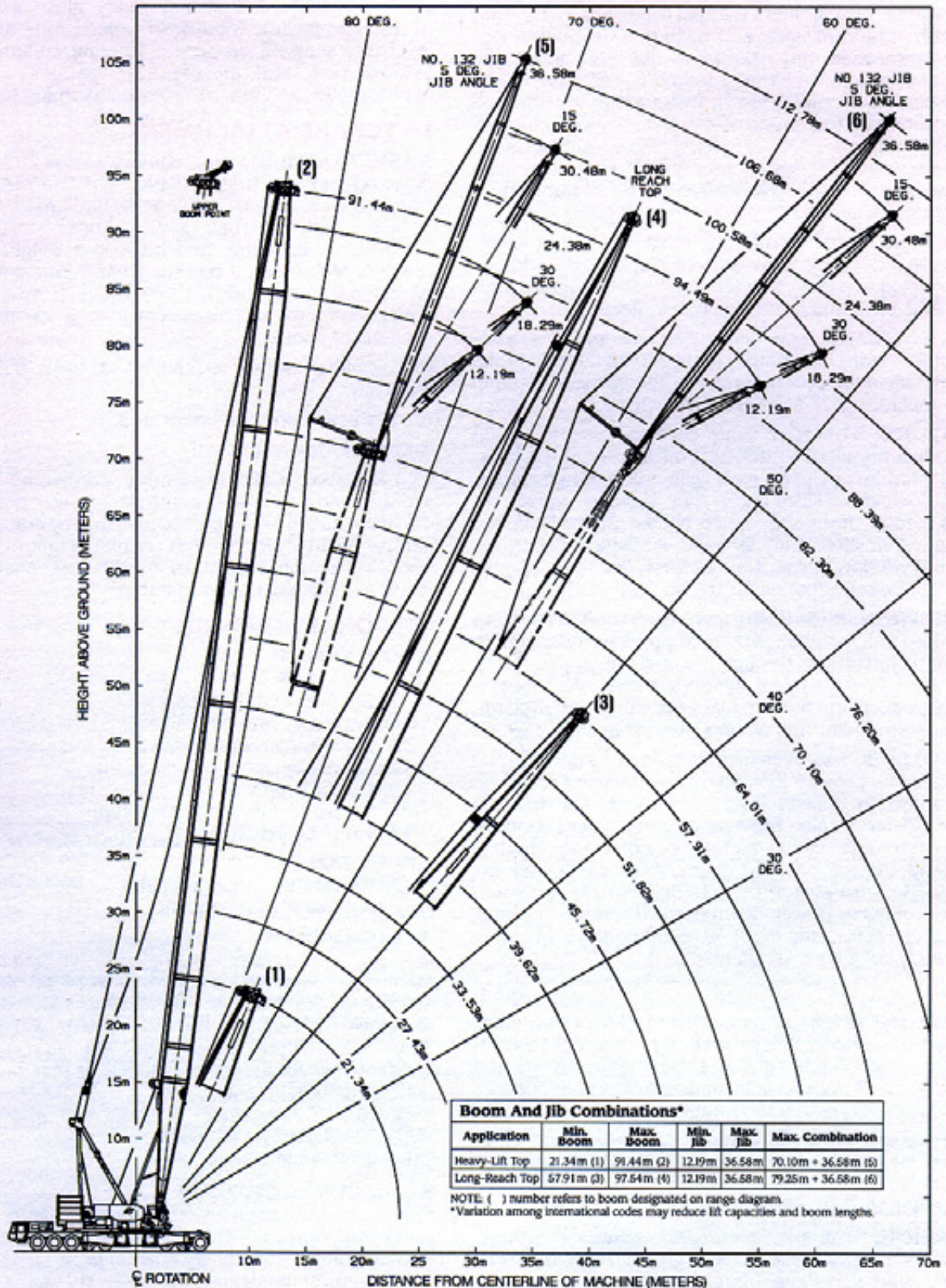


# MANITOWOC M250T



**270-Metric-Ton Truck Crane**

## SPECIFICATIONS

### BASIC CRANE — Upperworks

**ROTATING BED:** Fabricated steel rotating bed equipped with Manitowoc's patented Fast Aligning Connection Technology (FACT™) system for rapid attachment to carrier's rotating module. FACT system uses alignment devices, power-activated pins, and H-FACT® hydraulic quick coupler to speed crane assembly and disassembly.

