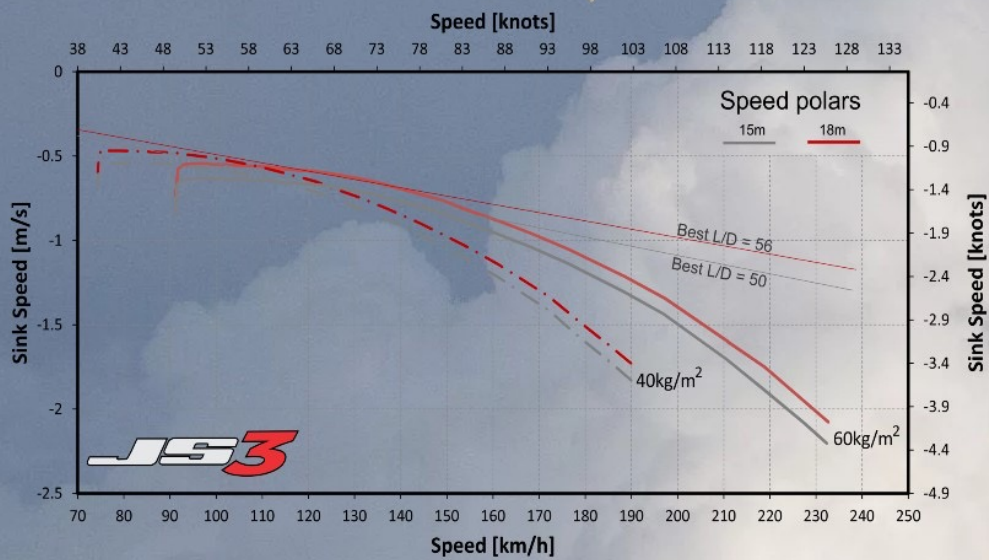


JS3 RES

ETT ÅR MED EL-DRIFT



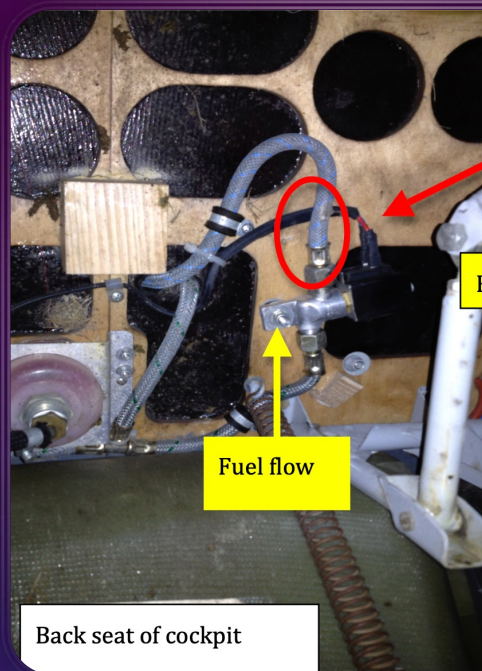


Ronny Eriksson, 40år, 2700tim, 3300 st.
SLG/SSG 1000tim 600st 80st T.utel.
Flyginstruktör till 2022, IMC, AVA

Erfarenhet av SLG / SSG

- Discus bT SSG
- Twin III SL SLG
- Windex 1200C SLG
- Ask 21Mi SSG
- ASH 25Mi SLG
- Duo Discus XLT SSG
- DG800 SLG
- Stemme S10 SLG/TMG
- JS1 C –JET, SSG
- Ventus 2cxt SSG
- Arcus M SLG
- DG 1001M SLG





Leakage when refueling

Fuel valve. Auto / on / off

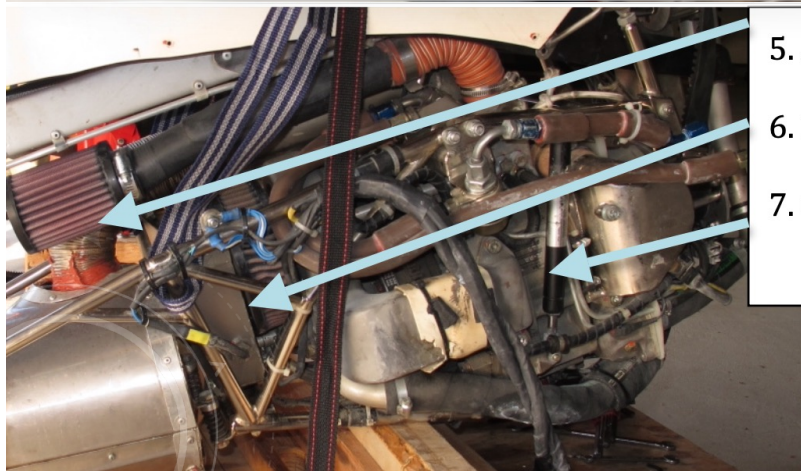
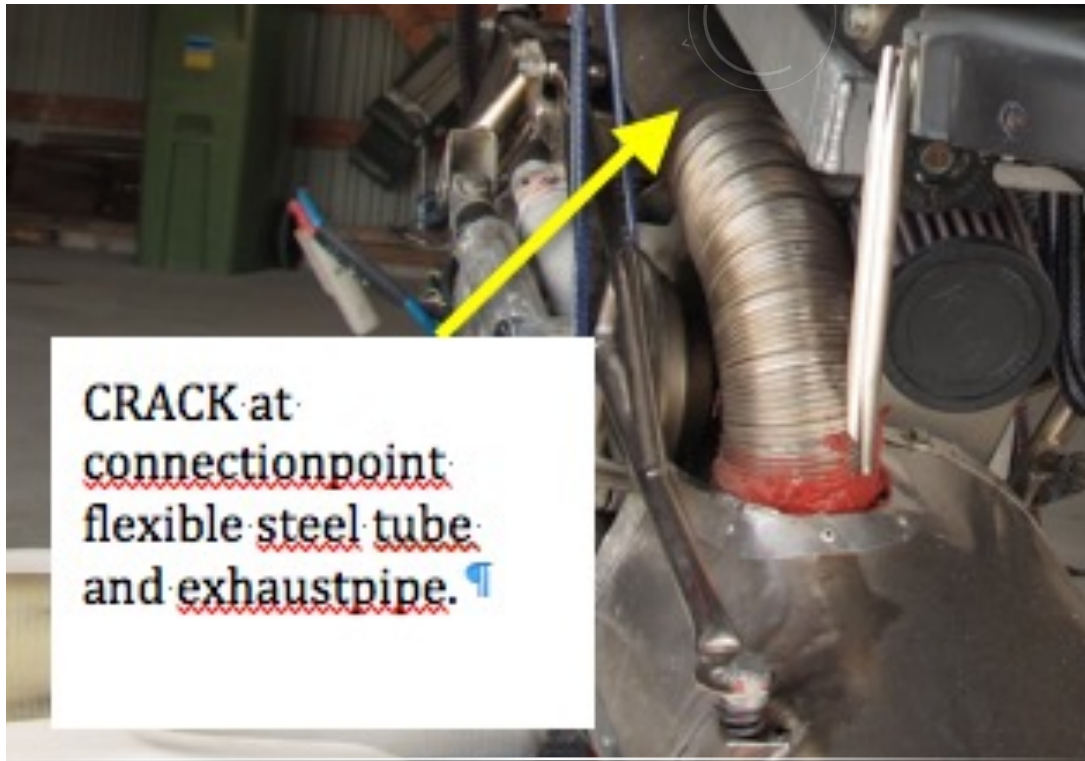
Fuel flow

