI# Exp. Date

09-Repeated Cross Country Route – DO NOT USE THIS ENDORSMENT without permission from Chief Flight Instructor (Sample)
Student Solo Policy

The following Solo Cautions and Policies must be observed at all times during all Solo Flights. All solo flights are supervised, CFI to remain at heli pad for all Hover and Traffic pattern solo’s and CFI to remain at Star Helicopters during Airport to Airport and Cross Country solo’s.

Hover Solos are only permitted at TOA North Pad and LGB Pads 1 thru 4.

Traffic Pattern Solos are only permitted at TOA North Pad and LGB Pads 1 thru 4.

Cross Country Solos are only permitted at HHR, AJO and F70

**HOVER AND TRAFFIC PATTERN SOLOS ARE NOT PERMITTED AT HHR**

**Solo Cautions & Policies**

- Pre-Solo test must be taken, corrected to 100% and a copy placed in the student file.
- Passengers will not be carried on any student pilot solo flights.
- The student must complete a weight and balance calculation prior to each solo flight and must determine that the aircraft is within CG during all phases of flight.
- The student must check all performance charts to insure that the aircraft is within the performance limitations for all phase of flight (OGE Hover, IGE Hover, Manifold Pressure Limitation, Airspeed limitations).
- Solo Night flights will not be allowed. All solo flights must be back at Star Helicopters, LLC no later than one hour prior to official sunset.
- Solo flights are not allowed at Torrance during Robinson Safety Course week.
- DUAL CONTROLS MUST BE REMOVED for all Cross Country and Airport to Airport solo’s.
- Check Weather & file flight plan before each cross country flight with FAA. CFI to review and initial.
- Day VFR, Wind < 10 knots 0 gusts, forecasted for 2 hours beyond arrival time back at HHR.
- No Emergency Procedure training is allowed (Auto’s, Quickstops, Running Landings, Settling with Power, Slopes, Hover Auto’s, Governor Off Training, Low Rotor RPM Training, etc.).
- No off airport landings are allowed except for emergencies.
- No LAX Transitions.
- No taking pictures during flight, keep your camera under your seat.
- No cell phone calls during flight, keep your cell phone under your seat.
- Watch for traffic!
- Maintain enough altitude from obstacles at all times. Stay at least 500 feet AGL.
- Return or land at a safe area if weather is bad. Do not continue the flight.
- Perform a preflight check before all engine startup’s.
- Never release right hand from cyclic in solo.
- Watch for tower on North Arrival/North Departure to/from TOA and Tower West of FUL.
- Stay clear of Disney TFR.
- No solo at TOA when RHC is having the safety course.
- Traffic pattern at TOA is allowed only at North pad.
- No landing at pads 5 or 6 at LGB on solo flights. No solo at LGB if runway active is other than 30.
- Do not remove left door.
- Non-Cross Country solo practice is limited to a maximum of 2 hours per day, unless permission is given by the Chief Flight Instructor.

I understand and agree to all of the above Solo Policies during all solo flights.  

I have reviewed the above policies with the student. They understand the Solo and they are prepared to make their required solo flights.

___________________________  _________________________
Student Signature                                      CFI Signature

___________________________  _________________________
Printed Name                                      Printed Name

___________________________  _________________
Date                                          Date
Student Solo/Rental Insurance Agreement

The student must complete and sign the Star Helicopters Solo/Rental Insurance Agreement forms and pay for their solo insurance prior to any solo flights.

Solo Insurance Agreement Signed on: ___________________________ Date ___________________________ CFI Signature

Solo Insurance Paid for on: ___________________________ Date ___________________________ CFI Signature

Pre-Solo Written Test

The Pre-Solo written test must be taken, corrected to 100% and a copy placed in the Student file before they do any solo flights.
Stage 2/Module 1

Ground Training

Objective: To conduct a pre-solo briefing and complete, grade and review the pre-solo exam.

Content:
- Solo limitations
- Star Helicopter Solo Policy & Procedures
- Pre-solo exam
- Instructor endorsement

The following maneuvers are not allowed to practice during Solo flights.
- Autorotation’s
- Hover auto’s
- Simulated forced landing
- Simulated engine failures
- Settling with power
- Low rotor RPM recovery
- Low G maneuvers
- Quick stops
- Slopes
- Off airport maneuvers
- Governor Off
- Running Landing/Takeoffs

Completion Standards:
This lesson is complete when the student has passed the Stage 2/Module 1 Pre-Solo Exam. Appendix A Page A-33 of this book with a minimum score of 80%, and reconciled to 100% and Student has watched the Robinson Safety Awareness Video.

Assignments:
Watch the Robinson Safety Awareness Course video, Stage 2/Module 1 Pre-Solo Exam. Appendix A Page A-33 of this book with a minimum score of 80%, and reconciled to 100%.

Flight Training

Objective: Prior to this module the student will have passed the pre-solo written test. The intent of this module is for the student to conduct a supervised hover solo flight.

Hover solo flights are permitted at TOA or LGB.

Content:
- Dual flight
  - Obtaining weather (Go/no go)
  - Verify the requirements of SFAR 73 2(b)(3) have been met (if applicable)
  - Preflight
  - Solo Flight
  - Vertical takeoff to a hover
  - Stationary hover
  - Hover turns
  - Hover taxi
  - Vertical landing from a hover

Completion Standards:
This module is complete when the student is signed off for solo work and the student has successfully completed their first hover solo flight. Traffic pattern operations are now permitted at the instructor’s recommendation.

Assignments:
Helicopters Maneuvers Manual. Pages 12, 13, 16, 17 and 22, 23

<table>
<thead>
<tr>
<th>Stage 2/Module 1 - Ground</th>
<th>Stage 2/Module 1 - Flight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Completion: ______</td>
<td>Date of Completion: ______</td>
</tr>
<tr>
<td>CFI Signature: ______</td>
<td>CFI Signature: ______</td>
</tr>
<tr>
<td>Ground Time:</td>
<td>Time Flown:</td>
</tr>
</tbody>
</table>
Stage 2/Module 3

Minimum 141 Requirements: Solo
1.0 hours flight (Airport)

Minimum 61 Requirements: Solo
3.5 hours flight (Airport)
0.0 hours ground instruction

Flight Training

Objective: In this module the student will continue practicing instructor assigned maneuvers in addition to an Airport to Airport solo. The flight tasks listed represent options for the instructor to choose from in assigning the maneuvers. These may vary depending upon weather, student proficiency or other factors.

The solo flights maybe broken down into several different solo flights.

Airport to Airport solo flights are permitted to TOA or LGB.

Content:
The following maneuvers are not allowed to practice during Solo flights.

- Autorotation’s
- Hover auto’s
- Simulated forced landing
- Simulated engine failures
- Settling with power
- Low rotor RPM recovery
- Low G maneuvers
- Quick stops
- Slopes
- Off airport maneuvers
- Governor Off
- Running Landing/Takeoffs

Completion Standards:
This module is complete when the student has successfully completed the solo flight. Solo operations away from the traffic pattern are now permitted at the instructor’s recommendation.

Stage 2/Module 3
Date of Completion: __________________________
CFI Signature: ____________________________________
Time Flown: ______________________________

Star Helicopters LLC
Revision No: 001
Date: June 1, 2013

PART 141 & 61 Training Course
Principles of Helicopter Flight Syllabus
Private Pilot - STAR-PPHS

Page 34
Stage 2/Module 5
Stage Check

Lesson Time: Dual 1.0 hour flight, or whatever is necessary to meet objective
1.0 hour ground instruction, or whatever is necessary to meet objective

Flight Training

Objective: For the chief instructor, assistant chief instructor or the designated check instructor to review the student’s ability to adequately prepare for and fly cross-country. The evaluation should include the student’s ability to properly divert to an alternate as well as handle in-flight emergencies.

Content:

- Cross-country planning
- Performance
- Weather information and analysis
- Plotting course/use of charts
- Flight log
- Filing flight plan
- Flight computer
- Weight and balance
- Preflight
- Cockpit management
- Aeronautical decision making
- Cross-country flight
  - Departure
  - Flight log use
  - Navigation
  - Radio communications
  - Postflight
- Emergencies including lost communication
- Diversion procedures
- Lost procedures
- Collision avoidance
- Postflight

Completion Standards:
This module is complete when the student has Private Pilot proficiency at cross-country operations. Flight must be within 200 feet, 15 degrees, and 10 knots at all times. Flight must be within 5 minutes of ETA and 3 NM of route throughout.

Stage 2/Module 5 - Exam and Stage Check
Date of Completion: _______________________
Chief Instructor Signature: _______________________
Time Flown: _______________________
Ground Time: _______________________
Stage Exam Score: _______________________
Stage Check Successful: _______________________
Stage 3
Advanced Maneuvers

Stage 3 is not required for Part 61 Students who are getting a Private Pilot Add-on Certificate.

Objective
In this stage the student begins building on the foundation of basic skills. Stage 3 flight training focuses on advanced maneuvers with some review of primary maneuvers as necessary.

