

# Cockpit - Design for Speed



Surv 8 - Surveillance, Search and Rescue Craft Conference  
Poole 2013

***HighSpeedBoat  
OperationsForum  
Portugal 2015***

# Cockpit - Design for Speed

*Johan Ullman M.D.*

***HSBO Pro***  
*HighSpeed BoatOperations Professionals*

# Console and Cockpit Design for Speed

Optimising Console Geometry  
for  
Control, Safety and Comfort



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Purpose:  
to help naval architects explain  
to yard owners that  
large resources can be saved  
by building cockpits designed,  
from start, for humans



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# The Need for Speed

## Special Challenges on High Speed boats

Geometry

Controls

Screens

Sight lines

Postures

Aerodynamics

Safety

Misc



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# The Need for Speed

## Special Challenges on High Speed boats

The Bottom Line is

MOCK UP!



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Single driver consoles can be justified only on small boats where the inside beam is less than 150 cm.



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Fraser Coast Shipbrokers

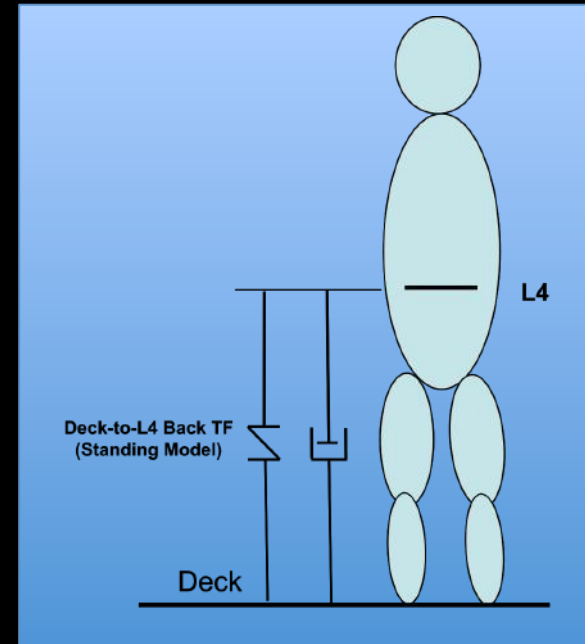
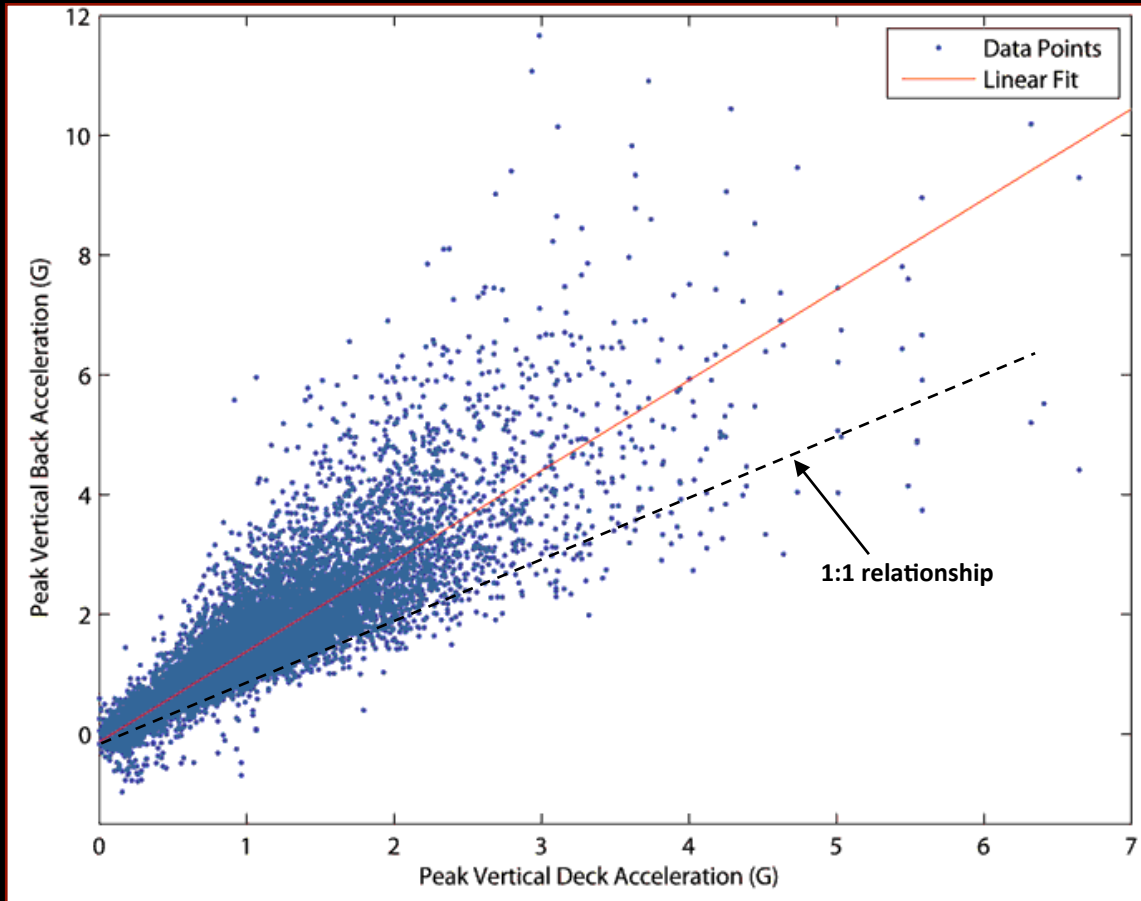


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02:17:14 01510 13.2  
232.7 DT 844.8 KN  
3237N2218 11714W6895



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Impacts on **STANDING** human's backs  
are in average - 51% higher than the impact on deck