Back seat of cockpit

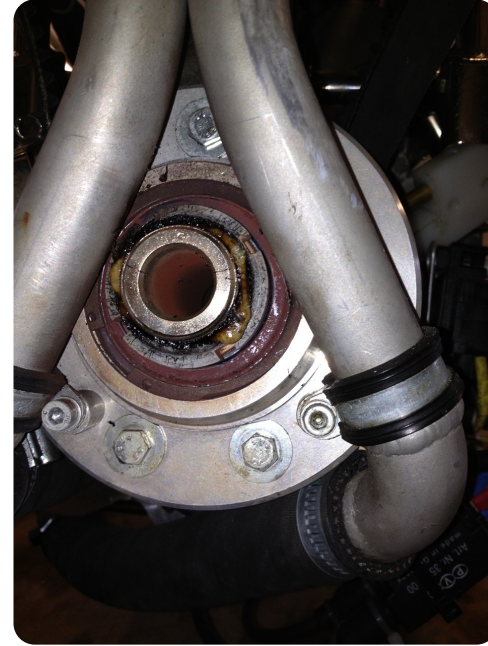
FOSSILA LIVET MED SSG / SLG



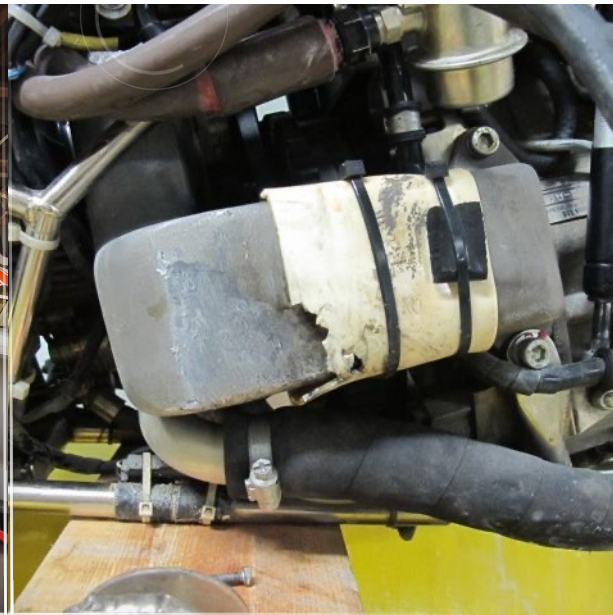
2. Right side pulley guide ring has broken.



FOSSILA LIVET MED SSG / SLG



FOSSILA LIVET MED SSG / SLG



I MEK Å MOTVIND

ELEKTRISKA LIVET MED SLG DÅ?



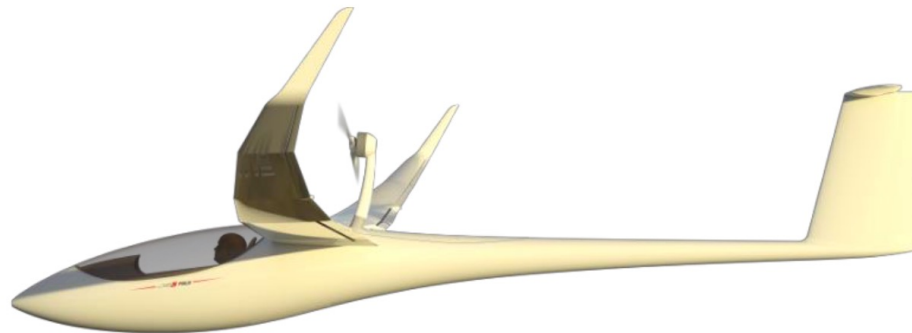
JS3 RES (REAR ELECTRIC SYSTEM)



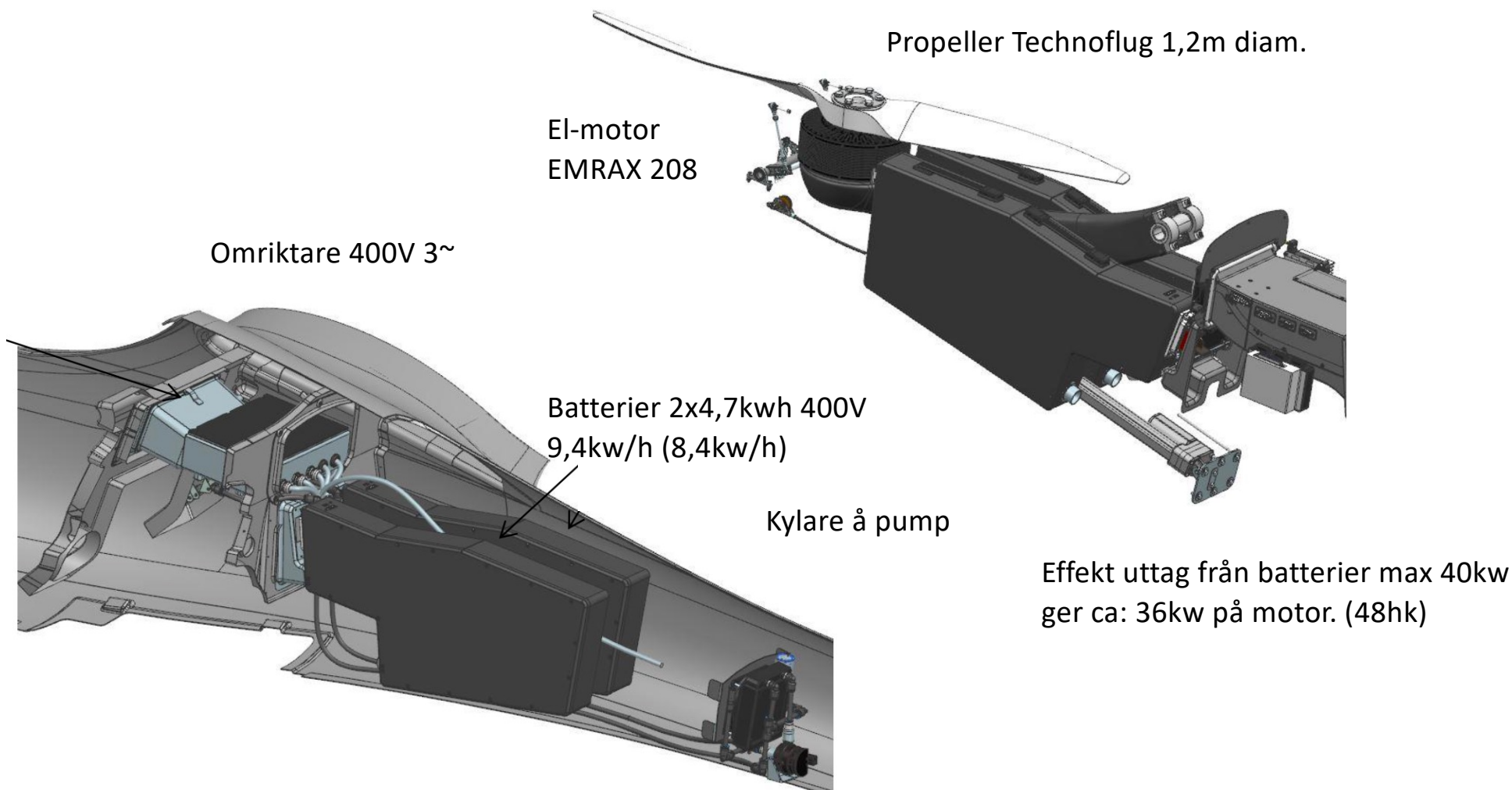
SPEKIFIKATION

System technical data	
Propulsion system	SOLO Electric Propulsion System 80400
Propeller Type	Technoflug KS-1C-120-R-065-S
Battery type	EMECTRIC BM 384 (96S4P)
Maximum RPM	4350
Max power for take-off (2 batteries)	40 kW
Max continuous climb power (2 batteries)	25 kW
Max power (1 battery)	25 kW
Max continuous power (1 battery)	12.5 kW
Complete system mass – no batteries	~24 kg (53 lbs)
Maximum Motor temperature	120 °C
Maximum Controller temperature	85 °C
Maximum HV Batteries temperature	70 °C