**DRUMS:** Basic arrangement is a split drum-shaft assembly. Right drum 1,140mm wide and 572mm in diameter. Left drum 479mm wide and 572mm in diameter. Shaft and drums are antifriction-bearing mounted. Shaft driven by a fixed-displacement radial-piston hydraulic motor through a spur-gear reduction. Internal-expanding drum clutches are spring set, air released. External-contracting drum brakes are air applied, spring released. Parking brakes are spring set, air released. Optional front drum 1,140mm wide and 572mm in diameter.

**BOOM HOIST:** Rear-mounted, independent, two-drum boom hoist driven by a variable-displacement hydraulic motor coupled to a planetary reduction, and equipped with ratchet-and-pawl and drum-rotation indicator.

**SWING SYSTEM:** Independent swing powered by a fixed-displacement hydraulic motor coupled to an internal brake and planetary reduction mounted in the carrier's rotating module. Includes gear-segment type swing lock.

**OPERATOR'S STATION:** Fully enclosed and insulated steel module mounted to the left front corner of the rotating bed. Module equipped with sliding door, large safety-glass windows on all sides and in roof. Standard equipment includes electric horn, cab space heater, dome light, fire extinguisher, air-circulating fan, and windshield wipers for upper front window, lower front window, and roof window. Module can be repositioned for transportation.

**ENGINE/TRANSMISSION:** Caterpillar 3406B DITA diesel engine rated at 336KW at 1,900 RPM provides independent power for all operations through the multi-hydraulic-pump transmission. Power system includes engine block heater (120V), high-silencing muffler, hydraulic oil cooler, radiator, fan, ether starting aid, and alcohol injector in air line.

**CONTROLS:** Electric-over-hydraulic controls and closed-loop hydraulics provide infinitely variable speed response in proportion to control lever movement. Manitowoc's patented Electronically Processed Independent Control (EPIC®) system provides microprocessor-driven control logic, pump control, onboard diagnostics, and service information. Selector switch permits drums to be operated in either free-fall or power-down mode. Rotation indicator standard for each drum. Block up-limit controls for main and auxiliary hoist lines are standard.

### Carrier

**CARRIER:** The 16 x 8 carrier is 17.77m long, 3.00m wide, and has 8 steering axles. It is powered by a Caterpillar 3406B diesel engine rated at 343 KW at 2,100 RPM and a 6-speed forward, 1-speed reverse automatic transmission. Carrier equipped with brakes, fenders, and D.O.T. lights.

**AXLES:** Sixteen 14.00 x 25 tires. Axles 1, 3, 6, and 7 are planetary-drive, steering type, mounted on hydraulic suspension systems. Axles 2, 4, 5, and 8 are steerable with a drop center, mounted on hydraulic suspension systems.

**SUSPENSION:** Hydraulic/pneumatic system with load compensation within suspension groups. Cab-mounted electronic panel permits automatic or manual adjustment to optimize driver comfort, on-road cornering stability, and off-road travel stability.

**OUTRIGGERS:** The four outriggers are hydraulic, arranged radially, and equipped with controls on both sides of carrier frame. Hinged beams simplify job site travel, and outriggers are completely removable for road travel. Check valves for hydraulic jacks are included. Outrigger pads are held to jacks by locking pins.

**CAB:** The truck cab is a low-profile, one-person, insulated cab with vents and sliding safety glass windows. Cab accessories include windshield wiper, heater and defroster, level-ride seat, oil gauge, tilt steering column, ammeter, temperature and air pressure gauges, tachometer, speedometer, and low-air-pressure warning buzzer.

