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

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300m, 600m, 800m.....
the challenge of increasing height
Integrated crane dismantling device of the 1960s

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

- 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

example
Favelle Favco

Favelle Favco M370R
The Japanese way to gain extra height for recovery cranes

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
Key technology of derigging the recovery crane boom

Conventional dismantling technology with derrick

Any solution when there is no roof space

WMD210 Shanghai 1998
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
- footprint 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 dismantled by ZSL60 assistant crane
Japanese way to reduce A-frame dismantling height

self-lowering

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

Any questions?