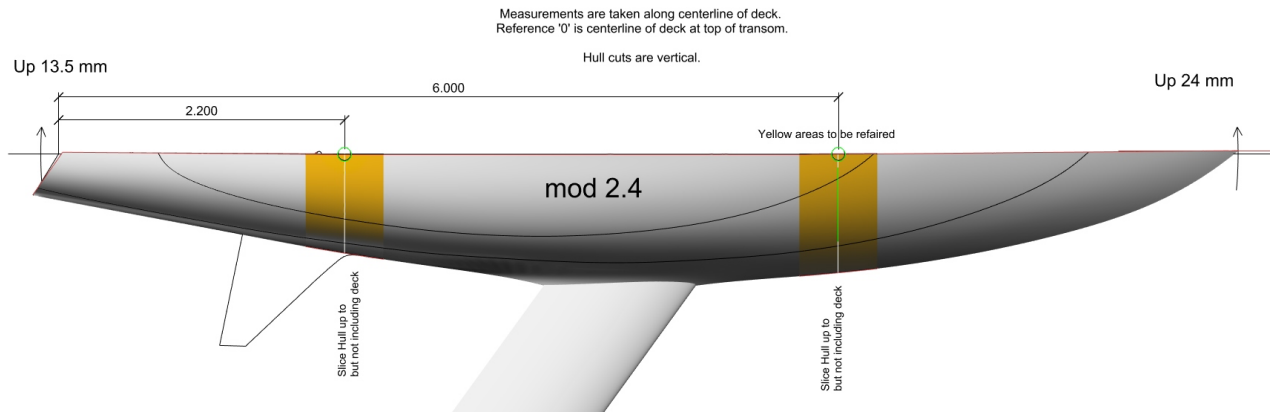


8 September 2022

MOULD 11 PROTOCOL OF MODIFICATIONS

A) Construction Guidelines

1. The Modifications in this Protocol may only be carried out by a boatbuilder approved in advance for that purpose by the ODT. The boatbuilder does not have to be a licensed Etchells builder.
2. Remove all gear from boat and weigh it
3. Set boat up in jig and level to baseline and adjust hull supports to be tight
4. Carry out the required pre-modification measurements as shown below in MODIFICATION MEASUREMENTS.
Note: Pay particular attention to B) 1 b) before proceeding any further.
5. Strap boat to steel jig at middle section
6. Laser heights at bow (Point A) and transom (Point C) and mark on end frames
7. Mark out on hull, using laser, the forward and aft cut lines (see diagram below, showing modification to hull 1461 as an example)
 - a. Forward Cut - 6000mm forward of centreline of transom at sheerline
 - b. Aft Cut - 2200mm forward of centreline of transom at sheerline
8. Remove internal floorboards and Mast Step (I-beam)
9. Cut hull around to sheer at front and back positions
10. Lift bow and stern, using adjustable splashes on hull.
The bow lift is 21mm.
The stern lift is 12 mm.
11. Re-check and measure base line and collect data
12. Fully grind up interior laminate with 150mm taper either side of cut to full depth
13. Laminate interior using same laminate as would have been in that area
14. Grind outside of hull and laminate with lighter laminate that won't produce a bump
15. Fill exterior laminate and fair and then gelcoat
16. Tidy up interior laminate
17. Re-install Mast Step (I-beam) then flowcoat
18. Carry out the required post-modification measurements as shown below in MODIFICATION MEASUREMENTS



B) Modification Measurements

1) Pre-Modification Measurements

a) Weight

Weigh the boat without spars, rigging, buoyancy tank access covers or floorboards. Take photographs or video to record condition so that identical condition may be achieved for the weighing after the modifications are completed.

Measurement	Actual
Weight of boat before work commences	

b) Rocker Measurements

Measured with Station 0 and Station 10 horizontally aligned.

Point A, Point C, Station 3 and Station 6 are as defined in the Class Rules.

M11FMP is 1590mm aft of Station 0 along the baseline.

M11AMP is 1450 mm forward of Station 10 along the baseline.

Note: If any measures vary by more than 4mm from the Reference in the table below, then this boat needs to be further assessed by an Official Measurer before the modification is undertaken.

Measurement	Actual	Reference
Vertical distance from baseline to:		
Point A		1273.5
Point C		675
Vertical distance from baseline to underside of hull shell at:		
M11FMP		214
Section 3		160
Section 6 – 75 mm out from centreline		169
M11AMP		272

c) Keel Depth below Baseline

Measured with Station 0 and Station 10 horizontally aligned.

Measurement	Actual
Vertical distance from baseline to:	
Bottom of keel at aft corner	
Bottom of keel 1000mm forward of aft corner	

d) Sheerline above Baseline

Measured with Station 0 and Station 10 horizontally aligned.

Measurement	Actual
Vertical distance from baseline to sheerline at:	
Station 0 – Port/Stbd	
Station 3 – Port/Stbd	
Station 6 – Port/Stbd	
Station 10 – Port/Stbd	

2) Post-Modification Measurements

a) Scans (only mandatory for first 2 boats)

Scan the Boat, including Hull Appendages in full, after work is completed. Compare with modelled remediated shape.