### LIFTCRANE ATTACHMENT

**BASIC BOOM:** Liftcrane equipped with 21.34m No. 44A basic boom consisting of 12.19m butt and 9.14m heavy-lift top with nine 762mm diameter sealed antifriction-bearing sheaves. Includes rope guides, boom-hoist wire rope, boom-angle indicator, and hook and weight ball. Boom features Manitowoc's patented FACT connection system, which uses two vertical positioners, two horizontal connection pins, and alignment pads to connect adjacent sections of boom.

Gantry with telescopic backhitch and power-activated back-hitch pins.

Air-cushioned physical boom stop.

Automatic boom stop.

**COUNTERWEIGHT:** Assembly connected to rear of rotating bed by remote-controlled, power-activated pins. Can be installed and removed as a unit by crane's hydraulic gantry-raising cylinders. Full counterweight — 80,558 kgs. Reducing counterweight to 55,883 kgs. enables on-site travel with up to 76.20m of boom.

### OPTIONAL EQUIPMENT

#### BOOM AND JIB:

##### Boom No. 44A

3.05m Insert with pendants

6.10m Insert with pendants

12.19m Standard insert with pendants

12.19m Heavy insert with pendants

9.14m Tapered insert with pendants

(used with long-reach top)

12.19m Long-reach top

##### Jib No. 132

12.19m Jib with mounting parts

6.10m Insert with pendants

#### ATTACHMENTS:

Manitowoc 27-metric-ton single-sheave load block

Manitowoc 54-metric-ton two-sheave load block

Manitowoc 90-metric-ton three-sheave load block

Manitowoc 270-metric-ton nine-sheave load block

Single-sheave upper boom point (whipline)

