CCC Document - Annex B

General principle for CCC glider controls

- Processes, documents and any modification are published on the CIVL website.

- Reliable measurement instruments and processes must be in place before the controls are fully implemented in Category 1 competition.

- Measures are taken by the Test Laboratories after the flight tests. Test Laboratories verify that the Manufacturer Manual measurements comply with the tolerances.

- Once they are verified, the Test Laboratories send the Manufacturers Manual measurements to CIVL in a template .xls file. These measurements are the basis of CIVL controls. Tolerances applied are specified in the CCC document.

- The glider User's Manual must include the same measurements as the Manufacturer Manual.

- Pilots are reminded that modifications that take a glider outside certification are not permitted (Section 7 - 11.1.2), whether the modified part of the glider is controlled or not.

- Controls others than described here can be done if thought necessary.

- Controls are done after a complaint or at the discretion of the Meet Director. Pilots must make available the glider or other equipment for checking, immediately upon any such request. It is suggested that:
    - Task winners' gliders are controlled.
    - If such gliders have already been controlled, they can be controlled again (primarily lines only). In this case, gliders arriving 2nd are also controlled.
    - Podium gliders are controlled (primary lines only if they have already been controlled).
    - Meet Directors anticipate and control potential podium gliders before the final day, so on this day only primary lines have to be controlled.

Example of gliders controls during the competition

Step 1: on site

Full span
Trailing edge
Chord 1
Inlet top 1
Inlet bottom 1
Tab Aa 1
Tab Ab 1
Tab B 1
Tab C 1
Chord 8
Inlet top 8
Inlet bottom 8
Tab Aa 8
Tab Ab 8
Tab B 8
Tab C 8
Stabilo A
Stabilo B
Stabilo C
Risers neutral
Risers accelerated
Lines length
Lines diameters (not everyone, a few at random choice)
...

Step 2: on site, if needed

Check with other supposed valid glider (other generation?)
Tension band, diagonals, reinforcements, material...
Glider aspect when flat on ground
...

Step 3

Glider is sent to Test Laboratory for complete check.

Example of data from Test Laboratories

Brand	**Butterfly**
Model	**Magic Flower**
Size	**Small**
CCC certification n°	**CCC 20140816 0001**
Certification date	**2014 08 16**

Canopy dimensions

	Rib n° from center	Mm	Tension
Full Span		12802	3 Kg
1/2 Tailing Edge		6490	3 Kg
Chord of first rib with lines	3	2098	1 Kg
Top of inlet of first rib with lines	3	1938	1 Kg
Bottom of inlet of first rib with lines	3	1915	1 Kg
Chord of last rib with lines Group 2	26	1328	1 Kg
Top of inlet of last rib with lines Group 2	26	1224	1 Kg
Bottom of inlet of last rib with lines Group 2	26	1209	1 Kg
Chord stabilo with lines	41	716	1 Kg

From trailing edge to tab

Chord first rib with lines could be different for A & B	**Rib n° from center**	**Mm**	**Tension**
Tab Aa	4	1825	1 Kg
Tab Ab	4	1722	1 Kg
Tab B	3	839	1 Kg
Tab C	4	489	1 Kg

Chord first rib with lines Group B could be different for A & B	**Rib n° from center**	**Mm**	**Tension**
Tab Aa	26	1386	1 Kg
Tab Ab	26	1284	1 Kg
Tab B	26	741	1 Kg
Tab C	26	358	1 Kg

Chord last stabilo with lines from center	**Rin n° fromcenter**	**Mm**	**Tension**

Tab A	41	625	1 Kg
Tab B	41	287	1 Kg

Absolute line length from bottom riser to canopy

Rib with lines n°	Aa	Ab	Ba	Bb	C	BRAKES
Aa1.Ab 1.Bb1.C 1	7289	7256	7242	7337	8500	
Aa2.Ab 2.Bb2.C 1	7166	7132	7108	7215	8223	
3	7128	7094	7081	7215	8068	
4	7175	7144	7175	7300	8049	
5	7062	7035	7034	7164	7900	
6	6952	6926	6918	7048	7801	
7	6907	6883	6887	7012	7754	
8	6941	6920	6963	7061	7866	
9	6741		6727		7731	
10	6656		6656		7683	
11	6586		6621		7730	
12	6569		6651		7858	
13	6506		6570			
14	6490		6567			

Riser length

Figure 2 & 3 CCC 7.4.1	A1, A2	A3, Stab	B1, B2, B3	Tension
Neutral	520	520	520	5 Kg
Accelerated	400	456	514	5 Kg

