

BOAT
Name MADRUGADA Sail Nr PU-003

GPH
637.3

HULL					
Length Overall	12.822 m				
Maximum Beam	3.705 m				
Displacement	10,092 kg				
Draft	2.142 m				
IMS Reg. Division	Cruiser/Racer				
Dynamic Allowance	0.737%				
Fwd Accommodation	Yes				
Hull Construction	Solid				
Carbon Rudder	No				
Trim Tab	No				
IMS L	10.821	VCGD	0.361	VCGM	0.073
Sink	23.15 kg/mm	Wetted Area	32.94 m²		



2009
ORC International
Certificate

GENERAL
Class Oceanic 42
Designer Allan Warwick
Builder TA Chiao
Series 01/1979
Age 01/1979
Age Allowance 1.300%
Offset File MADRUGAD.OFF - 23/04/2000
Measurement by Carrion/Chalco - 31/05/1989

SCORING OPTIONS	OFFSHORE			INSHORE		
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time On Distance	637.3			718.0		
Time On Time	0.9414			0.9401		
Performance Line	PLT	PLD		PLT	PLD	
	0.833	109.0		0.944	276.3	
Triple Number	Low	Medium	High	Low	Medium	High
	0.9203	1.1978	1.3452	0.6955	0.9564	1.1191

Rating Office
Federacion Peruana Vela
Oficina de Ratings
Aguiles Rubina, CM
rubina@terra.com.pe

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1133.8	935.7	823.4	766.1	733.0	712.8	694.5
52°	715.8	591.7	538.1	514.9	501.0	491.8	482.5
60°	660.8	553.6	514.3	492.3	480.2	472.6	465.1
75°	615.5	529.6	495.3	472.8	459.8	452.1	444.1
90°	598.7	515.2	480.2	463.5	455.4	447.1	430.2
110°	608.6	520.4	482.2	459.2	444.4	432.4	418.1
120°	644.8	536.0	492.2	464.6	446.8	431.0	406.6
135°	734.6	587.9	520.2	484.1	460.5	443.6	410.8
150°	877.7	692.0	579.4	521.3	487.1	463.5	430.6
Run VMG	1013.5	799.0	669.0	589.2	538.2	503.2	458.9

Certificate
Number PERI11
ORC Ref PER00000025
Issued On 04/01/2010
VPP Ver. 1.11
Valid until 31/03/2010

Crew Weight
Declared 750 kg
Default* 750 kg

Special Scoring	
ToD	ToT
Double Handed 640.2	0.9373
Non Spinnaker 681.0	0.8811

Selected Courses							
Windward / Leeward	1094.2	879.5	758.1	686.8	643.3	614.8	582.5
Circular Random	880.2	709.6	618.1	565.0	532.6	511.5	485.7
Ocean for PCS	941.7	743.0	632.4	565.2	521.5	490.9	448.2
Non Spinnaker	962.8	766.7	659.2	595.2	555.3	529.4	498.5

Sails Limitations		
Genoa 3	Jibs 2	Spinnakers 3
Spinnaker configuration Symmetric		

Storm Sails Areas
Heavy Weather Jib 33.95
Storm Jib (JL=10.31) 12.57
Storm Trysail 13.26

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	46.8°	45.6°	44.8°	42.2°	40.5°	39.5°	38.8°
Beat VMG	3.18	3.85	4.37	4.70	4.91	5.05	5.18
52°	5.03	6.08	6.69	6.99	7.19	7.32	7.46
60°	5.45	6.50	7.00	7.31	7.50	7.62	7.74
75°	5.85	6.80	7.27	7.61	7.83	7.96	8.11
90°	6.01	6.99	7.50	7.77	7.90	8.05	8.37
110°	5.91	6.92	7.47	7.84	8.10	8.33	8.61
120°	5.58	6.72	7.31	7.75	8.06	8.35	8.85
135°	4.90	6.12	6.92	7.44	7.82	8.12	8.76
150°	4.10	5.20	6.21	6.91	7.39	7.77	8.36
Run VMG	3.55	4.51	5.38	6.11	6.69	7.15	7.85
Gybe Angles	142.4°	146.9°	149.6°	160.5°	167.3°	170.2°	174.5°

