Section 1.03: Flight Plan *(Outline/Guide)*:

Section 1.03.A: Flight Plan Chart

This simple VFR (Visual Flight Rules) flight plan includes your home field location, the compass heading for the departure, the altitude you will climb to and the waypoint for the next turn. Then each leg of the flight is outlined this way, including the time, distance and fuel consumption. The arrival plate for your destination will give the pilot the runways available, the communication frequencies and elevation of the runways above mean sea level.

- *Departure, arrival and detailed charts are all available online.*
- *A PDF of this in in the curriculum and flight plan are in the "Curriculum" folder located on your desktop as well as in "My Documents" > "PC-Load" > "Place on Desktop" folder.*

												Waypoints Name		Arrival Weight	Destination		Departure Weight	Origination	Airport Call Letters	Tower Radio	Ground Radio	Weather	Temperature F	Winds Speed	Wind Direction	VOR	NDB	ILS	Time
												Com Radio				Airport Call Letters													
												Navigation Radio				Tower Radio													
												Corrected Magnetic Heading		Fuel Wt.		Ground Radio	Fuel Wt.												
												Altitude				Weather													
												Air Speed		Loa		Temperature F	Contents Lbs.												
Total												Ground Speed				Winds Speed													
												Distance		Aircraft		Wind Direction	Aircraft Wt.												
												Time				VOR													
												Fuel Used				NDB													
												Magnetic Variation				ILS													
												Tru Heading				Time													
												VOR Freq																	
												NDB Freq																	
												ILS Freq																	
												Wind Speed																	
												Wind Direction																	
												Wind Compensation																	

Section 1.03.B: Your First Flight Plan: *KLGA>Statue of Liberty/N.Y.C. Harbor*

This is a very good first flight that all students will enjoy.
Boot the PC - Open P3D flight software & Click OK
This will put you in your home field in a Cessna 172
Press the **ALT** key to open the menu – Click **Scenario** – **Load** – Select "**Show my Favorites" STAR** – Select **A Statue of Liberty** and this will put the Cessna on Runway 4 at LaGuardia Airport in NYC. Now you are ready.

Section 1.03.C: Fact Sheet Cessna 172 Skyhawk

Time and Distance:

- **Cruise Speed:** 100 Knots *(115 mph)*
- **Engine RPM:** 2300
- **Fuel Burn:** 7gph *(depending on power)*
- **Fuel Weight:** 6 Lbs. per Gallon
- ***(VR)* Rotation Speed =** 55 Knots

Weight and Capacities:

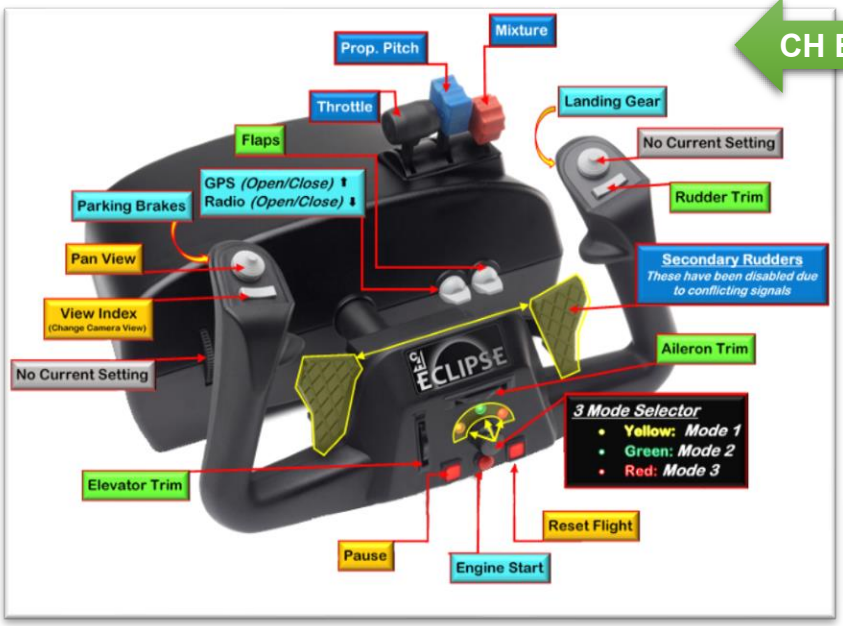
- **Empty Weight:** 1,641 lbs.
- **Useful Load:** 917 lbs.
- **Your Takeoff Weight:** 2,300 lbs.
- **Fuel Capacity- *Left Tank*:** 28 gal.
- **Fuel Capacity- *Right Tank*:** 28 gal.
- **Total Fuel:** 56 gal.
- **Total Useable Fuel:** 53 gal.

Aircraft Specifications:

- **Stall Speed:** 48 Knots *(54mph)* w/ power off & Flaps Down
- **Max Speed:** 163 Knots *(188 mph)*
- **Max Takeoff Wt.:** 2,895 lbs.
- **Climb Rate:** 720 FPM
- **Service Ceiling**: 13,500 Ft.
- **Wing Loading:** 14.1 Lb. /Sq. Ft
- **Take off distance-** ***Ground Roll:*** 960 Ft.
- **Landing Distance:** 575 Ft.
- **Max Landing Distance:** 575 Ft.
- **Takeoff Distance-** ***to clear 50' object*:** 1,650 Ft.
- **Landing Distance-** ***to clear 50' object*:** 1,335 Ft.
- **Cruise Range-** ***75% power @ 5,000 Ft:*** 518 nm
- **Cruise Range-** ***55% power @ 12,000 Ft:*** 696 nm

Section 1.03.D: Controller Axis & Button Assignments

CH Eclipse Yoke

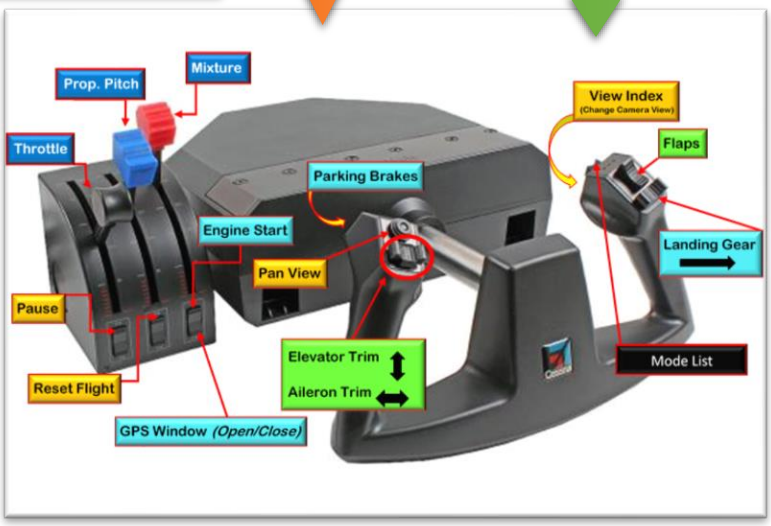


Both use the same Throttle

Saitek ProFlight Yoke & **Saitek Cessna** Yoke

CH ProFlight Rudder Pedals

Saitek ProFlight Rudder Pedals



Section 1.03.E: Pre-Flight Check list