Table of lines: suppliers name and reference

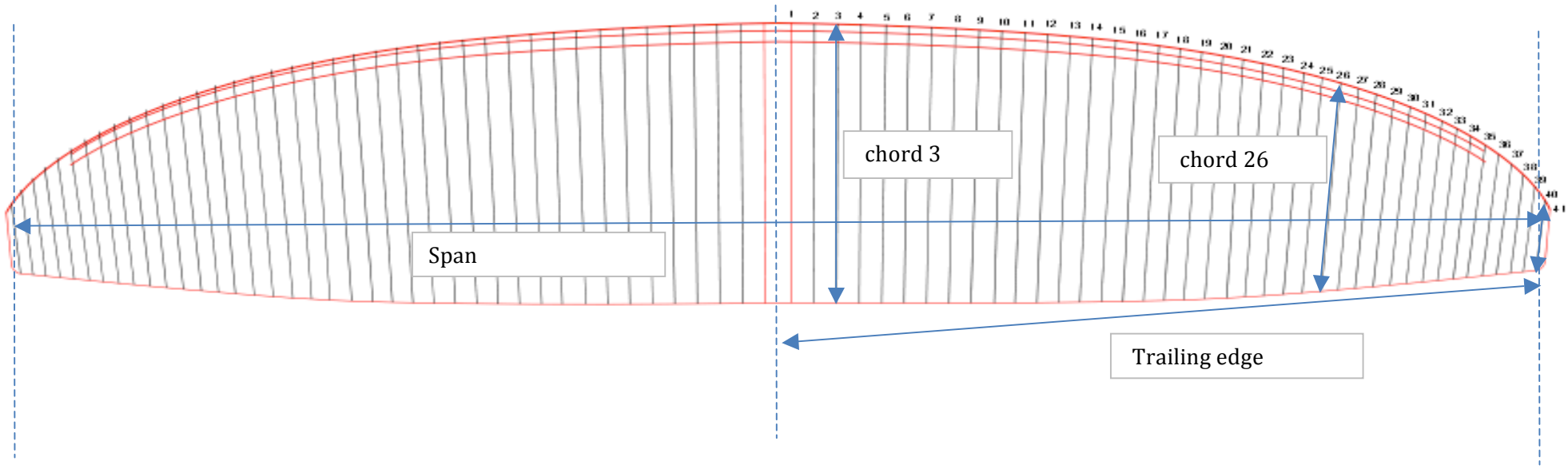
Ref. A	Mat.	Ref. B	Mat.	Ref. C	Mat.	Ref. D	Mat.	Ref. BRAKE	Mat.
a1	8000	b1	8000	c1	8000	d1	8000	br1	DC
a2	8000	b2	8000	c2	8000	d2	8000	br2	DC
a3	8000	b3	8000	c3	8000	d3	8000	br3	DC
a4	8000	b4	8000	c4	8000	d4	8000	br4	DC
a5	8000	b5	8000	c5	8000	d5	8000	br5	DC
a6	8000	b6	8000	c6	8000	d6	8000	br6	DC
a7	8000	b7	8000	c7	8000	d7	8000	br7	DC
a8	8000	b8	8000	c8	8000	d8	8000	br8	DC
a9	8000			c9	8000			br9	DC

a10	8000			c10	8000	br10	DC
a11	8000			c11	8000		
a12	8000			c12	8000		
a13	8000			c13	8000		
A1	12240	C1	8000				
A2	12240	C2	8000				
A3	12240	C3	8000				
A4	12240	C4	8000				
A5	12240	C5	8000				
A6	12240	C6	8000				
A7	12240	C7	8000				
A8	12240	C8	8000				
A9	8000						
A10	8000						
Stab	8000						
2a1	12470	1c1	16330				
2a2	12470	1c2	12470				
2a3	12470	1c3	12470				
2a4	12470	1c4	16330				
2a5	16330	1c5	8000				
		1c6	8000				
3a1	12950	2c1	16560				
3a2	12950	2c2	16560				
3a3	16330	2c3	12240				

