



HOW TO GET COCKPITS FIT FOR TASK

WHERE TO PUT THE CONSOLE?

WHO WANTS TO GO UP FRONT?

FORWARD



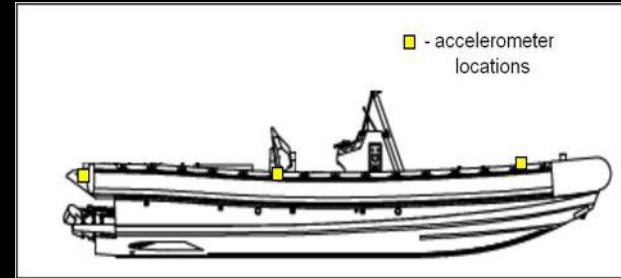
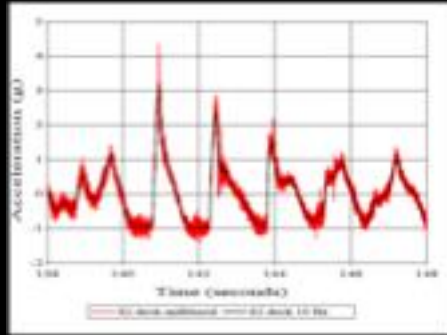
CENTER



AFT

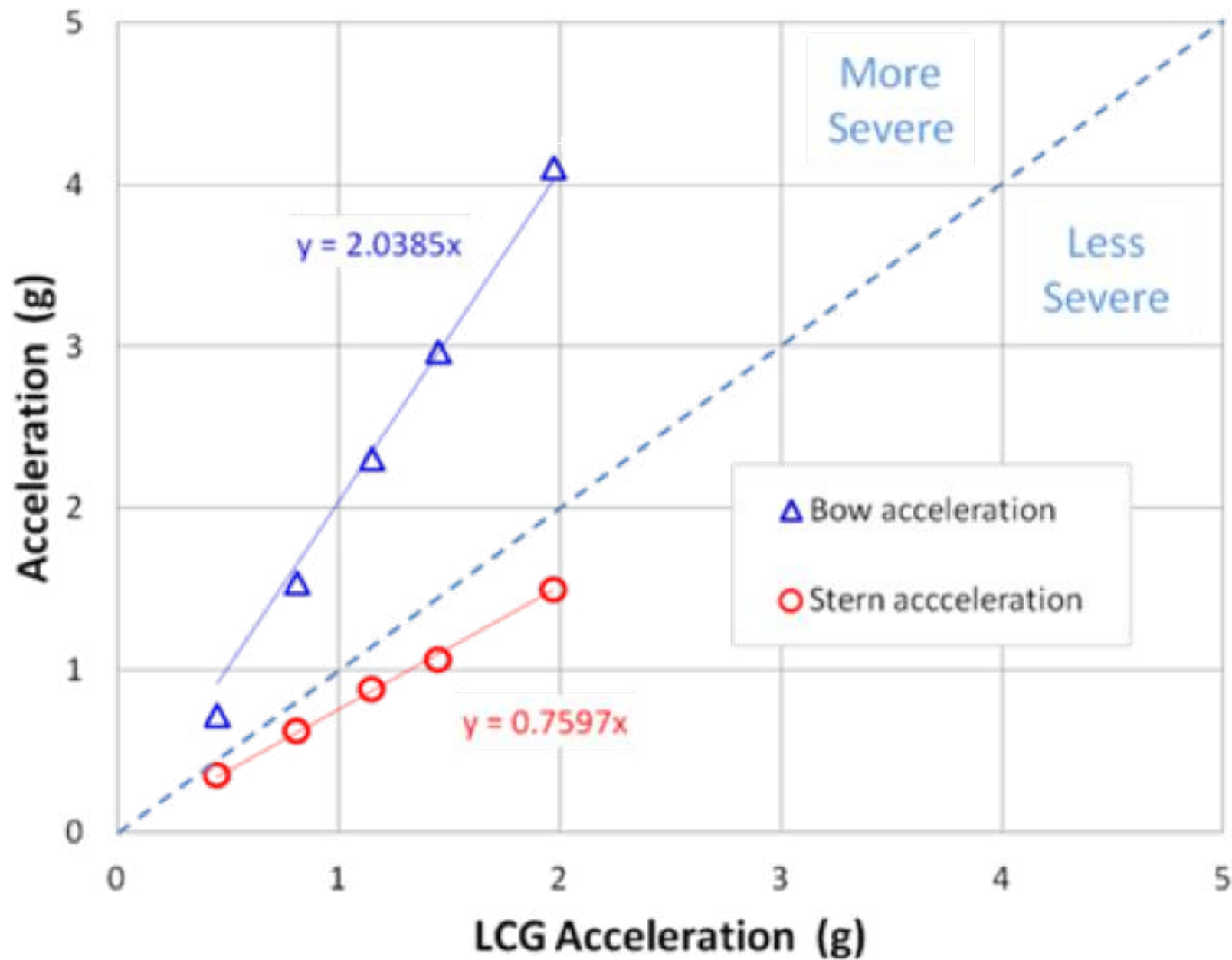


US NAVY Craft Data Base



- Twenty-plus craft tested since 1996
- Length overall
 - 33 to 82 feet
 - 10 to 25 meters
- Nominal weights
 - 14,000 to 116,000 pounds
 - 6,350 to 52,617 kilograms
- Five headings
 - Head
 - Quartering bow, stern
 - Beam
 - Following
- Acceleration x, y, z
- Pitch, roll
- Average speed (GPS)
- Wave buoy data