Table 1-1 RES Technical Data

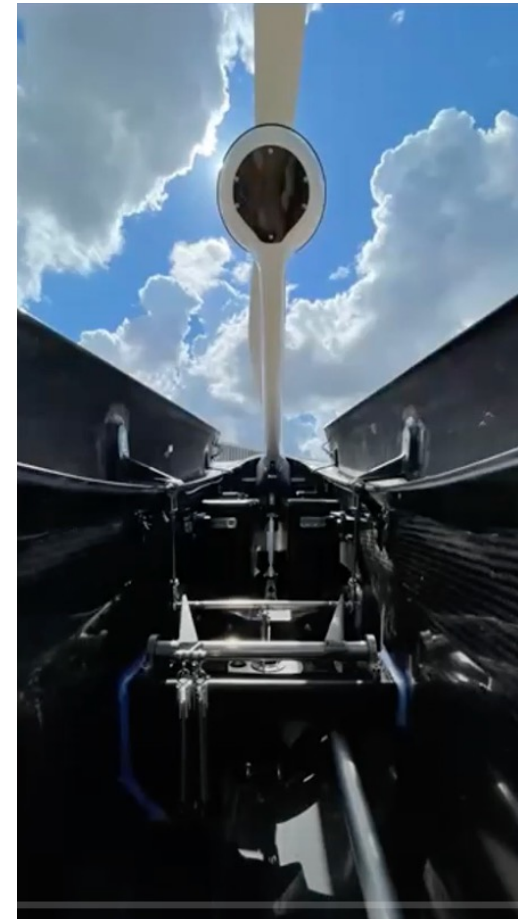
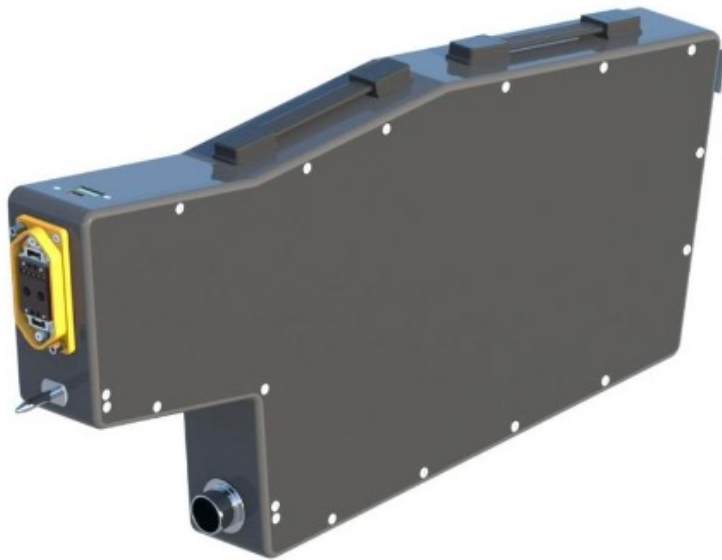


ELEKTRISKA DRIVLINAN



ELEKTRISKA LIVET MED SLG

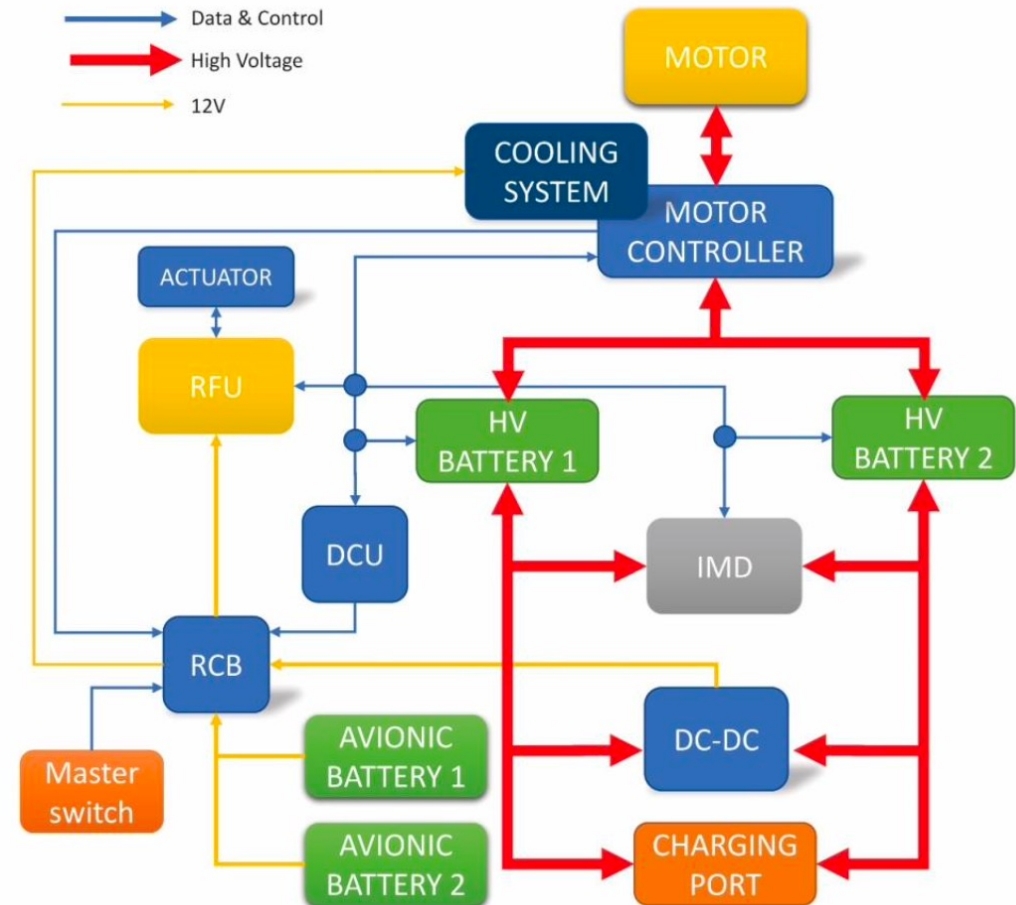
Batterier Li-Ion 2 x 4,7kwh 25k/g st
9,4kw/h (8,4kw/h utnyttjbart)
Energiuttag begränsas för att förlänga livslängd.



ELEKTRISKA LIVET MED SLG

The electrical components interact with each other as illustrated in Figure 2-4:

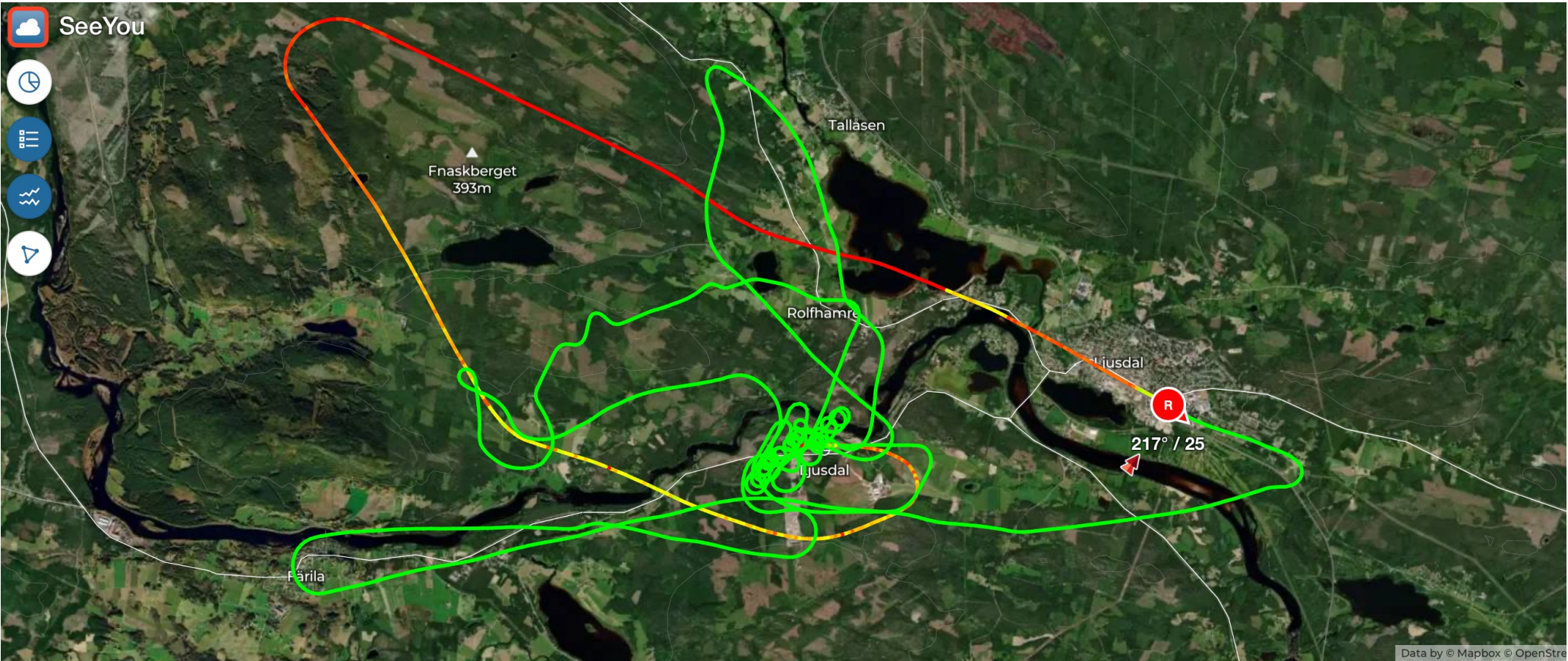
- HV Batteries (removable)
- Avionic Batteries (removable)
- Display and control unit (DCU)
- Motor Controller assembly
- Cooling system
- RES Control Board (RCB)
- DC-DC converter (400 V - 12 V)
- Retraction and Fuses Unit (RFU)
- Insulation monitoring device (IMD)