Ground Training
- Flying for range and endurance
- Stability
- Weather reports and forecasts
- Regulations

Flight Training
- Maximum performance takeoffs and landing
- Advanced technique takeoffs and landings
- Emergency conditions

Completion Standards:
Stage 3 is complete when the student achieves the objective of each lesson and can list or describe the correct process or reference for accomplishing elements, exercises and activities. Students shall score at least 80% on the Stage 3 exam with all deficient areas reconciled to 100%.
Stage 3/Module 1

Ground Training

Objective: To introduce the student to the Federal Aviation Regulations with emphasis on how the regulations are organized and how to find information. The instructor should also identify which parts are required for Private Pilot Rotorcraft knowledge.

Content:
- FAR publication
- 14 CFR Part 1
- 14 CFR Part 61
- 14 CFR Part 91

Completion Standards:
This lesson is complete when the student completes the Stage 3/Module 1 Quiz on Regulations, Appendix A Page A-43 of this book.

Assignments:
FAR 14 CFR, Parts 1, 61 and 91, Pilot Operating Handbook (POH), Section 3, Stage 3/Module 1 Quiz on Regulations, Appendix A Page A-43 of this book.

Flight Training

Objective: This lesson will focus on systems emergencies and equipment malfunctions. The student will also continue practicing previously learned emergency operations in preparation for solo flight.

Content:
- Obtaining weather (Go/no go)
- Preflight
- Vertical takeoffs and landings
- Normal takeoff and climb
- Normal approach
- Straight-in autorotation with power recovery
- Power failure at a hover
- Partial power failure
- Systems emergencies
  - Engine/oil and fuel
  - Power train failure
  - Hydraulic, if applicable
  - Electrical
  - Carburetor or induction icing
  - Smoke and/or fire
  - Pitot static/vacuum and associated flight instruments, if applicable
  - Abnormal vibrations
  - Warning lights
- Other emergencies specific to the training helicopter
- Postflight

Completion Standards:
This module is complete when the student performs the correct emergency procedures for the items listed, exhibits basic troubleshooting knowledge and executes recovery actions as needed. Flight must be maintained within 200 feet, 15 degrees and 15 knots. Autorotation airspeed should be within 10 knots.

Assignments:
Helicopters Maneuvers Manual, Page 84

Stage 3/Module 1 - Ground
Date of Completion: _______________________________
CFI Signature: __________________________________
Ground Time: _________________________________

Stage 3/Module 1 - Flight
Date of Completion: _______________________________
CFI Signature: __________________________________
Time Flown: _________________________________
Stage 3/Module 5
Stage Check

Lesson Time: Dual 1.0 hour flight, or whatever is necessary to meet objective
1.0 hour ground instruction, or whatever is necessary to meet objective

Flight Training

Objective: For the chief instructor, assistant chief instructor or the designated check instructor to review the student’s progress. If student performance is satisfactory, training can progress to Stage 3 for cross-country training.

Content:

- Preflight
- Maximum performance takeoff and climb
- Slope operations
- Confined area operations
- Pinnacle/platform operations
- Collision avoidance
- Rolling takeoff (wheels)
- Running takeoff
- Steep approach
- 180 degree autorotation
- Shallow approach and running/roll-on landing
- Rapid deceleration
- Emergencies
  - Retreating blade stall
  - Dynamic rollover
  - Ground resonance
  - Low G conditions
  - Low rotor rpm and blade stall
- Go-around
- Postflight

Completion Standards:
This module is complete when the student performs the maneuvers using proper procedures. Straight and level maneuvering altitude should be kept within 150 feet, heading 10 degrees and airspeed 10 knots. During hover, altitude should be kept within 5 feet and ground track kept within 5 feet. The student should have a complete understanding of the listed emergency tasks and their recovery procedures.

Stage 3/Module 5 - Exam and Stage Check
Date of Completion: ______________________
Chief Instructor Signature: ___________________
Time Flown: ______________________________
Ground Time: ____________________________
Stage Exam Score: _________________________
Stage 4
Preparation for Checkride

Objective: The objective of Stage 4 is for the student to gain knowledge and experience in the following:

Ground Training
- Aeronautical decision making
- Mountain flying
- Helicopter icing
- Private Practical Test Standards (PTS)
- Prep for checkride (oral)
- Take and pass the FAA Knowledge Exam

Completion Standards:
Stage 4 is complete when the student achieves the objective of each lesson, and can list or describe the correct process or reference for accomplishing elements, exercises and activities. Student shall score at least 80% on the Stage 4 Exam, and all deficient areas shall be reconciled to 100%. Students must take and pass the FAA Private Knowledge Exam — Rotorcraft. At the completion of this stage, student is signed off to take the Private Pilot checkride.

Flight Training
- The experience and knowledge required by the Private License
- Review all Private Rotorcraft maneuvers, performed according to PTS
- Sign-off for the Private Checkride
Stage 4
Required Written Exam and Checkride Endorsements

The following endorsements will be required prior the students checkride.

10 – PRIVATE PILOT–AERONAUTICAL KNOWLEDGE: 61.35(a)(1) and 61.105(b)
I certify that I have given ______________________ [First name, MI, Last name] the ground training required by 61.105(b) and that he/she is prepared for the required knowledge test.

Printed Name
Signature
Date
CFI# Exp. Date

10-Private Pilot – Aeronautical Knowledge – Use for written exam (Sample)

11 – PRIVATE PILOT PREREQUISITES FOR A PRACTICAL TEST: 61.39(a)(6)
I have given ______________________________________ [First name, MI, Last name] flight training in preparation for a ______________________ [type of practical test] practical test within the preceding 60 days or 2 calendar months and find him/her prepared for the required practical test and to have demonstrated satisfactory knowledge of the subject areas in which the applicant was show to be deficient by his/her airman knowledge test.

Printed Name
Signature
Date
CFI# Exp. Date

11-Private Pilot Prerequisites for a Practical Test (Sample)

11a – PRIVATE PILOT RETESTING AFTER A FAILURE OF A PRACTICAL TEST: 61.49(a)
I have given ____________________________ [First name, MI, Last name] the necessary training required by FAR 61.49(a) for retesting after a failure and find him/her proficient to pass the Private Pilot Practical Test.

Printed Name
Signature
Date
CFI# Exp. Date

11a-Private Pilot Retesting after a failure of a practical test
To be used for a checkride retest (Sample)
12 – PRIVATE PILOT – FLIGHT PROFICIENCY: 61.107(b)

I certify that I have given _______________________[First name, MI, Last name] the ground and flight training required by 61.107(b) [(1) through (8) as appropriate] and find him/her proficient to perform each area of operation safely as a private pilot, and that he/she is prepared for the required practical test.

Printed Name
Signature
Date
CFI# Exp. Date

12-Private Pilot Flight Proficiency (Sample)

13 - PIC R22

I certify that _______________________[First name, MI, Last name] has been given training specified by SFAR 73 paragraph2(b)(1)(ii)(a-d) for the Robinson R22 aircraft and is proficient to act as pilot in command.

Printed Name
Signature
Date
CFI# Exp. Date

14 - PIC R44

I certify that _______________________[First name, MI, Last name] has been given training specified by SFAR 73 paragraph 2 (b)(2)(ii)(a-d) for the Robinson R44 aircraft and is proficient to act as pilot in command.

Printed Name
Signature
Date
CFI# Exp. Date

13- PIC R22 or 14-PIC R44 – Use the appropriate endorsement (Sample)
Stage 4/Module 3
End of Course Check

Objective: For the chief flight instructor, assistant chief instructor or the designated check instructor to review the applicant’s readiness for the practical test. If the student shows weakness in some areas, additional instruction will be assigned as needed.

Assignments:
Review the Helicopter Oral Exam Guide
Stage 4 Exam
FAA Private Pilot Knowledge Exam

Content:
- Certificates and documents
- Aircraft logbooks
- ATC light gun signals
- Minimum equipment list
- Emergency equipment and survival gear
- Preflight
- Cross-country operations
- Engine starting and rotor engagement
- Runway incursions
- Normal and crosswind takeoffs
- Traffic patterns
- Hovering maneuvers
  - Forward, rearward, sideward hovering
  - Hovering turns
  - Surface taxi
  - Hover taxi
  - Air taxi
- Rapid deceleration
- Dynamic rollover
- Ground resonance
- Low G conditions
- Normal and crosswind approaches
- Steep approaches
- Maximum performance takeoff and climb
- Vertical takeoff and landing
- Straight-in autorotation with power recovery
- 180 degree autorotation
- Power failure at a hover
- Power failure at altitude
- Systems and equipment malfunctions
- Settling with power
- Low rotor rpm recovery
- Slope operations
- Confined area operations
- Pinnacle/platform operations
- Rolling takeoff (wheels)
- Running takeoff
- Shallow approach and running/roll-on landing
- Postflight

Completion Standards:
This module is complete when the student performs all maneuvers to practical test standards (preferable better) and both instructors agree that the student is ready for the practical test.

Stage 4/Module 3 - Exam and EOC Stage Check
Date of Completion: ______________________
Chief Instructor Signature: ______________________
Time Flown: ______________________
Ground Time: ______________________
Stage Exam Score: ______________________
Date of Completion: ______________________
Required Practical Exam Endorsements

The following endorsements will be required prior the students checkride.

11 – PRIVATE PILOT PREREQUISITES FOR A PRACTICAL TEST: 61.39(a)(6)
I have given ___________________________ [First name, MI, Last name] flight training in preparation for a _______________ [type of practical test] practical test within the preceding 60 days or 2 calendar months and find him/her prepared for the required practical test and to have demonstrated satisfactory knowledge of the subject areas in which the applicant was show to be deficient by his/her airman knowledge test.