Worst impacts are 3 **TIMES** higher on back than on the deck









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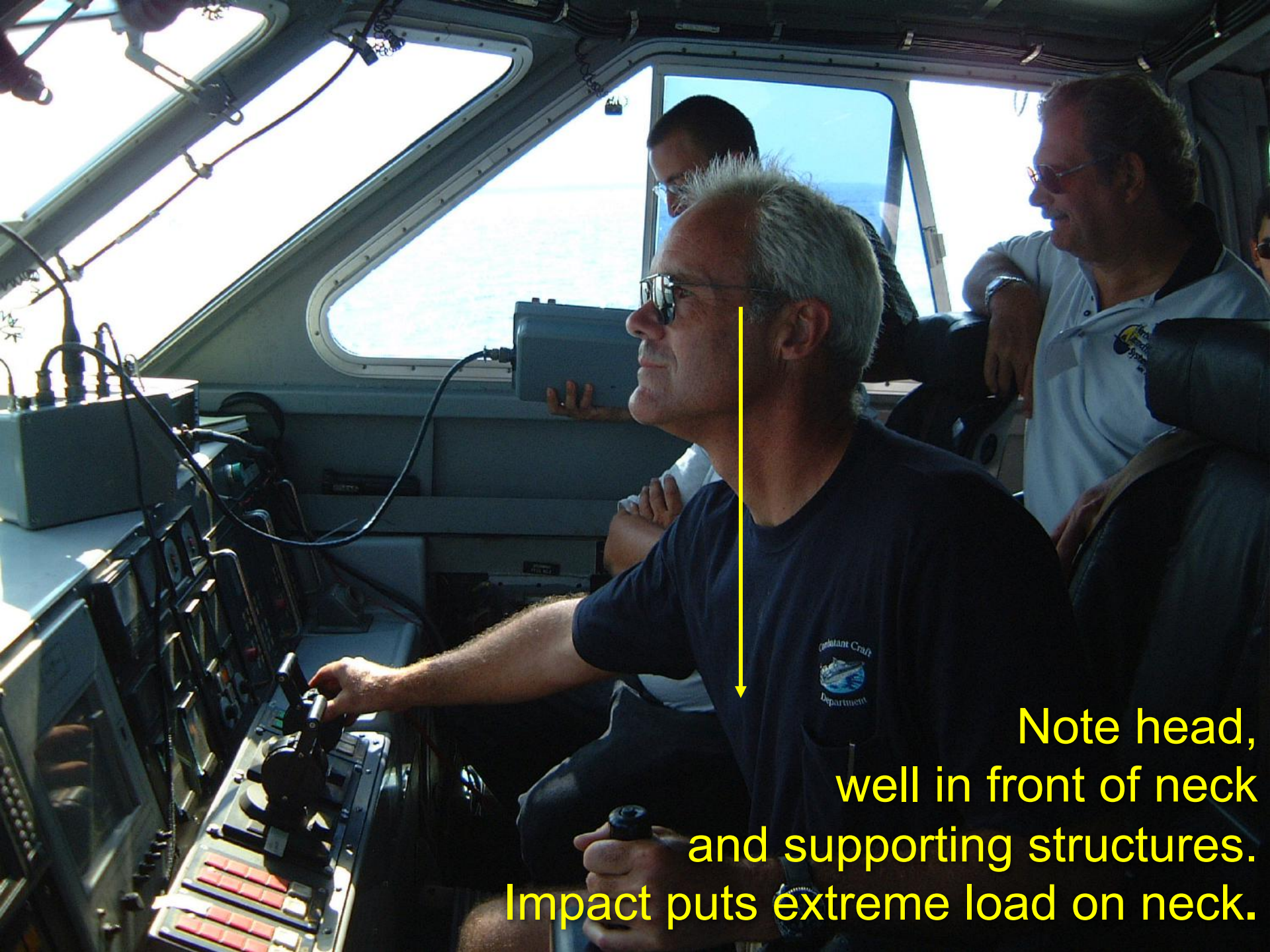
