VFR Flight Planning Design

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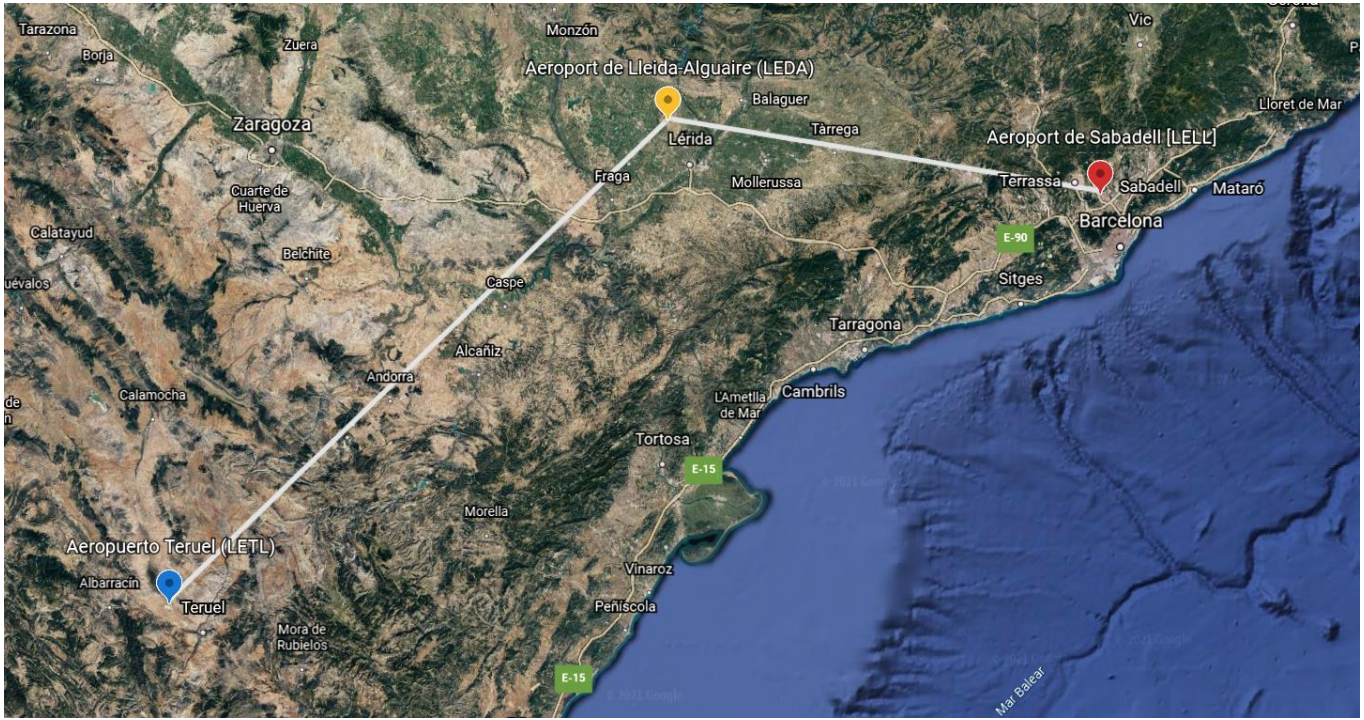
INDEX

1.Introduction

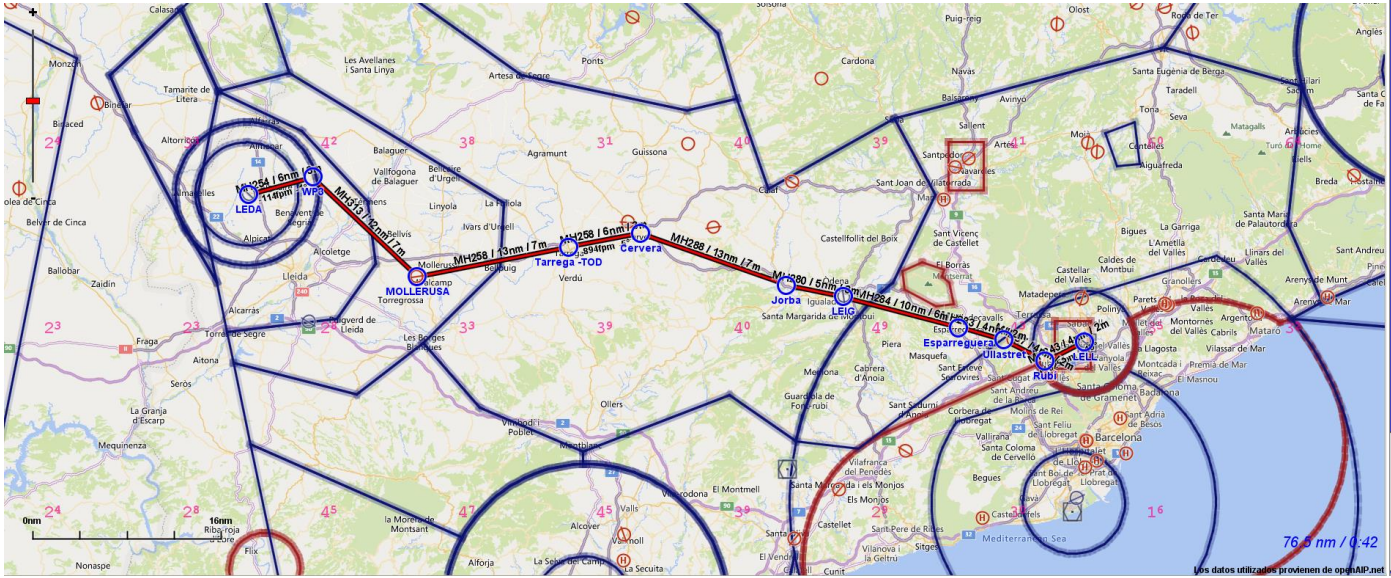
- VFR flight from Sabadell to Teruel stopping over Lleida.
- C172N airframe.
- Evaluation of the C172N to perform this operation.

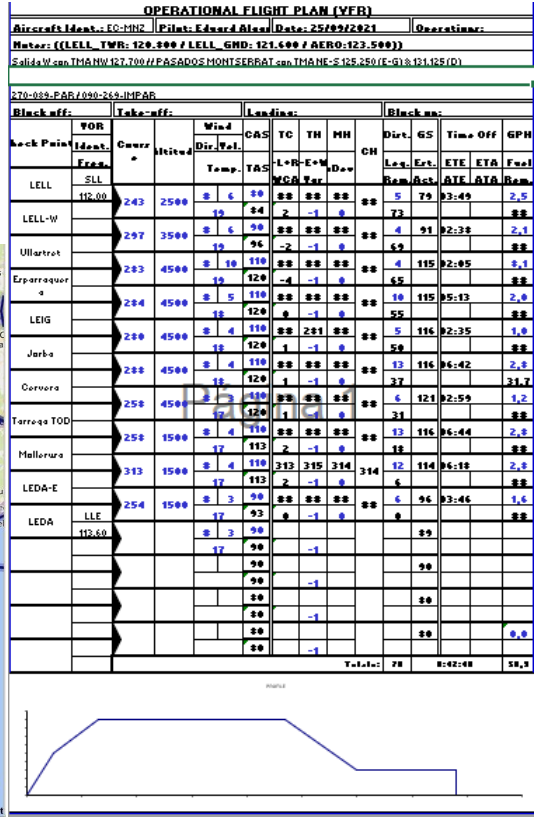


2. LEG1

2.1 Routing

- Visual waypoints following A2 motorway.
- Legs no longer tan 10 mins.





OPERATIONAL FLIGHT PLAN (VFR)

Aircraft Ident.: EC-MN2 | Pilot: Eduard Alsal | Date: 25/09/2021 | Operations:

Meteo: ((LELL_TWR: 120.800 / LELL_GND: 121.600 / AERO:123.500))

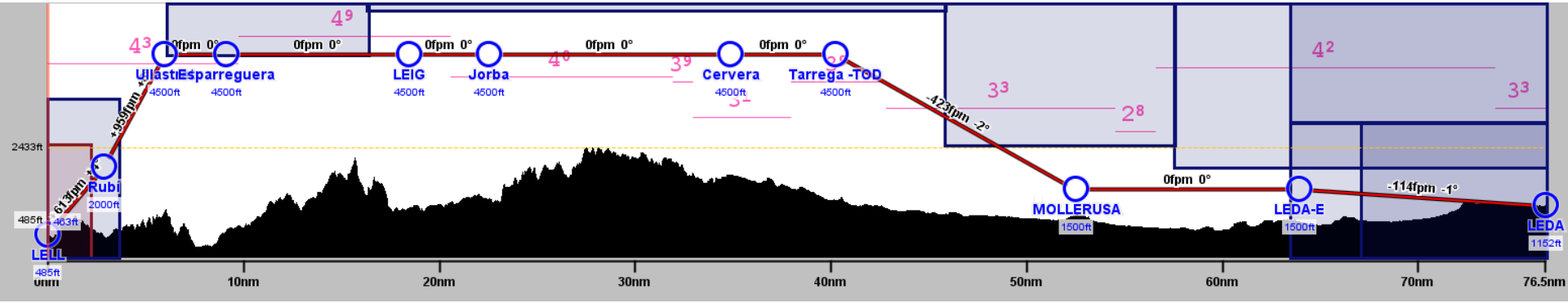
Salida W con TMA NW 127.700 // PASADOS MONTSERRAT con TMA NE-S 125.250 (E-G) & 121.125 (D)

