

# Specifications

## UPPER MACHINERY



### MAIN ENGINE

Model ..... Cummins KT-1150-C450 diesel  
 Type ..... Turbocharged, direct injection  
 Cycle ..... 4  
 No. of Cylinders ..... 6

Bore and Stroke ..... 159 mm x 159 mm (6.25" x 6.25")  
 Displacement ..... 18.9 liters (1,160 cubic inch)  
 Rated Horsepower ..... 456 PS @ 2,100 rpm  
 Max. Torque ..... 186.7 kg-m (1,350 ft.-lbs.) @ 1,500 rpm  
 Cooling ..... Water cooled  
 Starting System ..... 24V-11kw

### AUX. ENGINE (FOR PROPEL)

Model ..... Cummins KT-1150-C450 diesel  
 Type ..... Turbocharged, direct injection  
 No. of Cylinders ..... 6  
 Rated Horsepower ..... 456 PS @ 2,100 rpm

### TORQUE CONVERTER

Single stage, stationary housing with modulated clutch, two double power take off towers.

### TRANSMISSION

Two speed electro-hydraulic power shift transmission, chain drive. Pressure lubricated bearings, gear and chain. (Driven by torque converter)

### FUEL TANK

Capacity ..... 1,380 liters (640 + 740)

### HYDRAULIC PUMPS

9 variable displacement pumps and 8 gear pumps.

### BATTERIES

12 volt, 200 AH x 4 units



### BOOM HOIST ASSEMBLY

Hydraulic piston motor driving through planetary reducer.

Brake: Hydraulic counterbalance valves mounted on boom hoist motors and tandem external contracting band type, 1,016 mm (40") dia. x 127 mm (5") wide, spring set hydraulically operated, fail safe brake.

Drum: 560 mm (22.05") pitch dia. x 515 mm (20.28") long (one side). Grooved drum mounted on antifriction bearings.

Drum Total Capacity ..... 754 m (2,474')  
 Wire Rope Dia. .... 28 mm (1.10")  
 Line Pull (1st layer) ..... 27,700 kg (61,067 lbs.)  
 Line Speed (1st layer)  
 Hoisting (max.) ..... 25 m/min (82.0 fpm)  
 Lowering (max.) ..... 25 m/min (82.0 fpm)



### FRONT AND REAR DRUMS (LOAD DRUMS)

Tandem, mounted on antifriction bearings, driven flywheel end of engine through modulated clutch torque converter and two speed transmission, both drums overwinding.

Clutches: Band type, internal expanding, 1,168 mm (46") dia. x 152 mm (6") wide.

Brakes: Band type, external contracting, 1,321 mm (52") dia. x 203 mm (8") wide, hydraulically applied, spring set safety devices, spring set hydraulic release safety pawl.

### (LINE DATA FOR FRONT DRUM)

Drum: 720 mm (28.35") pitch dia. x 1,015 mm (39.96") long. Split and grooved drum.  
 Drum Total Capacity ..... 902 m (2,959')  
 Wire Rope Dia. .... 34 mm (1.34")  
 Line Pull ..... 15,000 kg (33,069 lbs.)  
 Line Speed (Based on max. rated load of main hoist line):  
 Lo-speed ..... 0 ~ 57 m/min (0 ~ 187 fpm)  
 Hi-speed ..... 0 ~ 75 m/min (0 ~ 246 fpm)

### (LINE DATA FOR REAR DRUM)

Drum: 720 mm (28.35") pitch dia. x 1,015 mm (39.96") long. Split and grooved drum.

Drum Total Capacity ..... 902 m (2,959')  
 Wire Rope Dia. .... 34 mm (1.34")  
 Line Pull ..... 15,000 kg (33,069 lbs.)  
 Line Speed (Based on max. rated load of main hoist line):  
 Lo-speed ..... 0 ~ 57 m/min (0 ~ 187 fpm)  
 Hi-speed ..... 0 ~ 75 m/min (0 ~ 246 fpm)



### SWING UNIT

Hydraulic piston motors driving through planetary reducers to output swing pinions for 360° rotation.

Swing Speed ..... 0.6 rpm

### SWING BRAKES

Spring set, hydraulically released and actuated by electrical switch, disc type brake mounted on swing reducers.