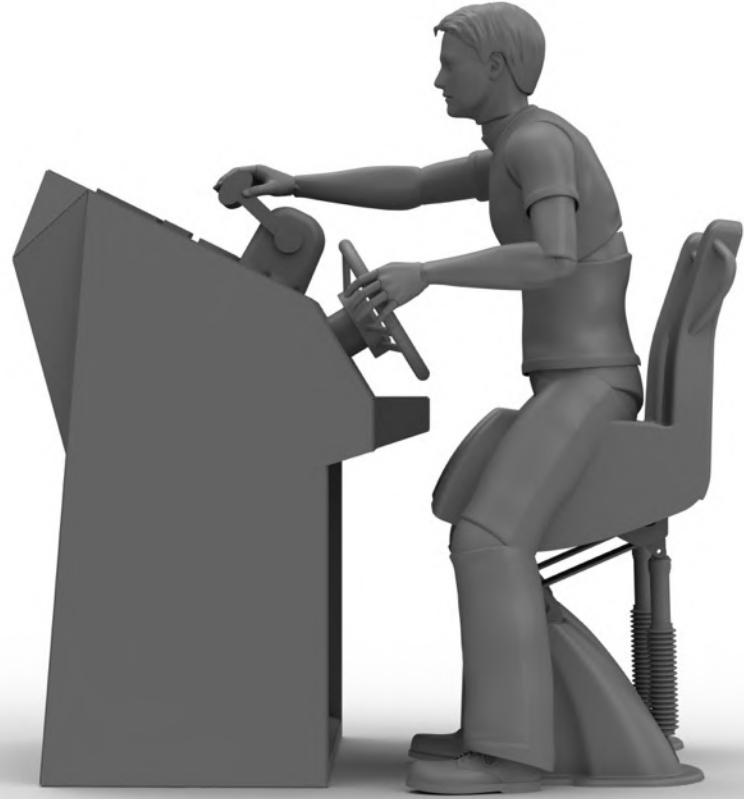
Craft J 12 May 2009 3.1 ft 39.6 knots



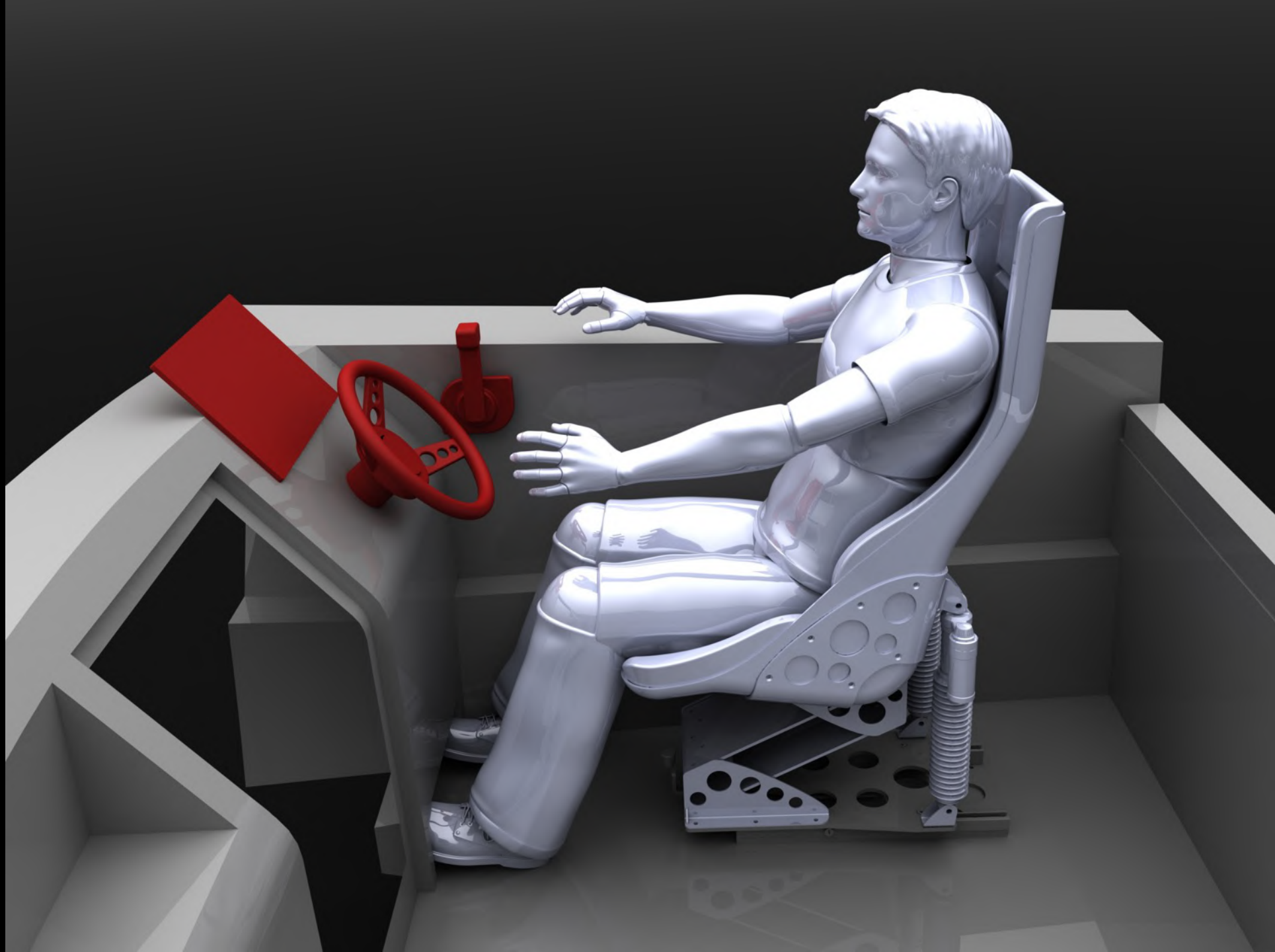
BOW = 2.04

COG = 1.00

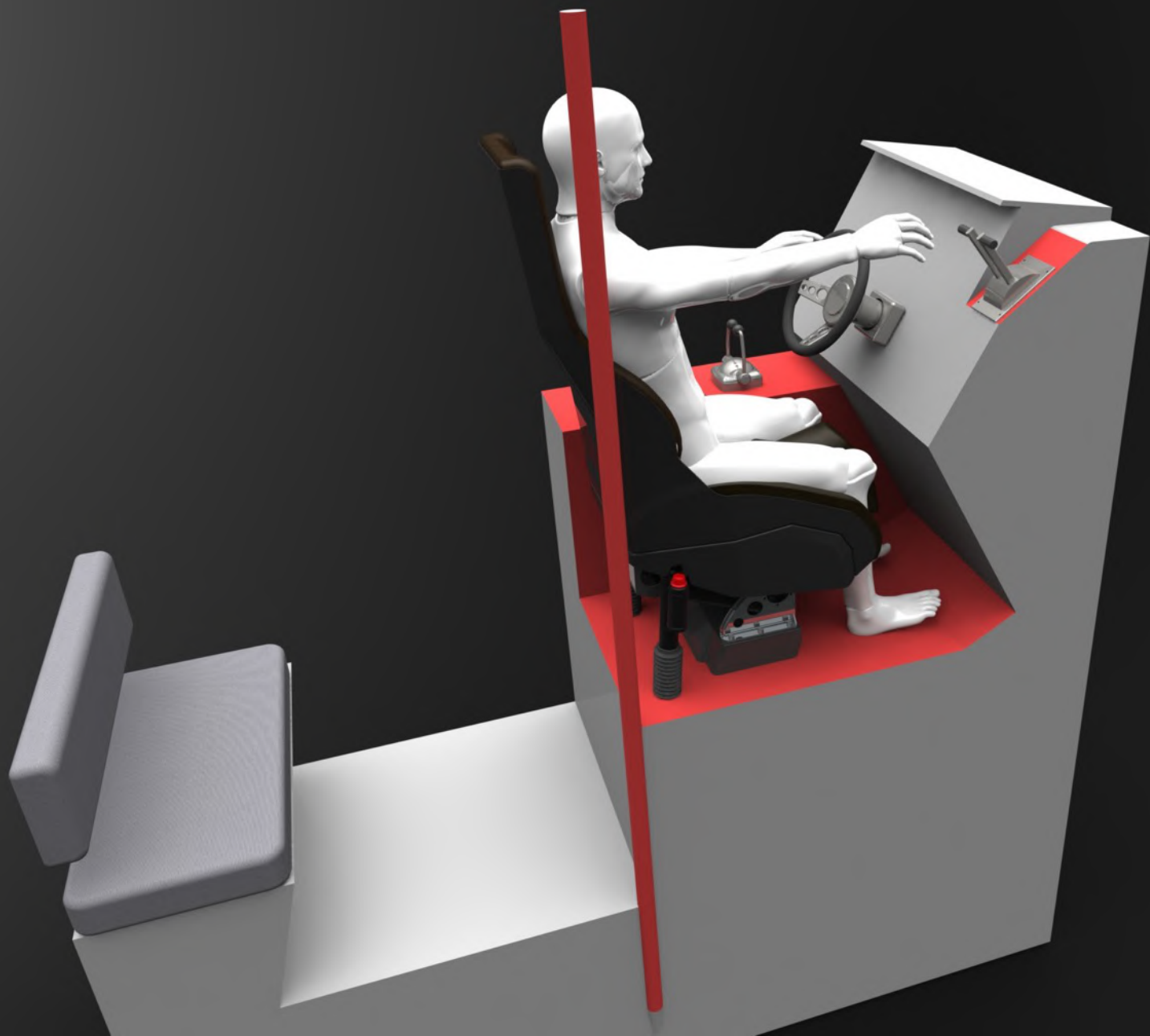
STERN = 0.76

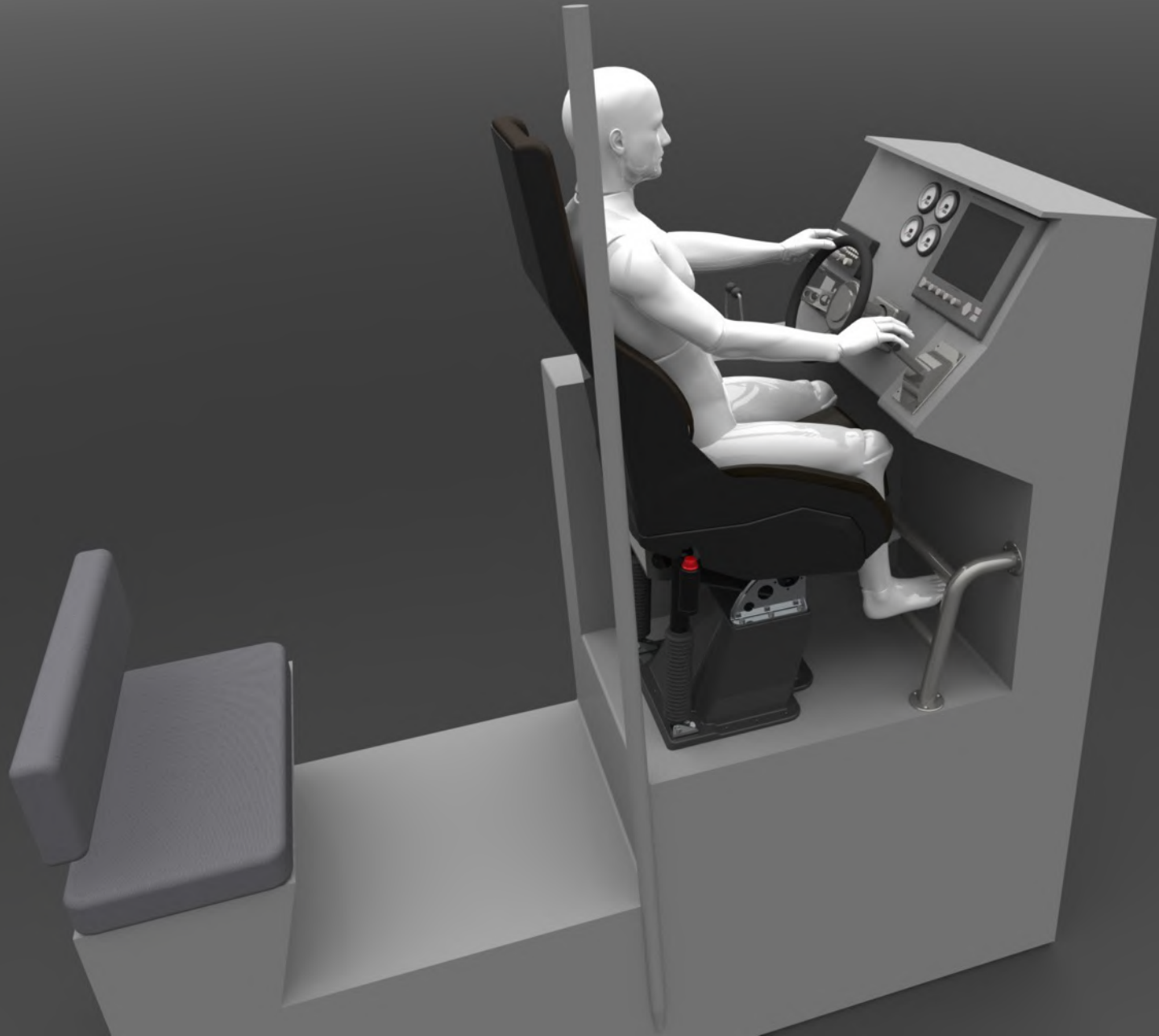












WHAT TO THINK ABOUT
