

Gleim Commercial Pilot Syllabus

Sixth Edition, First Printing

Updates

April 2023

NOTE: Sections with changes are indicated by a vertical bar in the left margin. Text that should be deleted is displayed with a line through it. New text is shown with blue underlined font.

If you are tested on any content not represented in our materials or this update, please share this information with Gleim so we can continue to provide the most complete test preparation experience possible. You can submit feedback at www.GleimAviation.com/questions. Thank you in advance for your help!

We have changed “student” to “learner” throughout the book to reflect the FAA’s change in nomenclature.

Introduction

Page 1, What Else Do You Need?: These edits update Chart Supplement printing periods.

If you purchased this syllabus as part of the Gleim **Commercial Pilot Kit**, you will need to purchase a local sectional chart and a Chart Supplement appropriate to your region. They are published by the FAA every ~~6 months and 56 days, respectively~~. You will need a current copy of each for your FAA practical test. Gleim does not include these publications in your kit because there are 37 different sectional charts and seven different Chart Supplements for the conterminous U.S.

Page 2, Requirements for a Commercial Pilot Certificate – Single-Engine Land: These edits clarify the FAA’s English requirements.

2. Be able to read, speak, write, and understand, ~~and converse fluently in~~ the English language (certificates with operating limitations may be available for medical-related deficiencies).

Page 4, Part 141 vs. Part 61 Schools: These edits update and clarify requirements for Part 141 and Part 61 schools.

PART 141 VS. PART 61 SCHOOLS

An eligible pilot school may be issued a Part 141 flight school is issued a pilot school certificate by the FAA after completion of an application applying to the FAA and meeting certain requirements. A Part 141 flight school's syllabus is approved by the FAA during this certification process. Part 141 pilot schools are more regulated than a Part 61 pilot school. Additionally, Thus, if you are using the Gleim Commercial Pilot Syllabus in a Part 141 pilot flight school, is required to have its facilities and airplanes inspected, and it must have its ground and flight be used in your training syllabi approved by the FAA.

[. . .]

You should select a flight instructor and/or flight school that you are comfortable with rather than being concerned with whether the training is conducted under Part 141 or Part 61. This syllabus meets the requirements for either Part 141 or Part 61.

The Gleim syllabus has been reviewed by the FAA in Washington, D.C., and found to adequately meet the requirements final approval of a syllabus for use under Part 141 or Part 61, as appropriate (see must come from the responsible FAA letter on back cover) Flight Standards office. Thus, the The Gleim **Commercial Pilot Syllabus** can be used by any Part 141 school with minimal effort. We suggest that school write a letter to its FAA inspector advising the FAA of the school's intent and the names of students who are going to be trained under this Gleim syllabus once approved by the appropriate Flight Standards office.

Page 5, Explanation of *Commercial Pilot Training Record*: These edits further explain the format of the *Commercial Pilot Training Record* and add a training record grading legend.

Inside: The flight training record consists of the following:

1. The record of instructor endorsements is a record of information related to each flight instructor endorsement that is pertinent to the course of training.
2. The commercial pilot flight record is a chronological record of each training flight that is made during the course, while.
3. The flight lesson record is an itemized record of the student learner's performance on the lesson items listed in each specific flight lesson. Note that it is divided into two parts, like this syllabus, to make it easy to record your progress in the initial commercial pilot certification course as well as the multi-engine add-on rating course. The record of instructor endorsements is a record of information related to each flight instructor endorsement that is pertinent to the course of training.

[. . .]

Training Record Grading Legend

Lesson items within each flight lesson record may be graded according to the flight school's grading system of choice. There are multiple grading systems that could be used, and four (abbreviated, lettered, numbered, symbolized) are depicted below.

Comprehensive Grading Systems

<u>Grade</u>	<u>Abbreviated</u>	<u>Lettered</u>	<u>Numbered</u>
<u>Outstanding</u>	<u>O</u>	<u>A</u>	<u>1</u>
<u>Good</u>	<u>G</u>	<u>B</u>	<u>2</u>
<u>Satisfactory</u>	<u>S</u>	<u>C</u>	<u>3</u>
<u>Unsatisfactory</u>	<u>U</u>	<u>D</u>	<u>4</u>
<u>Incomplete</u>	<u>I</u>	<u>I</u>	<u>IN</u>

Simplified Grading Systems

<u>Grade</u>	<u>Abbreviated</u>	<u>Numbered</u>	<u>Symbolized</u>
<u>Satisfactory</u>	<u>S</u>	<u>1</u>	<u>✓</u>
<u>Unsatisfactory</u>	<u>U</u>	<u>2</u>	<u>X</u>
<u>Incomplete</u>	<u>I</u>	<u>3</u>	<u>(blank)</u>

Fill in the table below with your flight school's grading system.