### SWING CIRCLE

Outer race with integral swing gear, triple row roller bearing.

### TYPE OF FASTENING UPPER TO LOWER

Quick disconnect capability for dismounting upper structure, 20 wedges.



### JIB HOIST ASSEMBLY

Hydraulic piston motor driving through planetary reducer.

Brake: Hydraulic counterbalance valves mounted on boom jib motors and tandem external contracting bank type, 1,016 mm (40") dia. x 127 mm (5") wide, spring set hydraulically operated, fail safe brake.

Drum: 560 mm (22.05") pitch dia. x 515 mm (20.28") long (one side). Grooved drum mounted on antifriction bearings.

Drum Total Capacity ..... 754 m (2,474')  
 Wire Rope Dia. .... 28 mm (1.10")  
 Line pull (1st layer) ..... 27,700 kg (61,067 lbs.)  
 Line Speed (1st layer):  
 Hoisting (max.) ..... 25 m/min (82.0 fpm)  
 Lowering (max.) ..... 25 m/min (82.0 fpm)



### CONTROLS

In front of operator are two foot pedals for front and rear drum brakes, five adjustable short hand levers for swing control, front and rear drum controls, jib hoist control and boom hoist control, two short hand levers for propel drives, two short hand levers for main and aux. engine speed control and switches for front and rear drum pawls and brake locks, positive-negative brake select (front and rear drum brakes) and high-low travel speed select. Twist grip for modulated clutch control and swing brake lock switch on swing lever. At operator's left are console mounted control switches, meters and gauges (see instruments). Included are levers for reeving winch control and tilting operator's cab control.

### HYDRAULIC CONTROL SYSTEM

Accumulator to maintain system operating pressure, unloader valve to control pressure in accumulator, full-flow filter with 10-micron disposable filter element, and variable pressure control valves which control load hoist clutches and other principal operating functions.



### OPERATOR'S CAB

Totally enclosed, full vision cab has safety glass throughout sliding front window and door. Operator's four way adjustable high-back seat (full reclining type), windshield wiper, cigarette lighter and floor mat are standard. Cab can be tilted back 16° for improved operator view of boom point.

Optional: Cab heater and air conditioner available.

### LIGHTING

Two cab front flood lights, one cab inside light, six machinery cab inside lights and one trouble light.

### INSTRUMENTS

Tachometers, engine oil pressure gauges, engine water temperature gauge, fuel gauge, volt meter, torque converter temperature gauge, and hydraulic control pressure gauge.

### COUNTERWEIGHT

Basic machine counterweight is 12 pieces.

Total weight ..... 136,000 kg (299,820 lbs.)

**ADDITIONAL-COUNTERWEIGHT (OPTIONAL)**

Additional counterweight required for 67.06 m (220') boom length or over with luffing jib for electing.

Weight ..... 40,000 kg (88,180 lbs.)

**SAFETY DEVICES**

Crane over hoist alarm and limit switch. Boom over hoist limit switch. Boom backstop. Boom angle indicator. Boom hoist drum lock. Front and rear hoist drum locks. Swing lock. Signal horn. Crane load moment limiter (Over load protective device). Front and rear hoist drums overwinding limit switches.

**TOOLS AND ACCESSORIES**

The machine is furnished with a set of tools and accessories.

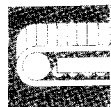
**QUICK DISCONNECT DEVICE FOR FRONT AND REAR**

Upper machinery consists of front and rear upper machinery. Rear upper machinery pinned to front by use of hydraulic cylinders.

**LOWER MACHINERY**

**CARBODY AND AXLES**

Carbody all-welded construction.



**TRACTOR TYPE CRAWLER**

Crawler side frames designed with quick disconnect feature for individual removal as a unit from axles by use of hydraulic cylinders. Crawler belt tension maintained by manual hydraulic jack force on track adjusting bearing block and insertion of proper shims. Crawler side frames inserted to axles, bolted to ends of axles and fastened to carbody with 4 braces.

**CRAWLER DRIVE**

Independent hydraulic propel drive built into both ends of each crawler side frame. Each drive consists of two hydraulic motors propelling a driving tumbler through a planetary gear box. The tumblers exert force against lugs cast into crawler shoes, thereby propelling machine.

