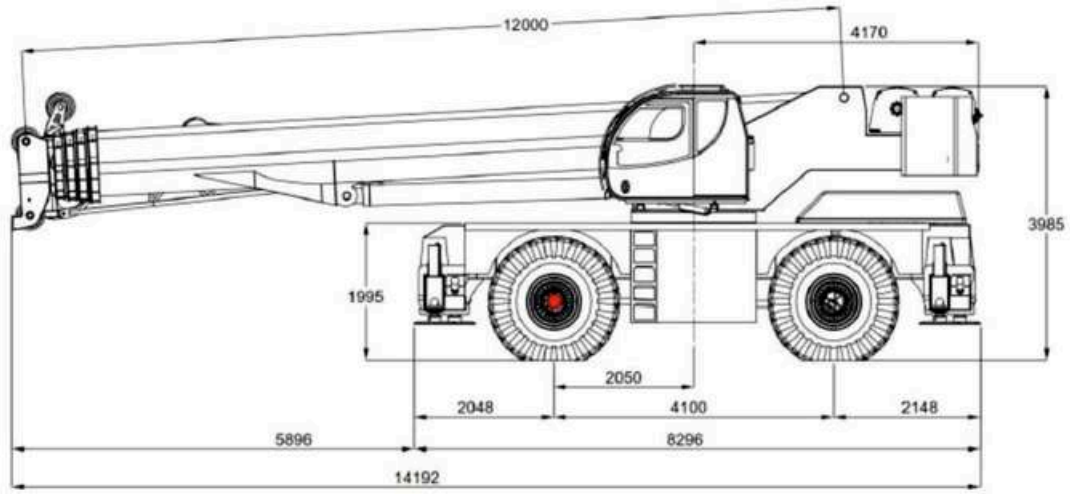
RT90 Rough Terrain Crane

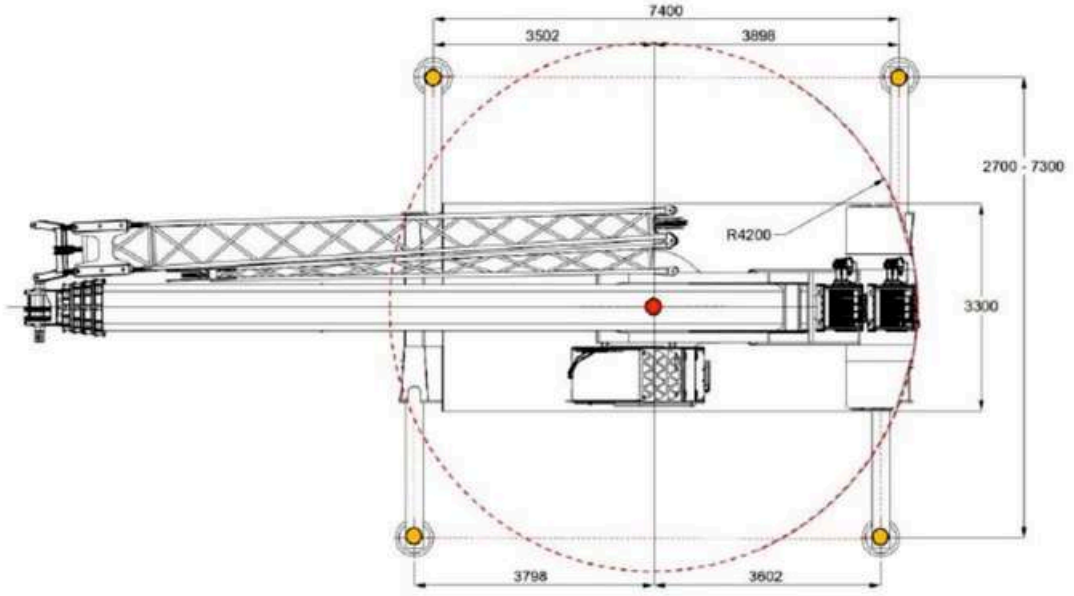
1. TECHNICAL DATA

MAXIMUM CAPACITY	80.000 Kg at 3 m
WEIGHT Gross vehicle mass - Front axle - Rear axle	54.390 Kg 25.150 Kg 29.240 Kg
TRAVELLING SPEED	32 Km/h
SLEWING RADIUS	4,2 m
BOOM - Fully retracted length - Fully extended length - Extension speed - Elevation speed	5-section telescopic boom. 12,0 m 47,0 m 35,0 m in 145 seconds -2,0° to 80,5° in 72 seconds
JIB	2-stage lattice type jib. Triple offset (0°/20°/40°) type. Assistant cylinders for mounting and stowing. 10,1 m or 17,7 m
MAIN WINCH - Layer 1 pull – rope speed - Layer 2 pull – rope speed - Layer 3 pull – rope speed - Layer 4 pull – rope speed - Layer 5 pull – rope speed Wire rope	Hydraulic winch. 9000/4500 daN – 49/98 m/min; 8240/4120 daN – 53/106 m/min; 7600/3800 daN – 57/114 m/min; 7050/3525 daN – 61/122 m/min; 6570/3285 daN – 65/130 m/min; diameter rope 19 mm.
AUXILIARY WINCH - Layer 1 pull – rope speed - Layer 2 pull – rope speed - Layer 3 pull – rope speed - Layer 4 pull – rope speed - Layer 5 pull – rope speed Wire rope	Hydraulic winch. 9000/4500 daN – 49/98 m/min; 8240/4120 daN – 53/106 m/min; 7600/3800 daN – 57/114 m/min; 7050/3525 daN – 61/122 m/min; 6570/3285 daN – 65/130 m/min; diameter rope 19 mm.
SLEWING SPEED	1,6 rpm
OUTRIGGERS	4-hydraulically operated H-type outriggers. Each outrigger controlled simultaneously or independently from the cab. Working extension strokes 0% - 50% - 100%
STEERING	Hydraulic power steering. steering modes available: - 2 wheel front; - 2 wheel rear; - 4 wheel coordinated; - 4 wheel crab.
SUSPENSION	Front rigid mounted Rear pivot mounted with hydraulic lockout device

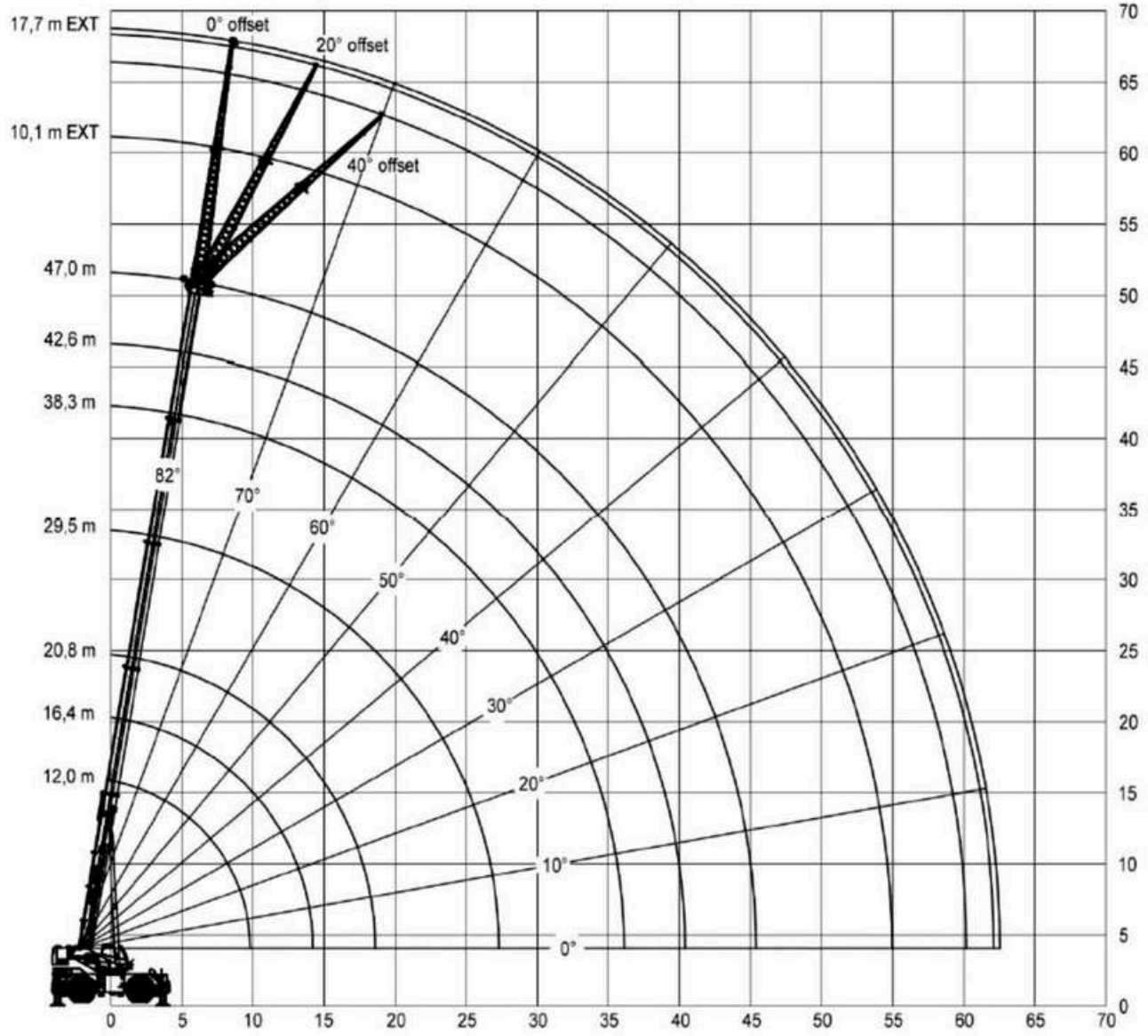
Transmission		
Manufacturer- type		ZF 6WG-2010
№ of gears, forward-reverse		6-3
Engine		
Manufacturer- type		CUMMIS QSB6.7
Fuel- type of engine		Diesel- 4stroke
Number of cylinders- displacement	L	6-6.7
Power	kW/rpm	194/2200
Torque	Nm/rpm	987/1500
Front Drive Axle		
Manufacturer- type		KESSLER LT81PL489
Ratio		30.75
Rear Drive Axle		
Manufacturer- type		KESSLER LT81PL489+ diff lock
Ratio		30.75
Main Winch		
Manufacturer- type		Dinamic Oil SW80/2LPE
AUX Winch		
Manufacturer- type		Dinamic Oil SW80/2LPE