Your Flight School's Grading System

<u>Grade</u>	<u>Character</u>

Page 6, Use of a Flight Simulation Training Device (FSTD): These edits clarify requirements for training in a flight simulation training device or aviation training device. This section was previously edited in an April 2018 update.

USE OF A FLIGHT SIMULATION TRAINING DEVICE (FSTD) OR AN AVIATION TRAINING DEVICE (ATD)

[. . .]

An FSTD may only be used in accordance with the authorization for each specific device. Generally, an ATD may not be used for credit toward the following types of aeronautical experience: cross-country, night, solo, lessons requiring specific quantities of takeoffs and landings, or to meet the requirement to have 3 hours of instruction within the 2 calendar months of preceding a practical test.

All training time in an FSTD/ATD must be provided by an authorized flight instructor and documented in accordance with 14 CFR 61.51. There are no restrictions on the amount of training time that may be accomplished and logged in an FSTD/ATD; however, there are regulatory limitations on the maximum credit allowed in an FFS, FTD, or ATD toward the “minimum” pilot experience requirements. Training under Part 141 in an FSTD/ATD may be credited up to the maximum time in the table below toward the 120-hour total time requirement for a commercial pilot certificate.

Type of FSTD	Allowance	Hours
FFS (Part 141)	30%	36.0
FTD (Part 141)	20%	24.0
ATD (Part 141)	20%	24.0

<u>PART 141</u>			<u>PART 61</u>	
<u>Device</u>	<u>Allowance</u>	<u>Max Hours</u>	<u>Device</u>	<u>Max Hours</u>
<u>FSS</u>	<u>30%</u>	<u>36.00</u>	<u>FFS</u>	<u>50.00</u>
<u>FTD</u>	<u>20%</u>	<u>24.00</u>	<u>FTD</u>	<u>50.00</u>
<u>AATD</u>	<u>20%</u>	<u>24.00</u>	<u>AATD</u>	<u>50.00</u>

The specific lessons that can be completed in an FFS, FTD, and/or ATD are ~~indicated with the words~~ labeled as “FSTD/ATD option” under the lesson title. If an FSTD/ATD is available, the instructor and ~~student~~ learner should work together to determine which lessons would provide the greatest benefits while still meeting FAA requirements.

~~A pilot school operating under Part 61 may also elect to use the FFSs, FTDs, or ATDs identified above in accordance with the specific authorization for that use as outlined in the various sections of Part 61 [such as a maximum of 50 hours of flight training under 14 CFR 61.129(i)]. The specific lessons that can be completed in an FFS, FTD, and/or ATD are indicated with the words “FSTD/ATD option” under the lesson title. If an FSTD/ATD is available, the instructor and student should work together to determine which lessons would provide the greatest benefits while still meeting FAA requirements.~~

Part I: Commercial Pilot Training Syllabus Airplane Single-Engine Land

Page 11, New section titled Part 141 vs. Part 61 Aeronautical Experience Requirements: These edits add a comparative chart detailing the aeronautical experience requirements for Part 141 and Part 61 to the beginning of the syllabus introduction.

PART 141 VS. PART 61 AERONAUTICAL EXPERIENCE REQUIREMENTS

The following table compares the minimum training hour requirements for a single-engine land commercial pilot certificate under Part 141 and Part 61.