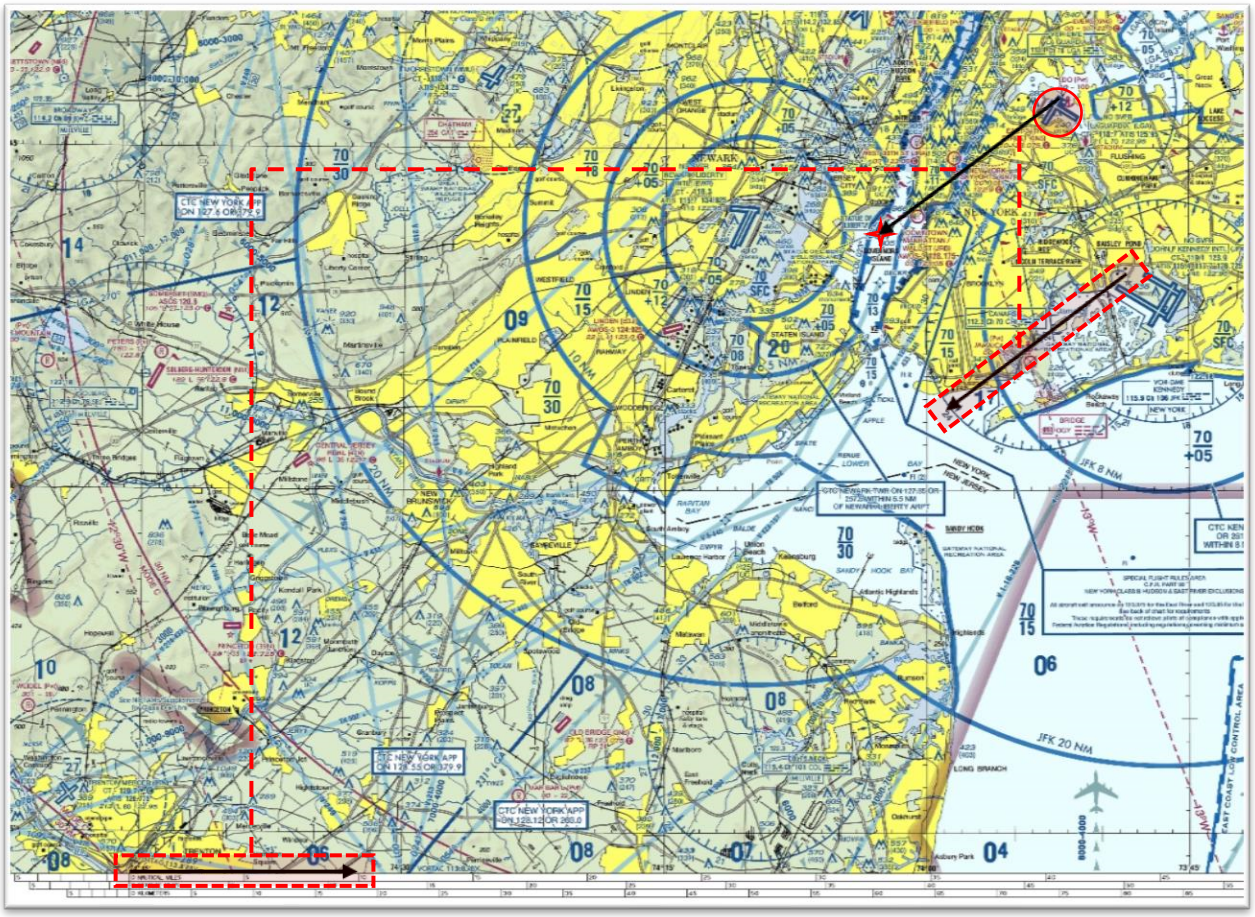
- ✓ Boot the PC and Load P3D, click OK from Home Screen
- ✓ Make sure the Black Throttle Lever is at idle 0%
- ✓ Make sure the Mixture (Red Lever) is 100%
- ✓ Make sure Propeller Pitch (Blue Lever) is 100%
- ✓ Make sure the Engine is Running (Restart Button on Throttle Quad or Ctrl +E to restart)
- ✓ Press the Camera View button to the outside and rotate to the rear of the aircraft
- ✓ Pull the **Yoke Out** to validate **Elevators go Up**
- ✓ Push the **Yoke In** to validate **Elevators go Down**
- ✓ **Rotate** the Yoke to validate **Ailerons go up and down**
- ✓ **Slide** the Rudder pedals to validate the **Rudder moves left and right**
- ✓ Make sure the parking brakes are off (button on left back side of yoke)

- **Press the View button to return to the cockpit view**
- Remember the Cessna 172 rotates at **60 Knots** with nose up at **10°** angle of attack.

