

## **SOW: VFR (*Visual Flight Rules*) FLIGHT PREPARATION**

### **1) Introduction**

A VFR flight is those which is performed without using any radio-navigation aids and only visual references are used both for planning and once flying. In this type of flights, the meteorology has a very important role because the terrain must be always in sight.

One of the typical VFR maneuvers which must be completed during the single-engine module of the ATPL (Airline Transport Pilot License) is known as the “Triangle”. It consists to perform 3 flights in a circular way using 3 different airports, so the route would be A→B→C→A. The total covered distance must be, at least, 300 NM long, considering the orthodromic line between each pair of airports.

In this exercise, you will plan **the first two legs** of the VFR Triangle:

Sabadell (LELL) → Lleida (LEDA) → Teruel (LETL) → Sabadell (LELL)

### **2) Main tasks and objectives**

- Assess the meteorological conditions at the origin/destination/alternate airports, as well as along the route.
- Define the route according to the meteorological conditions, airspace availability, aircraft performance and other existing regulations.
- Define the altitude or altitudes of the different flight segments considering the existing regulations in the Spanish airspace.
- Assess take-off and landing limitations at the concerned airports.
- Assess the load and balance of the aircraft.
- Compute the required trip fuel to cover each one of the first two legs according to existing regulations (check the aircraft regulations regarding the minimum fuel to land at the destination Airport).
- Check if it will be necessary to refuel at Lleida (LEDA) airport or not.
- Generate a Flight Plan Log according to the Navlog template. This Flight Plan Log for the pilot must include VFR navigation waypoints and other useful information along the flight (altitudes, radio navigation bearings, ATS frequencies, etc.)

### **3) Delivery**

The deliver must be a presentation in Power Point Format (around 30 slides) and in English, explaining all the decisions you have taken, the different computations that lead to your results, all the information sources, and the final flight plan Navlog.

It is highly recommended to include any additional graphic, figure or image showing the final routing over a navigation chart or topographic map, in order to ease the pilot the comprehension of the routing once flying.

#### 4) Details and considerations

- Leg 1: Sabadell (LELL) - Lleida (LEDA) → ETD: 06:00h UTC.
- Leg 2: Lleida (LEDA) - Teruel (LETL) → ETD: *to be computed depending if refuel stop is needed or not at LEDA. If yes, consider a 30 min stop, if not consider a 10 min stop.*
- Aircraft: Cessna C172, 160 HP with standard fuel tanks, “normal” operation (not “utility” operation).
- Basic Empty Weight: 1500 lb (680.4 kg)
- Basic Empty Moment: 57500 lb·in (662.5 kg·m)
- Flight Crew: 1 pilot (male) and 1 flight instructor (female).
- Passengers: 2 passengers in the back seats (one male and one female).
- Consider 70kg for male weight and 55kg for female weight.
- Bags: 2 suitcases (15kg and 10kg) and several small luggage items such as handbags, jackets, etc. (5kg approximately)

#### 5) Other useful data

- Consider a Transition Altitude (TA) of 6000 ft and a Transition Level (TRL) of FL70 for the whole route.
- Navigation will be performed by dead-reckoning and timing. All waypoints must be defined in visual landmarks easily to identify from the aircraft (towns, mountains, rivers, castles, highway intersections, etc.)
- A VOR receiver and an ADF are installed in the aircraft. They can be only used as a navigation support, but not as the unique way to define waypoints.
- All the prohibited, dangerous and restricted areas must be considered if they are active during the intended period of the flight.

#### 6) Documentation required and information resources

- The SOW of the exercise (Atenea)
- Navlog template (Atenea)
- Cessna C172 Flight Manual (Atenea)
- Aviation Meteorological Guides (Atenea)
- ICAO Annex 2 to the Convention on International Civil Aviation - Rules of the air (Atenea)
- Spanish AIS (Air Information Services):
  - <https://www.enaire.es/servicios/ais>
  - <https://ais.enaire.es/aip/>
    - i. VFR navigation charts
    - ii. NOTAMs
    - iii. Chart of the Very Low Altitude Spanish military network
    - iv. Visual approach charts (VAC) of the airports
    - v. Visual Flight rules existing regulations in Spain
    - vi. Minimum and maximum altitude for VFR flights in Spain
- Insignia - Interactive Spanish AIP: <https://ais.enaire.es/insignia/navegador/>
- Meteorological charts and information: <http://ama.aemet.es>  
(it is necessary to create a free account to access)
- Interactive weather and wind conditions forecast: <https://www.windy.com/>
- Skydemon: VFR Planning software (30 days trial): <http://www.skydemon.aero/>