

<b>BOAT</b> Name <b>DAUNTLESS</b> Sail Nr <b>USA-28477</b>	<b>GPH</b> <b>559.2</b>	<b>HULL</b> Length Overall <b>14.506m</b> Maximum Beam <b>4.512m</b> Displacement <b>11,572kg</b> Draft <b>2.788m</b> IMS Reg. Division <b>Cruiser/Racer</b> Dynamic Allowance <b>0.072%</b> Fwd Accommodation <b>Yes</b> Hull Construction <b>Solid</b> Carbon Rudder <b>No</b> Crew Arm Extension
<b>GENERAL</b> Class <b>FIRST 47.7</b> Designer <b>B.FARR</b> Builder <b>BENETEAU</b> Series <b>12/1999</b> Age <b>01/2001</b> Age Allowance <b>0.487%</b> Offset File <b>F190.OFF - 30/11/1999 12:13:02</b> Measurement by <b>D. Davis/R. Draftz - 10/03/2017</b>		IMSL <b>12.732m</b> VCGD <b>0.109m</b> Sink <b>31.55kg/mm</b> RL <b>10.696m</b> VCGM <b>0.158m</b> WS <b>41.35m<sup>2</sup></b> LSMO <b>12.693m</b> Displacement/Length ratio <b>5.6587</b>



World Leader in Rating Technology

**2017**  
ORC International  
Certificate

**Rating Office**

Offshore  
Racing  
Congress



World Leader in Rating Technology

SCORING OPTIONS	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
	Low	Medium	High	Low	Medium	High
Time On Distance	<b>543.2</b>			<b>608.6</b>		
Time On Time	<b>1.1046</b>			<b>1.1092</b>		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	<b>651.9</b>	<b>492.8</b>	<b>433.2</b>	<b>849.4</b>	<b>613.7</b>	<b>522.0</b>
Time on Time	<b>1.0355</b>	<b>1.3697</b>	<b>1.5583</b>	<b>0.7947</b>	<b>1.0999</b>	<b>1.2932</b>

TIME ALLOWANCES	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	<b>972.4</b>	<b>800.3</b>	<b>700.6</b>	<b>645.6</b>	<b>619.5</b>	<b>605.4</b>	<b>596.7</b>
52°	<b>630.5</b>	<b>526.0</b>	<b>467.6</b>	<b>442.8</b>	<b>433.2</b>	<b>428.2</b>	<b>423.5</b>
60°	<b>591.6</b>	<b>496.4</b>	<b>450.1</b>	<b>430.2</b>	<b>420.6</b>	<b>415.4</b>	<b>410.1</b>
75°	<b>559.1</b>	<b>473.7</b>	<b>438.0</b>	<b>419.4</b>	<b>405.5</b>	<b>395.2</b>	<b>386.1</b>
90°	<b>558.6</b>	<b>472.3</b>	<b>434.0</b>	<b>417.0</b>	<b>401.5</b>	<b>386.4</b>	<b>364.4</b>
110°	<b>576.7</b>	<b>472.3</b>	<b>429.1</b>	<b>406.5</b>	<b>389.4</b>	<b>378.9</b>	<b>360.2</b>
120°	<b>593.3</b>	<b>484.5</b>	<b>434.8</b>	<b>410.0</b>	<b>387.7</b>	<b>369.6</b>	<b>346.2</b>
135°	<b>662.3</b>	<b>529.9</b>	<b>457.7</b>	<b>425.5</b>	<b>404.0</b>	<b>382.5</b>	<b>341.2</b>
150°	<b>782.9</b>	<b>624.1</b>	<b>522.2</b>	<b>459.3</b>	<b>428.1</b>	<b>407.8</b>	<b>368.7</b>
Run VMG	<b>904.0</b>	<b>720.7</b>	<b>603.0</b>	<b>527.0</b>	<b>481.3</b>	<b>445.5</b>	<b>402.5</b>

**Certificate**

Number **US6171**  
ORC Ref **USA00000925**  
Issued On **17/04/2017**  
VPP Ver. **2017 1.00**  
Valid until **28/02/2018**