24% / start
523m / start

	IN	UT	% / start	m/%	typ	span	Bana	höjd	M-tid	M-sek	m/s
1					AFT	15m	Asfalt	422	00:02:43	163	2,59
2	82	52	30%	16,27	AFT	15m	Gräs	488	00:03:20	200	2,44
3	100	75	25%	19,72	AFT	18m	Gräs	493	00:03:30	210	2,35
4	99	84	15%	29,33	AFT	18m	Asfalt	440	00:01:53	113	3,89
5	99	79	20%	18,65	P1	18m	Asfalt	373	00:02:42	162	2,30
6	100	81	19%	19,58	P2	18m	Asfalt	372	00:02:33	153	2,43
7	100	75	25%	20,60	CD	18m	Asfalt	515	00:04:01	241	2,14
8	100	76	24%	22,04	CD	18m	Asfalt	529	00:04:13	253	2,09
9	100	75	25%	23,88	CD	18m	Asfalt	597	00:03:47	227	2,63
10	99	76	23%	23,22	CD	18m	Asfalt	534	00:03:59	239	2,23
11	100	75	25%	18,76	CD	18m	Asfalt	469	00:03:26	206	2,28
12	100	74	26%	21,96	CD	18m	Asfalt	571	00:04:08	248	2,30
13					P1	18m	Gräs	460	00:03:14	194	2,37
14					P2	18m	Gräs	845	00:07:17	437	1,93
15	100	75	25%	23,00	CD	18m	Gräs	575	00:03:42	222	2,59
16	100	70	30%	21,90	CD	18m	Gräs	657	00:05:04	304	2,16
17	100	74	26%	24,69	CD	18m	Gräs	642	00:04:42	282	2,28
18	100	76	24%	25,50	CD	15m	Gräs	612	00:03:54	234	2,62
19	99	51	48%	27,58	T.UT	15m	A-tow	1324	00:09:24	564	2,35
20	93	79	14%	25,71	AFT	18m	Gräs	360	00:02:50	170	2,12
21	100	4	96%	23,96	Max	18m	Gräs	2300	00:17:49	1069	2,15
22	97	4	93%	25,63	Max	18m	Asfalt	2384	00:18:53	1133	2,10
23					AFT	18m	Asfalt	496	00:05:30	330	1,50
Medel alla			32%	22,74%				725,55	0:05:19	319,27	2,38
Medel filter			32%	22,74%				725,55	00:05:19	319,27	2,38



UTC +2: 11:15:25

Vario avg. ▼

Engine noise l... ▼

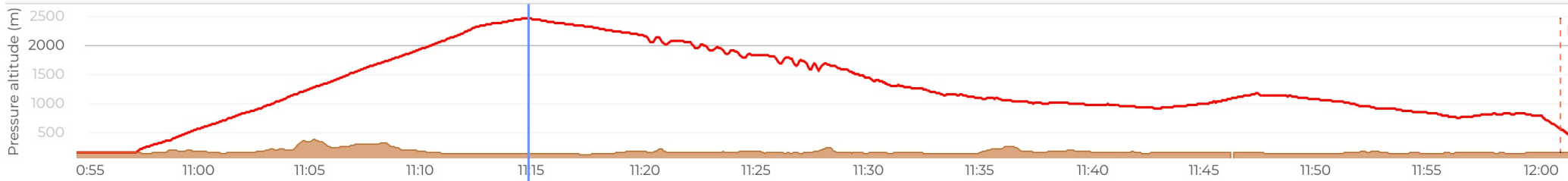
AGL ▼

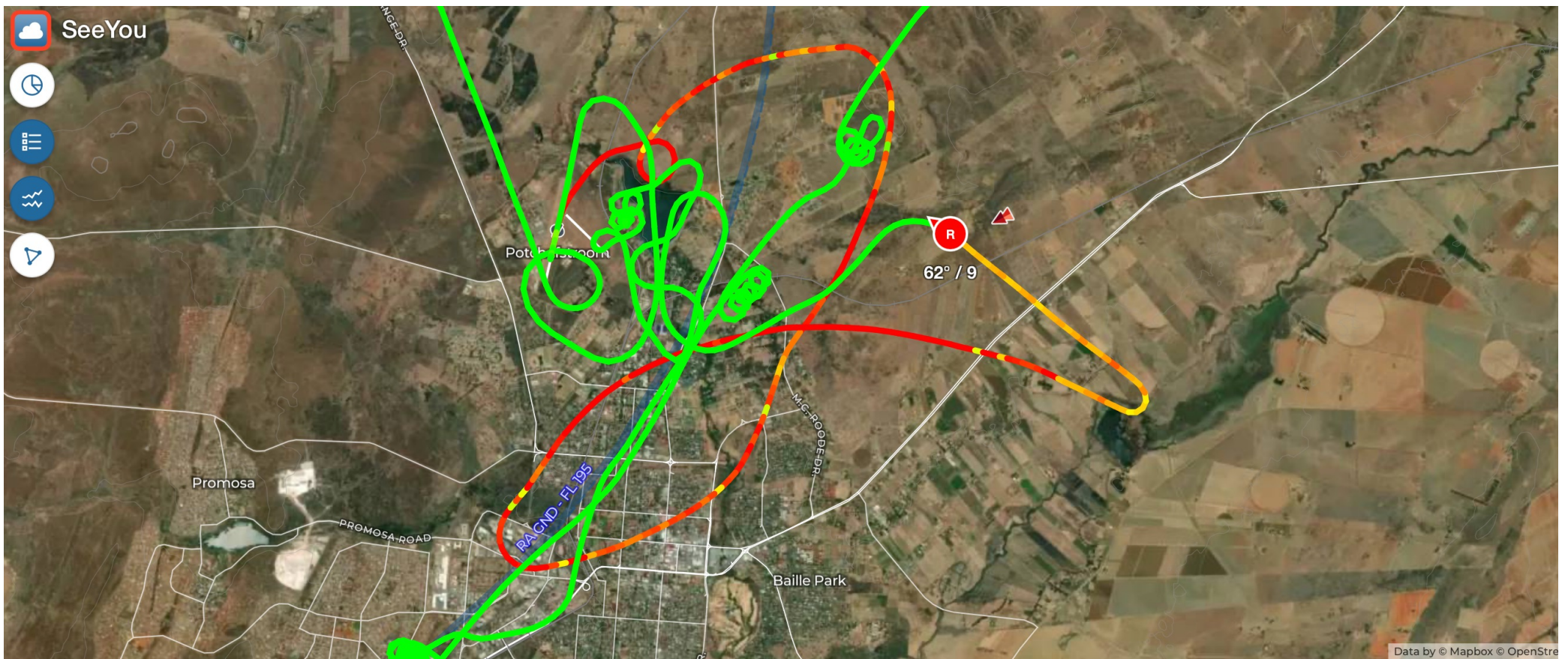
● RONNY ERIKSSON R

2.2 m/s

82

2322 m





UTC +2: 12:54:14

Vario avg. ▾

Engine noise l... ▾

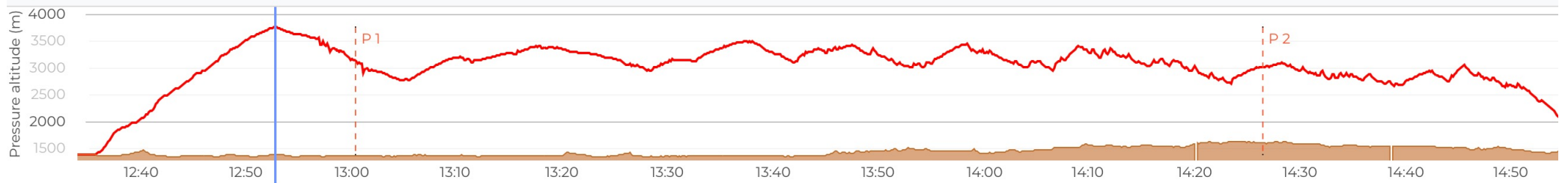
AGL ▾

● RONNY ERIKSSON

2.1 m/s

504

2372m





	IN	UT	% / start	m/%	typ	span	Bana	höjd	M-tid	M-sek	m/s
1					AFT	15m	Asfalt	422	00:02:43	163	2,59
2	82	52	30%	16,27	AFT	15m	Gräs	488	00:03:20	200	2,44
18	100	76	24%	25,50	CD	15m	Gräs	612	00:03:54	234	2,62
19	99	51	48%	27,58	T.UT	15m	A-tow	1324	00:09:24	564	2,35
Medel alla			32%	22,68%				725,55	0:05:19	319,27	2,38
Medel filter			34%	23,12%				711,50	00:04:50	290,25	2,50