2. GENERAL DIMENSIONS





3. WORKING RANGE



4. LOAD CHART

RT90 - Load tables

TABLE LT1	100%						STATIONARY		BOOM		360°	
	MODE 1						MODE 2					
	12,0	16,4	20,8	29,5	38,3	47,0	12,0	20,8	29,5	38,3	42,6	47,0
3,0	80.000	48.300	42.000				80.000	18.200				
3,5	74.200	48.300	42.000				74.200	18.200				
4,0	69.000	48.300	42.000				69.000	18.200				
4,5	64.000	48.300	42.000				64.000	18.200				
5,0	58.400	48.300	42.000	18.200			58.400	18.200	18.200			
5,5	52.700	48.300	42.000	18.200			52.700	18.200	18.200			
6,0	47.900	46.600	42.000	18.200			47.900	18.200	18.200			
6,5	43.800	42.600	40.000	18.200			43.800	18.200	18.200			
7,0	40.400	39.200	35.600	18.200	18.200		40.400	18.200	18.200	13.000		
7,5	37.300	35.300	31.900	18.200	18.200		37.300	18.200	18.200	13.000		
8,0	33.500	31.200	28.700	18.200	18.200		33.500	18.200	18.200	13.000		
9,0	26.600	24.900	23.400	18.200	18.200		26.600	18.200	18.200	13.000	13.000	
10,0		20.400	19.700	18.200	18.200	13.000		18.200	18.000	13.000	13.000	13.000
11,0		16.900	16.300	16.800	16.400	13.000		18.200	16.400	13.000	13.000	13.000
12,0		14.300	13.700	14.600	14.500	12.700		16.600	15.100	12.800	13.000	12.700
14,0		10.600	9.900	11.200	11.400	10.900		12.700	13.000	11.400	11.700	10.900
16,0			7.400	8.600	9.100	9.000		10.100	10.500	10.000	9.700	9.000
18,0			5.500	6.700	7.400	7.500		8.100	8.600	8.600	8.100	7.500
20,0				5.300	6.000	6.300			7.100	7.300	6.800	6.300
22,0				4.200	4.800	5.200			5.900	6.200	5.700	5.200
24,0				3.300	3.900	4.400			5.000	5.300	4.800	4.400
26,0				2.500	3.200	3.600			4.200	4.500	4.000	3.600
28,0					2.500	2.900				3.800	3.300	2.900
30,0					2.000	2.400				3.200	2.800	2.400
32,0					1.500	1.900				2.800	2.300	1.900
34,0					1.100	1.500				2.300	1.900	1.500
36,0						1.100				2.000	1.500	1.100
38,0											1.200	
40,0											900	
I	0	4.400	8.800	8.800	8.800	8.800	0	0	0	0	4.400	8.800
	0%	50%	100%	100%	100%	100%	0%	0%	0%	0%	50%	100%
II	0	0	0	2.916	5.833	8.750	0	2.916	5.833	8.750	8.750	8.750
	0%	0%	0%	33%	67%	100%	0%	33%	67%	100%	100%	100%
	12	8	8	4	4	2	12	4	4	2	2	2

13 Load tables are available for different working conditions.

RT90 - Load tables

TABLE LT13	100%						STATIONARY				JIB 17,7m 40°		360°	
	MODE 1						MODE 2							
	12,0	16,4	20,8	29,5	38,3	47,0	12,0	20,8	29,5	38,3	42,6	47,0		
3,0														
3,5														
4,0														
4,5														
5,0														
5,5														
6,0														
6,5														
7,0														
7,5														
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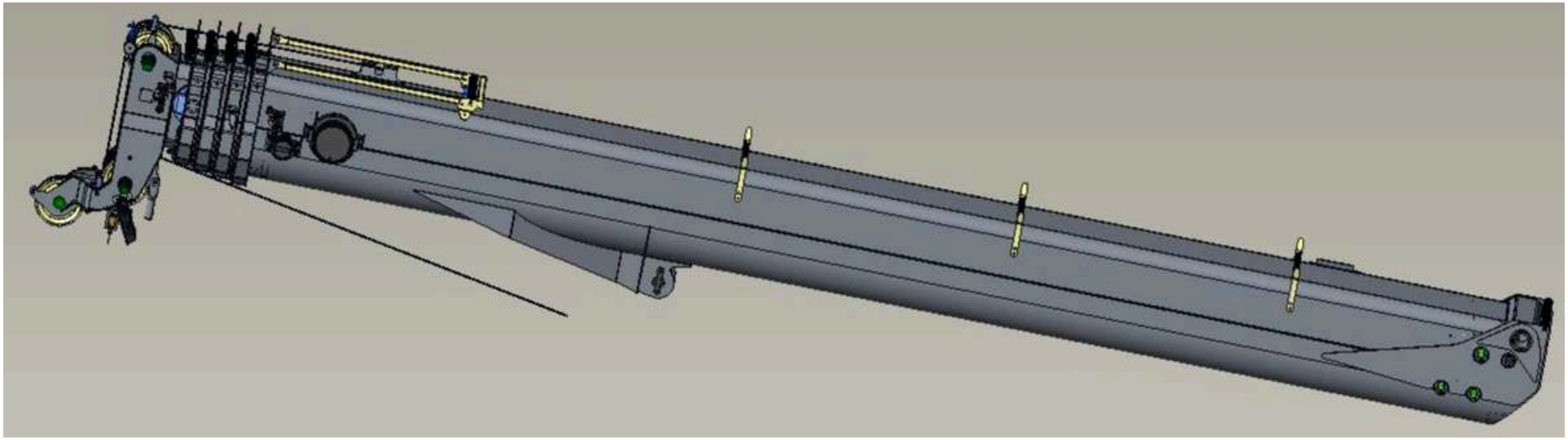
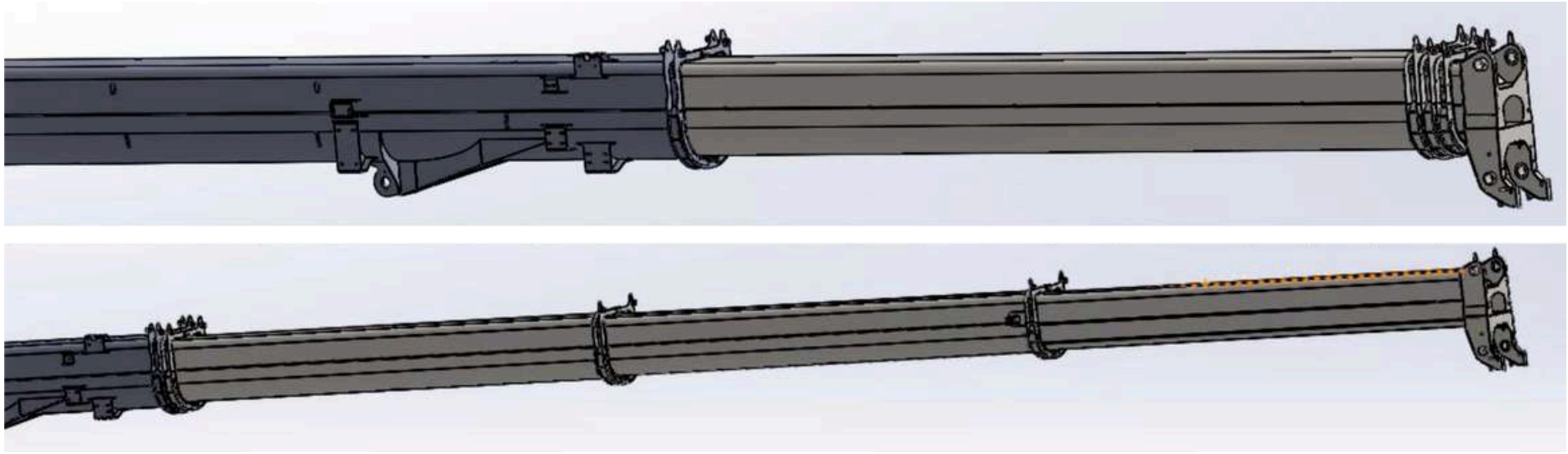
9,0														
10,0														
11,0														
12,0														
14,0														
16,0														
18,0														
20,0														
22,0					2.100						2.000			
24,0					2.000	1.900					1.900	1.900		
26,0					1.900	1.800					1.800	1.800		
28,0					1.900	1.800					1.700	1.800		
30,0					1.800	1.700					1.700	1.700		
32,0					1.800	1.600					1.600	1.600		
34,0					1.700	1.600					1.600	1.600		
36,0					1.700	1.500					1.500	1.500		
38,0					1.600	1.500					1.500	1.500		
40,0					1.500	1.400					1.400	1.400		
I	0	4.400	8.800	8.800	8.800	8.800	0	0	0	0	4.400	8.800		
	0%	50%	100%	100%	100%	100%	0%	0%	0%	0%	50%	100%		
II	0	0	0	2.916	5.833	8.750	0	2.916	5.833	8.750	8.750	8.750		
	0%	0%	0%	33%	67%	100%	0%	33%	67%	100%	100%	100%		
	1	1	1	1	1	1	1	1	1	1	1	1		

