Product testing & validation

TEREX®
INDIA R&D CENTER
Best In Class Services from Ideas To Products

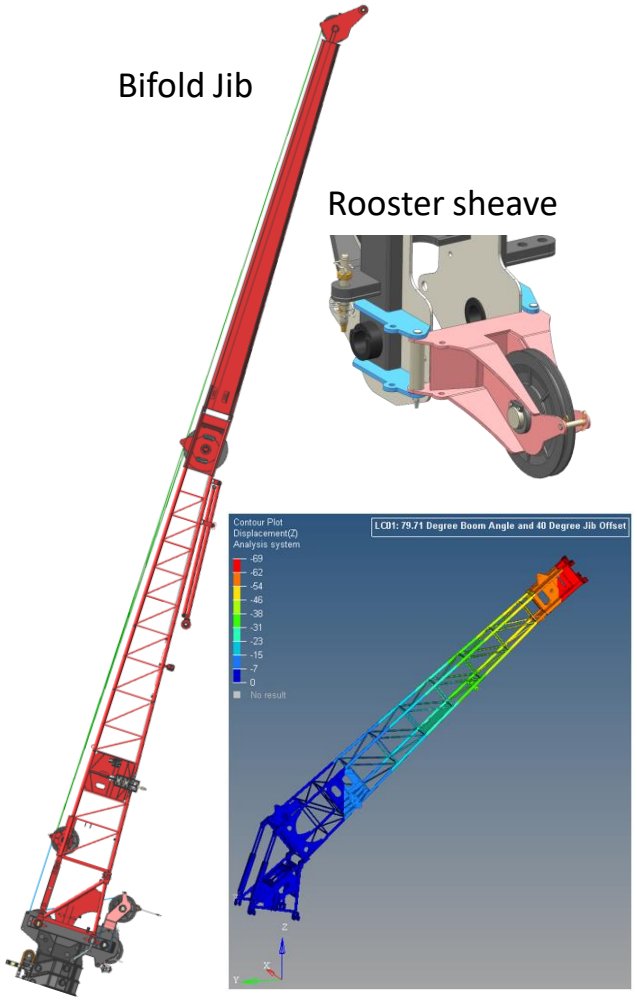
Product: Truck mounted Aerial device

- ANSI A92.2 Testing for both 1.5 times the Actual Load and 1.33 times with 5 deg slope Test

- Endurance Testing for Proto machine. The endurance test divided in to 2 Test Cases
  Chassis Load Case.:-2500 cycles.
  Boom Load Case.:-2500 cycles.

Product testing & validation

TEREX® INDIA R&D CENTER
Best In Class Services from Ideas To Products

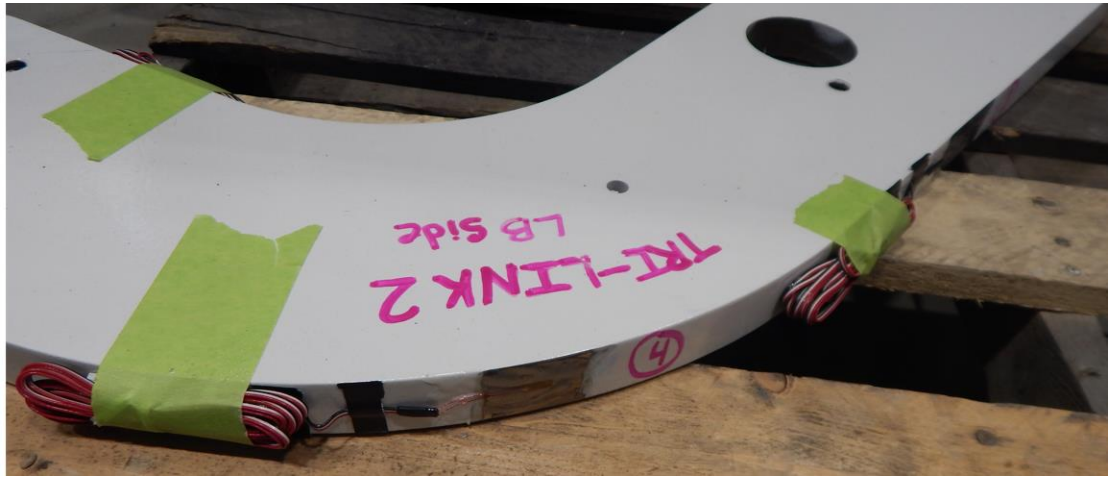


TRT70L Crane-15m Bifold jib

- Designed new 15m (8m + 7m) bi-fold jib to the load chart.
- The jib to be able to offset to 20 degree & 40 degree in addition to 0 degree when engaged over the boom.
- Hand calculation to validate the design.
- Develop a rooster sheave that can be used while the jib is engaged.
- Modified the boom tip section for mounting the new jib and the rooster sheave.
- Design Validation of the new jib and rooster sheave by FEA to support for Product Testing.
- The rooster sheave is designed so it can be used in conjunction with the jib.
- Application of wind load, factor of safety and test cases per FEM 5.004, EN13000 and ISO 4302.
- Structural analysis of Bi-fold jib boom head for critical cases carried out similar to as experienced during its service life. Main boom is positioned at various inclinations (79.71º and 74.71º) and jib is offset by 0º & 40º with respect to main boom.
- The proto jib has been manufactured with no build issue.
- The new jib has cleared all the requisite strain gauge tests and field test load cases.