2,50m/s 15m
2,35m/s 18m



	IN	UT	% / start	m/%	typ	span	Bana	höjd	M-tid	M-sek	m/s
1					AFT	15m	Asfalt	422	00:02:43	163	2,59
2	82	52	30%	16,27	AFT	15m	Gräs	488	00:03:20	200	2,44
3	100	75	25%	19,72	AFT	18m	Gräs	493	00:03:30	210	2,35
4	99	84	15%	29,33	AFT	18m	Asfalt	440	00:01:53	113	3,89
5	99	79	20%	18,65	P1	18m	Asfalt	373	00:02:42	162	2,30
6	100	81	19%	19,58	P2	18m	Asfalt	372	00:02:33	153	2,43
13					P1	18m	Gräs	460	00:03:14	194	2,37
14					P2	18m	Gräs	845	00:07:17	437	1,93
20	93	79	14%	25,71	AFT	18m	Gräs	360	00:02:50	170	2,12
23					AFT	18m	Asfalt	496	00:05:30	330	1,50
Medel alla			32%	22,68%				725,55	0:05:19	319,27	2,38
Medel filter			21%	21,54%				472,56	00:03:20	200,22	2,49

Energiåtgång
21%

Manual anger ca: 25%
till 450m.

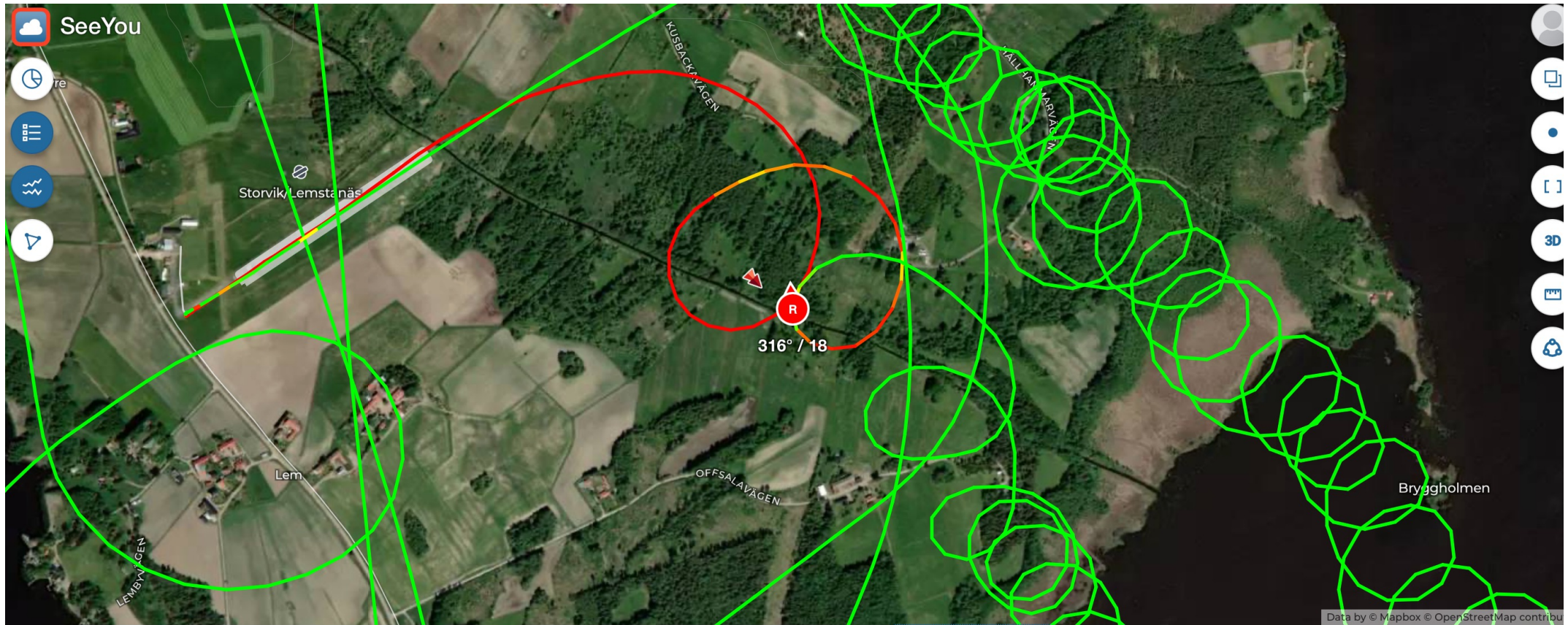
Höjd
472m

Tid
3m20s



	IN	UT	% / start	m/%	typ	span	Bana	höjd	M-tid	M-sek	m/s
2	82	52	30%	16,27	AFT	15m	Gräs	488	00:03:20	200	2,44
3	100	75	25%	19,72	AFT	18m	Gräs	493	00:03:30	210	2,35
13					P1	18m	Gräs	460	00:03:14	194	2,37
14					P2	18m	Gräs	845	00:07:17	437	1,93
15	100	75	25%	23,00	CD	18m	Gräs	575	00:03:42	222	2,59
16	100	70	30%	21,90	CD	18m	Gräs	657	00:05:04	304	2,16
17	100	74	26%	24,69	CD	18m	Gräs	642	00:04:42	282	2,28
18	100	76	24%	25,50	CD	15m	Gräs	612	00:03:54	234	2,62
20	93	79	14%	25,71	AFT	18m	Gräs	360	00:02:50	170	2,12
Medel alla			32%	22,68%				725,55	0:05:19	319,27	2,38
Medel filter			25%	22,40%				570,22	00:04:10	250,33	2,32