270-089-PAR / 090-269-IMPAR

Block off:		Take-off:		Landing:		Block on:															
Check Point	VOR Ident. / Freq.	Course	Altitude	Wind Dir. / Vel. / Temp.	TAS	TC / TH / MH / WCA / Var / Dev	CH	Dist. Leg. / Rem.	GS Est. / Act.	Time Off ETE / ETA / ATA	GPH Fuel Rem.
LELL	SLL 112.00										
		243	2500	8 / 6 / 19	84	88 / 88 / 88 / 2 / -1 / 0	88	5 / 73	79	03:49	2,5 / 88
LELL-W					84						
		297	3500	8 / 6 / 19	90 / 96	88 / 88 / 88 / -2 / -1 / 0	88	4 / 69	91	02:38	2,1 / 88
Ullartret											
		283	4500	8 / 10 / 19	110 / 120	88 / 88 / 88 / -4 / -1 / 0	88	4 / 65	115	02:05	3,1 / 88
Erparraquera											
		284	4500	8 / 5 / 18	110 / 120	88 / 88 / 88 / 0 / -1 / 0	88	10 / 55	115	05:13	2,6 / 88
LEIG											
		280	4500	8 / 4 / 18	110 / 120	88 / 281 / 88 / 1 / -1 / 0	88	5 / 50	116	02:35	1,9 / 88
Jorba											
		288	4500	8 / 4 / 18	110 / 120	88 / 88 / 88 / 1 / -1 / 0	88	13 / 37	116	06:42	2,8 / 31,7
Cervera											
		258	4500	88 / 88 / 17	110 / 120	88 / 88 / 88 / 1 / -1 / 0	88	6 / 31	121	02:59	1,2 / 88
Tarrega TOD											
		258	1500	8 / 4 / 17	110 / 113	88 / 88 / 88 / 2 / -1 / 0	88	13 / 18	116	06:44	2,8 / 88
Mollerusa											
		313	1500	8 / 4 / 17	110 / 113	313 / 315 / 314 / 2 / -1 / 0	314	12 / 6	114	06:18	2,8 / 88
LEDA-E											
		254	1500	8 / 3 / 17	90 / 93	88 / 88 / 88 / 0 / -1 / 0	88	6 / 0	96	03:46	1,6 / 88
LEDA	LLE 113.60			8 / 3 / 17	90 / 90				89		
					90 / 90	-1			90		
					90 / 90	-1			90		
					90 / 90	-1			90		
					90 / 90	-1			90		0,0
								Totals:	78	8:42:48	58,1

2.2 LELL-LEDA route - Vertical view

- ❑ Even flight level.
- ❑ Avoid to enter controlled airspace before having ATC clearance.
- ❑ Ensure safety altitude over obstacles and dangerous areas.

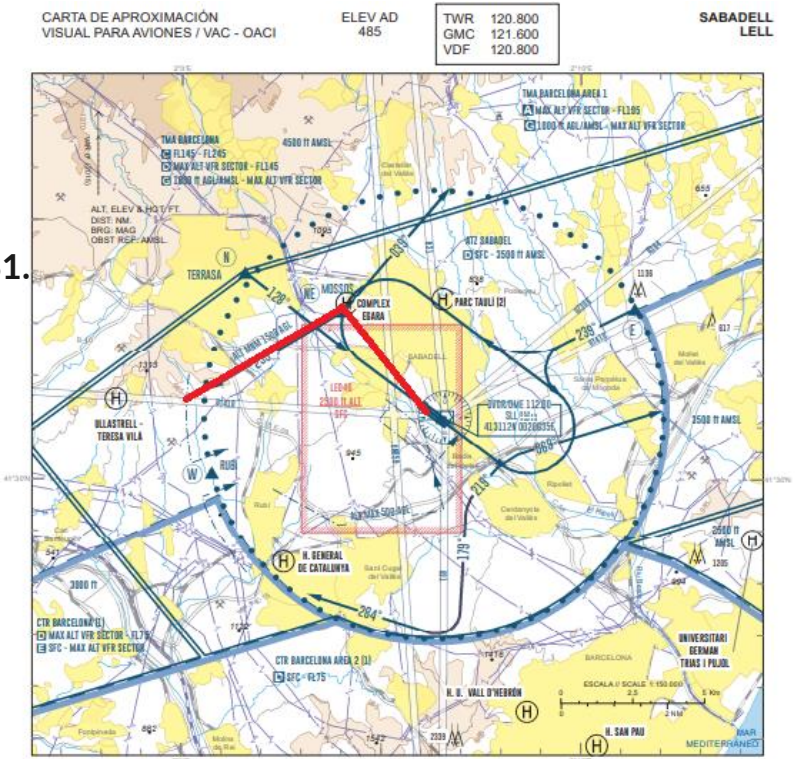


2.3 Wind & temperature data for corrections

- Data obtained from windy.com.
- Selecting data from the waypoints in their respective altitude and date-time.
- Wind correction according to the CAS, wind and temperature → TAS & GS.

2.4 LELL VAC - LEG 1

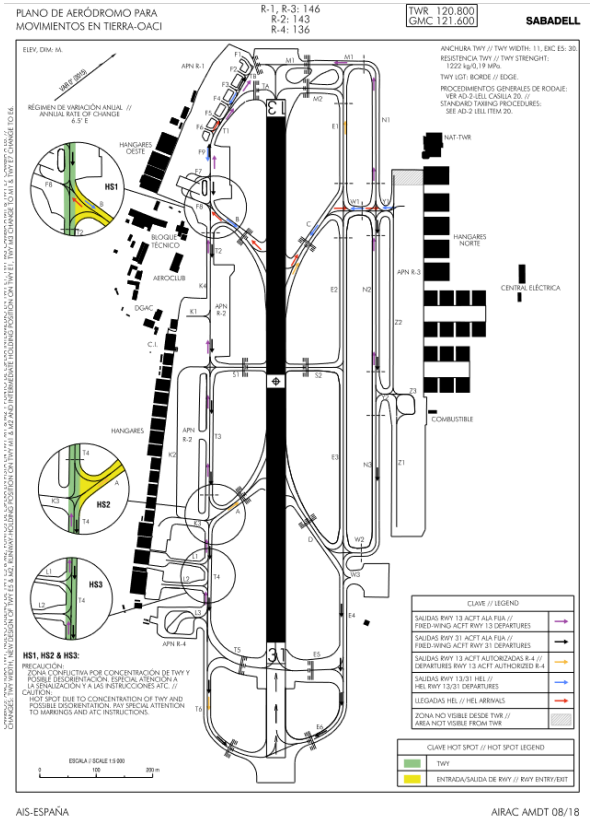
- Active runway depends on ATC: assumption **active RWY 31.**
- Initial climb to A 2000ft..
- Exit CTR point **W.**
- Over W resume climb to CRZ altitude (4500ft AMSL).

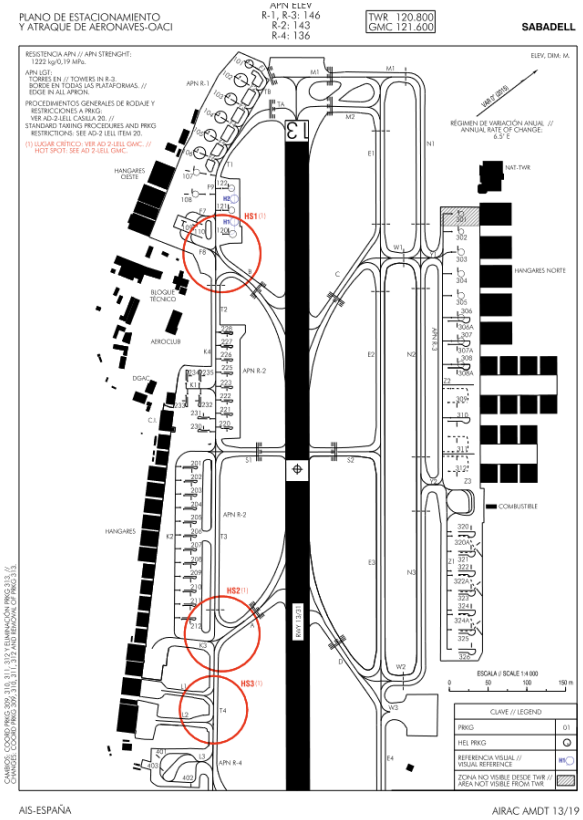


RWY 31: After taking off and at safety altitude, turn right to follow C-58 motorway, (avoid overflying Sant Quirze) direct to NE (Mossos), then, unless ATC service indicates otherwise:
-With north, northeast, east direction: turn right to track 039° to leave ATZ.
-With west, southwest direction: turn left to track 239° to leave ATZ to the north of W reporting point at 1500 ft AGL minimum altitude.

2.4 Taxi & stands charts

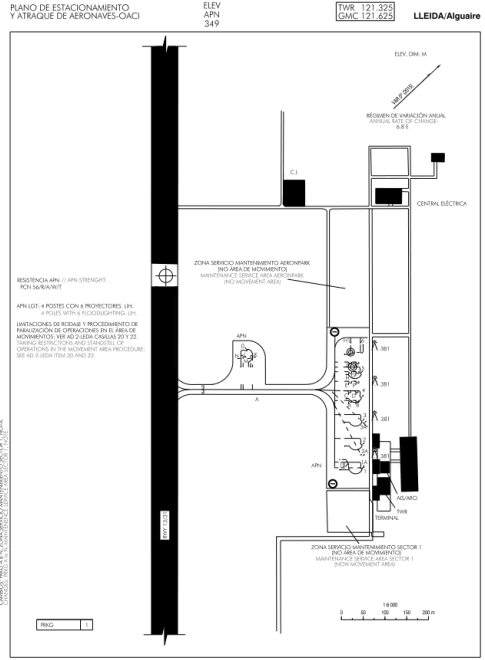
- Stands and taxi charts for LELL operation.

