

## Benchmarking:

Market research for business and competitor landscape study on various attributes of the products.

## Specification & Concept:

Derive key product attributes from voice of customer. Generate concepts in CAD, ideate solutions through Brainstorming and QFD.

### Design & CAE:

Conduct virtual validation using CAE tools, DFMA & FMEA, Engineering drawings for all new components & functional assemblies.

#### Prototype build:

Procurement & Proto build support, Record functional/non-functional issues & identify solutions.

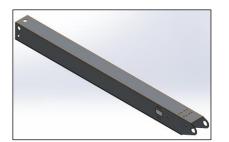
## Testing & Validation:

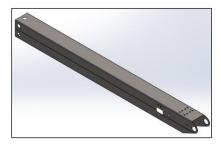
Conduct field endurance, field performance validation according to equipment and factory standards.

# **NPPD**

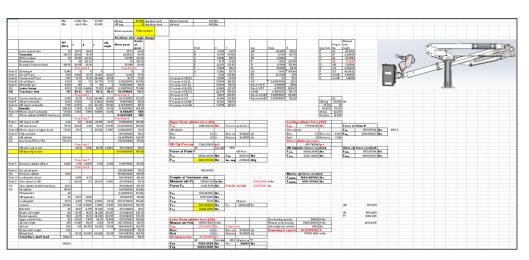


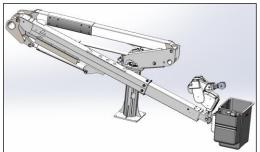


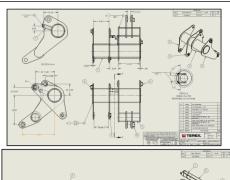


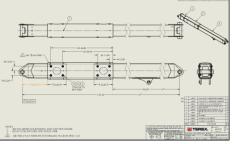


**DESIGN ITERATIONS** 







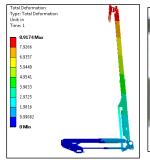


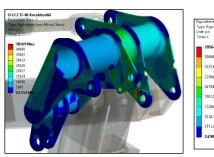
**3D MODELLING AND DETAILING** 

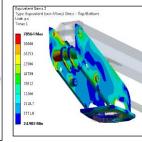


#### Product

Distribution aerial device
 Benchmarking to final production.







**FINITE ELEMENT ANALYSIS** 

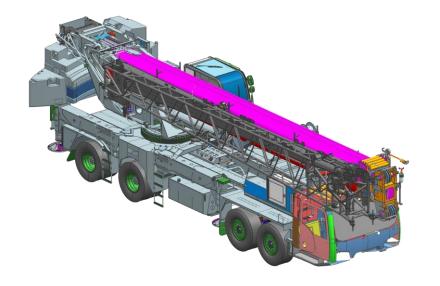


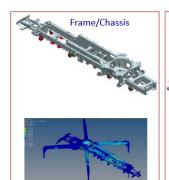
**FINAL MODEL** 

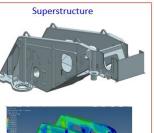
KINEMATIC CALCULATION AND LAYOUT SYNTHESIS

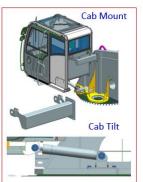
## **NPPD**



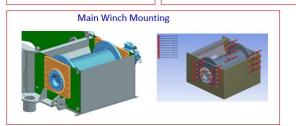




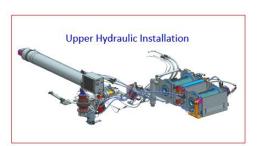












#### **Product**

Truck Crane
 Max Capacity 120 US ton, Boom length 197 feet,
 Engine 500 HP Cummins with Eaton Ultra Shift 18 speed transmission

#### Support for:

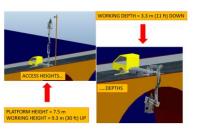
- Frame/Chassis
- Superstructure
- Cab Mount and Cab Tilt
- Main Winch Mounting
- Aux Winch Mounting
- Upper Hydraulic Installation
- Lower Hydraulic Installation
- Hydraulic Tank Design
- Air Tank Installation
- Rear Access and Rear Bumper
- Engine Mounts and Installation

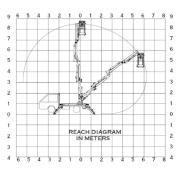
#### FEA

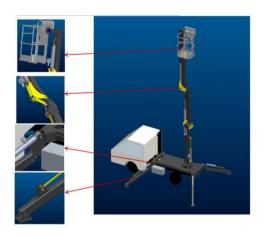
- Frame, Hub and Outrigger
- Main Winch Bolt analysis
- Superstructure
- Bumper analysis (Impact Test)
- Electrical Harness and 3D routing

## **NPPD**



















# Product Truck Mounted Aerial

- NPD for India market
- Target Market Competition & concept.
- Design & Development of Concept machine
- Concept machine Testing, Issues and Resolutions
- Redesign and build of Proto1.
- Testing & Validation, Proto1 Issues and Resolutions.
- Machine Specification.
- Features.