

<b>BOAT</b> Name <b>TRAFALGAR</b> Sail Nr <b>ECU-1105</b>	<b>GPH</b> <b>556,1</b>	<b>HULL</b> Length Overall <b>12,700m</b> Maximum Beam <b>3,110m</b> Displacement <b>6.100kg</b> Draft <b>2,405m</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>Yes</b> Crew Arm Extension
<b>GENERAL</b> Class <b>SOTO 42</b> Designer <b>SOTO ACEBAL</b> Builder <b>M BOATS</b> Series <b>11/2009</b> Age <b>11/2009</b> Age Allowance <b>0,260%</b> Offset File <b>CHI1105.off - 11/11/2009 05:20:52 p.m.</b> Measurement by <b>P. GUTIERREZ - 26/09/2017</b>		IMSL <b>11,029m</b> VCGD <b>-0,276m</b> Sink <b>22,79kg/mm</b> RL <b>10,354m</b> VCGM <b>-0,271m</b> WS <b>29,42m<sup>2</sup></b> LSMO <b>10,445m</b> Displacement/Length ratio <b>5,3531</b>



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**2017**  
ORC International  
Certificate

**Rating Office**  
Federación Ecuatoriana  
de Vela  
Patricio D. Gutiérrez - RO  
gutierrez@yca.org.ar



SCORING OPTIONS	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
	Time On Distance	<b>542,0</b>			<b>610,4</b>	
Time On Time	<b>1,1070</b>			<b>1,1058</b>		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	<b>636,8</b>	<b>492,8</b>	<b>436,5</b>	<b>834,5</b>	<b>615,1</b>	<b>532,1</b>
Time on Time	<b>1,0600</b>	<b>1,3697</b>	<b>1,5464</b>	<b>0,8089</b>	<b>1,0973</b>	<b>1,2686</b>

TIME ALLOWANCES	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	<b>941,8</b>	<b>763,6</b>	<b>687,5</b>	<b>656,2</b>	<b>638,3</b>	<b>623,3</b>	<b>619,6</b>
52°	<b>607,6</b>	<b>498,5</b>	<b>464,8</b>	<b>453,7</b>	<b>447,8</b>	<b>441,1</b>	<b>435,5</b>
60°	<b>566,4</b>	<b>474,6</b>	<b>448,7</b>	<b>439,0</b>	<b>433,3</b>	<b>427,7</b>	<b>418,8</b>
75°	<b>531,1</b>	<b>459,4</b>	<b>432,9</b>	<b>418,3</b>	<b>409,8</b>	<b>404,3</b>	<b>391,6</b>
90°	<b>529,8</b>	<b>458,9</b>	<b>430,5</b>	<b>406,9</b>	<b>389,0</b>	<b>379,3</b>	<b>370,2</b>
110°	<b>564,7</b>	<b>466,7</b>	<b>430,0</b>	<b>402,3</b>	<b>386,4</b>	<b>372,3</b>	<b>340,7</b>
120°	<b>587,0</b>	<b>478,1</b>	<b>437,4</b>	<b>407,8</b>	<b>379,6</b>	<b>358,1</b>	<b>332,1</b>
135°	<b>659,7</b>	<b>526,3</b>	<b>460,9</b>	<b>431,1</b>	<b>403,8</b>	<b>376,2</b>	<b>316,4</b>
150°	<b>789,3</b>	<b>624,6</b>	<b>523,0</b>	<b>463,7</b>	<b>434,1</b>	<b>408,6</b>	<b>357,0</b>
Run VMG	<b>911,4</b>	<b>721,3</b>	<b>603,9</b>	<b>530,5</b>	<b>483,6</b>	<b>448,1</b>	<b>398,9</b>

**Certificate**  
Number **110502**  
ORC Ref **ECU00005642**  
Issued On **05/10/2017**  
VPP Ver. **2017 1.00**  
Valid until **31/03/2018**

**Crew Weight**  
Declared **725kg**  
Default\* **732kg**  
Non Manual Pwr **No**

**Special Scoring**  
ToD ToT  
Non Spin GPH **579,4** **1,0356**  
Non Spin OSN **565,8** **1,0604**

Selected Courses	926,6	742,4	645,7	593,4	561,0	535,7	509,3
Windward / Leeward	<b>926,6</b>	<b>742,4</b>	<b>645,7</b>	<b>593,4</b>	<b>561,0</b>	<b>535,7</b>	<b>509,3</b>
Circular Random	<b>767,6</b>	<b>618,7</b>	<b>539,5</b>	<b>493,5</b>	<b>464,8</b>	<b>445,1</b>	<b>418,3</b>
Ocean for PCS	<b>950,8</b>	<b>731,5</b>	<b>608,3</b>	<b>533,1</b>	<b>483,9</b>	<b>449,0</b>	<b>400,2</b>
Non Spinnaker	<b>808,7</b>	<b>648,2</b>	<b>561,5</b>	<b>510,6</b>	<b>478,7</b>	<b>457,2</b>	<b>429,7</b>

Sails Limitations	
Headsails	Spinnakers
<b>6</b>	<b>4</b>

Velocity Prediction in Knots for True Wind Speeds	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	<b>44,0°</b>	<b>43,3°</b>	<b>41,8°</b>	<b>40,3°</b>	<b>39,4°</b>	<b>38,9°</b>	<b>39,2°</b>
Beat VMG	<b>3,82</b>	<b>4,71</b>	<b>5,24</b>	<b>5,49</b>	<b>5,64</b>	<b>5,78</b>	<b>5,81</b>
52°	<b>5,93</b>	<b>7,22</b>	<b>7,75</b>	<b>7,93</b>	<b>8,04</b>	<b>8,16</b>	<b>8,27</b>
60°	<b>6,36</b>	<b>7,59</b>	<b>8,02</b>	<b>8,20</b>	<b>8,31</b>	<b>8,42</b>	<b>8,60</b>
75°	<b>6,78</b>	<b>7,84</b>	<b>8,32</b>	<b>8,61</b>	<b>8,78</b>	<b>8,90</b>	<b>9,19</b>
90°	<b>6,80</b>	<b>7,84</b>	<b>8,36</b>	<b>8,85</b>	<b>9,26</b>	<b>9,49</b>	<b>9,72</b>
110°	<b>6,37</b>	<b>7,71</b>	<b>8,37</b>	<b>8,95</b>	<b>9,32</b>	<b>9,67</b>	<b>10,57</b>
120°	<b>6,13</b>	<b>7,53</b>	<b>8,23</b>	<b>8,83</b>	<b>9,48</b>	<b>10,05</b>	<b>10,84</b>
135°	<b>5,46</b>	<b>6,84</b>	<b>7,81</b>	<b>8,35</b>	<b>8,92</b>	<b>9,57</b>	<b>11,38</b>
150°	<b>4,56</b>	<b>5,76</b>	<b>6,88</b>	<b>7,76</b>	<b>8,29</b>	<b>8,81</b>	<b>10,08</b>
Run VMG	<b>3,95</b>	<b>4,99</b>	<b>5,96</b>	<b>6,79</b>	<b>7,44</b>	<b>8,03</b>	<b>9,02</b>
Gybe Angles	<b>141,6°</b>	<b>145,5°</b>	<b>148,3°</b>	<b>155,0°</b>	<b>166,8°</b>	<b>180,0°</b>	<b>180,0°</b>

**Class Division Length**  
CDL = **10,692**


**Storm Sails Areas**  
Heavy Weather Jib **32,60**  
Storm Jib (JL=10,10) **12,08**  
Storm Trysail **16,48**

**Owner**  
DMITRY MARTINES  
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I certify that I understand my responsibilities under ORC Rules and Regulations  
Signature

<b>BOAT</b>	
Name <b>TRAFALGAR</b>	Sail Nr <b>ECU-1105</b>
File <b>ECU1105</b>	Data in <b>meters/kilograms</b>

<b>INCLINING TEST AND FREEBOARDS</b>		
Inclining Test <b>Current Inclining</b>		
Flotation date <b>26/09/2017</b>	SG <b>1,0253</b>	
FFM <b>1,407</b>	FF <b>1,407</b>	SFFP <b>0,087</b>
FAM <b>1,085</b>	FA <b>1,087</b>	SAFP <b>12,117</b>
W1 <b>100,0</b>	PD1 <b>431,1</b>	WD <b>10,750</b>
W2 <b>100,0</b>	PD2 <b>427,0</b>	GSA <b>1,0</b>
W3 <b>100,0</b>	PD3 <b>428,1</b>	RSA <b>1,0</b>
W4 <b>100,0</b>	PD4 <b>426,3</b>	PLM <b>9000,0</b>
LCF from stem on CL / on sheer		<b>6,748 / 6,917</b>
Maximum beam station from stem		<b>7,594</b>
RM Measured		<b>197,7kg·m</b>
RM Default		<b>183,0kg·m</b>
Limit of positive stability / Stab.Index		<b>136,1° / 142,9</b>
Freeboard at mast at 4,868		<b>1,226</b>

