

<b>BOAT</b> Name <b>SOMOS GRAU</b> Sail Nr <b>PER 4077</b>	<b>GPH</b> <b>587.2</b>	<b>HULL</b> Length Overall <b>10.900m</b> Maximum Beam <b>3.610m</b> Displacement <b>3,835kg</b> Draft <b>2.248m</b> IMS Reg. Division <b>Performance</b> Dynamic Allowance <b>0.000%</b> Fwd Accommodation <b>No</b> Hull Construction <b>Cored</b> Carbon Rudder <b>No</b> Crew Arm Extension IMSL <b>9.887m</b> VCGD <b>-0.073m</b> Sink <b>17.11kg/mm</b> RL <b>9.847m</b> VCGM <b>-0.026m</b> WS <b>22.30m<sup>2</sup></b> LSM0 <b>9.606m</b> Displacement/Length ratio <b>4.3265</b>
<b>GENERAL</b> Class <b>MUMM 36</b> Designer <b>BRUCE FARR</b> Builder <b>AST. DEL SUR</b> Series <b>09/1992</b> Age <b>09/1992</b> Age Allowance <b>0.487%</b> Offset File <b>SANGREGO.OFF - 17/04/2003 16:14:44</b> Measurement by <b>G LIZA - 18/09/2014</b>		



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**Rating Office**  
Asociacion de Veleros  
Oceanicos del Peru  
Roberto Peschiera - RO  
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<b>SCORING OPTIONS</b>						
	<b>COASTAL / LONG DISTANCE</b>			<b>WINDWARD / LEEWARD</b>		
	Low	Medium	High	Low	Medium	High
Time on Distance	<b>572.0</b>			<b>640.2</b>		
Time on Time	<b>1.0490</b>			<b>1.0544</b>		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	<b>663.4</b>	<b>523.4</b>	<b>465.9</b>	<b>857.7</b>	<b>642.9</b>	<b>563.3</b>
Time on Time	<b>1.0175</b>	<b>1.2897</b>	<b>1.4487</b>	<b>0.7870</b>	<b>1.0500</b>	<b>1.1984</b>

<b>TIME ALLOWANCES</b>							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	<b>919.7</b>	<b>760.7</b>	<b>696.5</b>	<b>672.9</b>	<b>661.2</b>	<b>659.0</b>	<b>649.0</b>
52°	<b>607.9</b>	<b>520.3</b>	<b>493.6</b>	<b>484.3</b>	<b>479.2</b>	<b>476.1</b>	<b>469.6</b>
60°	<b>576.7</b>	<b>505.9</b>	<b>481.8</b>	<b>471.1</b>	<b>464.6</b>	<b>460.5</b>	<b>453.5</b>
75°	<b>554.0</b>	<b>496.6</b>	<b>470.7</b>	<b>451.4</b>	<b>439.6</b>	<b>432.2</b>	<b>425.5</b>
90°	<b>560.4</b>	<b>497.1</b>	<b>469.6</b>	<b>444.9</b>	<b>423.5</b>	<b>407.8</b>	<b>393.1</b>
110°	<b>607.5</b>	<b>507.1</b>	<b>469.0</b>	<b>437.2</b>	<b>410.9</b>	<b>395.1</b>	<b>369.5</b>
120°	<b>630.1</b>	<b>518.8</b>	<b>476.1</b>	<b>443.5</b>	<b>411.4</b>	<b>382.1</b>	<b>346.5</b>
135°	<b>707.6</b>	<b>569.6</b>	<b>501.3</b>	<b>468.5</b>	<b>437.4</b>	<b>406.9</b>	<b>344.9</b>
150°	<b>846.5</b>	<b>669.3</b>	<b>562.3</b>	<b>501.7</b>	<b>470.6</b>	<b>441.8</b>	<b>385.3</b>
Run VMG	<b>977.4</b>	<b>772.9</b>	<b>649.3</b>	<b>570.9</b>	<b>517.7</b>	<b>482.2</b>	<b>428.0</b>