Printed Name

Signature

Date

CFI#

Exp. Date

19-Commercial Pilot Prerequisites for a Practical Test (Sample)

19a – COMMERCIAL PILOT RETESTING AFTER A FAILURE OF A PRACTICAL TEST: 61.49(a)
I have given ___________________________ [First name, MI, Last name] the necessary training required by FAR 61.49(a) for retesting after a failure and find him/her proficient to pass the Private Pilot Practical Test.

Printed Name

Signature

Date

CFI#

Exp. Date

19a-Commercial Pilot Retesting after a failure of a practical test
To be used for a checkride retest (Sample)
Pre-Checkride Checklist

Confirm the following has been completed prior to students Checkride:

- Graded pre-solo written exam
- Current Student Pilot certificate
- All Solo, airport to airport and cross-country endorsed
- 90-day current solo endorsement (if necessary)
- Student certificate endorsed by instructor
- Logbook – Copy last page to Student file
- IACRA 8710 Application form completely filled out - (Page 60)
- Online IACRA 8710 Application completed – Printed Copy to Student file
- Logbook and necessary supplies readily accessible (POH, PTS, Charts, AFD, FAR/AIM)
- Aircraft logbooks
- Cross Country Flight plan and materials necessary for planning a cross-country flight
- FAA Knowledge Exam results (Original) – Copy to Student file
- Identification with photo and signature
- Instructor endorsements for checkride – Copy all endorsements to Student file
- Graduation certificate
- Examiner’s fee
- Current Medical
IACRA 8710 Application
Airman Certificate and/or Rating Application Form 8710

Fill out the below form completely and use it as a guide when completing the online IACRA 8710 Application at iacra.faa.gov/iacra.

If you need another blank 8710 form go to http://www.faa.gov/documentlibrary/media/form/faa8710-1.pdf
Airman Certificate and/or Rating Application

I. Application Information
   □ Student □ Recreational □ Private □ Commercial □ Airline Transport
   □ Instrument □ Additional Rating
   □ Airplane Single-Engine □ Airplane Multi-engine □ Rotorcraft
   □ Balloon □ Airship □ Glider □ Powered-Lift
   □ Flight Instructor Initial □ Renewal □ Reimbursement □ Additional Instructor Rating
   □ Medical Flight Test □ Reexamination □ Reissuance of certificate
   □ Other

A. Name (Last, First, Middle)
B. SSN (US Only)
C. Date of Birth
   Day
   Month
   Year
D. Place of Birth

E. Address
F. Citizenship
Specify
G. Do you read, speak, write, & understand the English language?
   Yes □ No □

H. Nationality
I. Height
J. Weight
K. Hair
L. Eyes
M. Sex
   Male □ Female □

M. Do you now hold, or have you ever held an FAA Pilot Certificate?
N. Grade Pilot Certificate
O. Certificate Number
P. Date Issued

Q. Do you hold a Medical Certificate?
   Yes □ No □
R. Class of Certificate
S. Date Issued
T. Name of Examiner

U. Have you ever been convicted of violation of any Federal or State statutes relating to narcotic drugs, marijuana, or depressant or stimulant drugs or substances?
   Yes □ No □
V. Date of Final Conviction

II. Certificate or Rating Applied For on Basis of:

   □ A. Completion of Required Test
      1. Aircraft to be used (if flight test required)
      2a. Total time in this aircraft / SIM / STD
      2b. Pilot in command
      2b. hours
      2b. hours

   □ B. Military Competence
   1. Service
   2. Date Rated
   3. Rank or Grade and Service Number

   □ C. Graduate of Approved Course
   1. Name and Location of Training Agency or Training Center
   2. Curriculum From Which Graduated
   3. Date

   □ D. Holder of Foreign License
   1. Country
   2. Grade of License
   3. Number
   4. Date

   □ E. Completion of Air Carrier's Approved Training Program
   1. Name of Air Carrier
   2. Date
   3. Who's Curriculum
      □ Initial □ Upgrade □ Transition

III RECORD OF PILOT TIME (Do not write in the shaded areas.)

Airplanes

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IV. Have you failed a test for this certificate or rating?
   Yes □ No □

V. Applicant's Certification -- I certify that all statements and answers provided by me on this application form are complete and true to the best of my knowledge and I agree that they are to be considered as part of the basis for issuance of any FAA certificate to me. I have also read and understand the Privacy Act statement that accompanies this form.

Signature of Applicant

FAA Form 8710-1 (4-00) Supersedes Previous Edition
NSN: 0052-00-682-0007

IACRA Form 8710 – 1
(SAMPLE)
## Instructor's Recommendation

I have personally instructed the applicant and consider this person ready to take the test.

<table>
<thead>
<tr>
<th>Date</th>
<th>Instructor’s Signature</th>
<th>(Print Name &amp; Sign)</th>
<th>Certificate No.</th>
<th>Certificate Expires</th>
</tr>
</thead>
</table>

**Air Agency’s Recommendation**

The applicant has successfully completed our course, and is recommended for certification or rating without further test.

<table>
<thead>
<tr>
<th>Date</th>
<th>Agency Name and Number</th>
<th>Officials Signature</th>
<th>Title</th>
</tr>
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</table>

**Designated Examiner or Airman Certification Representative Report**

- Student Pilot Certificate Issued (Copy attached)
  - I have personally reviewed this applicant’s pilot logbook and/or training record, and certify that the individual meets the pertinent requirements of 14 CFR Part 61 for the certificate or rating sought.
  - I have personally reviewed this applicant’s graduation certificate, and found it to be appropriate and in order, and have returned the certificate.
  - I have personally tested and/or verified this applicant in accordance with pertinent procedures and standards with the result indicated below.
  - Approved – Temporary Certificate Issued (Original Attached)
  - Disapproved – Disapproval Notice Issued (Original Attached)

<table>
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<tr>
<th>Location of Test (Facility, City, State)</th>
<th>Duration of Test</th>
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<td>Ground</td>
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</table>

**Certificate or Rating for Which Tested**

<table>
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<tr>
<th>Date</th>
<th>Examiners Signature</th>
<th>(Print Name &amp; Sign)</th>
<th>Certificate No.</th>
<th>Designation No.</th>
<th>Designation Expires</th>
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</table>

**Evaluators Record (Use For ATP Certificate and/or Type Ratings)**

- Oral
- Approved Simulator/Training Device Check
- Aircraft Flight Check
- Advanced Qualification Program

**Aviation Safety Inspector or Technician Report**

I have personally tested this applicant in accordance with or have otherwise verified that this applicant complies with pertinent procedures, standards, policies, and or necessary requirements with the result indicated below.

- Approved – Temporary Certificate Issued (Original Attached)
- Disapproved – Disapproval Notice Issued (Original Attached)

<table>
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<tr>
<td></td>
<td>Ground</td>
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</table>

**Certificate or Rating for Which Tested**

- Student Pilot Certificate Issued
- Examiners Recommendation
  - Accepted
  - Rejected
- Reissue or Exchange of Pilot Certificate
- Special Medical test conducted – report forwarded to Aeromedical Certification Branch, AAM-330
- Certificate or Rating Based on
  - Military Competence
  - Foreign License
  - Approved Course Graduate
  - Other Approved FAA Qualification Criteria
- Flight Instructor
- Ground Instructor
- Military Competence
- Renewal
- Reinvestigation
- Instructor Renewal Based on
  - Activity
  - Training Course
  - Test
  - Duties and Responsibilities

**Training Courses (FTO) Name**

<table>
<thead>
<tr>
<th>Date</th>
<th>Inspector’s Signature</th>
<th>(Print Name &amp; Sign)</th>
<th>Certificate No.</th>
<th>FAA District Office</th>
</tr>
</thead>
</table>

**Attachments:**

- Student Pilot Certificate (Copy)
- Knowledge Test Report
- Temporary Airman Certificate
- Notice of Disapproval
- Airman’s Identification (ID)
- Form of ID
- Number
- Expiration Date
- Date of Birth
- Certificate Number
- Telephone Number
- E-Mail Address

**FAA Form 8710-1 (4-90) Supersedes Previous Edition**

Electronic Version (Adobe)
Retesting after a failed practical test endorsement

In the event of an unsuccessful checkride the instructor must give instruction in the areas that the student failed during their checkride. The following endorsements must be given prior to their next checkride.

11a – PRIVATE PILOT RETESTING AFTER A FAILURE OF A PRACTICAL TEST: 61.49(a)

I have given ___________________________ [First name, M.I., Last name] the necessary training required by FAR 61.49(a) for retesting after a failure and find him/her proficient to pass the Private Pilot Practical Test.