<b>RIG</b>			
Forestay Tension <b>Aft</b>	Spreaders <b>2</b>		
Inner Stay <b>None Fitted</b>	Runners <b>0</b>		
Carbon Mast <b>Yes</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>15,700</b>	E <b>6,000</b>	MDT1 <b>0,136</b>	MW <b>0,235</b>
IG <b>15,488</b>	J <b>4,708</b>	MDL1 <b>0,251</b>	GO <b>0,251</b>
ISP <b>15,743</b>	SFJ <b>0,160</b>	MDT2 <b>0,095</b>	BD <b>0,292</b>
BAS <b>1,694</b>	SPL <b>4,700</b>	MDL2 <b>0,157</b>	MWT <b>201,00</b>
FSP <b>0,072</b>	TPS	TL <b>2,225</b>	MCG <b>5,210</b>




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**IMS Measurement Certificate**

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

<b>PROPELLER</b>		
Installation <b>Strut</b>	PRD <b>0,393</b>	
Type <b>Folding 2 blades</b>	PBW <b>0,107</b>	
Twin Screw <b>No</b>	PIPA <b>0,0040</b>	
ST1 <b>0,066</b>	ST3 <b>0,178</b>	ST5 <b>0,322</b>
ST2 <b>0,170</b>	ST4 <b>0,110</b>	EDL <b>0,607</b>

<b>COMMENTS</b>	
EX CHI-1105 medió estab y flotación	

<b>MOVEABLE BALLAST</b>	
N/A	

<b>CENTERBOARD</b>	
N/A	

<b>SAILS (Maximum Areas)</b>									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	1,625	2,05	2,86	4,08	5,09	61,80	63,68	P/8 · (E + 2·MQW+ 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL				
	15,18	15,18	15,18	8,54	8,22	107,22		SL · (SFL + 4·SHW) / 6	
Asymmetric	SLU	SLE	SL	SHW	SFL				
	15,97	15,19	15,58	6,40	8,46	88,44		AS · (SFL + 4·SHW) / 6	

<b>HEADSAILS</b>												
Area = 0.1125·HLU · (1.445·HLP + 2·HQW + 2·HHW + 1.5·HTW + HUW + 0.5·HHB)												
HHB	HUW	HTW	HHW	HQW	HLP	HLU	Area	Btn	Fly	Meas.Date	Material	Comment
0,08	0,74	1,40	2,60	3,77	4,93	15,89	40,66	Y		05/10/2017	Carbon	3DI-NUEVA
0,09	0,72	1,38	2,58	3,78	4,91	15,80	40,26	Y		09/10/2014	Kevlar	NUEVA DECLARADO
0,09	0,73	1,38	2,56	3,74	4,91	15,85	40,19	Y		24/04/2014	Kevlar	REMEDICION

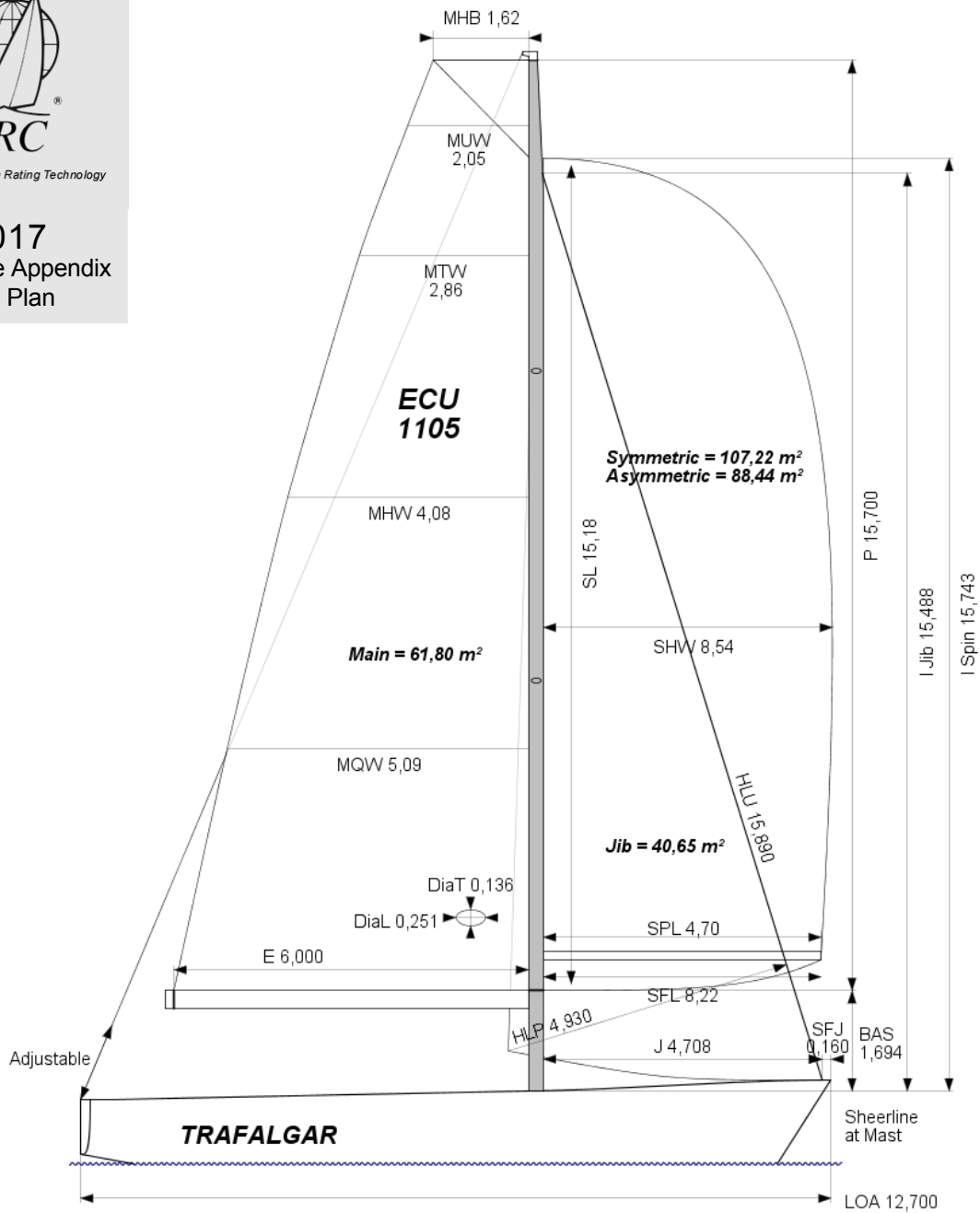
<b>MEASUREMENT INVENTORY</b>				
Measurer <b>PATRICIO GUTIERREZ P G</b>				
Date <b>26/09/2017</b>				
Comment				
Id	Item	Weight	Distance	VCG Description
Id	Item	Maker	Model	
C4	Engine	YANMAR	36 HP	
Id	Item	Weight Description		