The RT 90 Crane is equipped with 5 section U shape boom, made of high strengtht structural steel S960QL and S690QL with thickness between 5 and 7mm.

- Boom Length: 12 to 47 meters,
- Boom Angle: -2° to 82°,
- Two crane operating modes available. The modes can be changed when the boom is fully retracted or fully extended.



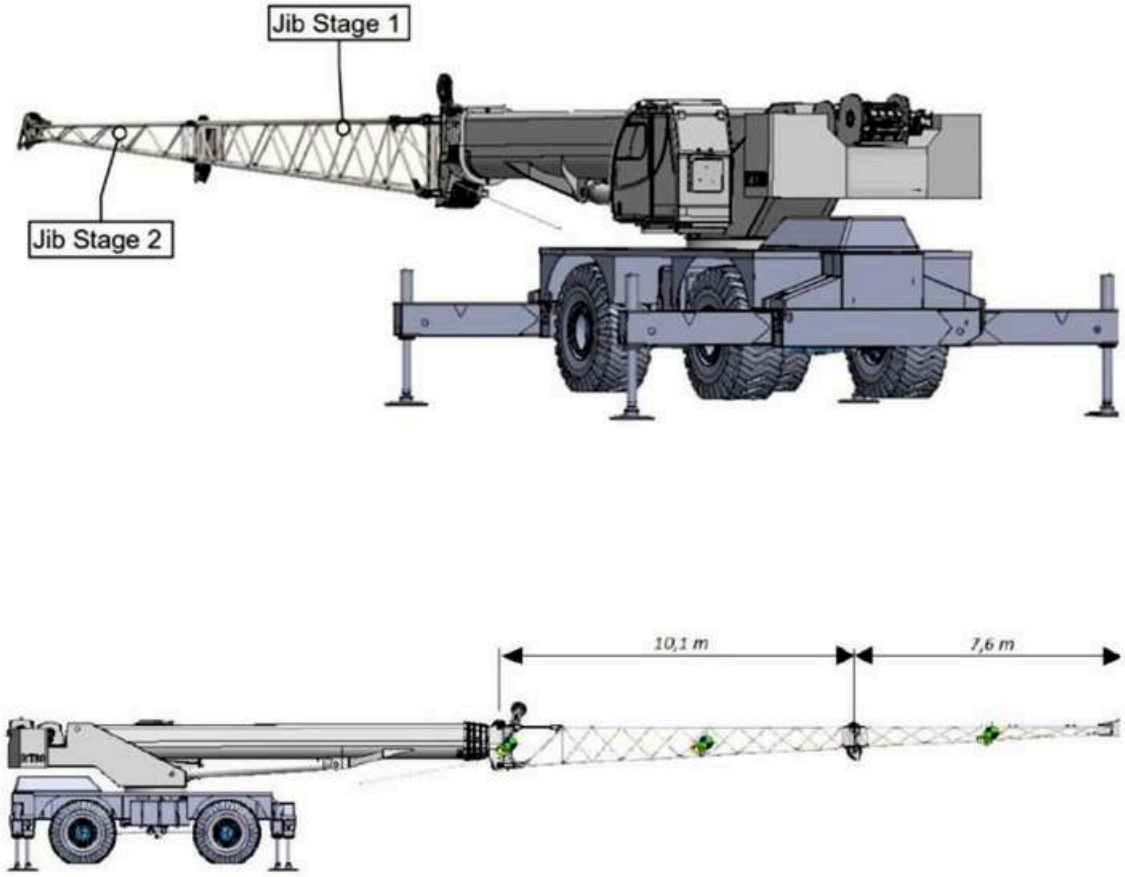
The boom extension system consists of two extension hydraulic cylinders and extension and retraction wire ropes, for the proportional sections of the boom.



BOOM OPERATING MODES:

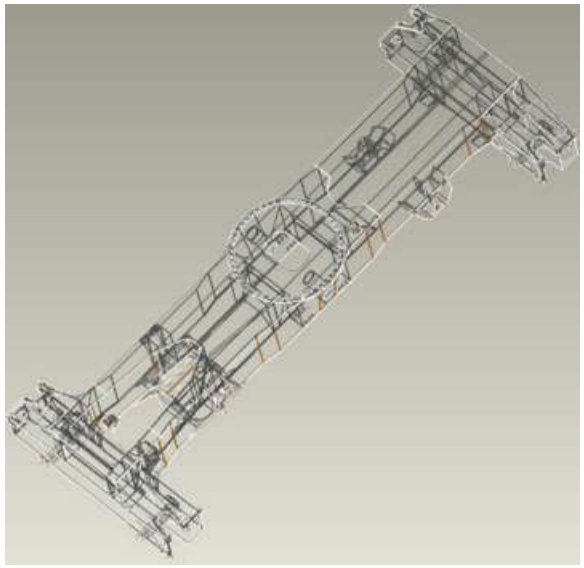
- **MODE 1**: in the extension sequence boom section 2 extends before and boom section 3,4,5 extend only once boom section 2 is fully extended. In the retraction sequence boom sections 3,4,5 retract before and boom section 2 retracts only once boom sections 3,4,5 are fully retracted;
- **MODE 2:** in the extension sequence boom sections 3,4,5 extend before and boom section 2 extends only once boom sections 3,4,5 are fully extended. In the retraction sequence boom section 2 retracts.