**Certificate**  
Number **PER109**  
ORC Ref **PER00000092**  
Issued On **30/06/2019**  
VPP Ver. **2019 1.01**  
Valid until **31/03/2020**

**Crew Weight**  
Default **650kg**  
Maximum **650kg**  
Minimum\* **488kg**  
*\*when applied by the NoR and SI*  
Non Manual Pwr **No**

**Special Scoring**  
ToD ToT  
Non Spin GPH **608.6 0.9859**  
Non Spin OSN **593.5 1.0110**

<b>Selected Courses</b>							
Windward / Leeward	<b>948.6</b>	<b>766.8</b>	<b>672.9</b>	<b>621.9</b>	<b>589.4</b>	<b>570.6</b>	<b>538.5</b>
Circular Random	<b>801.1</b>	<b>650.3</b>	<b>570.4</b>	<b>524.1</b>	<b>495.1</b>	<b>474.8</b>	<b>446.0</b>
Coastal / Long Distance	<b>951.5</b>	<b>723.0</b>	<b>609.6</b>	<b>544.4</b>	<b>506.8</b>	<b>476.0</b>	<b>424.8</b>
Non Spinnaker	<b>838.6</b>	<b>677.0</b>	<b>590.5</b>	<b>540.1</b>	<b>508.4</b>	<b>486.6</b>	<b>456.0</b>

**Sails Limitations**  
Headsails **6** Spinnakers **4**

<b>Velocity Prediction in Knots for True Wind Speeds</b>							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	<b>42.1°</b>	<b>40.4°</b>	<b>38.1°</b>	<b>37.4°</b>	<b>36.8°</b>	<b>36.9°</b>	<b>36.8°</b>
Beat VMG	<b>3.91</b>	<b>4.73</b>	<b>5.17</b>	<b>5.35</b>	<b>5.44</b>	<b>5.46</b>	<b>5.55</b>
52°	<b>5.92</b>	<b>6.92</b>	<b>7.29</b>	<b>7.43</b>	<b>7.51</b>	<b>7.56</b>	<b>7.67</b>
60°	<b>6.24</b>	<b>7.12</b>	<b>7.47</b>	<b>7.64</b>	<b>7.75</b>	<b>7.82</b>	<b>7.94</b>
75°	<b>6.50</b>	<b>7.25</b>	<b>7.65</b>	<b>7.98</b>	<b>8.19</b>	<b>8.33</b>	<b>8.46</b>
90°	<b>6.42</b>	<b>7.24</b>	<b>7.67</b>	<b>8.09</b>	<b>8.50</b>	<b>8.83</b>	<b>9.16</b>
110°	<b>5.93</b>	<b>7.10</b>	<b>7.68</b>	<b>8.23</b>	<b>8.76</b>	<b>9.11</b>	<b>9.74</b>
120°	<b>5.71</b>	<b>6.94</b>	<b>7.56</b>	<b>8.12</b>	<b>8.75</b>	<b>9.42</b>	<b>10.39</b>
135°	<b>5.09</b>	<b>6.32</b>	<b>7.18</b>	<b>7.68</b>	<b>8.23</b>	<b>8.85</b>	<b>10.44</b>
150°	<b>4.25</b>	<b>5.38</b>	<b>6.40</b>	<b>7.17</b>	<b>7.65</b>	<b>8.15</b>	<b>9.34</b>
Run VMG	<b>3.68</b>	<b>4.66</b>	<b>5.54</b>	<b>6.31</b>	<b>6.95</b>	<b>7.47</b>	<b>8.41</b>
Gybe Angles	<b>141.1°</b>	<b>147.7°</b>	<b>150.2°</b>	<b>157.1°</b>	<b>174.8°</b>	<b>180.0°</b>	<b>180.0°</b>

**Class Division Length**  
CDL = **9.868**

**Storm Sails Areas**  
Heavy Weather Jib **24.04**  
Storm Jib (JL=8.68) **8.91**  
Storm Trysail **11.97**

**Owner**  
MARINA DE GUERRA DEL PERU

I certify that I understand my responsibilities under ORC Rules and Regulations

Signature

<b>BOAT</b>	
Name <b>SOMOS GRAU</b>	Sail Nr <b>PER 4077</b>
File <b>PER4077</b>	Data in <b>meters/kilograms</b>

<b>INCLINING TEST AND FREEBOARDS</b>			
Inclining Test <b>Current Inclining</b>			
Flotation date <b>17/06/2017</b>		SG <b>1.0253</b>	
FFM <b>1.161</b>	FF <b>1.161</b>	SFFP <b>0.414</b>	
FAM <b>0.925</b>	FA <b>0.926</b>	SAFP <b>10.320</b>	
W1 <b>60.0</b>	PD1 <b>530.3</b>	WD <b>11.400</b>	
W2 <b>60.0</b>	PD2 <b>532.5</b>	GSA <b>1.0</b>	
W3 <b>60.0</b>	PD3 <b>539.1</b>	RSA <b>1.0</b>	
W4 <b>60.0</b>	PD4 <b>529.4</b>	PLM <b>9000.0</b>	
LCF from stem on CL / on sheer		<b>6.086 / 6.330</b>	
Maximum beam station from stem		<b>7.150</b>	
RM Measured		<b>101.1kg-m</b>	
RM Default		<b>106.8kg-m</b>	
Limit of positive stability / Stab.Index		<b>115.1° / 110.4</b>	
Freeboard at mast at 4.015		<b>1.015</b>	



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<b>RIG</b>			
Forestay Tension <b>Aft</b>	Spreaders <b>2</b>		
Inner Stay <b>None Fitted</b>	Runners <b>2</b>		
Carbon Mast <b>No</b>	Jumper Struts <b>None</b>		
Taper Hollows <b>No</b>	Jib Furler <b>No</b>		
Fiber Rigging <b>No</b>	Main Furler <b>No</b>		
Lenticular Rigging <b>No</b>	Without Backstay <b>No</b>		
Articulated Bowsprit <b>No</b>			
P <b>13.650</b>	E <b>5.010</b>	MDT1 <b>0.104</b>	MW <b>0.162</b>
IG <b>13.240</b>	J <b>3.840</b>	MDL1 <b>0.162</b>	GO <b>0.192</b>
ISP <b>13.361</b>	SFJ <b>0.175</b>	MDT2 <b>0.089</b>	BD <b>0.153</b>
BAS <b>1.835</b>	SPL <b>3.840</b>	MDL2 <b>0.098</b>	MWT <b>128.00</b>
FSP <b>0.064</b>	TPS	TL <b>1.895</b>	MCG <b>4.300</b>

<b>MIZZEN RIG AND SAILS</b>	
N/A	

<b>PROPELLER</b>			
Installation <b>Strut</b>	PRD <b>0.385</b>		
Type <b>Folding 2 blades</b>	PBW <b>0.105</b>		
Twin Screw <b>No</b>	PIPA <b>0.0034</b>		
ST1 <b>0.041</b>	ST3 <b>0.180</b>	ST5 <b>0.290</b>	
ST2 <b>0.180</b>	ST4 <b>0.113</b>	EDL <b>0.850</b>	