Pendant links for load-moment sensor pin

Luffing-jib attachment

X-SPANDER™ attachment

MAX-SPANDER™ attachment

Other attachments on request

#### BASIC CRANE OPTIONS:

Full-width drum shaft assembly for front drum location

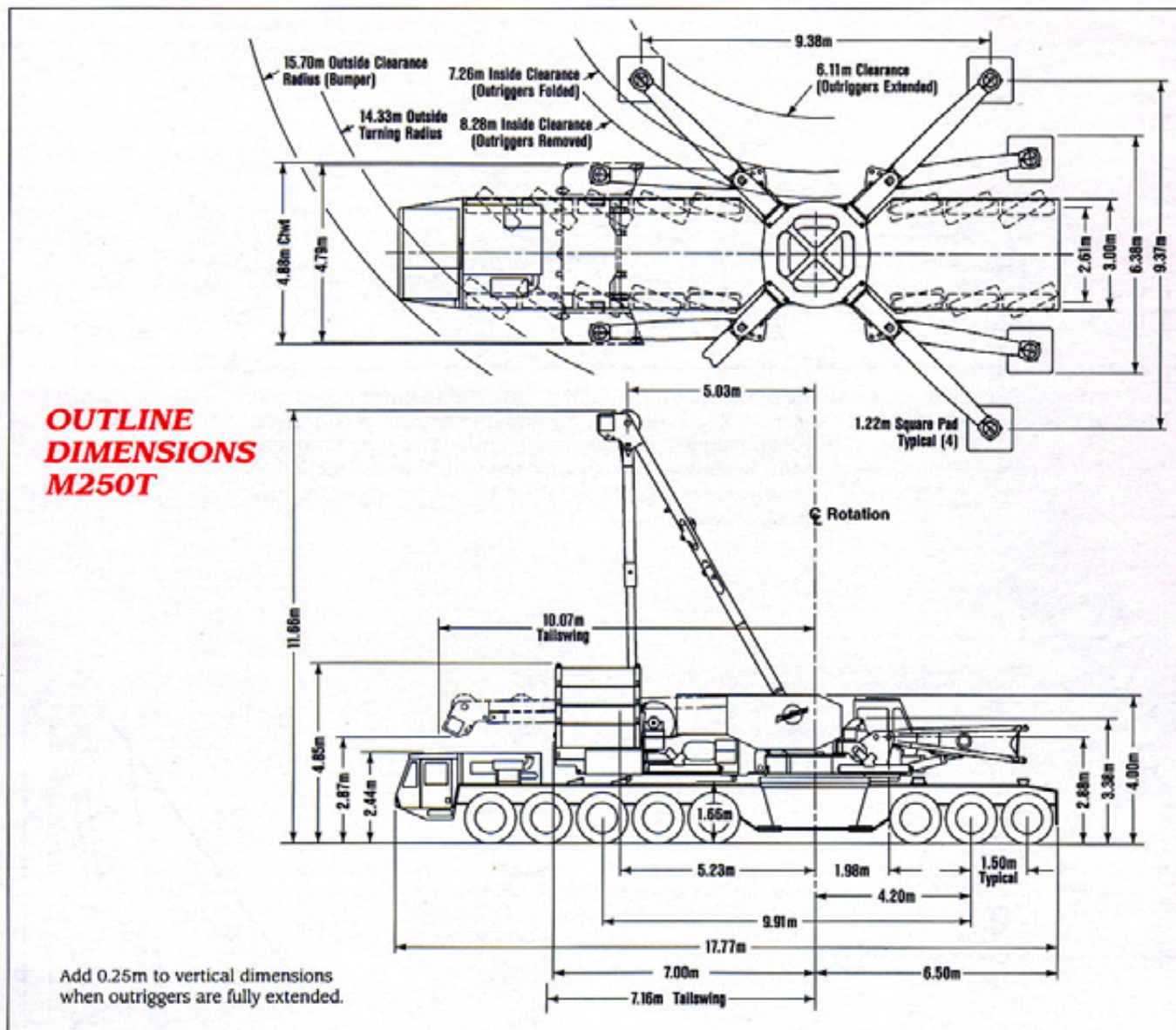
Air conditioners in operator's cabs

Special paint — machinery enamel in color other than Manitowoc standard

Bail limit control for hoist drums

Self-assembly system with jacks

Grooved laggings for liftcrane



## PERFORMANCE DATA

Wire Rope Specifications					
Application	Dia.	Description	Breaking Strength	Weight	Max. Operating Length
Lift	29mm	6 x 31 EIPS Regular Lay	58,967 Kgs.	3.48 Kgs./M	624.84m Hoist 320.04m Whip 624.84m Auxiliary
Boom Hoist	25mm	6 x 26 EIPS Alternate Lay	46,902 Kgs.	2.75 Kgs./M	297.18m

Line Pull vs. Line Speed*						
Line Pull (Infinitely Variable)	Hoist Pump Only		Divert 1 Travel Pump		Divert 2 Travel Pumps	
	1st Layer	8th Layer	1st Layer	8th Layer	1st Layer	8th Layer
0 Kgs.	34.14 mpm	59.13 mpm	69.49 mpm	118.87 mpm	103.63 mpm	178.00 mpm
2,268 Kgs.	33.53 mpm	57.91 mpm	68.58 mpm	115.82 mpm	101.80 mpm	171.91 mpm
4,536 Kgs.	32.92 mpm	56.08 mpm	67.36 mpm	112.78 mpm	99.67 mpm	166.12 mpm
6,804 Kgs.	32.61 mpm	54.56 mpm	66.14 mpm	109.73 mpm	97.84 mpm	160.32 mpm
9,072 Kgs.	32.00 mpm	53.04 mpm	65.23 mpm	106.68 mpm	95.71 mpm	154.23 mpm
11,340 Kgs.	31.39 mpm	51.51 mpm	64.00 mpm	103.94 mpm	93.57 mpm	118.87 mpm
13,608 Kgs.	30.78 mpm	49.68 mpm	63.09 mpm	100.89 mpm	91.44 mpm	86.87 mpm

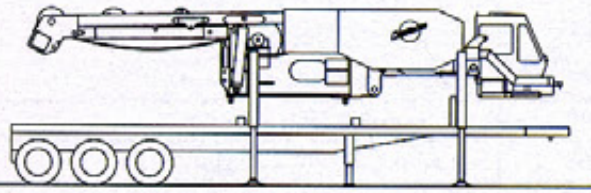
\*Chart data based on 572mm diameter smooth drum.

