



Double Handed
Club Certificate
2025

ANDROMEDA
USA 61894

US SAILING
1 ROGER WILLIAMS UNI WAY
BRISTOL, RI 02809
USA



APH ToD: **567.8**

CDL: **8.980**

APH ToT: **1.0568**

CertNo: **US61894**

BOAT

Class **Cal 39-2 TR**
Designer **Lapworth**
Builder **Cal yachts**
Age date **01/1979**
Series date **01/1977**
Offset file **CAL39-MKII.off**
Data file **US61894**

HULL

Length Overall **11.906 m**
Maximum Beam **3.650 m**
Draft **2.029 m**
Displacement **7,711 kg**
DLR **8.1411**
IMS Division **Cruiser/Racer**
Dynamic Allowance **0.240%**
Age Allowance **0.487%**

PROPELLER

Installation **Shaft exposed**
Type **Feathering 3 blades**
Diameter **0.432m**

CREW

Maximum weight **170 kg (default)**
Minimum weight **120 kg * when applied**
Non Manual Power
Crew Arm Extension

SAIL AREAS (m²)

	Measured	Rated
Mainsail	35.53	35.94
Headsail Luffed	57.41	57.41
Headsail Flying		
Symmetric	116.03	116.03
Asymmetric		

STORM SAIL AREAS (m²)

Trysail **10.78**
Storm Jib **13.55**
Heavy Weather Jib **36.58**

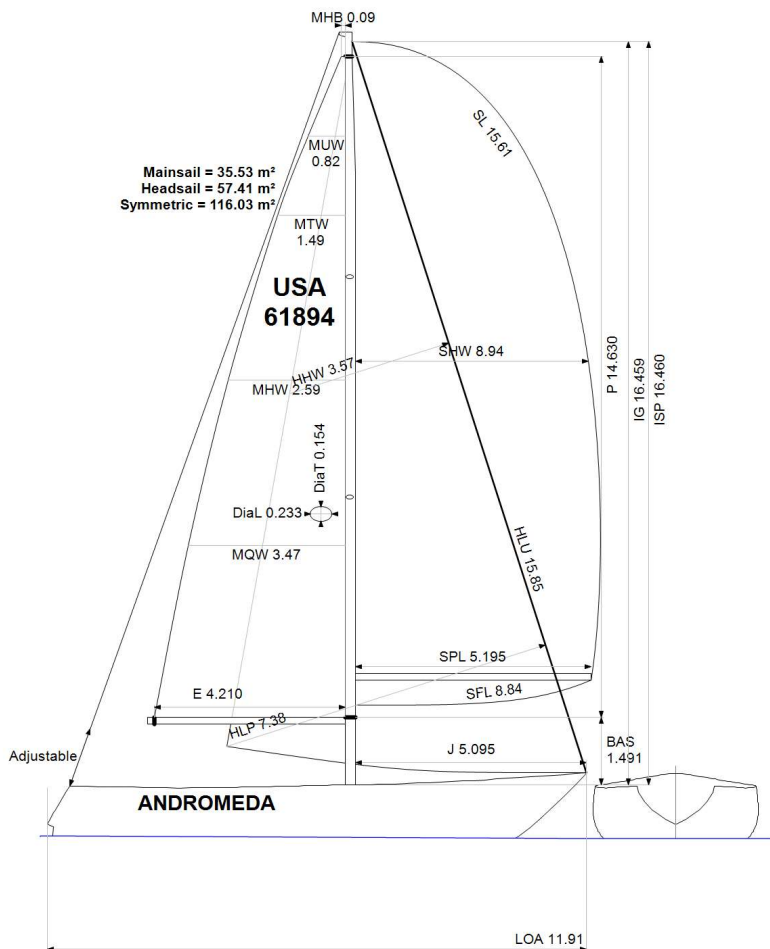
SAIL LIMITS

Headsails **5**
Spinnakers **4**

STABILITY

Righting Moment **N/A**
Stability Index **N/A**

The owner and any other person in charge is responsible that boat is complying with her certificate in accordance with RRS 78.1 and ORC Rule 304.