Printed Name

Signature Date

CFI# Exp. Date

11a - Private Pilot Retesting After A Failure of a Practical Test (Sample)

Post-Checkride Checklist

- Temporary Airmen Certificate – Copy to Student file
- Photo of Student standing next to helicopter – Copy to Student file
APPENDIX A

Quizzes and Exams
Stage 1/Module 1 Quiz
Aerodynamics

1. What are Newton’s three laws?
   A. ____________________________________________________________
   B. ____________________________________________________________
   C. ____________________________________________________________

2. What are the four aerodynamic forces? ________________, ________________, ________________, and ________________

3. What is the lift equation? Lift = ________ ________ ________ ________

4. What parts of the lift equation can you change as a pilot? ____________________________________________________________

5. Name the two different types of airfoils? ____________________________________________________________

6. What is pitch angle? ____________________________________________________________

7. What is angle of attack? ____________________________________________________________
# Stage 1/Module 8 Quiz
## Airports Operations

1. What are the pattern altitude restrictions at HRR?

2. What are the northern distance limits for a right closed traffic pattern and why?

3. What is the one controlled airspace you will not find on the VFR charts, and where is it?

4. Explain the following:
   - Magnetic variation:
   - Magnetic deviation:
   - Magnetic dip:
   - Wind correction angle:

5. What is the meaning of the squawked code on the transponder as follows?
   - 1200: __________
   - 7700: __________
   - 7600: __________
   - 7500: __________

6. When listening to ATIS there are several pieces of information that are very important to us and that we need to know before taking off, list them:
   - W)
   - V)
   - S)
   - T)
   - A)
   - R)

   Any special warnings and hazards.
   - The current ATIS identifier.

7. When making radio calls, what is the specific format we should use?
   - W) (Initial contact only)
   - W)
   - W)
   - W)
   - (Initial contact only)

8. **True or False** – Pilots should read back ALL ATC instructions.

9. If ATC advises you of traffic in your area, what should you do once you locate the traffic? (Choose the best response)
   - Keep your eyes peeled.
   - Do nothing special.
   - Advise ATC that you have traffic in sight and will maintain visual separation.
   - Keep flying and avoid the traffic.

10. What is the emergency radio frequency?

11. When is the airport beacon on?

12. Identify the different colors of the different airport beacons.
   - Civilian Land: __________________
   - Water Airport: _________________
   - Military Airport: ________________
   - Heliport: ______________________
13. Identify the different colors of the airport lighting system.
   Runway Center: _________  Runway Edge: _________  Beginning of Runway: _________
   End of Runway: _________  Taxiway Edge: _________  Taxiway Center: _________

14. What are the operating hours at Hawthorne Airport? ______________________________

15. When does the Hawthorne tower close? ______________________________

16. What does the Hawthorne airspace revert to when the tower closes? ______________________________

17. Name the three types of pilot controlled lighting and how each is activated?
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

18. How do you turn on the pilot controlled lighting for Hawthorne Airport at night?
   __________________________________________________________

19. Identify the 500’ obstacle(s) heading south on a left crosswind departure to TOA on your chart.
   __________________________________________________________

20. Can a student pilot land at LAX? ______________________________

21. Can a student pilot transition through LAX? ______________________________

22. Helicopters operating in TOA airspace north of runways shall use frequency _______.

23. Helicopters operating in TOA airspace south of runways shall use frequency _______.

24. At TOA the north pad shall only be used during hours of? ______________________________

25. At TOA the north pad traffic pattern shall be kept south of ________ and remain within the displaced ________.

26. When shall helicopters be instructed to vacate TOA north pad due to safety? ______________________________

27. What is the pattern altitude for north pad at TOA? ______________________________

28. Identify altitude restrictions and frequencies to operate at TOA;
   West PCH route: ______ feet, frequency ______.
   North route: ______ feet, frequency ______.
   Southeast route: ______ feet, frequency ______.
   South Crenshaw: ______ feet, frequency ______.
   Northeast route: ______ feet, frequency ______.

29. Identify the five different arrival and departure routes of TOA on your aeronautical chart.
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

30. You are on upwind of 29L to make a Northeast departure. TOA control tower said, “Start right turn, northeast
departure is approved”. You got traffic in sight on your right side. What are you going to do?
   __________________________________________________________

31. Helicopters operating in LGB airspace south of runway 30 shall use frequency _______.

32. Helicopters operating in LGB airspace north of runway 30 shall use frequency _______.
33. At LGB the pad shall only be used during hours of? __________________________________________

34. What is the pattern altitude for the pads at LGB? __________________________________________

35. Identify the four commonly used arrival and departure routes of LGB on your aeronautical chart. __________

36. Identify reporting points for LGB on your aeronautical chart. _________________________________

37. What are the two altitude restrictions for helicopters at LGB? _________________________________

38. Identify the location of the 500’ tower at the North West corner of LGB’s airspace.

39. Complete the following four Airport Diagrams, by filling in the missing information on the red lines. Including arrival & departure route names, altitudes, airport frequencies, traffic pattern altitudes and airspace operating altitudes.
Fill in the missing information
Fill in the missing information
Fill in the missing information
Stage 1/Module 12 Quiz
Navigation

Name: ____________________________
Grade: ____________________________
Date: ____________________________
Instructor: ________________________

1. Explain the lost procedure:
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

2. Explain the lost communication procedure:
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
Stage 1/Module 14 Exam
Introduction to Helicopter Flying

Choose the most correct answer choice.

1. How many hours are required for completion of the Private Pilot Certificate, following a Part 141 program?
   A - 35 hours of flight training, 35 hours of ground training.
   B - 40 hours of flight training, 35 hours of ground training.
   C - 73 hours of flight training, 40 hours of ground training.

2. Safety belts are required to be properly secured about which persons in an aircraft and when?
   A- Pilots only, during takeoffs and landings.
   B- Passengers, during taxi, takeoffs, and landings only.
   C- Each person on board the aircraft during the entire flight.

3. The angle between the chord line of an airfoil and the relative wind is known as the angle of
   A - lift.
   B - attack.
   C - incidence.

4. What is ground effect?
   A - The result of interference of the Earth with airflow patterns around the helicopter.
   B - The result of alteration of airflow patterns increasing induced drag around the rotor blades.
   C - The result of disruption of airflow patterns about the blades of a rotor to the point where the rotor no longer supports the weight of the helicopter in flight.

5. The wind condition that requires maximum caution when avoiding wake turbulence on landing is a
   A- light, quartering headwind.
   B- light, quartering tailwind.
   C- strong headwind.

6. The altitude deviation allowed by the PTS for operations in the pattern is
   A - 100 ft.
   B - 150 ft.
   C - 200 ft.

7. Which is appropriate for a helicopter approaching an airport for landing?
   A- Remain below the airplane traffic pattern.
   B- Avoid the flow of fixed wing traffic.
   C- Fly right hand traffic.

8. Which is the correct traffic pattern departure procedure to use at a non controlled airport?
   A - Depart in any direction consistent with safety after crossing the airport boundary.
   B - Make all turns to the left.
   C - Comply with the FAA traffic pattern procedures for the airport.

9. When the speed of a helicopter increases from 20 knots to 60 knots, parasite drag increases by a factor of
   A - three.
   B - six.
   C - nine.

10. The most effective method of scanning for other aircraft for collision avoidance during daylight hours is to use
    A - regularly spaced concentration on the 3-, 9-, and 12-o’clock positions.
    B - a series of short, regularly spaced eye movements to search each 10-degree sector.
    C - peripheral vision by scanning small sectors and utilizing off-center viewing.
11. What are the six primary instruments involved in the instrument scan?
   A- Airspeed indicator, heading indicator, altimeter, VOR, vertical speed indicator, attitude indicator.
   B - Heading indicator, tachometer, VOR, airspeed indicator, altimeter, turn coordinator.
   C - Heading indicator, altimeter, vertical speed indicator, turn coordinator, attitude indicator, airspeed indicator.

12. As VFR pilots, it is most crucial for the pilot-in-command to perform the instrument scan,
   A - equally dividing his/her time between the 6 primary instruments and the engine instruments.
   B - while maintaining collision avoidance by dividing his/her time between inside and outside the cockpit.
   C - keeping his/her head inside the cockpit at all times.

13. Current charts must be used at all times. Sectional charts are revised
   A - every 56 days.
   B - no more than once a year.
   C - every 6 months.

14. Information concerning parachute jumping sites may be found in the
   A - NOTAMs.
   B - Airport/Facility directory.
   C - graphic notices and supplementary data.

15. Most midair collision accidents occur during
   A- hazy days.
   B - clear days.
   C - cloudy nights.

16. Students must uphold at all times
   A- FAA regulations.
   B - school requirements and procedures.
   C - both A and B.

17. The four forces acting on a helicopter in flight are
   A- lift, weight, thrust, and drag.
   B - lift, weight, gravity, and thrust.
   C - lift, gravity, power, and friction.

18. Who is responsible for making the go/no-go decision for each flight?
   A - Pilot-in-command.
   B - Certified flight instructor.
   C - Chief flight instructor.

19. When you fly solo, you are pilot-in-command, and you are required to have in your personal possession a
   A - pilot certificate and logbook.
   B - pilot certificate, photo ID, and medical certificate.
   C - CFI solo endorsement, and copy of the FAR/AIM.

20. During forward cruising flight at constant airspeed and altitude, the individual rotor blades, when compared to each other, are operating
   A- with increasing lift on the retreating blade.
   B - with decreasing angle of attack on the advancing blade.
   C - at unequal airspeed, unequal angles of attack and equal lift moment.

21. Name the four strokes of a piston engine:
   A - Intake, induction, power, expansion.
   B - Intake, compression, power, exhaust.
   C - Intake, compression, power, expansion.

22. Which condition is most favorable to the development of carburetor icing?
   A- Any temperature below freezing and a relative humidity of less than 50%.
   B - Between 32°F and 50°F and low humidity.
   C - Between 20°F and 70°F and high humidity.