Measurement	Minimum	Actual	Maximum
Divergence from modelled remediated shape	tbc [-2] mm		tbc [+2] mm

b) Weight

Weigh the boat in identical condition as when weighed before the modification work started.

Measurement	Minimum	Actual	Maximum
Weight of boat after work completed, in identical condition to pre-work weighing condition			
Weight of boat after work completed, minus weight of boat before work starts	0 kg		[10]kg

c) Rocker

Measured with Station 0 and Station 10 horizontally aligned.

Measurement	Minimum	Actual	Maximum
Vertical distance from baseline to:			
Point A	[1275]tbc		[1277]tbc
Point C	[673] tbc		[675] tbc
Vertical distance from baseline to underside of hull shell at:			
Section 3	[163] tbc		[165] tbc
Section 6 – 75 mm out from centreline	[151] tbc		[153] tbc

d) Keel Depth below Baseline

Measured with Station 0 and Station 10 horizontally aligned.

Measurement	Minimum	Actual	Maximum
Vertical distance from baseline to:			
Bottom of keel at aft corner	[tbd]		[tbd]
Bottom of keel 1000mm forward of aft corner	[tbd]		[tbd]

e) Sheerline above Baseline

Measured with Station 0 and Station 10 horizontally aligned.

Measurement	Minimum	Actual	Maximum
Vertical distance from baseline to sheerline at:			
Station 0 – Port/Stbd	[tbd]		[tbd]
Station 3 – Port/Stbd	[tbd]		[tbd]
Station 6 – Port/Stbd	[tbd]		[tbd]
Station 10 – Port/Stbd	[tbd]		[tbd]

3) Hull Section Templates

a) Measure the template gaps as in the table below, on the remediated M11 boat

Location	Temp 1 – fwd (St 0)		Temp 2 fwd (St 3)		Temp 3 aft (St 6)		Temp 4 aft (St 10)	
	P	S	P	S	P	S	P	S
From Centre*								
100								
200								
300								
400								
500								
600								
700								
800								
900	**	**						
1000								
1100								
1200							**	**
1300								
1400			**	**				
1500					**	**		

* Centre = centre point of TEMPLATE, not hull, except for Station 6 - use centreline ridge

** Yellow shaded boxes = sheerline

b) Measure the distance forward or aft of the relevant Station where the gaps on the remediated M11 boat most closely match those from Plug 2.

Source	Plug #2							
	Temp 1 - fwd		Temp 2 fwd		Temp 3 aft		Temp 4 aft	
Location	P	S	P	S	P	S	P	S
From Centre*								
100	7	7	7	5	9.4	9.8	7.2	7.8
200	8	8	8	5	9.4	9.8	9.6	9.6
300	7	8	8	6	8.2	9.4	11	10
400	6	8	8	6	8	8.6	11	10
500	6	8	8	6	7.6	7.8	10	10
600	5	8	8	6	7	7	9.4	10
700	6	8	8	6	6.6	7.6	8.6	9.8
800	7	8	9	7	5.6	7.4	7	8.6
900	8	8	9	7	5.8	7.6	8	8
1000			8	6	6.4	7.4	9.2	9
1100			8	6	5.8	7.4	7.6	7.6
1200			8	7	6.4	7.8	7.4	7.2
1300			9	8	8.6	9		
1400			10	9	10	10		
1500					10	11		
Distance Fwd (+) or Aft (-) for best fit	Min & Max TBD		Min & Max TBD		Min & Max TBD		Min & Max TBD	
	Actual:		Actual:		Actual:		Actual:	

4) Position of Top Of Keel

Measure the angle between the bottom of the keel and the leading/trailing edges

Measurement	Minimum	Actual	Maximum
Angle between bottom of keel and trailing edge	[tbd]		[tbd]
Angle between bottom of keel and leading edge	[tbd]		[tbd]

5) Other Measurement Form items to be re-measured

Measurement	Minimum	Actual	Maximum
#4: Complete Boat Weight	1508kg		1565kg
#19: Point A to Point C (LOA)	9285mm		9300mm
#34: Point C to intersection of leading edge & bottom of keel	4660mm		4686mm
#35: Point C to intersection of trailing edge & bottom of keel	3600mm		3626mm
#43: Height differential, Station 0 to Station 10 with keel 54.2° to horizontal (Stn "0" the higher)	20mm		50mm



DECLARATIONS

1. To be signed by the boatbuilder carrying out the modifications.

I declare that this boat has been modified in accordance with the M11 Protocol of Modifications.

Boat Name:

Hull Number:

Name of boatbuilder (Print):

Signature of boatbuilder:

Date:

2. To be signed by the **official measurer** carrying out **fundamental measurement** of the boat following the modifications under the M11 Protocol of Modifications.

I declare that I have carried out **fundamental measurement** of the boat following the modifications under the M11 Protocol of Modifications, that the measurements are accurately recorded on this form, and that the boat complies with the M11 Protocol of Modifications.

Name of measurer (Print):

Signature of measurer:

Date: