

R/V SIKULIAQ: Load Handling System (LHS)



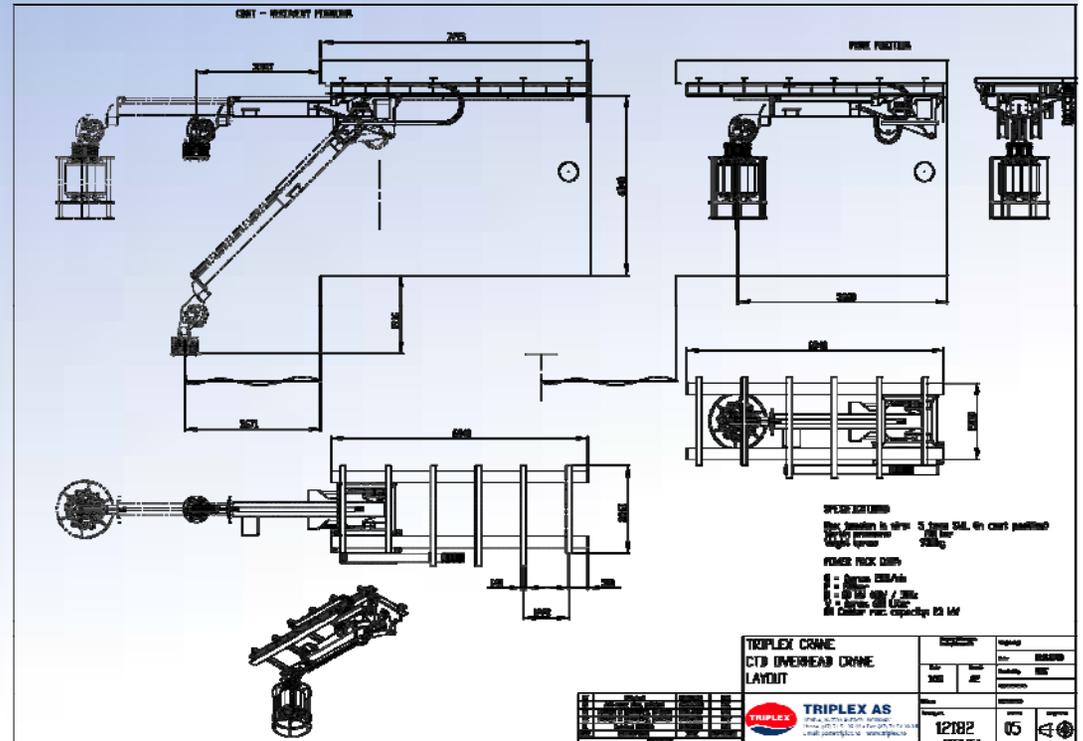
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SIKULIAQ Load Handling System

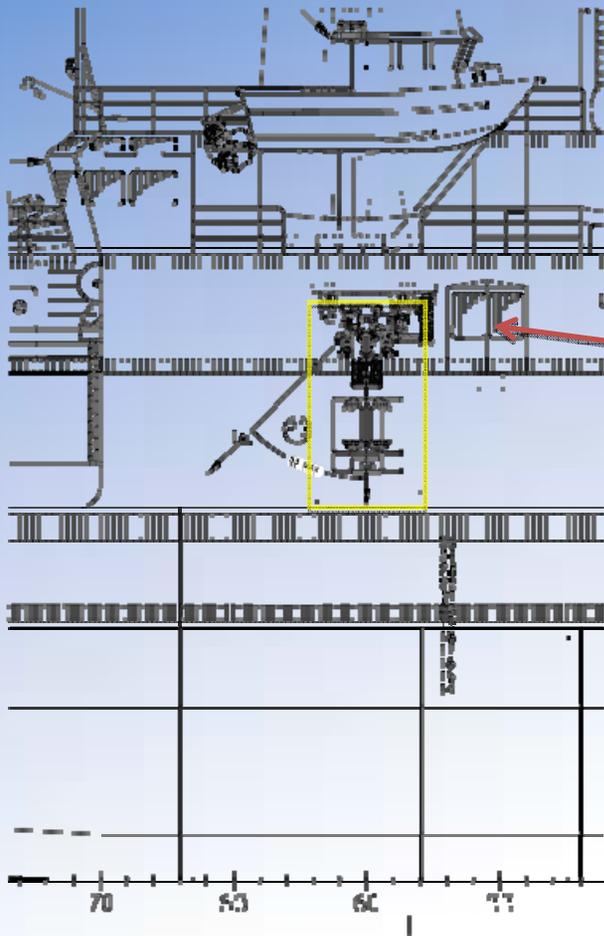
The Load Handling System consists of:

- Overboarding boom
- Capable winches
- “Smart” control system
- Sensors are key
 - Proximity sensors in docking head
 - Tension sensors on wire
 - Motion sensors on ship
- **Proximity sensors** provide feedback for Auto-position mode
- **Tension sensors** provide feedback for Render/Recover mode and Auto-Position
- **Motion sensors** provide feedback for Motion compensation mode
- **Control software** glues all the parts together – the real “smarts”



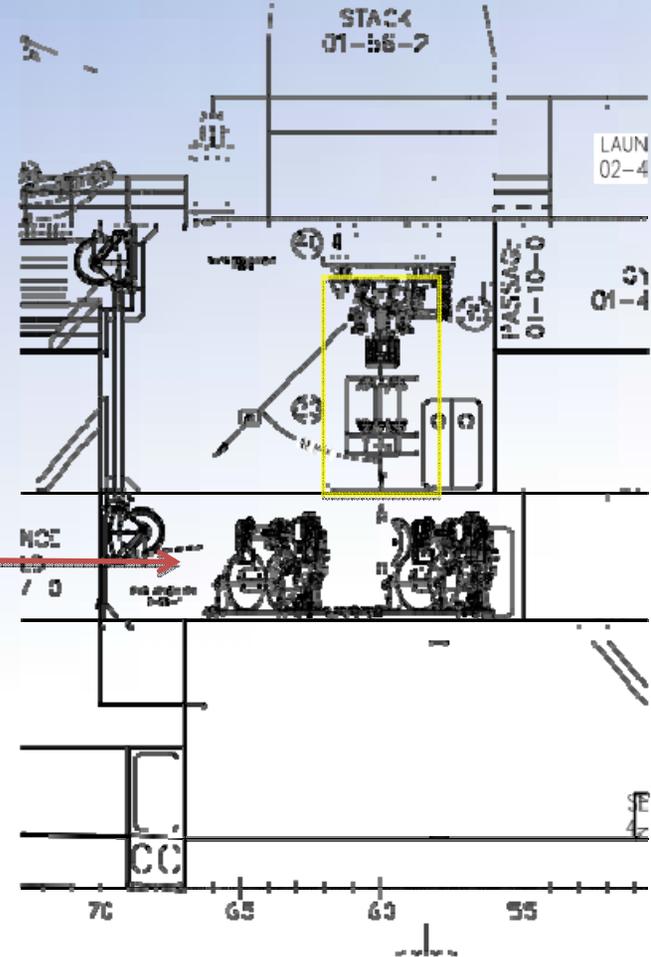
The overboarding boom is the “dumbest” part of the system – the magic is in the winches and control system





Winch Control Room

Forward Winch Room
 • Both winches can be rotated to serve either A-Frame/crane or LHS



