The Notebook

❑ Obtain the most recent copy of the **Flight Instructor Practical Test Standards** for Airplane. This will be used as a guide to create the CFI Notebook.

❑ Create a tab or folder for each "**Area of Operation"**

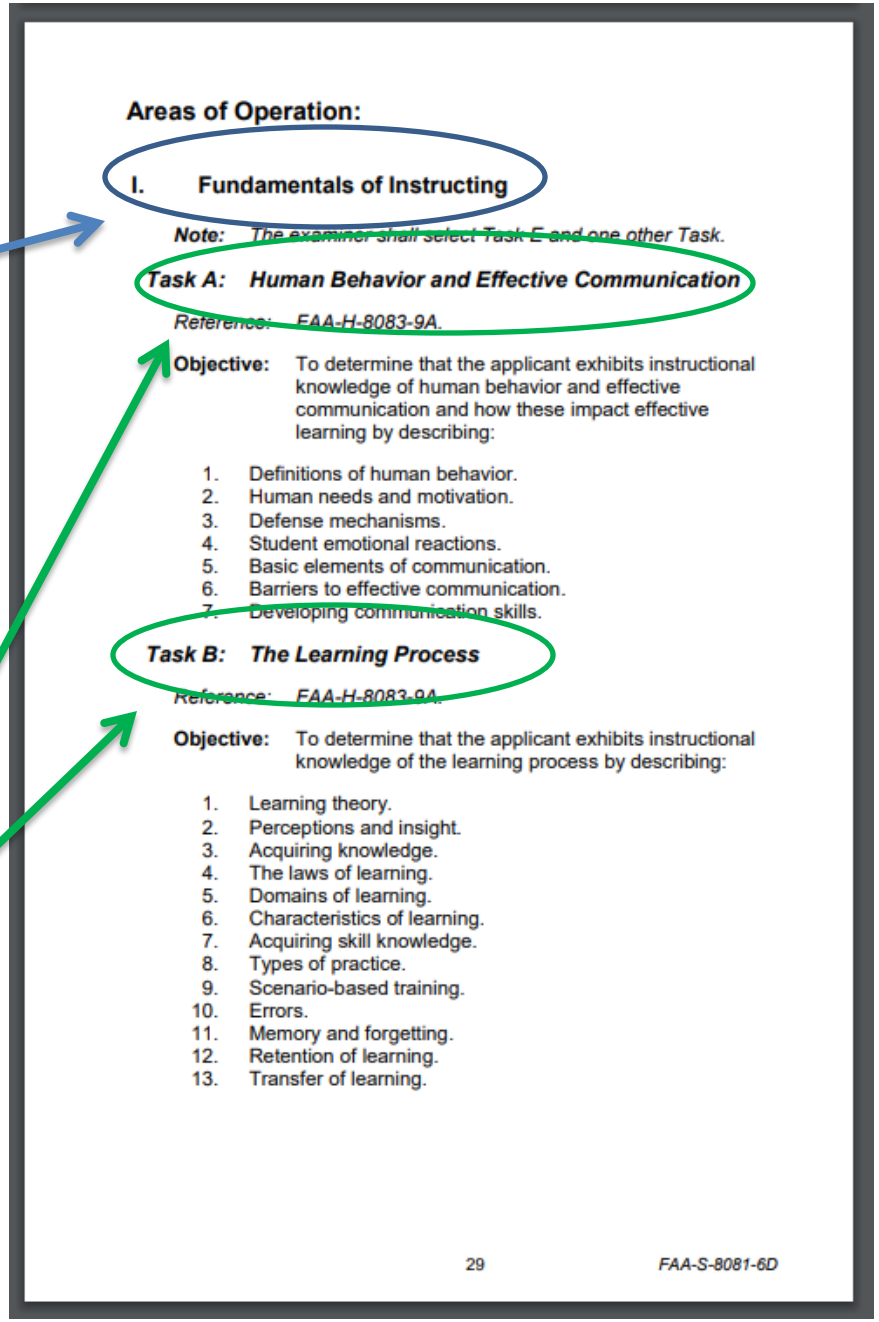
Fundamentals of instructing
Technical subject area
Preflight preparation
Preflight lesson on a maneuver to be performed in flight
Preflight procedures
Airport operations
Take-off landings Go-arounds
Fundamentals of flight
Performance maneuvers
Ground ref maneuvers
Slow flight, Stalls and Spins
Basic instrument maneuvers
Emergency operations
Postflight procedure