**SWING SPEED:** 2.0 RPM.

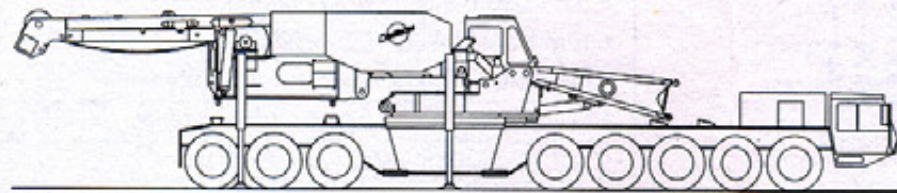
**BOOM HOIST SPEED:** 91.44m boom, 0° to 82° — 2 minutes, 40 seconds.

**M-250T ASSEMBLY SEQUENCE**  
 (Crane equipped with optional self-assembly system)

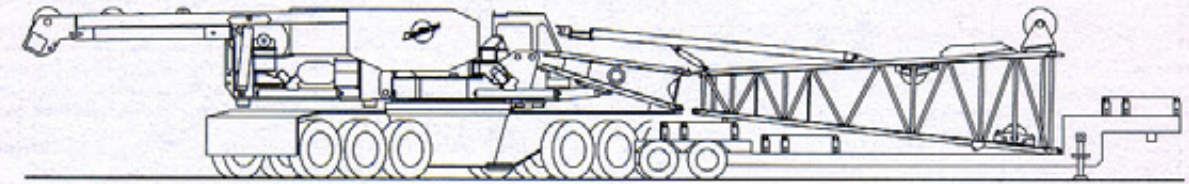
FACT SYSTEM



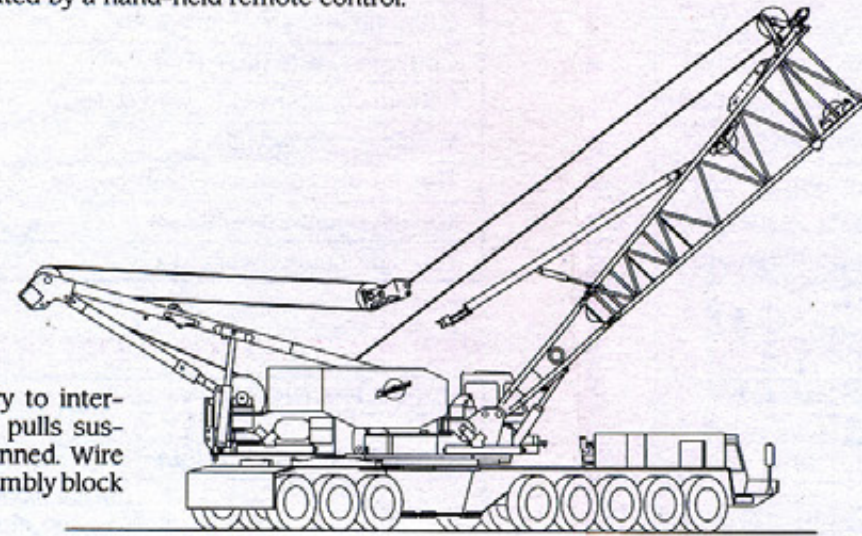
**Step 1:** Operator's cab is rotated into operating position. Hydraulic jacking cylinders are rotated downward and used to lift upperworks off trailer.