Rated boat velocities in knots

Wind Velocity	4 kt	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt	24 kt
Beat Angles	42.9°	42.9°	41.0°	39.9°	39.1°	38.7°	38.5°	38.9°	40.1°
Beat VMG	2.60	3.54	4.23	4.67	4.88	4.98	5.02	5.01	4.88
52°	4.01	5.35	6.24	6.73	6.97	7.06	7.11	7.13	7.07
60°	4.24	5.59	6.45	6.91	7.14	7.26	7.32	7.36	7.34
75°	4.38	5.74	6.58	7.04	7.31	7.49	7.60	7.72	7.78
90°	4.26	5.63	6.53	7.04	7.35	7.59	7.78	8.06	8.20
110°	3.99	5.46	6.55	7.15	7.52	7.80	7.99	8.28	8.37
120°	3.87	5.32	6.42	7.09	7.51	7.85	8.16	8.61	8.93
135°	3.45	4.83	5.97	6.80	7.31	7.69	8.05	8.78	9.65
150°	2.87	4.13	5.26	6.20	6.90	7.36	7.72	8.41	9.26
Run VMG	2.48	3.58	4.56	5.39	6.10	6.68	7.12	7.80	8.44
Gybe Angles	146.2°	146.2°	150.3°	153.2°	158.8°	165.5°	171.8°	177.2°	176.3°



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Time Allowances in secs/NM									
Wind Velocity	4 kt	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt	24 kt
Beat VMG	1386.2	1018.0	850.5	770.2	737.3	722.9	716.6	718.8	737.0
52°	897.3	673.5	577.4	534.8	516.8	509.6	506.0	504.6	509.3
60°	850.0	644.1	558.3	521.1	503.9	496.0	492.1	489.1	490.4
75°	822.6	627.1	547.0	511.4	492.7	480.8	473.5	466.5	462.9
90°	845.7	639.0	551.6	511.6	489.8	474.6	462.7	446.6	438.9
110°	901.5	658.8	549.9	503.3	478.9	461.6	450.8	435.0	430.3
120°	929.8	676.6	561.0	507.5	479.4	458.3	440.9	417.9	403.2
135°	1044.9	746.0	603.5	529.4	492.5	468.0	447.2	410.1	373.1
150°	1255.3	871.9	684.3	580.5	521.5	489.4	466.5	427.9	389.0
Run VMG	1449.8	1006.7	789.9	667.8	590.0	539.1	505.5	461.3	426.4
Selected Courses									
Windward / Leeward	1416.2	1012.4	820.2	719.0	663.6	631.0	611.1	590.0	581.7
All purpose	1079.4	786.1	650.8	583.6	548.7	528.3	514.9	498.4	489.7

Single Number Scoring Options		
Course	Time On Distance	Time On Time
Windward / Leeward	692.3	0.8666
All purpose	567.8	1.0568

Custom scoring options for United States of America

Scoring Option	TOD	TOT
Triple Number AP Low	718.4	0.8351
Triple Number AP Medium	563.8	1.0643
Triple Number AP High	512.1	1.1717
Triple Number Windward/Leeward Low	956.4	0.6274
Triple Number Windward/Leeward Medium	687.0	0.8734
Triple Number Windward/Leeward High	608.1	0.9866
Single Number Predominant Upwind	635.9	0.9436
Single Number Predominant Reaching	565.5	1.0610
Single Number Predominant Downwind	599.8	1.0003
Predominant Upwind - Low	853.4	0.7030
Predominant Upwind - Low/Med	663.8	0.9039
Predominant Upwind - Medium	594.4	1.0094
Predominant Upwind - Med/High	562.6	1.0664
Predominant Upwind - High	552.2	1.0866
Predominant Downwind Low	870.6	0.6892
Predominant Downwind Low/Med	647.7	0.9264
Predominant Downwind Medium	554.7	1.0817
Predominant Downwind Med/High	498.9	1.2027
Predominant Downwind High	468.1	1.2817
Predominant Reaching Low	771.5	0.7777
Predominant Reaching Low/Med	597.1	1.0048
Predominant Reaching Medium	529.8	1.1324
Predominant Reaching Med/High	491.7	1.2203
Predominant Reaching High	470.9	1.2743