25% Gräs fält
22% Asfalt



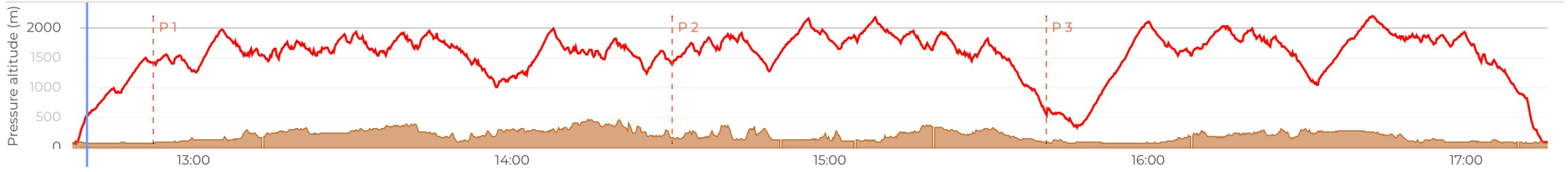
UTC +2: 12:42:48

Vario avg. ▼

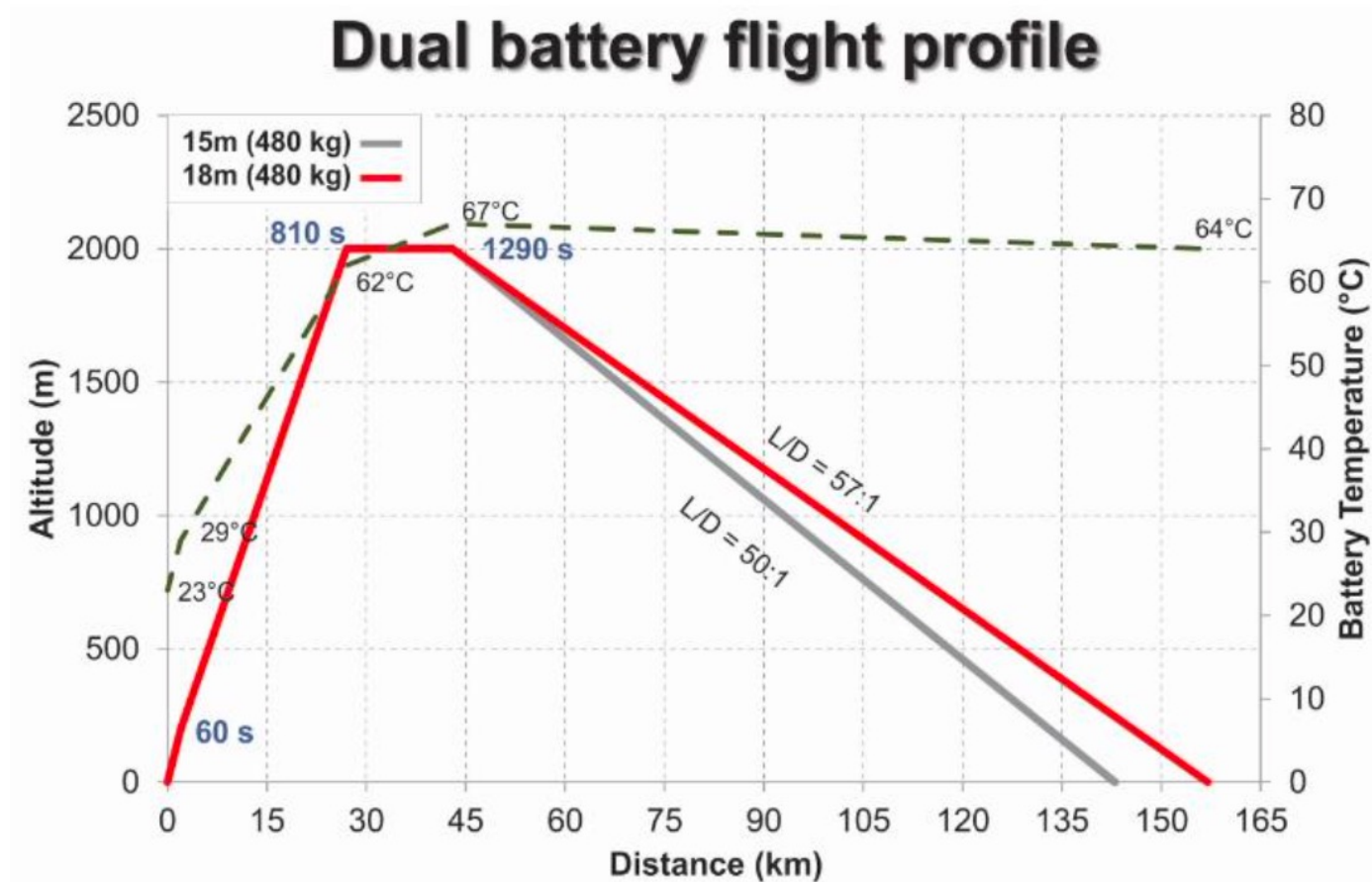
Engine noise I... ▼

AGL ▼

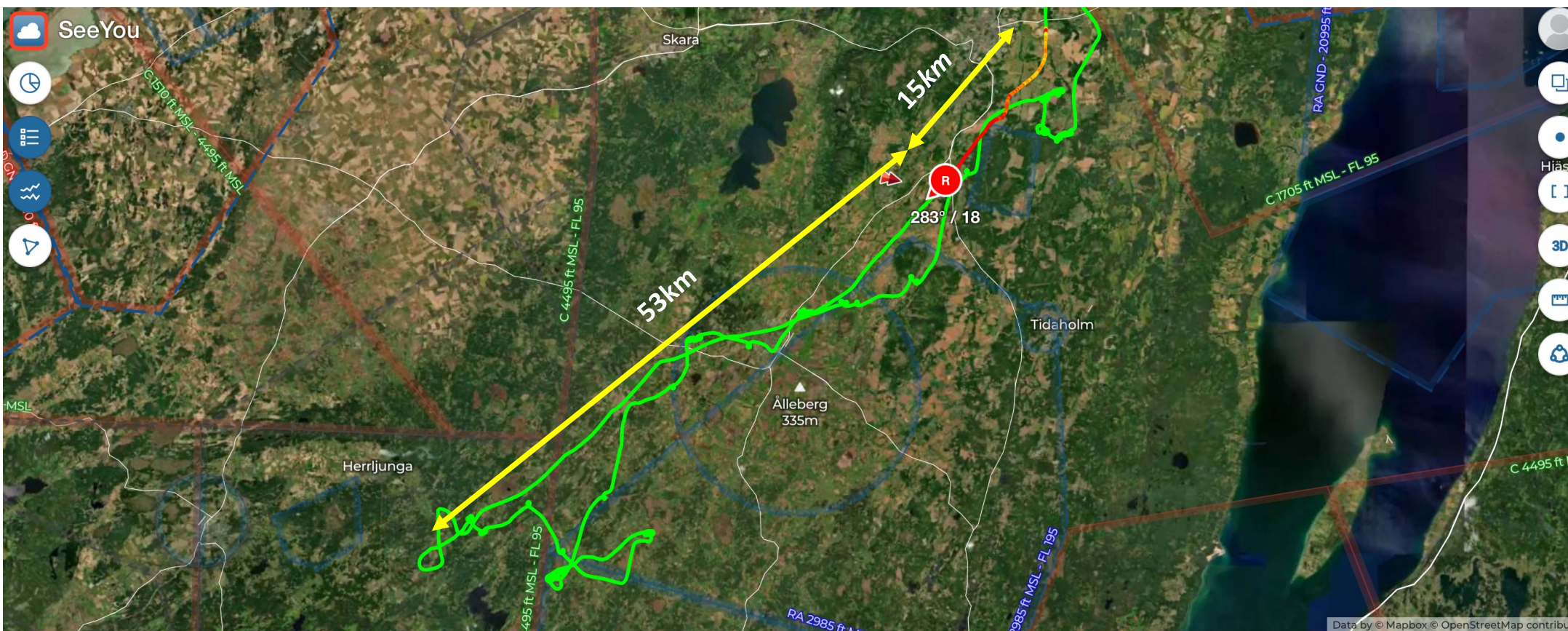
● RONNY ERIKSSON R 4.5 m/s 178 436 m [↓](#)



RÄCKVIDSÅNGEST?



Cruise, level flight.
8kw, 120km/h
120km räckvidd,



UTC +2: 14:26:27

Vario avg. ▾

Engine noise l... ▾

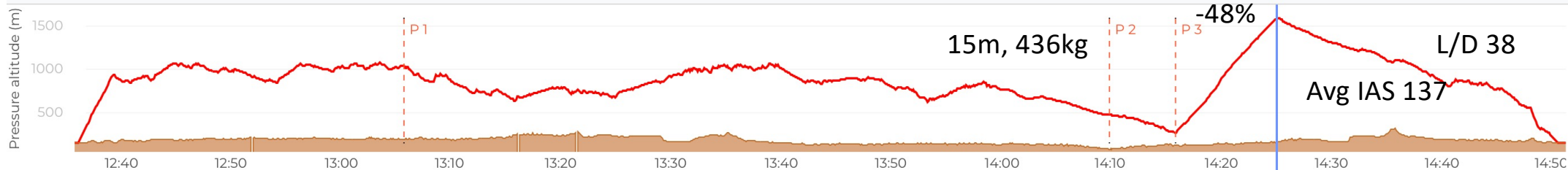
AGL ▾

● RONNY ERIKSSON R

2.4 m/s

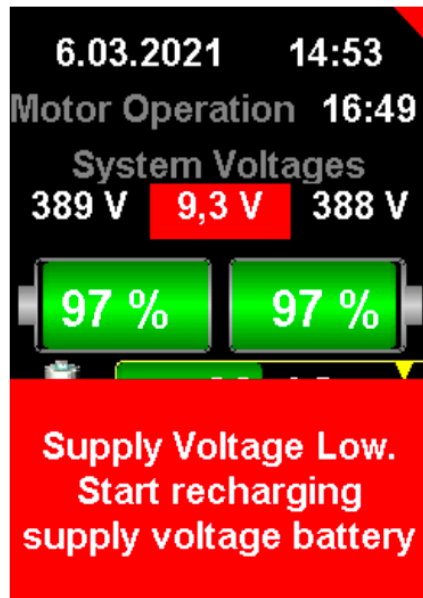
694

1417m 47% kvar



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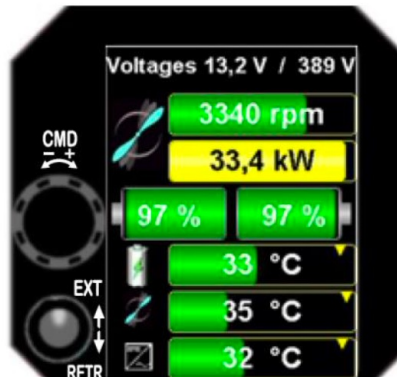
! Läs FM och MM, för att få systemförståelse.



