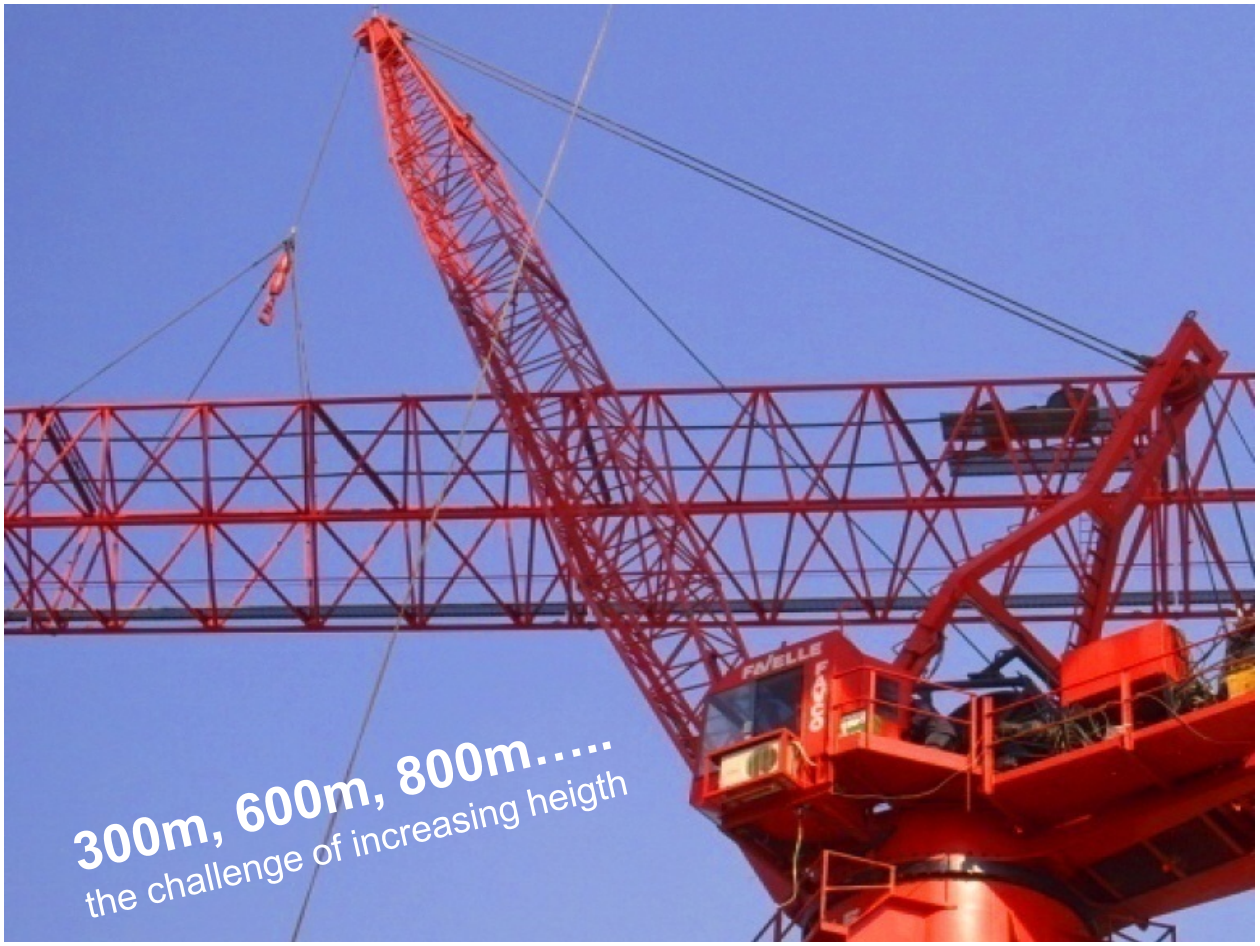
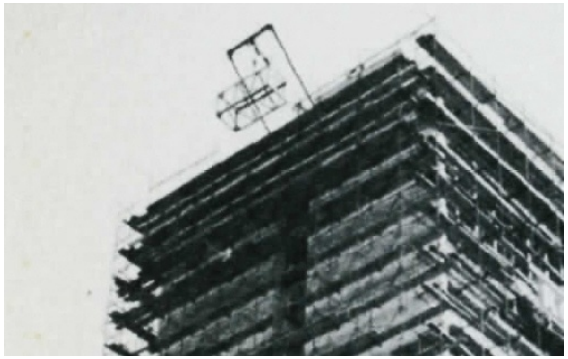
How to bring down a tower crane after topping out a building

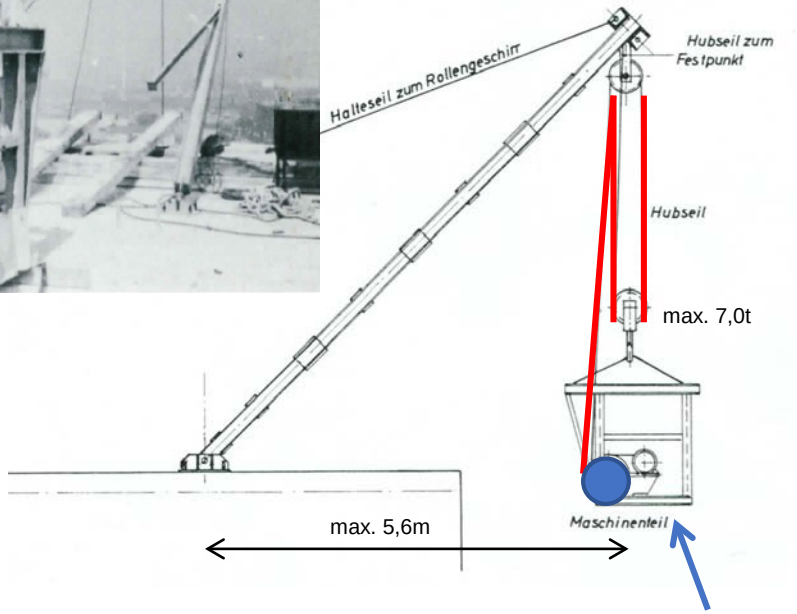


presented by
Heinz-Gert Kessel

Integrated crane dismantling device of the 1960s

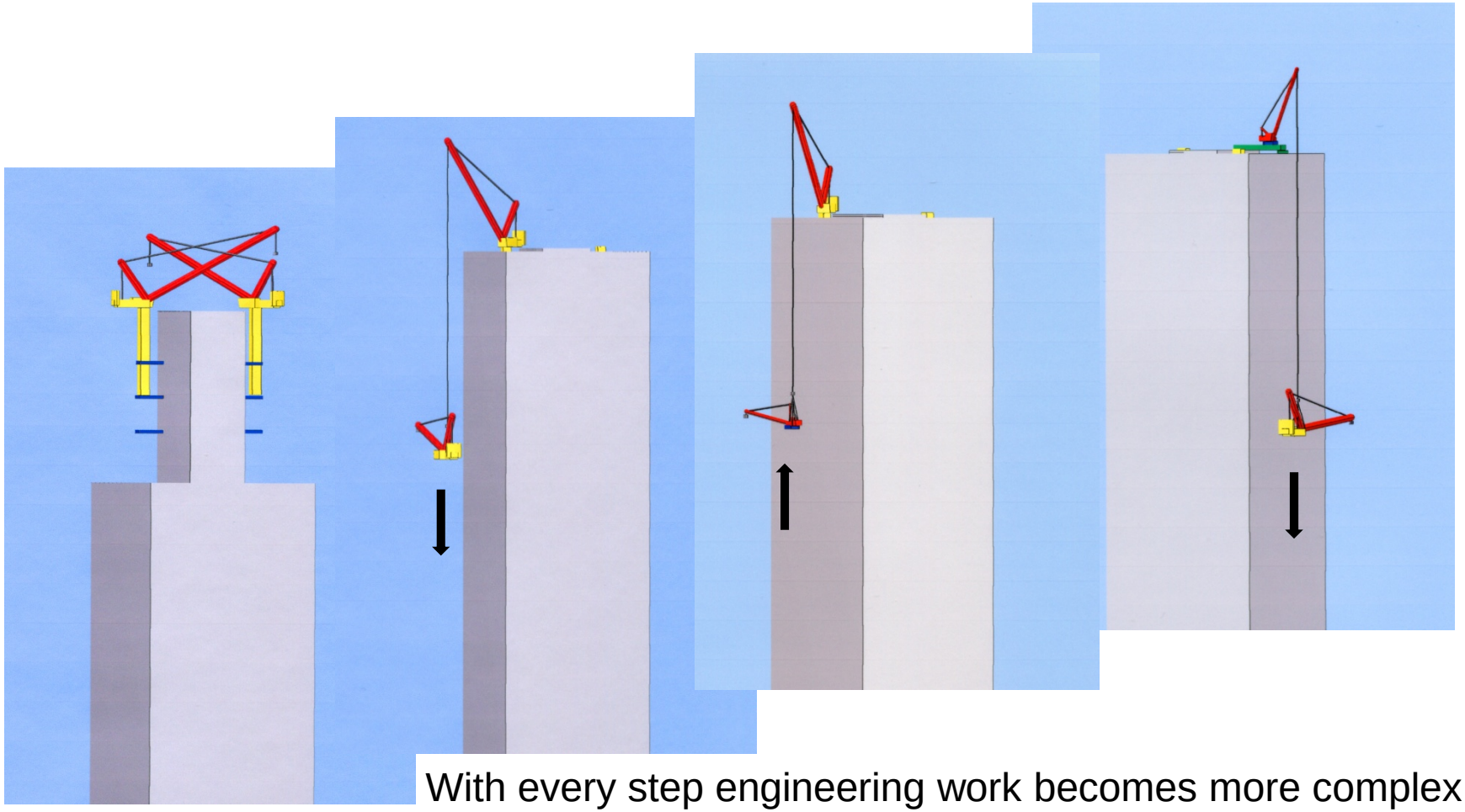


Liebherr **50HB**



Hositing winch being lowered as last crane part by itself.