<p style="text-align: center;">PART 141 14 CFR 141 Appendix D, Secs. 4.-5.</p>	<p style="text-align: center;">PART 61 14 CFR 61.129</p>
<p style="text-align: center;"><u>120 hr. of training</u></p> <ul style="list-style-type: none"> • <u>55 hr. of flight training from a CFI on the approved areas of operation</u> <ul style="list-style-type: none"> ◆ <u>10 hr. of instrument training</u> <ul style="list-style-type: none"> • <u>At least 5 hr. in a single-engine airplane</u> ◆ <u>10 hr. of training in a complex, turbine-powered, and/or TAA airplane</u> ◆ <u>One 2-hr. cross-country flight in a single-engine airplane in daytime conditions with a straight-line distance of more than 100 NM from the original point of departure</u> ◆ <u>One 2-hr. cross-country flight in a single-engine airplane in nighttime conditions with a straight-line distance of more than 100 NM from the original point of departure</u> ◆ <u>3 hr. in a single-engine airplane with a CFI in preparation for the practical test within 60 days preceding the date of the test</u> • <u>10 hr. solo time in a single-engine airplane or 10 hr. of flight time while performing the duties of PIC in a single-engine airplane with an authorized instructor on board</u> • <u>One cross-country flight with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of at least 250 NM</u> • <u>5 hr. in night VFR conditions with 10 takeoffs and 10 landings, each landing involving a flight in the traffic pattern at an airport with an operating control tower</u> 	<p style="text-align: center;"><u>250 hr. of total flight time</u></p> <ul style="list-style-type: none"> • <u>100 hr. in powered aircraft</u> <ul style="list-style-type: none"> ◆ <u>At least 50 hr. in airplanes</u> • <u>100 hr. of PIC time</u> <ul style="list-style-type: none"> ◆ <u>At least 50 hr. in airplanes</u> ◆ <u>At least 50 hr. of cross-country flight</u> <ul style="list-style-type: none"> • <u>At least 10 hr. in airplanes</u> • <u>20 hr. of flight training</u> <ul style="list-style-type: none"> ◆ <u>10 hr. of instrument training</u> <ul style="list-style-type: none"> • <u>At least 5 hr. in a single-engine airplane</u> ◆ <u>10 hr. of training in a complex, turbine-powered, and/or TAA airplane</u> ◆ <u>One 2-hr. cross-country flight in a single-engine airplane in daytime conditions with a straight-line distance of more than 100 NM from the original point of departure</u> ◆ <u>One 2-hr. cross-country flight in a single-engine airplane in nighttime conditions with a straight-line distance of more than 100 NM from the original point of departure</u> ◆ <u>3 hr. in a single-engine airplane with a CFI in preparation for the practical test within the preceding 2 calendar months from the month of the test</u> • <u>10 hr. solo time in a single-engine airplane or 10 hr. of flight time performing the duties of PIC in a single-engine airplane with an authorized instructor on board</u> • <u>One cross-country flight of more than 300 NM total distance, with landings at three points, one with a straight-line distance of at least 250 NM from the original departure point.</u> • <u>5 hr. in night VFR conditions with 10 takeoffs and 10 landings, each landing involving a flight in the traffic pattern at an airport with an operating control tower</u>
<p style="text-align: center;"><u>USE OF FLIGHT SIMULATORS</u></p>	<p style="text-align: center;"><u>USE OF FLIGHT SIMULATORS</u></p>
<ul style="list-style-type: none"> • <u>Course may include training in a full flight simulator or flight training device, provided it is representative of the aircraft for which the course is approved, meets the requirements of this paragraph, and is given by an authorized instructor.</u> • <u>Training in a full flight simulator may be credited for a maximum of 30% of the total flight training hour requirements of the approved course.</u> • <u>Training in a flight training device may be credited for a maximum of 20% of the total flight training hour requirements of the approved course.</u> • <u>Training in a combination of full flight simulators and flight training devices may be credited for a maximum of 30% of the total flight training hour requirements of the approved course, without exceeding the individual limitations above.</u> 	<ul style="list-style-type: none"> • <u>May credit a maximum of 50 hr., provided the aeronautical experience was obtained from a CFI in a full flight simulator or flight training device that represents that class of airplane appropriate to the rating sought.</u>

Page 12, Structure of the Gleim *Commercial Pilot Syllabus* (Single-Engine Land): These edits add details.

At the end of each stage, you are required to complete the stage knowledge test before proceeding to the next stage. The end-of-course knowledge test is completed after the Stage Two knowledge test. Shortly after the end-of-course test, you should take the FAA commercial pilot (airplane) knowledge test. The stage and end-of-course knowledge tests in the ground syllabus will refer you to FAA figures ~~located after~~ found within the knowledge tests in front and back cover and at the end of this book syllabus. If you utilize the Gleim Online Ground School, you will be provided stage tests and an end-of-course test online. Upon successful completion of the end-of-course knowledge test, the system will automatically generate an endorsement (valid for 60 days) for you to take the knowledge test. The Gleim Online Ground School is especially valuable ~~for a student to~~ learners who ~~is~~ are studying for the knowledge test before beginning ~~his or her~~ their flight training.

Page 16, New section titled Part 141 Appendix D Compliance Chart (Single-Engine Land): This update adds compliance charts for both ground and flight training to the end of the syllabus introduction.

PART 141 APPENDIX D COMPLIANCE CHART (SINGLE-ENGINE LAND)

The following are the aeronautical knowledge areas and flight tasks required for compliance under 14 CFR Part 141, Appendix D, Commercial Pilot Certification Course. The following tables dictate where the items are located in this syllabus.

