

BOAT Name BRAVO Sail Nr ECU-450	GPH 642,9	HULL Length Overall 13,393m Maximum Beam 3,822m Displacement 10.706kg Draft 2,112m IMS Reg. Division Cruiser/Racer Dynamic Allowance 0,531% Fwd Accommodation Yes Hull Construction Cored Carbon Rudder No Crew Arm Extension
GENERAL Class F&C44 Designer G. FRERS Builder F&C Series 09/1984 Age 09/1984 Age Allowance 0,487% Offset File US30477.OFF - 17/05/1994 11:30:08 Measurement by P GUTIERREZ - 26/09/2017		IMSL 10,377m VCGD -0,070m Sink 23,55kg/mm RL 7,564m VCGM -0,005m WS 35,71m² LSMO 10,382m Displacement/Length ratio 9,5672



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2017
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Rating Office
Federación Ecuatoriana
de Vela
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SCORING OPTIONS	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
	Time On Distance	625,2			702,7	
Time On Time	0,9597			0,9606		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	745,9	567,8	500,0	967,7	712,3	602,4
Time on Time	0,9049	1,1889	1,3500	0,6975	0,9476	1,1206

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1114,1	931,7	831,2	767,8	733,3	714,1	696,8
52°	720,1	610,4	539,3	505,7	491,8	484,3	477,8
60°	676,8	573,0	512,5	487,4	474,5	468,2	462,5
75°	641,5	541,5	494,9	473,9	460,2	449,3	439,7
90°	642,4	542,2	494,0	472,7	458,1	445,3	423,7
110°	665,1	545,1	487,8	462,8	446,6	438,2	422,6
120°	682,9	560,4	494,7	467,2	447,4	429,0	409,8
135°	750,2	612,4	524,5	483,2	461,3	442,8	408,2
150°	881,0	699,5	594,3	522,6	484,1	463,3	429,1
Run VMG	1017,3	807,8	685,9	598,6	540,8	497,4	455,0

Certificate
Number **FVEC12**
ORC Ref **ECU00005600**
Issued On **04/10/2017**
VPP Ver. **2017 1.00**
Valid until **31/03/2018**

Crew Weight
Declared **726kg**
Default* **726kg**
Non Manual Pwr **No**

Special Scoring
ToD ToT
Non Spin GPH **672,6 0,8921**
Non Spin OSN **653,7 0,9179**

Selected Courses							
Windward / Leeward	1065,7	869,8	758,6	683,2	637,0	605,7	575,9
Circular Random	892,2	718,1	623,5	567,7	533,1	510,6	484,0
Ocean for PCS	1095,5	844,8	701,8	613,2	555,3	515,3	462,2
Non Spinnaker	945,0	755,8	651,7	589,4	549,9	523,9	492,2

Sails Limitations	
Headsails	Spinnakers
5	3

Velocity Prediction in Knots for True Wind Speeds							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	44,4°	42,7°	43,7°	43,9°	42,8°	42,0°	41,5°
Beat VMG	3,23	3,86	4,33	4,69	4,91	5,04	5,17
52°	5,00	5,90	6,68	7,12	7,32	7,43	7,53
60°	5,32	6,28	7,02	7,39	7,59	7,69	7,78
75°	5,61	6,65	7,27	7,60	7,82	8,01	8,19
90°	5,60	6,64	7,29	7,62	7,86	8,08	8,50
110°	5,41	6,60	7,38	7,78	8,06	8,22	8,52
120°	5,27	6,42	7,28	7,71	8,05	8,39	8,78
135°	4,80	5,88	6,86	7,45	7,80	8,13	8,82
150°	4,09	5,15	6,06	6,89	7,44	7,77	8,39
Run VMG	3,54	4,46	5,25	6,01	6,66	7,24	7,91
Gybe Angles	145,9°	150,6°	151,1°	153,9°	167,0°	180,0°	180,0°

Class Division Length
CDL = **8,971**

Storm Sails Areas
Heavy Weather Jib **38,78**
Storm Jib (JL=11,02) **14,36**
Storm Trysail **12,66**