WHEN DESIGNING COCKPITS

STEP-BY-STEP



GT 18



GT 18



GT 18



GT 18









GT 18

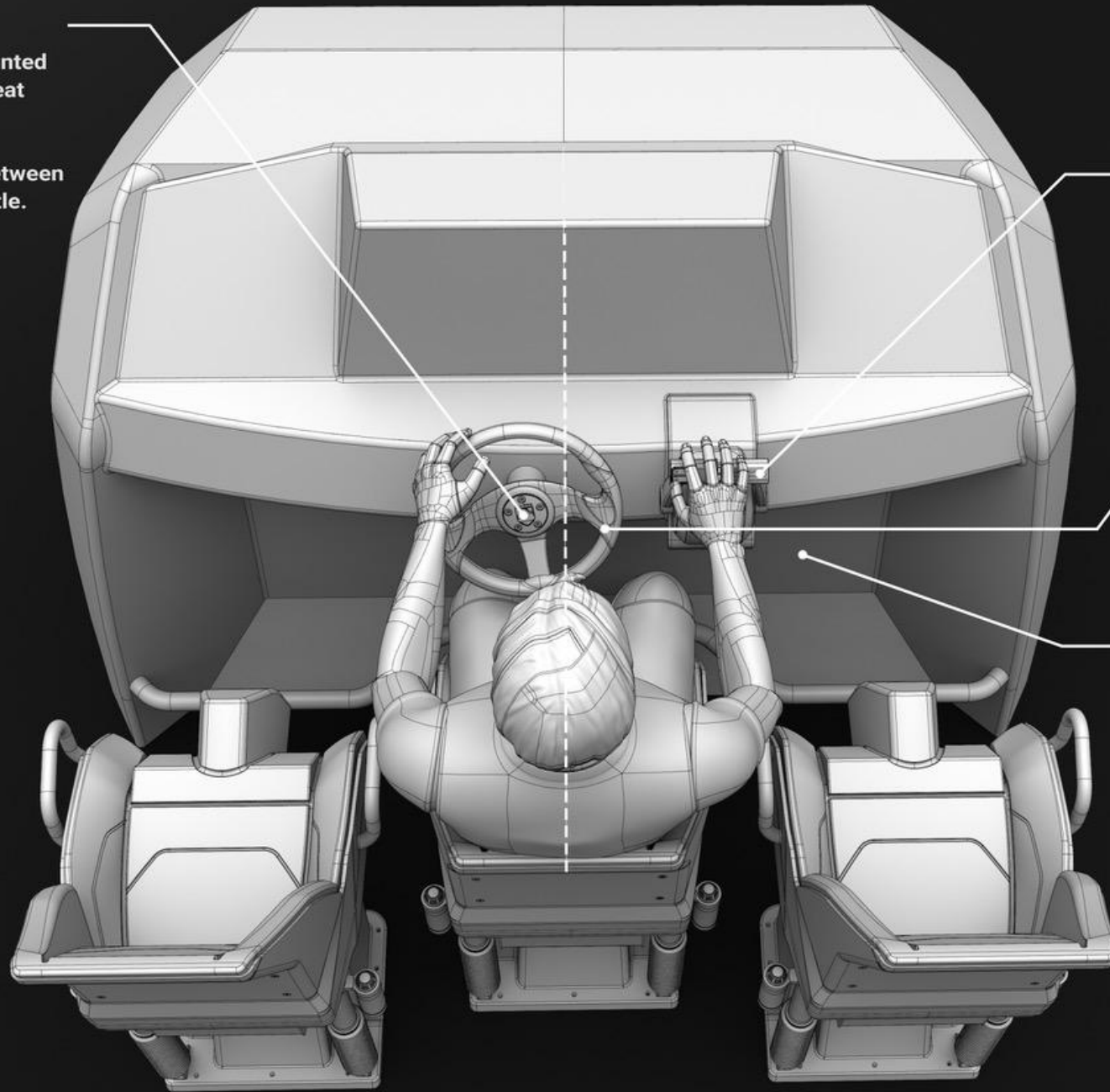


GT 18



GT 18

Wheel off center:
Steering wheel mounted
70 mm off center seat
midline.
Creates a more
symmetrical grip between
the wheel and throttle.

