



FLANGE TOOL INNOVATION

# CASE STUDY

## CS-2013-01

## PRECISION LIFTING OF TENSIONER

RECONFIGURING THE HEIGHT OF A TENSIONER UNIT BETWEEN MOBILISATIONS

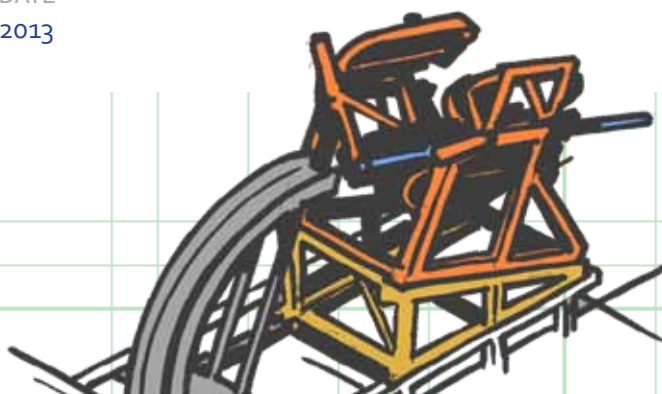
OPTIMISING PACKER RECONFIGURATION BY MODIFYING EQUALIZER VLW18TE KITS

### ASSIGNMENT

CUSTOMER:  
SUBSEA ENGINEERING AND CONSTRUCTION COMPANY

LOCATION:  
ONSHORE PREPARATION FOR NORTH SEA

DATE  
2013



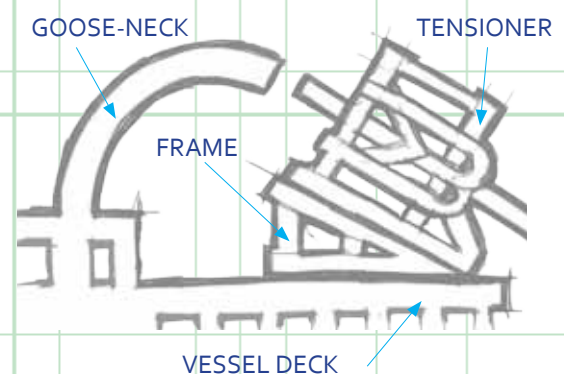
### BACKGROUND

Equalizer International were approached by a project management consultancy working for a subsea client on a forthcoming mobilisation project. Equalizer's precision lifting expertise was called on to help find a solution to a technical problem that they faced.

### PROBLEM

A tensioner unit for an umbilical system on the deck of a vessel was required to be mobilised in 6 different configurations: 8" riser recovery, 10" riser recovery, 10" static installation, 6" static installation, 8" riser installation and 10" riser installation. Various packers were proposed in order to adjust the height of the tensioner unit in order for it to align tangentially with the fixed gooseneck, with each pipe diameter requiring slightly different packer thicknesses.

A system capable of jacking the full frame and tensioner was preferred, as this could be lifted vertically (lifting only the tensioner would result in non-vertical lifting), however the tensioner and frame together were estimated to weigh around 75Te.



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## TRADITIONAL METHODS

There was not sufficient gap between the beams (at the lowest configuration) to fit traditional bottle-jacks, and there was a reluctance to weld any additional parts onto the framework to aid with jacking. Traditional rigging methods were likely to be too time-consuming, as the work had to be done quickly while the vessel was docked between mobilisations.

## EQUALIZER SOLUTION

The Equalizer VLW18TE was selected as the ideal tool for the project. Four Maxi-kits were hired for the project, providing a total of 8 tools, or 144T of lifting capability.



Each corner of the frame utilised a pair of tools, both running off a twin-port Equalizer hand pump, each with a gauge. In this configuration each pair of tools shared a pump so were automatically hydraulically equalised to ensure that one would not take more load than the

other. The gauges on each pump could be cross-referenced to ascertain the precise loading in each corner, and checked with the other corners to ensure the load was being lifted in a controlled and balanced manner.



Custom stepped-blocks were designed and manufactured for the project, with the steps exactly sized to suit the individual stages required to install and remove the specific packers for each mobilisation. These exactly corresponded with the spacer packers placed between the beams, such that the travel of the tool was maximised and the time taken between configurations was minimised.



## CUSTOMER BENEFITS

- Optimised reconfiguration time when vessel is docked
- Sufficient lifting capacity for both tensioner & frame
- Safe, controlled raising and lowering
- No additional fabrication or modification to frame
- Detailed step-by-step storyboard for each stage

## TECHNICAL ENQUIRY?

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