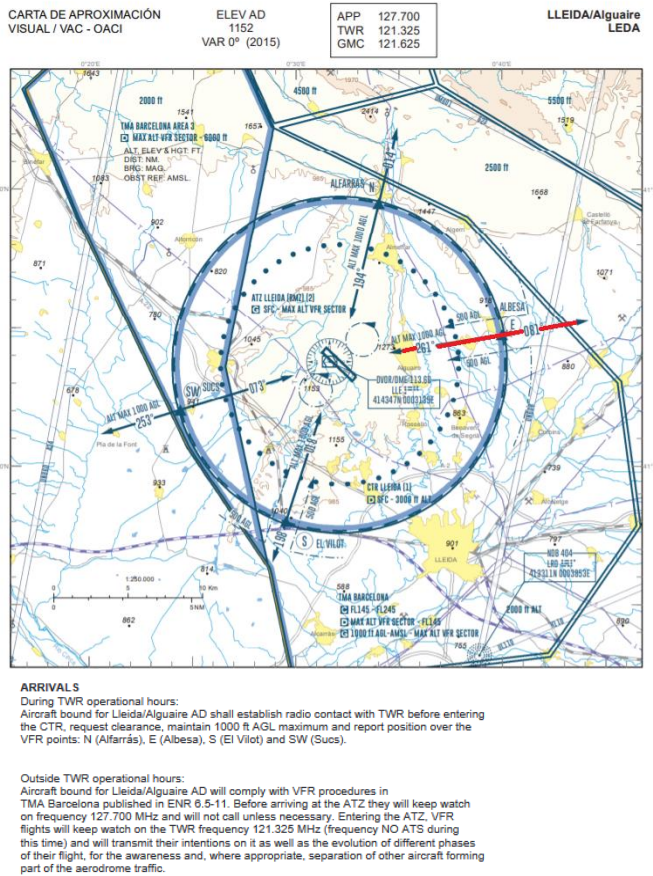




2.4 LEDA VAC + taxi

- ATZ notification point E
- Ingressing to RWY 13/31 visual circuit depending on the wind





ARRIVALS

During TWR operational hours:
Aircraft bound for Lleida/Alguaire AD shall establish radio contact with TWR before entering the CTR, request clearance, maintain 1000 ft AGL maximum and report position over the VFR points: N (Alfarrás), E (Albesa), S (El Vilot) and SW (Sucs).

Outside TWR operational hours:
Aircraft bound for Lleida/Alguaire AD will comply with VFR procedures in TMA Barcelona published in ENR 6.5-11. Before arriving at the ATZ they will keep watch on frequency 127.700 MHz and will not call unless necessary. Entering the ATZ, VFR flights will keep watch on the TWR frequency 121.325 MHz (frequency NO ATS during this time) and will transmit their intentions on it as well as the evolution of different phases of their flight, for the awareness and, where appropriate, separation of other aircraft forming part of the aerodrome traffic.

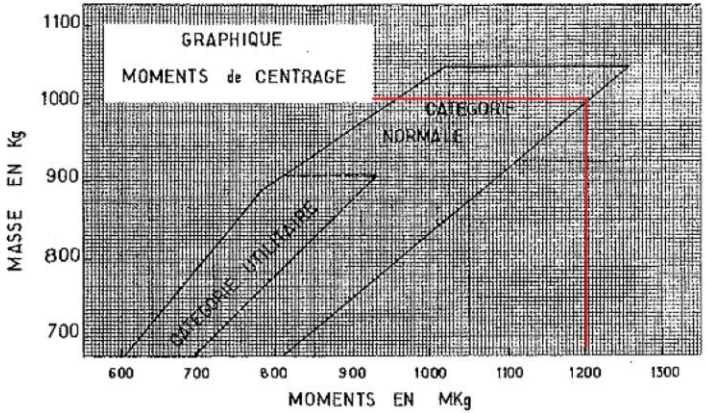
2.5 Performance

Trip fuel	Unuse. fuel	Cont. fuel	Alternate	Block fuel	Units
6.47	3.00	0.65	4.80	**14.91**	US Gal
24.51	11.37	2.45	18.19	**56.52**	L
18.17	8.43	1.82	13.49	**41.90**	kg

- Contingency fuel = 10% of trip fuel:
  - Airport congestion.
  - Abnormal performance.
  - Adverse meteorology.
  - (...)
- Alternate fuel highest value between 45 mins of extra flight and the fuel required to the alternate airfield.
- Trip fuel = CRZ + CLB fuel
- Unusable fuel: fuel in the tanks not available for use.
- TOW<MTOW
- Inside W&B limits.
- Tankering not recommended.

- Weight and balance

	kg	arm [m]	moment [m*kg]
dry weight	680.40	1.13	768.85
Fuel	41.90	1.2	50.29
crew	125.00	0.94	117.50
PAX	125.00	1.85	231.25
payload	30.00	2.41	72.30
payload cone	0.00	3.12	0.00
total	1002.30		1240.19
MTOW	**1043**		



2.5 Performance

- Data used to compute fuel consumption and runway distances.
- Computed using MTOW and ISA conditions (15°C).
- For more details see the excel appended.

TIME, FUEL, AND DISTANCE TO CLIMB

MAXIMUM RATE OF CLIMB

CONDITIONS:
Flaps Up
Full Throttle
Standard Temperature

NOTES:
1. Add 1.1 gallons of fuel for engine start, taxi and takeoff allowance.
2. Mixture leaned above 3000 feet for maximum RPM.
3. Increase time, fuel and distance by 10% for each 10°C above standard temperature.
4. Distances shown are based on zero wind.

WEIGHT LBS	PRESSURE ALTITUDE FT	TEMP °C	CLIMB SPEED KIAS	RATE OF CLIMB FPM	FROM SEA LEVEL		
					TIME MIN	FUEL USED GALLONS	DISTANCE NM
2300	S.L.	15	73	770	0	0.0	0
	1000	13	73	725	1	0.3	2
	2000	11	72	675	3	0.6	3
	3000	9	72	630	4	0.9	5
	4000	7	71	580	6	1.2	8
	5000	5	71	535	8	1.6	10
	6000	3	70	485	10	1.9	12
	7000	1	69	440	12	2.3	15
	8000	-1	69	390	15	2.7	19
	9000	-3	68	345	17	3.2	22
	10,000	-5	68	295	21	3.7	27
	11,000	-7	67	250	24	4.2	32
	12,000	-9	67	200	29	4.9	38

CRUISE PERFORMANCE

CONDITIONS:
2300 Pounds
Recommended Lean Mixture

PRESSURE ALTITUDE FT	RPM	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2000	2500	---	---	---	75	116	8.4	71	115	7.9
	2400	72	111	8.0	67	111	7.5	63	110	7.1
	2300	64	106	7.1	60	105	6.7	56	105	6.3
	2200	56	101	6.3	53	100	6.1	50	99	5.8
	2100	50	95	5.6	47	94	5.6	46	93	5.4
4000	2550	---	---	---	75	118	8.4	71	118	7.9
	2500	76	116	8.5	71	115	8.0	67	115	7.5
	2400	68	111	7.6	64	110	7.1	60	109	6.7
	2300	60	105	6.8	57	105	6.4	54	104	6.1
	2200	54	100	6.1	51	99	5.9	48	98	5.7
	2100	48	94	5.6	46	93	5.5	44	92	5.3
6000	2600	---	---	---	75	120	8.4	71	120	7.9
	2500	72	116	8.1	67	115	7.6	64	114	7.1
	2400	64	110	7.2	60	109	6.8	57	109	6.4
	2300	57	105	6.5	54	104	6.2	52	103	5.9
	2200	51	99	5.9	49	98	5.7	47	97	5.5
	2100	46	93	5.5	44	92	5.4	42	91	5.2
8000	2650	---	---	---	75	122	8.4	71	122	7.9
	2600	76	120	8.6	71	120	8.0	67	119	7.5
	2500	68	115	7.7	64	114	7.2	60	113	6.8
	2400	61	110	6.9	58	109	6.5	55	108	6.2
	2300	55	104	6.2	52	103	6.0	50	102	5.8
	2200	49	98	5.7	47	97	5.5	46	96	5.4
10,000	2650	76	122	8.5	71	122	8.0	67	121	7.5
	2600	72	120	8.1	68	119	7.6	64	118	7.1
	2500	65	114	7.3	61	114	6.8	58	112	6.5
	2400	58	109	6.5	55	108	6.2	52	107	6.0
	2300	52	103	6.0	50	102	5.8	48	101	5.6
	2200	47	97	5.6	45	96	5.4	44	95	5.3
12,000	2600	68	119	7.7	64	118	7.2	61	117	6.8
	2500	62	114	6.9	58	113	6.5	55	111	6.2
	2400	56	108	6.3	53	107	6.0	51	106	5.8
	2300	50	102	5.8	48	101	5.6	46	100	5.5
	2200	46	96	5.5	44	95	5.4	43	94	5.3

TAKE OFF DISTANCE SHORT FIELD

CONDITIONS: Flaps up; Full throttle prior to brake release; Paved, Level, Dry runway; Zero wind

MAXIMUM WEIGHT	IAS LIFT OFF	IAS AT 15M (50ft)	PRESSURE ALTITUDE FT	PRESSURE ALTITUDE M	0°C / 32°F GROUND ROLL M	0°C / 32°F TOTAL TO CLEAR 15M OBS. M	10°C / 50°F GROUND ROLL M	10°C / 50°F TOTAL TO CLEAR 15M OBS. M	20°C / 68°F GROUND ROLL M	20°C / 68°F TOTAL TO CLEAR 15M OBS. M	30°C / 86°F GROUND ROLL M	30°C / 86°F TOTAL TO CLEAR 15M OBS. M	40°C / 104°F GROUND ROLL M	40°C / 104°F TOTAL TO CLEAR 15M OBS. M
1043kg	99km/h 52kt 60mph	109km/h 59kt 68mph	Sea Level		219	396	236	424	255	454	273	485	293	518
			1000	305	241	433	259	465	279	497	299	532	320	566
			2000	610	264	474	283	509	305	546	328	584	352	626
			3000	914	290	521	312	559	335	600	361	645	387	690
			4000	1219	319	573	353	617	369	663	396	712	427	765
			5000	1524	351	632	378	683	407	735	437	791	469	852
			6000	1829	386	703	416	757	450	817	483	882	520	953
			7000	2134	427	782	460	844	497	914	535	989	576	1071
			8000	2438	472	875	511	948	550	1029	593	1119	639	1216

LANDING DISTANCE SHORT FIELD

CONDITIONS: Flaps 40°; Power off; Maximum braking; Paved, Level, Dry runway; Zero wind

WEIGHT	IAS At 15M (50ft)	PRESSURE ALTITUDE FT	PRESSURE ALTITUDE M	0°C / 32°F GROUND ROLL M	0°C / 32°F TOTAL TO CLEAR 15M OBS. M	10°C / 50°F GROUND ROLL M	10°C / 50°F TOTAL TO CLEAR 15M OBS. M	20°C / 68°F GROUND ROLL M	20°C / 68°F TOTAL TO CLEAR 15M OBS. M	30°C / 86°F GROUND ROLL M	30°C / 86°F TOTAL TO CLEAR 15M OBS. M	40°C / 104°F GROUND ROLL M	40°C / 104°F TOTAL TO CLEAR 15M OBS. M
1043kg	111km/h 60kt 69mph	Sea Level		151	367	155	376	162	386	166	395	172	405
		1000	305	155	376	162	386	168	396	172	405	178	416
		2000	610	162	386	168	396	174	407	180	418	186	428
		3000	914	168	396	174	407	180	418	186	428	192	439
		4000	1219	174	407	183	418	187	430	194	440	200	451
		5000	1524	180	418	187	431	194	442	200	453	207	465
		6000	1829	187	431	195	443	201	454	209	468	215	479
		7000	2134	195	443	201	456	209	468	216	480	223	492
		8000	2438	203	457	210	469	216	482	224	494	232	507

2.5 Take-off & landing limitations - LEG 1

- No 15m obstacle clearance in the threshold taken into consideration.