23. Clouds, fog, or dew will always form when
   A- water vapor condenses.
   B - water vapor is present.
   C - relative humidity reaches 100%. 
24. What instrument(s) will be affected if the pitot tube becomes clogged, but the static vents remain clear?
   A - Airspeed indicator.
   B - Vertical speed indicator.
   C - Both A and B.

25. In steady straight-and-level flight
   A - lift is greater than drag and thrust equals weight.
   B - weight equals lift and drag equals thrust.
   C - lift equals weight and thrust is greater than drag.

26. The lift differential that exists between the advancing main rotor blade and the retreating main rotor blade is known as
   A — transverse flow effect.
   B — dissymmetry of lift.
   C — hunting tendency.

27. Who is responsible for determining if an aircraft is in condition for safe flight?
   A — A certificated aircraft mechanic.
   B — The pilot-in-command.
   C — The owner or operator.

28. If the outside air temperature (OAT) at a given altitude is warmer than standard, the density altitude is
   A — equal to pressure altitude.
   B — lower than pressure altitude.
   C — higher than pressure altitude.

29. Which combination of atmospheric conditions will reduce aircraft takeoff and climb performance?
   A - Low temperature, low relative humidity, and low density altitude.
   B - High temperature, low relative humidity, and low density altitude.
   C - High temperature, high relative humidity, and high density altitude.

30. If the temperature/dew point spread is small and decreasing, and the temperature is 62°F, what type of weather is most likely to develop?
   A - Freezing precipitation.
   B - Thunderstorms.
   C - Fog or low clouds.

31. What conditions are necessary for the formation of thunderstorms?
   A - High humidity, lifting force, and unstable conditions.
   B - High humidity, high temperature, and cumulus clouds.
   C - Lifting force, moist air, and extensive cloud cover.

32. Two-way radio communication must be established with the Air Traffic Control facility having jurisdiction over the area prior to entering which class airspace?
   A - Class C.
   B - Class E.
   C - Class G.

33. An airport’s rotating beacon operated during daylight hours indicates
   A - that weather at the airport located in Class D airspace is below basic VFR weather minimums.
   B - there are obstructions on the airport.
   C - the Air Traffic Control tower is not in operation.

34. The numbers 9 and 27 on a runway indicate that the runway is oriented approximately
   A - 009° and 027° true.
   B - 090° and 270° true.
   C - 090° and 270° magnetic.
35. If two-way communication fails at an airport with a tower and cannot be restored, the recommended procedure is to
   A - make an off-airport landing.
   B - turn on your landing light, enter the airport area on final approach, and land as soon as possible.
   C - observe traffic flow, enter the traffic pattern on the downwind, look for light signals from the tower, and squawk 7600 on your transponder.

36. In an in-flight emergency requiring emergency action, the pilot-in-command
   A - may deviate from any rule of 14 CFR Part 91 to the extent required to meet that emergency.
   B - must not deviate from any rule of 14 CFR Part 91.
   C - may deviate from any rule of 14 CFR Part 91 but only after receiving prior permission from ATC.

37. Student pilots are responsible for all information, rules, and regulations in Parts
   A - 61, and 91.
   B - 91, and 121.
   C - 1, and 67.

38. A person may not act as a crewmember of a civil aircraft if alcoholic beverages have been consumed by that person within the preceding
   A - 8 hours.
   B - 12 hours.
   C - 24 hours.

39. List the grade and capacity of the fuel and oil to be used in the training aircraft used for solo flight:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td></td>
</tr>
<tr>
<td>Oil</td>
<td></td>
</tr>
</tbody>
</table>

40. What do each of the following ATC light signals mean?

<table>
<thead>
<tr>
<th>Light Signals</th>
<th>in flight</th>
<th>on the ground</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steady green</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flashing green</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steady red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flashing red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flashing white</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternating red and green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Stage 2/Module 1
Pre-Solo Exam

1. The Low Rotor RPM Warning Light and Horn comes on, you should...
2. When could Catastrophic Rotor Stall occur and what are the preventions? (SN-10 & SN-24)
3. What is the number one cause of solo accidents and how can they be prevented?
4. Your Governor Off light comes on in flight, what should you do?
5. In flight you get a feeling of weightlessness and the helicopter begins to roll rapidly to the right.
   What is this called? ____________________________
   How do you recover from this? _________________________
   List the possible causes? ____________________________
6. What are the consequences of an incorrect recovery from this situation?
7. What is the minimum altitude for helicopters per the FAA?
8. What is the minimum recommended safe altitude for helicopters and why?
9. Your Clutch light comes on in flight, describe the correct reactions to this situation...
   ____________________________
10. During your solo flights, explain what flight characteristics are going to change and what you should be aware of
11. Your low fuel light comes on, what should you do? (How much fuel should you have planned for)
12. If something is not right while performing a maneuver, such as too high of an approach.
   What should you do? (Circle the answer)
       [Just go for it]   [Pray]   [Go Around]   [Ask Anthony]
13. What are the limitations for your solo flights?
       Ceiling >= _______ Visibility >= _______ Wind <= _______ Gusts <= _______
14. Complete the following Weight & Balance sheets for the aircraft you will be flying.
# Robinson R22 - Beta II - Weight & Balance

<table>
<thead>
<tr>
<th>ITEM</th>
<th>LIMIT</th>
<th>WEIGHT</th>
<th>LONG ARM</th>
<th>LONG MOMENT</th>
<th>LAT ARM</th>
<th>LAT MOMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty Weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot Name</td>
<td>Sole Min 135lbs</td>
<td>78</td>
<td></td>
<td></td>
<td>+10.7</td>
<td></td>
</tr>
<tr>
<td>Pilot Baggage</td>
<td>Max 240 lbs</td>
<td></td>
<td></td>
<td></td>
<td>+10.7</td>
<td></td>
</tr>
<tr>
<td>Passenger Name</td>
<td>Max 240 lbs</td>
<td>78</td>
<td></td>
<td></td>
<td>-9.3</td>
<td></td>
</tr>
<tr>
<td>Passenger Baggage</td>
<td>Max 50 lbs</td>
<td>78</td>
<td></td>
<td></td>
<td>-9.3</td>
<td></td>
</tr>
<tr>
<td>Door (Right) Remove</td>
<td>-5.2 lbs</td>
<td>77.5</td>
<td></td>
<td></td>
<td>+21.0</td>
<td></td>
</tr>
<tr>
<td>Door (Left) Remove</td>
<td>-5.2 lbs</td>
<td>77.5</td>
<td></td>
<td></td>
<td>-21.0</td>
<td></td>
</tr>
<tr>
<td>Cyclic Removed</td>
<td>-0.8 lbs</td>
<td>68</td>
<td></td>
<td></td>
<td>-8.0</td>
<td></td>
</tr>
<tr>
<td>Collective Removed</td>
<td>-1.1 lbs</td>
<td>80.7</td>
<td></td>
<td></td>
<td>-19.5</td>
<td></td>
</tr>
<tr>
<td>Pedals Removed</td>
<td>-0.8 lbs</td>
<td>46.5</td>
<td></td>
<td></td>
<td>-9.5</td>
<td></td>
</tr>
<tr>
<td><strong>Total W&amp;B with Zero Fuel</strong></td>
<td></td>
<td>No Fuel Weight</td>
<td>No Fuel CG</td>
<td>Long Empty Moment</td>
<td>No Fuel Lat CG</td>
<td>Lat Empty Moment</td>
</tr>
<tr>
<td>Min 520 lbs</td>
<td>Max 1370 lbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Tank 19.2 Max</td>
<td>115.2 lbs</td>
<td>108.6</td>
<td></td>
<td></td>
<td>-11.0</td>
<td></td>
</tr>
<tr>
<td>Gallons -&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aux Tank 10.5 Max</td>
<td>63 lbs</td>
<td>103.8</td>
<td></td>
<td></td>
<td>+11.2</td>
<td></td>
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<tr>
<td>Gallons -&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total W&amp;B with Takeoff Fuel</strong></td>
<td></td>
<td>Take Off Weight</td>
<td>Takeoff Fuel CG</td>
<td>Long Full Moment</td>
<td>Takeoff Fuel Lat CG</td>
<td>Lat Full Moment</td>
</tr>
<tr>
<td>Min 520 lbs</td>
<td>Max 1370 lbs</td>
<td></td>
<td></td>
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</tbody>
</table>

1 Gallon = 6 lbs  
Moment = Weight x Arm  
Center of Gravity = Total Moment / Total Weight

VFR Required Fuel = ETE Minutes + Engine Startup & Shutdown Minutes + Reserve 20 Minutes = Minutes
Gallons + Gallons + Gallons

Max OGE: ________ Feet  
Max IGE: ________ Feet  
Fuel Burn Rate: 9 Gallons Per Hour (For Flight Planning)
R22 ALPHA, BETA, AND BETA II
CENTER OF GRAVITY LIMITS