<u>Ground Training</u> <u>Per 14 CFR 141 Appendix D Sec. 3.(b)</u>		<u>Gleim Ground Lesson(s)</u>
<u>(1)</u>	<u>Federal Aviation Regulations that apply to commercial pilot privileges, limitations, and flight operations</u>	<u>4</u>
<u>(2)</u>	<u>Accident reporting requirements of the National Transportation Safety Board</u>	<u>4</u>
<u>(3)</u>	<u>Basic aerodynamics and the principles of flight</u>	<u>1</u>
<u>(4)</u>	<u>Meteorology, to include recognition of critical weather situations, windshear recognition and avoidance, and the use of aeronautical weather reports and forecasts</u>	<u>7-8, 11</u>
<u>(5)</u>	<u>Safe and efficient operation of aircraft</u>	<u>11</u>
<u>(6)</u>	<u>Weight and balance computations</u>	<u>5</u>
<u>(7)</u>	<u>Use of performance charts</u>	<u>5</u>
<u>(8)</u>	<u>Significance and effects of exceeding aircraft performance limitations</u>	<u>5</u>
<u>(9)</u>	<u>Use of aeronautical charts and a magnetic compass for pilotage and dead reckoning</u>	<u>9</u>
<u>(10)</u>	<u>Use of air navigation facilities</u>	<u>10</u>
<u>(11)</u>	<u>Aeronautical decision making and judgment</u>	<u>6</u>
<u>(12)</u>	<u>Principles and functions of aircraft systems</u>	<u>2</u>
<u>(13)</u>	<u>Maneuvers, procedures, and emergency operations appropriate to the aircraft</u>	<u>11</u>
<u>(14)</u>	<u>Night and high-altitude operations</u>	<u>11</u>
<u>(15)</u>	<u>Descriptions of and procedures for operating within the National Airspace System</u>	<u>3</u>

<p style="text-align: center;">Flight Training Per 14 CFR 141 Appendix D Secs. 4.(a)(1), (b)(1), (d)(1); 5.(a)</p>	<p style="text-align: center;"><u>Gleim Flight Lesson(s)</u></p>
<p><u>120 hr. of training if the course is for an airplane rating, including</u></p>	<p style="text-align: center;"><u>All</u></p>
<p><u>55 hr. of flight training from a CFI, including</u></p>	<p><u>1-2, 4-8, 10-11, 14-15, 17-21, 25, 31, 34-36, 39-40, 43, 45, 47-48, 51, 53-54, 56, 58-60</u></p>
<ul style="list-style-type: none"> • <u>10 hr. of instrument training using a view-limiting device, including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems</u> <ul style="list-style-type: none"> ▪ <u>5 hr. of the 10 hr. required on instrument training must be in a single-engine airplane</u> 	<p style="text-align: center;"><u>2, 4, 18-21, 25, 31, 34, 36, 43, 48, 53-54</u></p>
<ul style="list-style-type: none"> • <u>10 hr. of training in a complex airplane, a turbine-powered airplane, or a technically advanced airplane, or any combination thereof</u> 	<p style="text-align: center;"><u>5-8, 15, 17, 35-36, 43, 58-60</u></p>
<ul style="list-style-type: none"> • <u>One 2-hr. cross-country flight in daytime conditions in a single-engine airplane that consists of a total straight-line distance of more than 100 NM from the original point of departure</u> 	<p style="text-align: center;"><u>19</u></p>
<ul style="list-style-type: none"> • <u>One 2-hr. cross-country flight in nighttime conditions in a single-engine airplane that consists of a total straight-line distance of more than 100 NM from the original point of departure</u> 	<p style="text-align: center;"><u>21</u></p>
<ul style="list-style-type: none"> • <u>3 hr. in a single-engine airplane in preparation for the practical test within 60 days preceding the date of the test</u> 	<p style="text-align: center;"><u>56, 58-59</u></p>
<p><u>10 hr. of solo flight time in a single-engine airplane or 10 hr. of flight time while performing the duties of pilot in command in a single-engine airplane with a CFI on board, including</u></p>	<p><u>3, 9, 12-13, 16, 22-24, 26-30, 32-33, 37-38, 41-42, 44, 46, 49-50, 52, 55, 57</u></p>
<ul style="list-style-type: none"> • <u>One cross-country flight, with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 250 NM</u> 	<p style="text-align: center;"><u>33</u></p>
<ul style="list-style-type: none"> • <u>5 hr. in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower</u> 	<p style="text-align: center;"><u>22-23, 28</u></p>

Part I: Commercial Pilot Ground Training Syllabus Airplane Single-Engine Land

Page 20, Ground Lesson 1: Airplanes and Aerodynamics, Text References: This edit updates a text reference.

