

# **Observations on “New Build Rigs”**

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# Contractual Expectations

- All fasteners at height must have a suitable secondary locking mechanism (Nordlock Washers preferred).
- Any components or assemblies at height which may be at risk of falling due to impact or fastener failure shall have a secondary retention system in place.
- For tugger / wireline sheaves, the secondary retention system must be capable of preventing the sheave, wire and load from falling a significant distance should a primary load path component fail.

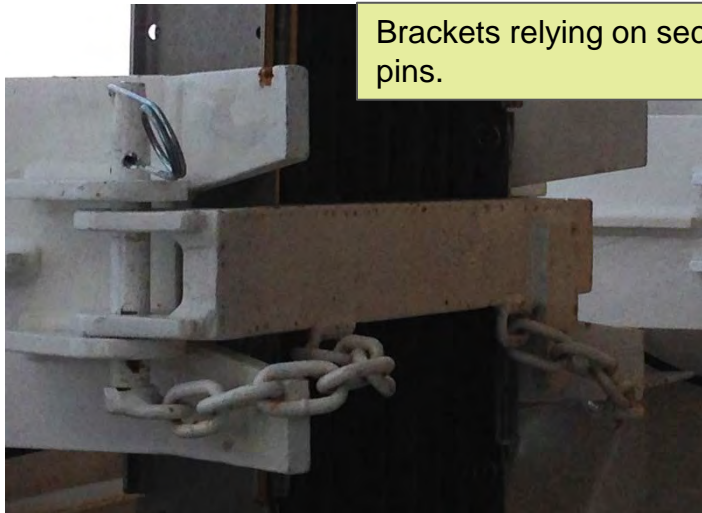
# Land Rig Mast Accessories



Substantial attachments with no secondary systems



“Solution” with no secondary retention on the axle.



Brackets relying on securing pins.

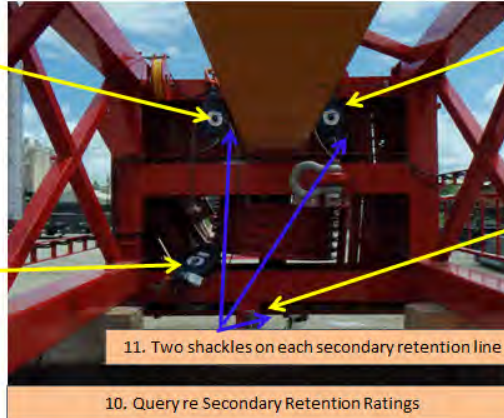


Crown mounted jib. Sheave secured to jib, but single pin hinge to mast.

# Land Rig Mast Accessories

Sheave: M491, 10" TB, 12t (4:1) for 1/2" or 9/16" line.  
 Shackle: 6-1/2 ton  
 Padeye Size / ID: 5MT padeye (MAST046)  
 Dressed with: 1/2" x 175' line type 110-OS-CS, 6x36WS EIP IWRC  
 Serial No.: 1158430-2-1  
 Retention Shackle: WLL 4-3/4 ton & 3-1/4 ton  
 Retention Line: 3/8" x 4'6" type 115-HT-HT, **1.4 ton**  
 Serial No.: 1142192-17-2  
 Retention Padeye Size / ID: **Need to check dims (looks okay)**

Sheave: M491, 14" TB, 12t (4:1) for 5/8" line.  
 Shackle: Pinned across 2 padeyes  
 Padeye Size / ID: 12MT padeye (MAST048)  
 Dressed with: No wire yet.  
 Serial No.:  
 Retention Shackle: **WLL 1-1/2 ton**  
 Retention Line: 3/8" x 4'4" type 115-HT-HT, 1.4 ton  
 Serial No.: 114720-11-1  
 Retention Padeye Size / ID: **Matches 1-1/2 ton shackle**



Sheave: M491, 10" TB, 12t (4:1) for 5/8" line.  
 Shackle: 6-1/2 ton  
 Padeye Size / ID: 5MT padeye (MAST047)  
 Dressed with: 1/2" x 175' line type 110-OS-CS, 6x36WS EIP IWRC  
 Serial No.: 1158430-2-6  
 Retention Shackle: WLL 4-3/4 ton & 3-1/4 ton  
 Retention Line: 3/8" x 5' type 115-HT-HT, 1.4 ton  
 Serial No.: 1158430-1-7  
 Retention Padeye Size / ID: **Need to check dims (looks okay)**

Sheave: M491, 8" TB, 4t (4:1) for 3/8" or 1/2" line.  
 Shackle: 4-3/4 ton  
 Padeye Size / ID: No ID or WLL marked (575?)  
 Dressed with: None  
 Serial No.:  
 Retention Shackle: WLL 4-3/4 ton & 3-1/4 ton  
 Retention Line: 3/8" x 4'4" type 115-HT-HT, 1.4 ton  
 Serial No.: 114720-11-1  
 Retention Padeye Size / ID: **Need to check dims (looks okay)**

The systems are designed with complimenting WLL's, not breaking loads and different SF's can change predicted failure points. Retention systems are rated for the components, not the loads they are rated to carry.