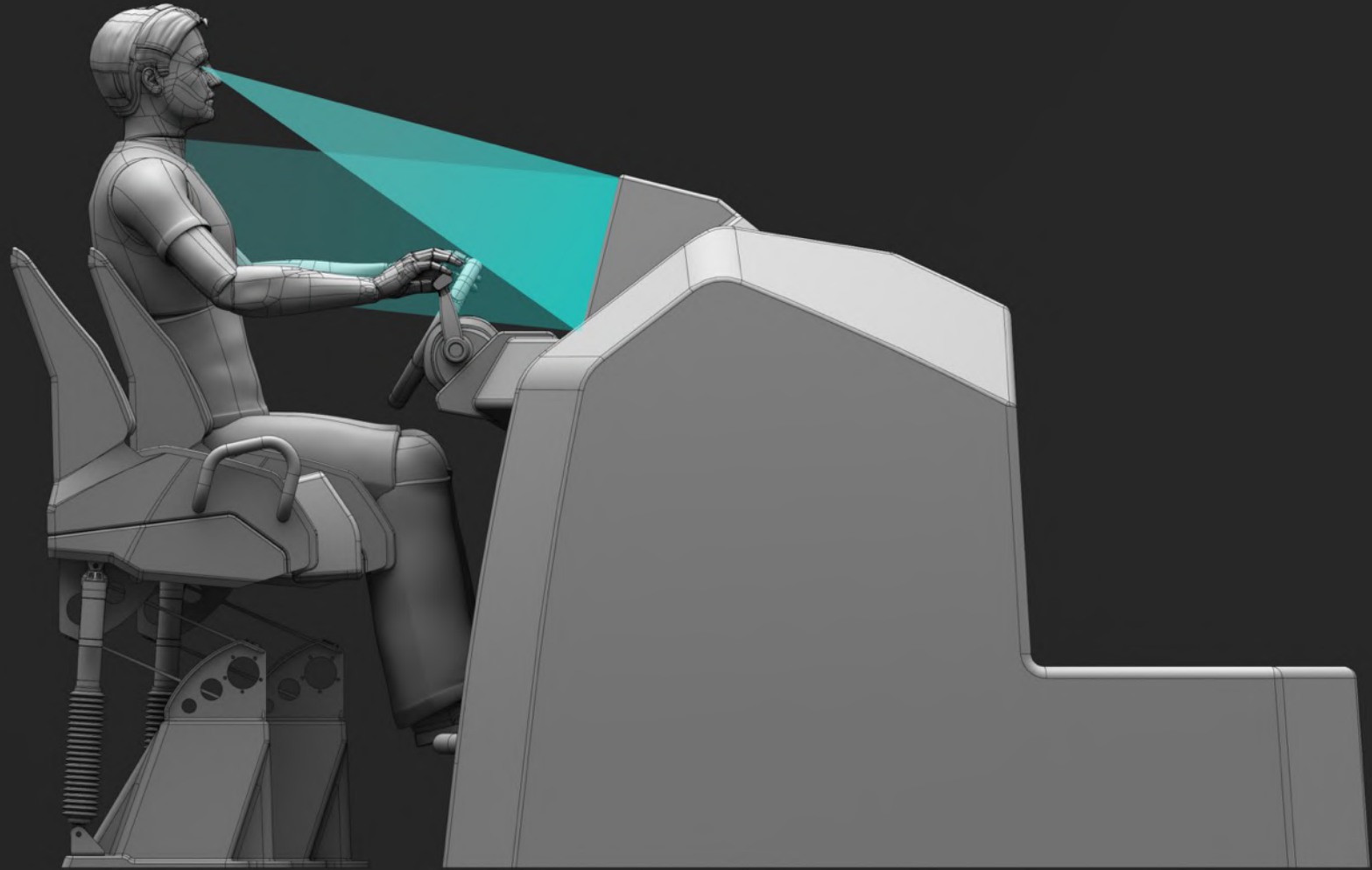


45° :
Throttle mounted at 45°
from vertical.

30°:
Steering wheel
mounted at 30° from
vertical.
Tiltable wheel
desirable.

Increased leg space:
Clearance for knees
and feet.





Secondary visual input:
Panels for secondary visuals.
Reduced angles allows better
operating overview towards
the ship sides.

Primary visual input:
Panel angled at 14° from vertical.
Optimized visual overview with reduced
glare from sky/T-top.

Handlebars:
Stainless steel grips for
the passengers.

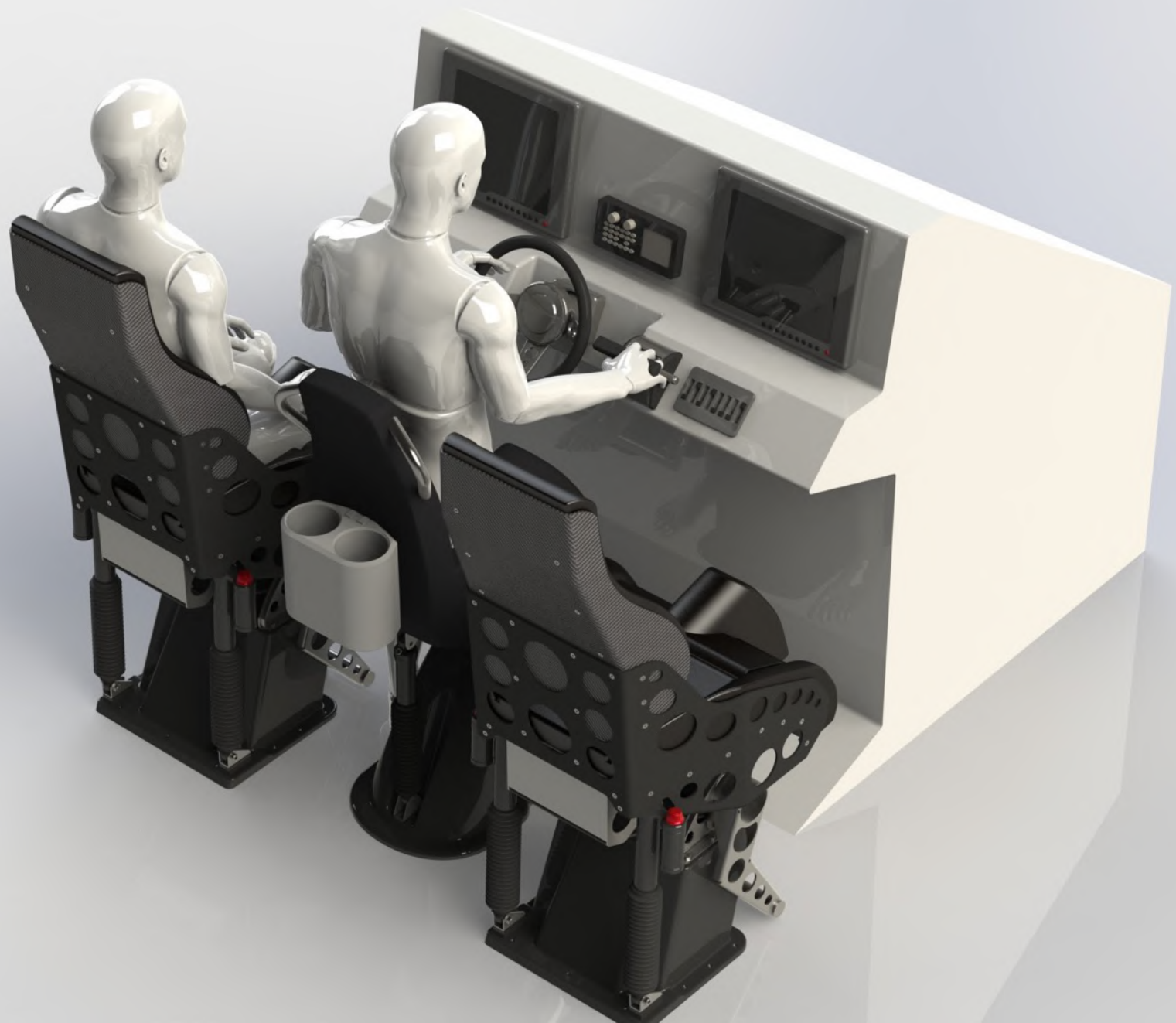
Seat staggering (Optional):
A 150+mm longitudinal staggering
simplifies entering/exiting the
drivers seat.
Also reduces the lateral c-c
mounting measure of the seats
without user shoulder interference.

Footrest pipe:
Increases comfort for Echelon
seats.