	RWY distances:			
	Ava. distance	Req. distance	Units	Alt [ft]
RWY Take-off	1050	255	m	SL
RWY ldng	2500	162	m	1152

- Different airstrips available for an emergency landing along the route.
- Bold: recommended and alternate airfields.

Enroute strips:	Runway	
	Distance: [m]	Altitude: [ft]
Segarra	335	2200
Cervera	300	1700
LEIG	**740**	**1080**
Mollerusa	260	942

2.6 VMC requirements to operate a flight

TABLA DE CONDICIONES DE VISIBILIDAD Y DISTANCIA DE NUBES DE VUELOS VFR TABLE OF CONDITIONS OF VISIBILITY AND DISTANCE FROM CLOUDS IN VFR FLIGHTS				
Altitud Altitude	Clases de Espacio Aéreo Airspace class	Visibilidad de vuelo Flight visibility	Distancia de nubes Distance from clouds	
			Horizontal	Vertical
A, o por encima, de FL100 At or above FL100 (*)	B C D E F G	8 km	1.500 m	300 m (1000 ft)
Entre FL100 y 900 m (3000 ft) AMSL ó 300 m (1000 ft) AGL, de ambos valores el mayor. Between FL100 and 900 m (3000 ft) AMSL or 300 m (1000 ft) AGL, whichever is higher.		5 km		
A, o por debajo, de 900 m (3000 ft) AMSL ó 300 m (1000 ft) AGL, de ambos valores el mayor. At and below 900 m (3000 ft) AMSL or 300 m (1000 ft) AGL, whichever is higher.	B C D E			
	F G	5 km (**)	Libre de nubes y con la superficie a la vista. Clear of clouds and in sight of the surface.	

Minimum VMC to operate at an aerodrome:

- Except when operating as special VFR flights or helicopters, no take off or landing will be taken at any aerodrome within a control zone (CTR), nor will one enter the aerodrome traffic zone (ATZ) or the traffic circuit. aerodrome when:

  1. The cloud ceiling is less than 450 M (1500 FT), or:
  2. Visibility on the ground is less than 5 KM.

- No helicopter will operate when:
  1. The cloud ceiling is less than 300 FT.
  2. Visibility is less than 1500 m.

2.6 Meteorological Data - LEG 1

❑ Departure:

METAR: LELL 250900Z 15006KT 9999 FEW014 SCT030 25/18 Q1017

TAF: LELL 250800Z 2509/2609 VRB03KT 9999 BKN030 TX29/2513Z TN16/2606Z PROB30 TEMPO 2510/2518 TS SHRA FEW040CB BECMG 2511/2513 20010KT BECMG 2518/2520 VRB03KT

❑ Arrival:

METAR: LEDA 250900Z 05006KT 9999 FEW015 SCT035 20/20 Q1018

TAF: 250800Z 2509/2609 11005KT 9999 BKN025 TX28/2514Z TN14/2606Z TEMPO 2509/2518 3000 TS SHRA BKN010 FEW030CB *

❑ Alternative:

METAR: No weather station available → LELL METAR will be taken into consideration

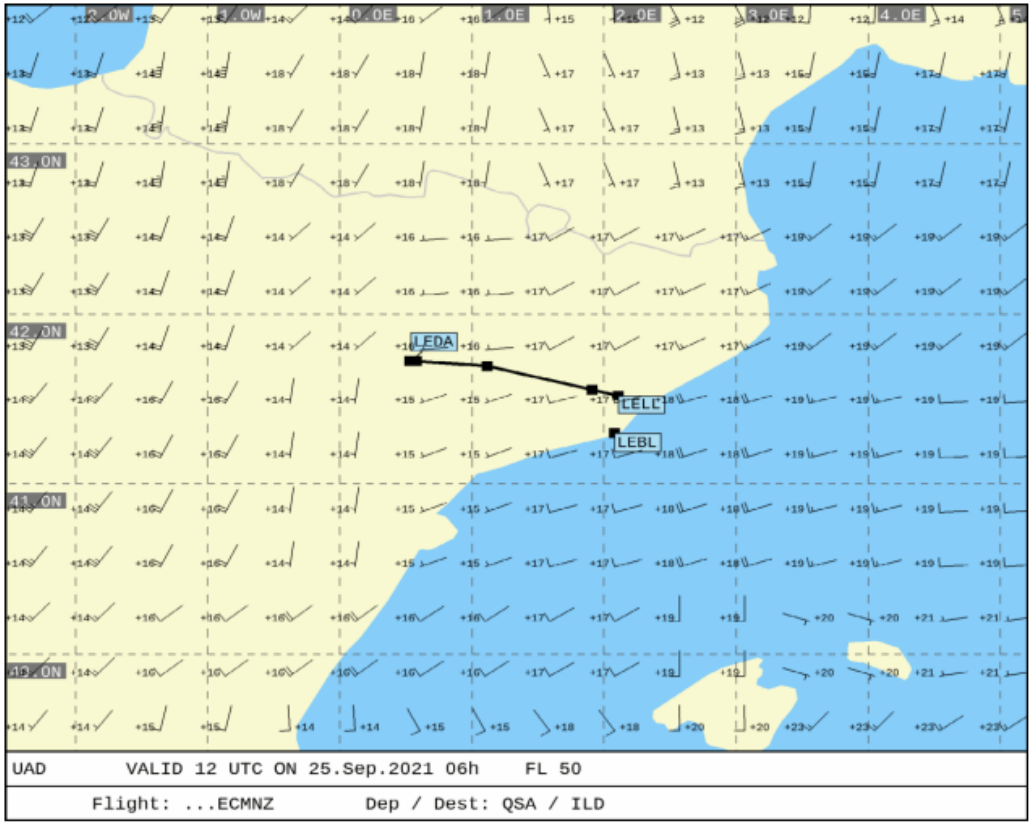
LELL:
Vertical visibility ok, some clouds [0<2/8] at 1400ft → operable airport.

LEDA:
METAR & TAF conditions ok, however temporary conditions advise that a thunderstorm and might take place, cloud base layer above our planed altitude. → operable airport.

*No reliable taf available on internet

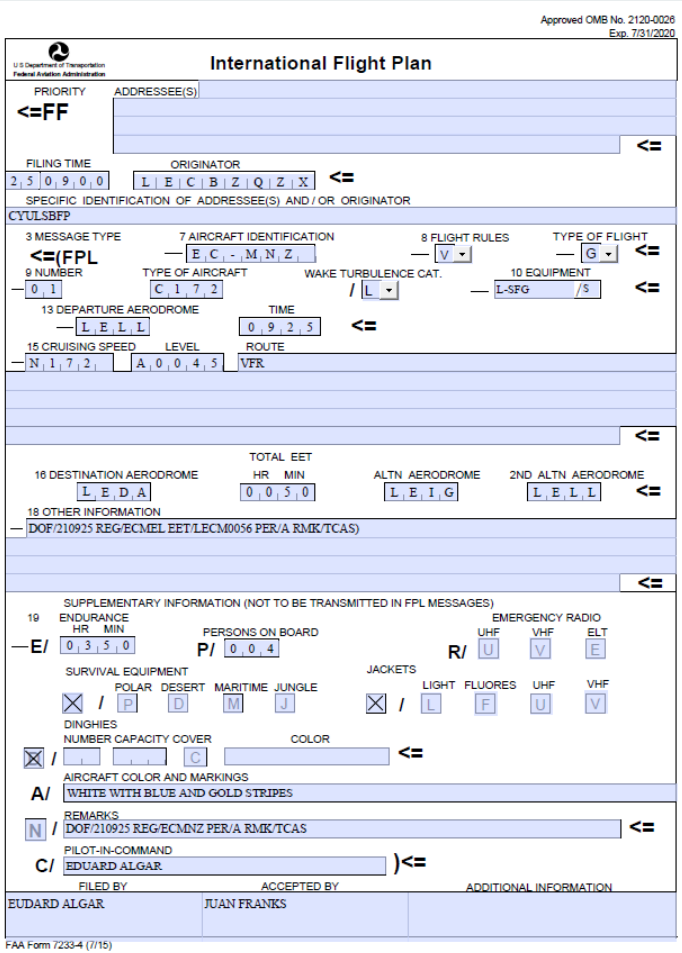
2.6 Meteorological Data

- Winds aloft at A50.
- No sigmets available for this flight envelope.



2.7 ICAO flight plan:

- ICAO flight plan.
- Briefing of the previous data exposed.