Note to user: If any of these are not functioning, it must be resolved before proceeding.
Please select "Alt" on your keyboard and go to "Options" > "Settings" > "Controls" and set correctly, or ***Call us*** *203-527-5747*

Section 1.03.F: Your First Flight Plan
Let's Fly to the Statue of Liberty

1. Locate **LaGuardia Airport (KLGA)** and the **Statue of Liberty (Liberty)** on the chart below. *(marked in red)*
   - You will be taking off from runway 4 at LaGuardia. *(this equates to a **heading of 40 deg.**)*
   - Take a ruler *(or straight edge)* and measure the distance from the end of runway 4 *(facing 40 deg.)*, to S.Liberty.
   - Line up the ruler with the 0 *(zero)* on the **Nautical Mile** scale at the bottom of the chart. It should equal **10 nm.**



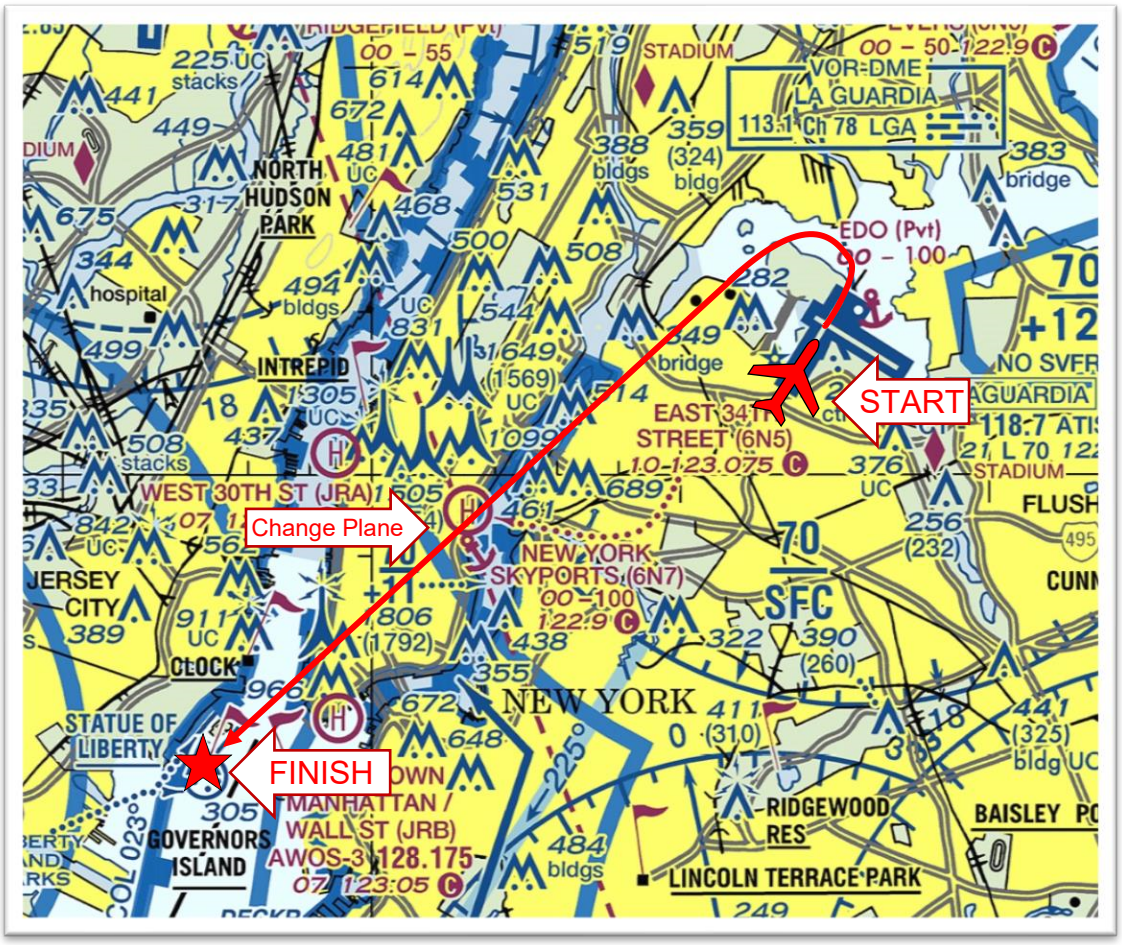
2. How long will the flight be from KLGA to The Statue of Liberty?
   - From the **Aircraft Fact Sheet** we are told the Cessna 172 cruises at **100 Kts. per hour**
     - Set up the equation for **Flight Distance / Cruise speed** ***(10/100)*** **= 0.1** or **10%**
   - Based on the measured distance and equation above, we know the miles flown is 10% of what the plane can fly in an hour. That also means that the time it should take to complete the flight should equal **10%** of the hour. There are 2 ways we can calculate this:
     - **Number of hours x 10%** *(or.1)* **x Number of minutes** in an hour. [**1x.1** *(=.1)*] **x60 = 6 min**
     - **Number of minutes** in an hour **x** *(Percentage of capable flight planned)* **10%** *(or.1)*. **60 x .1 = 6 min**
3. How much Fuel will be used?
   - According to the fact sheet, a Cessna 172 burns about **7 GPH** *(gallons per hour)*:
     - To calculate how much fuel is burned, set up the equation for **GPH x** *(Percentage of capable flight planned)* **10%***(or.1)*. **7 x .1 = .7 gallons** of fuel burned
4. How much lighter will the plane be at the end of the flight?
   - 1 Gallon of Aviation Fuel weighs **6 Lbs**.
     - Set up the equation for **fuel weight per gal. / gal. of fuel burned** in flight. **6 lbs. x .7gal. = 4.2 Lbs**.
5. What **Direction** must we fly to get from KLGA to Lady Liberty?
   - Take a ruler *(or straight edge)*, and line it up with the end of runway 4 *(facing 40 deg.)*, to S.Liberty.
     - Without rotating it, slide your ruler to the nearest compass rose visible numbers in the direction of S.Liberty.
     - This should correspond with **24**, or **240** deg. on the compass *(+ 14°magnetic variation = 254°). (As you fly forward, your X and Y axis/point of reference changes, making the heading you'll need to turn to change. That's why it's important to plan your flight first. Calculating your heading from the wrong point within your flight could cause you to end up miles off course. Basically, by the time you take off and start turning, the heading you will want to take will be 240 degrees)*