**Crew Weight**

Declared **967kg**  
Default\* **967kg**  
Non Manual Pwr **No**

**Special Scoring**

ToD ToT  
Non Spin GPH **591.3 1.0147**  
Non Spin OSN **574.8 1.0438**

Selected Courses	938.2	760.5	651.8	586.3	550.4	525.4	499.6
Windward / Leeward	<b>938.2</b>	<b>760.5</b>	<b>651.8</b>	<b>586.3</b>	<b>550.4</b>	<b>525.4</b>	<b>499.6</b>
Circular Random	<b>779.1</b>	<b>625.5</b>	<b>542.1</b>	<b>493.0</b>	<b>462.4</b>	<b>442.3</b>	<b>417.5</b>
Ocean for PCS	<b>958.1</b>	<b>736.0</b>	<b>609.7</b>	<b>532.1</b>	<b>481.6</b>	<b>446.8</b>	<b>399.5</b>
Non Spinnaker	<b>835.0</b>	<b>665.8</b>	<b>572.6</b>	<b>516.8</b>	<b>481.5</b>	<b>458.1</b>	<b>428.9</b>

**Sails Limitations**

Headsails	Spinnakers
<b>7</b>	<b>5</b>

Velocity Prediction in Knots for True Wind Speeds	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	<b>43.8°</b>	<b>42.4°</b>	<b>42.1°</b>	<b>40.6°</b>	<b>39.1°</b>	<b>38.8°</b>	<b>38.8°</b>
Beat VMG	<b>3.70</b>	<b>4.50</b>	<b>5.14</b>	<b>5.58</b>	<b>5.81</b>	<b>5.95</b>	<b>6.03</b>
52°	<b>5.71</b>	<b>6.84</b>	<b>7.70</b>	<b>8.13</b>	<b>8.31</b>	<b>8.41</b>	<b>8.50</b>
60°	<b>6.09</b>	<b>7.25</b>	<b>8.00</b>	<b>8.37</b>	<b>8.56</b>	<b>8.67</b>	<b>8.78</b>
75°	<b>6.44</b>	<b>7.60</b>	<b>8.22</b>	<b>8.58</b>	<b>8.88</b>	<b>9.11</b>	<b>9.32</b>
90°	<b>6.45</b>	<b>7.62</b>	<b>8.29</b>	<b>8.63</b>	<b>8.97</b>	<b>9.32</b>	<b>9.88</b>
110°	<b>6.24</b>	<b>7.62</b>	<b>8.39</b>	<b>8.86</b>	<b>9.24</b>	<b>9.50</b>	<b>10.00</b>
120°	<b>6.07</b>	<b>7.43</b>	<b>8.28</b>	<b>8.78</b>	<b>9.28</b>	<b>9.74</b>	<b>10.40</b>
135°	<b>5.44</b>	<b>6.79</b>	<b>7.86</b>	<b>8.46</b>	<b>8.91</b>	<b>9.41</b>	<b>10.55</b>
150°	<b>4.60</b>	<b>5.77</b>	<b>6.89</b>	<b>7.84</b>	<b>8.41</b>	<b>8.83</b>	<b>9.77</b>
Run VMG	<b>3.98</b>	<b>5.00</b>	<b>5.97</b>	<b>6.83</b>	<b>7.48</b>	<b>8.08</b>	<b>8.94</b>
Gybe Angles	<b>142.4°</b>	<b>147.7°</b>	<b>147.1°</b>	<b>153.5°</b>	<b>160.4°</b>	<b>180.0°</b>	<b>180.0°</b>

**Class Division Length**

CDL = **11.715**

**Storm Sails Areas**


Heavy Weather Jib **48.99**  
Storm Jib (JL=12.38) **18.15**  
Storm Trysail **18.98**

**Owner**

<b>BOAT</b>	
Name <b>DAUNTLESS</b>	Sail Nr <b>USA28477</b>
File <b>US6171</b>	Data in <b>meters/kilograms</b>

<b>INCLINING TEST AND FREEBOARDS</b>			
Inclining Test <b>Current Inclining</b>			
Flotation date <b>10/03/2017</b>		SG <b>1.0150</b>	
FFM <b>1.587</b>	FF <b>1.589</b>	SFFP <b>0.520</b>	
FAM <b>1.326</b>	FA <b>1.333</b>	SAFP <b>13.746</b>	
W1 <b>113.0</b>	PD1 <b>430.0</b>	WD <b>15.745</b>	
W2 <b>113.0</b>	PD2 <b>430.0</b>	GSA <b>1.0</b>	
W3 <b>113.0</b>	PD3 <b>430.0</b>	RSA <b>1.0</b>	
W4 <b>113.0</b>	PD4 <b>430.0</b>	PLM <b>9000.0</b>	
LCF from stem on CL / on sheer		<b>7.802 / 8.092</b>	
Maximum beam station from stem		<b>8.884</b>	
RM Measured		<b>325.8kg·m</b>	
RM Default		<b>342.6kg·m</b>	
Limit of positive stability / Stab.Index		<b>113.1° / 117.3</b>	
Freeboard at mast at 5.500		<b>1.427</b>	