Approved OMB No. 2120-0026
Exp. 7/31/2020

U.S Department of Transportation
Federal Aviation Administration

International Flight Plan

PRIORITY: <=FF
ADDRESSEE(S):

FILING TIME: 2509
ORIGINATOR: LECBZQZX

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND / OR ORIGINATOR
CYULSBFP

3 MESSAGE TYPE: <=(FPL
7 AIRCRAFT IDENTIFICATION: EC-MNZ
8 FLIGHT RULES: V
TYPE OF FLIGHT: G
9 NUMBER: 01
TYPE OF AIRCRAFT: C172
WAKE TURBULENCE CAT.: L
10 EQUIPMENT: L-SFG /S
13 DEPARTURE AERODROME: LELL
TIME: 0925
15 CRUISING SPEED: N172
LEVEL: A0045
ROUTE: VFR

TOTAL EET
16 DESTINATION AERODROME: LEDA
HR MIN: 0050
ALTN AERODROME: LEIG
2ND ALTN AERODROME: LELL

18 OTHER INFORMATION
DOF/210925 REG/ECMEL EET/LECM0056 PER/A RMK/TCAS)

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)
19 ENDURANCE HR MIN: E/ 0350
PERSONS ON BOARD: P/ 004
EMERGENCY RADIO: R/ UHF U VHF V ELT E
SURVIVAL EQUIPMENT: X / POLAR P DESERT D MARITIME M JUNGLE J
JACKETS: X / LIGHT L FLUORES F UHF U VHF V
DINGHIES: X / NUMBER CAPACITY COVER C COLOR
AIRCRAFT COLOR AND MARKINGS: A/ WHITE WITH BLUE AND GOLD STRIPES
REMARKS: N / DOF/210925 REG/ECMNZ PER/A RMK/TCAS
PILOT-IN-COMMAND: C/ EDUARD ALGAR)<=

FILED BY	ACCEPTED BY	ADDITIONAL INFORMATION
EUDARD ALGAR	JUAN FRANKS	

FAA Form 7233-4 (7/15)

2.8 NOTAMs

LELL:
B6768/21
109 AND 110 ACFT STANDS **CLSD**
LEDA:
B7094/21
ATS (TWR) HR OF OPS
SEP 24,26: 0500-1800
SEP 25: 0500-1800 AND 2030-2230 + 2HR PPR
SEP 27-30: 0500-2130
B7066/21
REF AIP **AD** 2 LEDA PDC CHART DOES NOT CORRESPOND WITH CURRENT
CONFIGURATION
B6593/21
SEP 03 2130-2230, SEP 02 06-09 13-16 20-23 27-30 1800-2130
MET BRIEFING ON THE SPOT **NOT AVBL**. METAR AUTO
B6543/21
ACFT STANDS 5 AND 6 **CLSD**

Enroute:
Esparraguerra: UNMANNED AIRCRAFT VEHICLE FLYING WITHIN 413308N 0014609E,413219N 0015058E,413413N 0014937E,413526N 0014639E,413308N 0014609E.BARCELONA / COLLBATO

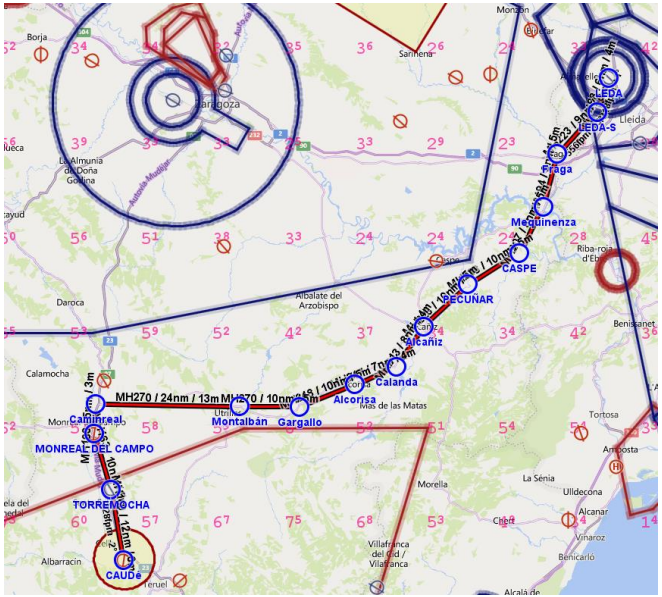
Tarrega: UNMANNED AIRCRAFT VEHICLE FLYING WI 1200M RADIUS OF 413954N 0011023E LLEIDA/TARREGA

- For more LECB FIR NOTAMs see the annex.

3. LEG2

3.1 Routing

- Visual waypoints following N211 road.
- Legs no longer tan 10 mins.
- Malaella and Calamocha VORs available.



OPERATIONAL FLIGHT PLAN (VFR)

Aircraft Ident.: EC-MN2 | Pilot: Edward Algar | Date: 25/03/2021 | Operations:

Notes: ((LELL_TWR: 120.800 / LELL_GND: 121.600 / AERO:123.500))

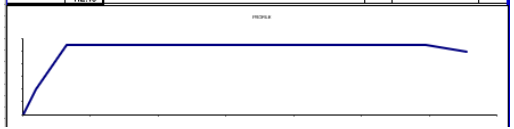
Salida S con TMA RC 127.700

LEDA TWR: 121.625

270-083=PAR / 090-263=IMPAR

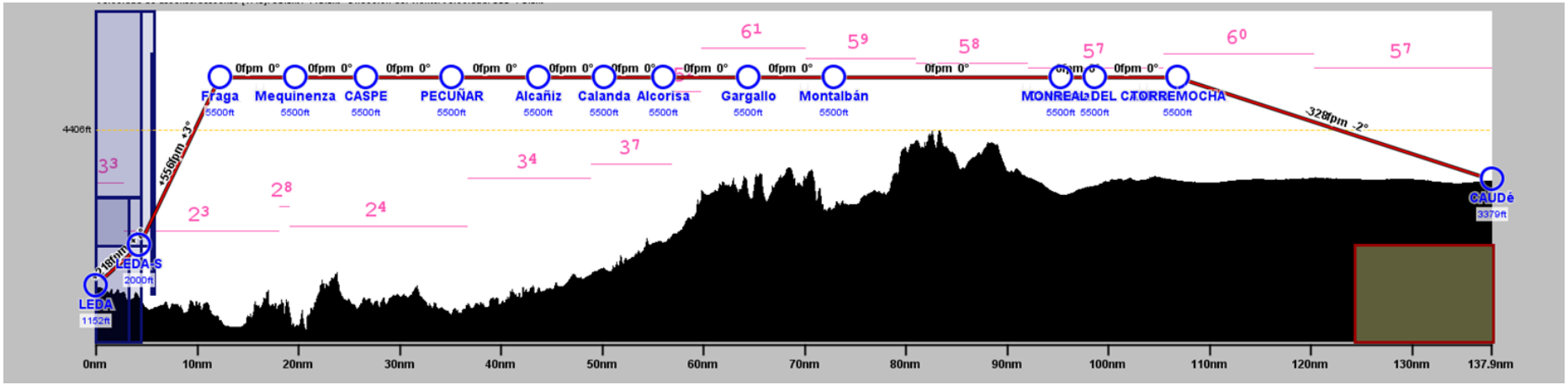
Block off: | Take-off: | Landing: | Block on:

Check Point	VOR Ident. / Freq.	Course	Altitude	Wind Dir. / Vel. / Temp.	CAS / TAS	TC / -L+R= / WCA	TH / -E+W= / Var	MH / =Dev.	CH	Dist. Leg. / Rem.	GS Est. / Act.	Time Off ETE / ATE	ETA / ATA	GPH Fuel Rem.
LEDA	LLE 113.60													
		198	2000	## 10	80	198	195	194	194	4	74	03:14		1.1
				15	83	-3	-1	0		127				##
LEDA-S		223	5500	## 12	90	223	217	216	216	9	92	05:51		2.5
				15	100	-6	-1	0		118				51.3
Fraga		194	5500	## 13	110	194	191	190	190	9	111	04:52		2.1
				14	122	-3	-1	0		109				##
Mequinenza		207	5500	## 15	110	207	202	201	201	8	111	04:19		1.7
				14	122	-5	-1	0		101				##
Caspe		238	5500	## 14	110	238	231	230	230	5	123	02:26		0.9
				14	122	-7	-1	0		96				##
Pecuñar		226	5500	## 12	110	226	221	220	220	10	119	05:03		2.1
				14	122	-5	-1	0		86				##
Alcañiz		213	5500	## 10	110	213	210	209	209	8	115	04:11		1.7
				15	122	-3	-1	0		78				##
Calanda		247	5500	## 9	110	247	243	242	242	7	117	03:35		1.5
				15	122	-4	-1	0		71				41.3
Alcorisa		248	5500	## 10	110	248	245	244	244	10	114	05:16		2.1
				15	122	-3	-1	0		61				##
Gargallo		270	5500	## 16	90	270	263	262	262	10	89	06:45		3.0
				15	100	-7	-1	0		51				##
Montalbán		270	5500	## 8	90	270	000	359	359	24	96	15:03		6.2
	CMA 116.00			14	100	90	-1			27				##
Caminreal		183	5500	## 8	90	183	000	359	359	5	93	03:14		1.3
				14	100	177	-1			22				##
Monreal del Campo		163	5500	## 16	80	163	000	359	359	10	77	07:47		3.3
					89	##	-1			12				##
Torremocha		169	5000	## 16	80	169	000	359	359	12	75	09:34		4.2
					88	##	-1			0				21.2
LETL	MLA 112.10									Totals:	131	1:21:10		54.9



3.2 LEDA-LETL route - Vertical view

- Odd flight level.
- Avoid to enter controlled airspace before having ATC clearance.
- Ensure safety altitude over obstacles and dangerous areas.