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**AVOP**

<b>COMMENTS</b>	
CAMBIO DE ARMADOR MEDICION FLOTACION Y ESTAB EX PISCO PURO	

<b>MOVABLE BALLAST</b>	
N/A	

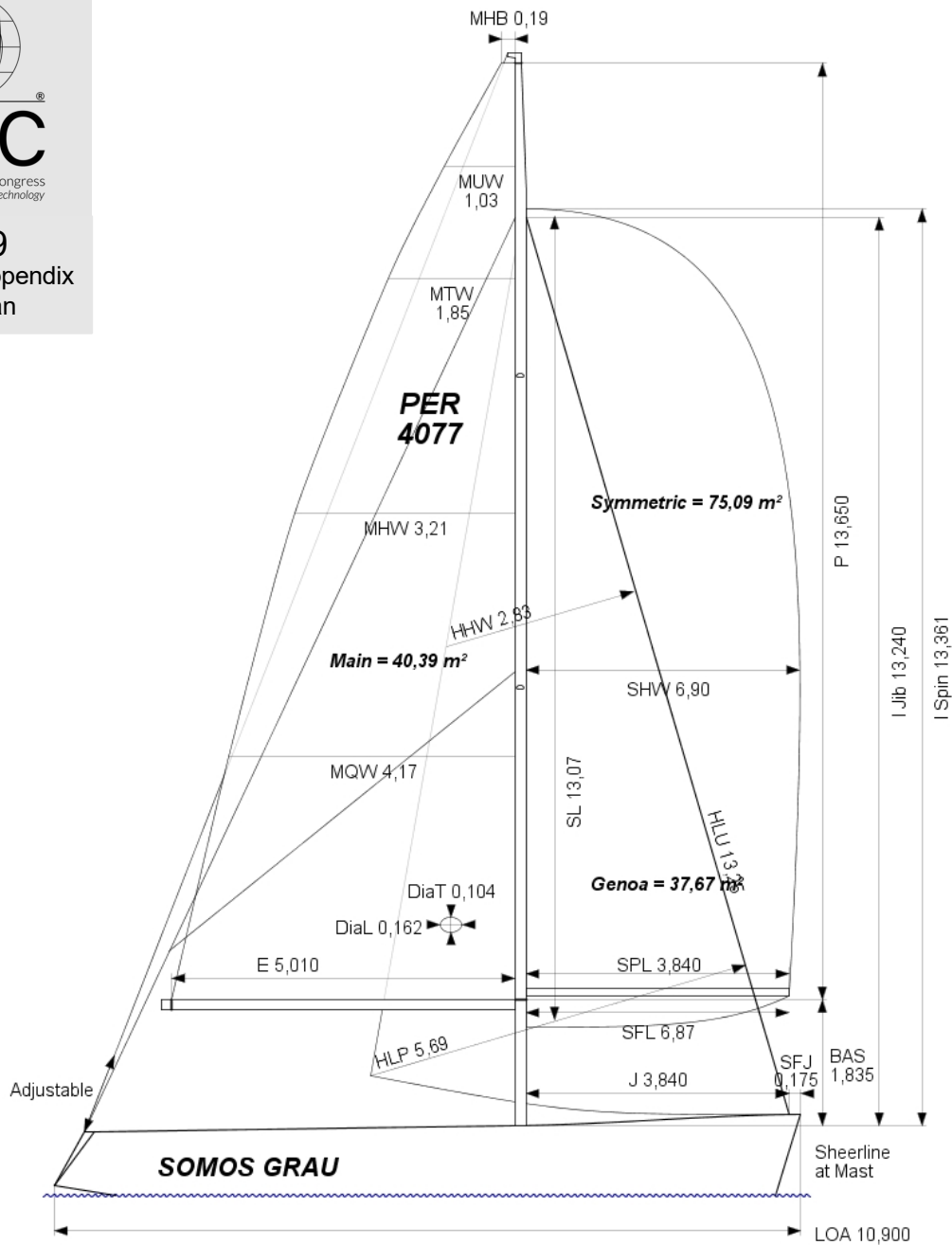
<b>CENTERBOARD</b>	
N/A	

<b>SAILS (Maximum Areas)</b>									
<b>Mainsail</b>	<b>MHB</b>	<b>MUW</b>	<b>MTW</b>	<b>MHW</b>	<b>MQW</b>	<b>Area</b>	<b>Area (r)</b>	<b>Formula</b>	
	0.190	1.03	1.85	3.21	4.17	40.39	41.24	P/8 · (E + 2·MQW + 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
<b>Symmetric</b>	<b>SLU</b>	<b>SLE</b>	<b>SL</b>	<b>SHW</b>	<b>SFL</b>				
	13.07	13.07	13.07	6.90	6.87	75.09		SL · (SFL + 4·SHW) / 6	
<b>Asymmetric</b>									
Not Available									

