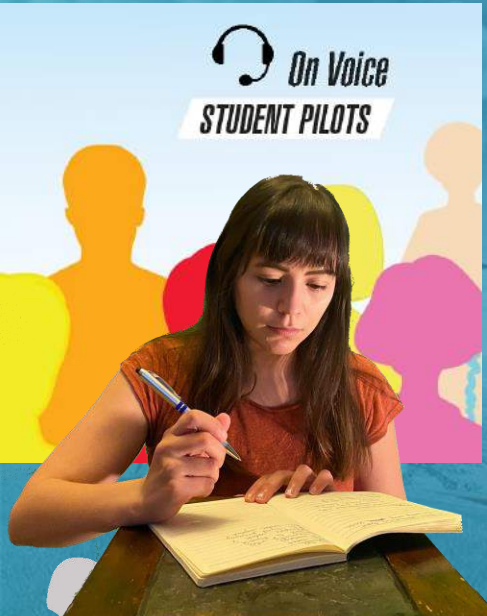




Learn To Fly

Intermediate Lesson 6

For entertainment purposes only. Not to be used as a substitute for professional instruction.



STUDENT **JAYNE**



Pilot IRL and Course Designer



Introductions

Instructor

Students

Airplane

Airfield



Howard

ForderLearnToFly

Pilot IRL



Microsoft Flight Simulator

Community Manager



Cessna 172 G1000



KPAE, Everett, WA

All graphics and sounds are original or royalty paid. These lessons are made specifically for Jayne @Microsoft by Howard Forder.