Owner
ERNESTO AMADOR


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

Signature

BOAT	
Name BRAVO	Sail Nr ECU-450
File ECU450	Data in meters/kilograms

INCLINING TEST AND FREEBOARDS			
Inclining Test Current Inclining			
Flotation date 26/09/2017		SG 1,0253	
FFM 1,250	FF 1,249	SFFP 0,745	
FAM 0,994	FA 0,996	SAFP 12,309	
W1 110,0	PD1 503,7	WD 11,220	
W2 110,0	PD2 508,2	GSA 1,0	
W3 110,0	PD3 503,6	RSA 1,0	
W4 110,0	PD4 502,6	PLM 9000,0	
LCF from stem on CL / on sheer		7,096 / 7,302	
Maximum beam station from stem		7,519	
RM Measured		192,6kg·m	
RM Default		183,2kg·m	
Limit of positive stability / Stab.Index		115,2° / 123,4	
Freeboard at mast at 5,277		1,056	

RIG			
Forestay Tension Aft	Spreaders 2		
Inner Stay Adjustable	Runners 1		
Carbon Mast No	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 14,735	E 4,910	MDT1 0,152	MW 0,215
IG 16,885	J 5,075	MDL1 0,240	GO 0,234
ISP 16,852	SFJ 0,202	MDT2 0,152	BD 0,193
BAS 1,532	SPL 5,060	MDL2 0,240	MWT
FSP 0,072	TPS	TL	MCG




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IMS Measurement Certificate

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MIZZEN RIG AND SAILS	
N/A	

PROPELLER			
Installation Shaft exposed	PRD 0,488		
Type Feathering 2 blades	PBW 0,153		
Twin Screw No	PIPA 0,0068		
PSA 12,800	PHL 0,215	ST3 0,141	ESL 2,340
PSD 0,032	ST1 0,024	ST4 0,054	
PHD 0,069	ST2 0,134	ST5 0,210	

COMMENTS	
EST Y FBDS	

MOVEABLE BALLAST	
N/A	

CENTERBOARD	
N/A	

SAILS (Maximum Areas)									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0,172	1,01	1,83	3,00	4,05	42,09	42,76	P/8 · (E + 2·MQW+ 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL	130,22		SL · (SFL + 4·SHW) / 6	
	16,56	16,56	16,56	9,47	9,30				
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
0,09	0,93	1,81	3,75	5,01	6,70	16,46	57,20			28/04/2016	Kevlar	REMEDIACION