❑ Within each "Area of Operation" create a tab or folder for each "**Task**"

Task A: Human Behavior and Effective Communication
Task B: The Learning Process
Task: etc……
*Highlight all mandatory Tasks with Bold or Color

❑ The first page of each **Task** should be a replication of the Task page from the PTS to include:

Task letter and Title
Reference
Objective



Areas of Operation:

I. Fundamentals of Instructing

Note: *The examiner shall select Task E and one other Task.*

Task A: Human Behavior and Effective Communication

Reference: FAA-H-8083-9A.

Objective: To determine that the applicant exhibits instructional knowledge of human behavior and effective communication and how these impact effective learning by describing:

1. Definitions of human behavior.
2. Human needs and motivation.
3. Defense mechanisms.
4. Student emotional reactions.
5. Basic elements of communication.
6. Barriers to effective communication.
7. Developing communication skills.

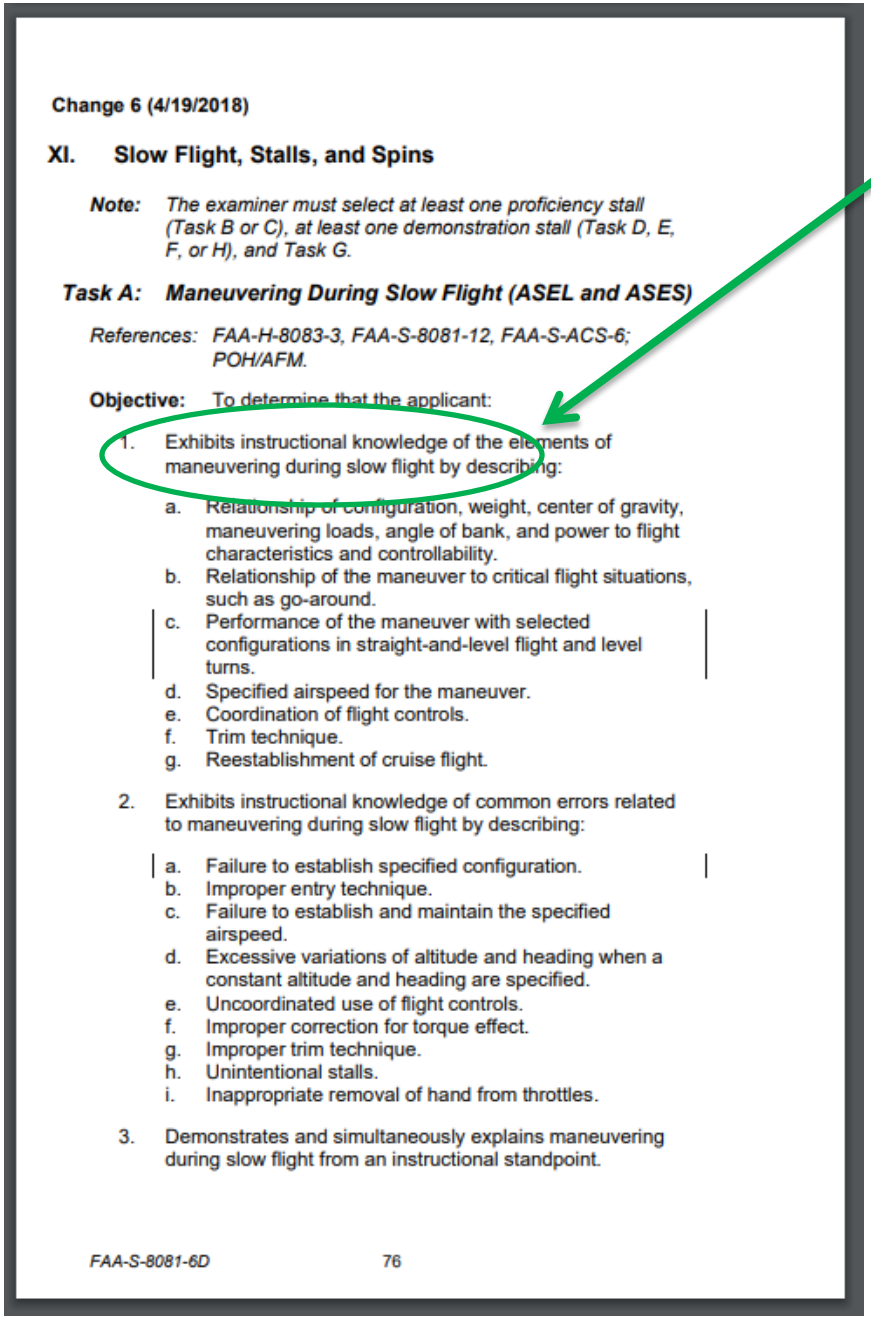
Task B: The Learning Process

Reference: FAA-H-8083-9A.

Objective: To determine that the applicant exhibits instructional knowledge of the learning process by describing:

1. Learning theory.
2. Perceptions and insight.
3. Acquiring knowledge.
4. The laws of learning.
5. Domains of learning.
6. Characteristics of learning.
7. Acquiring skill knowledge.
8. Types of practice.
9. Scenario-based training.
10. Errors.
11. Memory and forgetting.
12. Retention of learning.
13. Transfer of learning.

29 FAA-S-8081-6D



Change 6 (4/19/2018)

XI. Slow Flight, Stalls, and Spins

Note: *The examiner must select at least one proficiency stall (Task B or C), at least one demonstration stall (Task D, E, F, or H), and Task G.*

Task A: Maneuvering During Slow Flight (ASEL and ASES)

References: FAA-H-8083-3, FAA-S-8081-12, FAA-S-ACS-6; POH/AFM.

Objective: To determine that the applicant:

1. Exhibits instructional knowledge of the elements of maneuvering during slow flight by describing:
   a. Relationship of configuration, weight, center of gravity, maneuvering loads, angle of bank, and power to flight characteristics and controllability.
   b. Relationship of the maneuver to critical flight situations, such as go-around.
   c. Performance of the maneuver with selected configurations in straight-and-level flight and level turns.
   d. Specified airspeed for the maneuver.
   e. Coordination of flight controls.
   f. Trim technique.
   g. Reestablishment of cruise flight.
2. Exhibits instructional knowledge of common errors related to maneuvering during slow flight by describing:
   a. Failure to establish specified configuration.
   b. Improper entry technique.
   c. Failure to establish and maintain the specified airspeed.
   d. Excessive variations of altitude and heading when a constant altitude and heading are specified.
   e. Uncoordinated use of flight controls.
   f. Improper correction for torque effect.
   g. Improper trim technique.
   h. Unintentional stalls.
   i. Inappropriate removal of hand from throttles.
3. Demonstrates and simultaneously explains maneuvering during slow flight from an instructional standpoint.

FAA-S-8081-6D 76

Instructional Knowledge

Throughout the PTS the **Objective** for each task includes the requirement to: Exhibit instructional knowledge of……

As described in the PTS, the term "**instructional knowledge**" means the instructor applicant is capable of using the **appropriate reference** to provide the "application or correlative level of knowledge" of a subject matter topic, procedure, or maneuver. It also means that the flight instructor applicant's discussions, explanations, and descriptions should follow the recommended teaching procedures and techniques explained in FAA-H-8083-9, **Aviation Instructor's Handbook**.