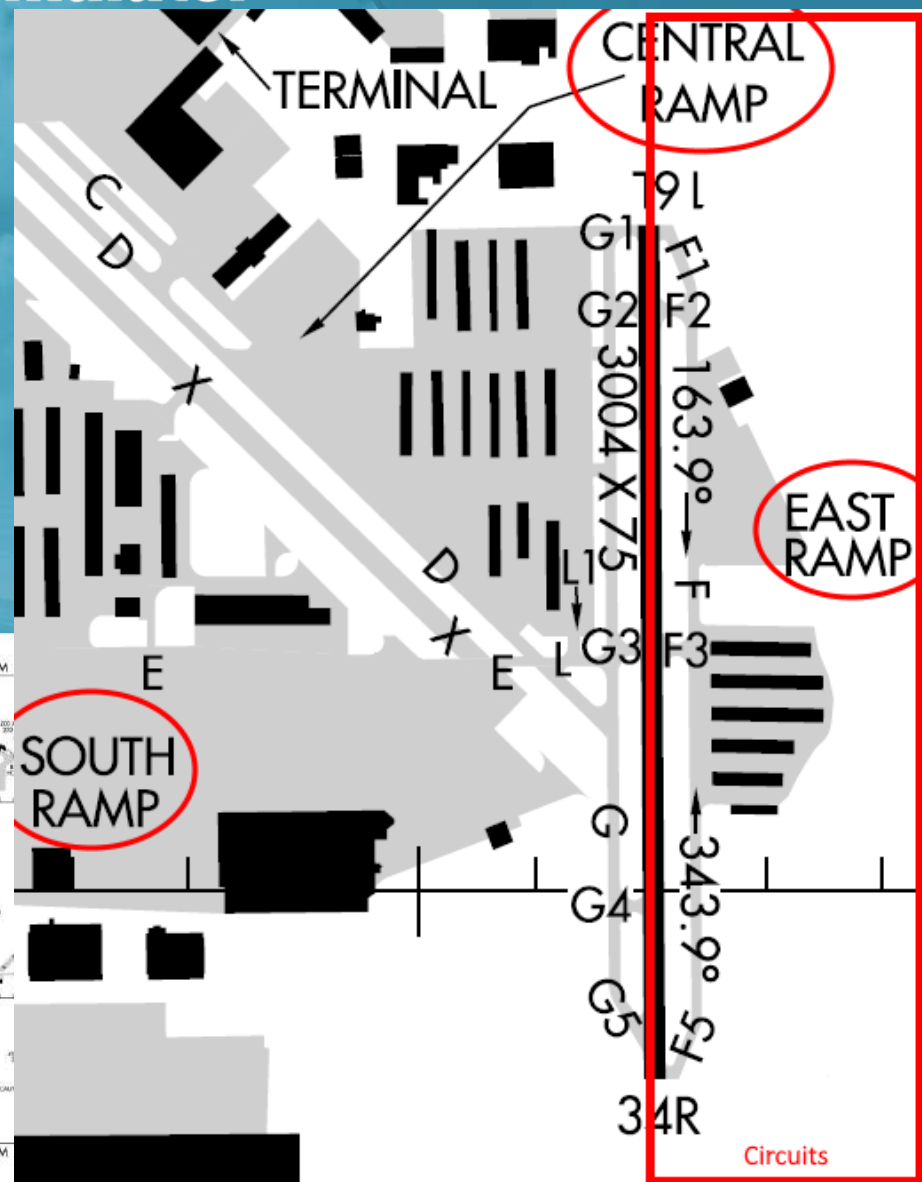
Flight Lesson 6



Flight Preparation

Ensure you grab your student training materials kit with the links in chat. Includes your new checklists.

One link for a group of materials:
!studentkit2
!Checklist172
!material -URL for online material online



Previous

Homework

1. Read the Garmin G1000 manual (google search)
2. Practice using each of the buttons we learned today.

How did it go?

Problems?

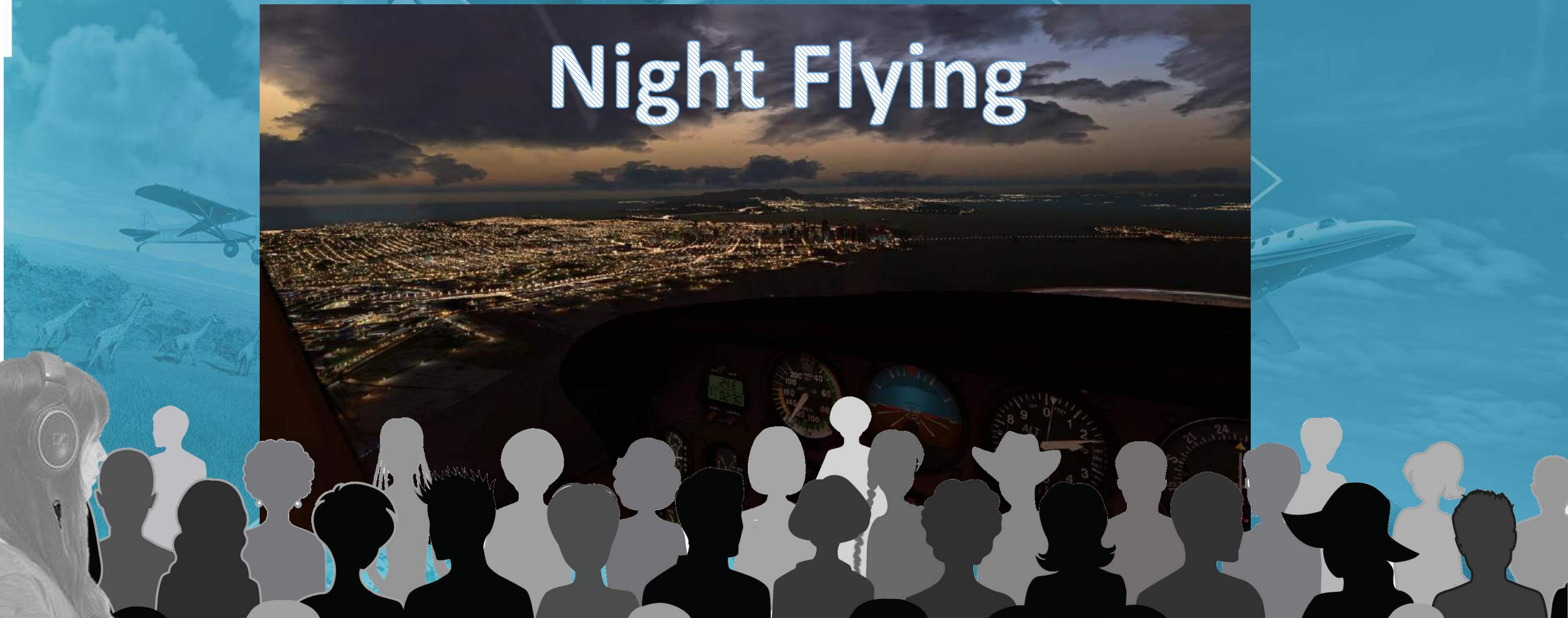
Suggestions?

Observations?

Intermediate Lesson 6

This Lesson

Night Flying



Lesson Briefing

6

Night Flying:

1. Night flying is a necessary part for those who fly longer journeys into nightfall. It can be a very calming and rewarding flight for the beauty alone of the black-velvet backdrop.
2. But there are inherent dangers as we lose VFR references we relied on. We will learn about this.

The Night Rating?

1. Allows a pilot to operate an aircraft in night VFR conditions.
2. It is a rating endorsed by a flying instructor after you get your PPL.
3. 20 more hours of duo and solo flight time including 10 takeoffs and landings .
4. Approximately \$2500



Without visual references outside...

- You need to trust your instruments.
- In Your Private Pilot License (PPL) you would have 10 hours of instrument time already. (not IFR rating) for familiarization.
- Now you need to trust your instruments during night flight, where the horizon is lost and terrain features are not visible.



You might also have a “Glass Cockpit”

You will find similar functionality on the TBM 930 and Diamond aircraft.



(PFD)

The Primary Flight Display



(MFD)

The Multi-Function Display

“Fly by Night” The Pros...



- Better Performance
- Lower collision risk
- Smoother air
- Less traffic
- Extraordinary views
- Turn on or adjust the intensity of airport lighting using the mic button. (IRL)



“Fly by Night” The Cons...

- 33% of all aircraft accidents at night end in fatality. (13.8% by day)
- Easier to get disoriented.
- Terrain becomes invisible.
- Problems and stressful situations seem amplified.
- We require more oxygen.
- Bright light can disable our night-sight for periods of time.



Illusions Created during Night Flights

- Without reference to the horizon, you can experience Vertigo.
- Your eye's rods and cones see differently at night and your instrument scan may be affected.
- Takeoff and landings appear faster.
- The sea of blue lights on taxiways can be confusing.
- It is harder to judge distances with lighted runways.
- Water landings are impossible.



The two biggest dangers:

- **Vertigo:** a human experience with essentially a shift in balance and vision perception. It can happen in IFR flight or night flights.
- **Bright Light Blindness:** our eyes adjust to daylight by allowing less-light in. It can take up to 30 minutes to allow our eyes to adjust to night lighting.
- Bright cockpits and flashlights can reduce our night vision.

• **See:** preserve your sight by using red lights and darkness before a flight.

• **Be Seen:** check and use all outside lighting on the ground and in the air.

Extra Checklist Items at Night

1. Bring two flashlights and one of them is an aviation red/white flashlight.
2. Let your eyes adjust to night light by not exposing to bright light ahead of flight.
3. Know your route ahead of time and plan for altitudes and arrival procedures.
4. Pay close attention to weather enroute and destination for visibility reasons.
5. During walkaround, have your NAV and strobe lights on for checking.
6. Use a published ILS for double checking approaches to land.
7. Keep your cockpit under low light or red light.
8. Request “Flight Following” if available so someone has your back.



Position Lights

- Also called Navigation Lights
- Forward Facing:
Left: Red
Right: Green
- Rear Facing:
White



aerosavvy



Night Lighting:



1. Let your eyes adjust to low lighting before the flight.
2. Use a red flashlight and an extra bulb or extra flashlight.
3. Add lighting checklist items to your walkaround.