<b>RIG</b>			
Forestay Tension <b>Aft</b>	Spreaders <b>3</b>		
Inner Stay <b>None Fitted</b>	Runners <b>0</b>		
Carbon Mast <b>Yes</b>	Jumper Struts <b>None</b>		
Taper Hollows <b>No</b>	Jib Furler <b>No</b>		
Fiber Rigging <b>No</b>	Main Furler <b>No</b>		
Lenticular Rigging <b>No</b>	Without Backstay <b>No</b>		
Articulated Bowsprit <b>No</b>			
P <b>16.750</b>	E <b>6.475</b>	MDT1 <b>0.138</b>	MW <b>0.230</b>
IG <b>18.953</b>	J <b>5.500</b>	MDL1 <b>0.266</b>	GO <b>0.258</b>
ISP <b>19.253</b>	SFJ	MDT2 <b>0.122</b>	BD <b>0.244</b>
BAS <b>1.903</b>	SPL <b>5.845</b>	MDL2 <b>0.230</b>	MWT
FSP <b>0.072</b>	TPS <b>6.285</b>	TL <b>1.000</b>	MCG



World Leader in Rating Technology

**2017**

**IMS Measurement Certificate**

**Certificate**

Number **US6171**  
 ORC Ref **USA00000925**  
 Issued On **17/04/2017**  
 VPP Ver. **2017 1.00**  
 Valid until **28/02/2018**



World Leader In Rating Technology

<b>MIZZEN RIG AND SAILS</b>	
N/A	

<b>PROPELLER</b>			
Installation <b>Shaft exposed</b>	PRD <b>0.540</b>		
Type <b>Folding 2 blades</b>	PBW <b>0.150</b>		
Twin Screw <b>No</b>	PIPA <b>0.0064</b>		
PSA <b>18.260</b>	PHL <b>0.140</b>	ST3 <b>0.124</b>	ESL <b>1.040</b>
PSD <b>0.030</b>	ST1 <b>0.043</b>	ST4 <b>0.062</b>	
PHD <b>0.080</b>	ST2 <b>0.124</b>	ST5 <b>0.228</b>	

<b>COMMENTS</b>	

<b>MOVEABLE BALLAST</b>	
N/A	

<b>CENTERBOARD</b>	
N/A	

<b>SAILS (Maximum Areas)</b>									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0.150	1.32	2.39	4.13	5.35	63.68	65.16	P/8 · (E + 2·MQW+ 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL			SL · (SFL + 4·SHW) / 6	
	20.46	20.46	20.46	11.00	10.79	186.83			
Asymmetric	SLU	SLE	SL	SHW	SFL			AS · (SFL + 4·SHW) / 6	
	20.55	17.98	19.27	10.71	11.52	174.54			

<b>HEADSAILS</b>												
Area = 0.1125·HLU · (1.445·HLP + 2·HQW + 2·HHW + 1.5·HTW + HUW + 0.5·HHB)												
<b>HHB</b>	<b>HUW</b>	<b>HTW</b>	<b>HHW</b>	<b>HQW</b>	<b>HLP</b>	<b>HLU</b>	<b>Area</b>	<b>Btn</b>	<b>Fly</b>	<b>Meas.Date</b>	<b>Material</b>	<b>Comment</b>
0.07	0.73	1.49	3.29	5.26	7.30	18.71	64.51	N	N	12/04/2017	Carbon	