Primary References

The PTS also lists references that the practical test is based on, including:

The FAR/AIM

14 CFR part 1 Definitions and Abbreviations
14 CFR part 23 Airworthiness Standards:
14 CFR part 39 Airworthiness Directives
14 CFR part 43 Maintenance, Preventive, Maintenance, Rebuilding, and Alteration
14 CFR part 61 Certification: Pilots and Flight Instructors
14 CFR part 67 Medical Standards and Certification
14 CFR part 91 General Operating and Flight Rules
NTSB part 830 Notification and Reporting of Aircraft Accidents and Incidents
AIM Aeronautical Information Manual

Advisory Circulars

AC 00-6B Aviation Weather
AC 00-45 Aviation Weather Services
AC 60-22 Aeronautical Decision Making
AC 61-65 Certification: Pilots and Flight Instructors
AC 61-67 Stall and Spin Awareness Training
~~AC 61-84 Role of Preflight Preparation~~ (canceled)
~~AC 90-42 Traffic Advisory Practices at Airports without Operating Control Towers~~ (canceled)
AC 90-48 Pilots' Role in Collision Avoidance
AC 90-66 Recommended Standard Traffic Patterns for Aeronautical Operations at Airports without Operating Control Towers
~~AC 91-13 Cold Weather Operation of Aircraft~~ (canceled)
AC 91-55 Reduction of Electrical System Failures Following Aircraft Engine Starting
AC 91-73 Parts 91 and 135 Single-Pilot Procedures During Taxi Operations
AC 150/5340-1 Standards for Airport Markings
AC 150/5340-18 Standards for Airport Sign Systems
AC 150/5340-30 Design and Installation Details for Airport Visual Aids

FAA Handbooks

FAA-H-8083-1 Aircraft Weight and Balance Handbook
FAA-H-8083-2 Risk Management Handbook
FAA-H-8083-3 Airplane Flying Handbook
FAA-H-8083-9 Aviation Instructor's Handbook
FAA-H-8083-15 Instrument Flying Handbook
FAA-H-8083-25 Pilot's Handbook of Aeronautical Knowledge

FAA Testing Standards

FAA-S-ACS-6 Private Pilot – Airplane Airman Certification Standards
FAA-S-8081-4 Instrument Rating Airman Certification Standards
FAA-S-8081-12 Commercial Pilot Airman Certification Standards

Other

A/FD Airport/Facility Directory
NOTAMs Notices to Airmen
POH/AFM Pilot Operating Handbooks

❑ The second, third, four……page of each **Task** is a strategy, methodology, outline, flowchart, spreadsheet, list of terms & definitions, examples or notes on how to teach and demonstrate:

- Instructional knowledge of the elements of a Task (accomplished through discussions, descriptions, explanations, and simulated instruction), based on the **references** defined in the PTS.

For Tasks that involve Pilot Skills

- Instructional knowledge of common errors related to a Task, including their recognition, analysis, and correction.
- The ability to demonstrate and simultaneously explain the key elements of a Task at the Commercial Pilot skill level.
- The ability to analyze and correct common errors related to a Task.

❑ The final page(s) of each **Task** is a reference list & materials

- Copy of the FAR, AC or page applicable to the task
- List all references that apply to the Task, including chapter or page number for easy access.
- Graphs, diagrams, charts, checklists, etc
- Any reference material developed by the CFI student
- Lesson plans for each Maneuver

Example of supporting documentation for Area of Operation: Preflight Procedures: Task A

V. Preflight Procedures

Note: *The examiner must select at least one Task.*

Task A: Preflight Inspection (ASEL and ASES)

References: AC 61-84; FAA-H-8083-3, FAA-H-8083-23, FAA-S-8081-12, FAA-S-ACS-6; POH/AFM.

Objective: To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a preflight inspection, as applicable to the airplane used for the practical test, by describing:
   a. Reasons for the preflight inspection, items that should be inspected, and how defects are detected.
   b. Importance of using the appropriate checklist.
   c. How to determine fuel and oil quantity and contamination.
   d. Detection of fuel, oil, and hydraulic leaks.
   e. Inspection of the oxygen system, including supply and proper operation (if applicable).
   f. Inspection of the flight controls and water rudder (if applicable).
   g. Detection of visible structural damage.
   h. Removal of tie-downs, control locks, and wheel chocks.
   i. Removal of ice and frost.
   j. Importance of the proper loading and securing of baggage, cargo, and equipment.
   k. Use of sound judgment in determining whether the airplane is airworthy and in condition for safe flight.
2. Exhibits instructional knowledge of common errors related to a preflight inspection by describing:
   a. Failure to use or the improper use of checklist.
   b. Hazards which may result from allowing distractions to interrupt a visual inspection.
   c. Inability to recognize discrepancies to determine airworthiness.
   d. Failure to ensure servicing with the proper fuel and oil.
   e. Failure to ensure proper loading and securing of baggage, cargo, and equipment.
3. Demonstrates and simultaneously explains a preflight inspection from an instructional standpoint.