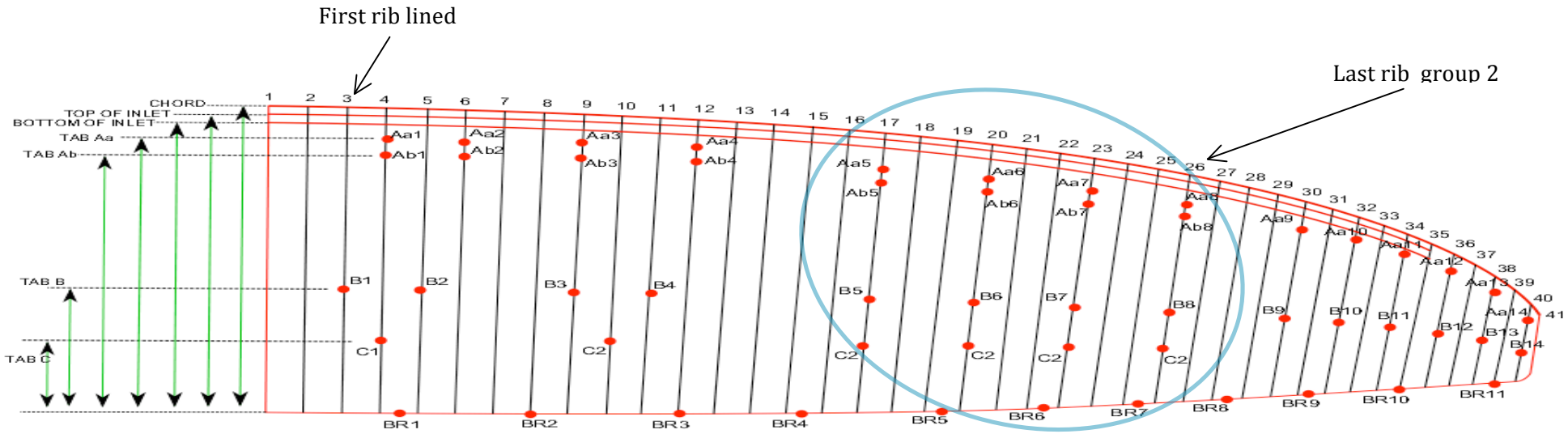
Suspension lines	**Fabric code**	**Supplier**
Upper cascades	DC-040	Liros GMHB (Germany)
Upper cascades	8000-045	Edelrid (Germany)
Upper cascades	8000-060	Edelrid (Germany)
Middle cascades	DC-040	Liros GMHB(Germany)
Middle cascades	8000-045	Edelrid (Germany)
Middle cascades	8000-060	Edelrid (Germany)
Middle cascades	8000-080	Edelrid (Germany)
Middle cascades	8000-080	Edelrid (Germany)
Middle cascades	16140-070	Cousin (France)
Middle cascades	12240-115	Cousin (France)
Middle cascades	16330-145	Cousin (France)
Main	12240-115	Cousin (France)
Main	16330-145	Cousin (France)
Main	16560-240	Cousin (France)
Main	12950-405	Cousin (France)
Main break	TNL-280	Teijim limited (Japan)

