

# Dynamic Rig Adaptor Kit



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**NAUTILUS PARTICIPATION:** Project Designer and Coordinator (Jan 2001 to May 2001)

## **OBJECTIVE:**

Design, build and install modular support structures that will allow a fleet of identical platform rigs to be placed on floating drilling structures such as SPARs and TLPs.

## **PROJECT:**

The principal engineers at Nautilus created the idea of building an easily installed "Dynamic Kit" for Nabors' fleet of 1,000 hp platform rigs. This kit allows any of the identical Nabors "static" rigs to be placed on any floating SPAR or TLP platform to perform workovers or sidetrack work. The alternative to this for most Operators was to commission a new build "workover" type rig for their floating platforms. Two kits were built; one for El Paso to complete the Prince TLP platform wells and one for Conoco to rework the wells on Jolliet TLWP. The back side of this project sheet shows how the "Dynamic Kit" works. In essence, part of the "static" rig is left behind and replaced with the higher strength modular components. The modular replacement components were designed to assemble quickly.

## **DELIVERABLES:**

- ④ Design all substructure components to be rated no less than .4g acceleration. All substructure components must meet maximum lateral and vertical accelerations on most SPARs and TLPs
- ④ Heaviest single package lift to be 32 Kips or less.
- ④ Rig must be able to quickly be converted from static platform work to dynamic work and visa-versa with the Dynamic Kit. All rig and Dynamic Kit components designed for quick installation to minimize rig-up time.
- ④ Minimize weight and distribute loads evenly on SPARs or TLPs.
- ④ The Dynamic Kit must allow the rig to work with a triples mast on most deepwater platforms and the rig configuration must be highly adaptable to deepwater platform top deck arrangements. Rotary removed must allow 4'-6"x7' opening in drillfloor for subsea equipment

## **RESULTS:**

The "Dynamic Kit" has been successfully deployed four times in two years on three Gulf of Mexico floating TLPs; Conoco's Jolliet, El Paso's Prince (twice) and Elf's Matterhorn. The use of the "kit" saved the Operator the cost of commissioning a new rig rated for the accelerations associated with their floating platforms and gave them the availability of the rig when it was required. This cost savings ranged from \$500,000 to \$3,000,000, depending on the project.

## **CONTACT REFERENCE:**

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# Dynamic Rig Adaptor Kit

## Deepwater Rig Conversion Kit



Dry rig weight = 440 kips  
 pumps & power = 100 kips  
 total dry wt. = 540 kips

Minimum hookload capacity = 400 kips  
 Drawworks = 1,000 hp  
 Rig power = (3) 750 hp, 850 kva  
 Standard mud = 400 bbls\*  
 Mud pumps = two 750 to 1,000 hp pumps

\* Additional mud capacity available

### Original Super Sundowner

## Dynamic Kit

Reinforced Strongbacks

Dynamic Mast Support (One Lift)

Dynamic Drillfloor

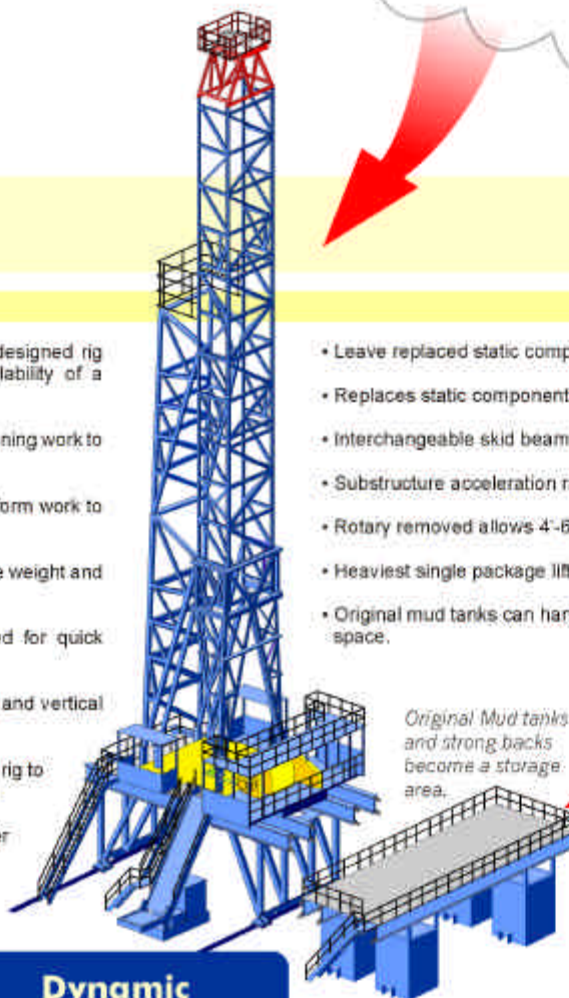
Dynamic Rig Trusses



### Advantages of the Dynamic Kit

- Allows selection of an available existing statically designed rig instead of building a new rig or waiting the availability of a dynamically designed rig.
- The Dynamic Kit was designed for minimal commissioning work to an existing **SUPER SUNDOWNER™** rig.
- These rigs can be quickly converted from static platform work to dynamic work and visa-versa with the Dynamic Kit
- All Dynamic Kit components are designed to minimize weight and distribute loads evenly on SPARs or TLPs
- All rig and Dynamic Kit components are designed for quick installation to minimize rig-up time.
- All substructure components meet maximum lateral and vertical accelerations on most SPARs and TLPs
- The Dynamic Kit allows the **SUPER SUNDOWNER™** rig to work with a triples mast on many deepwater platforms
- The rig configuration is highly adaptable to deepwater platform top deck arrangements:

- Leave replaced static components onshore.
- Replaces static components with Dynamic Kit (Dumb Metal)
- Interchangeable skid beam clamps
- Substructure acceleration rated for .4g
- Rotary removed allows 4'-6"x7' opening in drillfloor.
- Heaviest single package lift = 32 Kips
- Original mud tanks can hang on Strongbacks under rig to save space.



Original Mud tanks and strong backs become a storage area.

Locate on TLP or SPAR for most effective distribution of variable load.

### Dynamic Super Sundowner



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