Gleim Commercial Pilot Flight Maneuvers

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NOTE: Text that should be deleted is displayed with a line through it. New text is shown with a blue background.

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The changes described and reproduced in this update are due to the release of the FAA's revised Commercial Pilot – Airplane Airman Certification Standards (FAA-S-ACS-7A), effective June 2018.

To view the updated ACS, go to
https://www.faa.gov/training_testing/testing/acs/media/commercial_airplane_acs.pdf

The Task reproductions at the beginning of each Part II study unit as well as each Task element within each subunit have been updated to match the FAA ACS document above. The changes also include updating the Study Unit 16 title to "Communications, Light Signals, and Runway Lighting Systems."

Information related to weather services was updated to reflect the discontinuation of DUATS.

Part II/Study Unit 3 – Pilot Qualifications

Page 25, Subunit 3.1: New Item 5.:

5. **The applicant demonstrates understanding of Part 68 BasicMed privileges and limitations.**
    a. BasicMed allows a pilot to conduct certain operations using a U.S. driver's license instead of a medical certificate as long as the pilot meets the following conditions:
        1) Has held an FAA medical certificate at any time after July 14, 2006, the most recent of which
            a) May have been a special issuance medical certificate. A one-time special issuance medical certificate must be obtained for certain cardiovascular, neurological, and mental health conditions.
            b) May be expired.
            c) Cannot have been suspended, revoked, withdrawn, or denied.
        2) Completes an approved medical education course in the preceding 24-calendar months in accordance with 14 CFR Part 68.
        3) Receives a comprehensive medical examination from a state licensed physician in the previous 48 months in accordance with 14 CFR Part 68.
            a) The exam is not required to be conducted by an Aviation Medical Examiner (AME).

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b. The pilot in command of an aircraft operating under BasicMed must adhere to the following limitations:

1) The aircraft

a) May not be certificated to carry more than 6 occupants
b) May not have a maximum certificated takeoff weight of more than 6,000 pounds
c) May carry a maximum of five passengers on board

2) No portion of the flight

a) May be carried out above 18,000 ft. MSL
b) May be conducted outside the United States unless authorized by the country in which the flight is conducted
c) May be carried out at an indicated airspeed greater than 250 knots

3) The pilot must have available in his or her logbook (in paper or electronic format)

a) The completed medical examination checklist
b) The medical education course completion certificate

Pages 26-27, Subunit 3.2, Items 2. and 3.:

2. ~~**The applicant demonstrates the ability to identify, assess, and mitigate risks encompassing failure to set personal minimums.**~~

~~a. When a pilot sets personal minimums, the inherent risk in a flight is reduced or eliminated.~~

~~1) Setting personal minimums proactively identifies safety-related hazards and mitigates the associated risks.~~

~~a) Direct or indirect experience, training, and personal minimum standards aid you in determining alternative courses of action to reduce and/or eliminate risks.~~
~~b) You should be aware of personal limitations, such as health, recency of experience, skill level, and attitude, in order to make effective decisions regarding the outcome of a flight.~~

~~2) Personal minimums define your self-imposed limitations on a variety of flight factors, including weather.~~

~~a) Personal minimums should be constructed from a variety of sources, including Federal Aviation Regulations, personal experience, and pilot comfort levels.~~
~~b) Begin by determining what is legal (i.e., look to the regulations).~~
~~c) From there, consider personal experience and comfort levels to further restrict yourself to minimums more in line with what is safe.~~
~~d) You should create your own personal minimums worksheet to reflect the minimum conditions you feel comfortable operating in.~~

~~3) Personal minimums should be reviewed and updated over time.~~

~~a) As your experience grows, your personal minimums will grow as well.~~
~~b) Review your personal minimums every 6 months, considering revisions carefully.~~

~~4) Personal minimums must not be altered for a given flight. Stick with the plan you have established.~~

~~a) Giving in to the pressure to take a flight that contradicts your personal minimums is inviting trouble; it is a breakdown in the risk management process.~~