FAA APPROVED: 1 JUL 2005 2-5
### Robinson R44 - Raven I - Weight & Balance

<table>
<thead>
<tr>
<th>ITEM</th>
<th>LIMIT</th>
<th>WEIGHT</th>
<th>LONG ARM</th>
<th>LONG MOMENT</th>
<th>LAT ARM</th>
<th>LAT MOMENT</th>
</tr>
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<tbody>
<tr>
<td>Empty Weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot (Right Fwd)</td>
<td>Solo Min 150 lbs</td>
<td>49.5</td>
<td></td>
<td>+ 12.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 300 lbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot Baggage</td>
<td>Max 50 lbs</td>
<td>44</td>
<td></td>
<td>+ 11.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger (Left Fwd)</td>
<td>Max 300 lbs</td>
<td>49.5</td>
<td></td>
<td>-10.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Baggage</td>
<td>Max 50 lbs</td>
<td>44</td>
<td></td>
<td>-11.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger (Right Rear)</td>
<td>Max 300 lbs</td>
<td>79.5</td>
<td></td>
<td>+ 12.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Baggage</td>
<td>Max 50 lbs</td>
<td>79.5</td>
<td></td>
<td>+ 12.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger (Left Rear)</td>
<td>Max 300 lbs</td>
<td>79.5</td>
<td></td>
<td>-12.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Baggage</td>
<td>Max 50 lbs</td>
<td>79.5</td>
<td></td>
<td>-12.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Door (Fwd Right) Remove</td>
<td>-7.5 lbs</td>
<td>49.4</td>
<td></td>
<td>+24.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Door (Fwd Left) Remove</td>
<td>-7.5 lbs</td>
<td>49.4</td>
<td></td>
<td>-24.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Door (Rear Right) Remove</td>
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<td>75.4</td>
<td></td>
<td>+23.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Door (Rear Left) Remove</td>
<td>-7.0 lbs</td>
<td>75.4</td>
<td></td>
<td>-23.0</td>
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<td></td>
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<tr>
<td>Cyclic Removed</td>
<td>-0.6 lbs</td>
<td>35.8</td>
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<td>-8.0</td>
<td></td>
<td></td>
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<tr>
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<td>-0.8 lbs</td>
<td>47</td>
<td></td>
<td>-21.0</td>
<td></td>
<td></td>
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<tr>
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<td>16.8</td>
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<tr>
<td><strong>Total W&amp;B with Zero Fuel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min 1550 lbs</td>
<td>Max 2400 lbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Tank 30.6 Max Galls →</td>
<td>Max 183.6 lbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aux Tank 18.3 Max Galls →</td>
<td>Max 109.8 lbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total W&amp;B with Takeoff Fuel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min 1550 lbs</td>
<td>Max 2400 lbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Gallon = 6 lbs

Moment = Weight x Arm

Center of Gravity = Total Moment / Total Weight

VFR Required Fuel = ETI

______ Minutes + Engine Startup & Shutdown ______ Minutes - Reserve 20 Minutes = ________ Minutes

______ Gallons + ________ Gallons = 6 Gallons

Max OGE: ________ Feet

Max IGE: ________ Feet

Fuel Burn Rate: 18 Gallons Per Hour (For Flight Planning)
**ROBINSON**
**MODEL R44**

**SECTION 2**

**LIMITATIONS**

---

**CENTER OF GRAVITY LIMITS**

FAA APPROVED: 16 APR 2003
# Principles of Helicopter Flight Private Pilot Syllabus

## Star Helicopters LLC

### PART 1

<table>
<thead>
<tr>
<th>Training Course</th>
<th>41 &amp; 61</th>
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<th>Revision No:</th>
<th>001</th>
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<th>June 1, 2013</th>
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<table>
<thead>
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<th>Page:</th>
<th>A-69</th>
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</table>

## Robinson R44 - Raven II & Clipper II - Weight & Balance

<table>
<thead>
<tr>
<th>ITEM</th>
<th>LIMIT</th>
<th>WEIGHT</th>
<th>LONG ARM</th>
<th>LONG MOMENT</th>
<th>LAT ARM</th>
<th>LAT MOMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot (Right Fwd)</td>
<td>Solo Min 150 lbs Max 300 lbs</td>
<td>49.5</td>
<td>+ 12.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot Baggage</td>
<td>Max 50 lbs</td>
<td>44</td>
<td>+ 11.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger (Left Fwd)</td>
<td>Max 300 lbs</td>
<td>49.5</td>
<td>-10.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Baggage</td>
<td>Max 50 lbs</td>
<td>44</td>
<td>-11.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger (Right Rear)</td>
<td>Max 300 lbs</td>
<td>79.5</td>
<td>+ 12.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Baggage</td>
<td>Max 50 lbs</td>
<td>79.5</td>
<td>+ 12.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger (Left Rear)</td>
<td>Max 300 lbs</td>
<td>79.5</td>
<td>-12.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Baggage</td>
<td>Max 50 lbs</td>
<td>79.5</td>
<td>-12.2</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Door (Fwd Right) Removed</td>
<td>-7.5 lbs</td>
<td>49.4</td>
<td>+ 24.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Door (Fwd Left) Removed</td>
<td>-7.5 lbs</td>
<td>49.4</td>
<td>-24.0</td>
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<td></td>
<td></td>
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<tr>
<td>Door (Rear Right) Removed</td>
<td>-7.0 lbs</td>
<td>75.4</td>
<td>+ 23.0</td>
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<td>Door (Rear Left) Removed</td>
<td>-7.0 lbs</td>
<td>75.4</td>
<td>-23.0</td>
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<td></td>
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<tr>
<td>Cyclic Removed</td>
<td>-0.6 lbs</td>
<td>35.8</td>
<td>-8.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collective Removed</td>
<td>-0.8 lbs</td>
<td>47</td>
<td>-21.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedals Removed</td>
<td>-0.8 lbs</td>
<td>16.8</td>
<td>-9.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total W&amp;B with Zero Fuel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min 1600 lbs</td>
<td>Max 2500 lbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Tank 30.6 Max Gallons</td>
<td>Max 183.6 lbs</td>
<td>106</td>
<td>-13.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aux Tank 18.3 Max Gallons</td>
<td>Max 109.8 lbs</td>
<td>102</td>
<td>+13.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total W&amp;B with Takeoff Fuel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min 1600 lbs</td>
<td>Max 2500 lbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

1 Gallon = 6 lbs

Moment = Weight x Arm

Center of Gravity = Total Moment / Total Weight

VFR Required Fuel = ETE

<table>
<thead>
<tr>
<th>Minutes</th>
<th>Engine Startup &amp; Shutdown</th>
<th>Minutes</th>
<th>Reserve 20 Minutes</th>
<th>Minutes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Gallons</th>
<th>Gallons</th>
<th>Gallons</th>
</tr>
</thead>
</table>

Max OGE: ___________ Feet

Max IGE: ___________ Feet

Fuel Burn Rate: 18 Gallons Per Hour (For Flight Planning)
15. Are you required to file a flight plan for your solo Cross Country flights by Star Helicopters? ________________

16. How do you file your flight plan? ________________________________________________________________

17. What are your minimum weather conditions ______ and maximum wind ______ with gusts of ______

18. What are the minimum forecasted weather conditions needed to fly your solo flights? ________________

19. How long past your expected arrival time from your solo flights must the above minimum weather conditions be forecasted for? ________________

20. Are you required to complete a weight and balance before your solo flights by Star Helicopters? ________________

21. Why do we do a weight & balance before every flight? ____________________________________________

22. Are you allowed to take passengers on your solo flights? ________________

23. Can you practice emergency procedures on your solo flights? _________________________________

24. Are you allowed to land off airport on your solo flights? _________________________________

25. How many hours of dual training must you have received before you can solo in a R22? ________________

26. What do you do if you encounter bad weather on your solo flight? _________________________________

27. Are you allowed to fly at night during your solo flights? _________________________________

28. Are you permitted to remove the right door during your solo flights by Star Helicopters? ________________

29. Are the dual controls allowed to be installed during a solo? _________________________________

30. Why do we do IGE and OGE calculations? ____________________________________________

31. Are you required to do IGE and OGE hover calculations before every flight? _________________________________

32. If we can do on OGE hover can we perform and IGE hover? _________________________________

33. If you are instructed to maintain 500 feet or below during your solo, what altitude should you maintain? ________________

34. Is this pre-solo test required before you can solo? _________________________________

35. This pre-solo test must be corrected to _______% before you can solo.

36. When landing at un-controlled airports a helicopter pilot prefers to use (Circle you choices).
   Runways
   Taxi Ways
   Other areas

37. Why do we try and avoid runways at non-towered airports? _________________________________

38. Which FAR Regulation tells us to avoid fixed wing traffic at Non-Towered airports? _________________________________
Stage 3/Module 5 Exam
Advanced Maneuvers

Choose the most correct answer choice.

1. The purpose of the lead-lag (drag) hinge in a three-bladed, fully articulated helicopter rotor system is to compensate for
   A - Coriolis effect.
   B - coning.
   C - geometric unbalance.

2. High airspeeds, particularly in turbulent air, should be avoided primarily because of the possibility of
   A - an abrupt pitch up.
   B - retreating blade stall.
   C - a low frequency vibration developing.

3. The maximum forward speed of a helicopter is limited by
   A - retreating blade stall.
   B - rotor RPM red line.
   C - solidity ration.

4. Ground resonance is most likely to develop when
   A — on the ground and harmonic vibrations develop between the main and tail rotors.
   B — a series of shocks causes the rotor system to become unbalanced.
   C — there is a combination of a decrease in the angle of attack on the advancing blade and an increase in the angle of attack on the retreating blade.

5. If the pilot experiences ground resonance, and the rotor RPM is not sufficient for flight,
   A- open the throttle full and liftoff.
   B - apply the rotor brake and stop the rotor as soon as possible.
   C - attempt to takeoff at that power setting.