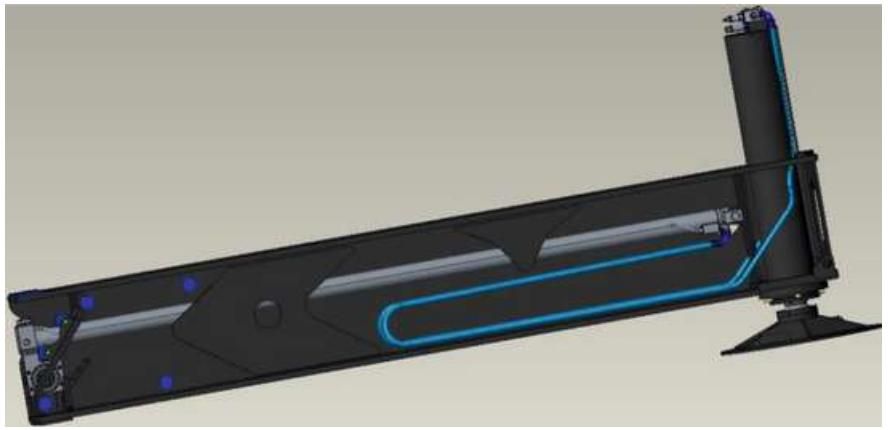
Two stage lattice structure jib, composed by round tubes with total length of 17.7m.
First stage- 10.1 m, Second stage- 7.6m. Three offset angles: 0 °, 20 ° and 40 °.

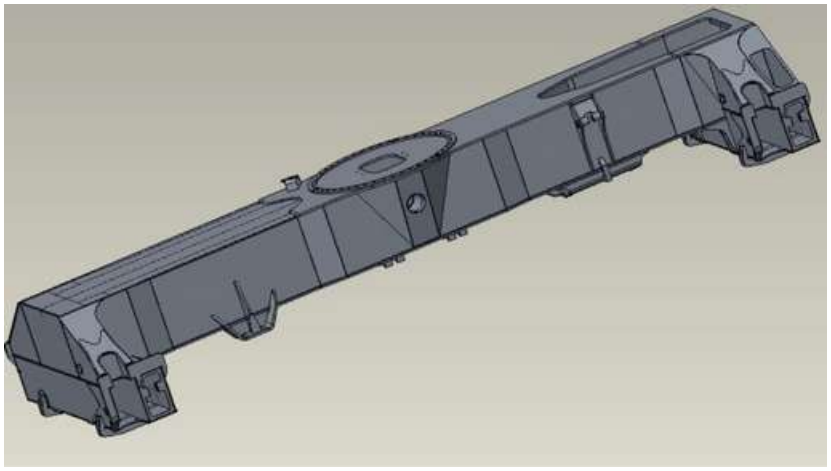


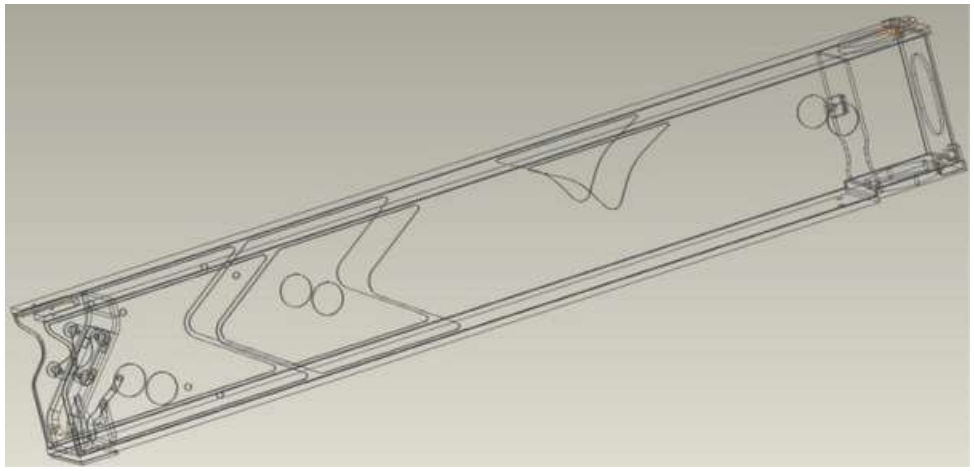
RT 90: - Crane with Jib-Jib stages and offsets.

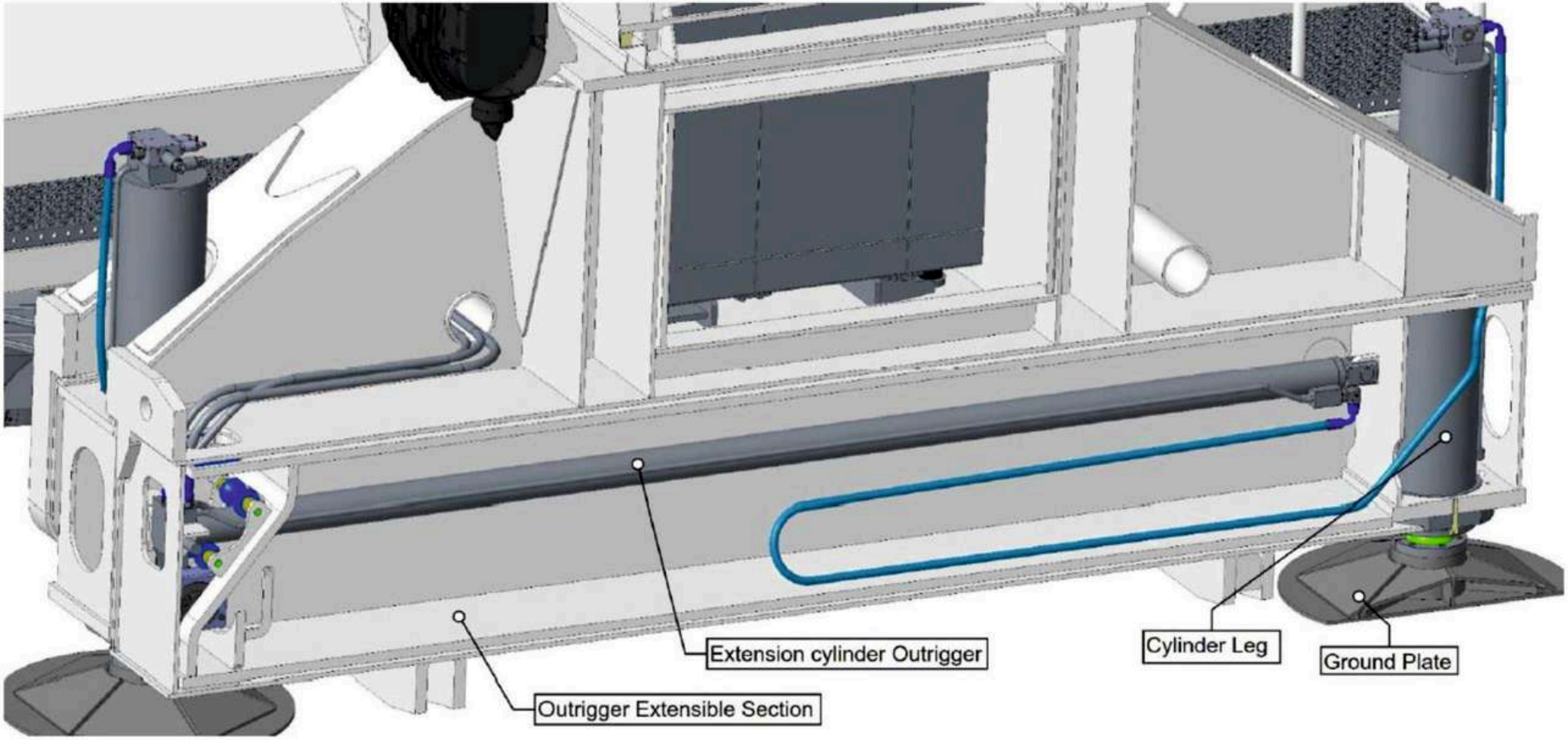
- High Strength S690QL structural steel,
- Box welded construction,
- Symmetric Outrigger boxes.