Parameter	Limitation
Maximum take-off weight (MTOW)	18 m: 575 kg (1267.7 lbs) 15 m: 525 kg (1157.4 lbs)
Minimum HV Battery State of Charge (SOC) for take-off	60%
Minimum pre-take off HV Battery temperature	0 °C (32 °F)
Maximum pre-take off HV Battery temperature	32 °C (90 °F)
12V battery supply minimum voltage	12.8 V

Table 2-5 Dual Battery Self-launch Limitations

ERFARENHETER



RPM
Power supplied by batteries
Battery State of Charge (SOC)
Battery temperature
Motor temperature
Controller temperature

Operating limits are displayed in green when in the normal operating range, in yellow when in the caution range, and in red indicating the maximum limit has been exceeded:

	Green	Yellow	Red
RPM	0-4000	4000 - 4350	4350
Power	0 - 25 kW (0 - 33.5 hp)	25 - 40 kW (33.5 - 53.6 hp)	40 kW (53.6 hp)
Motor temperatures	-15 – 105 °C (5 – 221 °F)	105 – 120 °C (221 – 248 °F)	120 °C (248°F)
Controller temperatures	-15 – 75 °C (5 – 167 °F)	75 – 85 °C (167 – 185 °F)	85 °C (185 °F)
HV battery temperatures	0 – 60 °C (32 – 140 °F)	60 – 70 °C (140 – 158 °F)	70 °C (158 °F)

Table 2-3 Display of Limitations for Dual Battery Operation

2.4 Powerplant Limitations

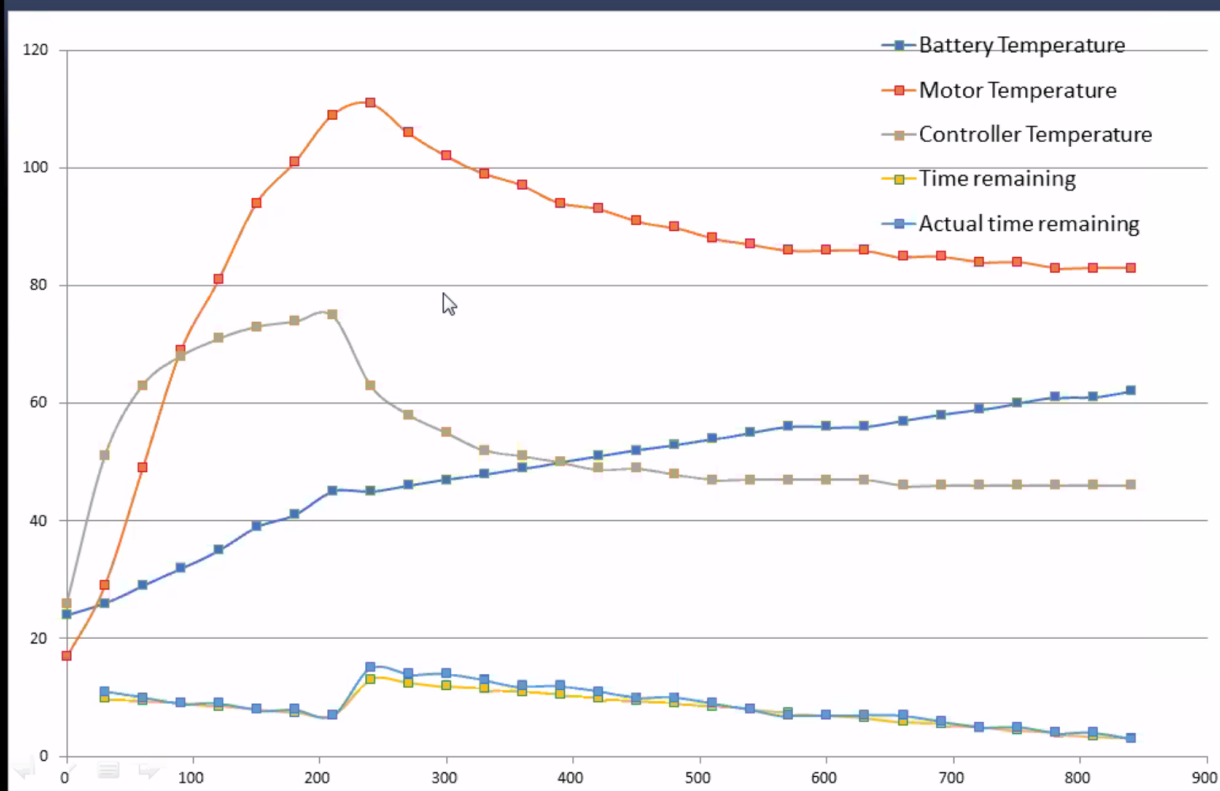
Parameter	Limitation
Maximum propeller speed	4350 RPM
Maximum propeller speed (Rain conditions)	3800 RPM
Maximum motor temperature	120 °C (248 °F)
Maximum controller temperature	85 °C (185°F)
Maximum HV battery temperature	70 °C (158 °F)
Maximum operating altitude (AMSL)	Same as airframe
Minimum HV battery temperature for take-off	0 °C (32 °F)
Maximum HV battery temperature for take-off	32 °C (90 °F)
Maximum time for MP	60s (2 battery configuration) 240s (1 battery configuration)

Table 2-4 Powerplant Limitations

- CAUTION:** When applying power, the battery temperature will continuously increase until the maximum allowable temperature is reached.
- CAUTION:** Operation of the RES system is prohibited if component temperatures are less than -15°C (5°F)

ERFARENHETER

JS3 RES Temperatures – 25kW



ERFARENHETER

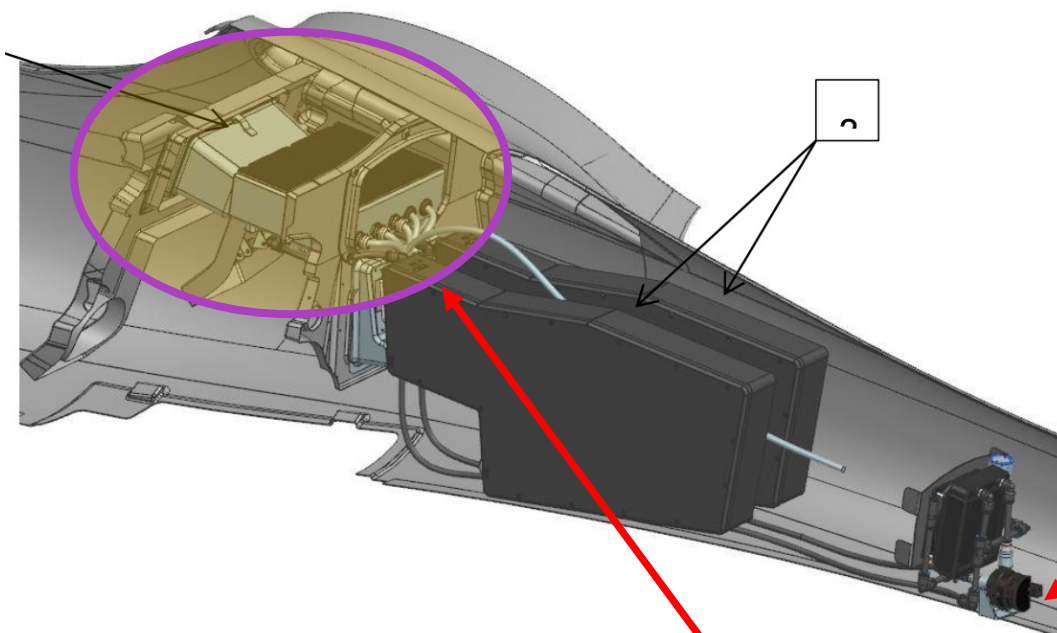


10 APPENDIX – List of Warnings/Cautions

The following table shows the priority of the messages.

