Task A: Certs + Docs
61.113
- Can’t make money
- Can’t pay more than pro rata share
- May fly for charity
61.56
- Flight review req. every 24 calendar months from instructor
61.57
- 3 TO/L within 90 days to carry PAX in same category class and type if type rating is required can be T+G
- 3 TO/L within 90 days to full stop which occur 1 hour after sunset to 1 hour before sunrise to carry PAX at night
61.23
- 3rd class req. for private
- Valid 60 months if under 40, 24 months 40+
61.51 – Logbooks
- Private pilot does not need to carry logbook
- Only need to log what is required to show currency or show req. time for certificate or rating

Required aircraft documents:
Airworthiness certificate – Issued by FAA, gives authorization to operate aircraft
Registration – Like a car, check N number and exp. Date
Radio operators permit – Only required if leaving US
Operating handbook – Must be serial # match to AC
Weight and balance – Form with exact weight and arm of aircraft

- All Placards in POH Section 2 must be visible in AC for it to be airworthy
- Sometimes additional placards are required by AD

Task B: Airworthiness Requirements
91.205: Required Equipment

Day VFR

Airspeed indicator
Tachometer – each engine
Oil pressure gauge
Magnetic compass/direction indicator
Altimeter
Temp gauge – if water cooled
Oil temp gauge – if air cooled
Fuel quantity indicator
Landing gear position indicator

Anti-collision lights – if manufactured after 1996
Manifold pressure gauge – each altitude engine
Elt
Seat belts

Night VFR

Fuses - 3 of a kind or a full set
Landing light – if for hire
Anti-collision light
Position light
Source of power

91.213
Procedure for determining if aircraft is legal to fly with inoperative equipment:
If you can answer yes to any of the following questions, the aircraft is not legal to fly
1. Is it a structural component of the aircraft like a wing or strut...Duh
2. Is the item listed in the TCDS for the aircraft?
3. Is the item required by an AD?
4. Is the item required by the MEL? Some airplanes have a list of things on the aircraft that can be broken and still allow that aircraft to fly called an MEL. The MEL comes from the FAA. It is highly unlikely that a light general aviation training aircraft has an MEL.
5. Is the item required by 91.205?
6. Is the Item required by the Kinds of Operations List in section 2 of the POH? Some airplanes have a Kinds of Operations List in their POH. If there is a list, you are required to comply with it. New model C-172’s have one.
7. Does the broken piece of equipment affect the safety of flight? If you as a pilot do not know enough about the broken piece of equipment to make this determination, then you cannot fly.

If you answered no to the above questions, the inoperative piece of equipment must be removed or deactivated, and placarded inop.

Special Flight Permit (Ferry Permit) – allows you to fly AC with something wrong with it → Ex: overweight ferry, flight to MX base, expired annual
Obtain from FSDO of origin of flight
AD – Airworthiness Directive – like an airplane recall, can ground AC until certain MX is done.
- Obtain ADs from FAA website

Compliance Records - Records in AC MX records that verify compliance with Ads. Ask flight school for location of MX records before CR. They are not kept in AC.

Required aircraft inspections:
Annual – 12 calendar months for all aircraft
100 Hour – 100 hours TIS – only Req. If AC is for hire
ELT – 12 Calendar months - ELT batteries must be replaced after half of their usable life or 1 hour of use
Static system – 24 calendar months (IFR ONLY)
Transponder – 12 Calendar months

- Annual can count for 100 hour, 100 hour cannot count for annual
- All MX except preventative MX on AC must be performed by A&P cert. mechanic. Annual inspections and major repairs must be approved by A&P with IA

Task C: Weather

Most common METAR Codes (also used in TAF)

<table>
<thead>
<tr>
<th>Modifiers (changes precip.)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Heavy</td>
</tr>
<tr>
<td>-</td>
<td>Light</td>
</tr>
<tr>
<td>VC</td>
<td>Vicinity -5-10sm from AP</td>
</tr>
<tr>
<td>FZ</td>
<td>Freezing</td>
</tr>
<tr>
<td>SH</td>
<td>Showers</td>
</tr>
<tr>
<td>Precipitation</td>
<td></td>
</tr>
<tr>
<td>RA</td>
<td>Rain</td>
</tr>
<tr>
<td>SN</td>
<td>Snow</td>
</tr>
<tr>
<td>TS</td>
<td>Thunderstorm</td>
</tr>
<tr>
<td>Obscuration</td>
<td></td>
</tr>
<tr>
<td>FG</td>
<td>Fog</td>
</tr>
<tr>
<td>HZ</td>
<td>Haze</td>
</tr>
<tr>
<td>BR</td>
<td>Mist</td>
</tr>
</tbody>
</table>