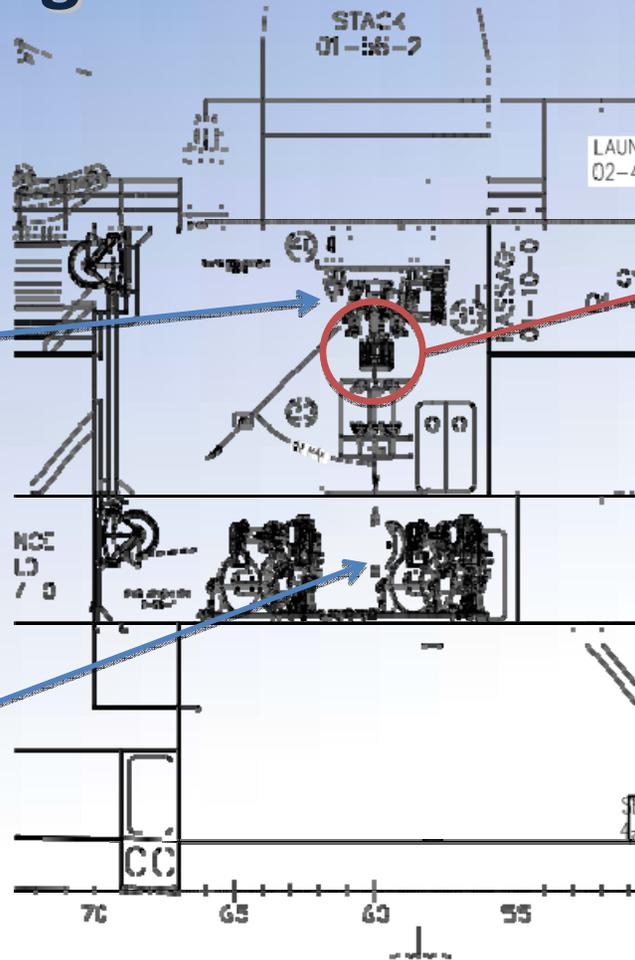
Outboard and Inboard Profiles



LHS Sensor Arrangement

**Motion Reference Unit
on Boom**

**Tension Sensors
in turning sheaves**



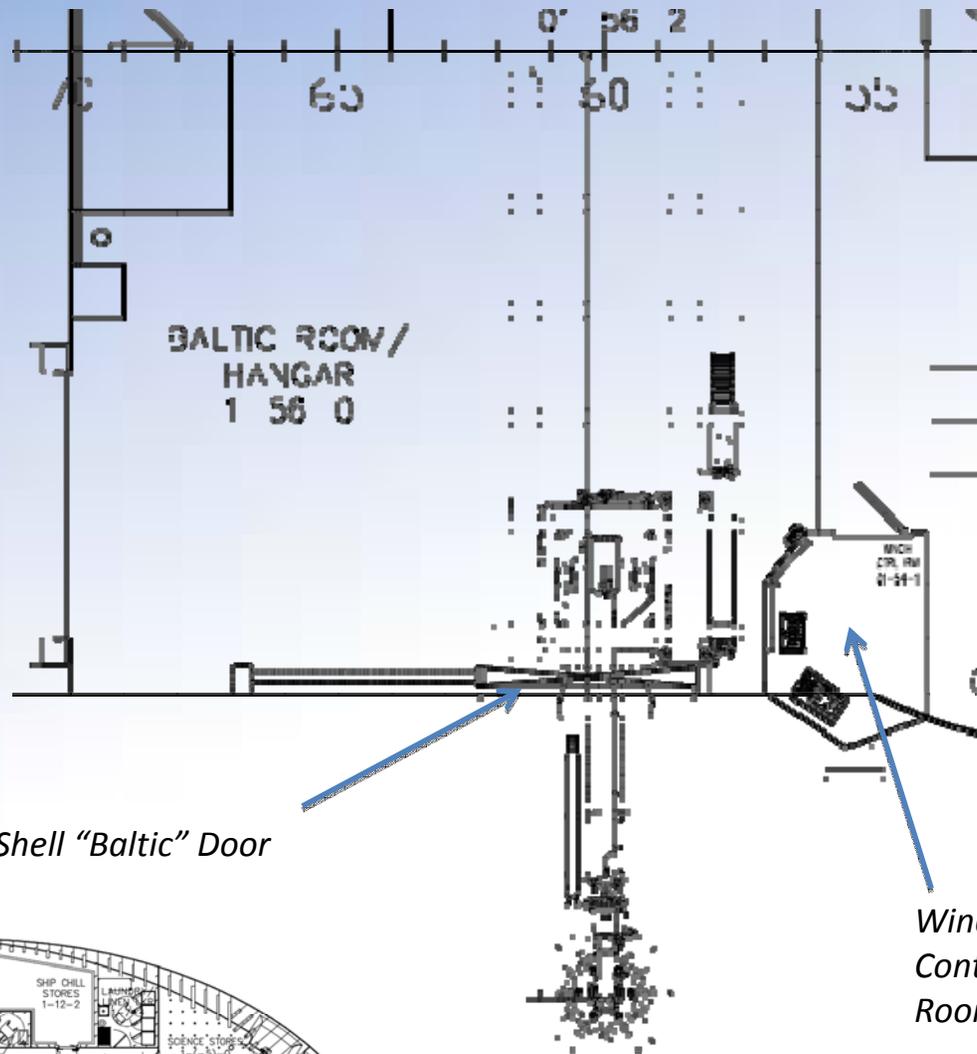
**Proximity Sensors
in Docking Head**

Control Software integrates sensors and winch/boom controls



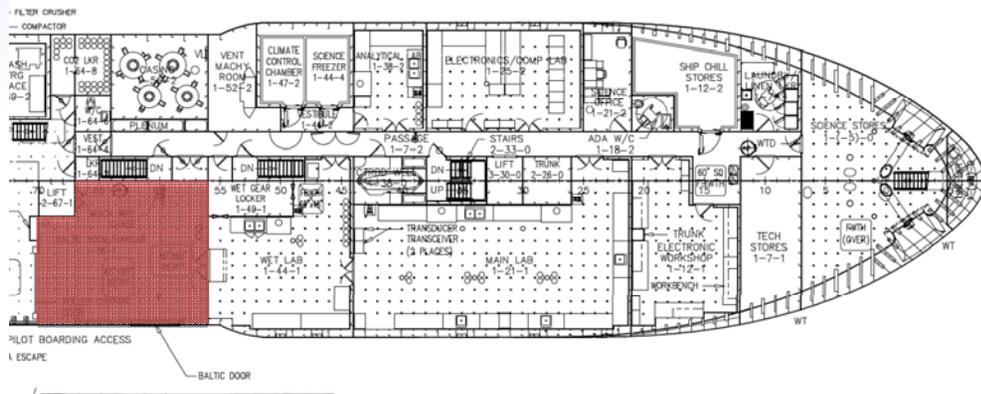
LHS Boom

- Boom is patterned on the “Overhead Crane” concept in the NSF/ONR Load Handling Workshop Report.
- LHS Boom is located in the overhead of Baltic Room (02 level)
- Exits through side shell door
- Controlled locally and from Winch Control Room
- Overboards either Hydro and CTD Winch