6. If the pilot were to make a near-vertical power approach into a confined area with the airspeed near zero, what hazardous condition may develop?
   A- Ground resonance when ground contact is made.
   B - A settling-with-power condition.
   C - Blade stall vibration could develop.

7. If anti-torque failure occurred during the landing touchdown, what could be done to help straighten out a left yaw prior to touchdown?
   A- A flare to zero airspeed and vertical descent to touchdown should be made.
   B - Apply available throttle to help swing the nose to the right just prior to touchdown.
   C - A normal running landing should be made.

8. The upward bending of the rotor blades resulting from the combined forces of lift and centrifugal force is known as:
   A - coning.
   B - blade slapping.
   C - inertia.

9. Which is a precaution to be observed during an autorotative descent?
   A - Normally, the airspeed is controlled with the collective pitch.
   B - Normally, only the cyclic control is used to make turns.
   C - Do not allow the rate of descent to get too low at zero airspeed.

10. What is the procedure for a slope landing?
    A- When the downslope skid is on the ground, hold the collective pitch at the same position.
    B - Minimum rpm shall be held until the full weight of the helicopter is on the skid.
    C - When parallel to the slope, slowly lower the upslope skid to the ground prior to lowering the downslope skid.

11. Which action would be appropriate for confined area operations?
    A- Takeoff and landings must be made into the wind.
    B - Plan the flight path over areas suitable for a forced landing.
    C - a very steep angle of descent should be used to land on the selected spot.
12. The principal reason the shaded area of a Height vs. Velocity Chart should be avoided is:
   A - turbulence near the surface can diphase the blade dampers.
   B - rotor rpm may decay before ground contact is made if an engine failure should occur.
   C - insufficient airspeed would be available to ensure a safe landing in case of an engine failure.

13. Takeoff from a slope is normally accomplished by:
   A - moving the cyclic in a direction away from the slope.
   B - bringing the helicopter to a level attitude before completely leaving the ground.
   C - moving the cyclic stick to a full up position as the helicopter nears a level attitude.

14. Which is a correct general rule for pinnacle and ridgeline operations?
   A — Gaining altitude on takeoff is more important than gaining airspeed.
   B — The approach path to a ridgeline is usually perpendicular to the ridge.
   C — A climb to a pinnacle or ridgeline should be performed on the upwind side.

15. Before beginning a confined area or pinnacle landing, the pilot should first:
   A - execute a high reconnaissance.
   B - execute a low reconnaissance.
   C - fly around the area to discover areas of turbulence.

16. Under what condition should a helicopter pilot consider using a running takeoff?
   A - When gross weight or density altitude prevents a sustained hover at normal hovering altitude.
   B - When normal climb speed is assured between 10 and 20 feet.
   C - When the additional airspeed can be quickly converted to altitude.

17. If possible, when departing a confined area, what type of takeoff is preferred?
   A - A normal takeoff from a hover.
   B - A vertical takeoff.
   C - A normal takeoff from the surface.

18. The proper action to initiate a quick stop is to apply:
   A - forward cyclic and lower the collective pitch.
   B - aft cyclic and raise the collective pitch.
   C - aft cyclic and lower the collective pitch.

19. Which flight technique is recommended for use during hot weather?
   A - Use minimum allowable rpm and maximum allowable manifold pressure during all phases of flight.
   B - During hovering flight, maintain minimum engine rpm during left pedals turns and maximum engine rpm during right pedal turns.
   C - During takeoff accelerate slowly into forward flight.

20. What action should the pilot take if engine failure occurs at altitude?
   A - Open the throttle as the collective pitch is raised.
   B - Reduce cyclic back stick pressure during turns.
   C - Lower the collective pitch control as necessary, to maintain rotor rpm.
Stage 4/Module 3 Final Exam
Prep for Checkride

Choose the most correct answer choice.

1. What type of fuel can be substituted in an aircraft if the recommended octane is not available?
   A - The next higher octane aviation gas.
   B - The next lower octane aviation gas.
   C - Unleaded automotive gas of the same octane rating.

2. If recency of experience requirements for night flight are not met and official sunset is 1830, the latest time passengers may be carried is
   A — 1829.
   B — 1859.
   C — 1929.

3. The wind at 5,000 feet AGL is southwesterly while the surface wind is southerly. This difference in direction is primarily due to
   A - stronger pressure gradient at higher altitudes.
   B - friction between the wind and the surface.
   C - stronger Coriolis force at the surface.

4. Except when necessary for takeoff or landing, what is the minimum safe altitude for a pilot to operate an aircraft anywhere?
   A - An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.
   B - An altitude of 500 feet above the surface and no closer than 500 feet to any person, vessel, vehicle or structure.
   C - An altitude of 500 feet above the highest obstacle.

5. During a night flight, you observe steady red and green lights ahead and at the same altitude. What is the general direction of movement of the other aircraft?
   A - The other aircraft is crossing to the left.
   B - The other aircraft is flying away from you.
   C - The other aircraft is approaching head on.

6. When changing from autorotation for maximum endurance to one for maximum range, the airspeed must be _ and the rate of descent will ______.
   A — increase, decrease.
   B — decrease, increase.
   C — increase, increase.

7. One weather phenomenon which will always occur when flying across a front is a change in the
   A — wind direction.
   B — type of precipitation.
   C — stability of the air mass.

8. What are characteristics of a moist, unstable air mass?
   A - Cumuliform clouds and showery precipitation.
   B - Poor visibility and smooth air.
   C - Stratiform clouds and showery precipitation.

Exam Figure 3.

METAR KINK 12845Z 11012G18KT 15SM SKC 25/17 A3000
METAR KBOI 121854Z 13004KT 30SM SCT150 17/6 A3015
METAR KLAX 121852Z 25004KT 6SM BR SCT007 SCT250 16/15 A2991
SPECI KMDW 121856Z 32005KT 1 1/2SM RA OVC007 17/16 A2980 RMK RAB35
SPECI KJFK 121853Z 18004KT 1/2SM FG R04/2200 OVC005 20/18 A3006
9. (Refer to Exam Figure 3.) What are the current conditions depicted for Chicago Midway Airport (KMDW)?
   A - Sky 700 feet overcast, visibility 1-1/2 SM, rain.
   B - Sky 7000 feet overcast, visibility 1-1/2 SM, heavy rain.
   C - Sky 700 feet overcast, visibility 11, occasionally 2 SM, with rain.

10. From which primary source should information be obtained regarding expected weather at the estimated time of arrival if your destination has no Terminal Aerodrome Forecast?
    A - Low-level Prognostic Chart.
    B - Weather Depiction Chart.
    C - Aviation Area Forecast.

11. Offset flapping hinges _____ assist in keeping the fuselage parallel with the rotor disc and they allow a _____ range of center of gravity position.
    A - do/narrower
    B - do not/wider
    C - do/wider

12. A 10-knot wind at 45° to the runway direction will cause a crosswind component of
    A - 7 knots.
    B - 10 knots.
    C - 4 knots.

13. According to the Private Rotorcraft Practical Test Standards, during a straight in autorotation a student is required to come to a hover within _____ feet of a designated point.
    A - 200
    B - 100
    C - 300

14. According to the Private Rotorcraft Practical Test Standards, a student must maintain what accuracy standards during navigation tasks
    A - +/- 100 feet altitude, +/- 10 degrees heading.
    B - +/- 200 feet altitude, +/- 10 degrees heading.
    C - +/- 200 feet altitude, +/- 15 degrees heading.

15. Which light signal from the control tower clears a pilot to taxi?
    A — Flashing green.
    B — Steady green.
    C — Flashing white.

16. How should contact be established with an EnRoute Flight Advisory Service (EFAS) station, and what service would be expected?
    A - Call EFAS on 122.2 for routine weather, current reports on hazardous weather, and altimeter settings.
    B - Call EFAS on 122.5 for advisory service pertaining to severe weather.
    C - Call EFAS on 122.0 for information regarding actual weather and thunderstorm activity along proposed route.

17. If you have to land on a high level landing site surrounded by irregular features you should aim to complete the approach
    A - short of the site.
    B - over the site.
    C - on the site.

18. If there is an inversion above your planned cold mountain landing site, you should anticipate that translational lift will _____ as you descend through the inversion.
    A — increase
    B — decrease
    C — remain the same

19. Generally ice accretion is _____ on sharp objects.
    A - faster
    B - slower
    C - the same

20. A major risk of rotor blade icing is the resulting unbalancing of blades which can cause on landing.
    A - recirculation
    B - ground resonance
    C - asymmetric loading
APPENDIX B

Cross-Country Flight Planning
Cross-Country Flight Planning Training Overview

In order to insure a standardized and efficient method of Cross-Country flight planning instruction, all Flight instructors will teach using the following cross country flights. The TAC Chart should be setup using the planning the route and preparing the TAC Chart section, the Navigation Log should be completed using the Preparing the navigation Log Section and the Flight plan should be completed using the sample Flight Plan form.