KJFK 110351Z 02005KT 1/2SM -DZ BR OVC003 03/02
A3027 RMK A02 SFC VIS 1 1/2 RAE42DZB42 SLP248
P0001 T00280017 $

KJFK - Station ID
110351Z – Day of the month and time issued in Zulu (11th day at 3:51 Zulu)
02005KT – Wind (020 @ 05 kts)
1/2SM – Visibility
OVC003 – Sky Condition height in 100’ increments (Overcast at 300)
03/02 – Temp. and dew point in Celsius. If negative an M will precede number.
A3027 – Altimeter setting in InHg

RMK section rarely asked on PPL CR.

Common RMK section terms:
A02 – Automated station is smart enough to tell rain from snow
A01- Automated station cannot tell rain from snow
SLP – Sea level pressure in Millibars excluding the 10 or 9
P0002 - .02” of liquid has fallen from the sky
T0250222 – Accurate temp. is 25.0⁰ and DP is 22.2⁰

TAF
Terminal Aerodrome Forecast
- Forecast from 5nm radius of airport
- 24 or 30 hour forecasts (sometimes 18)
- Issued 4 times a day

Decoding:

KJAX 102320Z 1100/1124 00000KT P6SM SCT035
FM110300 00000KT 5SM BR BKN010 BKN020
FM110600 16003KT 25M BR BKN005 OVC010
TEMPO 1108/1112 1SM BR OVC003
FM111400 20010G18KT P6SM VCSH BKN015
OVC025
FM111700 24014G23KT P6SM -SHRA OVC015

KJAX – Station ID
102320Z – Day of month and time of issuance
1100/1124 – Validity period (11th day from 00Z to 24Z)
00000KT P6SM SCT035 – WX at issued time, same as METAR

FM – indicates predicted weather at time time listed after the next to from statement

TEMPO – Indicates short duration WX which occurs between FM statements

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WX Observing Systems:
AWOS – Automated Weather Observing System
ASOS – Automated Surface Observing System –
Improved AWOS
ATIS – Automatic Terminal Information Service – comes from tower

Other forecasts/reports
FA – Area Forecasts – Large forecasts for 6 sections of the US. Use for enroute WX
PIREP – Pilot issued WX report
AIRMET – WX advisory for turbulence, icing, IFR conditions, or mountain obscuration
SIGMET – Very bad WX

Sources of WX information:
Ground:
-Aviationweather.gov
-FSS from 1-800-WXBRIEF
Air:
-ATIS, ASOS, AWOS
-FSS
-Flight Watch on 122.2

Task D: Flight Planning
Assure you are familiar with VFR flight planning

Picking cruising altitude:
-Must have reason for selecting altitude, cannot pick randomly
Steps:

1. Must comply with 91.159 - if above 3000’ AGL if the DG will read between 0-179 odd thousands + 500 (3,500, 5,500). If the DG will read between 180-359, even thousands + 500 (4,500, 6,500)
2. Must meet terrain and obstruction clearance requirements
3. Must be high enough to allow suitable navigation via visual reference
4. Preferably high enough to allow time to troubleshoot a failed engine
5. Check cloud height predictions using TAF or Area Forecast – you must be able to remain VFR. Do not plan 5,500 if the forecasted WX says BKN040
6. Performance considerations – The higher you climb, the faster your TAS will be for the same fuel burn... however, altitudes above 6,500’ are usually impractical for short duration XC flights in small planes.