~~b. *Pilot Handbook*, Study Unit 6, Subunits 12-14, have more information on personal minimums.~~

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3. ~~**The applicant demonstrates the ability to identify, assess, and mitigate risks encompassing failure to ensure fitness for flight.**~~

   a. ~~The PAVE checklist is a tool to help you identify risk before departure and assist you in decision making. The elements of the PAVE checklist include~~

      1) ~~**P**ilot~~
      2) ~~**A**irplane~~
      3) ~~En**V**ironment~~
      4) ~~**E**xternal pressures~~

   b. ~~When using the PAVE checklist, the first element, **P**ilot, reminds you to consider such factors as competency, condition of health, mental and emotional state, level of fatigue, and many other variables.~~

   c. ~~A recommended tool for pilots to use to assess their fitness to fly is the I'M SAFE checklist.~~

      1) ~~**I - Illness:** Am I suffering from any illness or symptoms?~~
      2) ~~**M - Medication:** Am I currently taking any drugs (prescription or over-the-counter)?~~
      3) ~~**S - Stress:** Am I worried about other factors in life? Are any psychological pressures of everyday living a distraction that will affect my performance?~~
      4) ~~**A - Alcohol:** Have I consumed alcohol in the past 8 hr.? In the past 24 hr.? Even if I am legal, I must be sure there is zero chance of impairment.~~
      5) ~~**F - Fatigue:** Am I well rested?~~
      6) ~~**E - Emotion/Eating:** Am I emotionally upset about anything? Have I eaten enough of the proper foods to keep adequately nourished during the entire flight?~~

   d. ~~Whatever tool or memory aid you use, it is important to understand what risks exist for a given flight condition. Evaluate your fitness before every flight, even familiar trips, to ensure you are seeing the big picture.~~

Part II/Study Unit 5 – Weather Information

Page 48, Subunit 5.1., Item 3.:

3. The applicant demonstrates understanding of meteorology applicable to the departure, en route, alternate, and destination ~~for flights conducted~~ under VFR in Visual Meteorological Conditions (VMC), including expected climate and hazardous conditions, such as:

~~NOTE: If this element is selected for testing, the evaluator must assess the applicant's knowledge of at least three of the following sub-elements.~~

Page 51, Subunit 5.1, Item 3.b.7):

7) Mountain waves occur when stable air crosses a mountain barrier. Air flowing up the windward side is relatively smooth, and the wind across the barrier tends to flow in layers.

   a) The barrier may set up waves in these layers, thus the name mountain wave.

      i) The wave pattern may extend 100 mi. or more downwind from the barrier.

   b) Wave crests may be marked by stationary almond- or lens-shaped clouds known as standing lenticular clouds.

   c) Wave crests extend well above the highest mountain. Under each wave crest is a rotary circulation.

      i) The rotor forms below the elevation of the mountain peaks. Turbulence can be violent in these rotors.

      ii) Updrafts and downdrafts in the waves can also create violent turbulence.

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Page 65, Subunit 5.2, Item 1.c.:

c. **Hazardous Weather Conditions, Including Known or Forecast Icing or Turbulence Aloft**

1) Some situations that increase risk include unforecast en route weather conditions with heavy rain, icing, turbulence, and fuel capacity concerns due to higher than forecast headwinds or deteriorating weather at your destination airport.

2) A close temperature-dew point spread indicates the probable formation of visible moisture in the form of dew, mist, fog, or clouds. The decrease in temperature (most frequently at night) can result in a close temperature-dew point spread and fast forming fog.

3) Having a suitable alternate airport on your IFR flight plan helps mitigate risk involved in flying your planned IFR flight.

4) Thinking about the whole IFR flight helps to mitigate the risk involved in your planned flight.

a) This includes checking for weather along the whole route of flight, not just your destination airport.

b) The pilot must always be thinking of an “escape route” if the weather becomes too hazardous to continue the flight to the planned destination airport.