Cross-Country Flights – Part 141

Destination airports for all dual/solo cross-country flights are as follows:

1st Cross-Country Flight (Dual)
   - HHR-AJ0 (Using Dead Reckoning)
   - AJ0-HHR (Using Pilotage)

2nd Cross-Country Flight (Dual)
   - HHR-AJO-F70 (Using Dead Reckoning)
   - F70-HHR (Using Pilotage)

3rd Cross-Country Flight (Solo)
   - HHR-AJO-F70 (Using Dead Reckoning)
   - F70-HHR (Using Pilotage)

A new flight plan must be filled and activated for each solo cross-country flight and is recommended for student practice on all duel cross-country flights.

Cross-Country Flights – Part 61

Destination airports for all dual/solo cross-country flights are as follows:

1st Cross-Country Flight (Dual)
   - HHR-AJ0 (Using Dead Reckoning)
   - AJ0-HHR (Using Pilotage)

2nd Cross-Country Flight (Dual)
   - HHR-AJO-F70 (Using Dead Reckoning)
   - F70-HHR (Using Pilotage)

3rd Cross-Country Flight (Solo)
   - HHR-AJO-F70 (Using Dead Reckoning)
   - F70-HHR (Using Pilotage)

4th Cross-Country Flight (Solo)
   - HHR-AJO-F70 (Using Dead Reckoning)
   - F70-HHR (Using Pilotage)

A new flight plan must be filled and activated for each solo cross-country flight and is recommended for student practice on all duel cross-country flights.

Weight & Balance

Student should begin their Cross-Country flight planning by doing a Weight & Balance calculation to determine the maximum amount of fuel they can carry to complete the Cross-Country flight.
Planning the Route and Preparing the TAC Chart

Step 1 - Using the Los Angeles TAC, Student to plans their cross country flight using the depicted checkpoints.

Step 2 – Draw the route between each check point

Step 3 – Identify each check point on the chart.
**Preparing the Navigation Log**

Step 1. Enter each check point on the Navigation Log and enter TC and Distance for each leg.

<table>
<thead>
<tr>
<th>Check Point</th>
<th>TC</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>91-110 Split</td>
<td>16</td>
<td>1.4</td>
</tr>
<tr>
<td>91-7 Split</td>
<td>16</td>
<td>1.0</td>
</tr>
<tr>
<td>91 Curves</td>
<td>16</td>
<td>1.0</td>
</tr>
<tr>
<td>Lake Elmore</td>
<td>16</td>
<td>1.5</td>
</tr>
<tr>
<td>Corona Mun</td>
<td>16</td>
<td>1.5</td>
</tr>
<tr>
<td>Lake Corona</td>
<td>16</td>
<td>1.0</td>
</tr>
<tr>
<td>Hawthorne</td>
<td>16</td>
<td>1.0</td>
</tr>
<tr>
<td>French Valley</td>
<td>16</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Cross Country Flight Estimated Totals
- Total distance of X country flight: 74.5 nautical miles
- Total number of hops: 13
- Total flight time is: 1 hr. 24 min.

**Step 2. Complete the calculations needed to complete the navigation log.**

<table>
<thead>
<tr>
<th>Check Point</th>
<th>TC</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>91-110 Split</td>
<td>16</td>
<td>1.4</td>
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<tr>
<td>91-7 Split</td>
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<td>91 Curves</td>
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<tr>
<td>Lake Elmore</td>
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<td>Corona Mun</td>
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<td>1.5</td>
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<td>Lake Corona</td>
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<td>1.0</td>
</tr>
<tr>
<td>Hawthorne</td>
<td>16</td>
<td>1.0</td>
</tr>
<tr>
<td>French Valley</td>
<td>16</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Cross Country Flight Estimated Totals
- Total distance of X country flight: 74.5 nautical miles
- Total number of hops: 13
- Total flight time is: 1 hr. 24 min.
Preparing and Filing a Flight Plan

Step 1 Complete all of the Flight Plan Information items 1 thru 17 with the correct information.

<table>
<thead>
<tr>
<th>Flight Plan</th>
<th>Weather Log</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PART 1</strong></td>
<td><strong>WEATHER LOG</strong></td>
</tr>
<tr>
<td><strong>41 &amp; 61 Training Course</strong></td>
<td><strong>WEATHER LOG</strong></td>
</tr>
<tr>
<td><strong>Principles of Helicopter Flight Syllabus</strong></td>
<td><strong>WEATHER LOG</strong></td>
</tr>
<tr>
<td><strong>P</strong></td>
<td><strong>WEATHER LOG</strong></td>
</tr>
<tr>
<td><strong>Preparing and Filing a Flight Plan</strong></td>
<td><strong>WEATHER LOG</strong></td>
</tr>
<tr>
<td><strong>Step 1 Complete all of the Flight Plan Information items 1 thru 17 with the correct information.</strong></td>
<td><strong>Step 2 Call WX-Brief to file your flight plan and obtain a weather briefing and fill out the Weather Log section.</strong></td>
</tr>
</tbody>
</table>

Step 2 Call WX-Brief to file your flight plan and obtain a weather briefing and fill out the Weather Log section.
### Preparing a Frequency List

List all of the frequencies for the airports and areas along your cross country sheet and printout.

<table>
<thead>
<tr>
<th>Airport</th>
<th>Service</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAWTHORNE (HHR)</td>
<td>ATIS</td>
<td>118.4</td>
</tr>
<tr>
<td></td>
<td>CT/CTAF</td>
<td>121.10</td>
</tr>
<tr>
<td>COMPTON (CPM)</td>
<td>CTAF</td>
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<tr>
<td>LONG BEACH (LGB)</td>
<td>ATIS</td>
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<tr>
<td></td>
<td>CT/CTAF (North)</td>
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<tr>
<td></td>
<td>CT (South)</td>
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<tr>
<td>FULLERTON (FUL)</td>
<td>ATIS</td>
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<tr>
<td></td>
<td>CT/CTAF</td>
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</tr>
<tr>
<td>CORONA (AJO)</td>
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<tr>
<td></td>
<td>CTAF</td>
<td>122.7</td>
</tr>
<tr>
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</tr>
<tr>
<td>EMERGENCY</td>
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<td>121.5</td>
</tr>
</tbody>
</table>
Airport Diagrams

Print an airport diagram for each airport you intend to land at on your cross-country flight.
Preparing The Knee Board

We strongly recommend that our helicopters students use the 9G kneeboard with the plastic holders.

Step 1 First Page Navigation Log Fold in half and slip into plastic sleeve

Step 2 Second Page Frequency List slip into plastic sleeve

<table>
<thead>
<tr>
<th>Airport</th>
<th>Frequency</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>HAWTHORNE (HHR)</td>
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<tr>
<td>EMERGENCY</td>
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Step 3 Airport Diagrams slip into the plastic sleeve in cross country route order

Step 4 Accordion fold the chart and attach to the kneeboard spring clip, so that it can be turned with one hand during the entire flight.
Navigation Log

Once your student has successfully completed their flight planning it is recommended that they use one of the following Star Helicopters prepared Navigation Log’s (R22 or R44 depending on aircraft student is learning in) in their Kneeboard. So that you can verify that they are meeting the requirements of their Cross Country Dead Reckoning Navigation training and so that the student can clearly read the information of the Navigation Log.
### R44 Navigation Log

<table>
<thead>
<tr>
<th>CH</th>
<th>KIAS</th>
<th>TIME</th>
<th>AIRPORT</th>
<th>FREQ</th>
<th>ALT</th>
<th>FLIGHT ALT &amp; GND ELEV</th>
<th>O rpm</th>
<th>ETD</th>
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</tr>
</tbody>
</table>

**RADIO CALL**
- LA Basin Helicopter: 123.025
- LA Harbor Helicopter: 122.850
- Hawthorne RCO FSS: 122.600

**FREQUENCY**
- HAWTHORNE RADIO 122.5
- Emergency 121.5 / SQUAWK 7700

Pilot/Reports (FSS/Flight Watch)
1) Aircraft
2) Position
3) Time
4) Conditions
5) Clouds
6) Altitude

Lost Comm SQUAWK 7600

Star Helicopters LLC
Revision No: Initial
Date: June 1, 2013
Completed Cross-Country TAC
End of

Cross-Country Flight Planning
Congratulation on your successful completion of our

Flight & Ground Training Course for
Private Pilot Helicopter Certification

14 CFR Part 141 and CFR Part 61
Rotorcraft/Helicopter Private Pilot Course

Star Helicopters LLC
Offers additional helicopter training courses For

CFR Part 141 & CFR Part 61 Rotorcraft/Helicopter Commercial Pilot

Fly Safe
Principles of Helicopter Flight Private Pilot Syllabus

This syllabus provides a comprehensive and integrated flight and ground school training program. Based on the textbook Principles of Helicopter Flight, instructors and students can use this curriculum to complete the Private Pilot certificate course with a Helicopter rating.

Meeting all of the 14 CFR Part 141 and CFR Part 61 Rotorcraft/Helicopter Private Pilot requirements as well as Private Pilot Add-on, this syllabus will ensure all experience and knowledge requirements have been met.

Flight lessons are presented side-by-side with their corresponding ground lessons. Reviews are included in each stage, allowing students to review material when necessary yet still follow the syllabus to maintain progress.

Instructor endorsements, stage exams (including a Pre-Solo written), airman certificate rating application (Form 8710), and a checkride checklist are included. This syllabus will take the student from start to finish in an efficient and logical manner, with the ultimate goal of achieving Private Pilot Helicopter certification.

Star Helicopters LLC
3670 W 120th Street
Hawthorne, CA 90250
310-355-1959