General dismantling steps at buildings above 200m

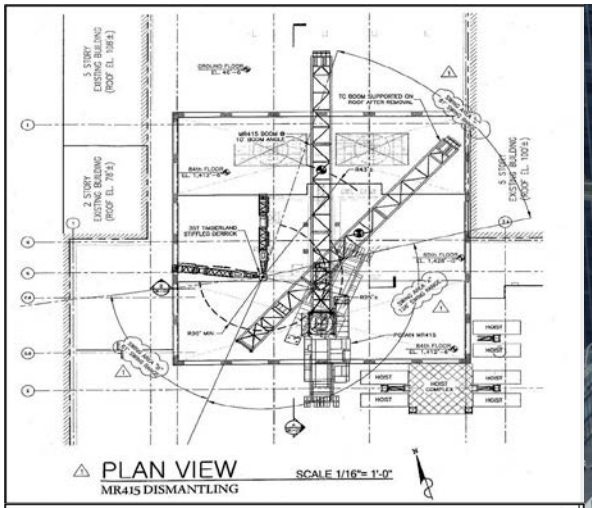


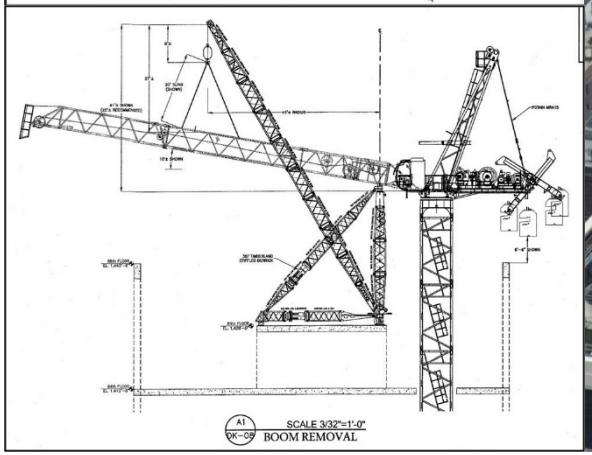
With every step engineering work becomes more complex.

Basic considerations for making the right choice

- building shape / height / approved crane placement
- use of one climbing TC in multiple crane concepts
- foundation and design for assistant crane
- assembly / disassembly space
- pick / lowering / unloading zones
- component weights and requested radius
- hoisting height and drum capacity
- load „guide slip“ system
- first auxiliary equipment: derrick or recovery crane
- boom dismantling method for recovery crane
- downsizing in dismantling cycles
- allowed weight / dimensions for elevator
- 2D /3D site safety plan for all phases

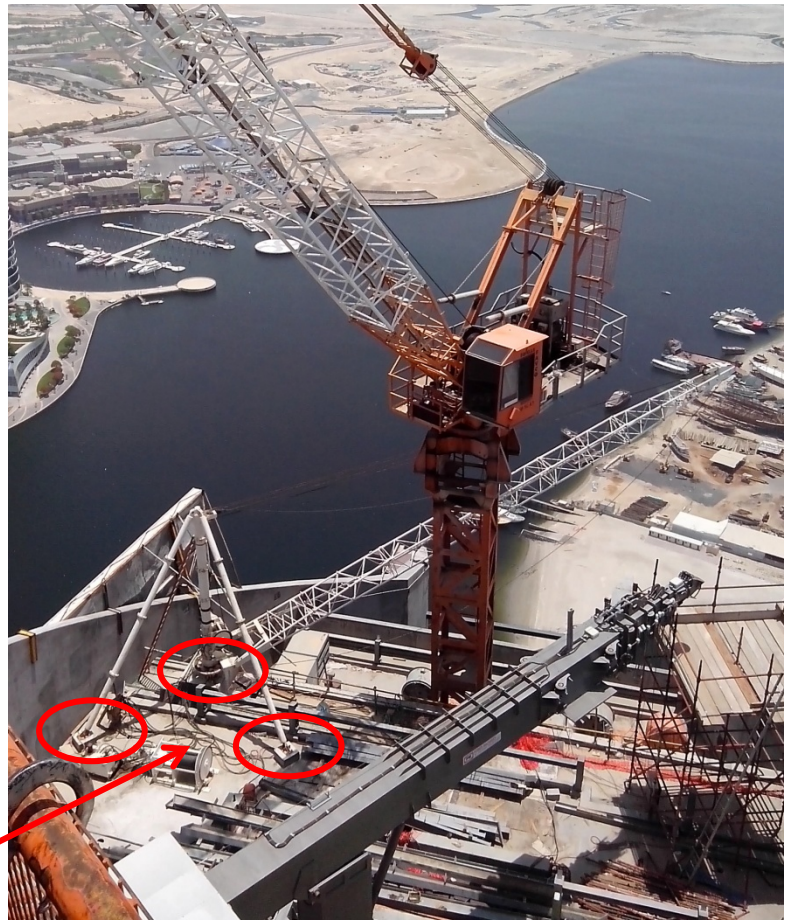
Individual planning of installation and dismantling steps