Picking a route:
-Route does not need to be a straight line, Plan as needed to avoid restricted areas and tricky airspace
-Plan a route with easily identifiable checkpoints
-Plan a route with plenty of emergency landing fields if possible

Picking checkpoints:
- Most examiners like pilots to have checkpoints no more than 20nm apart... couldn’t tell you why
Best checkpoints in order:
1. Land features – a big lake, bend in river, inlet, mountain, island, Adrien Brody’s nose
2. Easily visible airports – avoid grass strips or small private airports
3. Easily identifiable manmade obstacles like groupings of antennas or tall towers.
4. Intersections or bends in roads, railways, or power lines

Pitfalls:
-Avoid city boundaries during the day
-Avoid terrain features at night
-Do not pick a straight road or river as it will not provide your exact position
-If selecting a checkpoint for your CR that you have not visually identified before, make sure you can spot in on Google maps

Task E: National Airspace System
Not as bad as you think =)

VFR WX mins.
All are 3-152 except the following (in order of importance):

1. G day below 1200: 1SM CC
2. B: 3 SM CC
3. E above 10k: 5-111
4. G day above 12000: 1-152
5. A: no VFR

Airspace equipment and operating requirements:
In general:
1. Only A cannot be accessed by a private pilot
2. B and C need a mode C transponder
3. D, B, C require 2 way radio comms.
4. Establish 2 way comms. with tower in D

Establish 2 way comms. with approach controller in B, C

More complex:
1. A starts at 18,000 MSL and extends up to FL600
2. B Has no typical dimensions
3. C – typically SFC-4000 inner 5nm radius, 1200-4000 outer 10nm radius
4. D – typically SFC – 2500 MSL 4nm radius
5. G usually starts at the surface and extends up to 1,200 AGL or 14,500 MSL depending on the area
6. E is everywhere that isn’t occupied by other airspace

Special use Airspace (common ones):

<table>
<thead>
<tr>
<th>Prohibited area</th>
<th>No entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restricted area</td>
<td>If HOT: No entry If COLD: Can enter with ATC permission</td>
</tr>
<tr>
<td>MOA</td>
<td>If HOT: Can enter but EXERCISE EXTREME CAUTION! If COLD: Can Enter</td>
</tr>
<tr>
<td>Alert Area</td>
<td>Marks an area with some hazard to aircraft</td>
</tr>
<tr>
<td>Special Conservation areas</td>
<td>Pilots are requested to above 2000’ AGL so the manatees don’t cry</td>
</tr>
</tbody>
</table>

**TASKS F AND G:** ARE USUALLY AIRCRAFT SPECIFIC, MAKE SURE YOU REVIEW THESE WITH YOUR INSTRUCTOR. AIRCRAFT SPECIFIC SHEETS COMING SOON!

**Runway Markings:**

<table>
<thead>
<tr>
<th>Type of Sign</th>
<th>Action or Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-22</td>
<td>Runway/Runway Hold Position: Hold short of runway or taxiway</td>
</tr>
<tr>
<td>26-8</td>
<td>Runway/Runway Hold Position: Hold short of intersecting runway</td>
</tr>
<tr>
<td>8-APCH</td>
<td>Runway Approach Hold Position: Hold short of aircraft on approach</td>
</tr>
<tr>
<td>ILS</td>
<td>ILS Critical Area Hold Position: Hold short of U.S. approach critical area</td>
</tr>
<tr>
<td>B</td>
<td>Taxiway Location: Identifies taxiway on which aircraft is located</td>
</tr>
<tr>
<td>22</td>
<td>Runway Location: Identifies runway on which aircraft is located</td>
</tr>
<tr>
<td>4</td>
<td>Runway Distance Remaining: Provides remaining runway length in thousand feet</td>
</tr>
</tbody>
</table>

Sourced from FAA-H-8083-25

**Aeronautical charts:**

3 VFR charts:

1. **WAC** – Word Aeronautical Chart - Scale 1:1,000,000 – Used for flight planning and by higher flying faster aircraft. Some detail lost.
2. **Sectional** – Scale 1:500,000 – Most common VFR chart
3. **TAC** – Terminal Area Chart – scale 1-250,000 – Published for select terminal areas where increased detail is necessary

**ATC Light Gun Signals:**

Sourced from FAA-H-8083-25
10 most commonly asked aeronautical chart symbols (Sourced from FAA Aeronautical Chart Users Guide):

1. Class D Airspace boundary

2. Class C airspace Boundary

3. Class B airspace boundary

4. Blue Vs. Magenta airports

5 and 6. MOA and Restricted airspace

7. MEF

MEFs are shown over land masses as well as over open water areas containing man-made obstacles such as oil rigs.