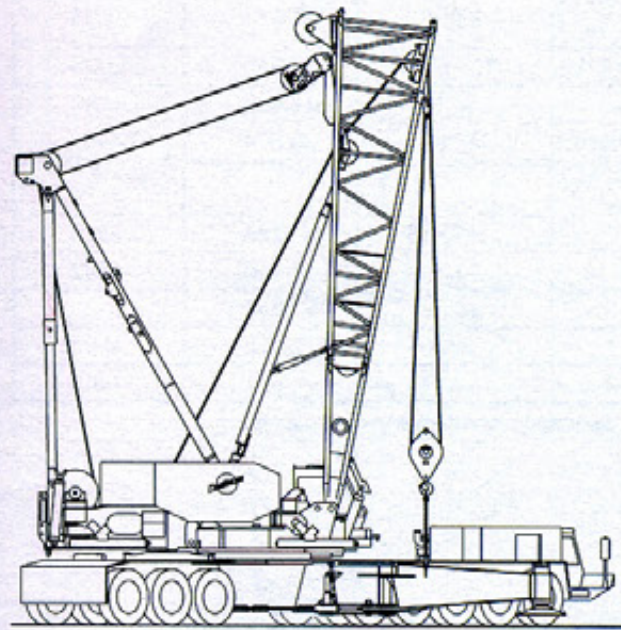
**Step 2:** Carrier is driven beneath upperworks. Upperworks is lowered, then connected to rotating module by FACT connection system's centering devices and power-activated pins. All power-activated pins used during set-up are operated by a hand-held remote control.



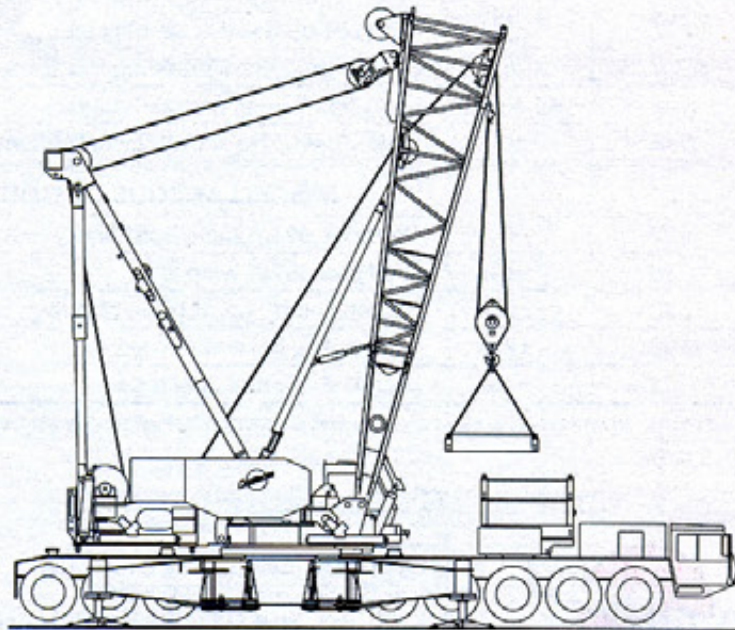
**Step 3:** Upper boom butt is attached to lower boom butt by FACT connection system's vertical positioners, horizontal pins, and alignment pads. Wire rope from rear drum is reeved through wire rope guide and attached to equalizer. Boom butt is raised by a front-mounted hydraulic cylinder.



