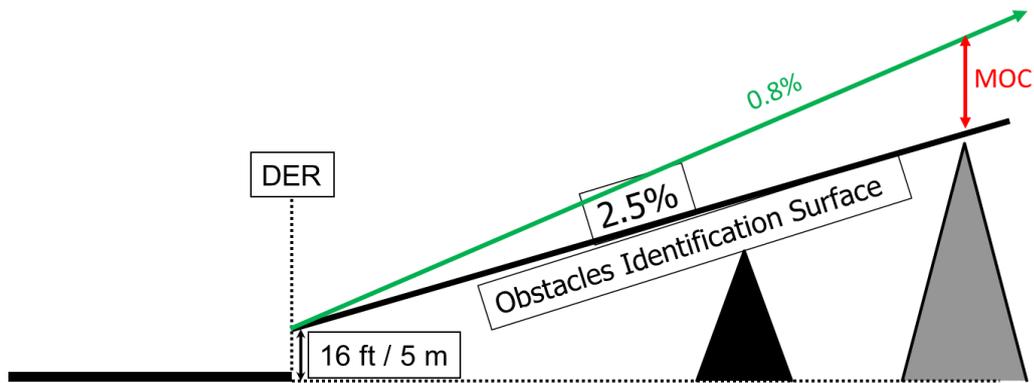


Departure procedure : turn at Altitude

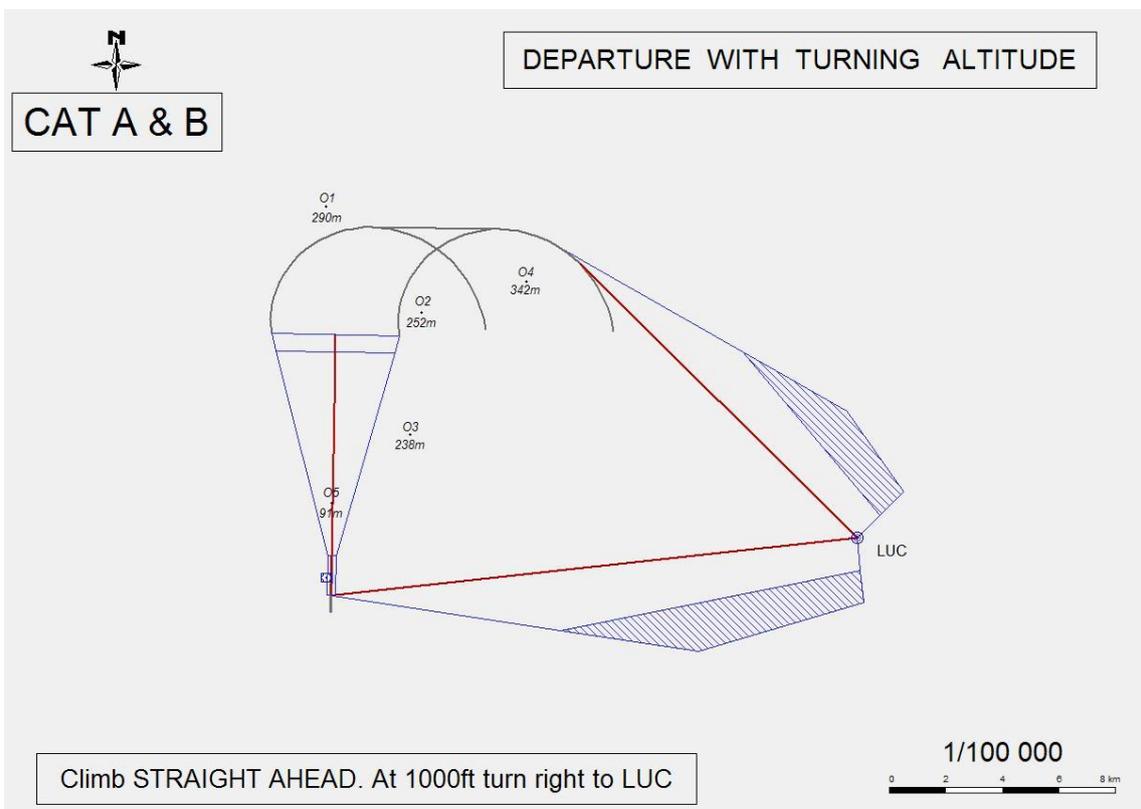
1 Reminder



2 Objective

- Compute PDG of departure

The departure protection is provided below





3 Data

- Aircraft categories : A and B;
- THR elevation : 200 ft (61 m);
- Temperature deviation : ISA +15°
- All obstacles : Elevation of top in meter
- Magnetic variation : 0°
- Runway heading : 180°/360°
- VOR/DME NTS : on the left side of the RWY
- Distances:
 - DER-O₅: 1 852 m



4 Departure Description

“Climb, at 1 000ft turn right to LUC.”

5 Tasks

- Assess obstacles in turn initiation area ;
- Assess obstacles in turn area and provide the applicable PDG for obstacles O4 and O6 .

Obst	Alt (m)	H(m)	dr*(m)	do (m)
O4	342	281	7 238	5 300
O6	320	259	4 700	1 300

6 Obstacle in turn initiation area

Method :

- Compute position of the TNA;
- Check if the obstacles located in the turn initiation area meet the criteria associated with the TNA value
- Check if MOC is sufficient

6.1 Position of the X_{TNA}

Distance to reach 1 000 ft :

$$D = ((1\ 000 - 200) * 0.3048 - 5) / 0.033 = 7\ 238\ m$$

Next step : Check if the obstacles located in the turn initiation area meet the criteria associated with the TNA value.

Obstacle	Altitude (m)	Height (m)	MOC (m)	Minimum TNA (m(ft))
O5	91	30	75	91 + 75 = 166 m (431)

Comment:

TNA (1000ft) is higher than min TNA for Obstacle O5

6.2 Check if MOC is appropriate

2 Methods:

- Using the OIS
- Comparing Height of Aircraft with Obstacle + MOC



6.2.1 Using OIS

$H_{ois} = 5 + 2.5\% * 1\ 852 = 51\ m$ while height of obstacle is 30 m

Conclusion: OIS is not penetrated and then

$PDG = 2.5\% + 0.8\% = 3.3\%$.

6.2.2 Comparing Height of Aircraft with Obstacle + MOC

Obst.	Alt (m)	Height (m)	do (m)	MOC (m)	Obst + MOC (m)	H _{A/C} (m)
O5	91	30	1 852	0.8%*1852=15	30+15=45 m	5+3.3%*1852=66 m

Conclusion:

$H_{A/C} > Obs + MOC$ and then, $PDG = 3.3\%$

7 Obstacle assessment in turn area

Reminder : Distance to reach 1 000 ft = 7 238 m

Obst	Alt (m)	H(m)	dr*(m)	do (m)	MOC (m)	H _{A/C} > Obst + MOC ?
O4	342	281	7 238	5 300	Max [0.8%(7238+5300),75] Max(101, 75) = 101 m	H _{A/C} = (1000-200)*0.3048 + 3.3%*5300 = 418.7 m Obs+MOC=281+101=382 m OK !
O6	320	259	4 700	1 300	Max [0.8%(4700+1300),75] Max(48, 75) = 75	H _{A/C} =(1000-200)*0.3048 + 3.3%*1300 = 286.7 m Obs+MOC=259+75=334 KO (not OK!)

Conclusion:

$Obs + MOC > H_{A/C}$ and then, $PDG = 3.3\%$ is not convenient