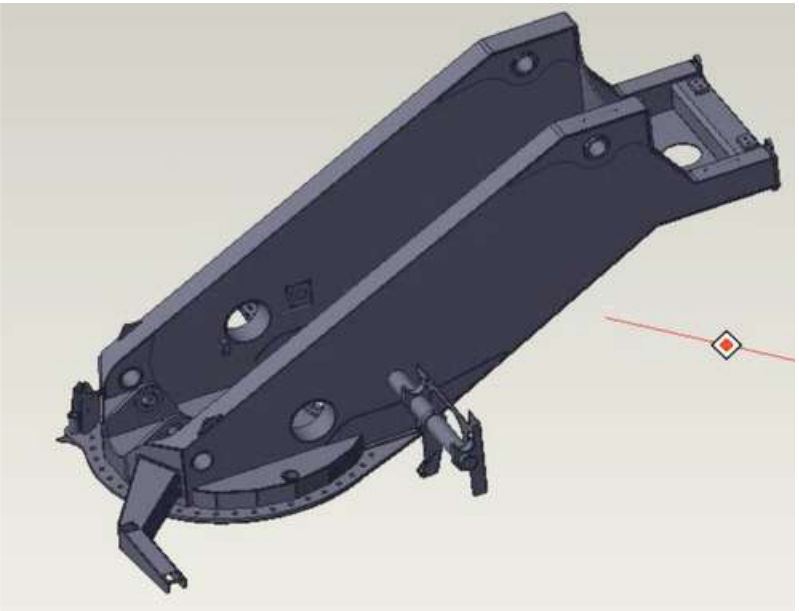




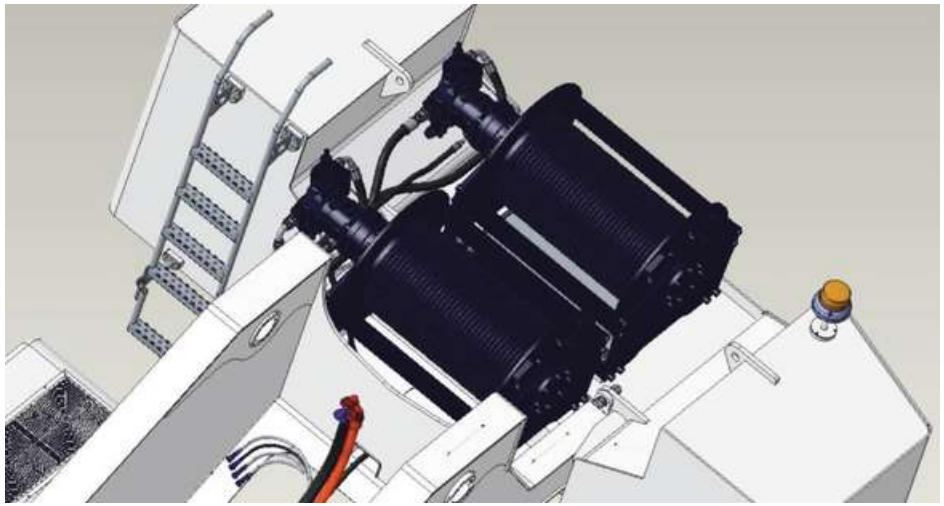


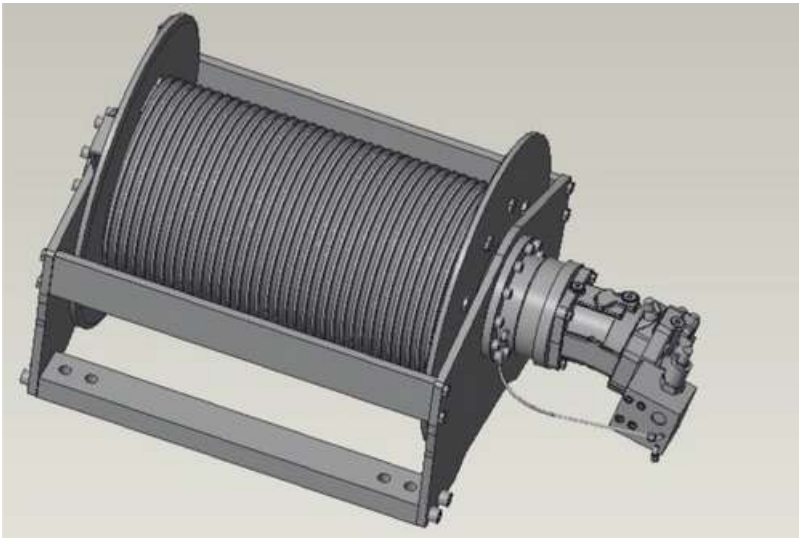


RT 90 - Outrigger - Extension system.



- High Strength S690QL structural steel,

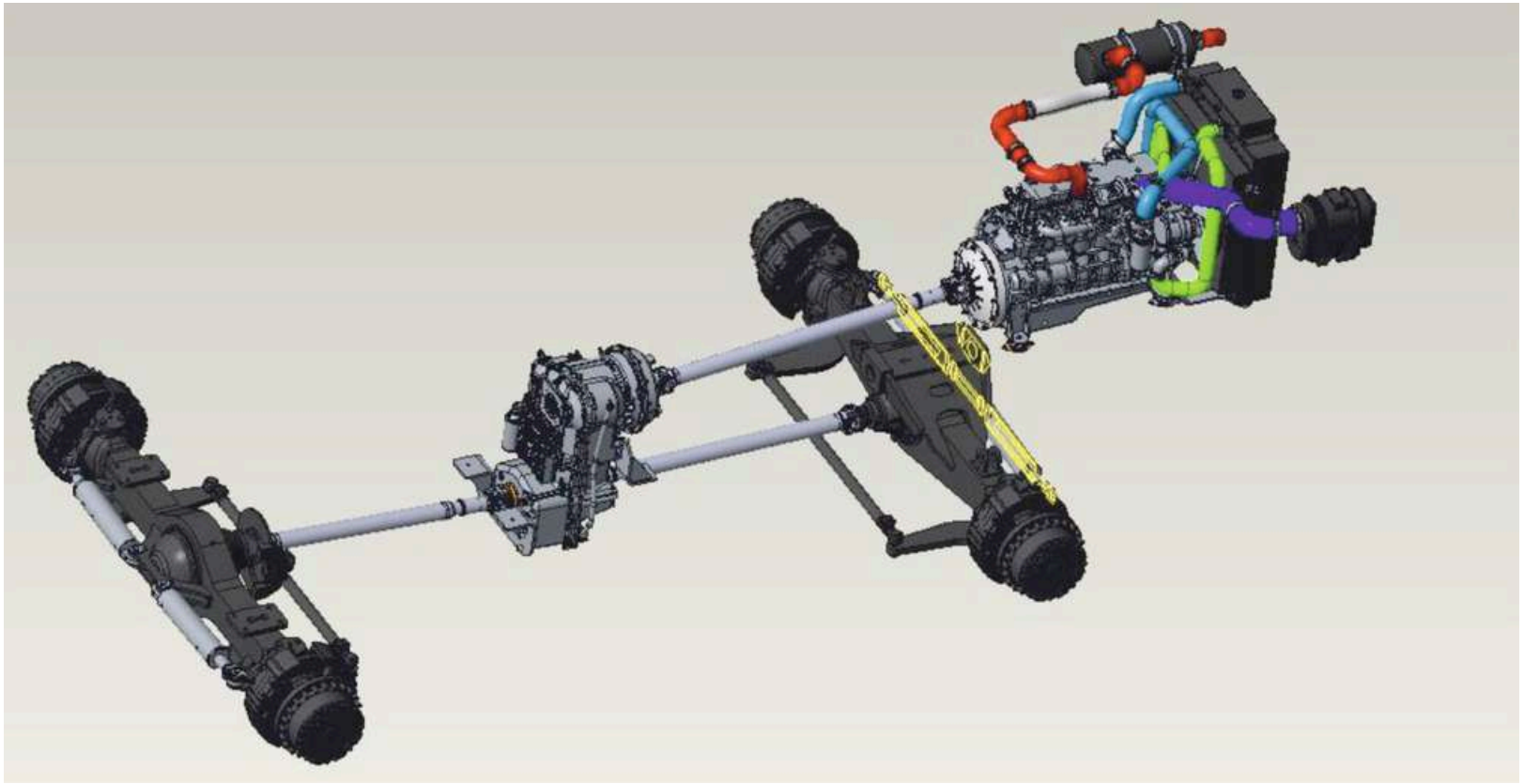




- DINAMIC OIL MAIN AND AUXILIARY WINCHES,
- 19mm Adviced rope size +2/+4%.