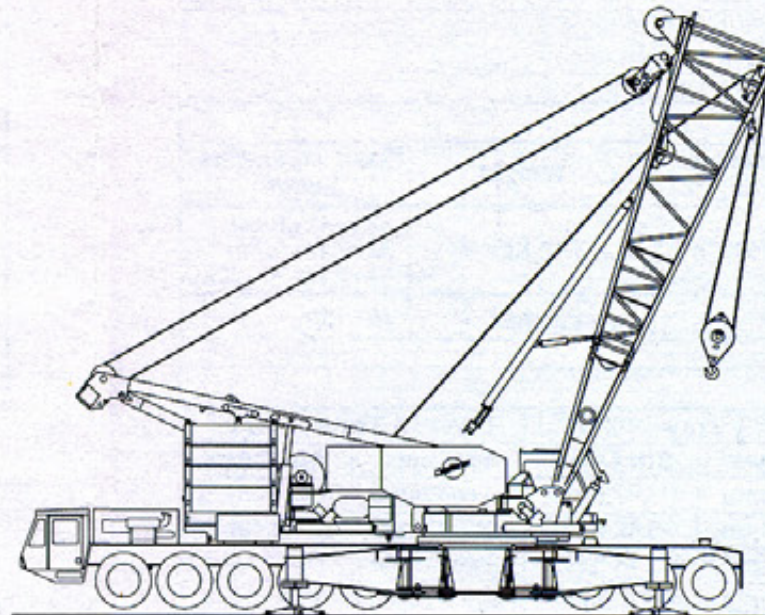
**Step 4:** After hydraulic cylinders raise gantry to intermediate position, hoist line from rear drum pulls suspended equalizer to boom butt, where it is pinned. Wire rope is removed from wire rope guide, and assembly block is reeved using boom-butt sheaves.



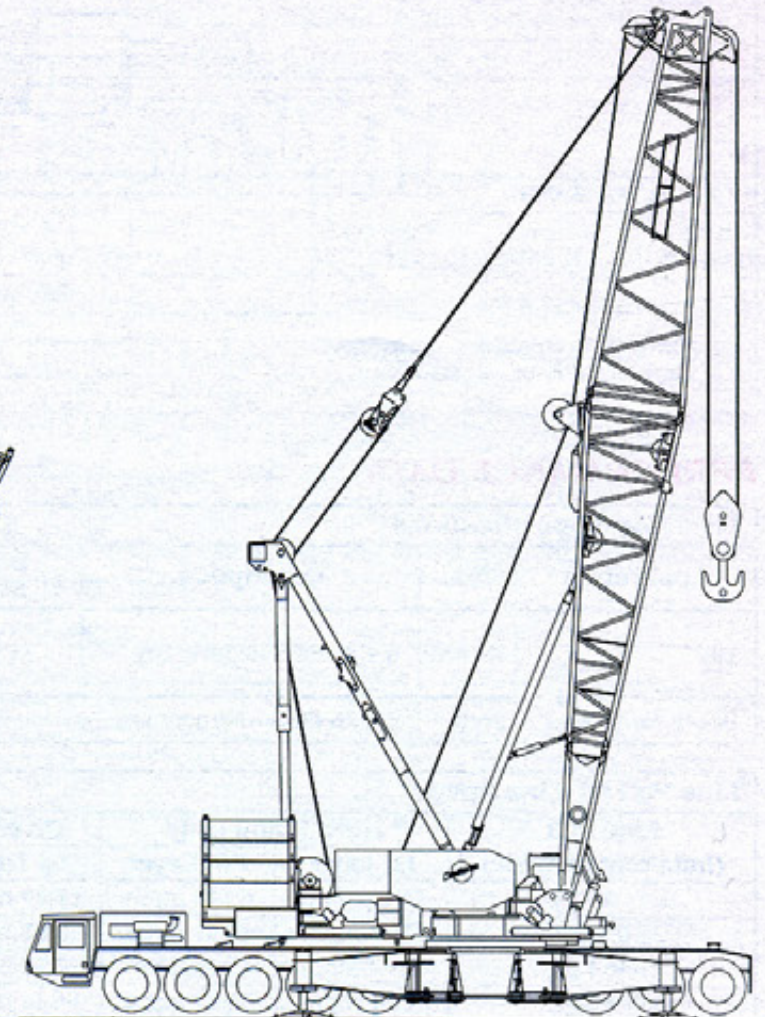
**Step 5:** Gantry is pulled into upright position with boom hoist and secured by power-activated backhitch pins. Outriggers are removed from trailer and attached to carrier using FACT system of pin connections.