Seat featured: Ullman Echelon Sportsback (jockey front)

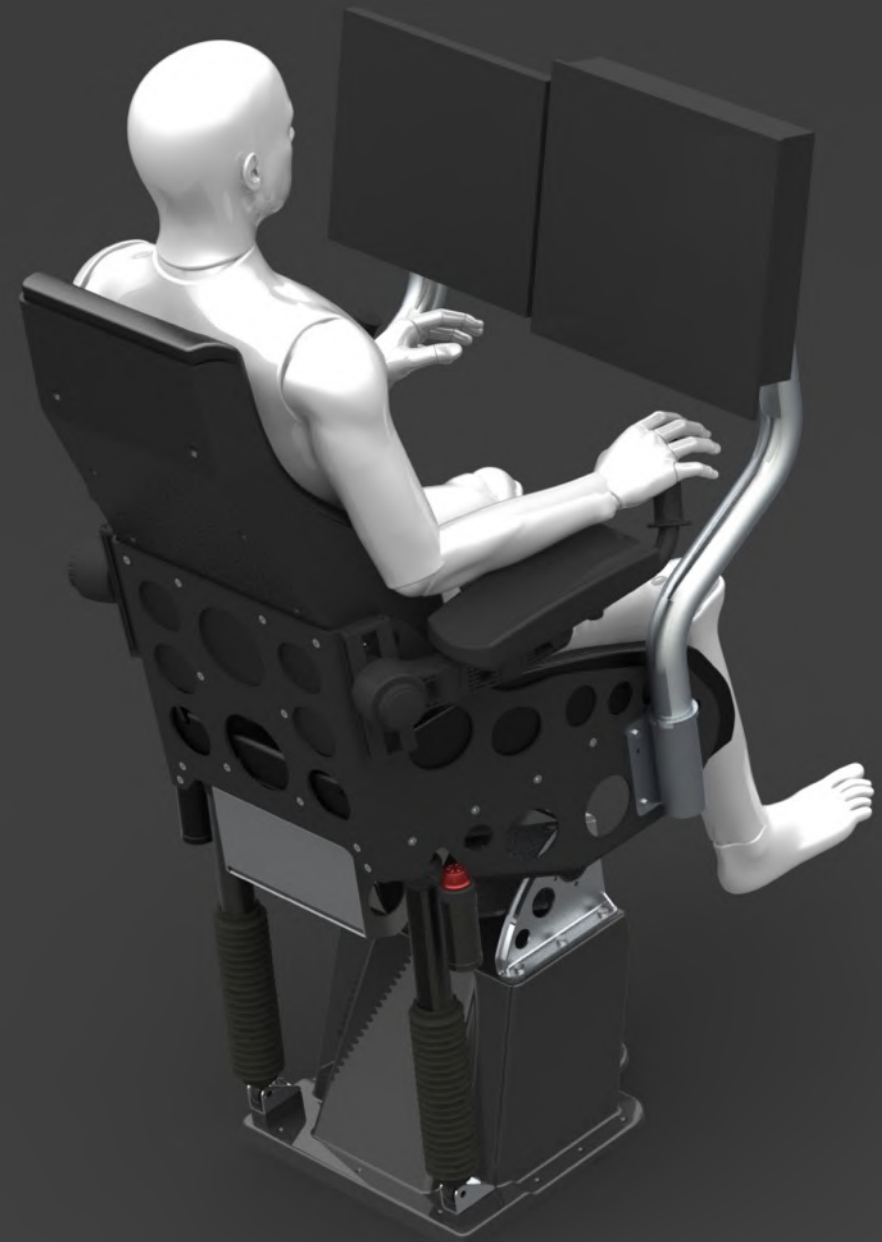






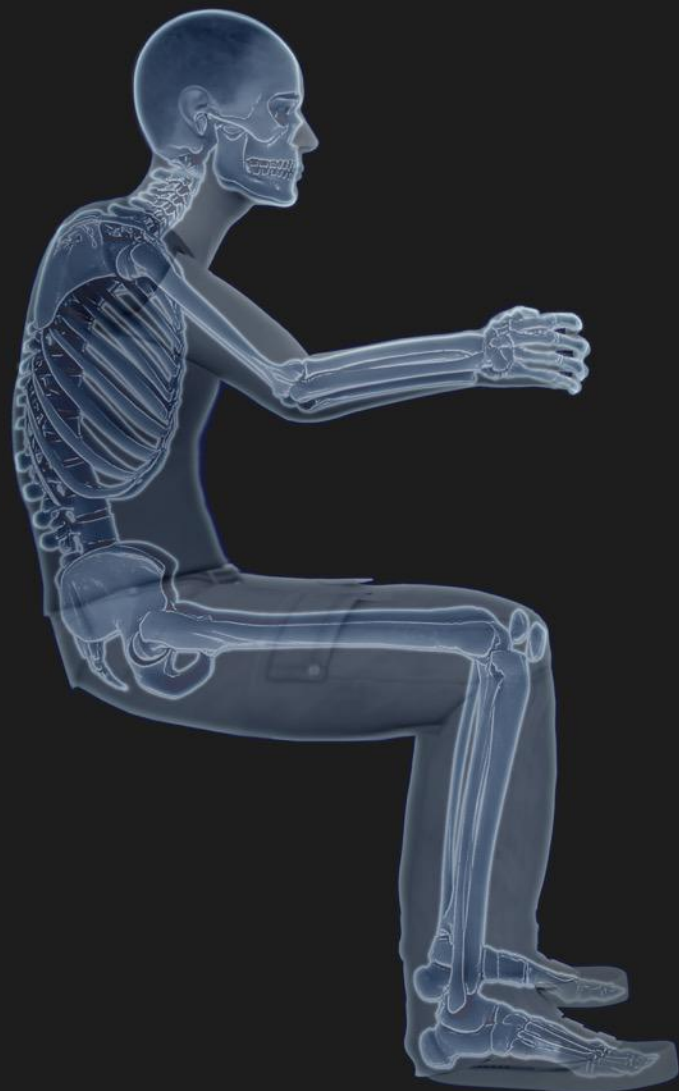
Cockpit Layout Instrumentation

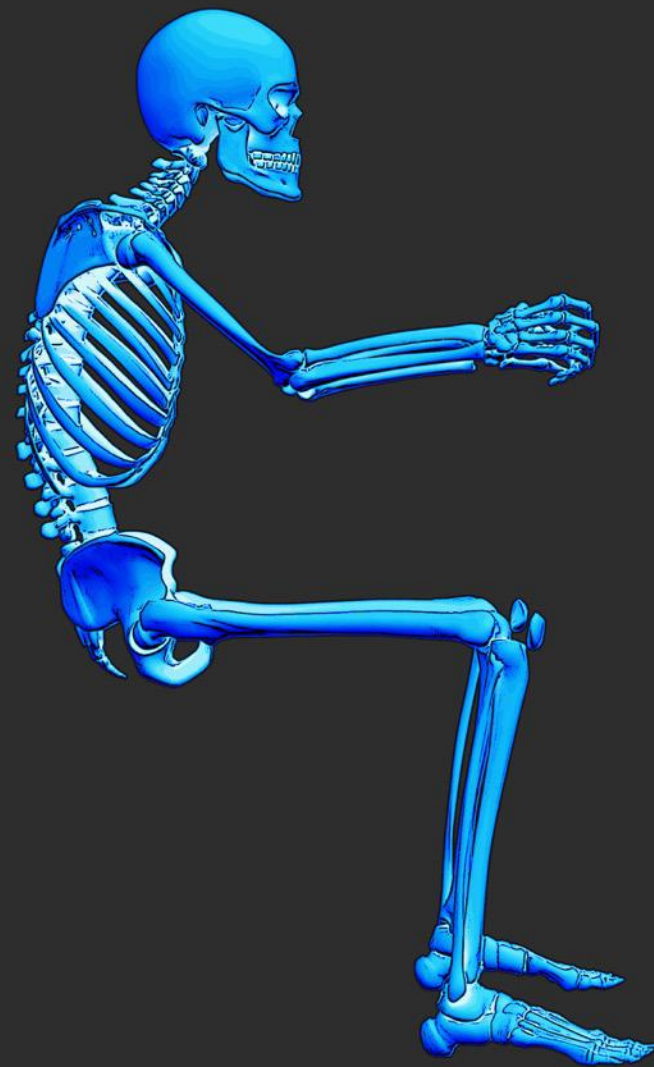
- Display positions
 - On dash or seat
- Controls Positions
 - On dash or seat?
 - Touch / Soft touch
 - Remote pad