<b>HEADSAILS</b>												
Area = 0.1125·HLU · (1.445·HLP + 2·HQW + 2·HHW + 1.5·HTW + HUW + 0.5·HHB)												
<b>HHB</b>	<b>HUW</b>	<b>HTW</b>	<b>HHW</b>	<b>HQW</b>	<b>HLP</b>	<b>HLU</b>	<b>Area</b>	<b>Btn</b>	<b>Fly</b>	<b>Meas.Date</b>	<b>Material</b>	<b>Comment</b>
0.09	0.73	1.40	2.83	4.26	5.69	13.25	37.68			13/04/2016	Kevlar	remedicion
0.07	0.68	1.32	2.70	4.17	5.67	13.50	37.40			13/04/2016	Technor	remedicion
0.08	0.71	1.36	2.70	4.07	5.55	13.35	36.57			07/10/2014	Kevlar	REMEDICION
0.08	0.63	1.21	2.44	3.78	5.25	13.35	33.81			09/06/2017	Kevlar	NUEVA
0.07	0.50	0.95	1.87	2.81	3.76	13.37	25.20	Y		09/06/2017	Kevlar	NUEVA
0.09	0.48	0.87	1.70	2.67	3.61	12.86	22.84	Y		07/10/2014	Kevlar	RMEDICION

<b>MEASUREMENT INVENTORY</b>				
Measurer <b>Patrici Gutierrez</b>				
Date <b>17/06/2017</b>				
Comment				
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>Distance</b>	<b>VCG Description</b>
<b>Id</b>	<b>Item</b>	<b>Maker</b>	<b>Model</b>	
C4	Engine	YANMAR	18 HP	
<b>Id</b>	<b>Item</b>	<b>Weight Description</b>		

<b>MEASUREMENT INVENTORY</b>							
<b>Id</b>	<b>Item</b>	<b>Tank Use</b>	<b>Tank Type</b>	<b>Capcty</b>	<b>Dist.</b>	<b>VCG</b>	<b>Condtn Description</b>
E5	Tank	AGUA	FLEX	50.0	6.44		0-0
C4	Tank	PETROLEO	ALUMINIO	20.0	7.44		12-0
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>Distance</b>	<b>VCG Description</b>			
C3	Ballast	127.0	7.87	barras de plomo laminadas			
C2	Battery	28.0	10.04	02 baterias 12v de 12 placas			
Misc							



**SAILS INVENTORY**

**MAINSAIL (1)**

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
M-2	0.19	1.03	1.85	3.21	4.17	40.39	G LIZA	09/06/2017	NORTH	Kevlar	NUEVA

**HEADSAILS (6)**

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
GM-1	0.09	0.73	1.40	2.83	4.26	5.69	13.25	148%	37.68			G LIZA/L	13/04/2016	NORTH	Kevlar	remedicion
G1-L	0.07	0.68	1.32	2.70	4.17	5.67	13.50	148%	37.40			G LIZA/L	13/04/2016	DOYLE	Technor	remedicion
G1R	0.08	0.71	1.36	2.70	4.07	5.55	13.35	145%	36.57			R	07/10/2014	NORTH	Kevlar	REMEDIACION
G2-1	0.08	0.63	1.21	2.44	3.78	5.25	13.35	137%	33.81			G LIZA	09/06/2017	NORTH	Kevlar	NUEVA
G3	0.07	0.50	0.95	1.87	2.81	3.76	13.37	98%	25.20	Y		G LIZA	09/06/2017	NORTH	Kevlar	NUEVA
JIB	0.09	0.48	0.87	1.70	2.67	3.61	12.86	94%	22.84	Y		R	07/10/2014	NORTH	Kevlar	RMEDICION

**SYMMETRIC SPINNAKERS (3)**

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
S1	13.07	13.07	13.07	6.90	6.87	75.09	G LIZA/L	13/04/2016	DOYLE	Nylon	remedicion
S3	13.03	13.03	13.03	6.83	6.81	74.12	R PESCHIERA	07/10/2014	NORTH	Nylon	REMEDIACION
S2	12.90	12.90	12.90	6.85	6.58	73.06	G LIZA/L	13/04/2016	NORTH	Nylon	remedicion

**ASYMMETRIC SPINNAKERS (0)**

Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment
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