5) The best way to mitigate risks encompassing known or forecast icing conditions or turbulence is by knowing what weather products and resources are available to you as you plan and execute your IFR flight.

a) After reviewing all the available information on icing conditions and turbulence for your flight, you can make a go/no-go decision.

b) Freezing-level graphics are used to assess the lowest freezing-level heights and their values relative to flight paths.

c) AIRMETs will state the forecast areas of expected icing and turbulence.

i) AIRMET ZULU describes moderate icing and freezing-level heights.
ii) AIRMET TANGO describes areas of moderate turbulence.

d) The low-level significant weather prog will depict the forecast freezing levels and areas of turbulence.

e) G-AIRMET snapshots are graphical forecasts of en route weather hazards, including areas of moderate airframe icing, freezing levels, and moderate turbulence.

f) The CIP/FIP product suite can assist in determining the probability for icing, the intensity of icing, and the threat for SLD.

g) When mitigating the risks involved with icing conditions and turbulence, the pilot can also use any available PIREPs for up-to-date information.

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Page 67, Subunit 5.3, Items 1. and 2.: The content from item 2. was moved to item 1. as items d.-v. and edited as follows. This section was previously edited in a September 2018 update. New item 2. was added.

~~2. The applicant demonstrates the ability to correlate weather information to make a competent go/no-go decision.~~

~~a.~~ d. Every planned flight requires a go/no-go decision. To be able to make a decision based on weather conditions, you must first understand the overall weather situation and the dangers associated with the flight environment.

~~b.~~ e. The best way to ensure a safe decision is made every time is to create personal minimums.

~~c.~~ f. To use personal minimums as part of the weather-related decision-making process, compare the current and forecast weather to the personal minimums you have set.

1) If the weather is better than your minimums, you are a “go.”
2) If the weather is below your minimums, you are a “no-go” for weather reasons.

~~d.~~ g. Your evaluator will want to see how you make the go/no-go decision.

1) You may be given a specific scenario that will require you to make that decision.
2) Coming into the practical test with a set of personal minimums will show the evaluator that you are prepared and safety conscious.

~~e.~~ h. Competent go/no-go decisions are made by the correct interpretation of the most up-to-date weather data from reliable weather sources.

~~f.~~ i. A good weather briefing begins with developing a total awareness of the overall big picture before obtaining a detailed or standard briefing.

~~g.~~ j. Many pilots start by monitoring weather patterns through commercial television, such as The Weather Channel, several days before the flight.

~~h.~~ k. The day or evening before the flight, pilots may wish to obtain an outlook briefing from FSS or electronically ~~from a Direct User Access Terminal System (DUATS)~~. You may choose to download weather and forecast charts from the Internet.

1) Use official weather sources such as ~~www.duats.com or~~ www.1800wxbrief.com.

~~i.~~ l. When using ~~DUATS~~ www.1800wxbrief.com or any other ~~weather~~ Internet weather sources, contact FSS to clarify any information you do not fully understand.

~~j.~~ m. As close to departure time as possible, call FSS or log on to ~~DUATS~~ www.1800wxbrief.com for a standard briefing.

~~k.~~ n. When using weather products on the Internet or via other sources, first make sure that the menu of products is suitable for aviation use and the products are current.

~~l.~~ o. If you obtain a standard briefing several hours before the flight or when the weather is questionable, it is a good practice to call an FSS for an abbreviated briefing just before takeoff.

~~m.~~ p. If you are already in flight and need to obtain a standard briefing or update a previous briefing, contact FSS on 122.2 MHz. Advise the specialist of the type of briefing you require (standard, abbreviated, etc.) and provide appropriate background information. The specialist will then provide information as specified in the type of briefing you requested. PIREPs are a valuable source of in-flight weather information to help provide you with real-time weather information from other pilots.

~~n.~~ q. Advanced avionics cockpit weather systems are designed to enhance safety–not to extend the limits of flight operations. The pilot must be able to evaluate weather conditions from the data presented during the flight. The pilot must consider all of the details of a display, especially refresh rates and delays from data acquisition to presentation, to make en route weather decisions.