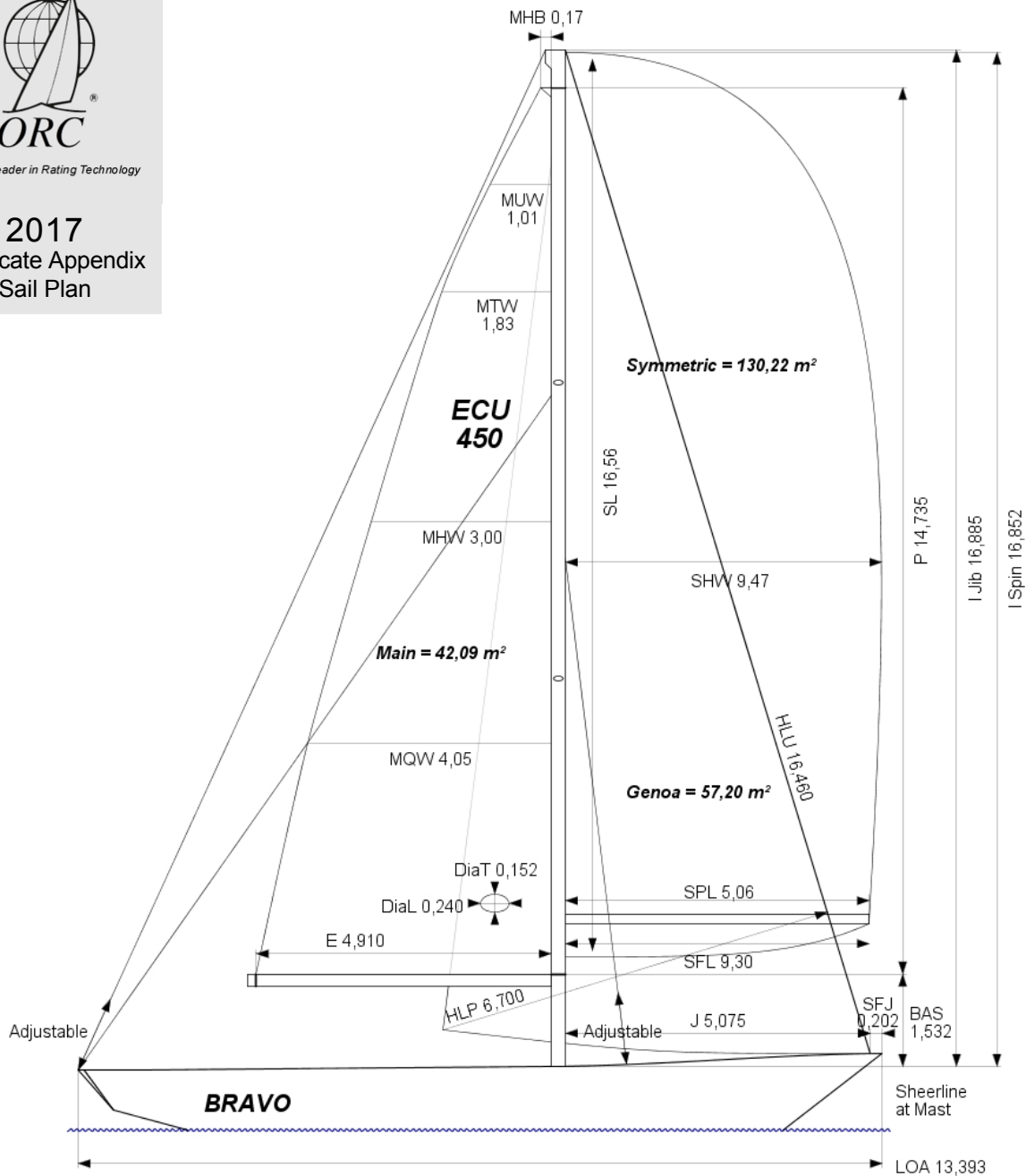
MEASUREMENT INVENTORY				
Measurer PATRICIO GUTIERREZ P G				
Date 26/09/2017				
Comment				
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>
<i>Id</i>	<i>Item</i>	<i>Maker</i>	<i>Model</i>	
C4	Engine	YANMAR		
<i>Id</i>	<i>Item</i>	<i>Weight Description</i>		

MEASUREMENT INVENTORY								
<i>Id</i>	<i>Item</i>	<i>Tank Use</i>	<i>Tank Type</i>	<i>Capcty</i>	<i>Dist.</i>	<i>VCG</i>	<i>Condtn</i>	<i>Description</i>
E6	Tank	AGUA	ALUMINIO	75,0	9,50	0,00	0-0	
B1	Tank	AGUA	ALUMINIO	75,0	6,00	0,00	0-0	
C2	Tank	PETROLEO	ALUMINIO	300,0	10,20	0,00	12,0	
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>				



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Sail Plan



SAILS INVENTORY

MAINSAIL (1)

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
MN	0,172	1,01	1,83	3,00	4,05	42,09	A VELASTEGUI	28/04/2016	UK SAILS	Kevlar	REMEDICION

HEADSAILS (1)

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
G1N	0,09	0,93	1,81	3,75	5,01	6,70	16,46	132%	57,20			A	28/04/2016	UK SAILS	Kevlar	REMEDICION

SYMMETRIC SPINNAKERS (1)

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
S1	16,56	16,56	16,56	9,47	9,30	130,22	A V M	28/04/2016	NORTH	Nylon	REMEDICION

ASYMMETRIC SPINNAKERS (0)

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