**Step 6:** Counterweight is removed from trailers and assembled atop carrier.



**Step 7:** Gantry is lowered. Counterweight is pendant-connected to gantry; raised into position using counterweight-raising cylinders; and attached to upperworks by power-activated pins.



**Step 8:** Boom top and inserts are positioned and attached using FACT connection system. Boom pendants are attached to equalizer, and load line is reeved to load block. Crane is ready to operate.

## SHIPPING DATA

M-250T

Description	Weight (Kgs.)	Dimensions (Length x Width x Height)
12.19m Single-piece boom butt with pendants	3,903	12.48m x 2.59m x 2.59m
8.53m Upper boom butt with pendants	3,207	8.69m x 2.59m x 2.59m
9.14m Heavy-lift boom top with pendants	6,105	10.06m x 2.59m x 2.90m
3.05m Boom insert with pendants	1,171	3.20m x 2.59m x 2.44m
6.10m Boom insert with pendants	1,864	6.25m x 2.59m x 2.44m
12.19m Standard boom insert with pendants	3,161	12.34m x 2.59m x 2.44m
12.19m Heavy boom insert with pendants	3,442	12.34m x 2.59m x 2.44m
9.14m Transition insert with pendants	2,358	9.37m x 2.59m x 2.03m
12.19m Long-reach boom top with pendants	3,593	13.03m x 2.07m x 1.65m
Upper boom point	411	2.63m x 0.48m x 0.79m
12.19m Basic No. 132 jib with strut and pendants	2,622	12.78m x 1.22m x 0.91m
6.10m Jib strut with sheaves and links	617	6.25m x 1.22m x 0.79m
6.10m Jib insert with pendants	474	6.25m x 1.22m x 0.91m
Outriggers, with pads (4)	5,398 ea.	6.18m x 1.24m x 1.32m
Bottom counterweight with rollers	13,660	4.88m x 2.34m x 0.67m
Middle counterweight	13,381	2.54m x 1.94m x 0.93m
Tray for top counterweights	16,329	4.88m x 2.26m x 0.74m
Top left counterweights (3)	6,169 ea.	2.26m x 0.85m x 0.62m
Top right counterweights (3)	6,169 ea.	2.26m x 0.85m x 0.62m

## PER-AXLE WEIGHT DISTRIBUTION (kilograms)

UPPER FACING FRONT		CONFIGURATION	TOTAL WEIGHT	UPPER FACING REAR	
Front 5 Axles (Ea.)	Rear 3 Axles (Ea.)			Front 5 Axles (Ea.)	Rear 3 Axles (Ea.)
5,937	5,849	Carrier, bearing, swing drive, and rotating module	47,230	5,773	6,122
6,372	6,031	Add 3.66m boom butt, cylinder, and support	49,952	5,800	6,984
6,964	17,748	Add upperworks, gantry (down) with rope, and optional self-assembly jacks	88,065	11,677	9,893
8,797	21,891	Add outriggers with pads	109,656	13,510	14,036
N/A	N/A	Add 55,883-kg. counterweight*	165,518	24,834	13,782
N/A	N/A	Add 21.34m No. 44A heavy-lift boom (horiz.)	177,622	21,874	22,751
<b>MISCELLANEOUS OPTIONS</b>					
-122	-601	Remove 693m main hoist line	-2,415	-288	-326
-68	-335	Remove 387m whip line	-1,347	-160	-182
+620	-1,054	8.53m Gantry up, in place of down	-61	-630	+1,030
+292	+235	Add luffing hoist with rope	+2,164	+75	+596
-104	-84	Remove 366m luffing rope	-773	-27	-213

Please refer to separate sheet of travel specifications for additional details and limitations. \*Maximum counterweight permitted for travel.



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