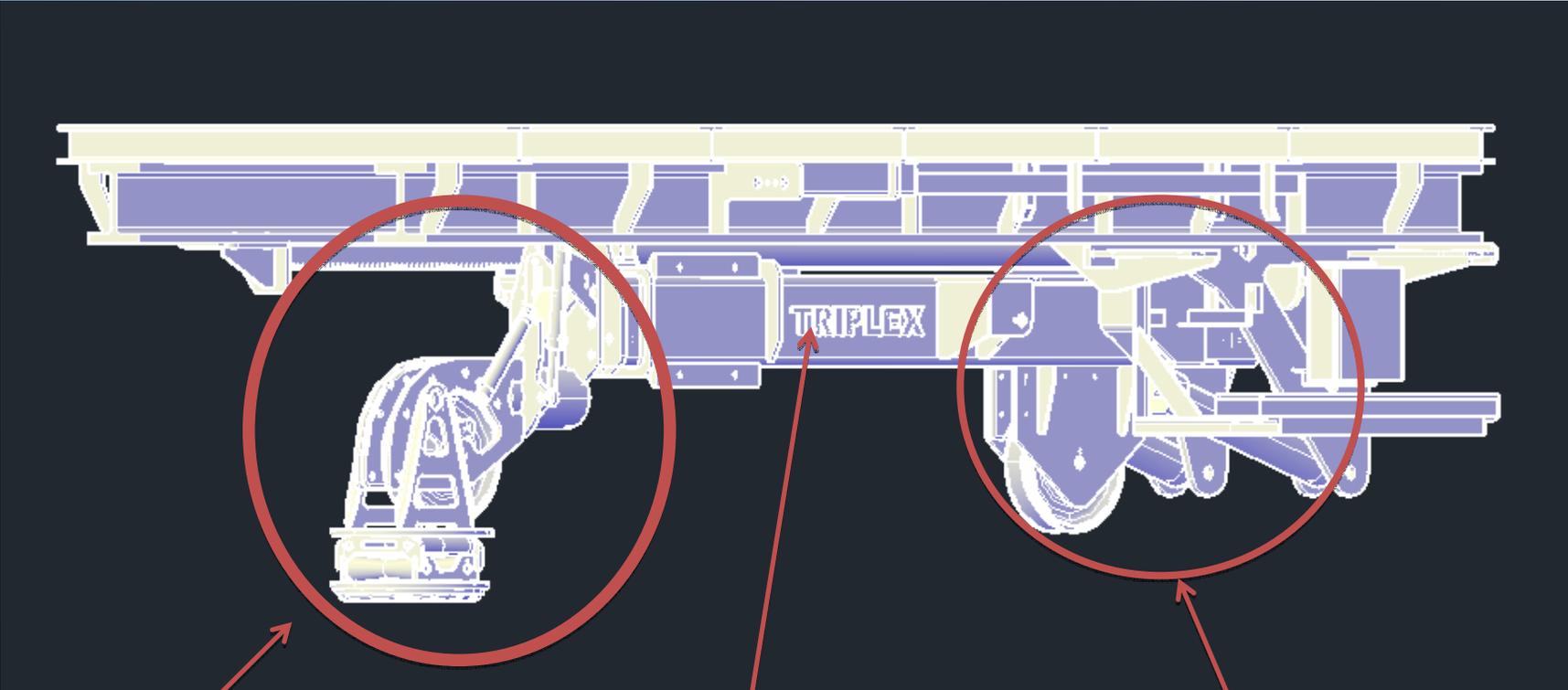


Side Shell “Baltic” Door

Winch Control Room



Major Components



**Removable
Docking Head**

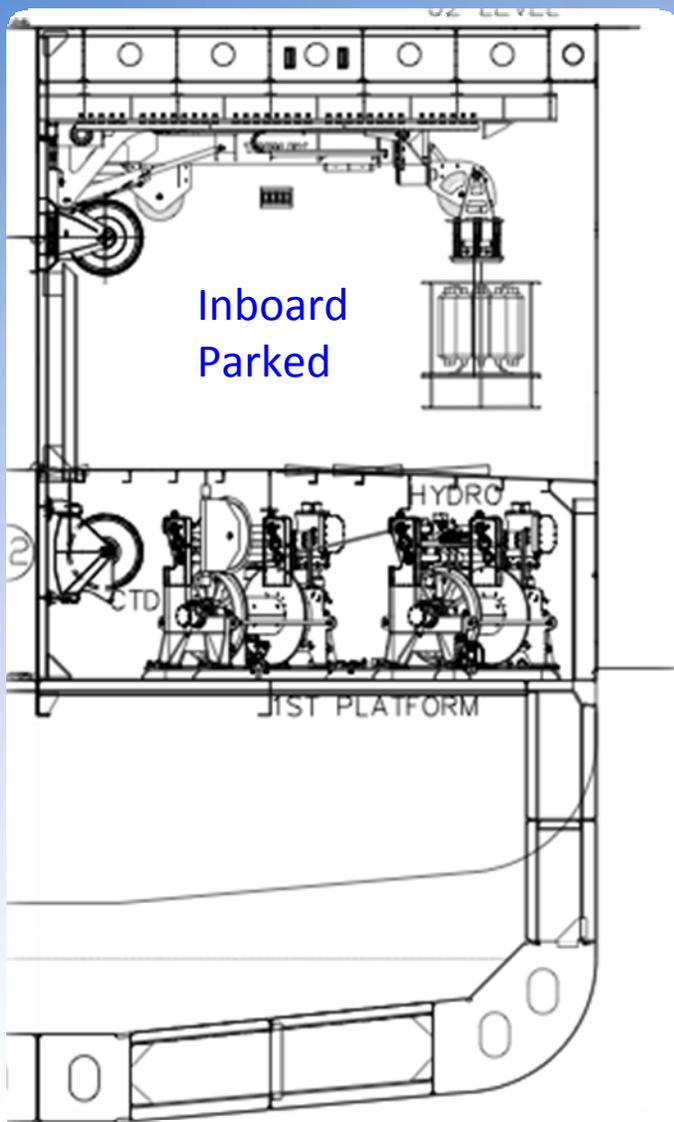
-Replacement docking heads for other equipment can be attached