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~~o.~~ r. HIWAS, SIGMETs, and Center Weather Advisories (CWAs) combined with automated cockpit weather can help you make in-flight diversion decisions.

~~p.~~ s. Destination/terminal area arrival weather can be obtained via radio and/or datalink from FSS, UNICOM, ATIS, AWOS/ASOS, and terminal area datalink and can be used to help make diversion decisions in a timely manner.

~~q.~~ t. On-board data is never an adequate substitute for a timely and thorough en route weather briefing from an FSS, but it can aid you in seeing the “big picture” of where VFR conditions exist to maintain awareness of potential landing sites in the event that a diversion is necessary.

~~r.~~ u. With the availability of weather information in the cockpit, a common pitfall is that the pilot can be tempted to skip the preflight weather briefing. Do not use advanced avionics weather data systems as a substitute for a pre-flight weather briefing. Always contact FSS at 1-800-WX-BRIEF for a standard weather briefing before departure to aid in your go/no-go decision.

~~s.~~ v. Another common pitfall while flying en route is that the pilot does not clarify hazardous or adverse conditions from FSS and uses weather information that is not as current as that provided from FSS in weather decision making.

2. **The applicant demonstrates the ability to discuss the implications of at least three of the conditions listed in Subunit 5.1, items 3.a.-3.k., using actual weather or weather conditions in a scenario provided by the evaluator.**

a. Using your best judgment based on the knowledge and risks discussed previously, respond to the evaluator’s weather scenario.

Part II/Study Unit 6 – Cross-Country Flight Planning

Page 70, Subunit 6.1, New Item 1.f.:

f. When planning a route of flight, you must consider what navigational facilities will be available along the route. NOTAMs should be reviewed during the planning process to check for VORs that are out of service, areas where GPS will not be available, etc.

Part II/Study Unit 7 – National Airspace System

Page 98, Subunit 7.3, New Item 3.: Items 1.b.-c. moved to items 3.a.-b.

3. **The applicant demonstrates the ability to explain the requirements for operating in SUA or within a TFR and to explain SATR and SFRA operations, if applicable.**

~~b.~~ a. Use your knowledge to apply pertinent operations and requirements to account for SUA, SFRAs, SATRs, and TFRs.

~~c.~~ b. Explain to your evaluator how you determine these airspace areas and how you would remain clear of them or obtain permission to enter.

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Part II/Study Unit 9 – Operation of Systems

Page 110, Subunit 9.1, Item 1.: Item a.2) moved to 1.b.4).

~~2)~~ 4) Trim devices are commonly used to relieve you of the need to maintain continuous pressure on the primary flight controls.

a) The most common trim devices used on trainer-type airplanes are trim tabs and anti-servo tabs located on the trailing edge of the primary flight control surfaces.

b) A manual trim control wheel or electric trim switch is used to operate trim systems.

Part II/Study Unit 10 – Human Factors

Page 124, Subunit 10.1, Item 1.f.:

f. **Carbon monoxide poisoning** causes **hypemic hypoxia**, which occurs because of a reduced ability of the blood to carry oxygen.

1) Even though there is an adequate supply of oxygen to breathe, the blood's capacity to carry oxygen to the cells is impaired.

2) Anemia, hemorrhage, hemoglobin abnormalities, sulfa drugs, and nitrites can also result in hypemic hypoxia.

3) Carbon monoxide is a colorless, odorless, and tasteless gas contained in exhaust fumes and tobacco smoke. ~~1)~~ When inhaled even in minute quantities over a period of time, it can significantly reduce the ability of the blood to carry oxygen.

a) Consequently, the effects of hypoxia occur.

~~2)~~ 4) Most heaters in light aircraft work by air flowing over the exhaust manifold.

Page 125, Subunit 10.1, Items 1.g.5)-8):

~~5)~~h. **Fatigue** can be treacherous because it may not be apparent to you until serious errors are made. It is best described as either acute (short-term) or chronic (long-term).

~~6)~~1) Acute fatigue is the everyday tiredness felt after long periods of physical or mental strain.

a) Consequently, coordination and alertness can be reduced.

b) Acute fatigue is prevented by adequate rest and sleep, as well as regular exercise and proper nutrition.