6. POWERTRAIN

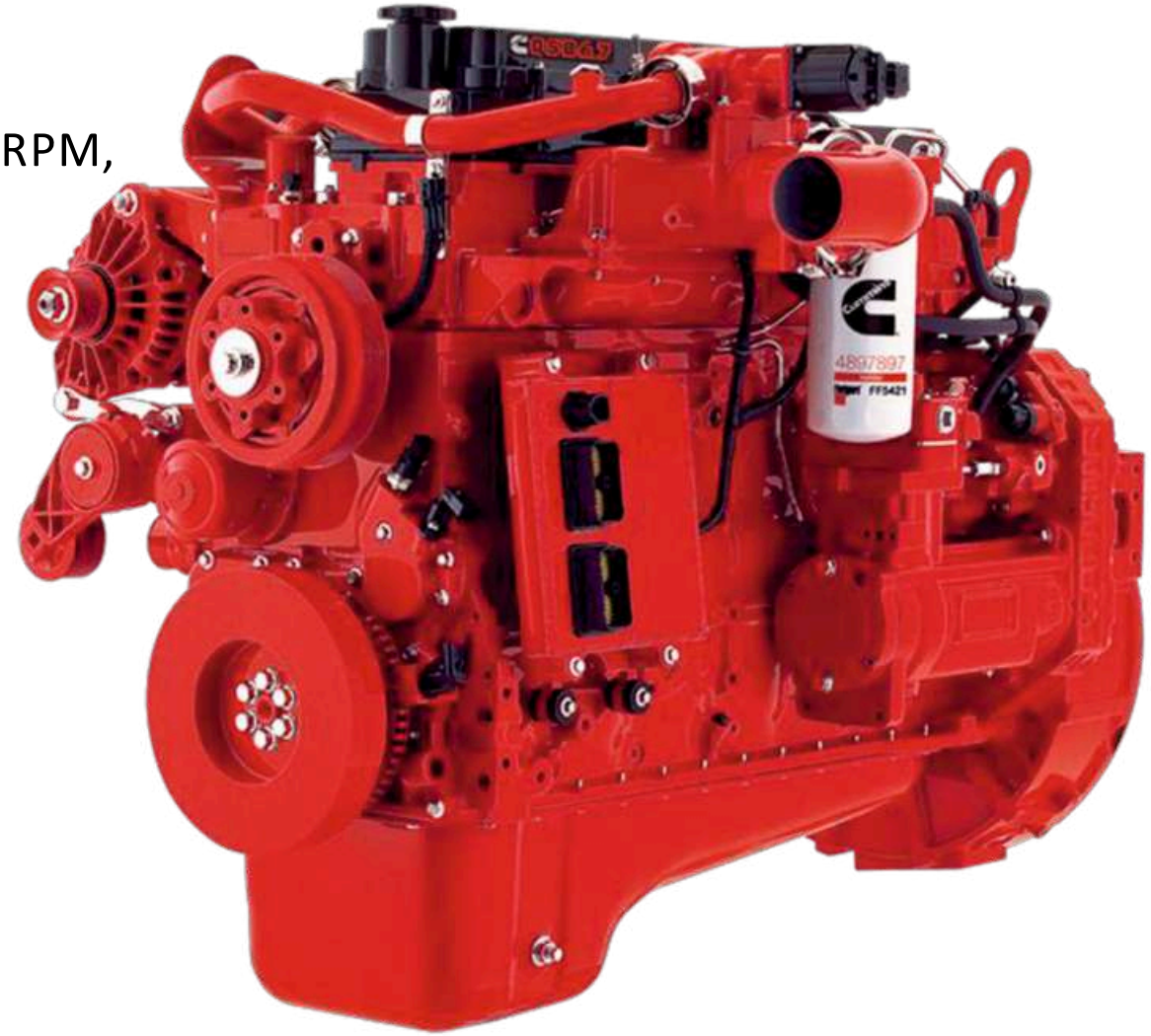
- CUMMINSQSB6.7 ENGINE WITH MAX POWER OF 194kW,
- TRANSMISSION: ZF-Ergopower 6WG210,
- Full Time 4x4,
- 4 steering modes- 2 wheel rear, 2 wheel front, 4 wheel coordinate, 4wheel crab ,
- Rigid mounted front KESSLER AXLE,
- Hydraulic Locked, oscillating KESSLER rear axle with differential lock.

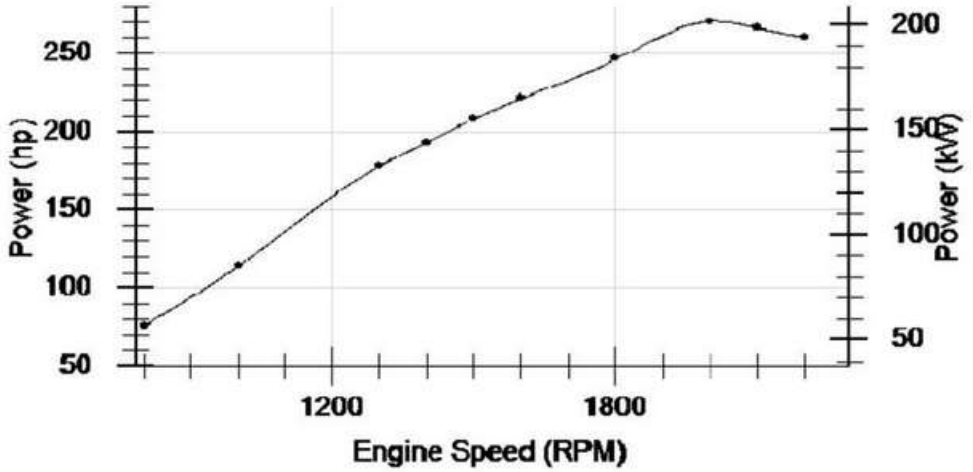


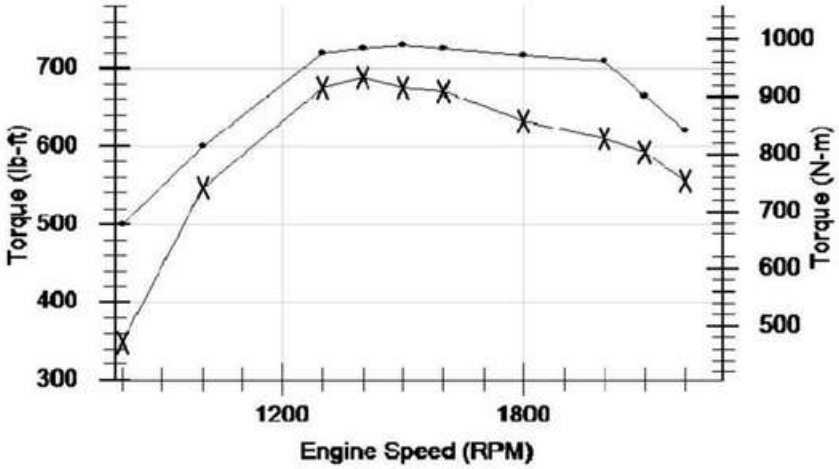
6. POWERTRAIN

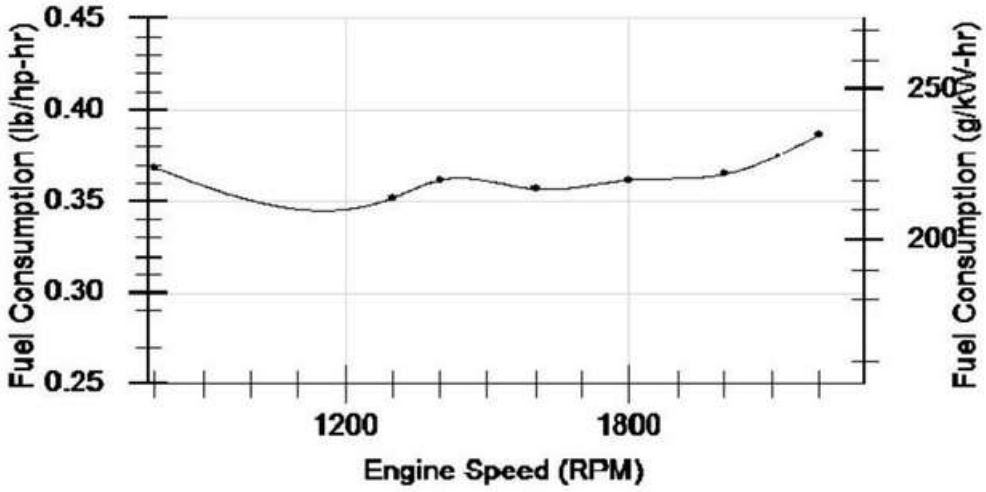
6.1. ENGINE

- Model: CUMMINS QSB6.7,
- MAX POWER - 194kW,
- MAX TORQUE: 987 Nm at 1500 RPM,
- CAN-BUS CONTROLLED.







