

BOAT Name COUGAR Sail Nr USA 4900	GPH 530.6	HULL Length Overall 16.103m Maximum Beam 4.420m Displacement 16,042kg Draft 2.216m Plan Review IMS Reg. Division Cruiser/Racer Dynamic Allowance 0.098% Hull Construction Cored Carbon Rudder No Crew Arm Extension 0.00
GENERAL Class J160 Designer JOHNSTONE Builder TPI Series 05/1996 Age 05/2003 Age Allowance 0.487% Offset File US30674A.off - 12/05/2020 16:12:08 Measurement by - 28/04/2020		IMSL 14.889m VCGD 0.073m Sink 38.45kg/mm RL 11.268m VCGM -0.014m WS 51.85m² LSM0 15.085m Displacement/Length ratio 4.6733



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SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	517.7			586.6		
Time on Time	1.1590			1.1506		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	614.1	467.6	416.9	807.9	587.1	510.4
Time on Time	1.0992	1.4436	1.6190	0.8355	1.1498	1.3225

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	928.7	758.6	672.6	629.1	605.9	591.6	573.9
52°	594.5	493.3	442.3	423.5	414.8	410.1	405.1
60°	553.4	465.3	424.4	409.2	402.2	398.1	393.8
75°	520.8	444.5	412.4	397.6	388.2	382.4	375.5
90°	513.2	432.9	402.6	387.9	378.0	370.1	354.7
110°	527.3	440.4	403.9	385.5	368.8	352.3	327.1
120°	553.7	450.9	406.0	384.9	366.7	351.9	323.2
135°	626.1	489.9	424.9	396.4	376.9	356.4	315.6
150°	746.5	590.8	487.1	429.1	402.5	388.2	357.0
Run VMG	861.9	682.2	562.5	495.7	463.9	446.0	397.5

Certificate
Number **US6529**
ORC Ref **03410000P09**
Issued On **25/08/2020**
VPP Ver. **2020 1.02**
Valid until **31/12/2020**

Crew Weight
Default **1,237kg**
Maximum **1,237kg**
Minimum* **928kg**
**when applied by the NoR and SI*
Non Manual Pwr **Sheets**

Special Scoring

ToD	ToT
Non Spin GPH 564.7	1.0625
Non Spin OSN 551.7	1.0875

Selected Courses							
Windward / Leeward	895.3	720.4	617.5	562.4	534.9	518.8	485.7
Circular Random	736.0	591.5	514.2	469.7	442.7	424.8	399.9
Coastal / Long Distance	892.0	673.3	552.0	485.4	451.6	426.7	383.0
Non Spinnaker	795.0	634.8	547.0	494.7	461.7	439.6	411.7

Sails Limitations

Headsails	Spinnakers
7	5

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	45.4°	43.9°	43.1°	42.2°	41.3°	40.3°	39.2°
Beat VMG	3.88	4.75	5.35	5.72	5.94	6.09	6.27
52°	6.06	7.30	8.14	8.50	8.68	8.78	8.89
60°	6.51	7.74	8.48	8.80	8.95	9.04	9.14
75°	6.91	8.10	8.73	9.05	9.27	9.42	9.59
90°	7.02	8.32	8.94	9.28	9.53	9.73	10.15
110°	6.83	8.17	8.91	9.34	9.76	10.22	11.01
120°	6.50	7.98	8.87	9.35	9.82	10.23	11.14
135°	5.75	7.35	8.47	9.08	9.55	10.10	11.41
150°	4.82	6.09	7.39	8.39	8.94	9.27	10.08
Run VMG	4.18	5.28	6.40	7.26	7.76	8.07	9.06
Gybe Angles	142.5°	145.5°	143.9°	150.5°	151.5°	153.0°	178.0°

Class Division Length
CDL = **13.079**

Storm Sails Areas
Heavy Weather Jib **55.48**
Storm Jib (JL=13.18) **20.55**
Storm Trysail **24.80**