Telescoping Boom

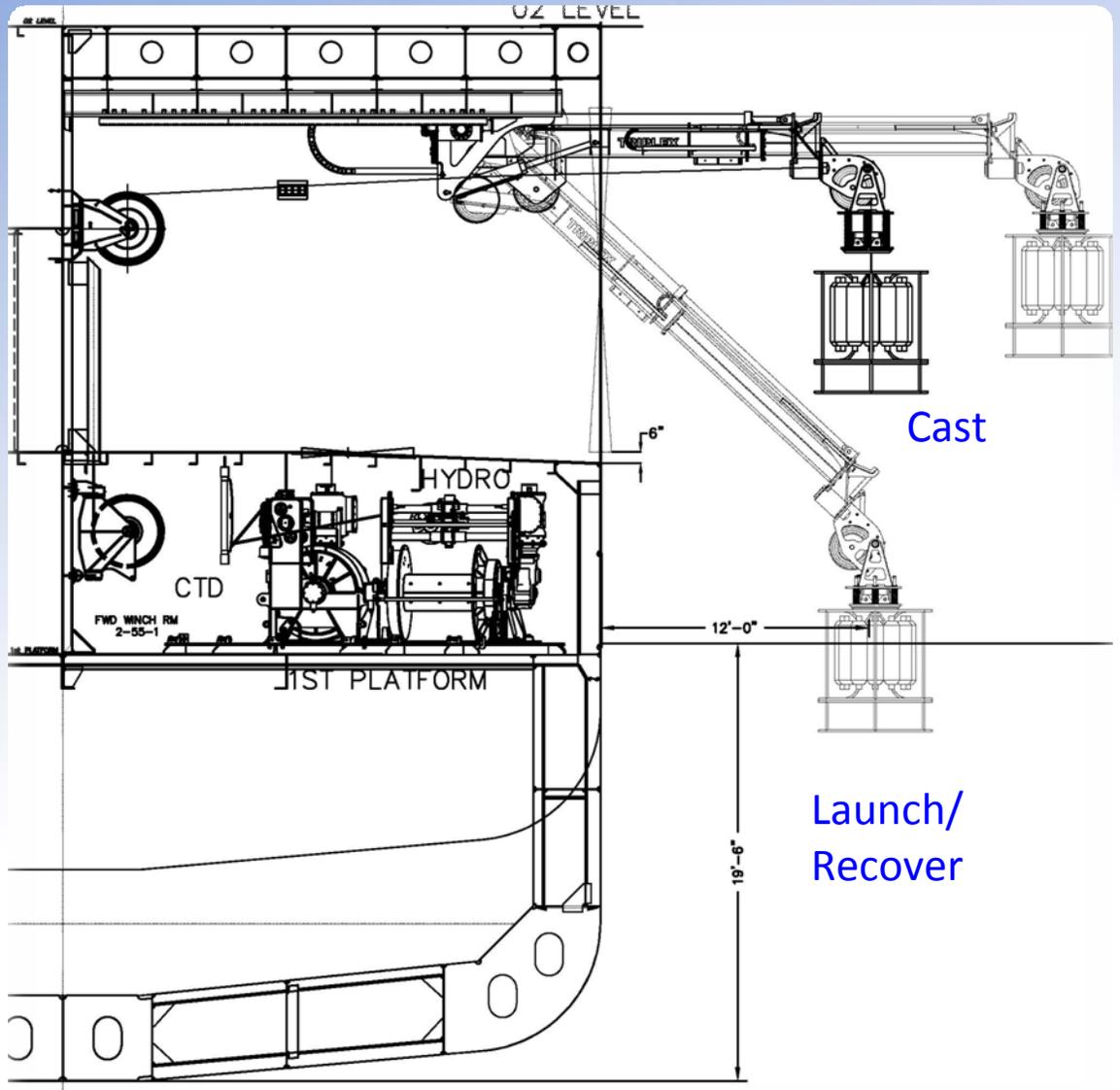
Base Carriage

- carries inboard sheave and lowering cylinders
- Moves boom inside Baltic Room.