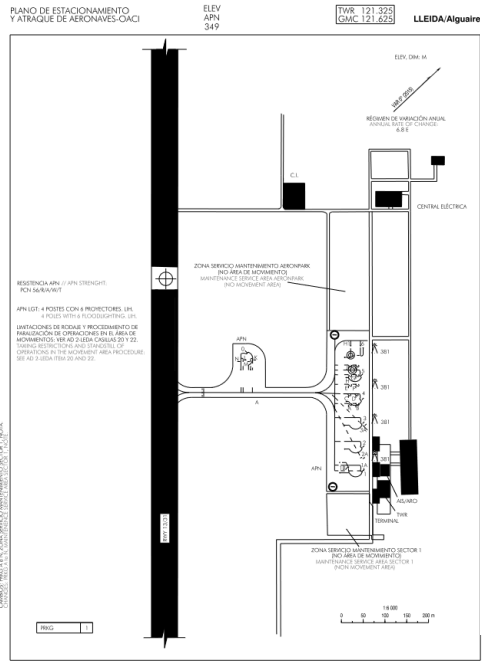


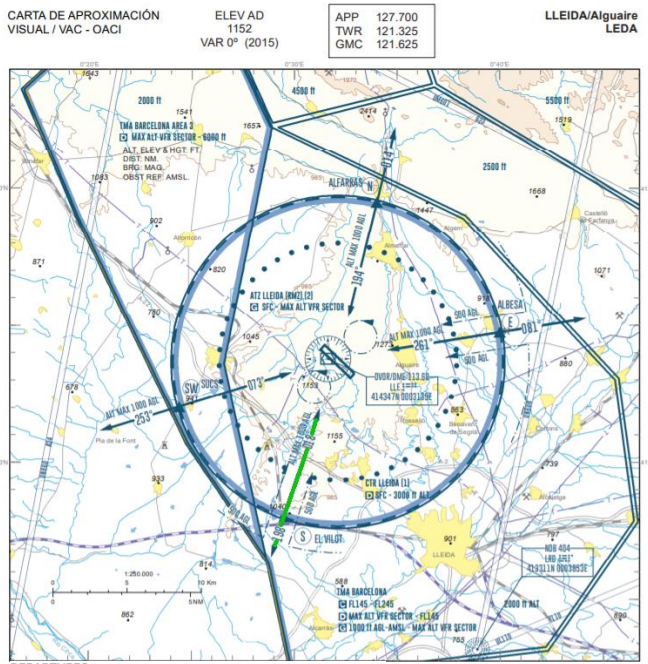
3.3 Wind & temperature data for corrections

- Data obtained from windy.com
- Selecting data from the waypoints in their respective altitude and date-time.
- Wind correction according to the CAS, wind and temperature → TAS & GS.

3.4 LEDA VAC + taxi

- ATZ exit point S.
- Maintainig 2000ft AMSL.





DEPARTURES

During TWR operational hours:

Aircraft will notify TWR of the VFR reporting point to be used after take off, maintaining 1000 ft AGL MAX until leaving the CTR.

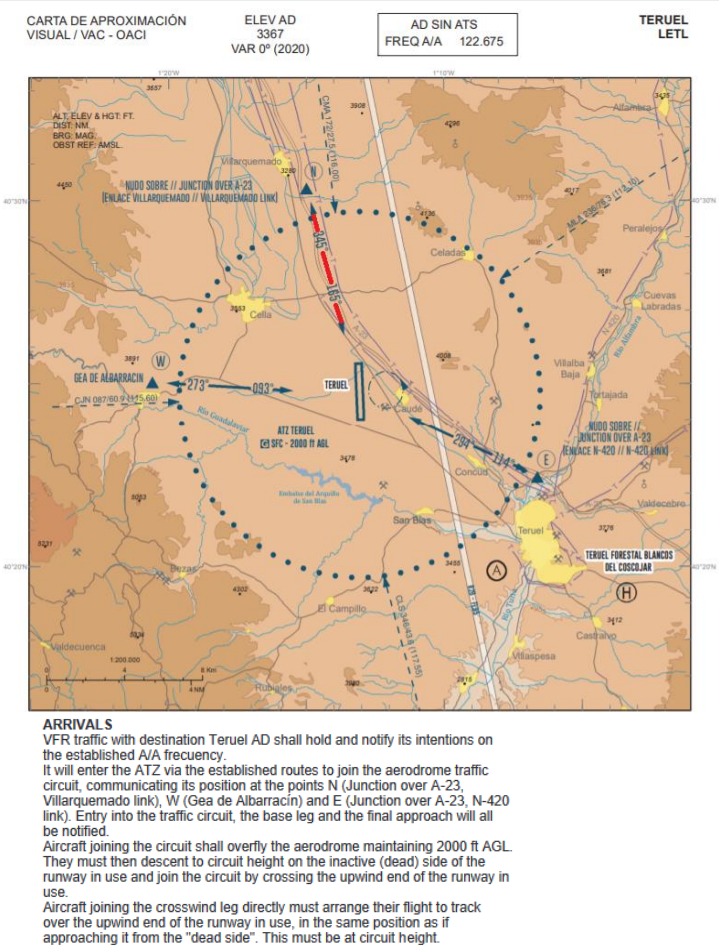
Outside TWR operational hours:

VFR flights will keep watch on the TWR frequency 121.325 MHz (frequency NO ATS during this time) and will transmit their intentions on it as well as the evolution of different phases of their flight, for the awareness and, where appropriate, separation of other aircraft forming part of the aerodrome traffic. On leaving the ATZ, they will comply with VFR procedures in Barcelona TMA published in the ENR 6.5-11.

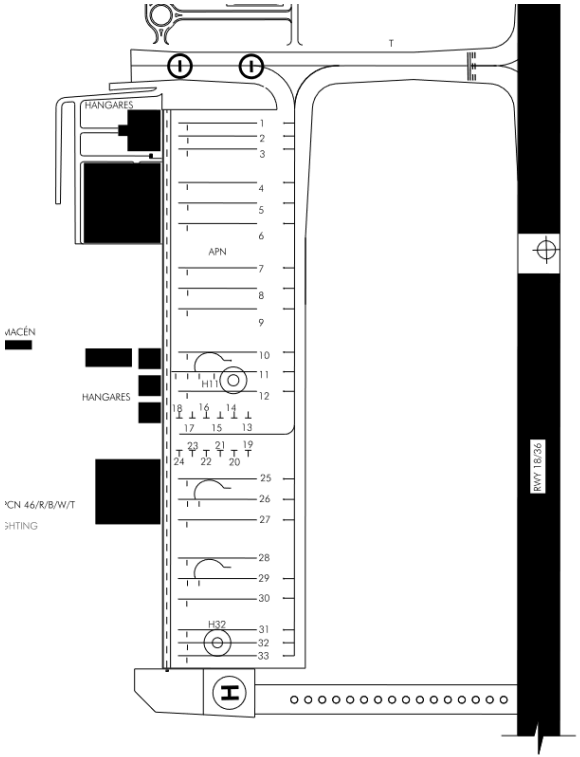
After leaving the ATZ they will keep watch on frequency 127.700 MHz and will not call unless necessary.

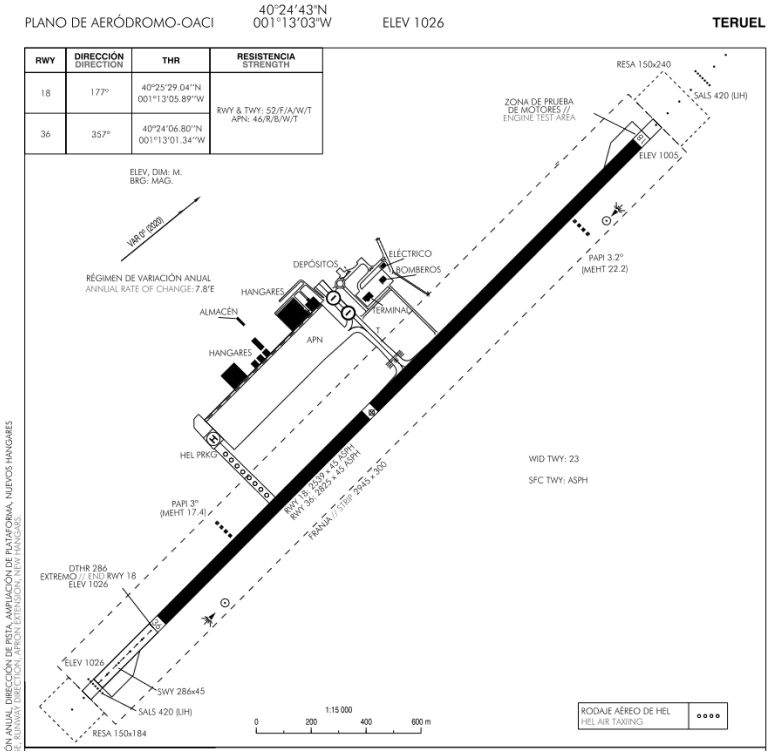
3.4 LETL VAC - LEG 2

- Entry point N.
- Joining visual traffic cicuit to RWY 18/36 depending on the wind.



3.4 LETL taxi and stands





3.5 Performance:

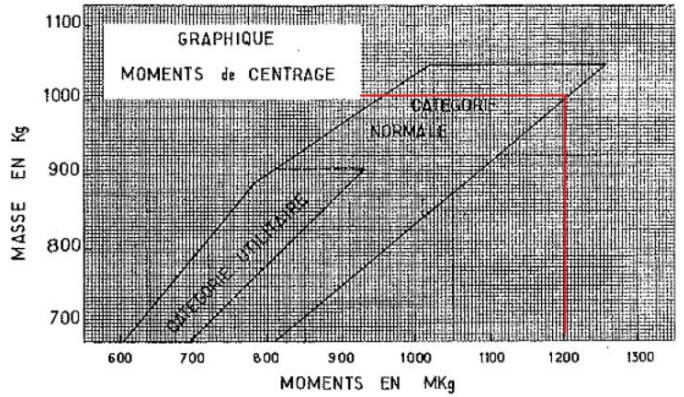
Trip fuel	Unuse. fuel	Cont. fuel	Alternate	Block fuel	Units
10.44	3	1.04	4.95	**19.43**	US Gal
39.57	11.37	3.96	18.76	**73.65**	L
29.34	8.43	2.93	13.91	**54.61**	kg

- Contingency fuel = 10% of trip fuel:
  - Airport congestion.
  - Abnormal performance.
  - Adverse meteorology.
  - (...)

- Alternate fuel highest value between 45 mins of extra flight and the fuel required to the alternate airfield.
- Trip fuel = CRZ + CLB fuel.
- Unusable fuel: fuel in the tanks not available for use.
- TOW<MTOW.
- Inside W&B limits.

- Weight and balance

	kg	arm [m]	moment [m*kg]
dry weight	680.40	1.13	768.85
Fuel	54.61	1.2	65.53
crew	125.00	0.94	117.50
PAX	125.00	1.85	231.25
payload	30.00	2.41	72.30
payload cone	0.00	3.12	0.00
total	1015.01		1255.43
MTOW	**1043**		



3.5 Performance

- Data used to compute fuel consumption and rwy distances.
- Computed using MTOW and ISA conditions (15°C).
- For more details see the excel appended.

TIME, FUEL, AND DISTANCE TO CLIMB

MAXIMUM RATE OF CLIMB

CONDITIONS:
Flaps Up
Full Throttle
Standard Temperature

NOTES:
1. Add 1.1 gallons of fuel for engine start, taxi and takeoff allowance.
2. Mixture leaned above 3000 feet for maximum RPM.
3. Increase time, fuel and distance by 10% for each 10°C above standard temperature.
4. Distances shown are based on zero wind.

WEIGHT LBS	PRESSURE ALTITUDE FT	TEMP °C	CLIMB SPEED KIAS	RATE OF CLIMB FPM	FROM SEA LEVEL		
					TIME MIN	FUEL USED GALLONS	DISTANCE NM
2300	S.L.	15	73	770	0	0.0	0
	1000	13	73	725	1	0.3	2
	2000	11	72	675	3	0.6	3
	3000	9	72	630	4	0.9	5
	4000	7	71	580	6	1.2	8
	5000	5	71	535	8	1.6	10
	6000	3	70	485	10	1.9	12
	7000	1	69	440	12	2.3	15
	8000	-1	69	390	15	2.7	19
	9000	-3	68	345	17	3.2	22
	10,000	-5	68	295	21	3.7	27
	11,000	-7	67	250	24	4.2	32
	12,000	-9	67	200	29	4.9	38

CRUISE PERFORMANCE

CONDITIONS:
2300 Pounds
Recommended Lean Mixture

PRESSURE ALTITUDE FT	RPM	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2000	2500	---	---	---	75	116	8.4	71	115	7.9
	2400	72	111	8.0	67	111	7.5	63	110	7.1
	2300	64	106	7.1	60	105	6.7	56	105	6.3
	2200	56	101	6.3	53	100	6.1	50	99	5.8
	2100	50	95	5.6	47	94	5.6	46	93	5.4
4000	2550	---	---	---	75	118	8.4	71	118	7.9
	2500	76	116	8.5	71	115	8.0	67	115	7.5
	2400	68	111	7.6	64	110	7.1	60	109	6.7
	2300	60	105	6.8	57	105	6.4	54	104	6.1
	2200	54	100	6.1	51	99	5.9	48	98	5.7
	2100	48	94	5.6	46	93	5.5	44	92	5.3
6000	2600	---	---	---	75	120	8.4	71	120	7.9
	2500	72	116	8.1	67	115	7.6	64	114	7.1
	2400	64	110	7.2	60	109	6.8	57	109	6.4
	2300	57	105	6.5	54	104	6.2	52	103	5.9
	2200	51	99	5.9	49	98	5.7	47	97	5.5
	2100	46	93	5.5	44	92	5.4	42	91	5.2
8000	2650	---	---	---	75	122	8.4	71	122	7.9
	2600	76	120	8.6	71	120	8.0	67	119	7.5
	2500	68	115	7.7	64	114	7.2	60	113	6.8
	2400	61	110	6.9	58	109	6.5	55	108	6.2
	2300	55	104	6.2	52	103	6.0	50	102	5.8
	2200	49	98	5.7	47	97	5.5	46	96	5.4
10,000	2650	76	122	8.5	71	122	8.0	67	121	7.5
	2600	72	120	8.1	68	119	7.6	64	118	7.1
	2500	65	114	7.3	61	114	6.8	58	112	6.5
	2400	58	109	6.5	55	108	6.2	52	107	6.0
	2300	52	103	6.0	50	102	5.8	48	101	5.6
	2200	47	97	5.6	45	96	5.4	44	95	5.3
12,000	2600	68	119	7.7	64	118	7.2	61	117	6.8
	2500	62	114	6.9	58	113	6.5	55	111	6.2
	2400	56	108	6.3	53	107	6.0	51	106	5.8
	2300	50	102	5.8	48	101	5.6	46	100	5.5
	2200	46	96	5.5	44	95	5.4	43	94	5.3

TAKE OFF DISTANCE SHORT FIELD

CONDITIONS: Flaps up | Full throttle prior to brake release | Paved, Level, Dry runway | Zero wind

MAXIMUM WEIGHT	IAS LIFT OFF	IAS AT 15M (50ft)	PRESSURE ALTITUDE FT	PRESSURE ALTITUDE M	0°C / 32°F GROUND ROLL M	0°C / 32°F TOTAL TO CLEAR 15M OBS M	10°C / 50°F GROUND ROLL M	10°C / 50°F TOTAL TO CLEAR 15M OBS M	20°C / 68°F GROUND ROLL M	20°C / 68°F TOTAL TO CLEAR 15M OBS M	30°C / 86°F GROUND ROLL M	30°C / 86°F TOTAL TO CLEAR 15M OBS M	40°C / 104°F GROUND ROLL M	40°C / 104°F TOTAL TO CLEAR 15M OBS M
1043kg	99km/h 52kt 60mph	109km/h 59kt 68mph	Sea Level		219	396	236	424	255	454	273	485	293	518
			1000	305	241	433	259	465	279	497	299	532	320	566
			2000	610	264	474	283	509	305	546	328	584	352	626
			3000	914	290	521	312	559	335	600	361	645	387	690
			4000	1219	319	573	353	617	369	663	396	712	427	765
			5000	1524	351	632	378	683	407	735	437	791	469	852
			6000	1829	386	703	416	757	450	817	483	882	520	953
			7000	2134	427	782	460	844	497	914	535	989	576	1071
			8000	2438	472	875	511	948	550	1029	593	1119	639	1216

LANDING DISTANCE SHORT FIELD

CONDITIONS: Flaps 40° | Power off | Maximum braking | Paved, Level, Dry runway | Zero wind

WEIGHT	IAS At 15M (50ft)	PRESSURE ALTITUDE FT	PRESSURE ALTITUDE M	0°C / 32°F GROUND ROLL M	0°C / 32°F TOTAL TO CLEAR 15M OBS M	10°C / 50°F GROUND ROLL M	10°C / 50°F TOTAL TO CLEAR 15M OBS M	20°C / 68°F GROUND ROLL M	20°C / 68°F TOTAL TO CLEAR 15M OBS M	30°C / 86°F GROUND ROLL M	30°C / 86°F TOTAL TO CLEAR 15M OBS M	40°C / 104°F GROUND ROLL M	40°C / 104°F TOTAL TO CLEAR 15M OBS M
1043kg	111km/h 60kt 69mph	Sea Level		151	367	155	376	162	386	166	395	172	405
		1000	305	155	376	162	386	168	396	172	405	178	416
		2000	610	162	386	168	396	174	407	180	418	186	428
		3000	914	168	396	174	407	180	418	186	428	192	439
		4000	1219	174	407	183	416	187	430	194	440	200	451
		5000	1524	180	418	187	431	194	442	200	453	207	465
		6000	1829	187	431	195	443	201	454	209	468	215	479
		7000	2134	195	443	201	456	209	468	216	480	223	492
		8000	2438	203	457	210	469	216	482	224	494	232	507

3.5 Take-off & landing limitations - LEG 2

- No 15m obstacle clearance in the threshold taken into consideration.

	RWY distances:			
	Ava. distance	Req. distance	Units	Alt [ft]
RWY Take-off	2500	279	m	1152
RWY ldng	2825	180	m	3367

- Different airstrips available for an emergency landing along the route.
- Bold: recommended and alternate airfields

Enroute strips:		
	RWY distance: [m]	**Altitude: [ft]**
Calamocha	**1000**	**3000**
Torremocha	500	3500
Valdecebro	540	3800
Mollerusa	260	942
LECH	**2682**	**1182**

2.6 VMC requirements to operate a flight

TABLA DE CONDICIONES DE VISIBILIDAD Y DISTANCIA DE NUBES DE VUELOS VFR TABLE OF CONDITIONS OF VISIBILITY AND DISTANCE FROM CLOUDS IN VFR FLIGHTS				
Altitud Altitude	Clases de Espacio Aéreo Airspace class	Visibilidad de vuelo Flight visibility	Distancia de nubes Distance from clouds	
			Horizontal	Vertical
A, o por encima, de FL100 At or above FL100 (*)	B C D E F G	8 km	1.500 m	300 m (1000 ft)
Entre FL100 y 900 m (3000 ft) AMSL ó 300 m (1000 ft) AGL, de ambos valores el mayor. Between FL100 and 900 m (3000 ft) AMSL or 300 m (1000 ft) AGL, whichever is higher.		5 km		
A, o por debajo, de 900 m (3000 ft) AMSL ó 300 m (1000 ft) AGL, de ambos valores el mayor. At and below 900 m (3000 ft) AMSL or 300 m (1000 ft) AGL, whichever is higher.	B C D E			
	F G	5 km (**)	Libre de nubes y con la superficie a la vista. Clear of clouds and in sight of the surface.	

Minimum VMC to operate at an aerodrome:

- Except when operating as special VFR flights or helicopters, no take off or landing will be taken at any aerodrome within a control zone (CTR), nor will one enter the aerodrome traffic zone (ATZ) or the traffic circuit. aerodrome when:

  1. The cloud ceiling is less than 450 M (1500 FT), or:
  2. Visibility on the ground is less than 5 KM.

- No helicopter will operate when:
  1. The cloud ceiling is less than 300 FT.
  2. Visibility is less than 1500 m.