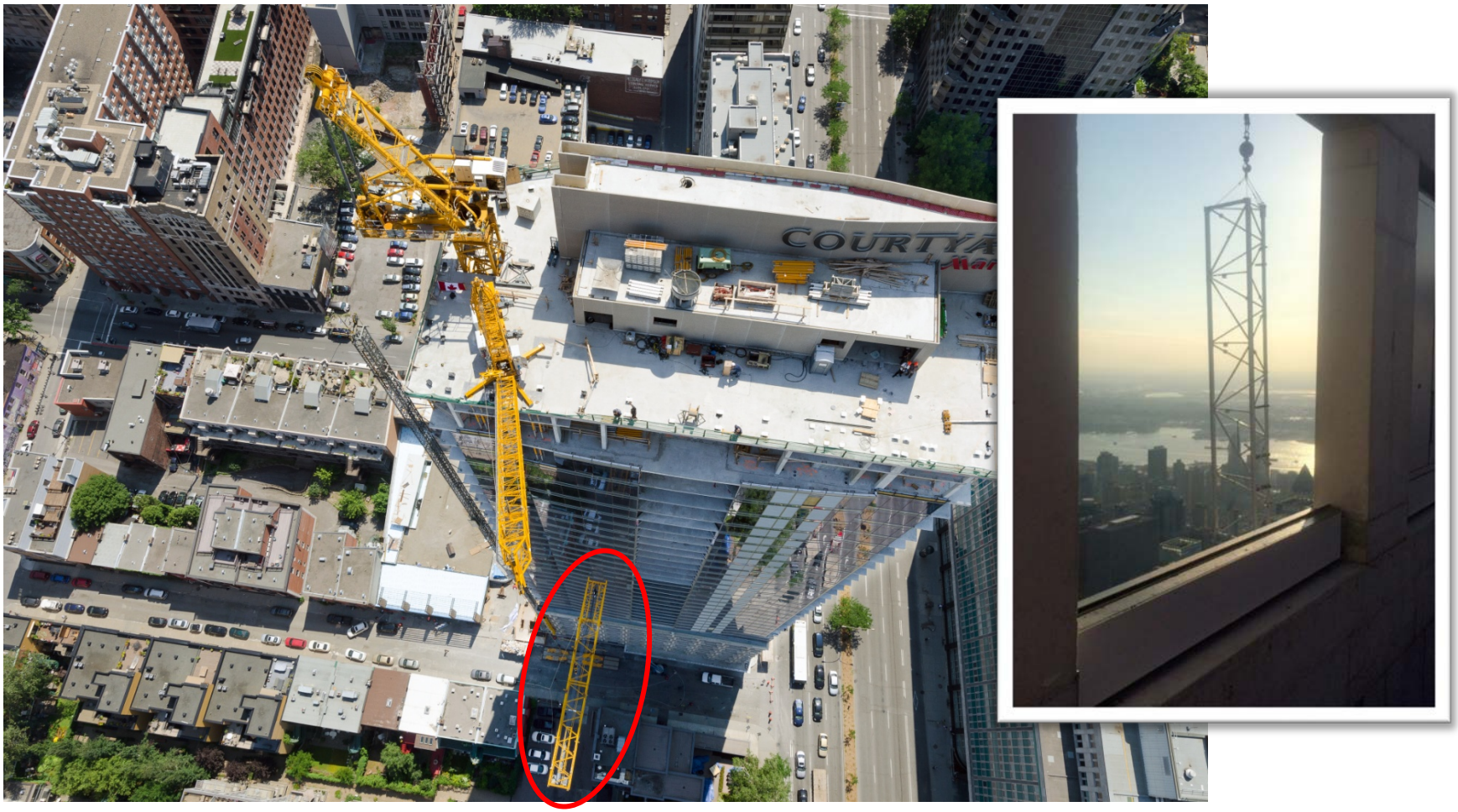
Search for adequate foundation

Custom designed grillage with 4 anchoring points for the **Jaso J80PA-RC**



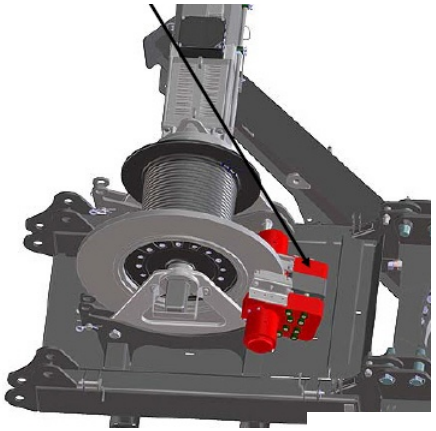
Three concrete foundation anchoring points for the **A+K** 3t recovery derrick