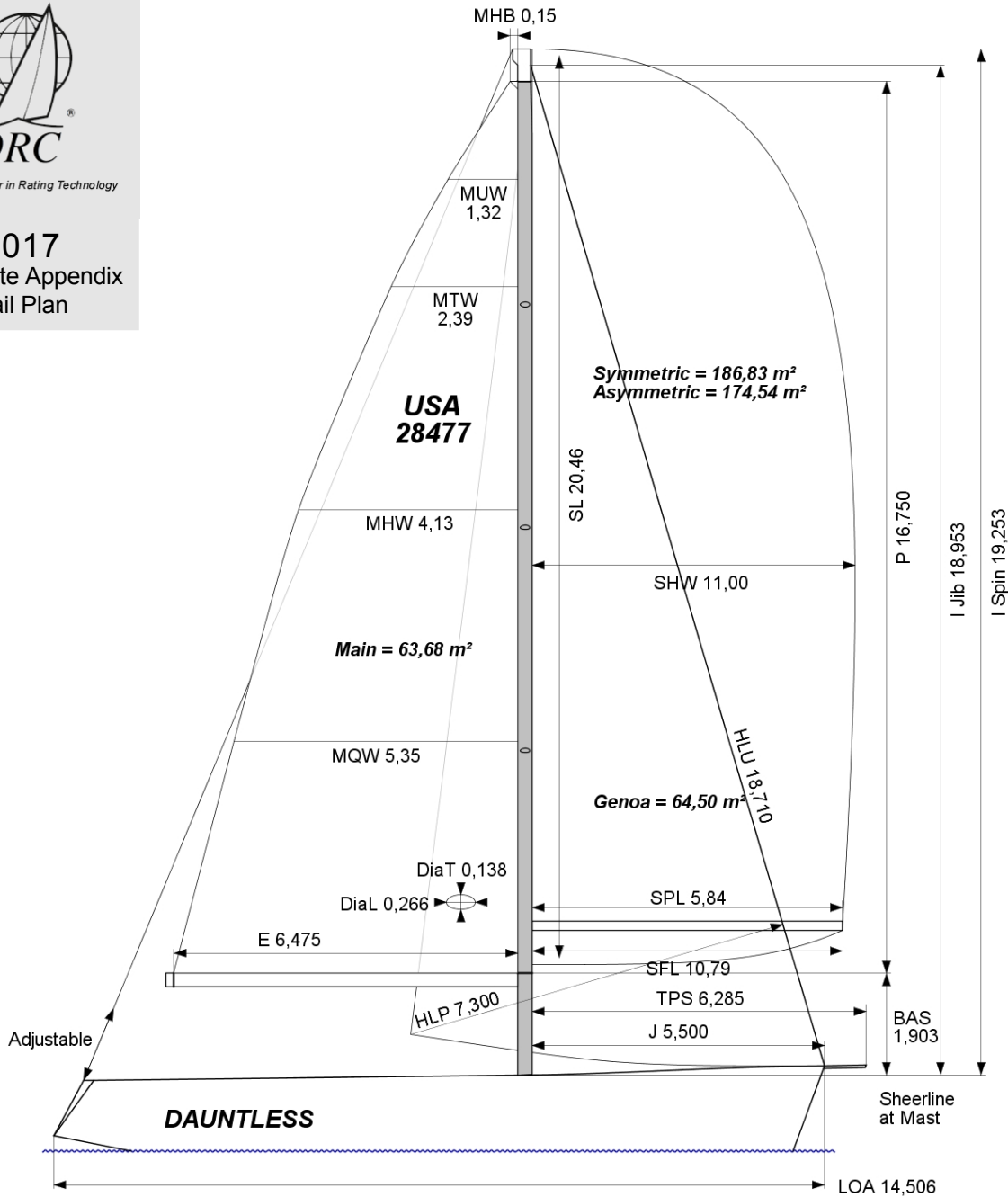
<b>MEASUREMENT INVENTORY</b>				
Measurer <b>D.Davis/R.Draftz</b>				
Date <b>10/03/2017</b>				
Comment				
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>
<i>Id</i>	<i>Item</i>	<i>Maker</i>	<i>Model</i>	
1	Engine	Volvo	70 HP TMD	
<i>Id</i>	<i>Item</i>	<i>Weight Description</i>		

<b>MEASUREMENT INVENTORY</b>								
<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>
4	Tank	Fuel	PVC	250.0	11.00	0.10	45-0	
3	Tank	Waste	PVC	80.0	9.50	0.50	0-0	
2	Tank	Water	Fiberglass	240.0	7.80	0.00	0-0	
1	Tank	Water	PVC	220.0	4.50	0.30	0-0	
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>				
1	Battery	80.0	8.20	-0.10 4 Grp 27 12V 90 Ah batteries				
4	Misc	15.0	11.20	1.00 hot water heater				
3	Misc	30.0	10.10	0.20 freezer				
2	Misc	30.0	8.90	0.20 refrigerator				
1	Misc	25.0	6.70	0.10 16 kW HVAC unit				



World Leader in Rating Technology

2017  
Certificate Appendix  
Sail Plan



**SAILS INVENTORY**

**MAINSAIL (1)**

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
1	0.150	1.32	2.39	4.13	5.35	63.68	Bowden	12/04/2017	Quantum	Carbon	

**HEADSAILS (1)**

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
1	0.07	0.73	1.49	3.29	5.26	7.30	18.71	133%	64.51	N	N	Bowden	12/04/2017	Quantum	Carbon	

**SYMMETRIC SPINNAKERS (1)**

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
1	20.42	20.50	20.46	11.00	10.79	186.83	Bowden	12/04/2017	Quantum	Nylon	

**ASYMMETRIC SPINNAKERS (1)**

Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment
1	20.55	17.98	19.27	10.71	11.52	174.54	asym	Bowden	14/02/2016	Quantum	Nylon	