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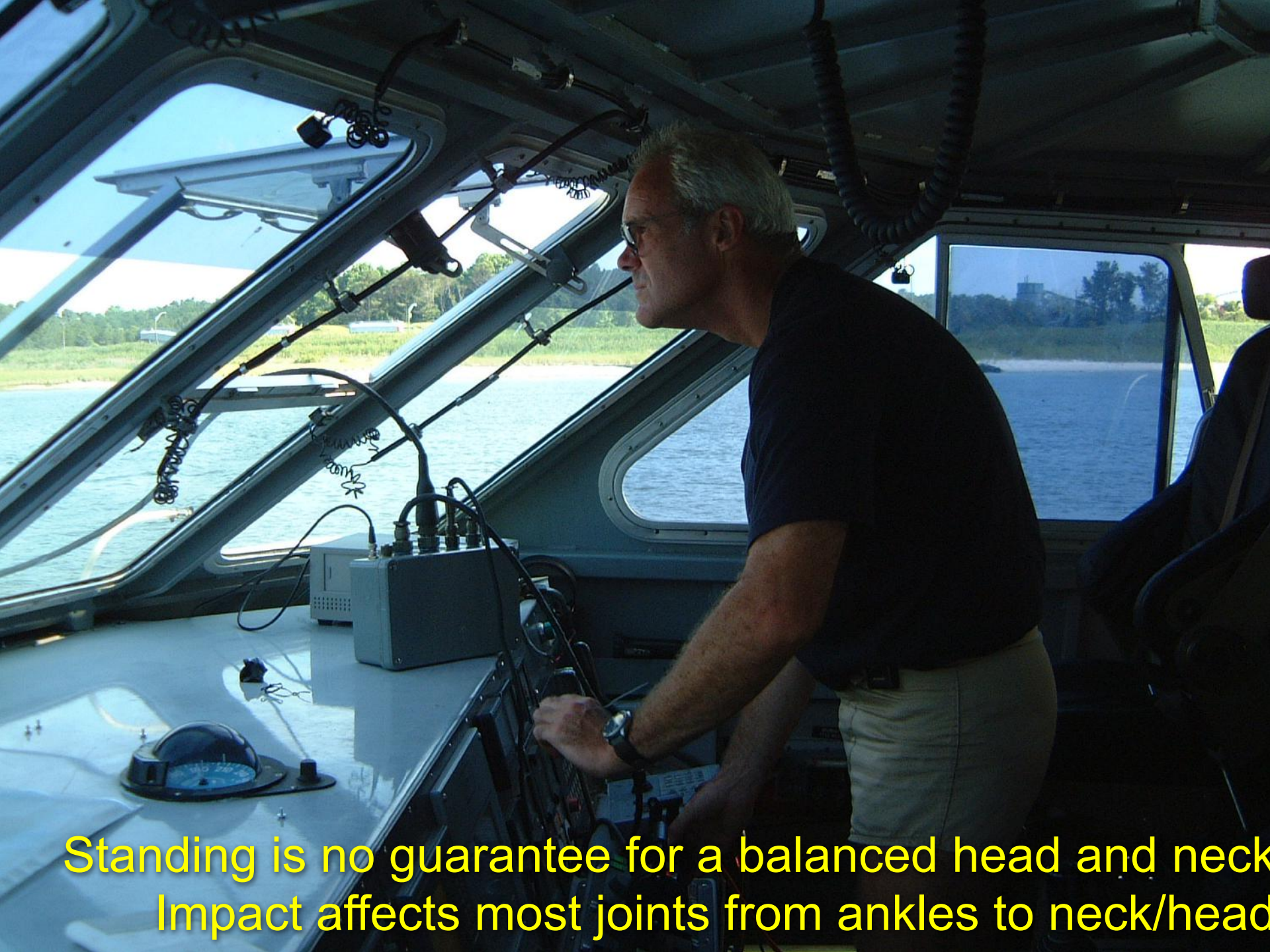
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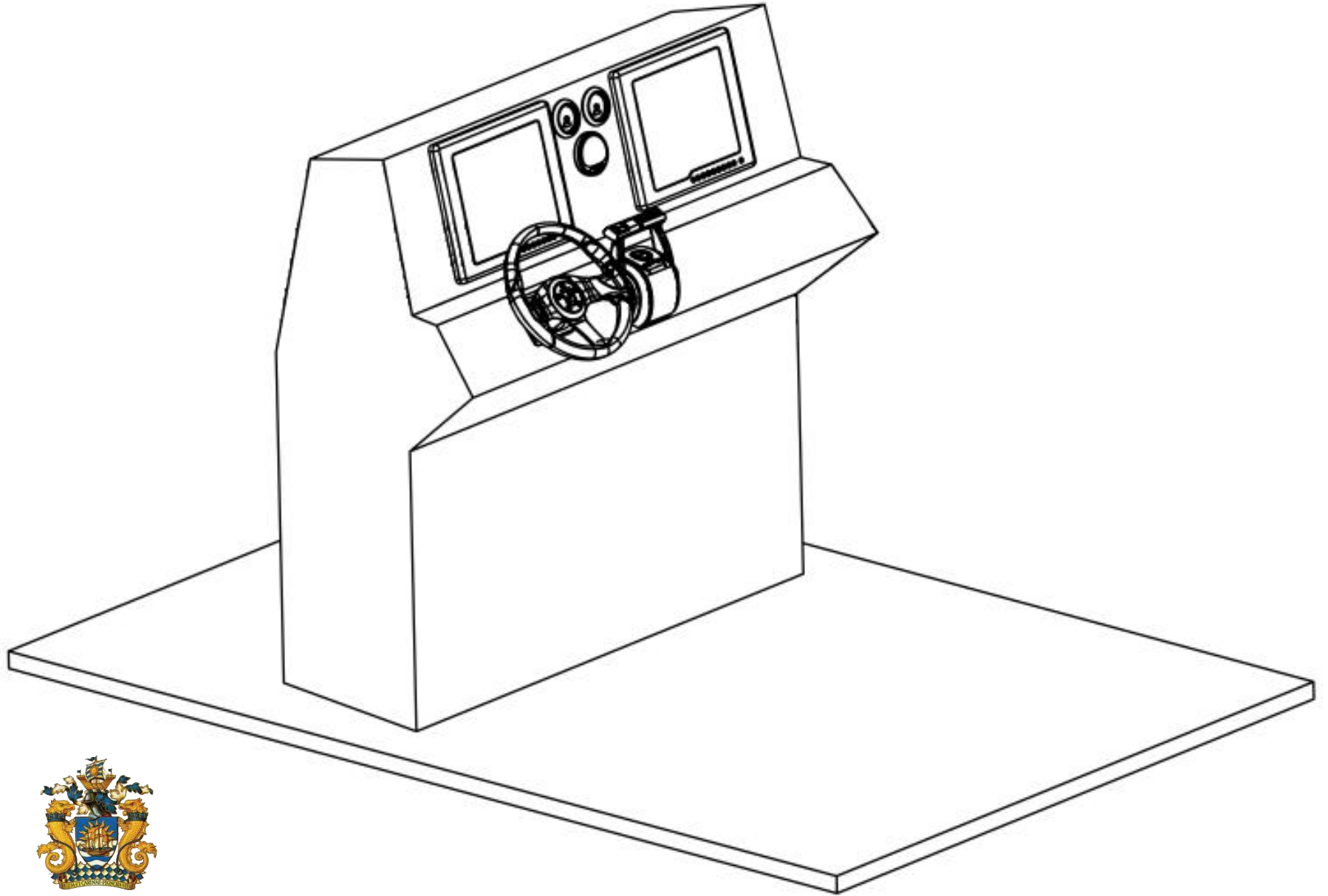