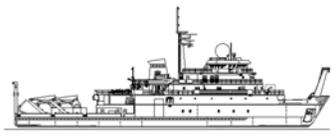
Inboard
Parked



Cast

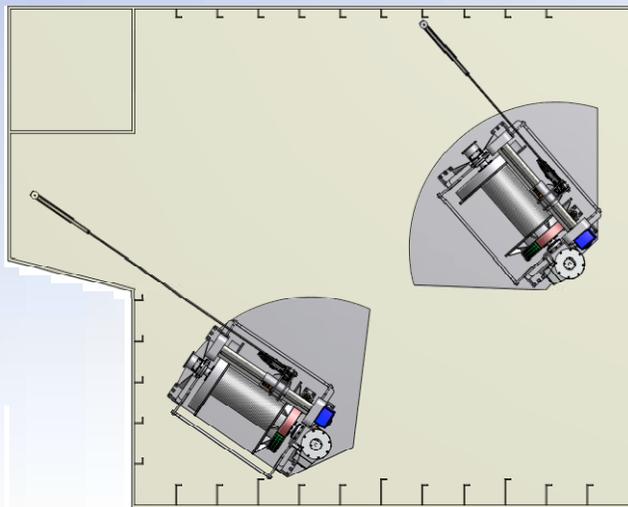
Launch/
Recover

LHS Operating Positions

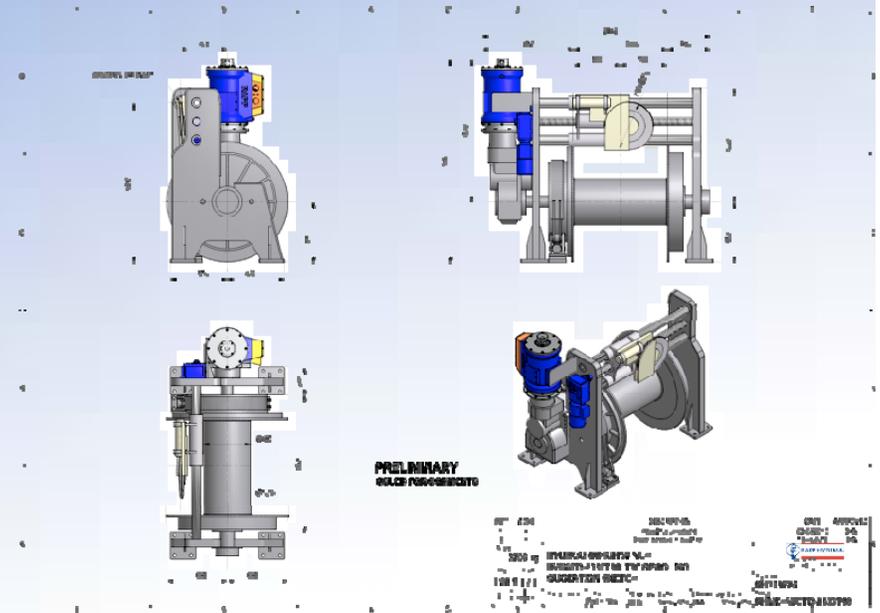
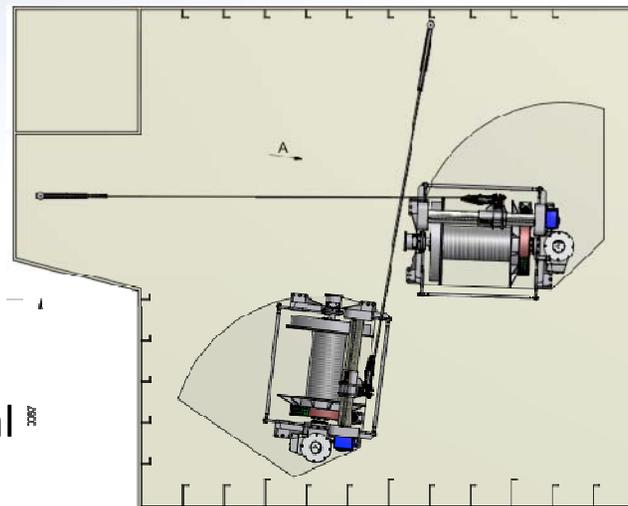


Overboarding Winches

- Two Mo-Comp winches forward