Position Lights

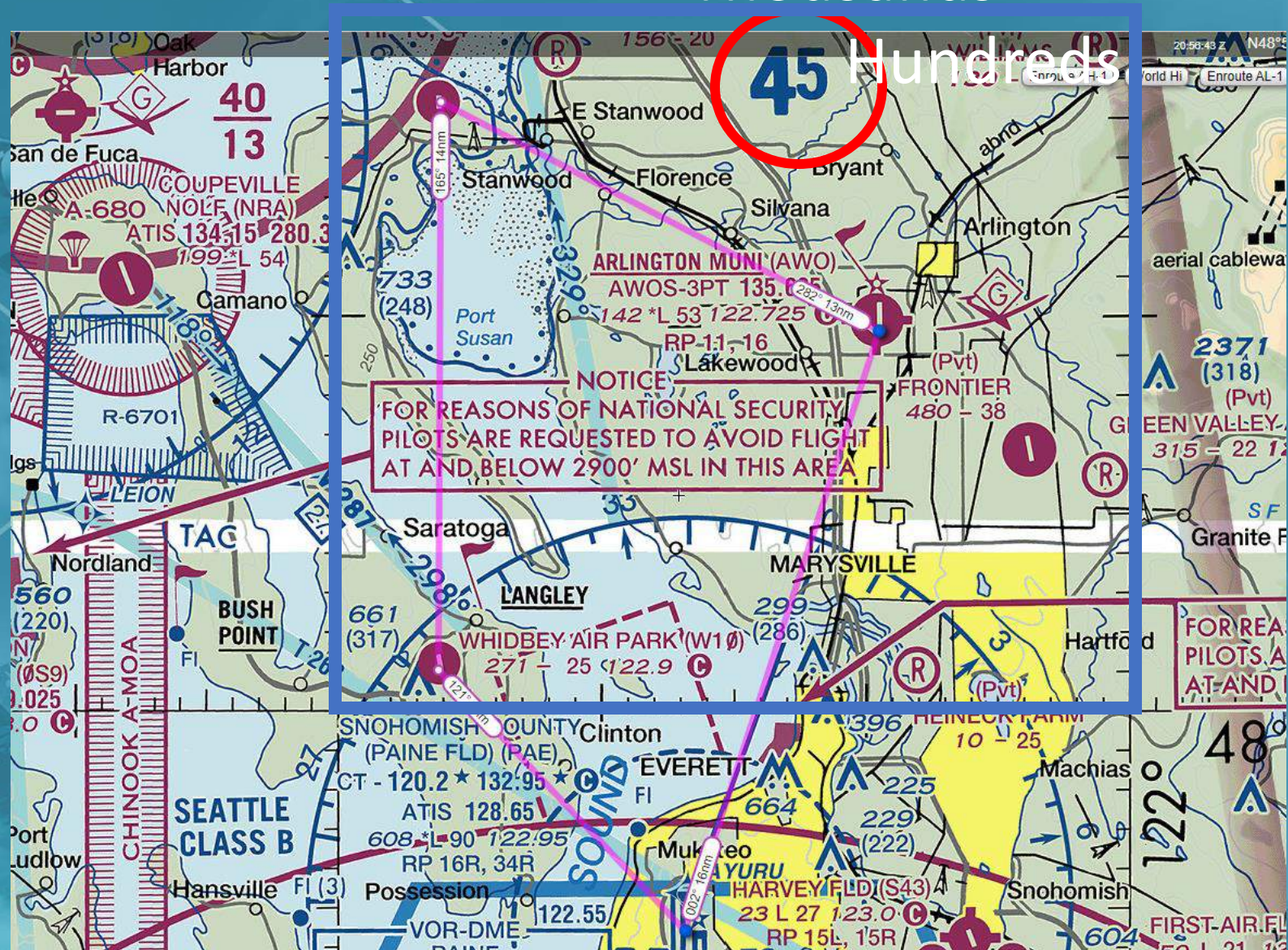
- Also called Navigation Lights
- Forward Facing:
Left: Red
Right: Green
- Rear Facing:
White