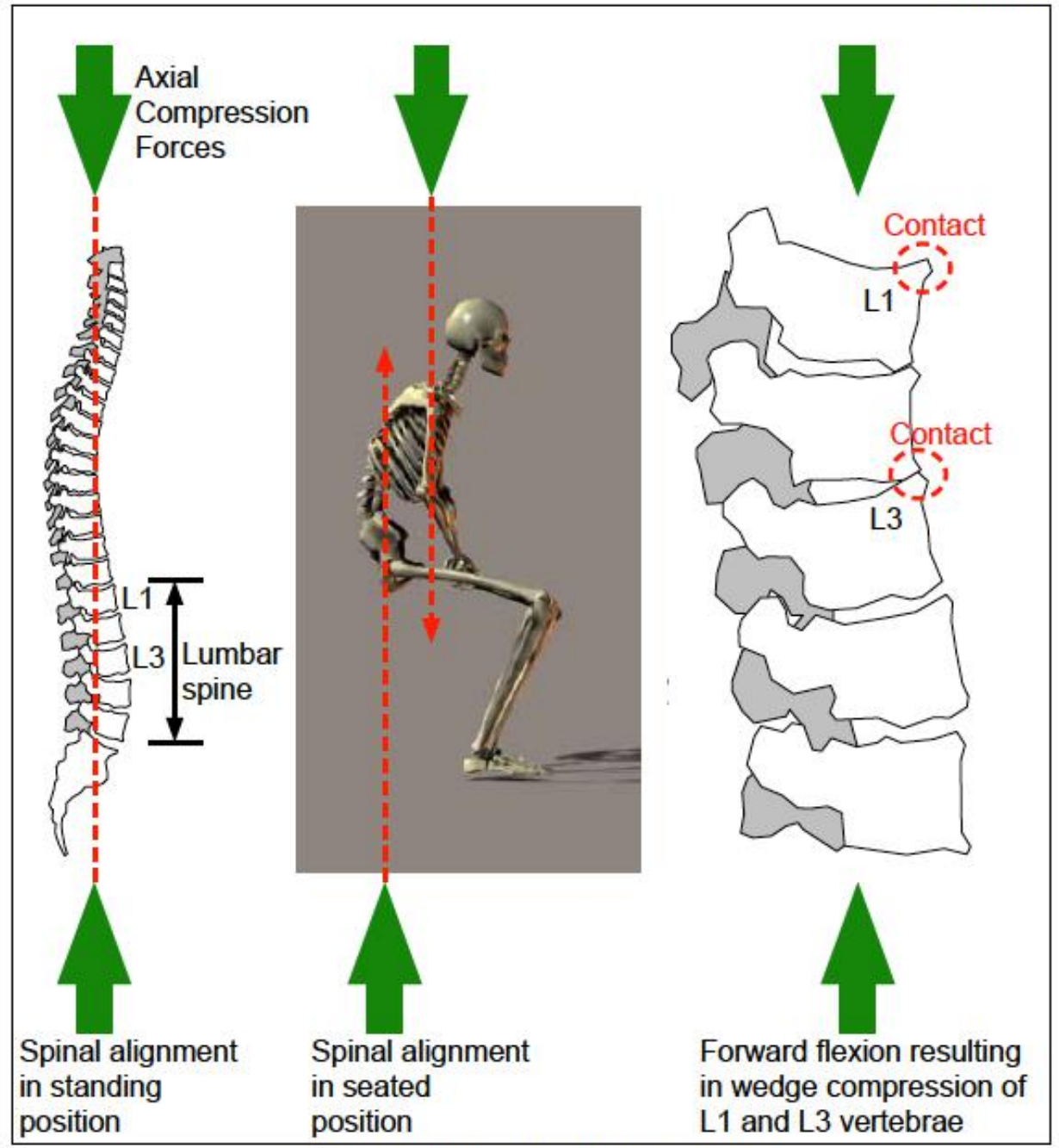


SITTING

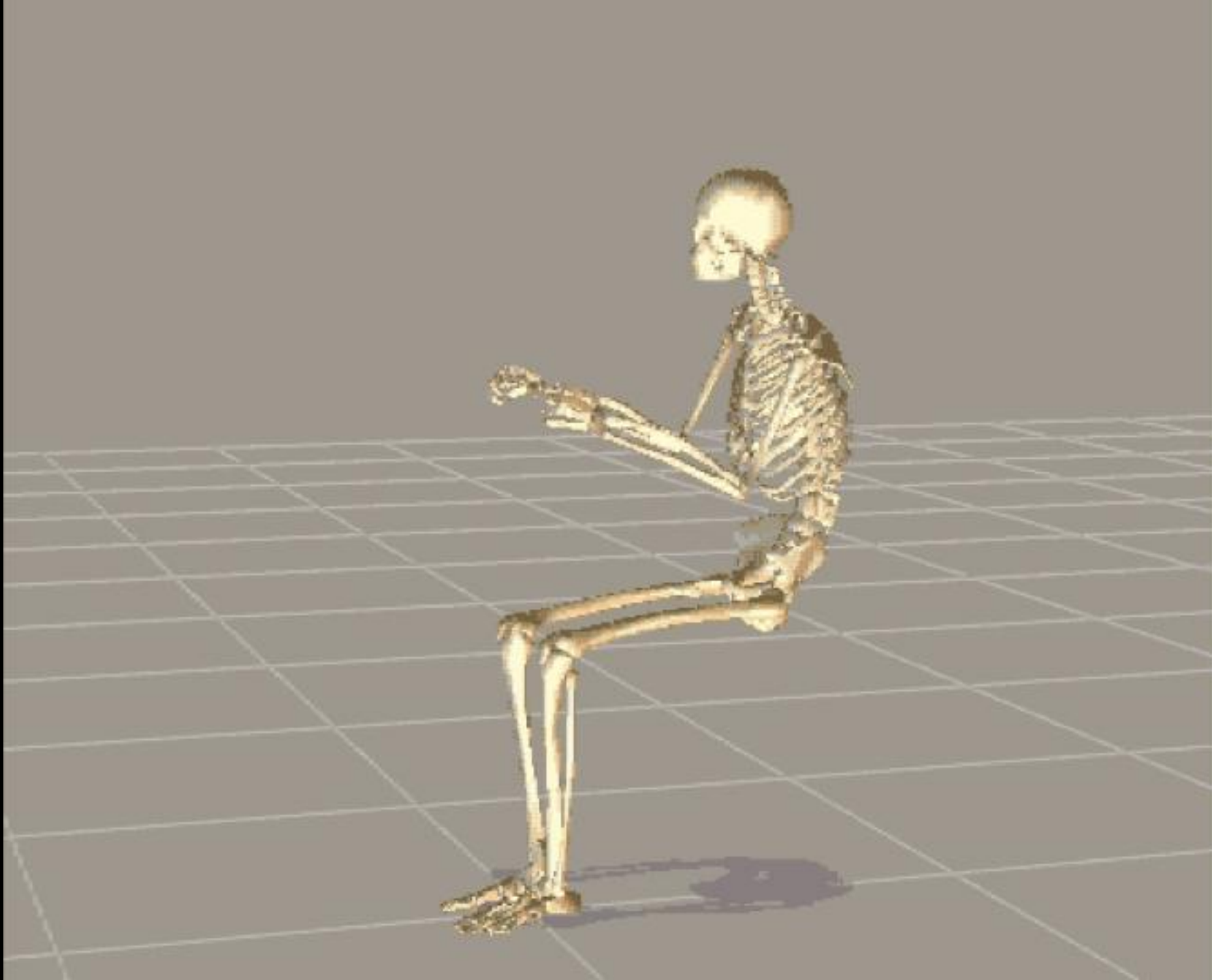
THE IMPORTANCE OF POSTURE











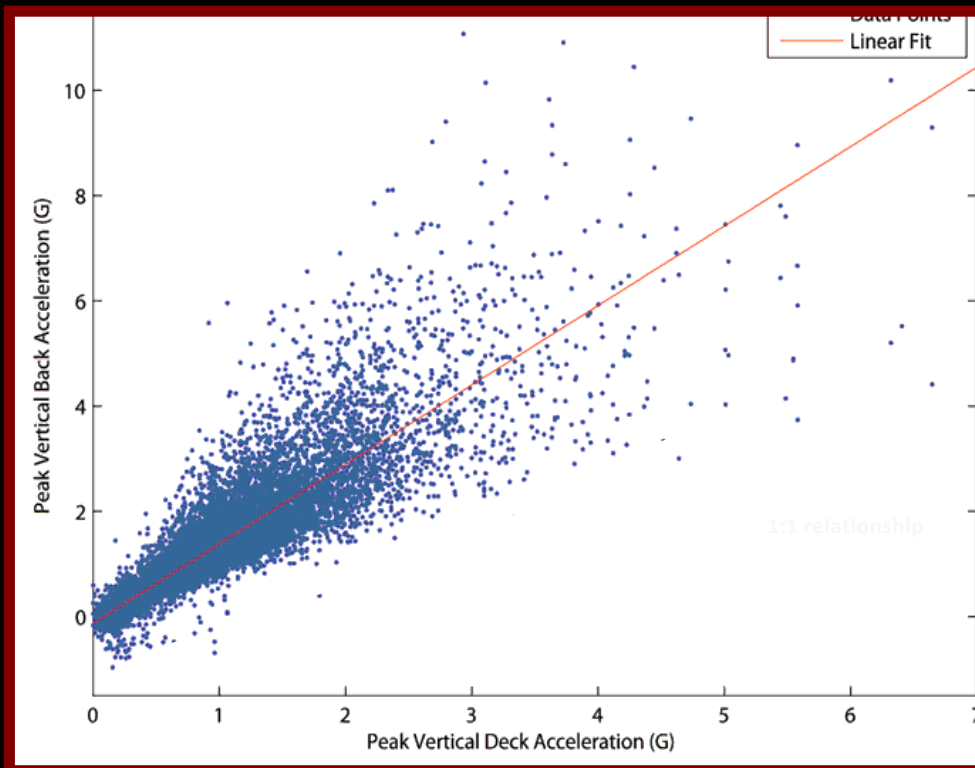
STANDING

STANDING

- Don't trust the seat? – Can you trust your legs?
- Can't see out?
- Can't reach the wheel / throttle /controls?