SA/DSPL Upwind	23.65	SA/DSPL Downwind	38.57
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Scoring Option	TOD	TOT
5-Band Windward/Leeward Low	1065.8	0.5630
5-Band Windward/Leeward Low/Med	789.7	0.7598
5-Band Windward/Leeward Medium	676.0	0.8876
5-Band Windward/Leeward Med/High	615.3	0.9751
5-Band Windward/Leeward High	592.2	1.0131
Windward/Leeward 60-40 Low	1066.2	0.5627
Windward/Leeward 60-40 Low/Med	797.8	0.7521
Windward/Leeward 60-40 Medium	690.4	0.8691
Windward/Leeward 60-40 Med/High	636.2	0.9431
Windward/Leeward 60-40 High	618.1	0.9707
5-Band AP Low	794.5	0.7552
5-Band AP Low/Med	631.9	0.9495
5-Band AP Medium	556.7	1.0778
5-Band AP Med/High	517.2	1.1600
5-Band AP High	499.8	1.2005
5-Band SF Bay Tour - Low	921.0	0.6515
5-Band SF Bay Tour - Low/Med	756.5	0.7932
5-Band SF Bay Tour - Medium	654.8	0.9163
5-Band SF Bay Tour - Med/High	602.8	0.9954
5-Band SF Bay Tour - High	582.6	1.0299
Chicago-Mac Upwind		0.9178
Chicago-Mac All Purpose		0.9444
Chicago-Mac Downwind		0.9658
Bayview-Mac Cove Island		0.7003
Bayview-Mac Shore		0.7056
Harvest Moon Regatta	496.4	1.2087



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Data in **meters/kilograms (Metric)**

HULL AND APPENDAGES (Lightship Trim)

Class	Cal 39-2 TR	LOA	11.906	VCGD	-0.248
Measurement		Max. Beam	3.650	VCGM	-0.206
HIN	CABJ1005M79H	Draft	2.029	RM Rated (kg·m)	205.0
Plan review		Displacement	7,711	Limit of positive stability(°)	N/A
Hull construction	Solid	Wetted area	31.24	Stability Index	N/A
Carbon rudder	No	IMS L	9.755	Default crew weight	170
Light stanchions	No	LSM0	9.820	Declared crew weight	N/A
Trim tab	No	Acc. length	11.863		
		Sink (kg/mm)	21.40		

PROPELLER

Propeller Type	Feathering 3 blades						
Installation	Shaft exposed	PRD	0.432	PSD	0.031	PSA	16.0°
Twin screw	No	PBW	0.112	PHD	0.062	ESL	0.672
Hydro generator	No	PIPA	0.0045	PHL	0.184	ST1	0.025
						ST2	0.132
						ST3	0.132
						ST4	0.080
						ST5	0.190

RIG

Forestay tension	Aft	P	14.630	E	4.210
Inner stay	None Fitted	IG	16.459	J	5.095
Mast material	Aluminum	ISP	16.460	BAS	1.491
Single headsail furler	No	MDT1	0.154	FSD	0.036
Mainsail furler		MDL1	0.233	SFJ	0.000
Articulated bowsprit	No	MDT2	0.148	SPL	5.195
Non-circular rigging	No	MDL2	0.157	WPL	
Fiber rigging	No	TL	2.592	TPS	
Adjustable mast foot	No	MW	0.153	BD	0.150
Running backstays	0	GO	0.153	MWT	
Checkstays				MCG	
Spreaders	2				
Rotating mast	No				

FLOTATION AND STABILITY

Calculation method	RM entered directly
RM entered	205.0
Flotation Date	05/05/2021



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MAINSAIL

<i>Id</i>	<i>MHB</i>	<i>MUW</i>	<i>MTW</i>	<i>MHW</i>	<i>MQW</i>	<i>Area</i>	<i>Meas.Date</i>	<i>Comment</i>
Mn-23	0.09	0.82	1.49	2.59	3.47	35.53	18/03/2025	

HEADSAIL

<i>Id</i>	<i>HHB</i>	<i>HUW</i>	<i>HTW</i>	<i>HHW</i>	<i>HQW</i>	<i>HLP</i>	<i>HLU</i>	<i>Btn</i>	<i>Flying FT</i>	<i>Area</i>	<i>Meas.Date</i>	<i>Comment</i>
G1	0.08	0.87	1.71	3.57	5.46	7.38	15.85	No	No	57.41	18/01/2025	

SYMMETRIC SPINNAKER

<i>Id</i>	<i>SLU</i>	<i>SLE</i>	<i>SL</i>	<i>SHW</i>	<i>SFL</i>	<i>Area</i>	<i>Meas.Date</i>	<i>Comment</i>
S2	15.61	15.61	15.61	8.94	8.84	116.03	11/07/2000	

CRUISER/RACER REQUIREMENTS*

Accommodation length	11.9 m	Table area	0.55 m ²	Headroom	1.81 m
Minimum number of berths	5	Personal gear stowage	0.20 m ³	Fresh water capacity	148 l
Minimum number of seats in cockpit	5	Food stowage	0.30 m ³	Fuel capacity	88 l
Cabin sole		Stoves		Sinks	
Galley gear stowage		Toilet		Wash basin	
Navigation area		Hanging locker			

*This list is a summary of the requirements. See IMS Appendix 1 for details.