Gleim <i>Pilot Handbook</i> Study Unit 1 Contents	Gleim <i>Commercial Pilot FAA Knowledge Test Prep</i> Study Unit 1 Contents
1.1 Definitions 1.2 The Airplane 1.3 Composite Construction 1.4 Axes of Rotation 1.5 Flight Controls and Control Surfaces 1.6 Forces Acting on the Airplane in Flight 1.7 Dynamics of the Airplane in Flight 1.8 Ground Effect 1.9 How Airplanes Turn 1.10 Torque (Left-Turning Tendency) Tendencies 1.11 Airplane Stability 1.12 Loads and Load Factors 1.13 Stalls and Spins 1.14 Angle of Attack Indicators	1.1 Flaps 1.2 Airplane Wings 1.3 Stalls 1.4 Spins 1.5 Lift and Drag 1.6 Ground Effect 1.7 Airplane Stability 1.8 Turns 1.9 Load Factor 1.10 Transonic and Supersonic Flight

Page 21, Ground Lesson 2: Airplane Instruments, Engines, and Systems, Objective and Text References: These edits clarify the objective and update the text references.

Objective

To further develop the pilot's knowledge of the [principles and functions of an](#) airplane's instruments, engines, and systems.

[. . .]

Gleim <i>Pilot Handbook</i> Study Unit 2 Contents	Gleim <i>Commercial Pilot FAA Knowledge Test Prep</i> Study Unit 2 Contents
2.1 Pitot-Static System 2.2 Altimeter 2.3 Vertical Speed Indicator 2.4 Airspeed Indicator 2.5 Gyroscopic Flight Instruments 2.6 Turn Coordinator 2.7 Turn-and-Slip Indicator 2.8 Attitude Indicator 2.9 Heading Indicator 2.10 Magnetic Compass 2.11 Compass Errors 2.12 Glass Cockpit Electronic Flight Instrumentation Systems (EFIS) 2.13 Airplane Engines Powerplant 2.14 How an Engine Operates 2.15 Ignition System 2.16 Induction System 2.17 Fuel System 2.18 Oil System 2.19 Cooling System 2.20 Propellers 2.21 Full Authority Digital Engine Control (FADEC) 2.22 Electrical System 2.23 Landing Gear System 2.24 Environmental System 2.25 Deice and Anti-Ice Systems	2.1 Magnetic Compass 2.2 Airspeed Indicator 2.3 Turn Coordinator/Turn-and-Slip Indicator 2.4 Glass Cockpits Flight Decks 2.5 Fuel/Air Mixture 2.6 Carburetor Heat 2.7 Detonation and Preignition 2.8 Airplane Ignition Systems 2.9 Engine Cooling 2.10 Airplane Propellers

Page 22, Ground Lesson 3: Airports, Air Traffic Control, and Airspace, Objective and Text References: These edits clarify the objective and update a text reference. This lesson was previously edited in a September 2019 update.

Objective

To further develop the pilot's knowledge of airports, wake turbulence and collision avoidance, ~~and~~ [with descriptions of and procedures for operating within](#) the National Airspace System.

[. . .]

Gleim <i>Pilot Handbook</i> Study Unit 3 Contents	Gleim <i>Commercial Pilot FAA Knowledge Test Prep</i> Study Unit 3 Contents
3.1 Runway and Taxiway Markings 3.2 Airport Lighting 3.3 Visual Glideslope Indicators 3.4 Wind and Landing Direction Indicators and Segmented Circles 3.5 Airport Traffic Patterns 3.6 Land and Hold Short Operations (LAHSO) 3.7 Wake Turbulence 3.8 Collision Avoidance 3.9 Radio Communications and Phraseology 3.10 Airports without an Operating Control Tower 3.11 Automated Weather Reporting Systems 3.12 Airports with an Operating Control Tower 3.13 Automatic Terminal Information Service (ATIS) 3.14 Ground Control 3.15 Tower Control 3.16 Approach Control and Departure Control (for VFR Aircraft) 3.17 Clearance Delivery 3.18 Emergencies 3.19 Radio Failure Procedures 3.20 Emergency Locator Transmitter (ELT) 3.21 ATC Radar 3.22 Transponder Operation 3.23 Radar Services to VFR Aircraft 3.24 General Dimensions of Airspace 3.25 Controlled and Uncontrolled Airspace 3.26 Class A Airspace 3.27 Class B Airspace 3.28 Class C Airspace 3.29 Class D Airspace 3.30 Class E Airspace 3.31 Class G Airspace 3.32 Special-Use Airspace 3.33 Other Airspace Areas 3.34 Special Flight Rules Areas 3.35 Next Generation Air Transportation System (NextGen)	3.1 Airspace 3.2 Airport Signs/Markings 3.3 Collision Avoidance 3.4 Wake Turbulence 3.5 Land and Hold Short Operations (LAHSO) 3.6 Segmented Circles 3.7 Transponders and Transponder Codes

Page 23, Ground Lesson 4: Federal Aviation Regulations, Objective and Text References: These edits clarify the objective and update the text references. This lesson was previously edited in a September 2019 update.