- Need to get in and out quickly?
- Does the cockpit design require it?

Transfer Functions (cont)

Deck-to-L4 Standing Transfer Function



Sea tests

NSW RIB

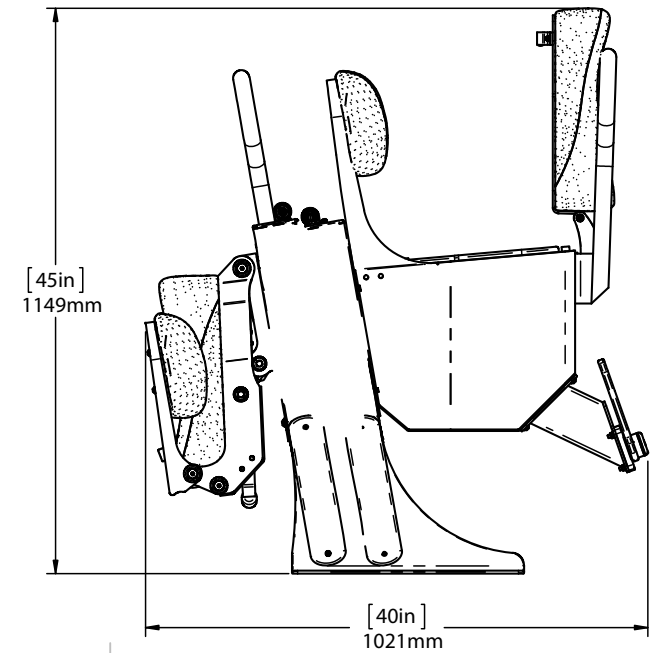
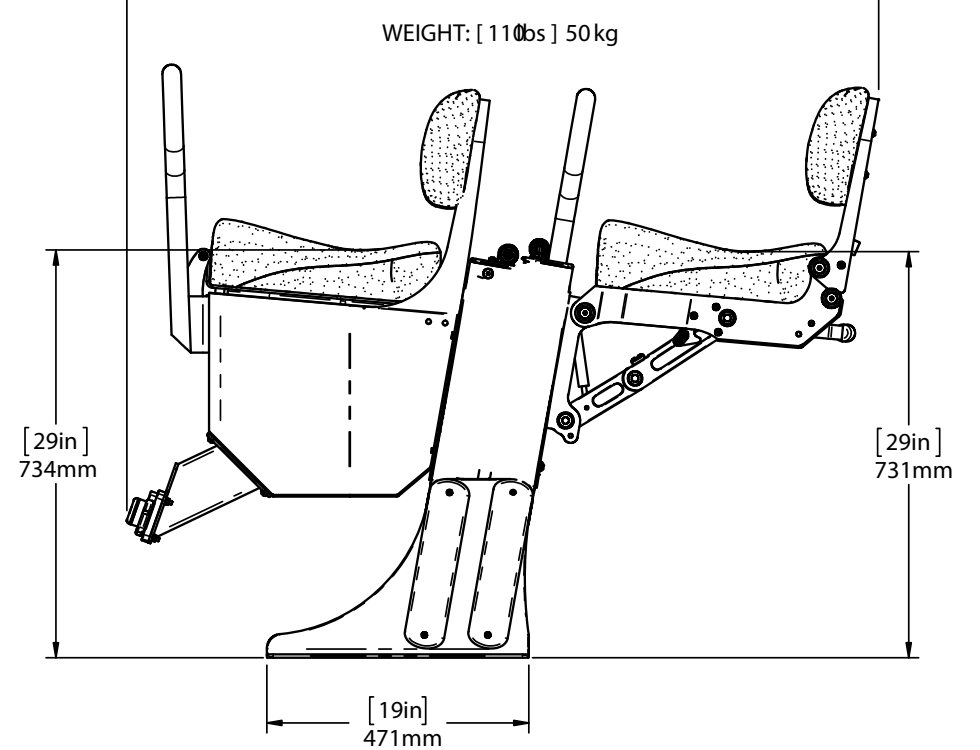
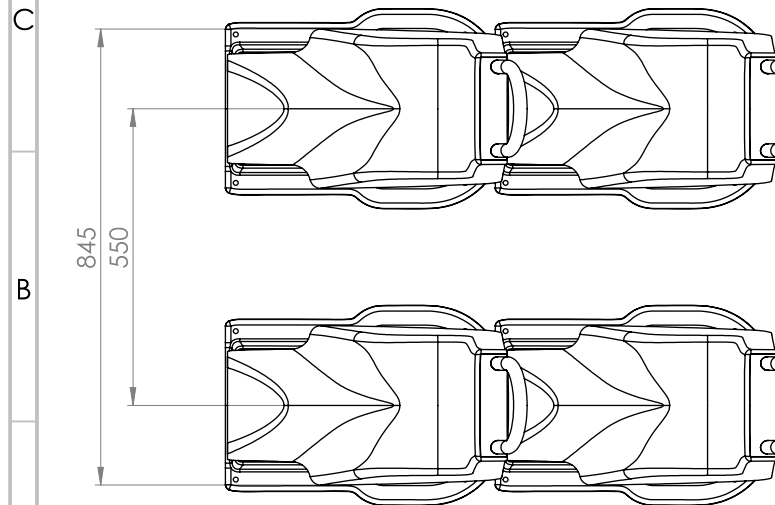
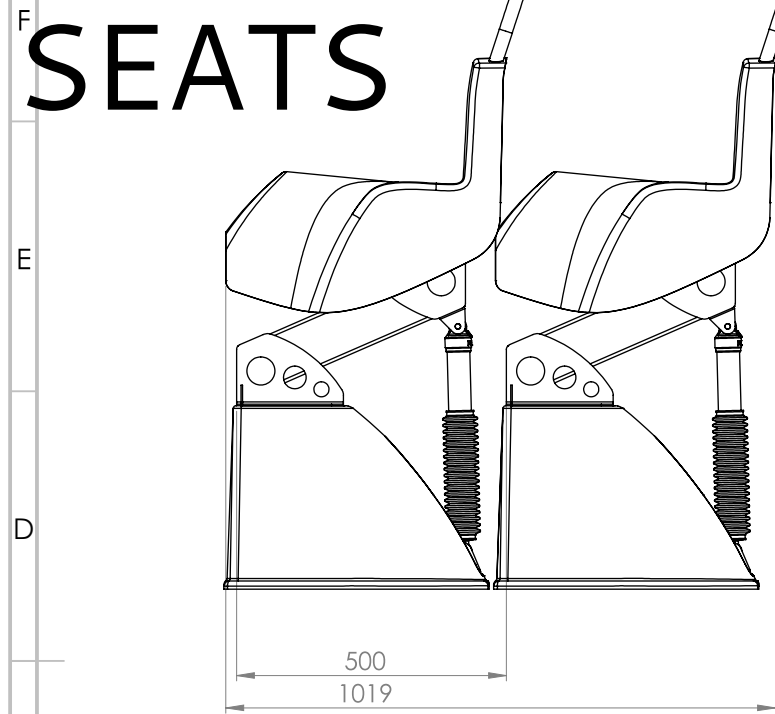