WARNINGS / ERRORS	
Propeller overspeed !!! Reduce Power	RPM >4350 U/Min. Reduce power or speed
Supply Voltage too high!	Voltage exceeds 15.0 V. Wrong battery type used or charge control inside PRS is damaged.
Interlock Circuit not closed!!! Check Connectors	During system startup, the interlock circuit is not closed. Check connectors to charger and batteries.
Battery DRAINED Connect charger!	The battery is in safety state. No motor operation is possible.
Battery Empty Stop Motor	The state of charge of one battery is below 2 %.
Battery TOO HOT Stop Motor	Battery temperature is too high for operation. Danger of permanent damage to the battery.
No Data from the charger	No CAN message from the charger.
No Data from Isometer	No CAN message from isometer. Danger of electric shock.
Isometer defect!	Self test of isometer unsuccessful. Danger of electric shock.
Isometer Ground Failure!	Isometer has a bad connection to LV-ground rail. The danger of electric shock.
Insulation Problem!!!!	Insulation between high voltage rail and low voltage rail below the minimum of 100 kΩ. Danger of electric shock.
No Data from RFU!	No CAN message from RFU
No Data from the Motor controller	No CAN message from Motor Controller
No Data from Battery A	No CAN message from left battery.
No Data from Battery B	No CAN message from right battery.
Watchdog Reset	Software error detected. DCU restarted automatically.
No Communication	CAN-Bus Fault. Check wiring.
Supply Voltage Low. Start recharging supply voltage battery	The supply voltage is below 10.0 V. Switch on the recharging process via the System Screen.
Retraction Mechanism Error!	Possible causes: • Current to spindle exceeds OEM-adjustable limit. • The spindle is switched on but there is no feedback → The spindle seems to be blocked.
Retraction Mechanism Timeout! Spindle blocked?	Spindle was powered for more seconds that OEM Adjustable limit.
Precharge Timeout! Service Disconnect?	Voltage on high voltage rail does not reach battery voltage in time. Main relay cannot be closed.
MC: BAD PARAMETER	Damaged Parameter
MC: POWER FAULT	Overall message of hardware monitoring 1
MC: RFE FAULT	Safety circuit faulty (only active with RUN)
MC: BUS TIMEOUT	CAN-Bus timeout
MC: FEEDBACK	Resolver signal faulty or missing
MC: POWER VOLTAGE	Power voltage missing
MC: MOTOR TEMP Reduce Power Instantly!	Motor temperature too high (> 115 °C)
MC: DEVICE TEMP	Device temperature too high (> 80 °C)

ERFARENHETER

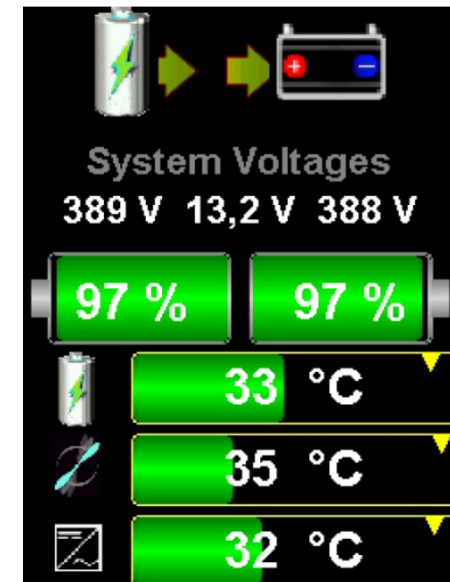


Kylare å
vattenpump
kyler omriktare,

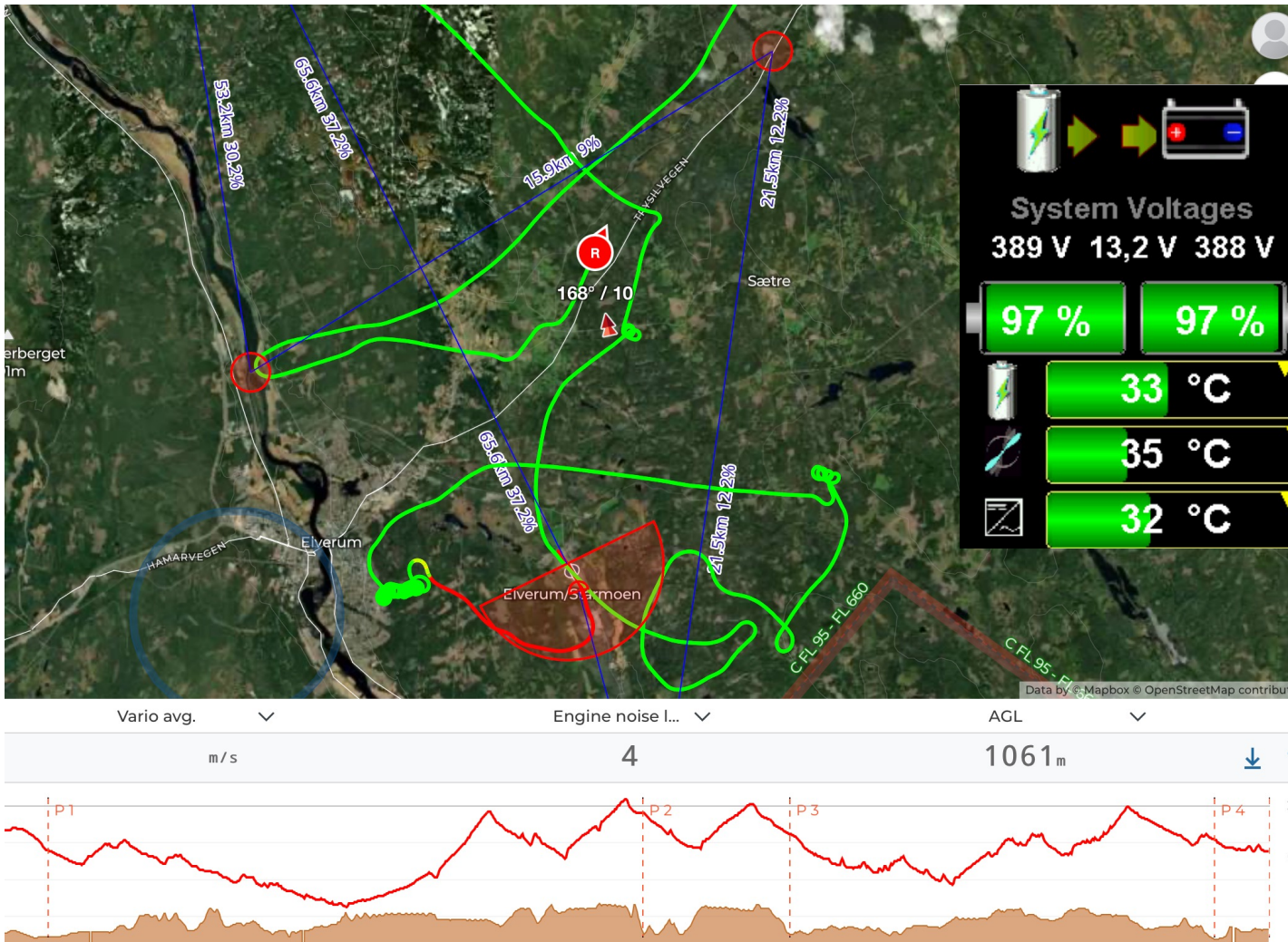


ERFARENHETER

- Check all bugs are out of the system (pilot, plane, avionics) Pre Take off!
- Don't change your daily routine.
- Pay attention on Briefing.
- Don't start with avionics batteries uncharged.
- Don't rush into the task after start line.
- Even if the first thermal isn't 4m/s Average take it to the top!
- Check direction and weather on next leg before turning at the turnpoint.
- Make sure your mind have agreed with what the Navigation computer show.
- Don't push to catch up lost grounds.



ERFARENHETER



6.03.2021 14:53
 Motor Operation 16:49
 System Voltages
 389 V 9,3 V 388 V
 97 % 97 %
**Supply Voltage Low.
 Start recharging
 supply voltage battery**

?

TACK

Vi syns i luften