Safe load lowering alongside the building facade

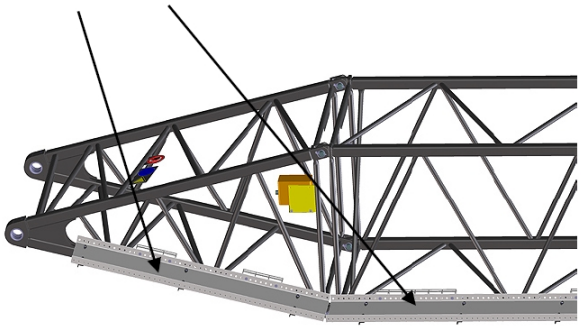


Adequate safety features for working at extreme heights

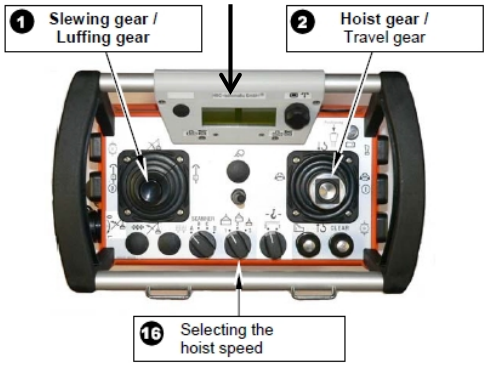
secondary brake

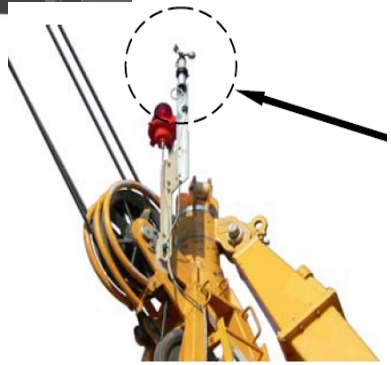


cat walks



display screen





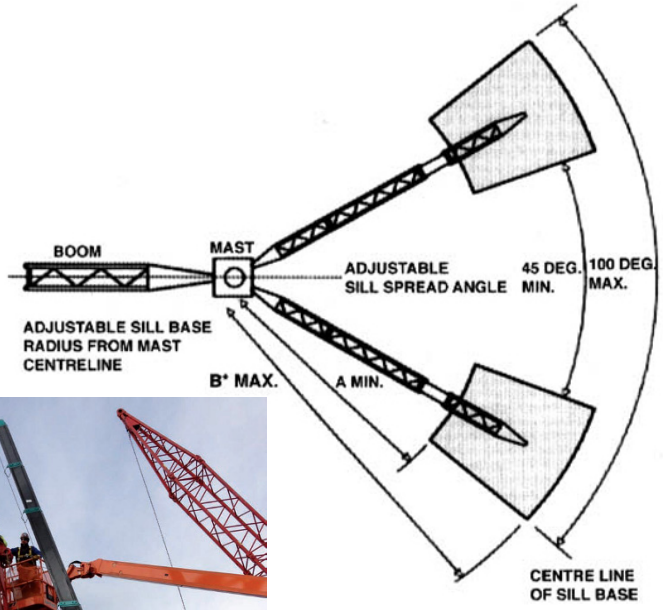
wind speed sensor

hook level sensor

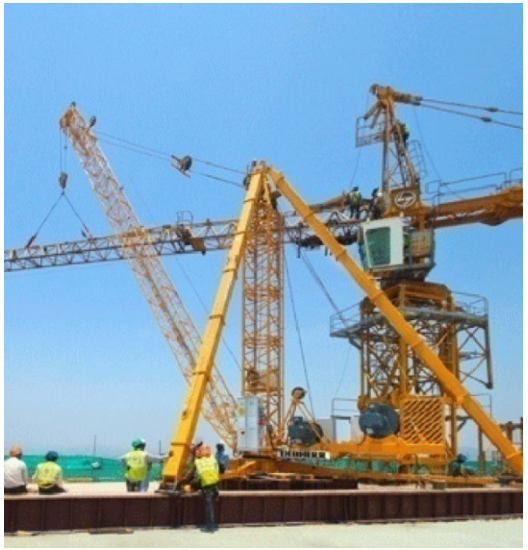
examples Liebherr **200 DR 5/10**

Stiffleg derrick – the classic crane recovery device

Timberland **ASD11-110** adjustable stiffleg derrick

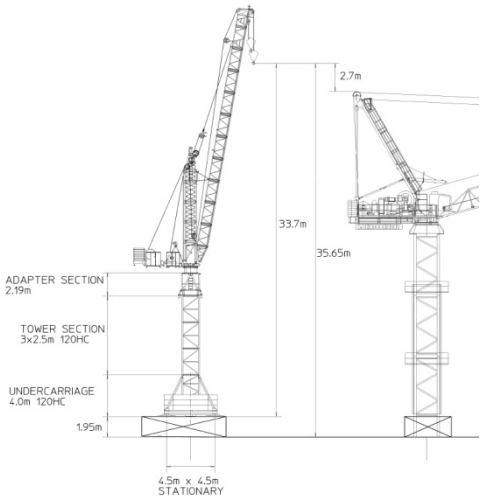


Liebherr 200 DR 5/10 Litronic – a combination of derrick and recovery crane



derrick configuration with outrigger extension and stifflegs

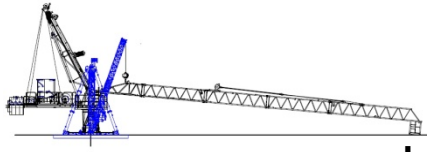
recovery crane only on compact outriggers



tower crane
on 120HC tower system to gain height

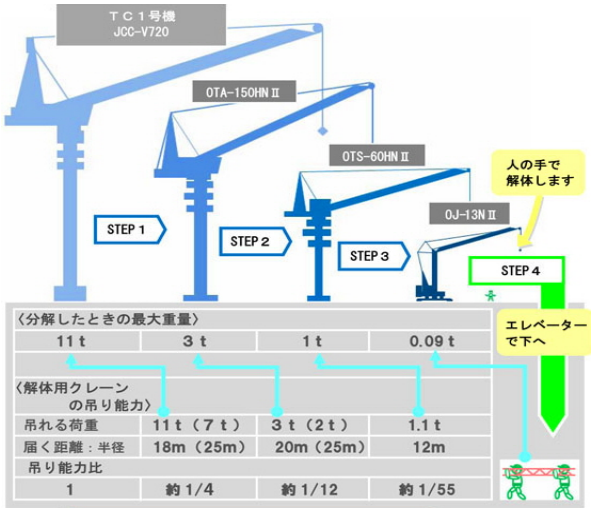
Jaso J80PA-RC multipurpose recovery crane

↑ pedestal mounted version as **recovery crane** ,
suitable to be dismantled by Jaso J1540 derrick

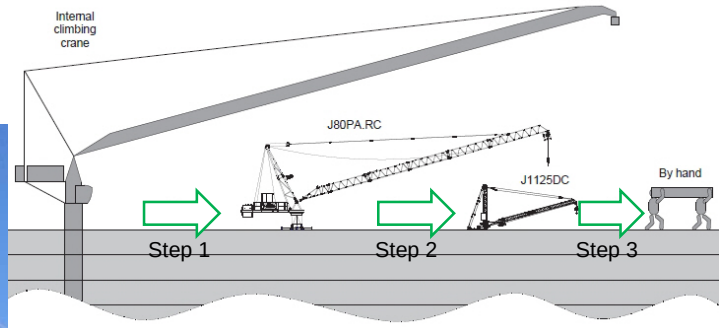


← self climbing version as standard **luffing jib tower crane**

Downsizing in dismantling cycles



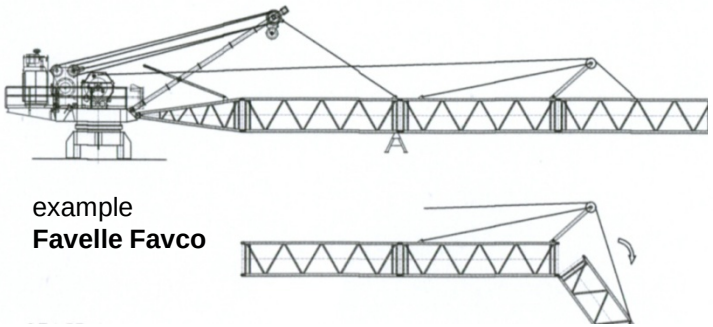
example **IHI**



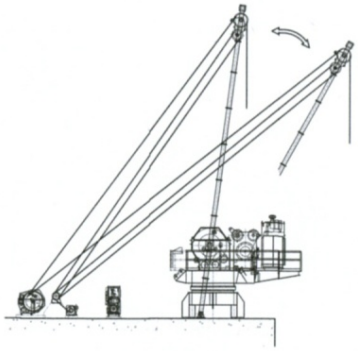
example **Jaso**

Recovery crane – more than just a small tower crane

Favelle Favco **M370R**



example
Favelle Favco



- compact size with extreme short tail radius
- high hoisting winch drum capacity
- flexible base sections
- tower mount option
- Split deck design
- boom recovery items
- extensive self-dismantling devices
- small and light crane components

The Japanese way to gain extra height for recovery cranes

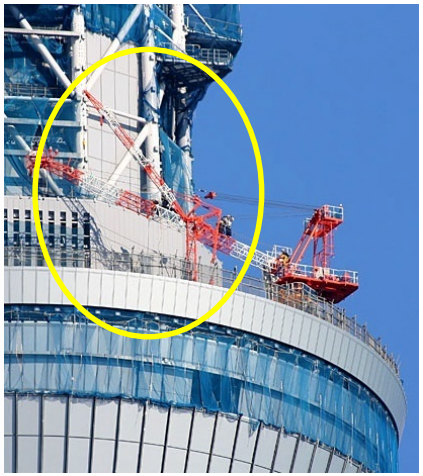
IHI **JCC-180H**

climbing cage, tower sections inserted through the slewing ring

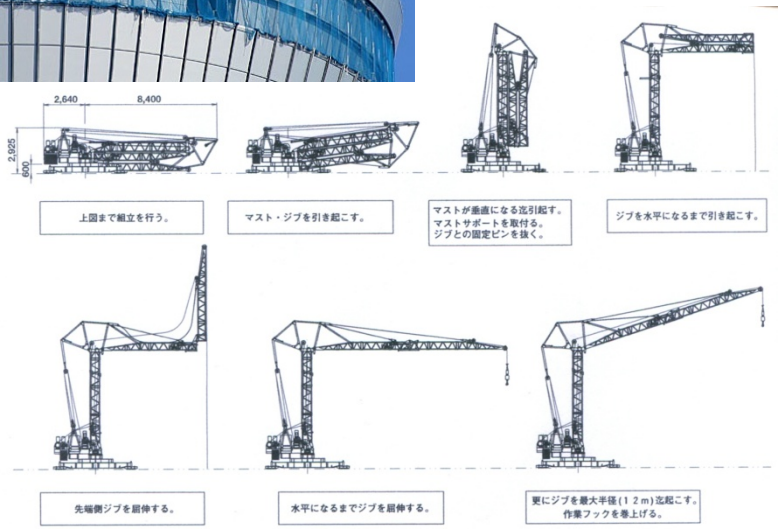
up to 16m climbing tower made up of 4m tower sections

turntable at the crane base

Japanese self-erecting mini recovery cranes



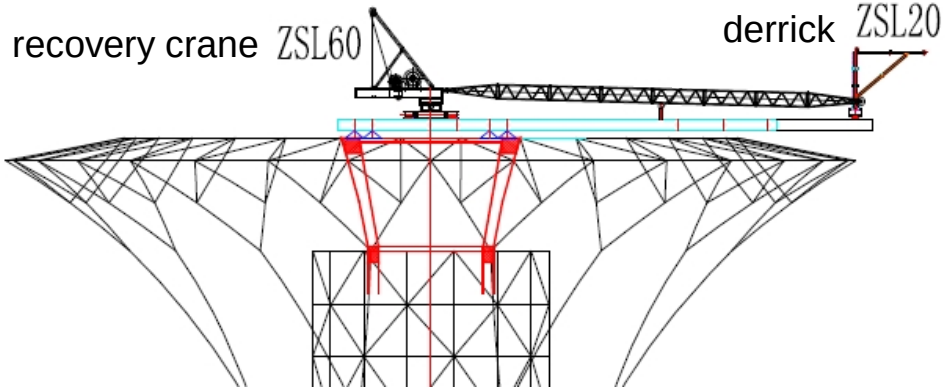
Ogawa **OJ-13N**



Ogawa **OJ-13N III**

Key technology of derigging the recovery crane boom

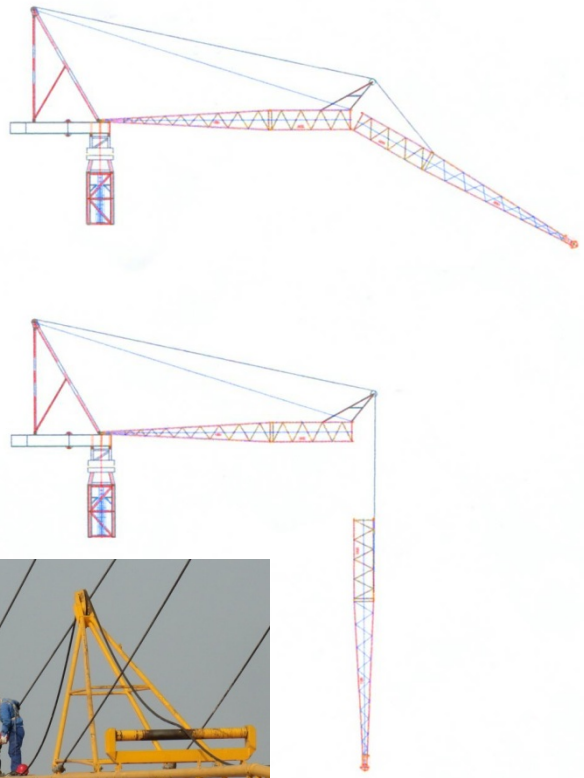
WMD210 Shanghai 1998



Conventional dismantling technology with derrick

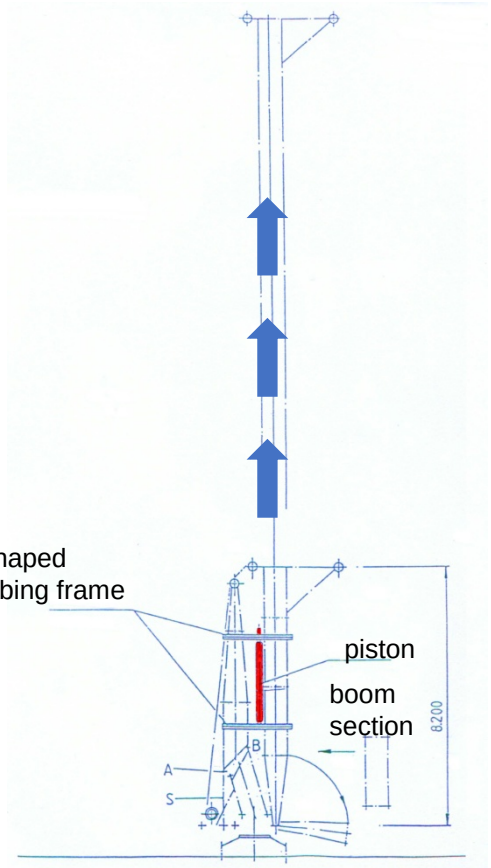
Any solution when there is no roof space

Folding jib to reduce dismantling space



Zhong Sheng **ZSL380**

Vertical jib erection device for the Wolff 30A



If there is not enough space the jib can be jacked in vertical position.

Derigging the machinery deck of the recovery crane

Component size and weight matters !

The challenge:

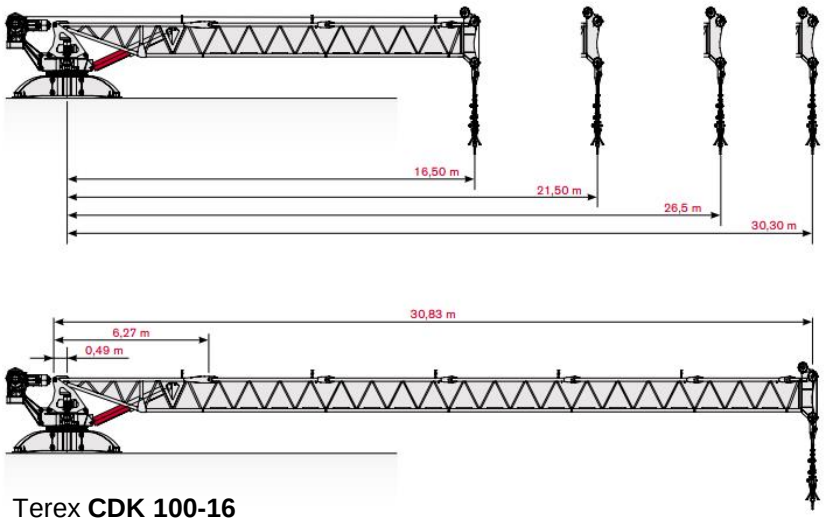
- extreme operation height
- optimized lifts due to long hoisting time
- foot print sized working space
- limited capacity of assistant crane
- restricted location of assistant crane
- overall requested under hook height
- split up main crane components
- identify disassembly steps until equipment can be lowered by hand

ZSL380 recovery crane to be dismanteld by **ZSL60** assistant crane

Japanese way to reduce A-frame dismantling height

IHI **JCC-V190SK**

Topless luffing recovery crane

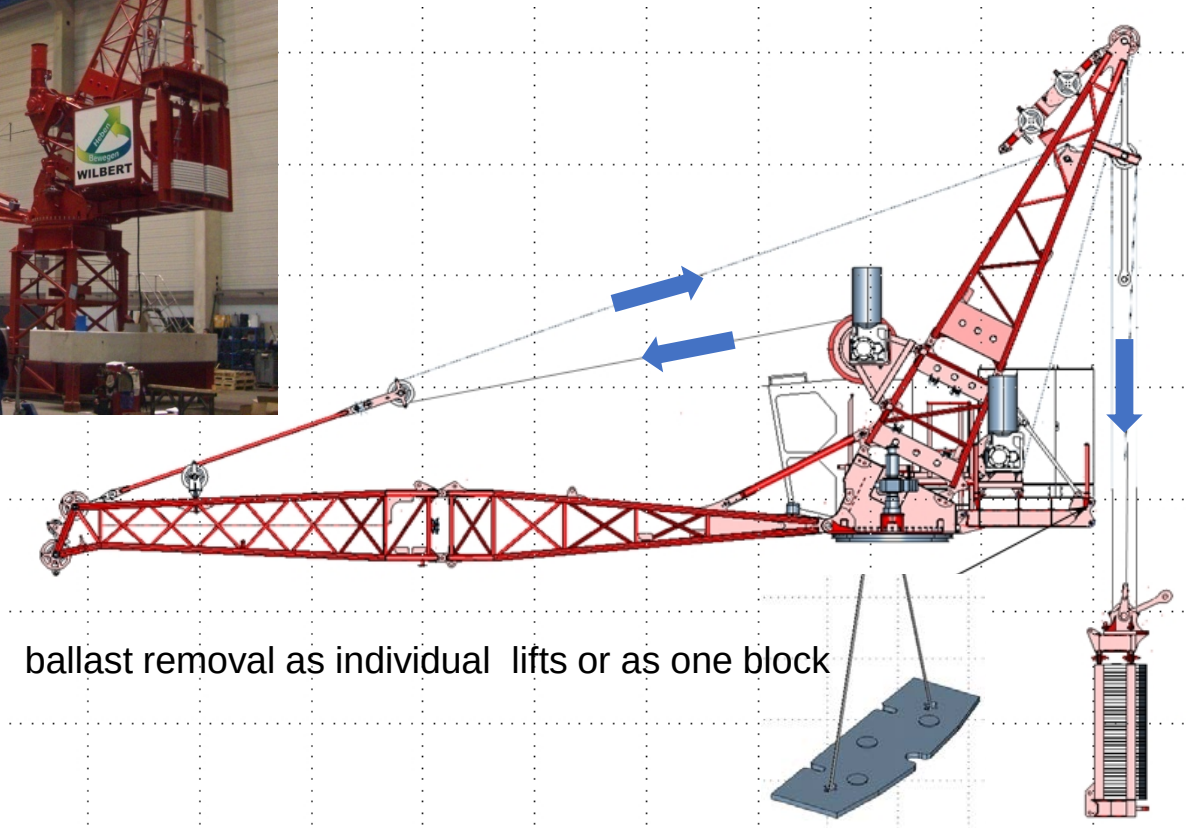


Terex **CDK 100-16**

Lambri **LDK303**

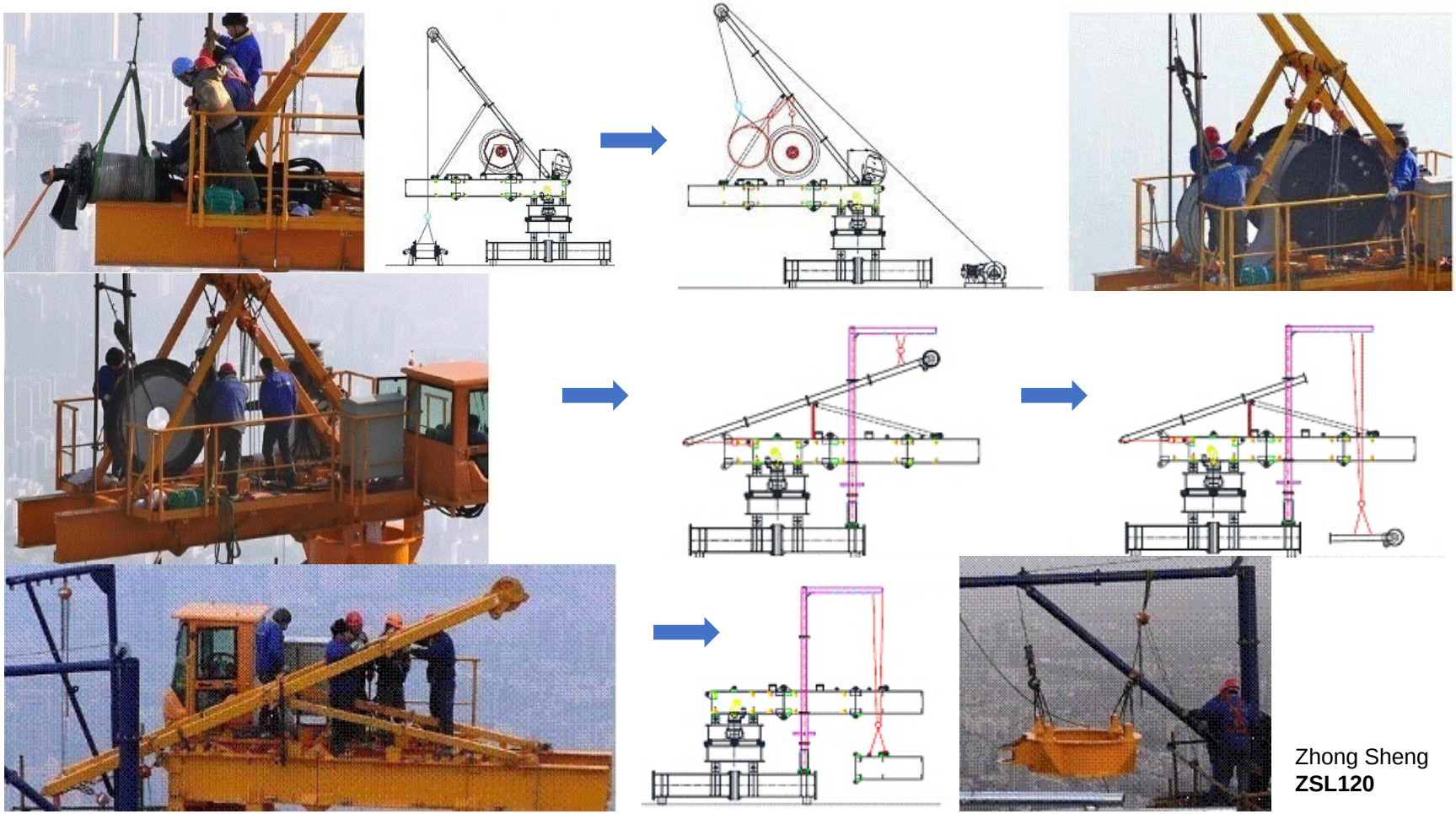
Variable ballast dismantling device

Wilbert **WT175L e.tronic**



ballast removal as individual lifts or as one block

Dismantling of a recovery crane deck into tiny parts



Zhong Sheng
ZSL120

Thank you very much for your attention