Objective

To further develop the pilot’s knowledge of pertinent ~~f~~Federal Aviation ~~R~~Regulations that ~~relate~~apply to commercial pilots privileges, limitations, flight operations, and the accident-reporting ~~rules~~requirements of the National Transportation Safety Board (NTSB).

[. . .]

<u>FAR/AIM Contents</u> <u>Federal Aviation Regulations</u> <u>Reading Assignment</u>	Sections	Gleim <i>Commercial Pilot FAA Knowledge Test Prep</i> Study Unit 4 Contents
<u>14 CFR</u> Part 1 – Definitions and Abbreviations.....	<u>Entire Part</u>	4.1 14 CFR Part 1 4.2 14 CFR Part 21 4.3 14 CFR Part 23
<u>14 CFR</u> Part 61 -- Certification: Pilots, Flight Instructors, and Ground Instructors.....	<u>Entire Part</u>	4.4 14 CFR Part 39 4.5 14 CFR Part 43 4.6 14 CFR Part 61
<u>14 CFR</u> Part 91 -- General Operating and Flight Rules.....	91.1-.417	4.7 14 CFR Part 91 4.8 14 CFR Part 119 4.9 NTSB Part 830
<u>14 CFR</u> Part 119 -- Certification: Air Carriers and Commercial Operators.....	119.1	4.10 Near Midair Collision Reporting
NTSB <u>49 CFR</u> Part 830 (<u>NTSB</u>) – Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records...	<u>Entire Part</u>	

Page 24, Ground Lesson 5: Airplane Performance and Weight and Balance, Objective: This edit clarifies the objective.

Objective

To further develop the pilot’s ability to determine airplane performance, ~~including~~ through the use of performance charts and weight and balance. Additionally, the pilot will learn the significance and effects of exceeding the airplane’s performance limitations.

Page 25, Objective: These edits clarify the objective.

~~To~~The objective of this stage is to further develop the pilot’s knowledge of aeromedical factors and the aeronautical decision-making process and judgment related to all flights. The pilot will learn how weather affects flying, including how to recognize and avoid critical weather situations such as wind shear. The pilot will be able to interpret ~~aviation~~aeronautical weather reports, forecasts, and charts. Additionally, the pilot will review the use of aeronautical navigation charts, plotters, flight computers, and flight publications for cross-country flight planning and utilize these charts to aid in pilotage and dead reckoning. Finally, the pilot will review various air navigation systems and maneuvers, procedures, and emergency operations to ensure the safe and efficient operation of an aircraft and will, additionally, learn about night and high-altitude operations.

Page 26, Ground Lesson 6: Aeromedical Factors and Aeronautical Decision Making (AMD), Objective: These edits clarify the objective.

To further develop the pilot's knowledge of the medical factors related to flight and to the aeronautical decision-making (ADM) process, [and judgment](#).

Page 27, Ground Lesson 7: Aviation Weather, Text References: This edit updates a text reference.

Gleim <i>Pilot Handbook</i> Study Unit 7 Contents	Gleim <i>Commercial Pilot FAA Knowledge Test Prep</i> Study Unit 7 Contents
7.1 The Earth's Atmosphere	7.1 Causes of Weather
7.2 Temperature	7.2 High/Low Pressure Areas
7.3 Atmospheric Pressure	7.3 Jet Stream
7.4 Wind	7.4 Temperature
7.5 Moisture, Cloud Formation, and Precipitation	7.5 Clouds
7.6 Stable and Unstable Air	7.6 Fog
7.7 Clouds	7.7 Stability
7.8 Air Masses and Fronts	7.8 Thunderstorms and Icing
7.9 Turbulence, Wind Shear, and Wind Shear Avoidance	7.9 Turbulence
7.10 Icing	7.10 Wind Shear
7.11 Thunderstorms	
7.12 Fog	

Page 28, Ground Lesson 8: Aviation Weather Services, Objective and Text References: These edits clarify the objective and update the text references. This lesson was previously edited in a September 2019 update.

Objective

To further develop the pilot's ability to interpret and use [aeronautical](#) weather charts, reports, forecasts, and broadcasts.