Pictures & drawings requested from Test Laboratories

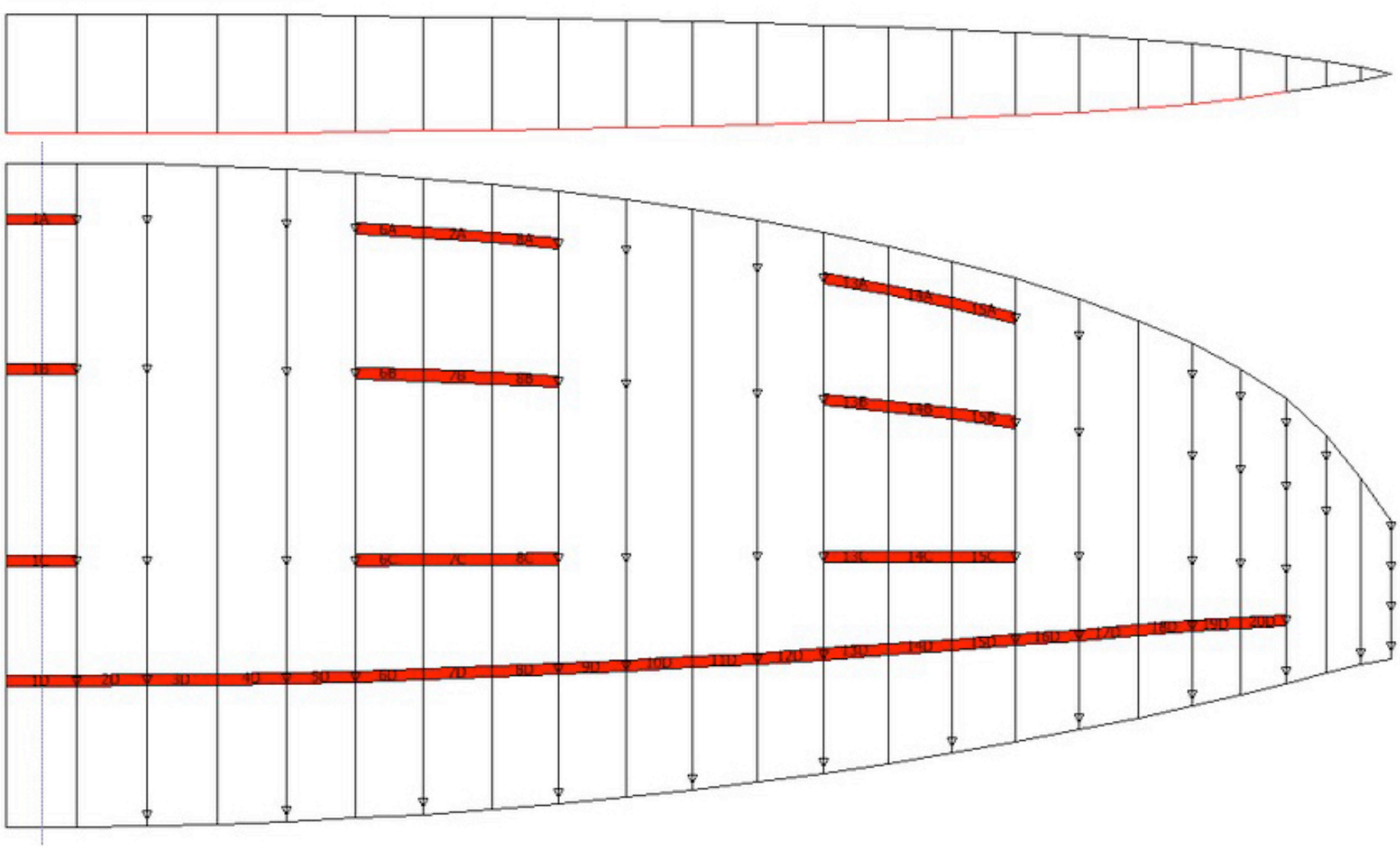
Span, chord and trailing edge



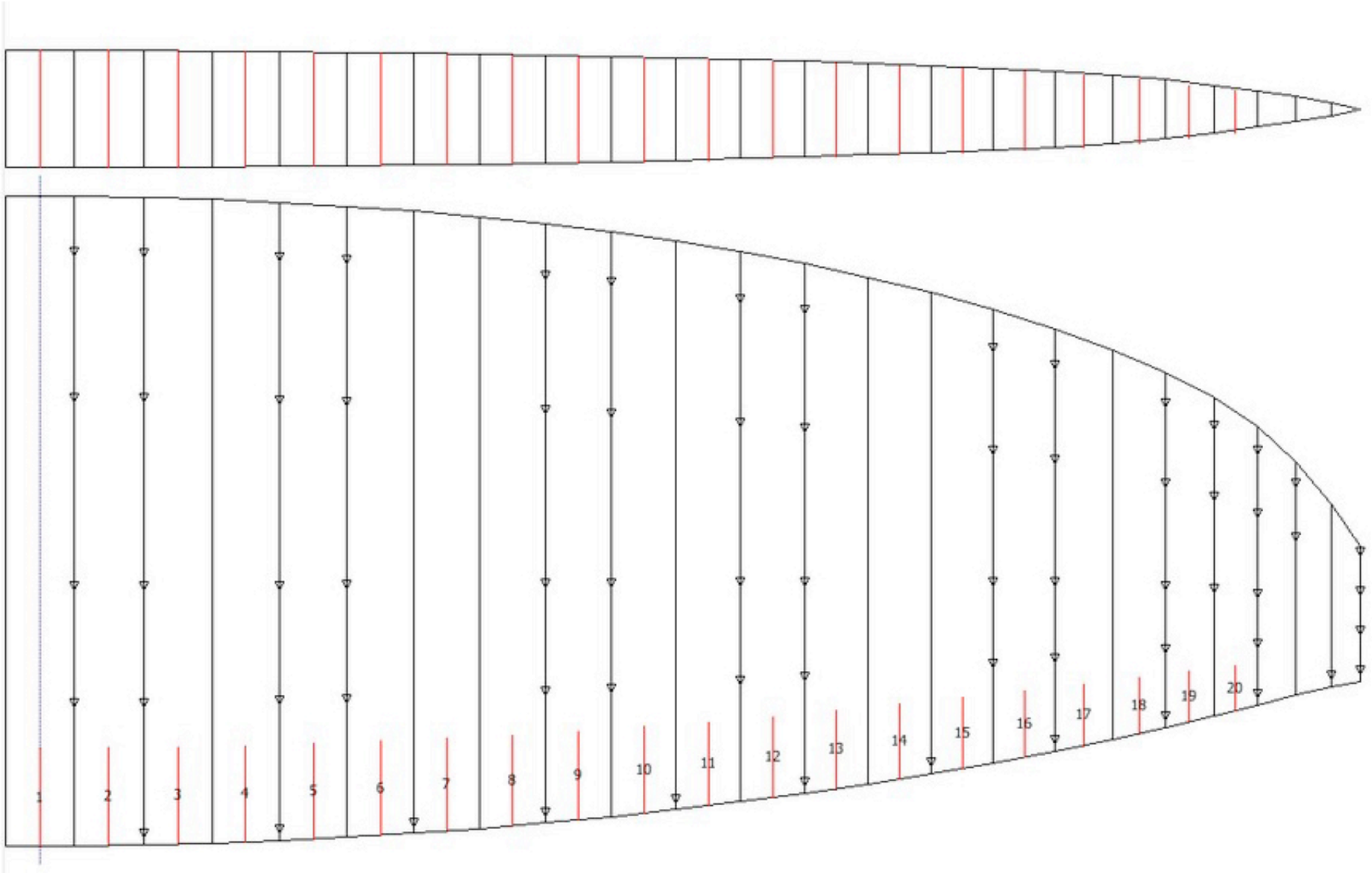
Tabs positions and numbers



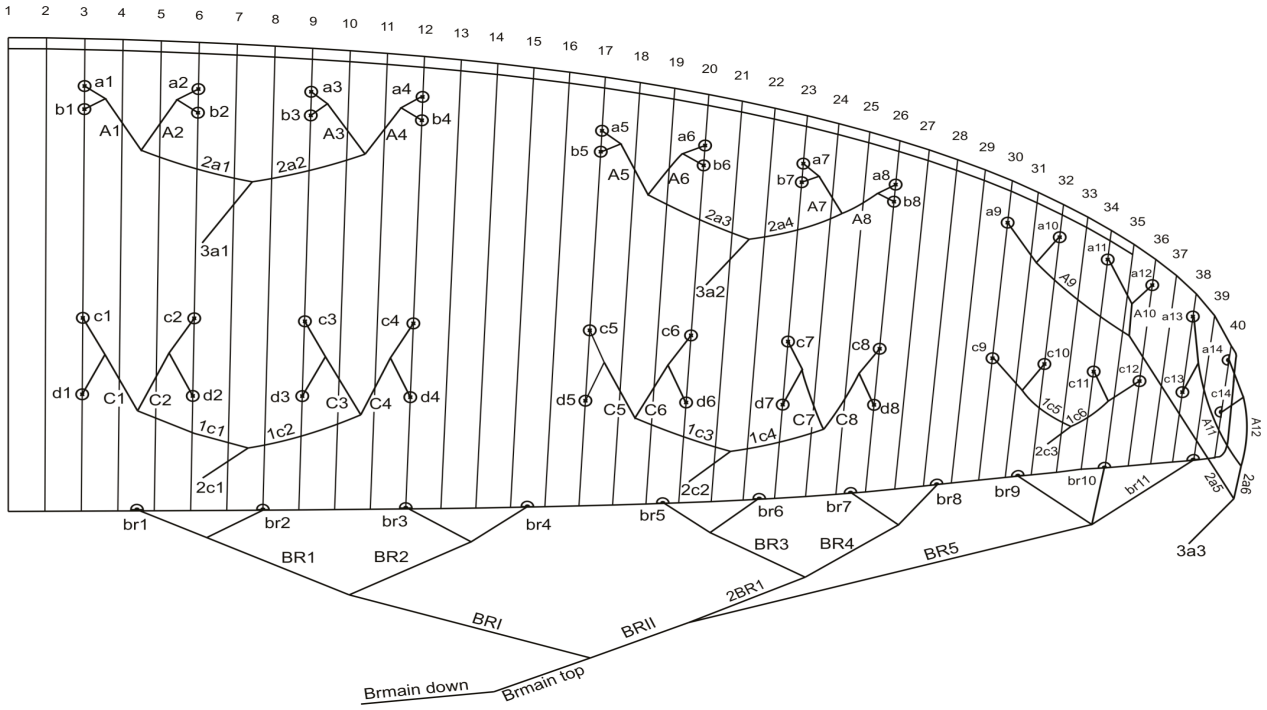
Tension bands



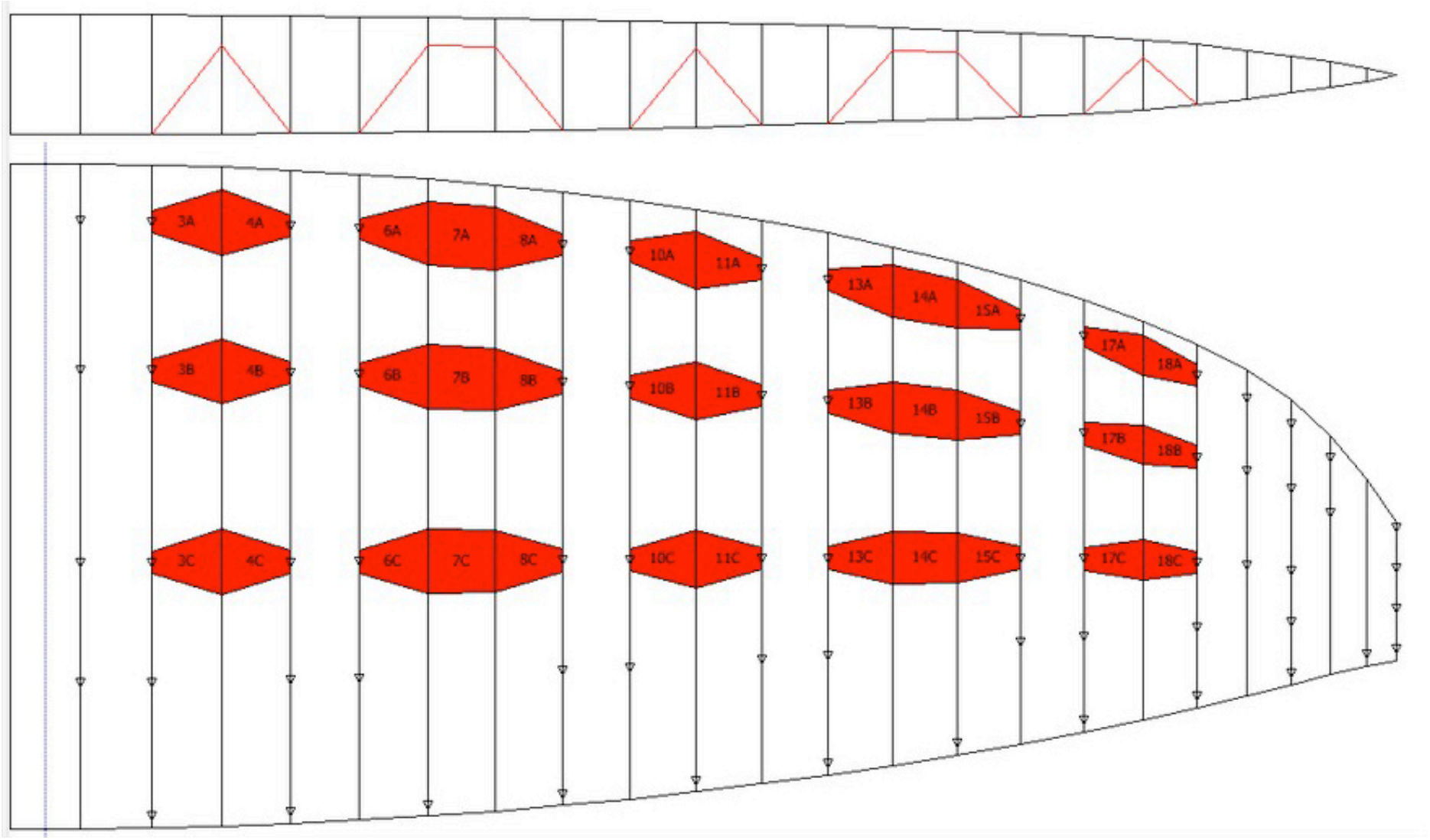