Product testing & validation

TEREX®
INDIA R&D CENTER
Best In Class Services from Ideas To Products



Product: Aerial device

- XT Pro strain gauge data and corelation with FEA.

	Unit	LC1		LC2		LC3		LC4		LC5	
		⊥	No ML	⊥	No ML	⊥	No ML	⊥	No ML	⊥	No ML
Tot.Def	(inch)	**30.12**	30.087	23.852	23.031	**16.567**	16.993	24.021	23.535	24.709	23.723
UB Cyl	(lbf)	30778	30739	26283	26338	**41572**	41503	33182	33172	**25525**	25593
LBCyl	(lbf)	**73996**	73979	56422	56439	34242	34249	**19330**	19344	53561	53566
Level Cyl	(lbf)	510	509.22	1106.5	**1108**	**134.8**	134.93	349.3	332.23	1043.9	1048.2
Gauge1	psi	19865	19713	13327	13293	**3266.3**	3737.6	**26024**	25990	13283	13247
Gauge2	psi	20198	20184	7888.7	**7567.7**	8193.1	8827.9	**25691**	25076	11222	11013
Gauge3	psi	23665	23744	9806.6	9815.5	**6604.2**	6777.4	30510	**30589**	13169	13207
Gauge4	psi	717.58	741.72	3730.7	3719.1	**21317**	21116	**524.73**	572.47	1135	1098.1
Gauge5	psi	1629.7	**1610.6**	8142	8127.4	**45411**	44872	2023.2	1890.6	2540.3	2618.5
Gauge6	psi	2990.6	**2968.2**	11597	11595	50922	**51224**	7124.4	7202.8	5902.3	5823.2
Gauge7	psi	22246	22208	14142	14134	**9946.5**	9946.9	31545	**31581**	16414	16411
Gauge8	psi	14617	14354	**7982.7**	8724.4	13785	14335	18540	**18567**	9363.4	9945
Gauge9	psi	14578	15769	10975	9975.8	**7640.2**	8607	**23878**	23813	12201	11083
Gauge10	psi	33183	33143	20822	19638	**5163.8**	5634.2	**39390**	37486	21901	21458
Gauge11	psi	24043	**24515**	22481	21238	**14490**	15035	22047	21358	20545	19474
Gauge12	psi	31457	30726	**11486**	12542	28120	29241	**42935**	42843	17667	19053
Gauge13	psi	23941	25633	17187	15807	**9777**	11341	40476	**41224**	19713	18164
Gauge14	psi	26548	**27277**	24838	23442	**15638**	16176	24378	23448	22599	21498
Gauge 15	psi	6074.3	**5691.2**	10184	10302	**36588**	36535	18056	17314	7117	6374.6

Product testing & validation

TEREX®
INDIA R&D CENTER
Best In Class Services from Ideas To Products

Life Cycle testing for an Aerial Work Platform Mast

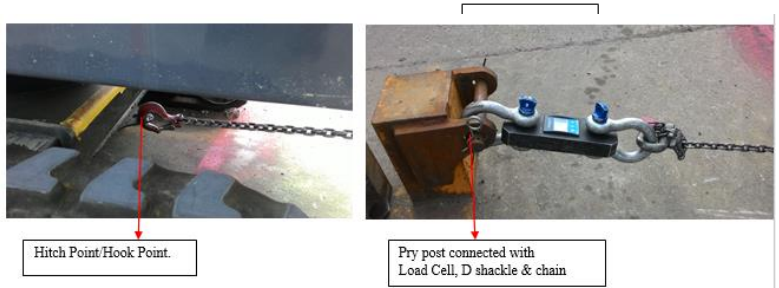
Project scope:

- To carry out endurance test for GR20 mast, accomplished by running the rated load (350 lbs.) up and down to full height for 20,000 cycles. Any failures will be noted.
- Upon completion of the test, a complete teardown and inspection will be conducted to look for unusual wear or fatigue damage.

Objective / Goal :

- An alternate supplier for GR 20 mast assembly needs to be qualified.
- It is necessary to design and build a mounting fixture, hydraulic power source & electrical logic. The hydraulics needs to be capable of high cycles, counting of cycles, and automatic shutdown in case of trouble.

Product testing & validation



Testing & Validation on BHL and Excavator Machines

- Machine Safety Directive
- Regulation Tests
- Performance Tests (Hydraulics)
- Stall Tests
- Engine Tests
- Loader & Backend Performance
- Electrical Circuit Performance
- Cooling Trials
- Supplier Sign Offs (Driveline, Hydraulics)
- Cab Testing