Note head,  
well in front of neck  
and supporting structures.  
Impact puts extreme load on neck.



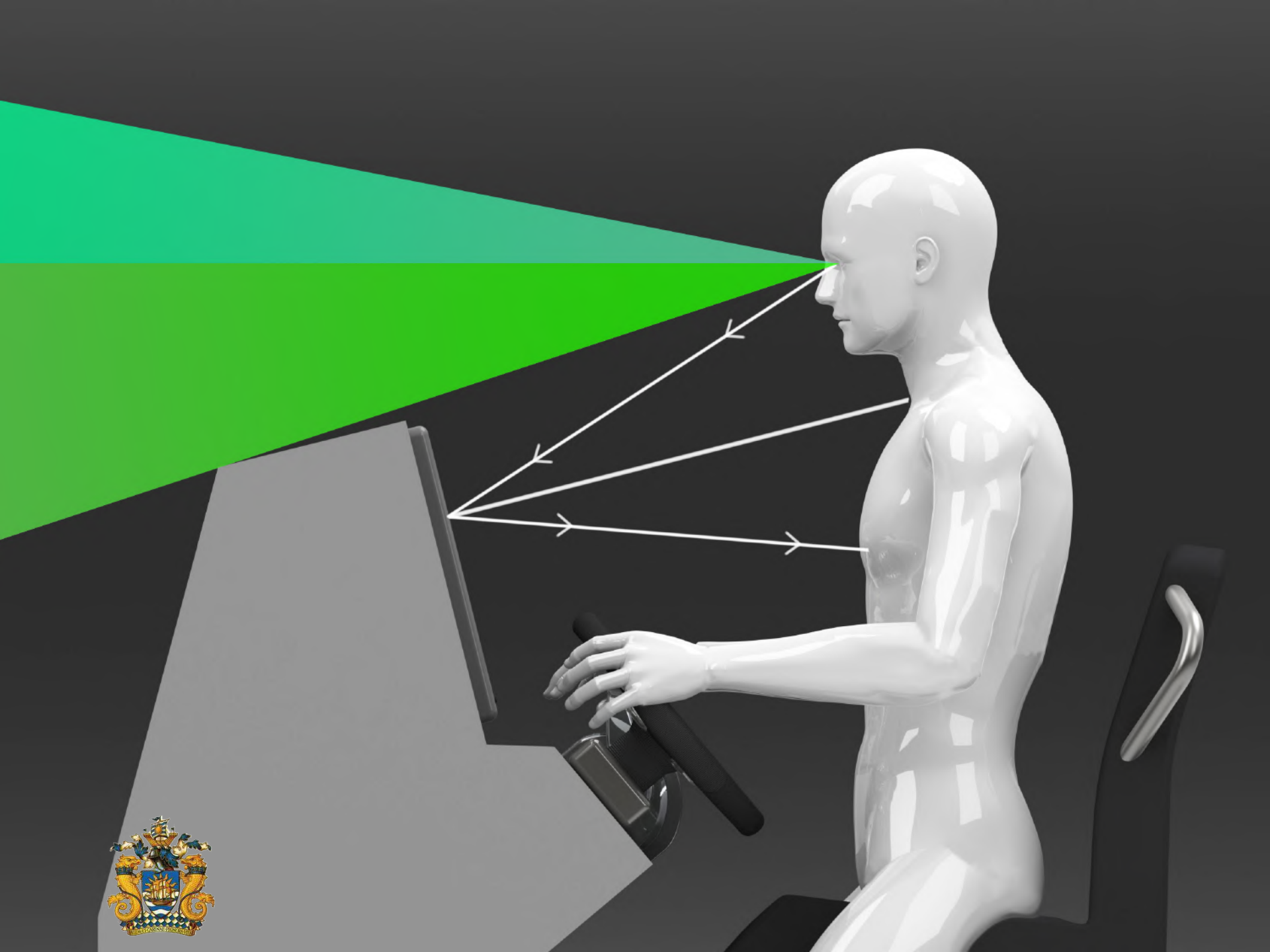
Standing is no guarantee for a balanced head and neck  
Impact affects most joints from ankles to neck/head











Screens should be placed  
as high as possible



1310

14°

350

14°

130°

2°

659

Wheel hub 950-1000

1

2

3

4

5

6

Steering console side view

Steering Console measures recommendations

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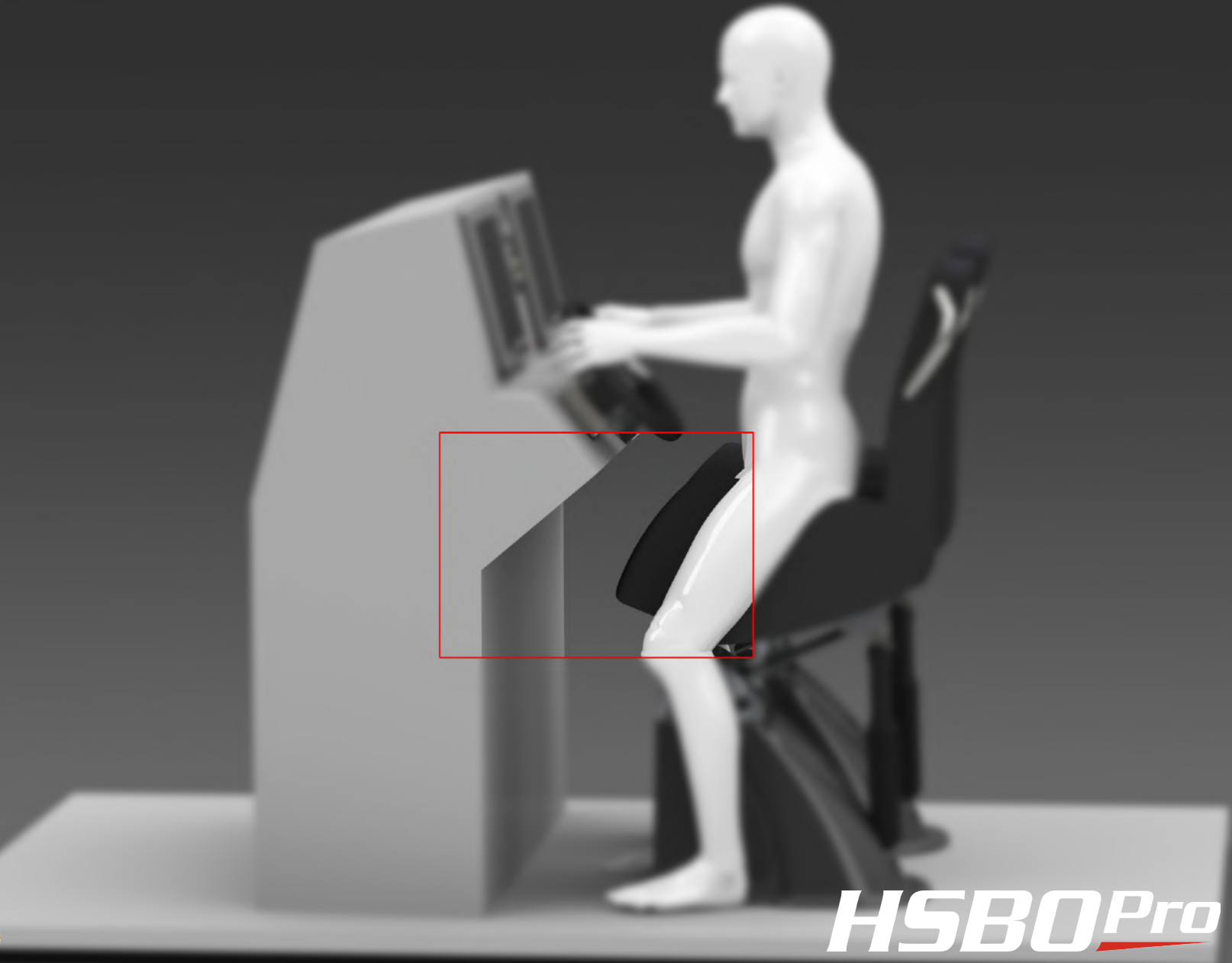