Mini ribs



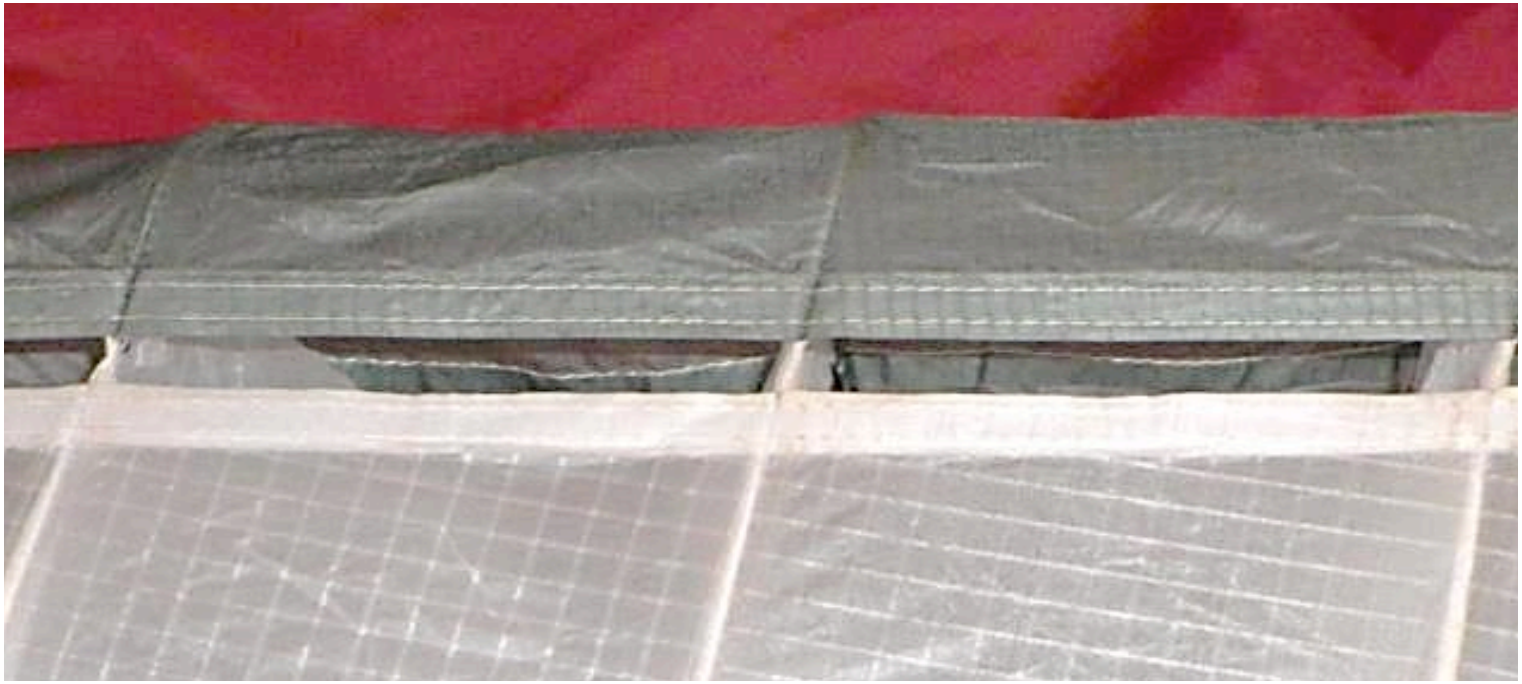
Rigging diagram



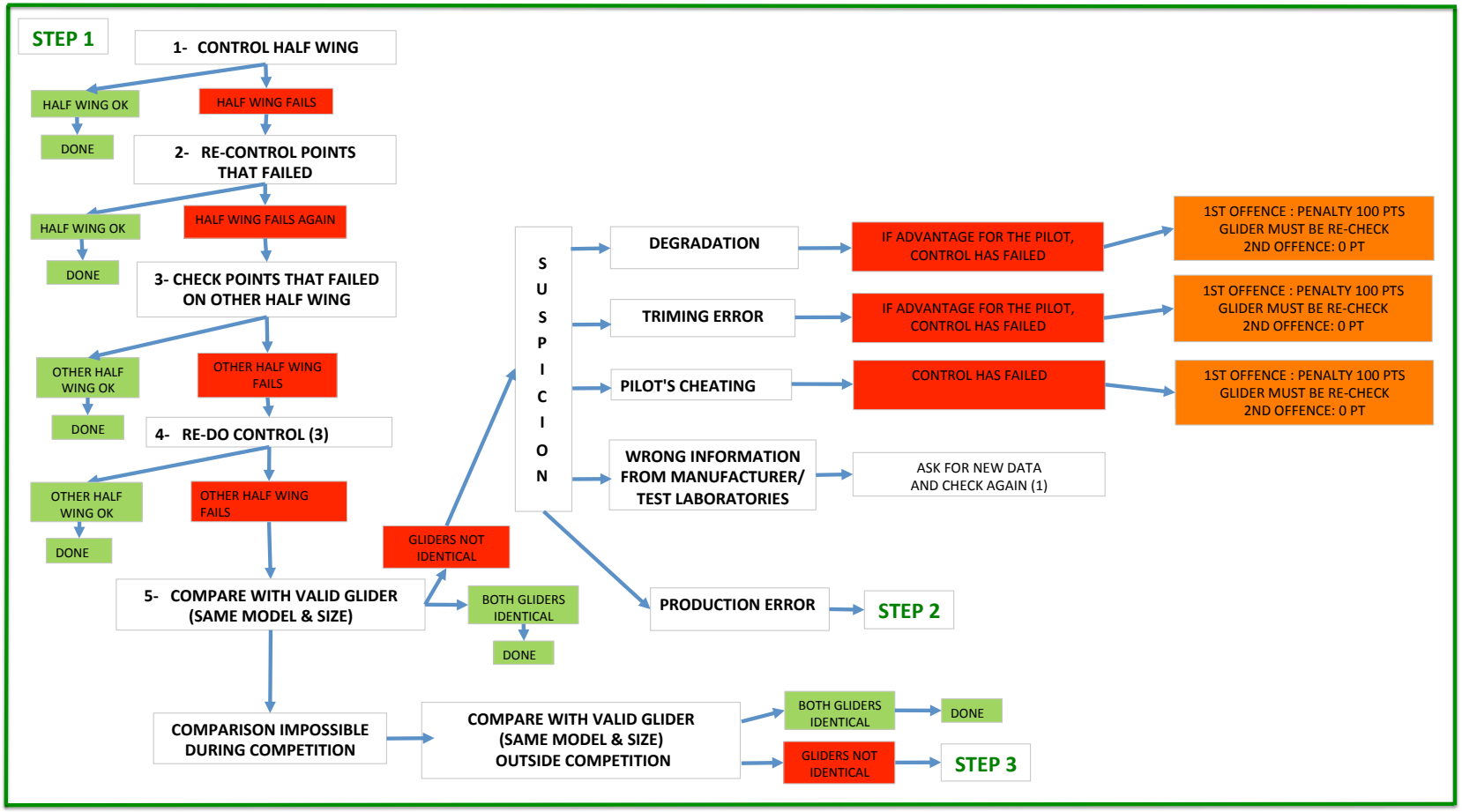
Diagonal

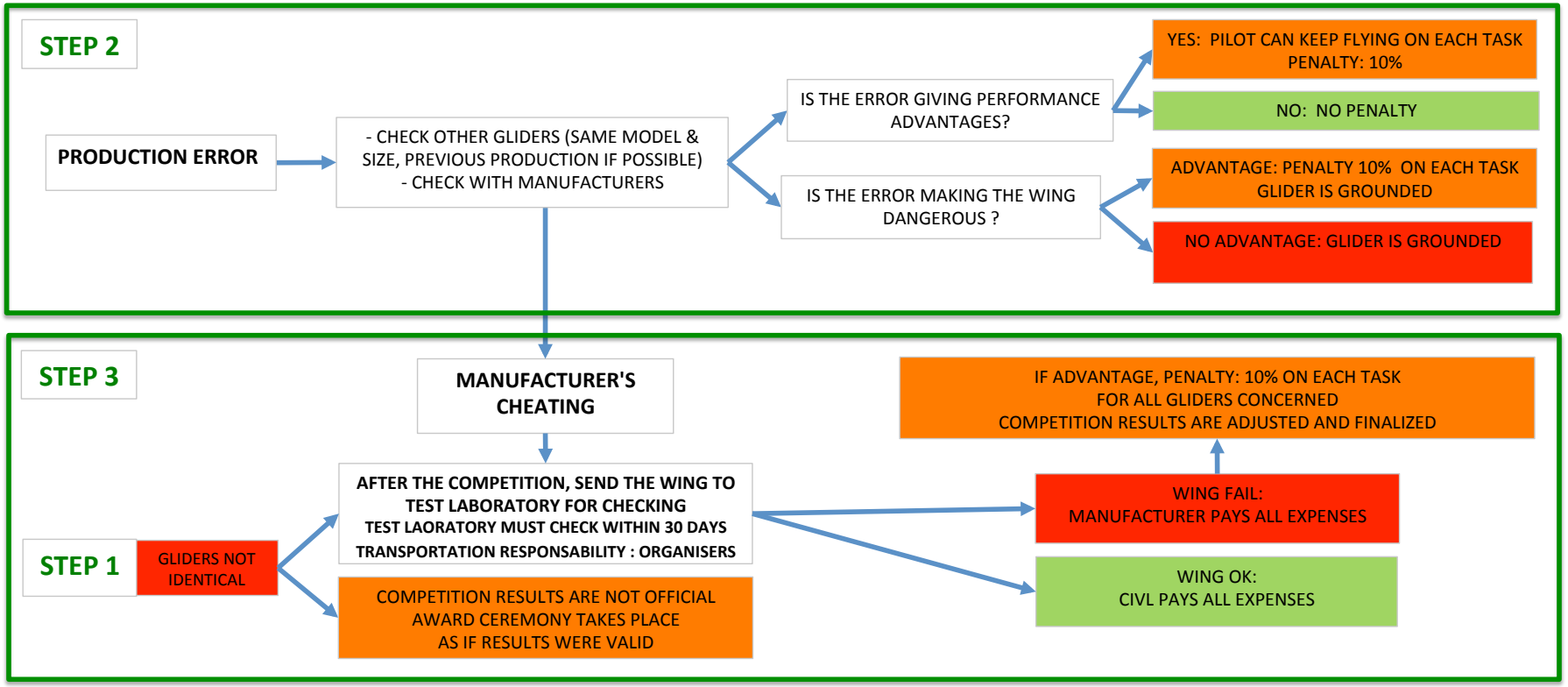

3A
4A
6A
7A
8A
10A
11A
13A
14A
15A
17A
18A
3B
4B
6B
7B
8B
10B
11B
13B
14B
15B
17B
18B
3C
4C
6C
7C
8C
10C
11C
13C
14C
15C
17C
18C