Objective: To determine that the applicant:

1. Exhibits instructional knowledge of the elements of a preflight inspection, as applicable to the airplane used for the practical test, by describing:

   a. Reasons for the preflight inspection, items that should be inspected, and how defects are detected.

Airplane Flying Handbook FAA-H-8083-3B
Preflight Assessment of the Aircraft

The visual preflight assessment is an important step in mitigating airplane flight hazards. The purpose of the preflight assessment is to ensure that the airplane meets regulatory airworthiness standards and is in a safe mechanical condition prior to flight.
The inspection has two parts and involves:

1. *Inspecting the airplane's airworthiness status*
2. *Visual preflight inspection of the airplane following the AFM/POH to determine the required items for inspection.*

Cessna 172 Skyhawk Information Manual

The POH is referenced to conduct a visual preflight inspection, and each manufacturer has a specified sequence for conducting the actions.

Notes: The POH details the items that must be inspected and verified. This can be expanded upon to include important items that are not specifically listed in the POH yet are considered good operating practices and enhance safety

Pilot's Handbook of Aeronautical Knowledge FAA-H-8083-25B
The PAVE Checklist

By incorporating the PAVE checklist into preflight planning, the pilot divides the risks of flight into four categories:

1. *Pilotin-command*
2. ***Aircraft***
3. *enVironment*
4. *External pressures*

Terms & Definitions:
Airworthy - means that the aircraft and its component parts meet the airplane's type design or is in a properly altered configuration and is in a condition for safe operation.

b. Importance of using the appropriate checklist.

Aviation Instructors Handbook FAA-H-8083-9A

Checklists are essential flight deck resources for verifying that the aircraft instruments and systems are checked, set, and operating properly, as well as ensuring that the proper procedures are performed if there is a system malfunction or inflight emergency

Notes:

Checklist usage:

- *"Challenge-Do-Verify." The CDV method consists of a crewmember making a challenge before an action is initiated, taking the action, and then verifying that the action item has been accomplished. This method requires that the checklist be accomplished methodically, one item at a time, in an unvarying sequence. The primary advantage of the CDV method is the deliberate and systematic manner in which each action item must be accomplished.*
- *"Do Verify." The DV method consists of the checklist being accomplished in a variable sequence without a preliminary challenge. After all of the action items on the checklist have been completed, the checklist is then read again while each item is verified. The DV method allows the pilot to use flow patterns or mnemonics to accomplish a series of actions quickly and efficiently.*

Checklist management:

- *When aircraft characteristics allow, the operator should develop touch-verification procedures that contain a requirement that the pilot touch each control to verify it is in the correct position.*

c. How to determine fuel and oil quantity and contamination.

Cessna 172 Skyhawk Information Manual

Oil and fuel levels should be checked and quantities brought to POH levels.

Airplane flying Handbook FAA-H-8083-3B

It is important to always use the approved and recommended oil for the engine. The oil not only acts as a lubricant but also as a medium to transfer heat as a result of engine operation and to suspend dirt, combustion byproducts, and wear particles between oil changes. Therefore, the proper level of oil is required to ensure lubrication, effective heat transfer, and the suspension of various contaminators. The oil level should be checked during each preflight, rechecked with each refueling, and maintained to not have the oil level fall below the minimum required during engine operation. Besides the level of oil, the oil's color provides an insight as to its operating condition.

Always positively confirm the fuel quantity indicated on the fuel gauges by visually inspecting the level of each tank or by using a dip stick to determine quantity.