3.6 Meteorological Data - LEG 2

❑ Departure:

METAR: LEDA 250930Z 11003KT 9999 FEW015 SCT040 20/19 Q1018

❑ Arrival:

METAR: LETL 250930Z AUTO 15007KT 100V180 4300 HZ ////// 19/15 Q1021
TAF: LETL 250500Z 2506/2606 17009KT 9999 SCT020 TX25/2512Z TN11/2506Z
TEMPO 2506/2509 4000 TS SHRA FEW040CB PROB40
TEMPO 2506/2508 3000 BR BKN010
BECMG 2509/2511 23012KT

❑ Alternative:

METAR: LECH 291200Z AUTO 13008KT 080V160 CAVOK 24/15 Q1025
TAF: *not available*

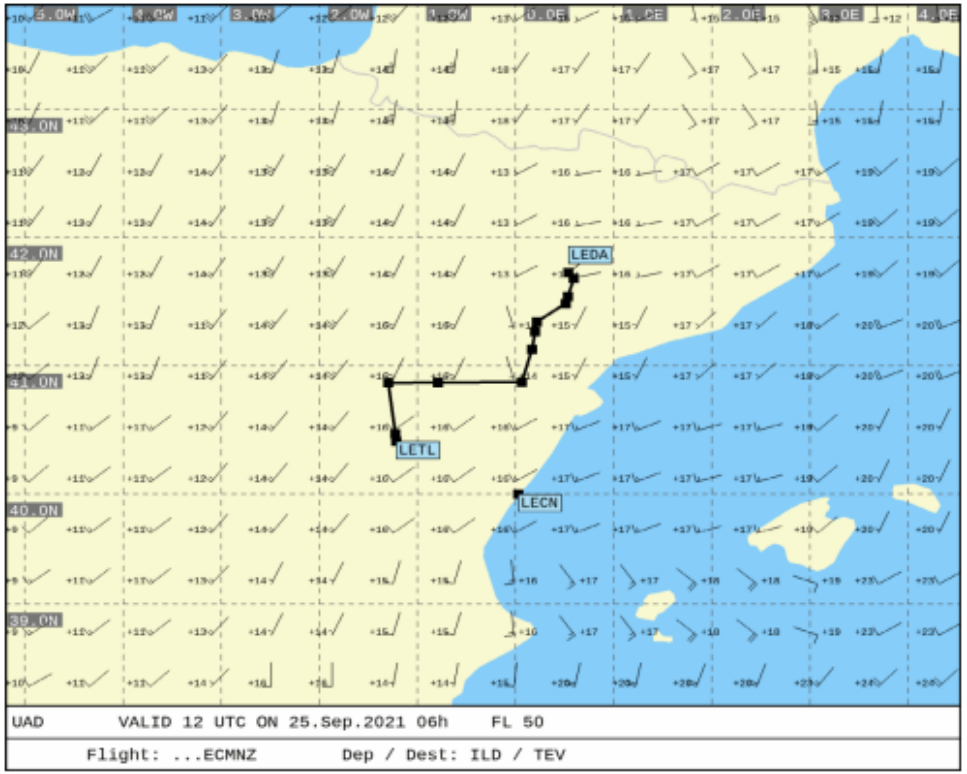
LEDA :
Vertical visibility ok, some clouds [0<2/8] at 1400ft → operable airport.

LETL:
METAR visibility bellow 5 Km due to haze.
TAF visibly Ok, scattered clouds [3/8,4/8] at 2000ft bellow our flying altitude. Temporally Thunderstorms and rain can take place. → operable airport however might divert to LECH.

LECH:
CAVOK → operable airport

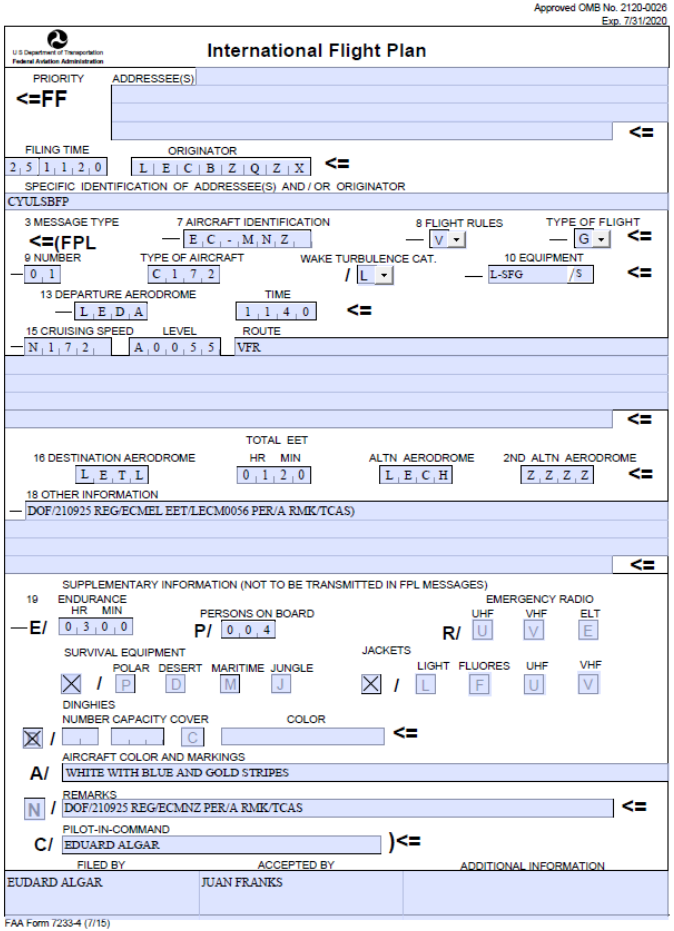
3.6 Meteorological Data - LEG 2

- Winds aloft at A50.
- No sigmets available for this flight envelope.



3.7 ICAO flight plan

- ICAO flight plan.
- Briefing of the previous data exposed.



Approved OMB No. 2120-0026
Exp. 7/31/2020

U.S Department of Transportation
Federal Aviation Administration

International Flight Plan

PRIORITY: <=FF
ADDRESSEE(S):
FILING TIME: 251120
ORIGINATOR: LECBZQZX
SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND / OR ORIGINATOR: CYULSBFP
3 MESSAGE TYPE: <=(FPL
7 AIRCRAFT IDENTIFICATION: EC-MNZ
8 FLIGHT RULES: V
TYPE OF FLIGHT: G
9 NUMBER: 01
TYPE OF AIRCRAFT: C172
WAKE TURBULENCE CAT.: L
10 EQUIPMENT: L-SFG /S
13 DEPARTURE AERODROME: LEDA
TIME: 1140
15 CRUISING SPEED: N172
LEVEL: A0055
ROUTE: VFR
TOTAL EET
16 DESTINATION AERODROME: LETL
HR MIN: 0120
ALTN AERODROME: LECH
2ND ALTN AERODROME: ZZZZ
18 OTHER INFORMATION: DOF/210925 REG/ECMEL EET/LECM0056 PER/A RMK/TCAS)
SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)
19 ENDURANCE HR MIN: E/ 0300
PERSONS ON BOARD: P/ 004
EMERGENCY RADIO: R/ UHF U VHF V ELT E
SURVIVAL EQUIPMENT: / POLAR P DESERT D MARITIME M JUNGLE J
JACKETS: / LIGHT L FLUORES F UHF U VHF V
DINGHIES: / NUMBER CAPACITY COVER C COLOR
AIRCRAFT COLOR AND MARKINGS: A/ WHITE WITH BLUE AND GOLD STRIPES
REMARKS: N / DOF/210925 REG/ECMNZ PER/A RMK/TCAS
PILOT-IN-COMMAND: C/ EDUARD ALGAR)<=

FILED BY	ACCEPTED BY	ADDITIONAL INFORMATION
EUDARD ALGAR	JUAN FRANKS	

FAA Form 7233-4 (7/15)

3.8 NOTAMs

LEDA:

B7094/21
ATS (TWR) HR OF OPS
SEP 24,26: 0500-1800
SEP 25: 0500-1800 AND 2030-2230 + 2HR PPR
SEP 27-30: 0500-2130

B7066/21
REF AIP **AD** 2 LEDA PDC CHART DOES NOT CORRESPOND WITH CURRENT
CONFIGURATION

B6593/21
SEP 03 2130-2230, SEP 02 06-09 13-16 20-23 27-30 1800-2130
MET BRIEFING ON THE SPOT **NOT AVBL**. METAR AUTO

B6543/21
ACFT STANDS 5 AND 6 **CLSD**

LECH:

B6736/21: ***Castellon: Movement area : miscellaneous plain language***
Q)
LECB/QMAXX/IV/M/A/000/999/4013N00004E005
NEW PAVED SURFACE NOT USABLE LOCATED AT 1080M FM
THR RWY06, ON RIGHT SIDE
FROM: 18 Sep 2021 06:00 GMT (08:00 CEST) TO: 06 Oct 2021 23:59 GMT (07 Oct 01:59 CEST)

B6913/21: ***Castellon: Aerodrome hours of service***
Q)
LECB/QFAAH/IV/NBO/A/000/999/4013N00004E005
AD HOURS OF OPERATIONS IN PUBLIC USE.
MON-SUN 0600-1800 PS 2HR PPR
(REF AIRAC SUP 55/21
FROM: 18 Sep 2021 19:36 GMT (21:36 CEST) TO: 30 Oct 2021 23:59 GMT (31 Oct 01:59 CEST)

- For more LECB FIR NOTAMs see the annex.

3.8 NOTAMs

B6951/21: ***Castellon: Fuel availability hours of service***
Q) LECB/QFUAH/IV/NBO/A/000/999/4013N00004E005
FUEL HOURS OF OPERATION
MON, TUE, WED, THU, SAT: 0600-1800
FRI: 1200-1800
SUN: 0600-1200
2HR EXTENSION: AVBL PPR 12HR
FUEL SUPPLY OUT OF SCHEDULE: AVBL PPR 48HR
FROM: 20 Sep 2021 16:31 GMT (18:31 CEST) TO: 30 Oct 2021 18:00 GMT (20:00 CEST)

B7077/21: ***Castellón costa Azahar: Fire fighting and rescue hours of service***
Q) LECB/QFFAH/IV/NBO/A/000/999/4013N00004E005
RFFS CAT 1 IN AD HOURS OF PUBLIC USE OPERATION: 0600-1800.
EXC SEP 24: 1345-1545 CAT 7
EXC SEP 25: 1100-1300 CAT 7
EXC SEP 26: 0600-0830 CAT 7
(REF AIRAC SUP 55/21
FROM: 24 Sep 2021 05:32 GMT (07:32 CEST) TO: 30 Oct 2021 23:59 GMT (31 Oct 01:59 CEST)

4.Conclusions

- ❑ Very limited performance.
- ❑ Aircraft on published limits.
- ❑ Chances to drop PAXs or payload when the airfield conditions worsen.
- ❑ Need to refuel in Lleida.

All documentation showed and used for this project is available inside the compressed folder