Owner

BOAT	
Name COUGAR	Sail Nr USA 4900
File US6529	Data in meters/kilograms

RIG	
Forestay Tension Aft	Spreaders 3
Inner Stay None Fitted	Runners/Checkstays 2
Carbon Mast Yes	Jib Furler No
Fiber Rigging No	Main Furler No
Non-Circular Rigging No	
Articulated Bowsprit No	
P 18.895	E 7.500
IG 20.133	J 5.713
ISP 21.108	SFJ
BAS 1.883	SPL
FSD 0.036	TPS 7.708
MDT1 0.150	MW 0.246
MDL1 0.276	GO 0.285
MDT2 0.137	BD 0.246
MDL2 0.230	MWT 373.50
TL 1.070	MCG 6.845

INCLINING TEST AND FREEBOARDS		
Inclining Test Boom Inclining	LCFD	9.193
Flotation date 28/04/2020	SG	1.0150
FFM 1.378	FF 1.369	SFFP 0.610
FAM 0.958	FA 0.986	SAFP 15.531
W1 183.3	PD1 233.7	WD 7.192
W2 183.3	PD2 235.8	GSA 1.0
W3 183.3	PD3 232.8	RSA 1.0
W4 183.3	PD4 230.2	PLM 9000.0
LCF from stem on CL / on sheer		8.882 / 9.146
Maximum beam station from stem		9.693
RM Measured		445.4kg-m
RM Default		440.1kg-m
Limit of positive stability / Stab.Index		109.8° / 120.6
Freeboard at mast at 5.713		1.136



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IMS Measurement
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MIZZEN RIG AND SAILS	
N/A	

PROPELLER		
Installation Shaft exposed	PRD	0.600
Type Feathering 3 blades	PBW	0.140
Twin Screw No	PIPA	0.0088
PSA 20.000	PHL 0.177	ST3 0.177
PSD 0.037	ST1 0.019	ST4 0.080
PHD 0.083	ST2 0.153	ST5 0.293

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COMMENTS	

MOVABLE BALLAST	
N/A	

CENTERBOARD	
N/A	



SAILS (Maximum Areas)									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0.20	1.55	2.79	4.78	6.17	83.22	85.27	P/8 · (E + 2·MQW+ 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric Not Available									
Asymmetric on centerline	SLU	SLE	SL	SHW	SFL	Area	Formula		
	23.60	19.72	21.66	14.16	13.83	254.40	AS · (SFL + 4·SHW) / 6		

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	Flying	Meas.Date	Material	Comment
0.08	1.04	2.04	4.09	6.18	8.34	20.17	83.34	No	12/12/2019		L-M genoa	

MEASUREMENT INVENTORY				
Measurer	Date 28/04/2020			
Comment	Internal Ballast total = 0.0			
<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>	
1	Engine	Yanmar	4JH2-DTE	
<i>Id</i>	<i>Item</i>	<i>Weight Description</i>		

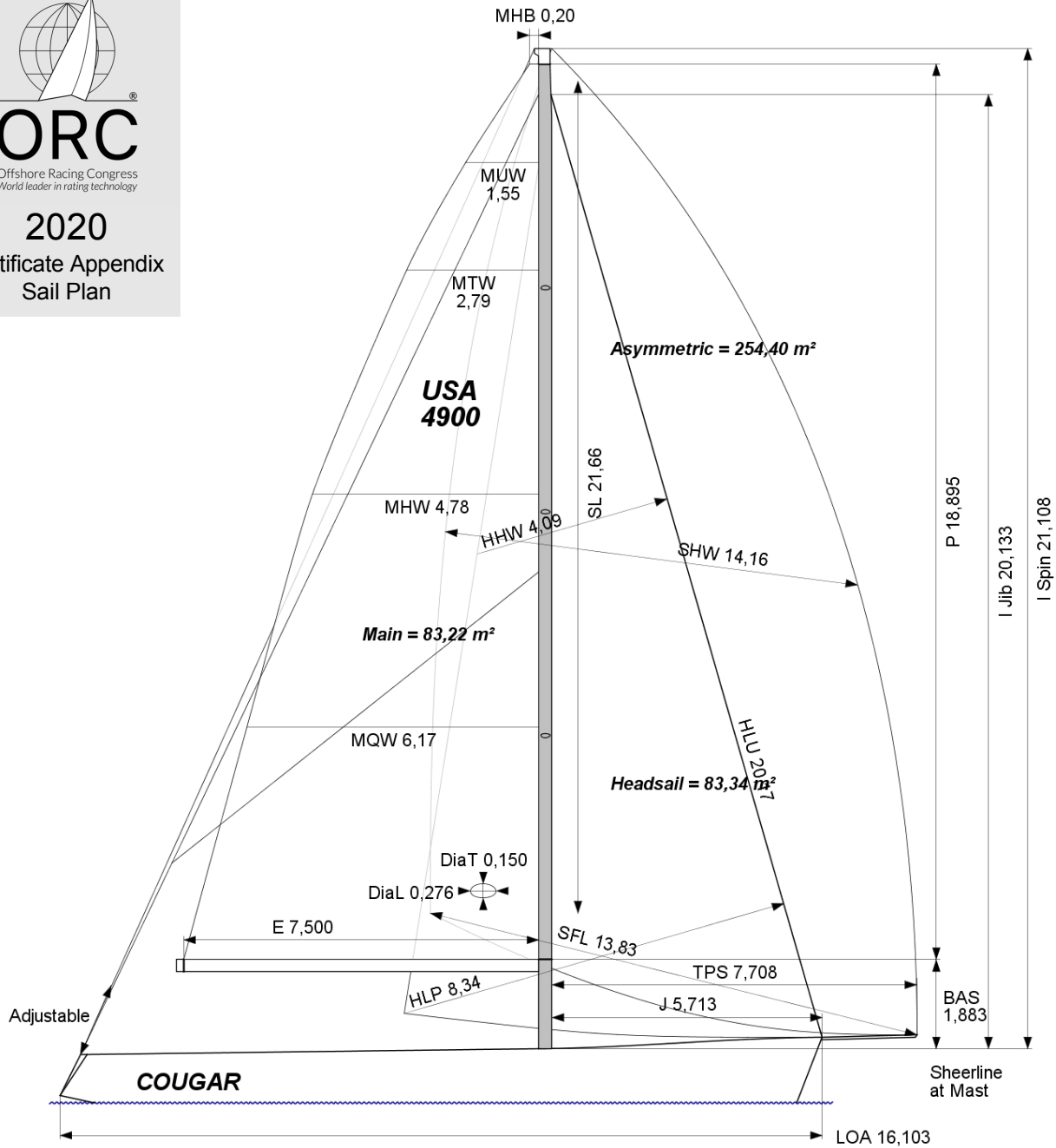
MEASUREMENT INVENTORY									
<i>Id</i>	<i>Item</i>	<i>Tank Use</i>	<i>Tank Type</i>	<i>Capcty</i>	<i>Dist.</i>	<i>VCG</i>	<i>Condtn</i>	<i>Description</i>	
7	Tank	Propane	Alloy	30.0	14.00	0.90	0-0	2x outboard stbd side	
6	Tank	Waste	Alloy	90.0	9.80	-0.20	0-0	centerline	
5	Tank	Waste	Alloy	90.0	4.70	0.50	0-0	forward cabin port	
4	Tank	Water	PVC	300.0	7.10	0.10	0-0	stbd side settee	
3	Tank	Water	PVC	300.0	7.10	0.10	0-0	port side settee	
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>					
3	Battery	20.0	10.40	-0.20 12V AGM starter battery, CL port side adj. to					
2	Battery	70.0	9.30	-0.20 house batteries on CL					
1	Battery	70.0	10.30	-0.20 2x12 V deep cycle AGM house batteries on CL					
3	Misc	12.0	16.00	3.20 backstay-mounted radar dome					
2	Misc	70.0	14.10	0.30 5.7 kW diesel genset centerline					
1	Misc	25.0	7.70	0.40 HVAC system port side outboard					



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Sail Plan



SAILS INVENTORY

MAINSAIL (1)

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
OUS135626-	0.20	1.55	2.79	4.78	6.17	83.23		27/12/2019	North		

HEADSAILS (1)

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Flying	Measurer	Meas.Date	Manufacture	Material	Comment
OUS135	0.08	1.04	2.04	4.09	6.18	8.34	20.17	146%	83.34		No		12/12/2019	North		L-M genoa

SYMMETRIC SPINNAKERS (0)

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
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ASYMMETRIC SPINNAKERS (2)

Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment
OUS135626-	23.60	19.72	21.66	14.16	13.83	254.40	asym		04/12/2019	North	Nylon	A2
OUS135626-	21.20	19.23	20.22	8.08	10.75	145.11	asy76		04/12/2019	North	Unknown	A0