

BOAT Name TIVOLI RELOADED Sail Nr ECU-4660	GPH 576,4	HULL Length Overall 11,860m Maximum Beam 3,000m Displacement 5.386kg Draft 2,346m IMS Reg. Division Performance Dynamic Allowance 0,000% Fwd Accommodation Yes Hull Construction Cored Carbon Rudder No Crew Arm Extension
GENERAL Class SOTO 39 Designer J. SOTO Builder J. SOLDAVINI Series 08/2005 Age 08/2005 Age Allowance 0,390% Offset File ARG4660.OFF - 19/12/2005 11:20:58 Measurement by P. GUTIERREZ - 02/10/2017		IMSL 10,337m VCGD -0,001m Sink 21,25kg/mm RL 9,878m VCGM -0,069m WS 27,60m² LSMO 10,001m Displacement/Length ratio 5,3844



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2017
ORC International
Certificate

Rating Office
Federación Ecuatoriana
de Vela
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SCORING OPTIONS	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
	Time On Distance	561,3			628,5	
Time On Time	1,0690			1,0740		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	659,4	510,7	455,3	858,8	631,0	548,5
Time on Time	1,0237	1,3216	1,4827	0,7860	1,0697	1,2307

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	979,1	797,8	702,4	671,9	657,1	642,8	636,5
52°	636,1	522,6	482,3	472,2	467,0	461,5	455,5
60°	596,0	499,5	468,0	458,5	453,3	449,0	440,0
75°	562,9	485,8	455,5	439,0	431,1	426,2	414,9
90°	563,3	483,2	455,6	431,7	412,1	401,7	393,7
110°	580,2	483,5	447,3	426,0	410,2	397,3	367,6
120°	600,2	494,3	454,7	424,3	397,8	383,2	355,7
135°	671,2	539,5	477,7	447,5	419,1	390,6	329,7
150°	800,5	635,7	534,8	479,0	450,0	423,6	369,9
Run VMG	924,3	734,0	617,6	545,3	497,6	463,3	412,9

Certificate
Number **466005**
ORC Ref **ECU00005613**
Issued On **04/10/2017**
VPP Ver. **2017 1.00**
Valid until **31/03/2018**

Crew Weight
Declared **765kg**
Default* **688kg**
Non Manual Pwr **No**

Special Scoring
ToD ToT
Non Spin GPH **604,3 0,9929**
Non Spin OSN **588,7 1,0193**

Selected Courses	951,7	765,9	660,0	608,6	577,3	553,0	524,7
Windward / Leeward	951,7	765,9	660,0	608,6	577,3	553,0	524,7
Circular Random	793,6	640,5	559,1	512,4	483,5	463,8	436,6
Ocean for PCS	976,7	753,3	628,2	552,4	503,3	468,8	420,2
Non Spinnaker	844,0	676,1	585,4	532,5	499,6	477,8	449,6

Sails Limitations	
Headsails	Spinnakers
6	4

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	43,5°	43,0°	40,7°	39,1°	38,4°	37,8°	37,9°
Beat VMG	3,68	4,51	5,13	5,36	5,48	5,60	5,66
52°	5,66	6,89	7,46	7,62	7,71	7,80	7,90
60°	6,04	7,21	7,69	7,85	7,94	8,02	8,18
75°	6,40	7,41	7,90	8,20	8,35	8,45	8,68
90°	6,39	7,45	7,90	8,34	8,74	8,96	9,14
110°	6,21	7,45	8,05	8,45	8,78	9,06	9,79
120°	6,00	7,28	7,92	8,48	9,05	9,39	10,12
135°	5,36	6,67	7,54	8,04	8,59	9,22	10,92
150°	4,50	5,66	6,73	7,52	8,00	8,50	9,73
Run VMG	3,89	4,90	5,83	6,60	7,24	7,77	8,72
Gybe Angles	141,9°	146,5°	149,7°	156,5°	171,9°	180,0°	180,0°

Class Division Length
CDL = **10,108**

Storm Sails Areas
Heavy Weather Jib **30,54**
Storm Jib (JL=9,78) **11,31**
Storm Trysail **15,53**

Owner
SCUDERIA TIVOLI
Tulcan 1017 yLuque


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

Signature

BOAT	
Name TIVOLI RELOADED	Sail Nr ECU-4660
File ECU4660	Data in meters/kilograms