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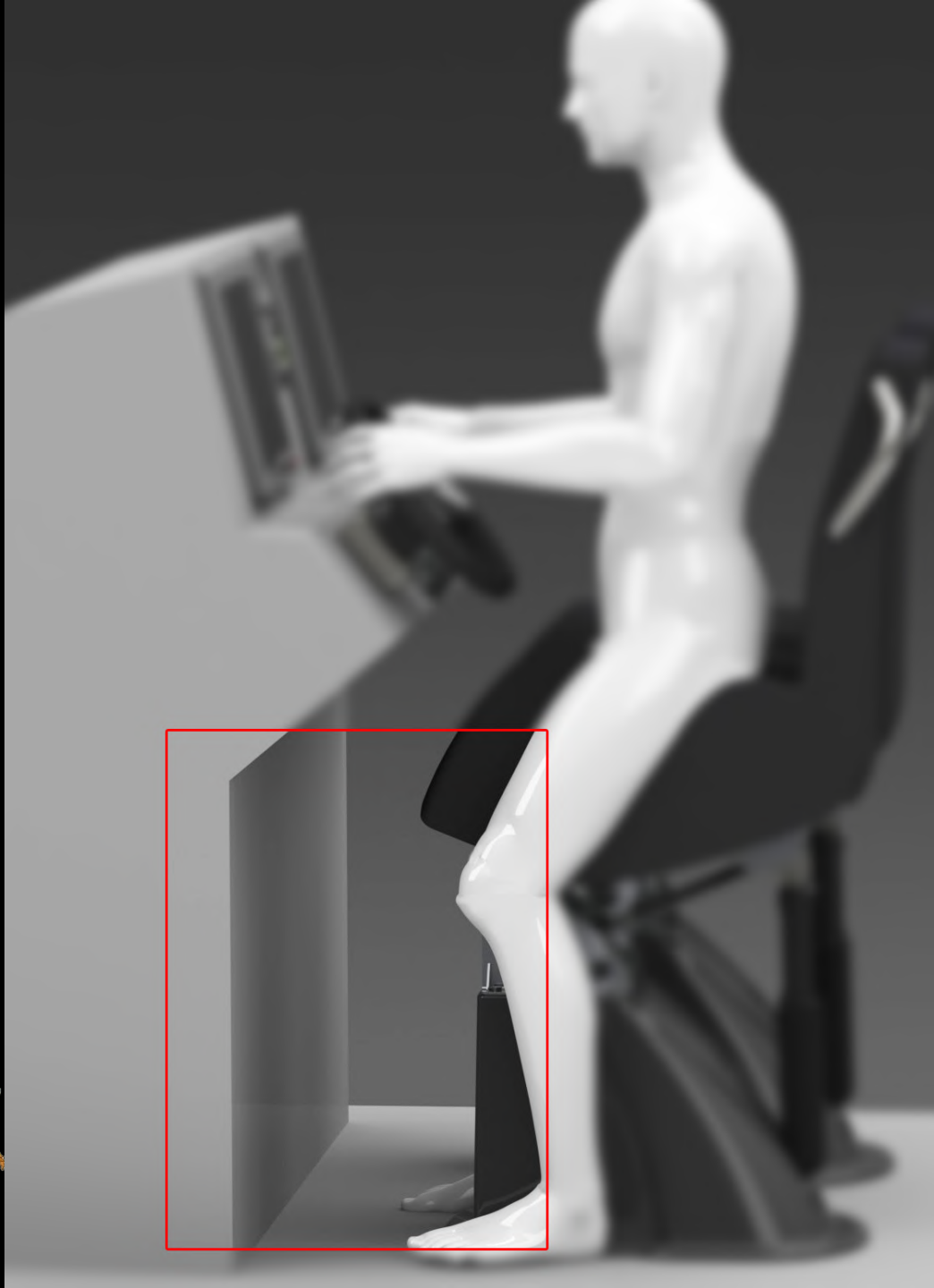