Our Flight Plan:

1. If your home field is **not** KLGA, Press the **ALT** key to open the menu bar.
2. Open "**Scenario**" > "**Load**" – select "**A Statue of Liberty**" and click **OK**.
3. Your location is LaGuardia, NYC (KLGA) Runway 4 (40° on Directional Gyro)
4. Push the black **Throttle Lever to 100%** *(all the way up)* to Accelerate at full power.
5. At 60 Kts **Gently pull out** on the yoke to takeoff. (Rotate)
6. Watch the **Artificial Horizon** for nose angle of attack no **steeper than 20°**
7. Gently Roll to the left until **254°** is your direction on the Direction Gyro.
8. Maintain **10°-20° nose** up Angle of Attack, not steeper or the wing will stall.

(AKA; the airflow separation caused by the angle of attack is so great, drag becomes the dominant force over lift.)

9. Once on a heading of **254°**, continue to **climb to 2000'** and **level off**



"Who would like to land in the water in front of Lady Liberty?"

Change Aircraft to a Sea Plane and land in front of Lady Liberty:

1. Point out that we cannot land a plane with wheels on the water.
2. Press the **ALT** key to display the **menu**
3. Go to **Aircraft** – Click **Select Aircraft**
4. Scroll down to **De Havilland Beaver** and click on it then **ok**
5. If the Pause is on, release it using the **up switch under the throttle** or "P" on the keyboard
6. **Reduce the power to Idle** and push the nose gently down toward the water
7. **Watch** what happens to your airspeed as you fall**.**
8. At **100 Feet raise the nose so the top of the dash board lines up with your visual horizon**, called Flaring. **Watch your airspeed decline** and the aircraft will settle into the water at stall speed, around 60 Kts.
9. Click to the outside view and enjoy the sights.