

12

INTERNATIONAL TWELVE METRE CLASS

Yacht's Name Courageous

National letters and Sail Number USA 26 Club New York Yacht Club

Designer Sparkman & Stephens

Builder Minnefords Building Year 1974

Owner The Courageous Foundation Inc.

Owner's Address 559 Thames Street D-1S Newport, Rhode Island. USA

Lloyds R class certificate (Number or Date) _____

RATING CERTIFICATE APPENDIX E

This yacht has been measured by measurer(s) appointed by the International Twelve Metre Association and has been found to rate not more than 12.000 metres.

This certificate is dated July 18 2017

Measurer A Williams

Signature Ander

Valid until July 18, 2019

Supersedes July 6, 2015



Signature _____
ITMA Technical Director



Stamp of Authority of the
International Twelve Metre Association

RATING CALCULATION

OVERALL LENGTH				19.980
Overhang Forward to L1			2.117	
Overhang Aft to L1			2.235	
Total Overhang (Subtract)			4.352	
MEASURED LENGTH (L1 L1)				15.628
Girth at Bow			1.620	
Twice vertical Height at Bow (Subtract)			1.200	
O at Bow			0.420	
Add 1 1/2 O at Bow (min 0.540 m)			0.630	
Girth at Stern			3.578	
Twice vertical Height at Stern (Subtract)			2.030	
O at Stern			1.548	
Add 1/3 O at Stern (min 0.400 m)			0.516	
Add any penalty (Beam)			0.000	
Sum of Length and Girth Corrections				16.774
Age Date and Allowance	1974- 1983	Allowance	0.987	
CORRECT LENGTH L				16.556
Skin d to d1 Port			3.423	
Chain d to d1 Port			3.400	
d Port			0.023	
Skin d to d1 Starboard			3.420	
Chain d to d1 Starboard			3.397	
d Starboard			0.023	
Add d			0.046	
Add GIRTH 2 d				0.092
Mean Freeboard Bow O	Actual	1.249	1.249	
Mean Freeboard Midship d	Actual	1.217	1.217	
Mean Freeboard Stern O	Actual	1.195	1.187	
Sum of Freeboards			3.653	
Subtract FREEBOARD, F			See Notes	1.210
Add SAIL AREAS (Square root)				12.999
TOTAL OF MEASUREMENTS				28.437
PENALTY (Draught)			0.000	
RATING				11.999

Date and place of Measurement **July 18 2017**

Measurer's Name(s)

A Williams

Signature

Ander

PENALTIES

Overhang Forward to L	2.735
Overhang Aft to L	3.420
Subtract from overall length	13.825
Difference of immersion from salt to fresh water	n/a

WATERLINE LENGTH

Minimum Displacement for Zero Penalty [m3]	24.769	13.825
Minimum Weight for Zero Penalty [tonne] (Water of sg 1.025)	25.389	

WEIGHT [tonnes] Actual Weight

Equivalent LWL (for Displ. < min.)	13.846	25.500
Difference		
DISPLACEMENT PENALTY (add to L)		0.000

DRAUGHT (actual)

Max. Draught for Zero Penalty	2.704	
Difference (if positive)	2.712	
DRAUGHT PENALTY (add to Rating)	-0.008	0.000

BEAM (Min)

Max Beam at 1/3 of Midship Freeboard	3.600	
Difference (if positive)	3.647	
BEAM PENALTY (add to L)	-0.047	0.000
Tumblehome Max. (2 x 2% of Extr. Beam)	0.149	
Extreme Beam	3.725	
Beam at deck	3.725	
Difference (if positive)	0.000	
TUMBLEHOME PENALTY (add to Rating)		0.000

Date and place of Measurement **July 18 2017**

Measurer's Name(s)

A Williams

Signature

Ander

SAIL PLAN

Max Height of Sail Plan =	<input type="text" value="25.000"/>	J=	<input type="text" value="7.395"/>	I =	<input type="text" value="18.750"/>
Boom Height =	<input type="text" value="1.499"/>	A=	<input type="text" value="23.501"/>	B=	<input type="text" value="9.365"/>
Rated Mainsail Area	<input type="text" value="110.043"/>	Spi boom=	<input type="text" value="7.395"/>	√S=	<input type="text" value="12.999"/>
Rated Foretriangle Area	<input type="text" value="58.929"/>	Propeller allowance	<input type="text" value="1.000"/>		
TOTAL RATED SAIL AREA	<input type="text" value="168.972"/>	Corrected sail area	<input type="text" value="168.972"/>		

SAIL LIMITS

Mainsail max girth:	1/2 height (68%)	<input type="text" value="6.368"/>	3/4 height (41%)	<input type="text" value="3.840"/>
Genoa:	max. foot length (J + 4.8m)	<input type="text" value="12.195"/>		
Spinnaker:	1/2 foot max breadth (125% J)	<input type="text" value="9.244"/>	max. luff length=	<input type="text" value="18.624"/>

Spar Measurement

MAST (material)	<input type="text" value="Aluminium"/>	Mast Weight	<input type="text" value="546"/>	CG pos.	<input type="text" value="9.503"/>
Mast dimensions [mm]	Deck	Half-Height	Jib-Halyard	Head	
	<input type="text" value="352 x 248"/>	<input type="text" value="351 x 247"/>	<input type="text" value="282 x 205"/>	<input type="text" value="169 x 125"/>	
Sections area [cm ²]	<input type="text" value="680"/>	<input type="text" value="681"/>	<input type="text" value="454"/>	<input type="text" value="166"/>	

Engine/Propeller Installation

Engine and propeller weight	<input type="text" value="None"/>	Propeller diameter =	<input type="text" value="None"/>
Minimum boat speed with engine	<input type="text" value="None"/>	Propeller position =	<input type="text" value="None"/>
Engine model and power	<input type="text" value="None"/>		

Flotation

Internal Ballast	Nil		
Lead Blocks 5 x 25.4 kg	127 kgs	9.52m	from bow

Measurer's Notes

Freeboards as per 1971 Rule

This certificate is valid for ISAF and ITMA Championship Events provided the 2 hatches in the aft deck and 1 hatch immediately forward of the helm on the port side is secured closed whilst racing.

New Rudder 2008

Keel Pockets filled Fwd 212 kgs Aft 476 kgs

Date and place of Measurement	July 18 2017	
Measurer's Name(s)	A Williams	Signature 