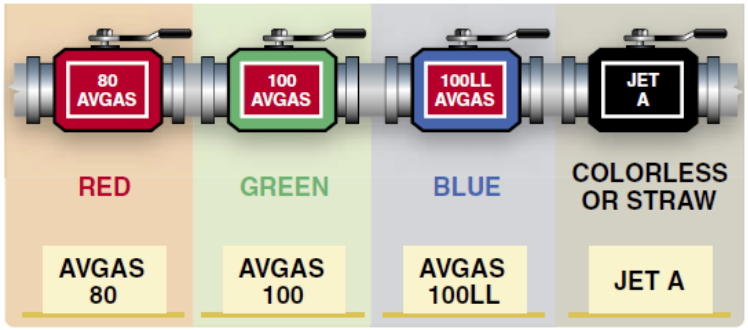
FAR 23.1337 Power plant instruments installation.

(b) Fuel quantity indicator. There must be a means to indicate to the flightcrew members the quantity of usable fuel in each tank during flight. An indicator calibrated in appropriate units and clearly marked to indicate those units must be used. In addition--

(1) Each fuel quantity indicator must be calibrated to read "zero" during level flight when the quantity of fuel remaining in the tank is equal to the unusable fuel supply determined under [Sec. 23.959(a);]

Airplane flying Handbook FAA-H-8083-3B

Sufficient fuel should be drained from the fuel strainer quick drain and from each fuel tank sump to check for fuel grade/ color, ***water****, dirt, and odor. If water is present, it is usually in bubble or bead-like droplets, different in color, (usually clear)*



Note; During Preflight put water in a fuel sample to show the student what to look for

Sediment contamination can arise from dust and dirt entering the tanks during refueling or from deteriorating rubber fuel tanks or tank sealant.

During refueling or when oil is added to an engine, the pilot must monitor and ensure that the correct quantity, quality and grade of fuel and oil is added and that all fuel and oil caps have been securely replaced.

During the preflight assessment, the pilot should look for signs of vent damage and blockage. Some airplanes utilize vented fuel caps, fuel vent tubes, or recessed areas under the wings where vents are located. The pilot should use a flashlight to look at the fuel vent to ensure that it is free from damage and clear of obstructions.

If the airplane is going to be inactive, it is a good operating practice to fill the fuel tanks to prevent water condensation from forming inside the tank

d. Detection of fuel, oil, and hydraulic leaks

Airplane flying Handbook FAA-H-8083-3B

The pilot should be aware that fuel stains anywhere on the wing or any location where a fuel tank is mounted warrants further investigation. Fuel stains are a sign of probable fuel leakage.
Inspect near and around the cowling for signs of oil or fuel streaks and around the oil breather for excessive oil discharge. Inspect under wings and other fuel tank locations for fuel stains. Inspect landing gear and tires for damage and brakes for any leaking hydraulic fluid

The pilot, when approaching the airplane, should look at the landing gear struts and the adjacent ground for leaking hydraulic fluid that may be coming from struts, hydraulic lines from landing gear retraction pumps, or from the braking system. Landing gear should be relatively free from grease, oil, and fluid without any undue amounts.

All brake lines should be secure, dry, and free of signs of hydraulic leaks, and devoid of abrasions and deep cracking.

On controllable pitch propellers, the propeller hub should be checked for oil leaks that tend to stream directionally from the propeller hub toward the tip.

When inspecting inside the cowling, the pilot should look for signs of fuel dye, which may indicate a fuel leak. The pilot should check for oil leaks, deterioration of oil and hydraulic lines, and to make certain that the oil cap, filter, oil cooler, and drain plug are secure.

The pilot should always ensure that the fuel caps have been securely replaced following inspecting or fueling.

e. Inspection of the oxygen system, including supply and proper operation (if applicable)

N/A

f. Inspection of the flight controls and water rudder (if applicable).

Airplane flying Handbook FAA-H-8083-3B

Flight Controls—checked throughout their entire operating range. This includes full aileron, elevator, and rudder deflection in all directions.