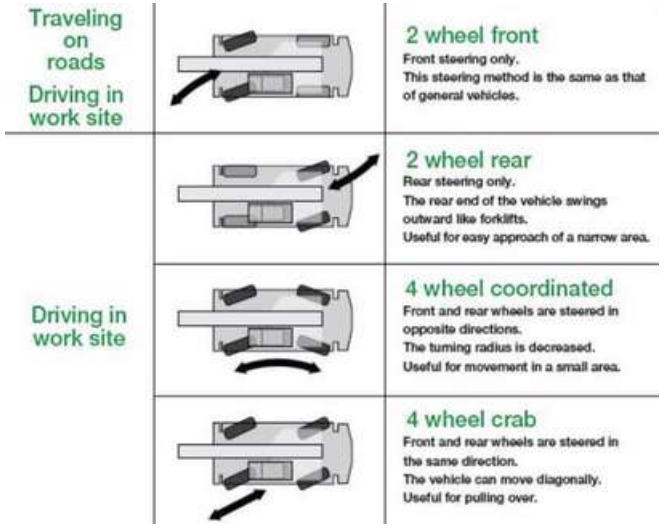


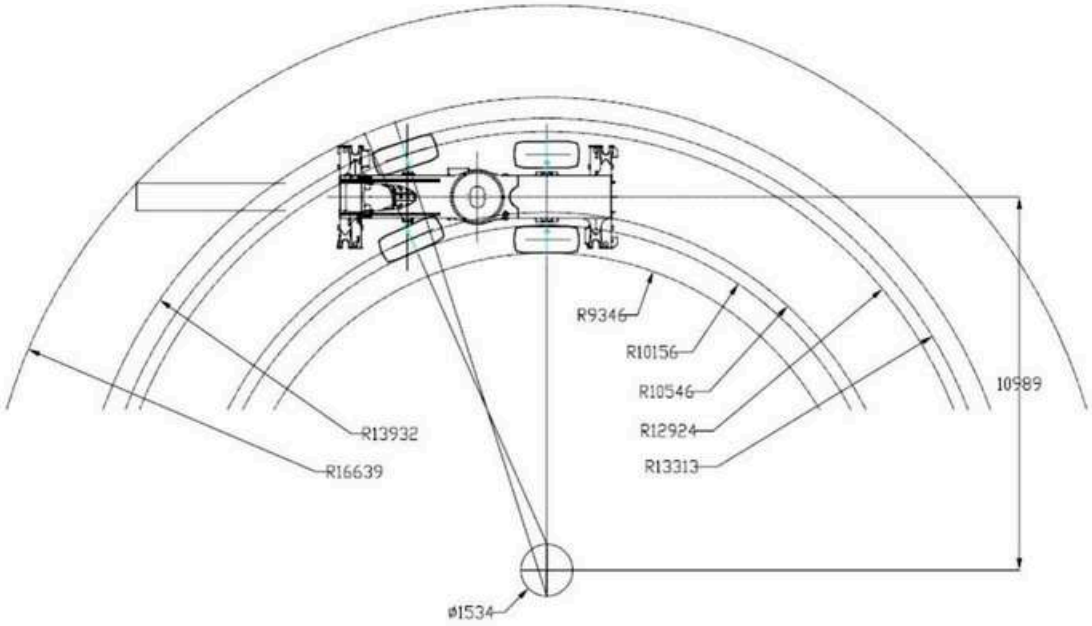
- High Max Power (194 kW) available at 1900 RPM,
- High Torque from low engine RPM,
- The Engine is very fuel efficient at Max Power Output.

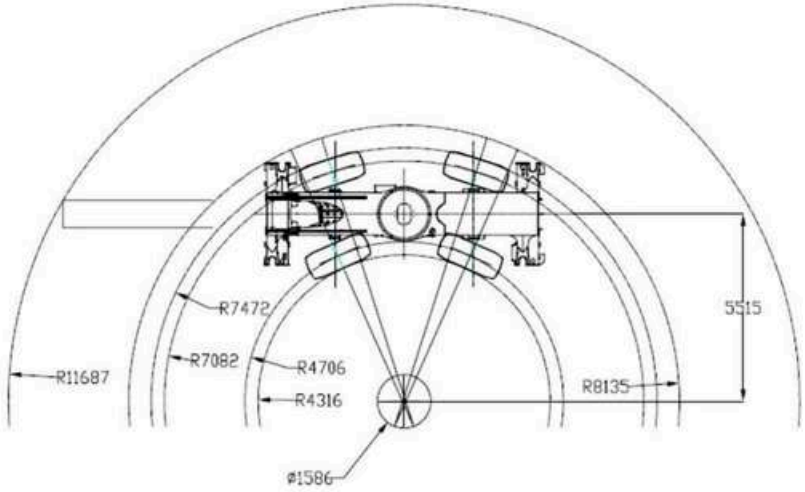
6. POWERTRAIN
6.2. TRANSMISSION

- ZF Ergopower 6WG210,
- CAN-BUS CONTROLLED,
- AUTOMATIC AND MANUAL GEAR SHIFT.

- KESSLER LT81

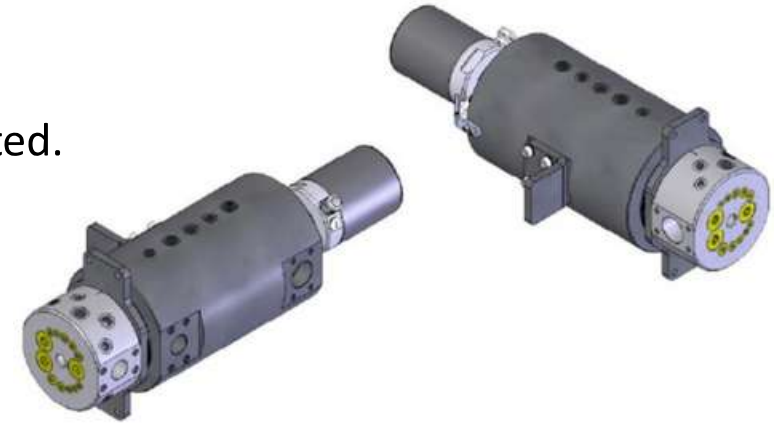






7. HYDRAULICS

- RT90 Hydraulic system is made by PARKER It uses Variable displacement load sensing 145cc pump, together with 50cc+30cc tandem pump and load sensing proportional control valve formain crane functions,
- HBS hydraulic swivel joint,
- All hydraulic hoses are abrasion tear and wear protected.

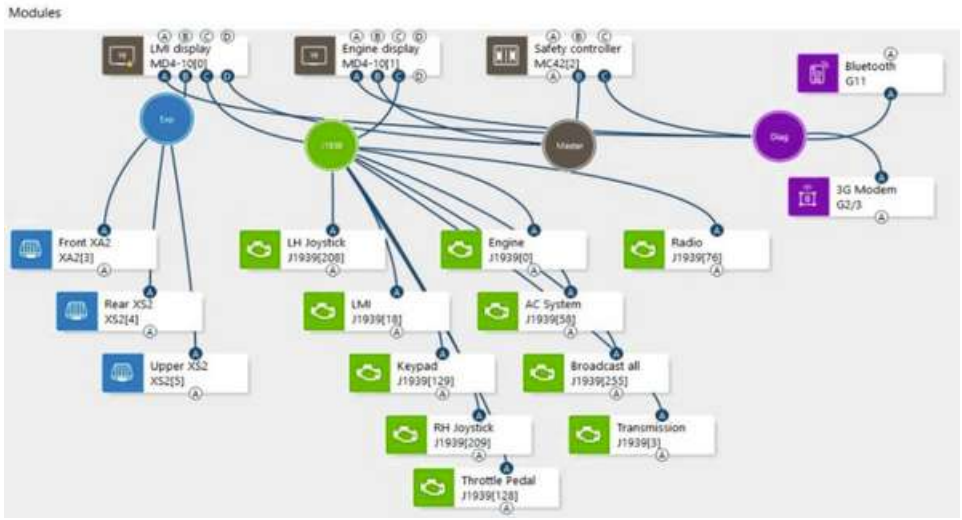


8. ELECTRIC AND ELECTRONIC SYSTEMS

- Telemetric modem for troubleshooting and diagnostics,
- Bluetooth connection via mobile phone or tablet and the IQANSincapplication,
- Main crane function can be remote controlled.