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Offset of helm

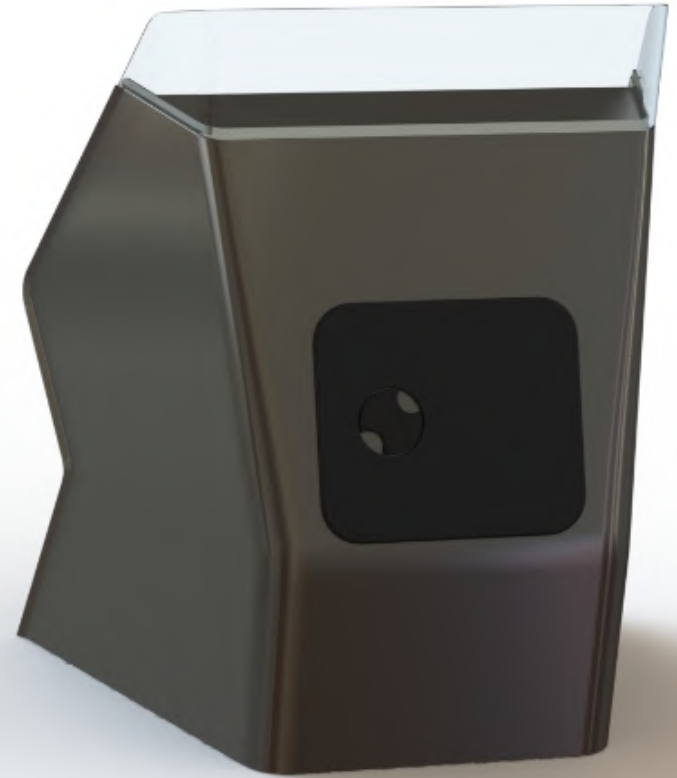
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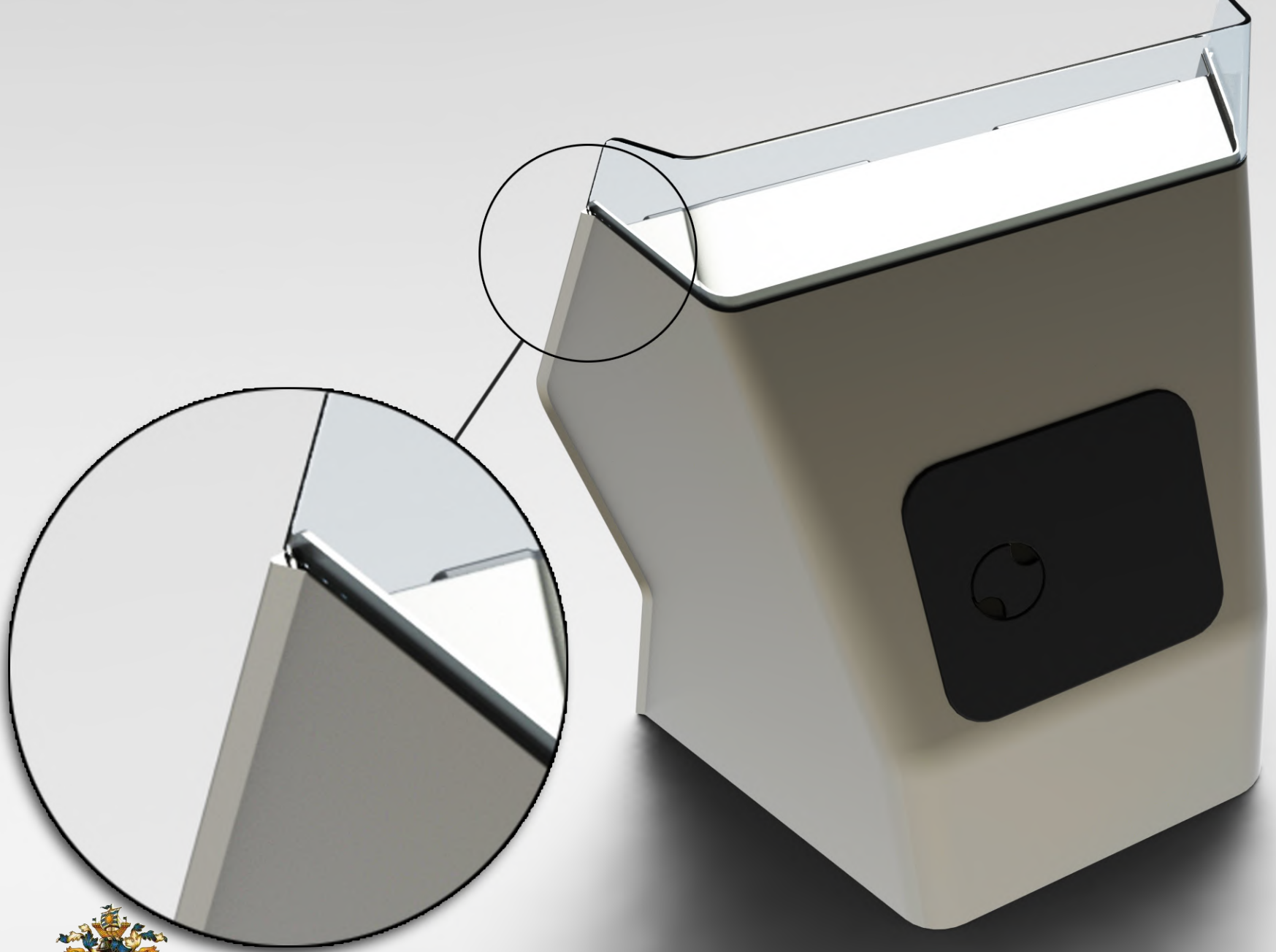
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eDrawing

# Stuffing a HSBO Forum

HSBO Forum 2014  
May 6-8 Next  
Gotehenburg Sweden

[HSBO.org](http://HSBO.org)