Owner
Carlos Lazarte H.
Av. Arequipa 330 - 2do. piso
Lima 1
clazarte@ultramar.com.pe

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

Signature

BOAT	
Name MADRUGADA	Sail Nr PU-003
File MADRUGAdxt	Data in meters/kilograms

INCLINING TEST AND FREEBOARDS		
Inclining Test Current Inclining		
Flotation date 21/05/2003		SG 1.0255
FFM 1.310	FF 1.310	SFFP 0.500
FAM 0.943	FA 0.943	SAFP 12.395
W1 24.750	PD1 66.8	WD 12.250
W2 49.500	PD2 133.5	GSA 38.0
W3 72.250	PD3 200.2	RSA 7800.0
W4 99.000	PD4 243.0	PLM 2130.0
Maximum beam station from stem		7.662
RM Measured / Default		164.5 / 186.6
Limit of positive stability		111.3°
Stability Index		119.6
Freeboard at mast at 5.033		1.129

RIG				
Forestay Tension Aft	Spreaders 1			
Inner Forestay None Fitted	Runners 0			
Carbon Mast No	Jumpers None			
Taper Hollows No	w/o Backstay No			
P 14.418	E 5.257	MDT1 0.175	TL	
IG 15.727	J 4.865	MDL1 0.247	MWT	
ISP 15.708	SFJ 0.168	MDT2 0.175	MCG	
SPS 3.988	SPL 4.890	MDL2 0.247	CPW 2.465	
BAS 1.035	TPS	MW 0.247	BD 0.150	
BAL 0.153	FSP	GO 0.287	BWT	




2009
IMS Measurement
Certificate

HEAVY ITEMS		
Bow Thruster No	Generator No	Air Condition No
Windlass Yes	Jib Furler No	Desalinator No
Heavy Deck Yes	Main Furler No	
Headliners No	Water Heater No	
Anchor Weight 27.0	Heavy Items Adjustment 0.0040	
Anchor LCG 1.10	Total Gyradius Adjustment 0.0560	

PROPELLER		
Installation Out of Aperture	PRD 0.460	
Type Feathering 2 blades	PBW 0.120	
Twin Screw No	PIPA 0.0082	
PSA 30.000	PHL 0.107	ST3 0.127 ESL 0.797
PSD 0.032	ST1 0.008	ST4 0.064
PHD 0.072	ST2 0.127	ST5 0.210

Certificate

Number **PER111**
 ORC Ref **PER00000025**
 Issued On **04/01/2010**
 VPP Ver. **1.11**
 Valid until **31/03/2010**



MIZZEN RIG AND SAILS	
N/A	

WATER BALLAST	
N/A	

COMMENTS

CENTERBOARD
N/A

SAILS (Maximum Areas)								
Mainsail	HB	MGT	MGU	MGM	MGL	MSW	Area	Formula
	0.145	1.02	1.90	3.30	4.34	31.00	44.12	$P/8 \cdot (E + 2 \cdot MGL + 2 \cdot MGM + 1.5 \cdot MGU + MGT + 0.5 \cdot HB)$
Jib/Genoa	JH	JGT	JGU	JGM	JGL	JL	LPG	
	0.00	0.89	1.79	3.57	5.36	16.59	7.14	$0.1125 \cdot JL \cdot (1.445 \cdot LPG + 2 \cdot JGL + 2 \cdot JGM + 1.5 \cdot JGU + JGT + 0.5 \cdot JH)$
Symmetric	SL	SMG	SF					
	15.89	9.90	9.80				130.83	$SL \cdot (SF + 4 \cdot SMG) / 6$