[. . .]

Gleim <i>Pilot Handbook</i> Study Unit 8 Contents	Gleim <i>Commercial Pilot FAA Knowledge Test Prep</i> Study Unit 8 Contents
8.1 Flight Service Station (FSS)	8.1 Sources of Weather Information
8.2 Aviation Routine Weather Report (METAR)	8.2 Aviation Routine Weather Report (METAR)
8.3 Pilot Weather Report (PIREP)	8.3 Pilot Weather Aircraft Observations and Reports (PIREP)
8.4 Terminal Aerodrome Forecast (TAF)	8.4 Surface Analysis Chart
8.5 Aviation Area Forecast (FA) Graphical Airman's Meteorological Advisory (G-AIRMET)	8.5 8.4 Terminal Aerodrome Forecast (TAF)
8.6 Graphical Forecasts for Aviation (GFA)	8.6 In-Flight Weather Advisories Surface Analysis Chart
8.7 In-Flight Aviation Weather Advisories	8.7 Low-Level and High-Level Prognostic Charts
8.8 Winds and Temperatures Aloft Forecast (FB)	8.8 8.7 Surface Prog Charts
8.9 Surface Analysis Chart	8.9 Other Charts and Forecasts Weather Services
8.10 Coiling and Visibility Analysis (CVA)	
8.11 8.10 Radar Observations	
8.12 8.11 Short-Range Surface Prognostic (PROG) Chart	
8.13 8.12 Low-Level Significant Weather (SIGWX) Chart	
8.14 8.13 Leides-Flight Service Online	
8.15 8.14 Aviation Weather Resources on the Internet	

Page 29, Ground Lesson 9: Navigation: Charts, Publications, Flight Computers, Objective and Text References: These edits clarify the objective and update a text reference. This lesson was previously edited in a September 2019 update.

Objective

To further develop the pilot's knowledge of, and the ability to use, [aeronautical](#) navigation charts, publications, and a flight computer in planning a VFR cross-country flight. [Additionally, to develop the pilot's ability to utilize these charts with a magnetic compass to aid in pilotage and dead reckoning.](#)

[. . .]

Gleim <i>Pilot Handbook</i> Study Unit 9 Contents	Gleim <i>Commercial Pilot FAA Knowledge Test Prep</i> Study Unit 9 Contents
9.1 VFR Navigation Charts 9.2 Longitude and Latitude 9.3 Sectional Chart Symbology 9.4 FAA Advisory Circulars (ACs) 9.5 <i>Aeronautical Information Manual (AIM)</i> 9.6 Chart Supplement U.S. 9.7 Notice to Airmen Air Missions (NOTAM) System 9.8 Flight Computers 9.9 The Gleim Flight Computer 9.10 The Calculator Side of the Flight Computer 9.11 Conversion of Nautical Miles to Statute Miles and Vice Versa 9.12 Speed, Distance, and Time Computations 9.13 Fuel Computations 9.14 True Airspeed and Density Altitude 9.15 Corrected (Approximately True) Altitude 9.16 Off-Course Correction 9.17 Radius of Action 9.18 Other Conversions 9.19 Temperature Conversions 9.20 The Wind Side of the Gleim Flight Computer 9.21 Determining Magnetic Heading and Groundspeed 9.22 Determining Wind Direction and Speed 9.23 Determining Altitude for Most Favorable Winds 9.24 Alternative: E6B Computer Approach to Magnetic Heading 9.25 Information Side of Sliding Card (Gleim E6B) 9.26 Electronic Flight Computers	9.1 Sectional Charts 9.2 Chart Supplements 9.3 IFR En Route Low Altitude Charts 9.4 Instrument Approach Charts 9.5 Fuel Consumption 9.6 Wind Direction and Speed 9.7 Time, Compass Heading, Etc., on Climbs and En Route 9.8 Time, Compass Heading, Etc., on Descents

Page 30, Ground Lesson 10: Navigation Systems, Objective and Text References: These edits clarify the objective and update a text reference. This lesson was previously edited in a September 2019 update.

Objective

To further develop the pilot's knowledge of [and the ability to use](#), various [air](#) navigation systems [and facilities](#).

[. . .]

Gleim <i>Pilot Handbook</i> Study Unit 10 Contents	Gleim <i>Commercial Pilot FAA Knowledge Test Prep</i> Study Unit 10 Contents
10.1 Characteristics of Radio Waves 10.2 VHF Omnidirectional Range (VOR) 10.3 Distance-Measuring Equipment (DME) 10.4 Automatic Direction Finder (ADF) 10.5 Radio Magnetic Indicator (RMI) 10.6 Area Performance-Based Navigation (RNAV PBN) 10.7 VORTAC-Based RNAV 10.8 Global Positioning System (GPS)	10.1 VOR Use and Receiver Checks 10.2 Horizontal Situation Indicator (HSI) 10.3 Global Positioning System (GPS) 10.4 Pilotage and Dead Reckoning

Page 31, Ground Lesson 11: Flight Operations, Objective and Text References: The edits clarify the objective and update the text references.

Objective

To further develop the pilot's knowledge of maneuvers, procedures, and emergency operations [to ensure the safe and efficient operation of an aircraft](#). [Additionally, the pilot will learn about night and high-altitude operations](#).

[. . .]

Gleim <i>Commercial Pilot Flight Maneuvers</i> Reading Assignment	Study Unit	Gleim <i>Commercial Pilot FAA Knowledge Test Prep</i> Study Unit 11 Contents
Section I: Preflight Preparation		11.1 Flight Fundamentals
Weather Information.....	5	11.2 Taxiing
Operation of Systems.....	9	11.3 Landings
Human Factors	10	11.4 Emergencies
Section II: Preflight Procedures		11.5 Anti-Collision Light System
Taxiing.....	14	11.6 Cold Weather Operation
Section IV: Takeoffs, Landings, and Go-Arounds		11.7 Turbulence
Normal Takeoff and Climb.....	18	11.8 Night Flying Operations
Normal Approach and Landing.....	19	
Section V: Performance and Ground Reference		
Maneuvers		
Steep Turns	26	
Steep Spiral	27	
Chandelles	28	
Lazy Eights	29	
Eights on Pylons	30	
Section VI: Navigation		
Diversion.....	33	
Section VIII: High Altitude Operations		
Supplemental Oxygen.....	40	
Pressurization.....	41	
Section IX: Emergency Operations		
Emergency Descent	42	
Emergency Approach and Landing (Simulated)	43	
Systems and Equipment Malfunction.....	44	
Emergency Equipment and Survival Gear	45	

Part I: Commercial Pilot Flight Training Syllabus Airplane Single-Engine Land

Page 35, Flight Training Course Completion Standards: These edits add a reference to the new “*Training Record Grading Legend*” section (on page 3 of this update document) and remove the previous grading legend.

There are three boxes because it may take more than one flight to complete the lesson. Your CFI may mark the box(es) next to each task in one of the following methods (or any other method desired): [described in the “Training Record Grading Legend” section on page 6.](#)

✓ — task completed to lesson completion standards	D — demonstrated by instructor A — accomplished by you S — safe/satisfactory C — meets or exceeds ACS standards	1 — above lesson standard 2 — meets lesson standard 3 — below lesson standard
---	--	--

Part II: Commercial Pilot Flight Training Syllabus Airplane Multi-Engine Land Add-On Rating

Page 116, Flight Training Course Completion Standards: These edits add a reference to the new “*Training Record Grading Legend*” section (on page 3 of this update document) and remove the previous grading legend.

There are three boxes because it may take more than one flight to complete the lesson. Your CFI may mark the box(es) next to each task in one of the following methods (or any other method desired): [described in the “Training Record Grading Legend” section on page 6.](#)

✓ — task completed to lesson completion standards	D — demonstrated by instructor A — accomplished by you S — safe/satisfactory C — meets or exceeds ACS standards	1 — above lesson standard 2 — meets lesson standard 3 — below lesson standard
---	--	--

Appendix A: Knowledge Tests and Figures for Airplane Single-Engine Land

Page 139, End-of-Course Knowledge Test – Single-Engine: This edit replaces outdated Question 97.

~~97. The Hazardous Inflight Weather Advisory Service (HIWAS) is a broadcast service over selected VORs that provides~~

- ~~A — SIGMETs and AIRMETs at 15 minutes and 45 minutes past the hour for the first hour after issuance.~~
~~B — continuous broadcast of inflight weather advisories.~~
~~C — SIGMETs, CONVECTIVE SIGMETs and AIRMETs at 15 minutes and 45 minutes past the hour.~~

[97. Weather Advisory Broadcasts, including Severe Weather Forecast Alerts \(AWWs\), Convective SIGMETs, and SIGMETs, are provided by](#)

- [A — ARTCCs on all frequencies, except emergency, when any part of the area described is within 150 miles of the airspace under their jurisdiction.](#)
[B — FSSs on 122.2 MHz and adjacent VORs, when any part of the area described is within 200 miles of the airspace under their jurisdiction.](#)
[C — selected VOR navigational aids.](#)