In the determination of MEFs, extreme care is exercised to calculate the values based on the existing elevation data shown on source material. Aeronautical Information Specialists use the following procedure to calculate MEFs:

1. Determine the elevation of the top of the obstacle above MSL.
2. Add the possible vertical error of the source material to the above figure (100' or 1/2 contour interval when interval on source exceeds 200'; U.S. Geological Survey Quadrangle Maps with contour intervals as small as 10' are normally used).
3. Round the resultant figure up to the next higher hundred foot level.

8 and 9. Class E starts at 700 and SFC respectively

10. Mode C Veil

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Common PPL Vocab

**A&P** – Airframe and Powerplant Mechanic
**AC** – Advisory Circular – Publications from the FAA when they determine a specific topic needs more clarification. (Obtain from FAA site)
**AD** – Airworthiness Directive – Similar to a car recall for airplanes
**Alternator** – Engine driven electrical power generation system that supplies power to the aircraft when the engine is running.
**AOA** – Angle Of Attack – Angle between the chord line of the wing and the relative wind
**ASOS** – Automated Surface Observing System – like an advanced AWOS
**ATIS** – Automated Terminal Information Service – The prerecorded and monitored WX report from tower
**AWOS** – Automated Weather Observing System
**FAA** – Federal Aviation Administration
**Flight Time** – Time when an AC moves under its own power for the purpose of flight and stops after a landing
**FSDO** – Flight Standards District Office – Regional office of FAA that has oversight over a particular area
**IA** – Inspection Authorization - Special mechanic certification which allows a mechanic to sign more important papers

**Magneto** – Engine driven self-contained ignition system which supplies high voltage electrical power to the aircraft’s spark plugs to ignite the fuel and air mixture in the engine. The airplane has two of these.
**NOTAM** – NOTice To AirMen – Notices which come from the FAA to warn pilots of a danger. Obtain from FSS or FAA site. Check before each flight.
**NTSB** – National Transportation Safety board – Investigates transportation related accidents
**P-Factor** – Aircraft left turning tendency from asymmetric thrust caused by different angles of attack on the ascending and descending propeller blades. Most significant at high AOA and high power
**PIC** – Pilot In Command – Person who has the sole responsibility for the safety of flight
**Pilot-Static instruments** – Instruments which take readings from the pitot tube and static port – Airspeed indicator, Altimeter, VSI
**Special flight permit** – A permit issued by the FAA that allows an aircraft to be flown with a known issue. (Also called a ferry permit)
**TFR** – Temporary Flight Restriction – A temporary suspension of air traffic in a specific area. Very Serious! Obtain info from FSS or FAA site. Check before each flight.
**TIS** – Time In Service – Wheels up to wheels down time
**Vx** – Angle climb speed
**Vy** – Best rate climb speed
**Vg** – Best Glide Speed – furthest distance for a given altitude loss
**Vs** – Rotation speed
**VSo** – Stalling speed in the dirty/landing configuration
**Vr** – Stalling speed in a specified configuration, usually in a clean configuration for light trainers

Gotchas: some of the most common ones

- No SVFR for a private pilot at night
- High performance endorsement is required for more than 200 hp. A Piper arrow has exactly 200 hp and does not require the endorsement
- Altitudes and info for MOAs on the are on the bottom of the sectional chart. The altitudes listed indicate the Floor of the MOA.
- What do you do at this airport? Info in 91.126 (d).
  Basically treat it like a Class D airport

- How do you contact FSS here? The Small R means that FSS can only receive on 122.1. They will transmit to you over the VOR Freq. To communicate, Put 122.1 into Com stack and 112.0 into Nav stack and turn up volume. You will hear them talk over VOR freq. from Nav radio.

- What is the minimum wx to take off VFR here? Class G below 1,200 allows you to fly in 1sm and CC. As long as you can maintain those conditions, you can takeoff and fly. In order to climb above 1,200, the WX would have to be better than 3-152 at that altitude.

When do you call ground after landing – The rules say when instructed to do so by the tower (but they usually forget to tell you)
- There is no max airspeed specific to class B airspace.
  If below 10k, its 250 Kts. 91.117