Flight Planning

Thousands

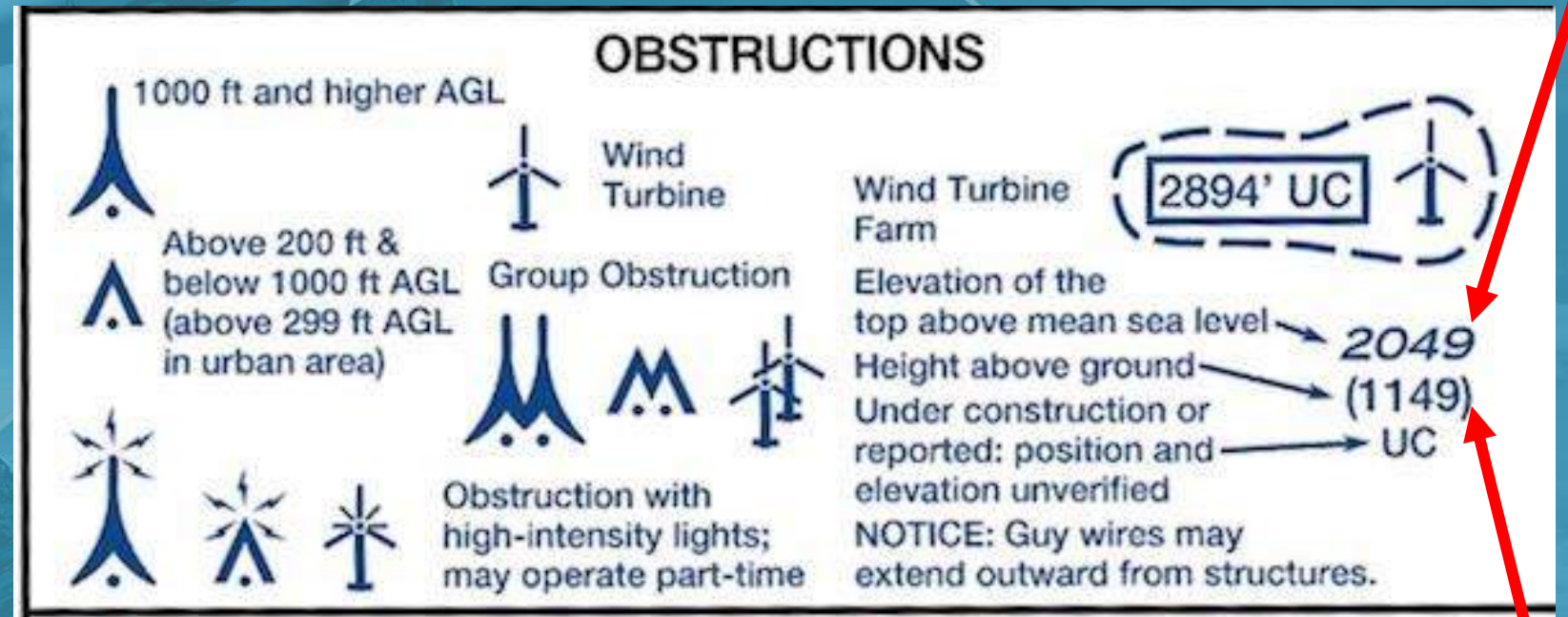
1. MEF: Maximum Elevation Figure: The minimum altitude you can fly and clear all obstacles in that quadrant.
2. They could be man-made obstacles or natural obstacles.



Flight Planning

The MSL bigger number is read right from your altimeter.

Lighted and non-lighted man-made obstacles including a wind turbine farm.



The smaller number is the height above the ground.

The Flight Exercise

1. Do a pattern touch-and-go first.
2. Then head in the direction of the ocean.
3. As the lights of civilization pass us, notice the blackness over the ocean and away from cities.
4. Do some gentle turns and observe the possibility of vertigo without reference to the horizon.
5. Use your artificial horizon and your instruments.
6. If you have a flight plan with a safe altitude for the journey, lock it in and trust it.
7. Return for a landing and observe runway shape.



Questions Before Departure?



Lesson Briefing

YOUR CONTROL

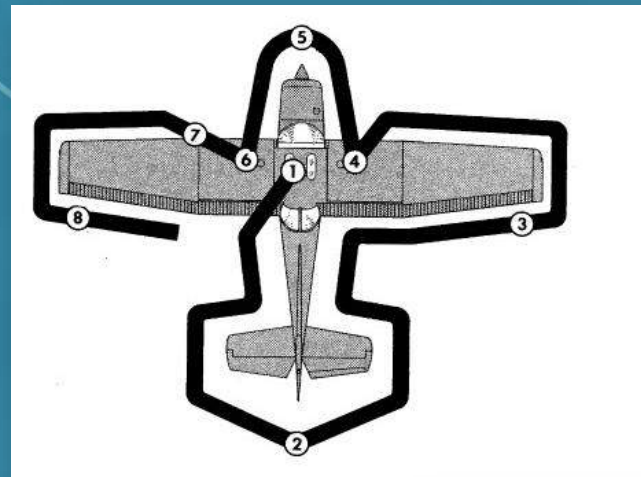
Let's go Flying!

A 3rd party free download
to pass control of the
airplane back and forth.

While Jayne and Howard head
out to the airplane please
direct your questions in chat to
her fellow students on live
mics.

They will convey your
questions upon their return.

The Walkaround (pre-flight inspection)



Jayne has done the runup too to save us some time in the stream.

SECTION 4 NORMAL PROCEDURES	CESSNA MODEL 172S NAV GFC 700 AF
BEFORE TAKEOFF (Continued)	
5. A/P TRIM DISC Button - PRESS (if installed) (verify autopilot disengages and aural alert is heard)	
6. Flight Director - OFF (if installed) (push FD button on either PFD or MFD bezel)	
7. Elevator Trim Control - SET FOR TAKEOFF	
8. Throttle Control - 1800 RPM	
a. MAGNETOS Switch - CHECK (RPM drop should exceed 150 RPM on either magneto or 50 RPM difference between magnetos)	
b. VAC Indicator - CHECK	
c. Engine Indicators - CHECK	
d. Ammeters and Voltmeters - CHECK	
9. Annunciators - CHECK (verify no annunciators are shown)	
10. Throttle Control - CHECK IDLE	
11. Throttle Control - 1000 RPM or LESS	
12. Throttle Control Friction Lock - ADJUST	
13. COM Frequency(s) - SET	
14. NAV Frequency(s) - SET	
15. FMS/GPS Flight Plan - AS DESIRED	
NOTE	
Check GPS availability on AUX-GPS STATUS page. No annunciation is provided for loss of GPS2.	
16. XPDR - SET	

See lesson 1 for full runup.

Intermediate Lesson 6

Night Flying

Review Lesson



POST FLIGHT

- (1) Review Lesson, re-brief as necessary.
- (2) Assign reading for next lesson

Night Flying

!Manual (FAA online docs)

Summary Questions

1. Name two advantages of a night flight?

Answer: Calmer, smoother air. Less traffic. Etc.





Summary Questions

2. What can you do to preserve night vision before and during the flight?

Answer: Avoid daylight or bright light. Carry a red flashlight with you (or two).



Summary Questions

3. How do you know you will clear mountains and towers if you cannot see them at night?

Answer: Pre-plan your route ahead of time and stick to it. Every aviation map has MEA numbers. (Minimum Enroute Altitudes) and man-made obstacle elevations.



Summary Questions

4. Is there any way someone could “follow” you to ensure you are not in harms way?

Answer: Yes, ask a controller for “flight following” or file an IFR flight plan (if rated)



Summary Questions

5. In a real-life flight, the pilot tells you there should be the airport below us, but it is pitch dark. What should the pilot do?

Answer: The pilot may have to click the mic button 7 times or less to turn on the airport lights or adjust the intensity.



Summary Questions

6. What would you do in a night flight if you had an engine-out scenario and had to do an off-airport landing?

Answer: Plan your glide to a lighted area where you can see the surface. Use your map to look for flat areas or a lighted highway. Get down safely where you can see the surface somehow.



Summary Questions

7. What is the best way to practice night flight in your home flight simulator?

Answer: As in real life, keep the home cockpit lighting low or even red. Your computer screen will be dark during the flight. Turn down the brightness of instruments.

Homework

Assignment

1. Practice reading the sectionals and planning flights.
2. Practice touch-and-go's at night and then fly to an uncontrolled airport over featureless land or water.

Intermediate Lesson 6

Next Lesson

Instrument Landing System





Intermediate Lesson 6



The Student HUB

Come join the discussions and continue the conversation on the student hub for this lesson series with Jayne and Forder.

Add your thoughts, your knowledge and your enthusiasm for learning a deeper understanding of flight using Microsoft Flight Simulator.

New Xbox Flyers welcome.

We welcome CFIs, real-life student pilots, flight enthusiasts and those new to flight simulation.

FS [OFFICIAL] Flying Lessons: C152
Community Community Events all-welcome free beginner-pilots recurring twitch

Student Package
Update Checklist: [Checklist_152_Simulator2021v3.pdf](#) (429.8 KB)
[Dropbox - StudentPackage.zip - Simplify your life](#) 635

Lesson Archive
Lesson 1: Straight and Level Flight, Ascending, Descending
MSFSOfficial
Flying Lessons [C152] #1 - Ascending, Descending, Straight and Level Flight
WE ARE LIVE
STARTING SOON
00:00:00 02:37:01
[Lesson1MSFSOfficial-.pdf](#) (4.3 MB)
Lesson 2: Taxiing, ATC/Radio Com Basics

Lesson 12
Student Package
Lesson Archive
Lesson 1: Straight and Level Flight, Ascending, Descending
Lesson 2: Taxiing, ATC/Radio Com Basics
Lesson 3: Take-off & Climb, Climbing & Gliding Turns, Circuit Joining and Radio
Lesson 4: Slow Flight, Stalls, Wind-correction, and our first complete landing.
Lesson 5: Traffic Patterns/Circuits
Lesson 6: Uncontrolled Airports
Lesson 7: Crosswinds and Crabbing
Lesson 8: Emergency Procedures - Forced Landing
Lesson 9: Emergency Procedures Part 2 + SUPRISE SOLO
Lesson 10: Forward Slips and Flapless Landings
Lesson 11: Short/Soft-field landings



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