INCLINING TEST AND FREEBOARDS		
Inclining Test Current Inclining		
Flotation date 02/10/2017	SG 1,0253	
FFM 1,319	FF 1,318	SFFP 0,120
FAM 1,153	FA 1,156	SAFP 11,680
W1 100,0	PD1 521,2	WD 10,840
W2 100,0	PD2 520,2	GSA 1,0
W3 100,0	PD3 519,7	RSA 1,0
W4 100,0	PD4 520,2	PLM 9000,0
LCF from stem on CL / on sheer		6,317 / 6,487
Maximum beam station from stem		6,350
RM Measured		164,1kg·m
RM Default		163,7kg·m
Limit of positive stability / Stab.Index		126,3° / 132,2
Freeboard at mast at 4,570		1,170

RIG			
Forestay Tension Aft	Spreaders 2		
Inner Stay None Fitted	Runners 0		
Carbon Mast Yes	Jumper Struts None		
Taper Hollows No	Jib Furler No		
Fiber Rigging No	Main Furler No		
Lenticular Rigging No	Without Backstay No		
Articulated Bowsprit No			
P 15,710	E 5,650	MDT1 0,115	MW 0,230
IG 14,974	J 4,500	MDL1 0,230	GO 0,250
ISP 15,684	SFJ 0,070	MDT2 0,115	BD 0,272
BAS 1,664	SPL 4,605	MDL2 0,185	MWT 166,00
FSP 0,066	TPS	TL 1,650	MCG 5,740




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IMS Measurement Certificate

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MIZZEN RIG AND SAILS	
N/A	

PROPELLER		
Installation Strut	PRD	0,387
Type Folding 2 blades	PBW	0,099
Twin Screw No	PIPA	0,0035
ST1 0,051	ST3 0,181	ST5 0,248
ST2 0,181	ST4 0,113	EDL 0,595

COMMENTS	
ex Matrix ARG 4660 cambia de armador nueva medicion aparejo y velasb	

MOVEABLE BALLAST	
N/A	

CENTERBOARD	
N/A	

SAILS (Maximum Areas)									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0,200	1,31	2,28	3,68	4,70	53,49	54,77	P/8 · (E + 2·MQW+ 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL				
	15,55	15,55	15,55	8,37	8,20	108,02		SL · (SFL + 4·SHW) / 6	
Asymmetric Not Available									

HEADSAILS												
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	0,68	1,31	2,44	3,57	4,73	15,07	36,52	Y		07/10/2014	Kevlar	NUEVA
0,08	0,68	1,31	2,44	3,56	4,73	15,06	36,46	Y		28/04/2016	Kevlar	REMEDIACION
0,08	0,66	1,27	2,43	3,56	4,74	15,12	36,46	Y		29/06/2014	Carbon	REMEDIACION
0,09	0,65	1,18	2,33	3,52	4,73	15,10	35,67	Y		29/06/2014	Unknow	REMEDIACION

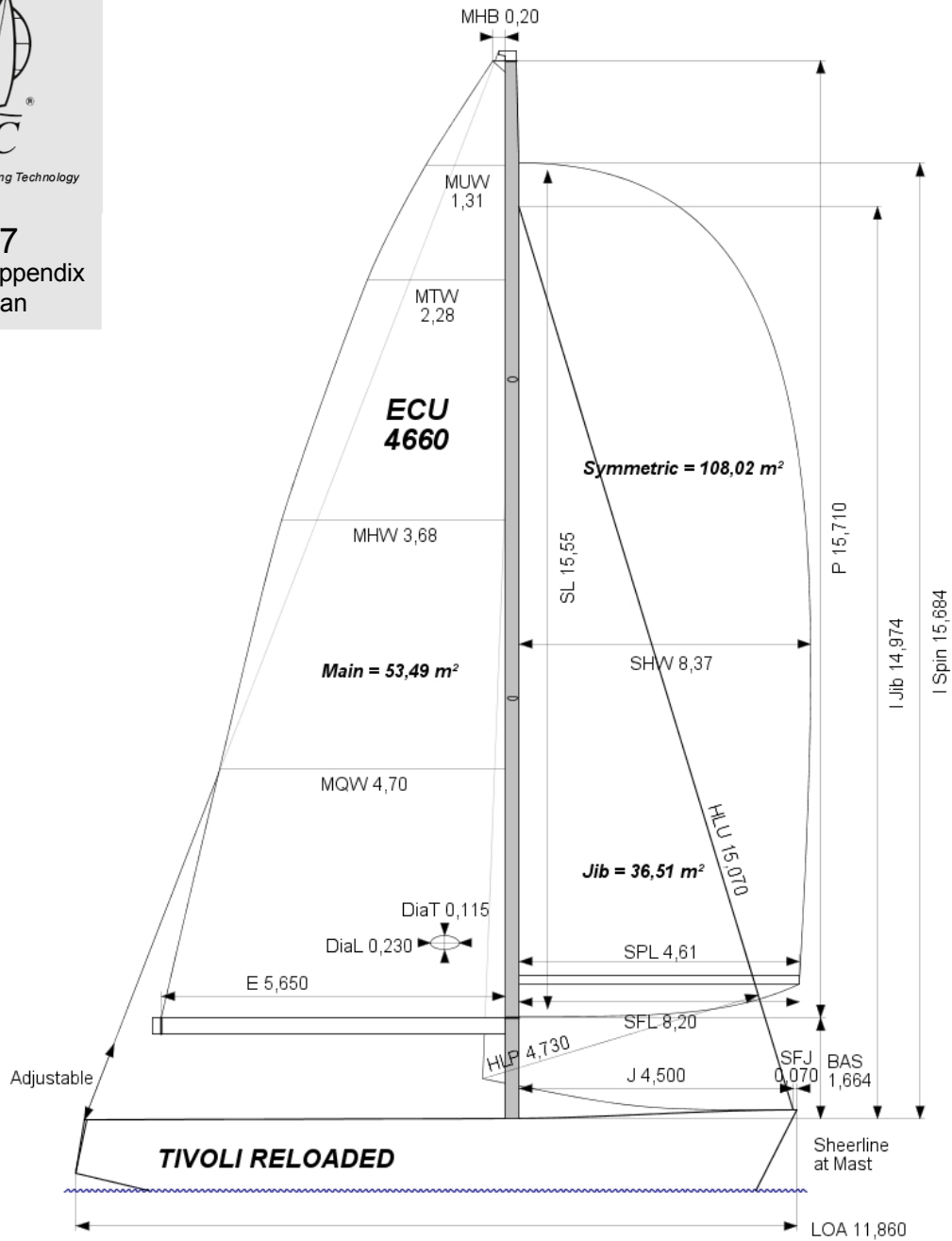
MEASUREMENT INVENTORY				
Measurer PATRICIO GUTIERREZ P G				
Date 02/10/2017				
Comment nueva medicion de estab y fb's				
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>
4	Anchor			
<i>Id</i>	<i>Item</i>	<i>Maker</i>	<i>Model</i>	
5	Engine	YANMAR	29 HP	
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Description</i>	

MEASUREMENT INVENTORY						
<i>Id</i>	<i>Item</i>	<i>Tank Use</i>	<i>Tank Type</i>	<i>Capcty</i>	<i>Dist.</i>	<i>VCG Condtm Description</i>
6B	Tank water		FLEXIBLE	70,0	6,75	0-0 lado babor debajo
6A	Tank fuel		plastic	70,0	8,05	27,0 a popa en crujia
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG</i>	<i>Description</i>	
C3	Ballast	480,0	9,60	0,00	32 pzas de plomo a popa delante timon	
C4	Battery	30,0	7,55	0,00	2 baterias de 13 placas enn crujia detras motor	
9B	Misc		4,60	0,50	lavadero acero	
9A	Misc		4,60	0,50	conservadora	



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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
M2	0,200	1,31	2,28	3,68	4,70	53,49	A V M	28/04/2016	NORTH	Carbon	REMEDICION

HEADSAILS (4)

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
M-H	0,08	0,68	1,31	2,44	3,57	4,73	15,07	105%	36,52	Y		R	07/10/2014	NORTH	Kevlar	NUEVA
LM2	0,08	0,68	1,31	2,44	3,56	4,73	15,06	105%	36,46	Y		A V M	28/04/2016	NORTH	Kevlar	REMEDICION
LM-1	0,08	0,66	1,27	2,43	3,56	4,74	15,12	105%	36,46	Y		G LIZA	29/06/2014	NORTH	Carbon	REMEDICION
H2	0,09	0,65	1,18	2,33	3,52	4,73	15,10	105%	35,67	Y		G LIZA	29/06/2014	NORTH	Unknow	REMEDICION

SYMMETRIC SPINNAKERS (4)

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
S2	15,55	15,55	15,55	8,37	8,20	108,02	A V M	28/04/2016	NORTH	Nylon	REMEDICION
S1.5	15,44	15,44	15,44	8,40	8,36	107,98	A V M	28/04/2016	NORTH	Nylon	REMEDICION
S 3	15,12	15,12	15,12	8,10	8,05	101,93	G LIZA	29/06/2014	NORTH	Nylon	REMEDICION
S0	15,05	15,05	15,05	5,70	7,54	76,10	G LIZA	29/06/2014	NORTH	Nylon	REMEDICION

ASYMMETRIC SPINNAKERS (0)

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