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ULLMAN  
HUMAN  
DESIGN

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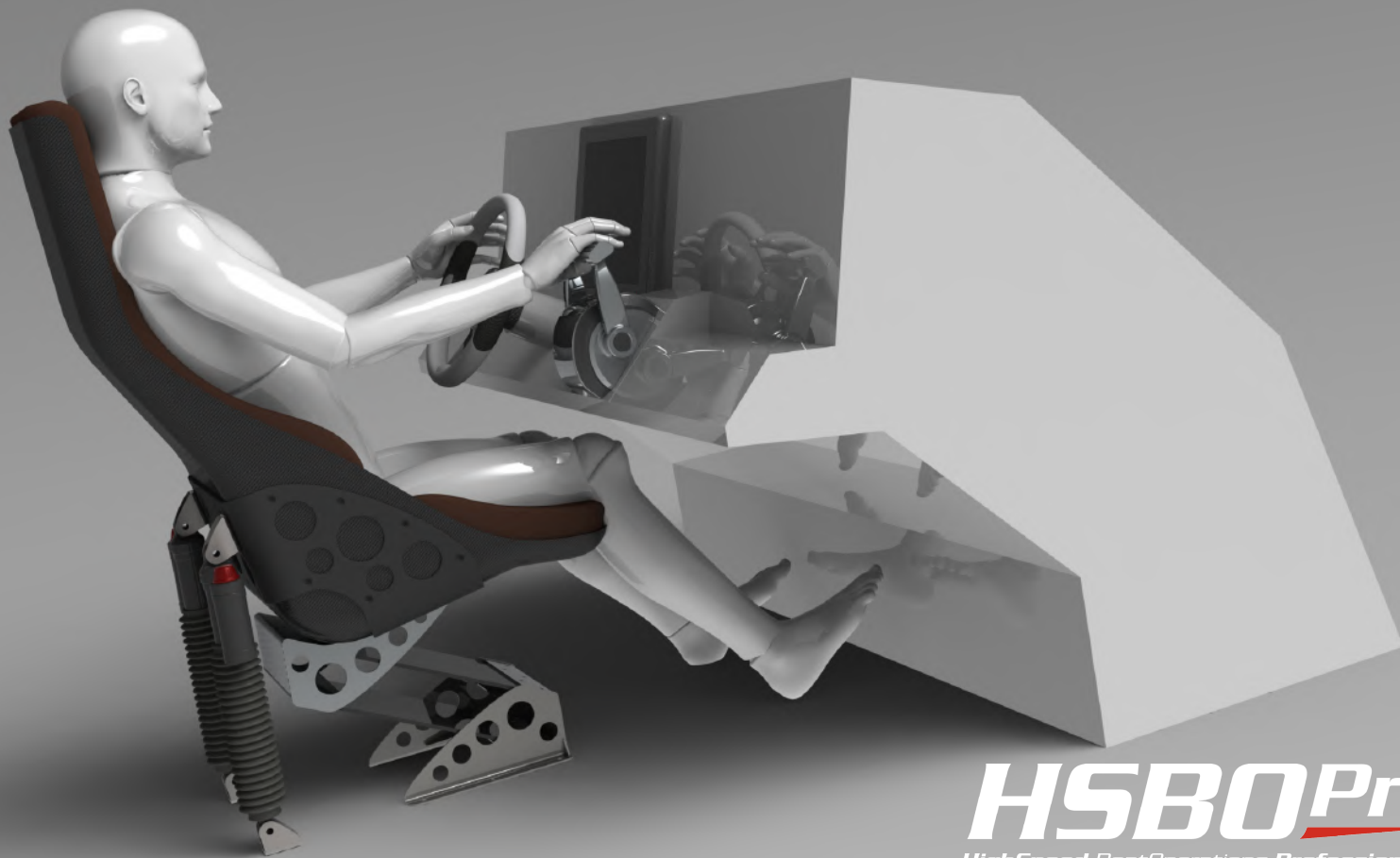




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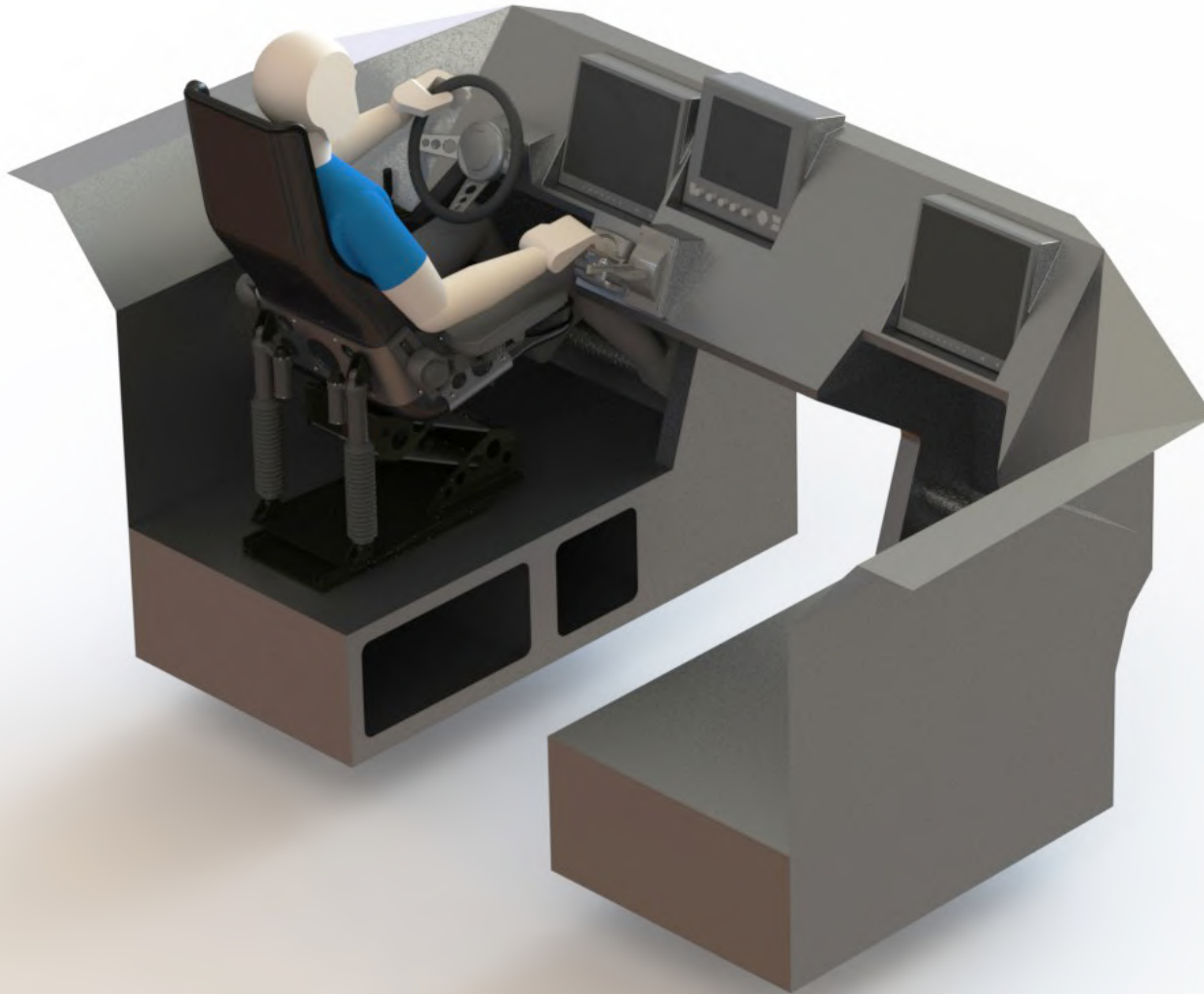
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Both hands - and both feet are needed to control your own balance.

