CIVL 2025 PLENARY – ANNEXE 32
SAFETY OFFICER PROPOSAL: PERFORMANCE EQUALIZERS FOR PG XC

Background

Since the beginning of competition small and light pilots were penalized by aerodynamic factors that force them to ballast to be competitive. The discussion on the argument lasts since decades and a lot of proposals were made. The last, rejected 2 years ago, was about creating a lightweight class.
This is the last one and I believe it could work: give and aerodynamic penalization to heavier pilots to reduce their top performance at the same level of the lightest.
I know, it looks weird to study and develop high performance gliders and then to reduce these performances. Unfortunately aerodynamic is physics: you can improve the lightest pilots ballasting them or you can penalize the heaviest. Ballast could be dangerous and everyone of us saw in the past some light girl taking off with a lead and water load equal to her body weight.
As a result, girls and light male pilots are hurting themselves and/or stopping to compete. It is logical to guess that others don't dare coming to compete for the same reason
It is like car racing: how can 1600 cc engine compete with a 2000 cc? We need to find a fair handicap.
The equalizers suggested and discussed in the past months look a good solution: simply by installing different lengths we can balance the gliders without ballast and providing a fair playground for everyone.
Objections

- big gliders have less handling and are penalized in small thermals.
  - As you can see in the pictures, the polars are not totally overlapped and the big gliders have a (limited) advantage at high speed to compensate less handling
- pilots spend thousands of euros to be have the best gear and it unfair to penalize them
  - On the other hand is unfair (and unsafe) to force small persons to overload to be competitive and it is equal to provide all pilots the same chance to win.
  - the device is easy to install and to remove. So during "no competition" flights pilots can achieve the best performance from their gear.
- it could be dangerous, it must be tested
  - Ozone and the DHV made some tests and no safety problems was reported till now. But it is true: we need test. So the proposal now only to "allow" organizers to use these devices. At the end of the season we can evaluate the results.
- Different brands has different features and equalizers must be balanced
  - No, the physics behind the difference of performance with size are the same for all. So it's fair to use the same equalizers for all manufacturers. This physics can't be avoided by the wing design, it's called "scale effect" and it's easy to explain/calculate and to agree between manufacturers.
- It is just mathematics, how can we check the numbers?
  - True. Manufacturer can make a cross check but this is the basic question to discuss

Proposal of changes in Section 7 G: to add chapter 4.2 and appendix A
Current chapter 4 becomes 4.1
A new chapter 4.2 is added:
4.2 Performance Equalizers

To balance different size performances, organizers are allowed to use equalizers.
A performance equalizer is a foam cylinder, with external diameter of 2.5 cm.
It is linked to the B maillon rapide and inserted in B1 line.

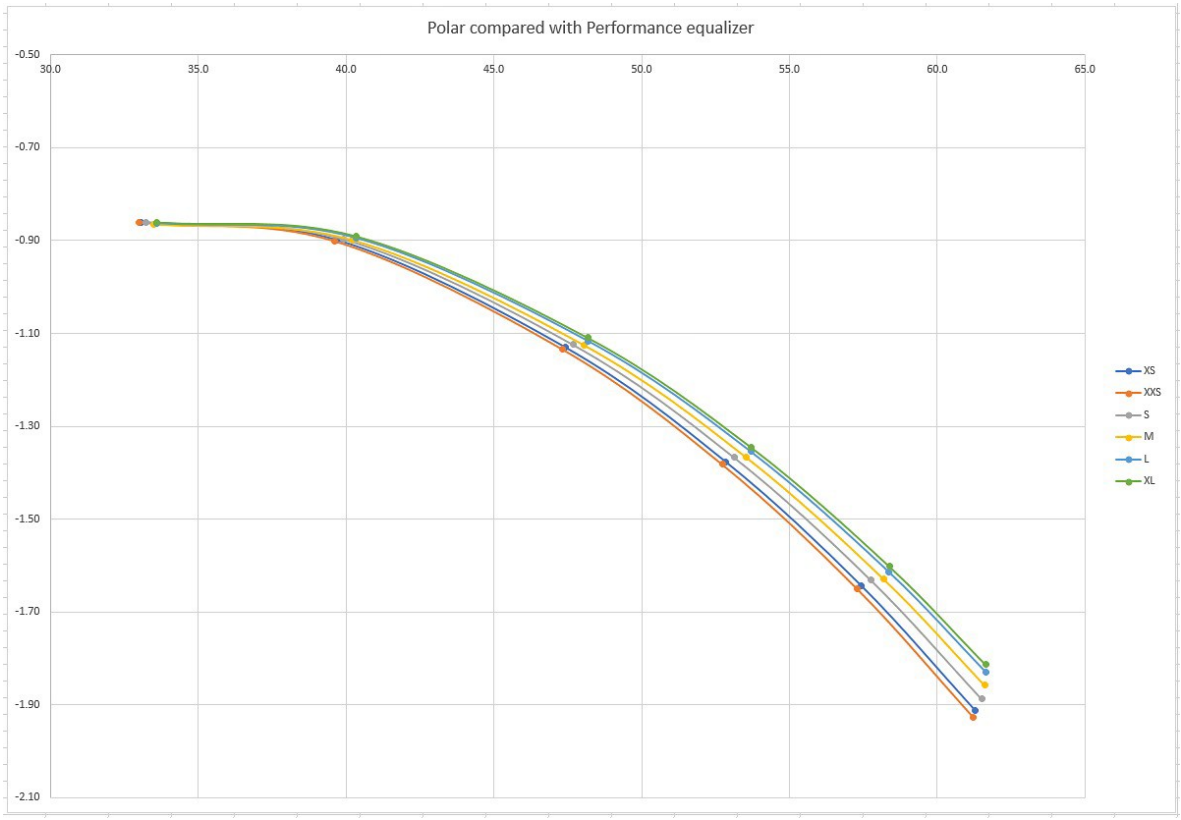
Formula: equalizer_length = (rounded_MTOW-90)/25*55

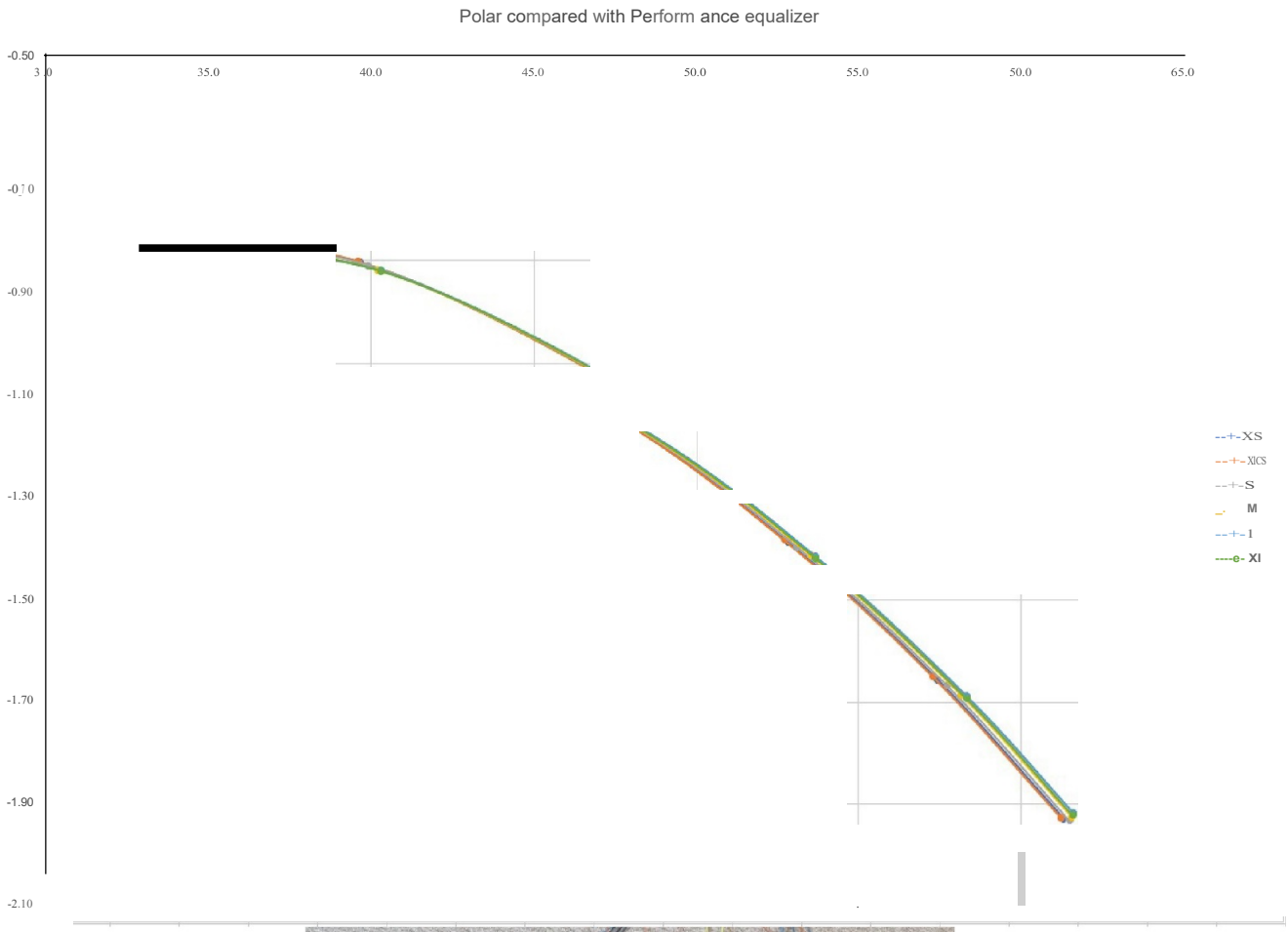
MTOW: maximum take off weight rounded to the next 2,5 kg unit

Fabio Loro

Example of equalizers lengths for current gliders

Equalizers attribution table									
Glider Max allowed Weight		Equalizer Stacked Length (mm) (one pair required)	2.5 kg graduation printed on Staked Equalizer	Number of printed tube pairs to give at registration	**wing models exemple**				
>	< or =				Ozone Enzo3	Ozone Zeno2	Niviuk X-One	Niviuk Peak 6	Gin Boomerang 12
0	**90**				XXS	XS, S		21	
90	**92,5**	55	1	1					
92,5	**95**	110	2	1	XS		20		S
95	**97,5**	165	3	1					
97,5	**100**	220	4	1		MS		22	
100	**102,5**	275	5	1					
102,5	**105**	330	6	1	S		22		SM
105	**107,5**	385	7	2					
107,5	**110**	440	8	2		ML		24	
110	**112,5**	495	9	2			24		M
112,5	**115**	550	10	2	M				
115	**117,5**	605	11	2					ML
117,5	**120**	660	12	2			25		
120	**122,5**	715	13	3					
122,5	**125**	770	14	3	L	XL		25	
125	**127,5**	825	15	3					L
127,5	**130**	880	16	3	XL				
130	**132,5**	935	17	3					
132,5	**135**	990	18	3			26		
135	**137,5**	1045	19	4					XL
137,5	**140**	1100	20	4					




Polar compared with Perform ance equalizer
-0.50
35.0
40.0
45.0
50.0
55.0
50.0
65.0
-0.90
-1.10
-1.30
-1.50
-1.70
-1.90
-2.10
XS
S
M
I
XI