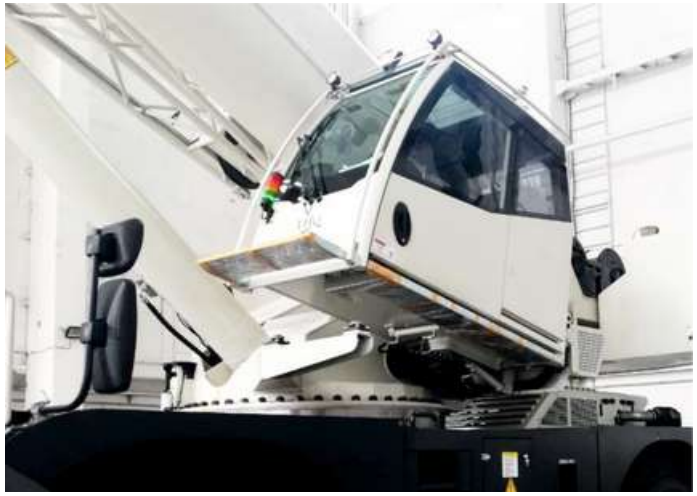
Remote control

8. ELECTRIC AND ELECTRONIC SYSTEMS



- Full CAN-BUS system communication,
- Off the shelf PARKER IQAN Control Modules,
- Two 10`` Color Touchscreen Displays,
- Remote Control (Optional),
- Transmission Control Unit,
- Engine Control Unit,
- LMI Control Unit,
- Waterproof connectors and junction boxes.

9. CABIN AND MACHINE OPERATION



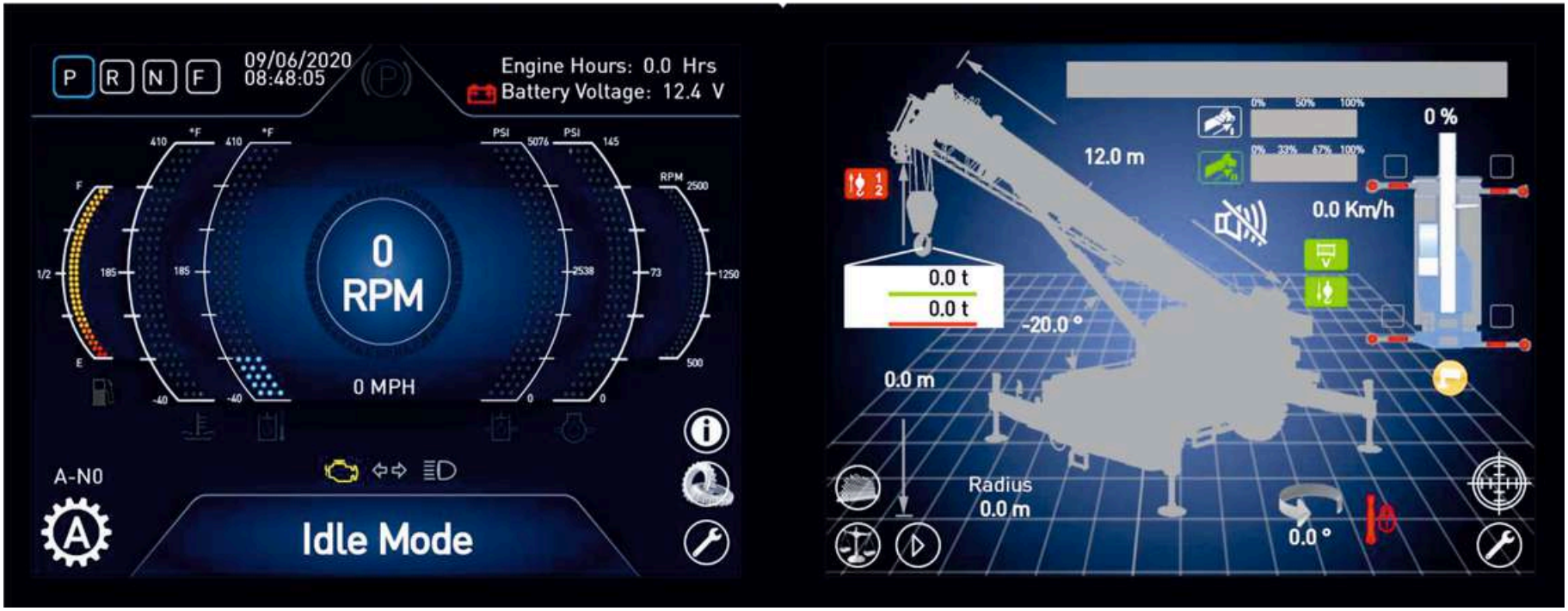
- Designed to meet all ergonomic, vibrations and sound emission reduction standards,
- Hydraulic cab tilting system,
- Hydraulic powered foot rest,
- Front pantograph wiper, Fop type upper wiper.

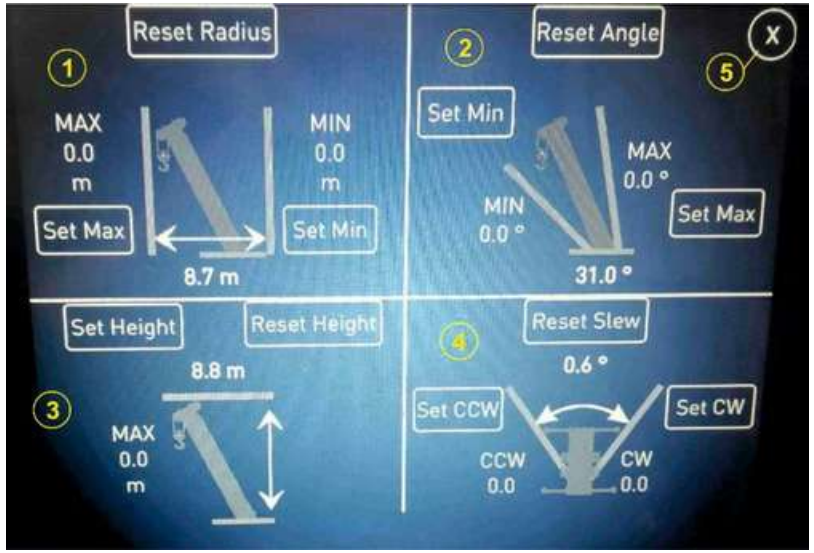
9. CABIN AND MACHINE OPERATION

- Three Digital Cameras,
- Surround sound Bluetooth radio,
- A/C system with digital display,
- Two hall effect CAN Joysticks Located on an avionic style armrests.

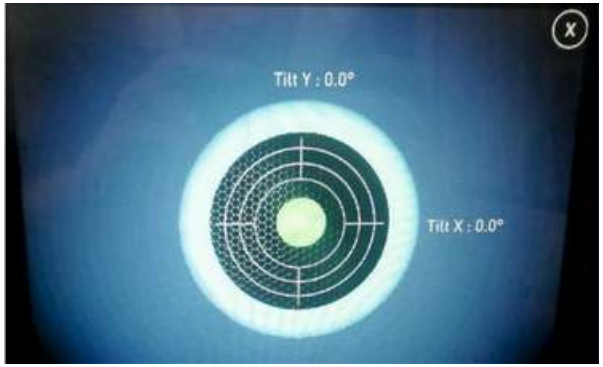
9. CABIN AND MACHINE OPERATION

Two 10`` touchscreen displays are dedicated for providing all of the information. One for machine basic parameters: engine RPM, temperatures, oil pressure ect. And one for the LMI system.





3B6 - COBO LMI safety system, integrated in the machine interface gives constant information about:



- Actual Load,
- Rated Load,
- Utilization,
- Boom length,
- Boom Angle,
- Boom radius,
- Boom Tip Height,
- A2B Status,
- Third wrap switch status,
- Swing angle,
- Wind speed.

Digital bubble level and Work Area Definition (W.A.D.S) are available.

10. USER'S MANUAL

The User's Manual contains safety and maintenance instructions, vehicle controls, operation instructions and illustrations from the actual machine.

MAIN DISPLAY PAGE AND WHAT IT TELLS YOU.

1. BOOM LENGTH INDICATOR
Constantly provides the operator with the actual boom length.

2. BOOM ANGLE INDICATOR
Constantly provides the operator with the actual boom angle.

3. WORKING RADIUS INDICATOR
Constantly provides the operator with the actual working radius.

4. LOAD BELOW BOOM HEAD
Constantly provides the operator with the approximate load below boom head.

5. CRANE CAPACITY
Constantly provides the operator with the crane capacity according the load chart.

USER MANUAL
RT90

Revised: January 2019

CONTROLS AND INSTRUMENTS

UPPER CONTROLS & INSTRUMENTS

1. Lights
2. Hazard lights
3. Upper washer control
4. Displays

Issued: January 2019

11. SPARE PARTS CATALOGUE

The Spare Parts Catalogue contains exploded view illustrations, part number of the parts, quantities and description of the part.