Inlet shape



General control process




STEP 2
PRODUCTION ERROR
- CHECK OTHER GLIDERS (SAME MODEL & SIZE, PREVIOUS PRODUCTION IF POSSIBLE)
- CHECK WITH MANUFACTURERS
IS THE ERROR GIVING PERFORMANCE ADVANTAGES?
YES: PILOT CAN KEEP FLYING ON EACH TASK
PENALTY: 10%
NO: NO PENALTY
IS THE ERROR MAKING THE WING DANGEROUS ?
ADVANTAGE: PENALTY 10% ON EACH TASK
GLIDER IS GROUNDED
NO ADVANTAGE: GLIDER IS GROUNDED
STEP 3
MANUFACTURER'S CHEATING
IF ADVANTAGE, PENALTY: 10% ON EACH TASK
FOR ALL GLIDERS CONCERNED
COMPETITION RESULTS ARE ADJUSTED AND FINALIZED
AFTER THE COMPETITION, SEND THE WING TO TEST LABORATORY FOR CHECKING
TEST LAORATORY MUST CHECK WITHIN 30 DAYS
TRANSPORTATION RESPONSABILITY : ORGANISERS
WING FAIL:
MANUFACTURER PAYS ALL EXPENSES
STEP 1
GLIDERS NOT IDENTICAL
COMPETITION RESULTS ARE NOT OFFICIAL
AWARD CEREMONY TAKES PLACE
AS IF RESULTS WERE VALID
WING OK:
CIVL PAYS ALL EXPENSES