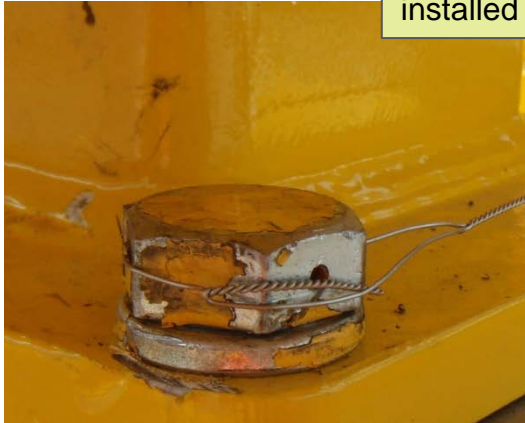
# Fastener Retention



Standard Nordlocks over slots.



Nordlocks on penny washers.

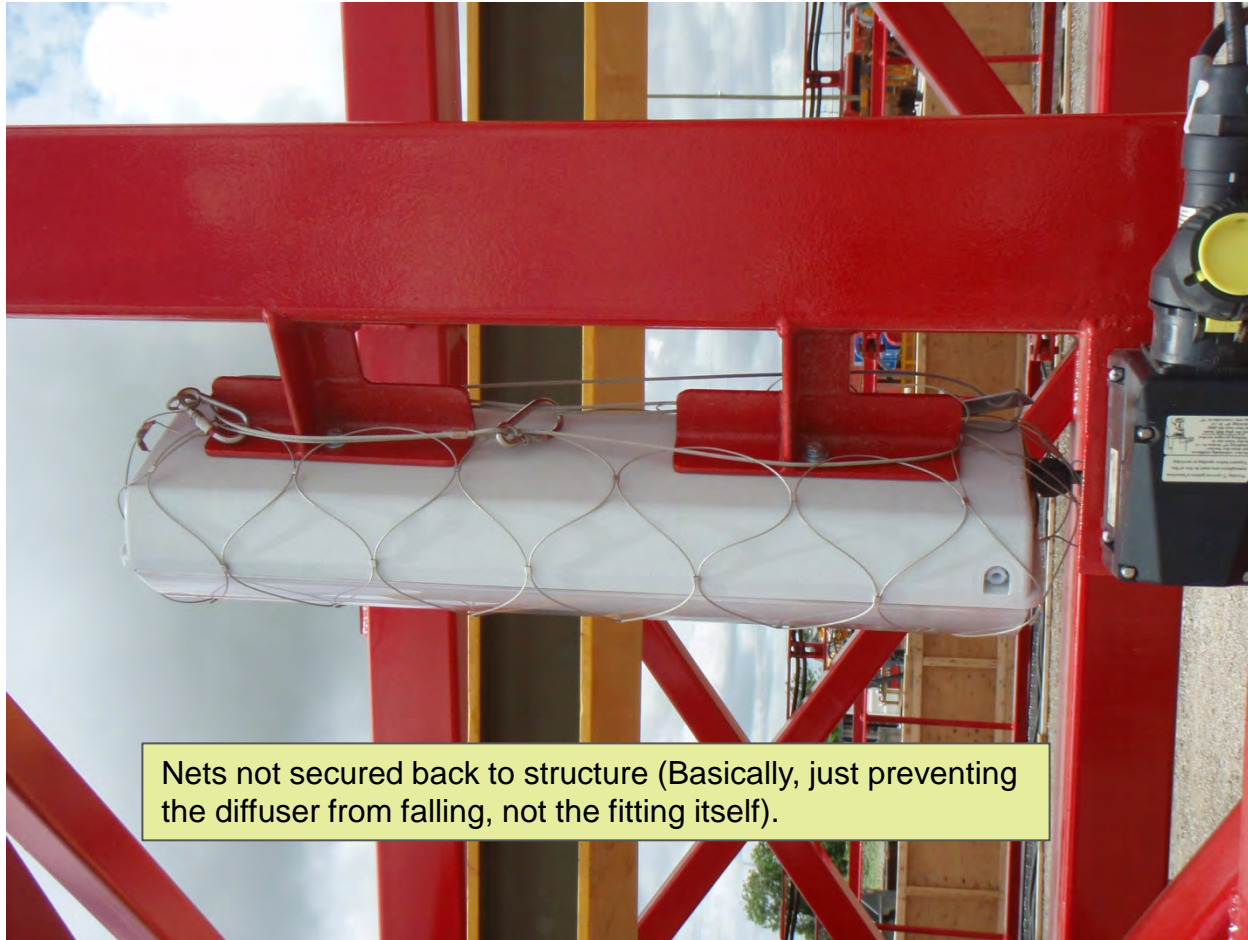


Poor lock installed



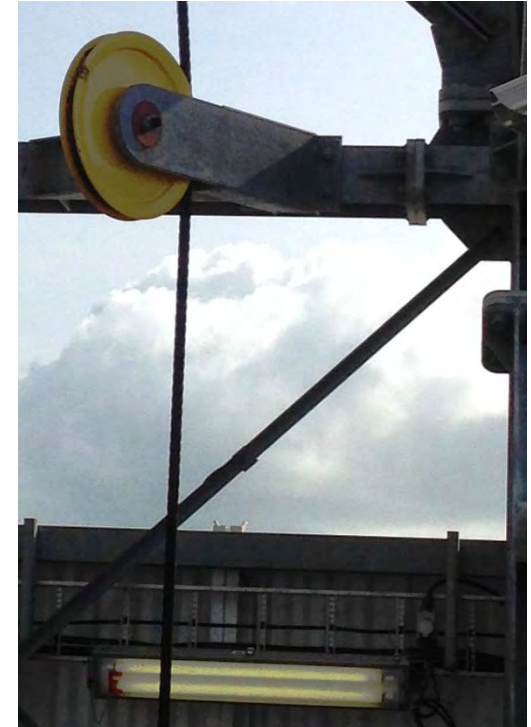
Nordlocks installed back to front.

# Nets



Nets not secured back to structure (Basically, just preventing the diffuser from falling, not the fitting itself).

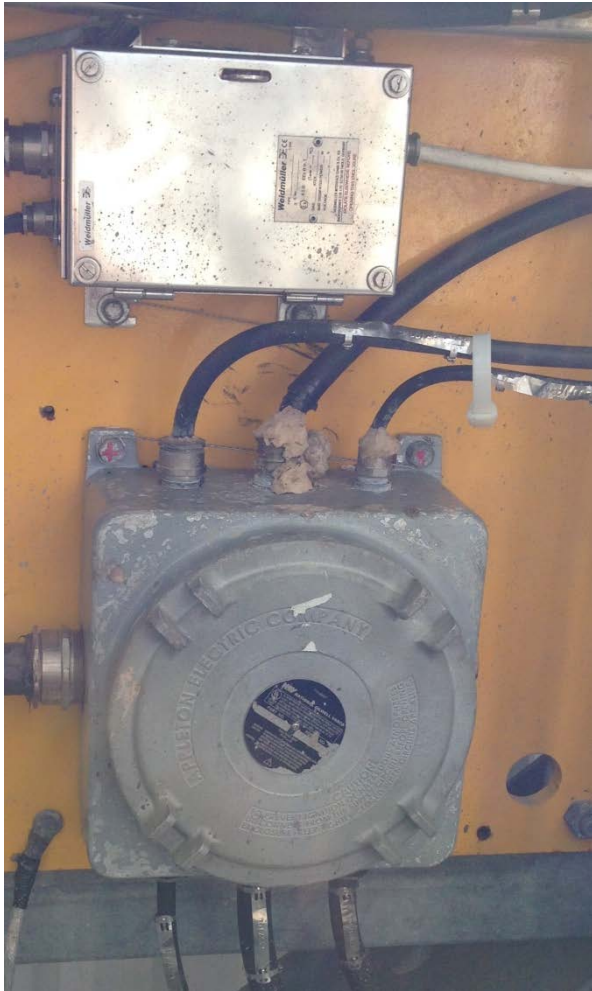
# Offshore Semi – New Derrick



Diverter sheaves on tigger lines above the monkeyboard with no mounting frame, sheave wheel or axle retention.

Fingers with common axle pins, no retention systems.

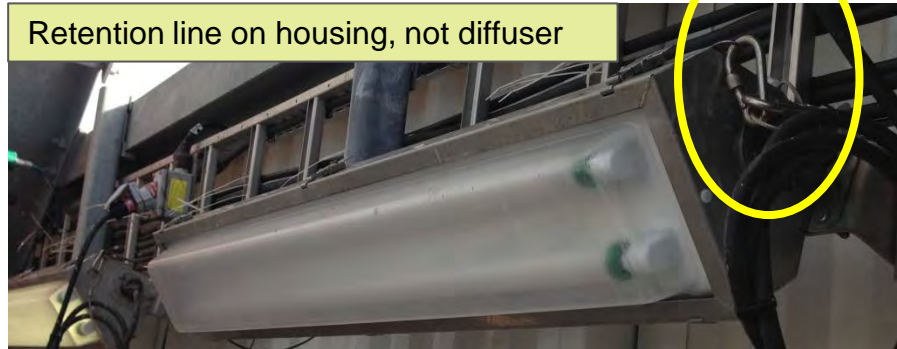
# Offshore Semi – New Derrick



No retention systems on gates



Retention line on housing, not diffuser





# Tools



No inventory control.  
Multiple tools on one lanyard.  
No red zone, or PTW, or specific Risk Assessments.  
Multiple part tools with insufficient lanyards.



# Conclusions

- It is important to clearly list your expectations in contracts.
- Ensuring your expectations are clear and formally captured, makes it much easier to get audit actions addressed.
- It is important to interrogate the rig builder during the specification process to ensure their interpretation matches your expectation.
- “Real time” monitoring is important to catch poor installation quickly, before everything is installed.
- Ensure that the builders / installers have done the online Nordlock training.