~~7)~~2) Chronic fatigue occurs when there is not enough time for full recovery between episodes of acute fatigue.

a) Performance continues to fall off, and judgment becomes impaired.

b) Recovery from chronic fatigue requires a prolonged period of rest.

~~8)~~3) Stress and fatigue can be a deadly combination.

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Page 138, Subunit 10.3, Item 1.:

1. **The applicant demonstrates the ability to describe symptoms (as applicable), recognition, causes, effects, and corrective actions for at least three of the conditions listed in Subunit 10.1, item 1.**

   a. You should be able to explain your knowledge of the aeromedical and physiological issues discussed in Subunit 10.1, item 1.

      1) The evaluator may ask you to describe various medical abnormalities based on a hypothetical scenario.

      2) You may be asked to demonstrate the corrective action you would take if you suspect that you, or a passenger, are experiencing a physiological issue.

      3) EXAMPLE: If you suspect that a passenger is experiencing hypoxia, you could provide supplemental oxygen (if available) or descend to a lower altitude.

~~1~~ **2. The applicant demonstrates the ability to perform self-assessment, including fitness for flight and personal minimums, for actual flight or a scenario given by the evaluator.**

Part II/Study Unit 11 – Preflight Assessment

Page 153, Subunit 11.3, Item 2:

2. **The applicant demonstrates the ability to verify the airplane is ~~airworthy and~~ in condition for safe flight and conforms to its type design.**

Part II/Study Unit 14 – Taxiing

Pages 176-177, Subunit 14.1, Item 6.b.:

b. ~~Taxiing is the controlled movement of the airplane under its own power while on the ground.~~ Radio Communications Procedures

   ~~1) Taxiway centerline and edge markings are yellow.~~

      ~~a) When yellow taxiing centerline stripes are provided, they should be observed unless necessary to clear obstructions or airplanes.~~

   ~~2) Markings for runways are white.~~

      ~~a) Maintain runway alignment by following the white runway centerline markings.~~

   ~~3) Usually when operating on a soft or muddy field, you must maintain the taxi speed or power slightly above that required under normal field operations; otherwise, the airplane may come to a stop.~~

   ~~a)~~ 1) Special Considerations for Tower-Controlled Airports

      ~~i)~~ a) Acknowledge and read back all ATC instructions/clearances.

      ~~ii)~~ b) Write down ATC taxi instructions and make use of airport diagrams to visualize your taxi route, especially at complex and/or busy airports.

      ~~iii)~~ c) Hold short of all runways unless explicitly cleared by ATC to cross them.

      ~~iv)~~ d) Always stop and query ATC if you have questions or doubts regarding your clearance.

      ~~v)~~ e) Request progressive taxi instructions from ATC when unsure of the taxi route.

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~~b)~~ 2) Special Considerations for Nontowered Airports

~~i)~~ a) Visually confirm the area around the aircraft is clear before moving.

~~ii)~~ b) Pay attention to local radio transmissions while taxiing to determine what other aircraft are operating in the area.

~~iii)~~ c) Transmit your intentions to let others know of your movement on the ground.

~~iv)~~ d) Do not develop the mentality that taxiing at a nontowered airport requires less mental focus than when operating at a tower-controlled airport.

~~c) Use a standard clearing procedure before initiating movement on the surface.~~

~~i) Look to your left, scan the area for other traffic, and announce "clear left" if it is in fact clear.~~

~~ii) Repeat this same procedure for both the front and right of the aircraft.~~

~~iii) Check for traffic before crossing any runway hold line and before entering a taxi.~~

~~d) Make use of airport diagrams for unfamiliar airports.~~

~~i) Know your intended taxi route, but also be aware of other ramp areas, common entry/exit points from ground vehicles, and points where you can safely stop the aircraft so as not to inconvenience other traffic.~~

~~e) Review NOTAMs for information on runway/taxiway closures and construction areas.~~

~~f) Turn on aircraft lights and the rotating beacon or strobe lights while taxiing.~~

Page 178, Subunit 14.2, Item 3.:

3. **The applicant demonstrates the ability to identify, assess, and mitigate risks encompassing a taxi route or departure runway change.**

a. A change in taxi route or departure runway can create the opportunity for pilot deviations or runway incursions.