SEATING FEATURES

FLIP-UP SEATS



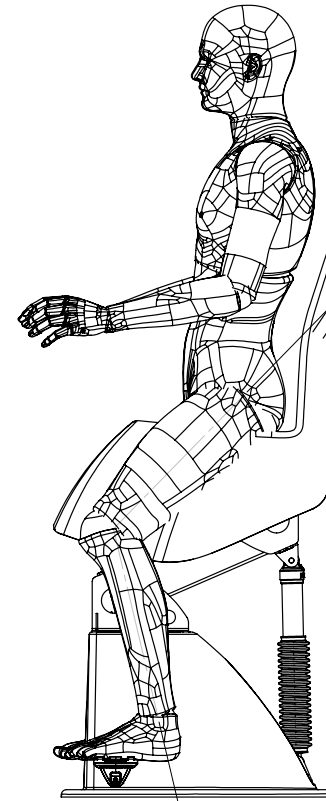
WEIGHT:

SCALE:1:10

Height Adjustment?

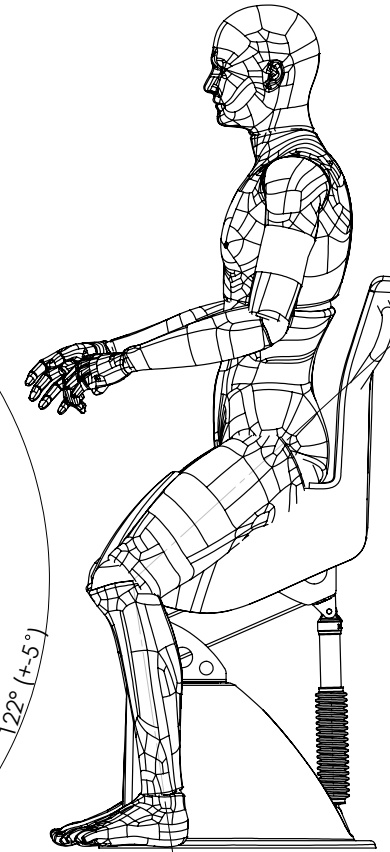
Stroke?

5 %tile male operator:



Footrest folded down.

95 %tile male operator:



Footrest folded up.

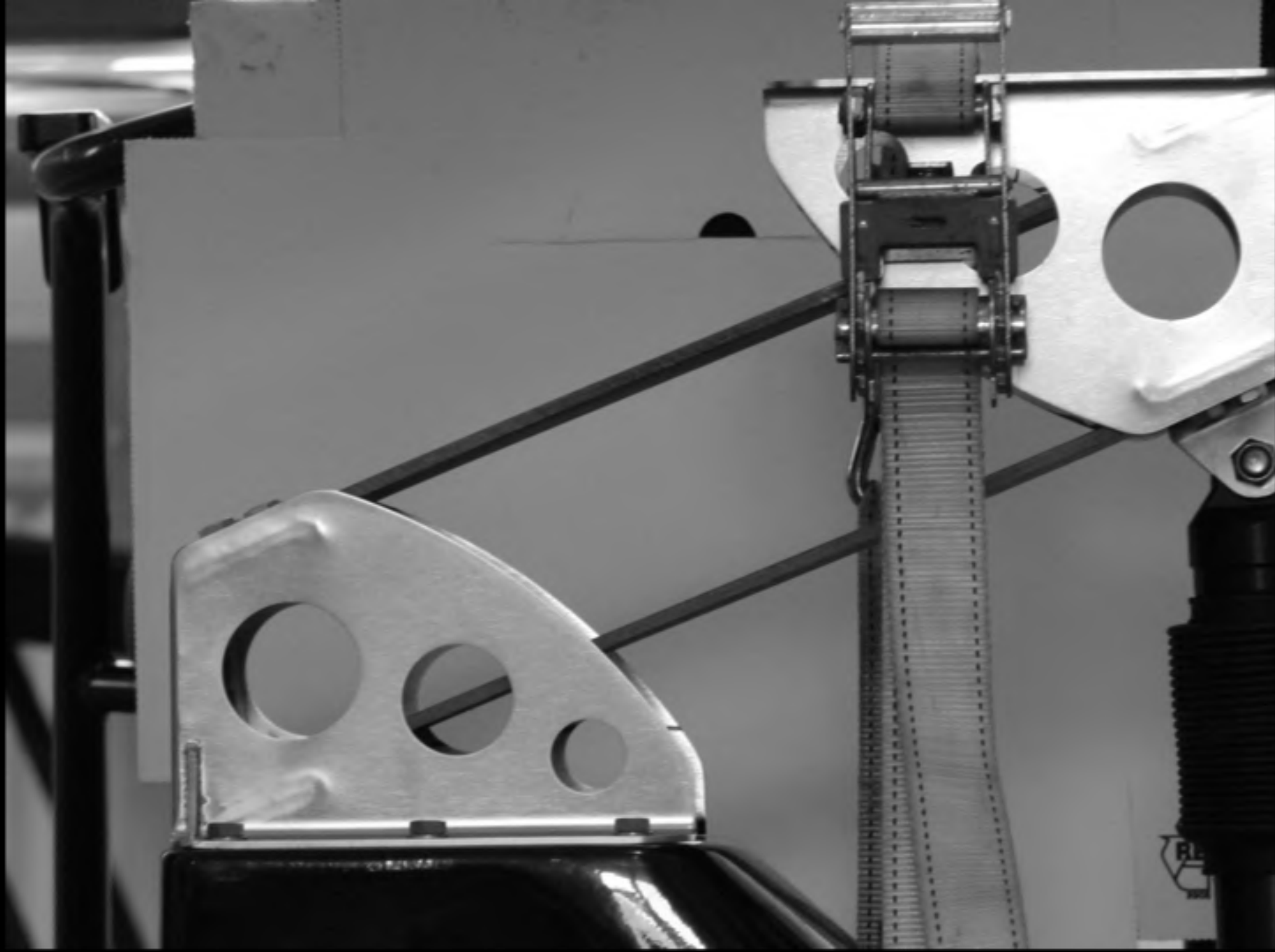
Seat model.
Ullman Biscaya XLT 750.
Seating height 750 mm

Knee angle may vary (appr. $\pm 5^\circ$) depending on different user body weight and anthropocentric variance.

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS			FINISH:		DEBUR AND BREAK SHARP EDGES		DO NOT SCALE	
SURFACE FINISH:								
TOLERANCES:								
LINEAR:								
ANGULAR:								
	NAME	SIGNATURE	DATE				TITLE:	
DRAWN:								
CHK'D:								
APP'VD:								
MFG:								
G.A.					MATERIAL:		DWG NO.	
							Biscaya	
					WEIGHT:		SCALE:1:10	

SPRINGS





A





INFORMATION

Utensils, Marstrand, ...