<b>MEASUREMENT INVENTORY</b>									
Id	Item	Tank	Use	Tank Type	Capcty	Dist.	VCG	Condtn	Description
B6	Tank	AGUA		FLEX	100,0	5,50	0,00	0-0	
C3	Tank	PETROLEO		ALUMINO	30,0	8,30	0,00	16-0	
Id	Item	Weight	Distance	VCG Description					
B4	Ballast	200,0	7,74	-0,30 8 PANES DE PLOMO DE 25 C/U					
E4	Ballast	250,0	7,74	-0,30 10 PANES DE PLOMO DE 25 C/U					
E5	Ballast	600,0	6,90	-0,30 24 PANES DE PLOMO DE 25 C/U					
B5	Ballast	600,0	6,90	-0,30 24 PANES DE PLOMO DE 25 C/U					
E6	Ballast	150,0	5,95	-0,30 6 PANES DE PLOMO DE 25 C/U					
C4	Battery	32,0	7,85	0,00 2 X 12 V / 75 AMP					



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Certificate Appendix  
Sail Plan



**SAILS INVENTORY**

**MAINSAIL (1)**

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
M 2	1,625	2,05	2,86	4,08	5,09	61,80	P GUTIERREZ	04/10/2017	NORTH	Carbon	3DI-NUEVA

**HEADSAILS (3)**

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
G1 LM2	0,08	0,74	1,40	2,60	3,77	4,93	15,89	105%	40,66	Y		G LIZA	05/10/2017	NORTH	Carbon	3DI-NUEVA
M	0,09	0,72	1,38	2,58	3,78	4,91	15,80	104%	40,26	Y		R	09/10/2014	NORTH S	Kevlar	NUEVA DECLARADO
L-A	0,09	0,73	1,38	2,56	3,74	4,91	15,85	104%	40,19	Y		G LIZA	24/04/2014	NORTH S	Kevlar	REMEDICION

**SYMMETRIC SPINNAKERS (4)**

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
S2	15,18	15,18	15,18	8,54	8,22	107,22	P GUTIERREZ	04/10/2017	NORTH	Nylon	BL-NUEVO
S3	15,24	15,24	15,24	8,49	8,20	107,09	F CARLIER	21/01/2010	NORTH	Nylon	
S1.5	15,23	15,23	15,23	8,34	8,27	105,67			NORTH	Nylon	NUEVO DECLARADO
S1	15,11	15,11	15,11	8,09	8,19	102,12	F CARLIER	21/01/2010	NORTH	Nylon	BL

**ASYMMETRIC SPINNAKERS (1)**

Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment
A0	15,97	15,19	15,58	6,40	8,46	88,44	asym	G LIZA	05/10/2017	NORTH	Technora	GRIS-NUEVA