Cessna 172 Skyhawk Information Manual

Control Surfaces -- CHECK freedom of movement, security & condition. Note: also check connection points (hinges, rods, cables) and counter weights

***g.* Detection of visible structural damage.**

Notes: Visually inspect the plane throughout the preflight for structural damage including; dents, nicks, cracks, bent components, tire flat spots etc.

h. Removal of tie-downs, control locks, and wheel chocks.

Cessna 172 Skyhawk Information Manual

Remove the control lock and tie downs according to the checklist and ensure wheel chocks have been removed before engine start.

Note: To avoid serious injury or fatalities, do not permit any one to remove a wheel chock or tie down with the engine running.

i. Removal of ice and frost.

Pilot's Handbook of Aeronautical Knowledge

Frost poses a definite flight safety hazard. Frost disrupts the flow of air over the wing and can drastically reduce the production of lift. It also increases drag, which when combined with lowered lift production, can adversely affect the ability to take off. An aircraft must be thoroughly cleaned and free of frost prior to beginning a flight.

Cessna 172 Skyhawk Information Manual

Flight into known icing conditions is prohibited.

j. Importance of the proper loading and securing of baggage, cargo, and equipment.

Note: cockpit organization: ensure all required charts, checklists, gear and safety equipment is within reach.

Cessna 172 Skyhawk Information Manual

Reference the POH to determine the weight limitations for the baggage areas. The weight and balance section further details baggage tie-down option

Note: Secure items to ensure they don't become displaced during flight. Bags stored on the back seat should be secure with a seatbelt or stored underneath the seat.

k. Use of sound judgment in determining whether the airplane is airworthy and in condition for safe flight.

Conduct a thorough preflight and note any issues.

Note: During the preflight inspection if a discrepancy is found consult with an A&P to confirm that the aircraft is in an airworthy condition.
Complete an aircraft squawk sheet describing the defective item.

2. Exhibits instructional knowledge of common errors related to a preflight inspection by describing:

a. Failure to use or the improper use of checklist.

Aviation Instructor's handbook FAA-H-8083-9A

A distraction or interruption is an unexpected event that causes the student's attention to be momentarily diverted. Example: The student puts down the checklist, deals with the interruption, and then returns to the procedure—but erroneously picks up at a later point in the procedure, omitting one or more steps.
The development of automated routines can lead to problems. For example, a verbal checklist procedure becomes so automatic that a streamlined recitation of checklist items becomes decoupled from the thoughts and actions the checklist items are intended to trigger.

Note: Omits checklist due to heavy workload, complacency, poor cockpit organization, poor checklist design (cumbersome or awkward to use)

b. Hazards which may result from allowing distractions to interrupt a visual inspection.

Omission of checklist items.

Note: Pilots must establish procedures to ensure that the correct checklist sequence is reestablished when unusual events interrupt the normal sequence of a flight.

c. Inability to recognize discrepancies to determine airworthiness.

Poor checklist design, complacency, lack of understanding or knowledge

d. Failure to ensure servicing with the proper fuel and oil.

Poor monitoring, complacency, lack of understanding or knowledge. Failure to consult the POH

Airplane flying Handbook FAA-H-8083-3B

During refueling or when oil is added to an engine, the pilot must monitor and ensure that the correct quantity, quality and grade of fuel and oil is added and that all fuel and oil caps have been securely replaced.

e. Failure to ensure proper loading and securing of baggage, cargo, and equipment.

Shifting cargo can cause changes in weight & balance or injury.

Poor checklist design, usage, complacency, lack of understanding or knowledge

Preflight General Tips:

The Preflight is a student's first introduction to flight. Students learn by watching the CFI. Make a good impression. Hold yourself to high standards. Create good habits.

The preflight begins the moment you walk out the door to the plane.
- *Observe weather conditions, clouds, wind etc.*
- *Promote safety on the tarmac & taxi way*
- *Observe the condition of the plane from a distance*

Manage liability & safety
- *Consult with an A&P concerning any damage, leak or issue found during preflight*
- *Use squawk sheet to record damage etc.*