1) Acknowledge and read back all ATC instructions/clearances.

2) Stop and write down ATC instructions. Do not attempt to write while taxiing.

3) Always verify with ATC if you are unsure of the new taxi route.

4) Review an airport diagram to familiarize yourself with the new route before you resume taxiing.

Pages 179-183, Subunit 14.3: Reordered to match the FAA's revised ACS. No content needs to be added or deleted.

Part II/Study Unit 15 – Before Takeoff Check

Page 189, Subunit 15.3, Item 5.:

5. **The applicant demonstrates the ability to verify that engine ~~temperature(s) and pressure(s)~~ parameters and airplane configuration are suitable.**

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Part II/Study Unit 16 – Communications, ~~and~~ Light Signals, and Runway Lighting Systems

Page 199, Subunit 16.1, New Item 9.:

9. **The applicant demonstrates understanding of runway status lighting systems.**

   a. The Runway Status Lights (RWSL) System is designed to provide a direct indication, using warning lights on runways and taxiways, that it is unsafe to enter a runway, cross a runway, or take off from or land on a runway when the system is activated.

      1) Runway status lights are red in color and indicate runway status only.
      2) They do not indicate clearance to enter a runway or clearance to take off.

Part II/Study Unit 20 – Soft-Field Takeoff and Climb

Page 290, Subunit 20.3, New Item 6.b.:

   b. While taxiing onto the runway, the flight controls should be held in the proper position.

      1) Full back pressure should be applied to the yoke. This will allow support of the airplane's weight to transfer from the wheels to the wings as the takeoff roll proceeds.
      2) Flaps should be lowered according to the manufacturer's recommendations.

Part II/Study Unit 23 – Short-Field Approach and Landing

Page 322, Subunit 23.3, Item 10.:

~~10. **The applicant demonstrates the ability to touch down at the recommended airspeed.**~~

~~a. Since the final approach over obstacles is made at a steep approach angle and close to the stalling speed, the initiation of the roundout (flare) must be judged accurately to avoid flying into the ground or stalling prematurely and sinking rapidly.~~

~~1) Smoothly close the throttle during the roundout.~~
~~2) Touchdown should occur at the minimum controllable airspeed at a pitch attitude that will produce a power-off stall.~~

~~b. Use the same technique during the roundout and touchdown as discussed in Study Unit 19, Subunit 3, item 9., beginning on page 270.~~

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Part II/Study Unit 24 – Power-off 180° Accuracy Approach and Landing

Page 337, Subunit 24.3, New Item 4.:

4. **The applicant demonstrates the ability to select the most suitable touchdown point based on wind, landing surface, obstructions, and airplane limitations.**
    a. Depending on the wind conditions, landing surface (i.e., hard surface or soft surface), and any obstructions, you should select the touchdown point as you would for a normal, soft, or short field.
    b. Advise your evaluator if your personal minimums would prevent you from attempting a landing on a runway that requires skills beyond your experience.
    c. Advise the evaluator of any aircraft limitations that may prevent or limit a forward slip.
        1) Calculate the wind component and landing distance required at the destination airport.
        2) Explain that the maximum demonstrated crosswind component is not necessarily a limitation. However, explain that you may use it as a guideline so as not to exceed your or the aircraft's capabilities.
    d. Runway selection should be based on being able to fly a stabilized descent throughout the approach so that the airplane lands in the center of the first third of the runway.
        1) The descent angle is affected by all four fundamental forces that act on an airplane (lift, drag, thrust, and weight).
            a) You must control these forces by adjusting the airspeed, attitude, power, and drag (forward slip), to land in the first third of the runway.
        2) If landing in the first third of the runway cannot be done, a timely decision to go around must be made and, if appropriate, another runway selected.
    e. After you select your touchdown point, you should identify it to your evaluator.
    f. For more information on selecting the most suitable touchdown point based on wind, landing surface, obstructions, and airplane limitations, see Section IV Introduction, item 2., beginning on page 223, and item 11., on page 233.