- Both with .322" EM cable
- Drums removable/interchangeable
- Can be led to side boom or stern



Conceptual



LHS Docking Head

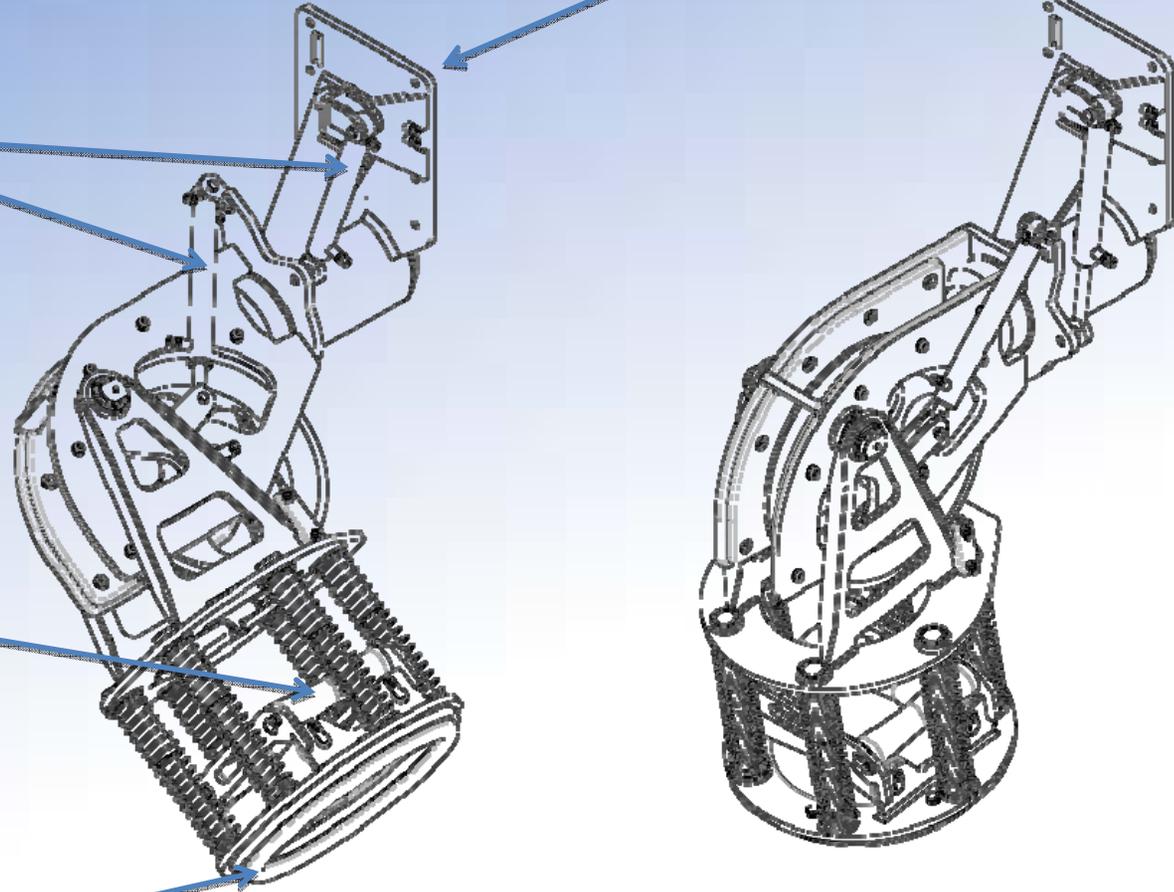
Damping
Cylinders
-Adjustable by
operator

Guide Rollers

Docking Collar

-Bolt-on, will be replaced
with custom bumper for
trials.