Body balance is essential for full control of the vessel.



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# Ejection

Chine tripping  
Lateral support  
Hand holds





Lake TV/mylaketv.com



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Do not cut corners !!



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“The Rubber Titanic “



**Do not cut corners !!**

**You  
Might Sink Tomorrow**



**Might Sink Tomorrow ?**

# B • PROFESSIONAL • BOATBUILDER



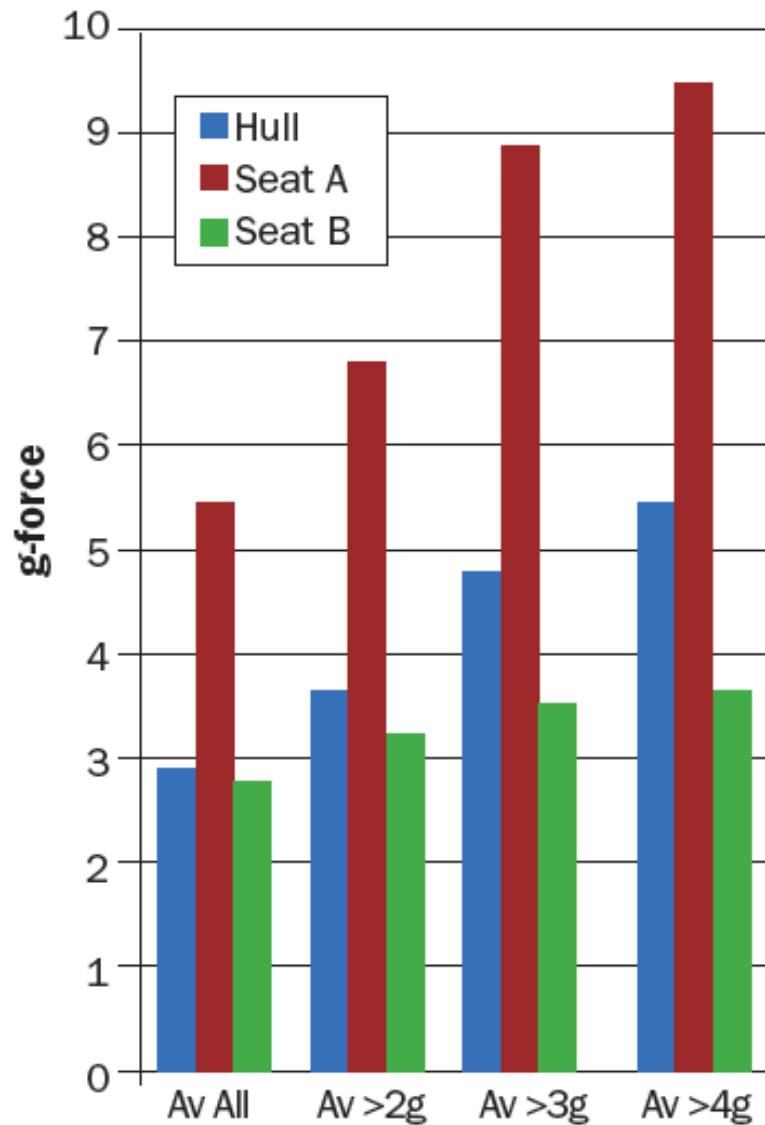
*The magazine for those working in design, construction, and repair*

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2013  
\$5.95 U.S.

MEASURING IMPACT EXPOSURE  
THE HYBRID CONUNDRUM  
COMPOSITE WEIGHT  
BRUCE KIRBY

Comparing mean peak values for the entire data set to those for impacts greater than 2 g, 3 g, and 4 g confirms that the differences in seat performance were amplified in rougher conditions.

**Figure 4. Mean Peak Values for Impacts Above 2g, 3g, and 4g**



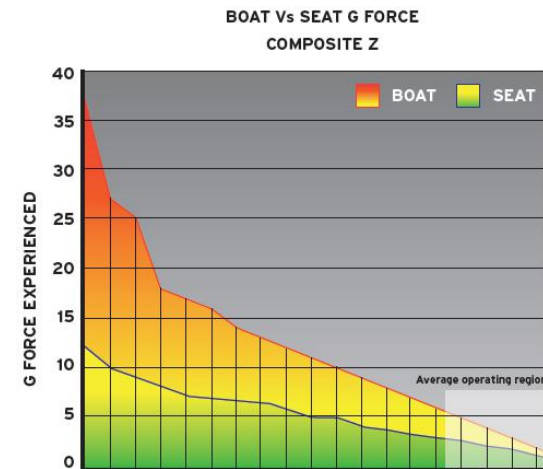


Be ware of  
Charlatans and  
Cheap copies

### Typical Test Session Parameters

		Boat	Seat
Sea state: 1 - 6	Max G	49G	11.5G
Speed: 0 - 50Knts	Min G	1.25G	0.45G
Test time: 7 hours	Av	2.09G	1.1G
Wave events: 45,064			

Graphs and charts showing results from testing carried out.



**ULLMAN**



**PROTECTING PEOPLE**

THERE IS ALWAYS SOMEONE...



... WHO WILL DO IT CHEAPER!

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To download the full article, go to :

<http://hsbo.pro/wp-content/uploads/Cocpit-Design-ProBoat141.pdf>

[www.HSBO.pro](http://www.HSBO.pro)

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