Part II/Study Unit 25 – Go-Around/Rejected Landing

Page 347, Subunit 25.3, Items 5. and 6.:

~~5. **The applicant demonstrates the ability to retract the flaps, as appropriate.**~~
    ~~a. Unless otherwise noted in your POH/AFM, the flaps are normally retracted (at least partially) before retracting the landing gear.~~
        ~~1) On most airplanes, full flaps create more drag than the landing gear.~~

6. **The applicant demonstrates the ability to retract the landing gear after establishing a positive rate of climb.**
    a. In case your airplane should inadvertently touch down as the go-around is initiated, it is desirable to have the landing gear in the down-and-locked position.
    b. Never attempt to retract the landing gear until after a rough trim is accomplished and a positive rate of climb is established.
    c. Unless otherwise noted in your POH/AFM, the flaps are normally retracted (at least partially) before retracting the landing gear.
        1) On most airplanes, full flaps create more drag than the landing gear.

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Part II/Study Unit 26 – Steep Turns

Pages 356-357, Subunit 26.1, Items 2.d.-f. and 3.:

d. **Load Factor and Accelerated Stalls**

1) At the same gross weight, airplane configuration, CG location, power setting, and environmental conditions, a given airplane consistently stalls at the same indicated airspeed provided the airplane is at +1G (i.e., steady-state unaccelerated flight).

a) However, the airplane can also stall at a higher indicated airspeed (accelerated stall) when the airplane is subject to an acceleration greater than +1G, such as when performing a steep turn.

b) An accelerated stall can occur inadvertently during an improperly executed steep turn.

c) As the bank angle increases in level flight, the margin between stalling speed and maneuvering speed decreases.

i) This is due to an increase in load factor. As load factor increases, so does the stalling speed.

ii) Stalling speed increases as the square root of the load factor.

d) In a level altitude, 45° banked turn, the resulting load factor is 1.4; in a level altitude, 60° banked turn, the resulting load factor is 2.0.

i) With a load factor of 2.0, the effective weight of the aircraft will double.
ii) Load factors increase dramatically beyond 60° of bank.

[. . .]

~~f. **Effect of Bank Angle on Stalls**~~

~~1) As the bank angle increases in level flight, the margin between stalling speed and maneuvering speed decreases.~~

~~a) This is due to an increase in load factor. As load factor increases, so does the stalling speed.~~

~~b) Stalling speed increases as the square root of the load factor.~~

~~2) In a level altitude, 45° banked turn, the resulting load factor is 1.4; in a level altitude, 60° banked turn, the resulting load factor is 2.0.~~

~~a) With a load factor of 2.0, the effective weight of the aircraft will double.~~
~~b) Load factors increase dramatically beyond 60°.~~

~~3. **The applicant demonstrates understanding of altitude control at various airspeeds.**~~

~~a. In this maneuver, a constant airspeed is required, so power is usually added as necessary.~~

~~1) When back pressure is applied to increase lift in a steep bank, drag also increases. Thus, power may be required to maintain the entry altitude and airspeed.~~

Part II/Study Unit 31: Pilotage and Dead Reckoning

Page 419, Subunit 31.3., Item 1.a.1):

1) You can use a service like ~~DUATS~~ www.1800wxbrief.com, which allows you to enter, store, or modify any data contained in an aircraft profile; this information may be used to create a flight log.

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Part II/Study Unit 36 – Power-Off Stalls

Page 483, Subunit 36.3, Items 8.-10.:

8. **The applicant demonstrates the ability to ~~execute a stall recovery in accordance with procedures set forth in the POH/AFM~~ recover at the first indication of a stall or after a full stall has occurred, as specified by the evaluator.**
   a. Refer to your aircraft's POH/AFM.
9. **The applicant demonstrates the ability to ~~retract the flaps to the recommended setting and retract the landing gear, if retractable, after a positive rate of climb is established~~ configure the airplane as recommended by the manufacturer and accelerate to V_X or V_Y.**
   a. Flaps should be partially retracted to reduce drag during recovery from the stall.
      1) Follow the procedures in your POH/AFM.
   b. Landing gear (if retractable) should be retracted after a positive rate of climb has been established on the vertical speed indicator.
   c. Allow your airplane to accelerate to V_Y before you make the final flap retraction.
10. **The applicant demonstrates the ability to ~~accelerate to V_X or V_Y speed before the final flap retraction and~~ return to the altitude, heading, and airspeed specified by the evaluator.**
    ~~a. Allow your airplane to accelerate to V_Y before you make the final flap retraction.~~
    ~~b.~~ a. Return to the altitude, heading, and airspeed, as specified by your evaluator.

Part II/Study Unit 37 – Power-On Stalls

Pages 491-492, Subunit 37.3, Items 8.-10.:

8. **The applicant demonstrates the ability to ~~execute a stall recovery in accordance with procedures set forth in the POH/AFM~~ recover at the first indication of a stall or after a full stall has occurred, as specified by the evaluator.**
   a. Refer to your aircraft's POH/AFM.
9. **The applicant demonstrates the ability to ~~retract the flaps to the recommended setting, if applicable, and retract the landing gear, if retractable, after a positive rate of climb is established~~ configure the airplane as recommended by the manufacturer, and accelerate to V_X or V_Y.**
   a. The wing flaps normally will be set to simulate a stall during a short-field takeoff or retracted to simulate a stall during a normal takeoff and/or climb.
      1) If flaps are extended, retract them to the setting recommended by your POH/AFM.
         a) Do not extend the flaps if they are retracted.
   b. A power-on stall is normally performed with the landing gear retracted (if retractable).
      1) If you have the gear down, it should be retracted only after you have established a positive rate of climb on the vertical speed indicator.
   c. Make the final flap retraction only after your airplane has accelerated to V_X or V_Y (whichever is appropriate).

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10. **The applicant demonstrates the ability to ~~accelerate to V_X or V_Y speed before the final flap retraction and~~ return to the altitude, heading, and airspeed specified by the evaluator.**

~~a. Make the final flap retraction only after your airplane has accelerated to V_X or V_Y (whichever is appropriate).~~

~~b.~~ a. Promptly return to the altitude, heading, and airspeed as specified by the evaluator.

Part II/Study Unit 43 – Emergency Approach and Landing (Simulated)

Page 539, Subunit 43.1, New Item 2.e.:

e. Wind affects the gliding distance and will require corrections to reach the intended point of landing.

1) An airplane has a higher groundspeed and glides farther with a tailwind.
2) An airplane has a lower groundspeed and glides a shorter distance with a headwind.
3) Due to the lower groundspeed and stopping distance required, a forced landing should be made into a headwind if possible.

Part II/Study Unit 46 – After Landing, Parking, and Securing

Page 573, Subunit 46.2, New Item 4.:

4. **The applicant demonstrates the ability to identify, assess, and mitigate risks encompassing disembarking passengers.**

a. Before any passengers disembark from the airplane, you should brief them on how to safely walk from the plane to the FBO.

1) If necessary, help passengers step out of the airplane to avoid injury.
2) Walk with your passengers to the FBO.
3) Keep an eye out for any suspicious activity and ensure your passengers comply with your instructions.

Page 574, Subunit 46.3, Item 4.:

~~4. **The applicant demonstrates the ability to disembark passengers safely and monitor passenger movement while on the ramp.**~~

~~a. Provide instructions to passengers on how to safely walk from your plane to the FBO.~~

~~1) Escort your passengers to and from the airplane and FBO.~~
~~2) Keep a vigilant eye on your passengers to ensure they are compliant with your directions.~~

Abbreviations and Acronyms

Page 613

~~DUATS Direct User Access Terminal System~~

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