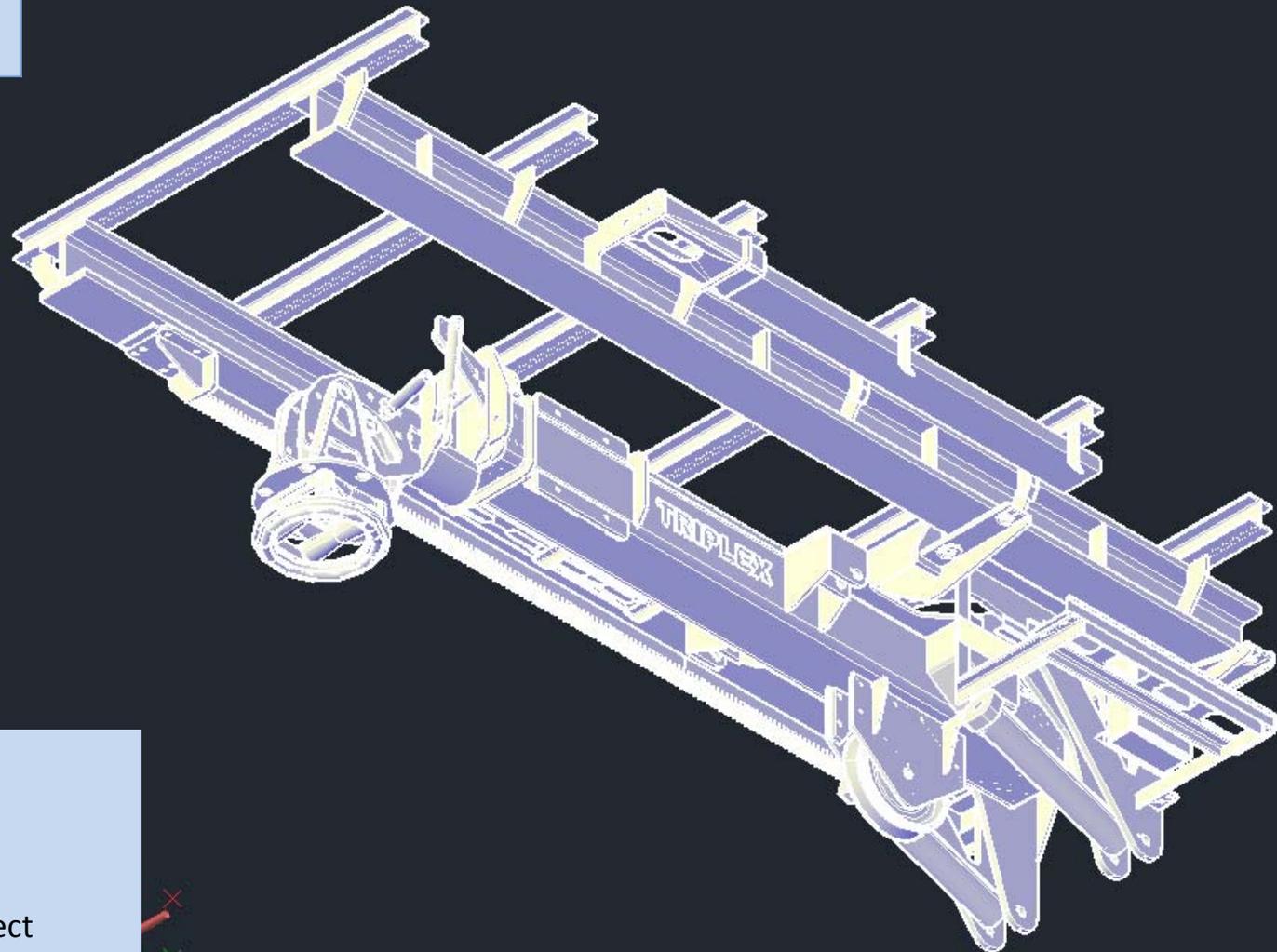
Bolting Plate



LHS Boom under construction



Questions?



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