**CRAWLER BRAKES**

Disc type, spring set hydraulically released parking brakes are built into each propel drive.

**STEERING MECHANISM**

The hydraulic propel system provides both skid steering (driving one track only) and counter-rotating steering (driving each track in opposite directions).

**TRACK ROLLERS**

Sealed track rollers for maintenance-free operation. 16 lower rollers in each crawler side frame.

**CRAWLER SHOES**

Total number – both sides ..... 156  
Flat cast shoes – width ..... 1,520 mm (60")

**TRAVEL SPEED**

High range ..... max. 1.0 km/h (0.62 mph)  
Low range ..... max. 0.5 km/h (0.31 mph)

**GRADEABILITY**

20% max. grade recommended for travel.

**CRANE ATTACHMENTS**



**ULTRA HEAVY DUTY BOOM**

Tubular T-1 steel, lattice construction, pin connected. Open throat cross section 2,769 mm (109") deep x 2,931 mm (115") wide with 24 offset boom point sheaves on tapered tip mounted on antifriction bearings.

Boom length, two sections ..... 18.29 m (60')

Boom base section ..... 12.19 m (40')  
Boom tip section ..... 6.10 m (20')

**HEAVY DUTY BOOM**

Tubular T-1 steel, lattice construction, pin connected. Open throat cross section 2,770 mm (109") deep x 2,930 mm (115") wide with 18 offset boom point sheaves on tapered tip mounted on antifriction bearings. Boom extendible to 103.6 m (340').

Basic length, two sections ..... 24.38 m (80')  
Boom base section ..... 12.19 m (40')  
Boom tip section ..... 12.19 m (40')

**BOOM INSERT SECTIONS (OPTIONAL)**

6.10 m (20') and 12.19m (40') boom insert available.

**BOOM HOIST REEVING**

38 parts of balanced line, spreader sheaves mounted on antifriction bearings.

**GUY CABLE**

Ultra heavy duty boom ..... 4 x 58 mm (2.28") dia.  
Heavy duty boom ..... 4 x 54 mm (2.13") dia.



**HOOK BLOCKS (OPTIONAL)**

650 metric ton 24 sheave swivel hook. 270 metric ton 9 sheave swivel hook. 180 metric ton 6 sheave swivel hook. 90 metric ton 3 sheave swivel hook.

**POWER CONTROLLED LOAD LOWERING**

Planetary gear type power lowering with external contracting clutch band.

**MAST**

Fabricated alloy steel, 2 rectangular legs of box section design 15.24m (50') long.

**WORKING WEIGHT**

Approx. 485,000 kg (1,070,000 lbs.). Including 18.29 m (60') boom, 650 metric ton hook block and 136,000 kg (299,820 lbs.) counterweight.

**GROUND PRESSURE**

Aver. 1.2 kg/cm<sup>2</sup> (17.1 psi)

**LUFFING JIB ATTACHMENTS**



**JIB**

Tubular T-1 steel, lattice construction, pin connected. Open throat, cross section 2,390 mm square (94" sq.) with 6 boom point sheaves on tapered tip mounted on antifriction bearings. Extendible to 73.15 m (240').

Basic length in three sections ..... 24.38 m (80')  
Base section ..... 9.14 m (30')  
1-insert ..... 6.10 m (20')  
Tip section ..... 9.14 m (30')

**JIB INSERT SECTION**

12.19m jib boom insert available.

**STRUT**

Front and rear strut are tubular T-1 steel, lattice construction, pin connected. Open throat, cross section 1,270 mm square (50" sq.), 13 m (42.7') long.

**JIB HOIST REEVING**

16 parts of balanced line. Sheaves on strut point mounted on antifriction bearings.

**GUY CABLE**

Jib suspension ..... 4 x 44 mm (1.73") dia.  
Strut suspension ..... 4 x 40 mm (1.57") dia.

**WORKING WEIGHT**

Approx. 590,000 kg (1,300,000 lbs.). Including 79.25 m (260') boom, 73.15 m (240') jib, 90 metric ton hook block and 176,000 kg (388,000 lbs.) counterweight.

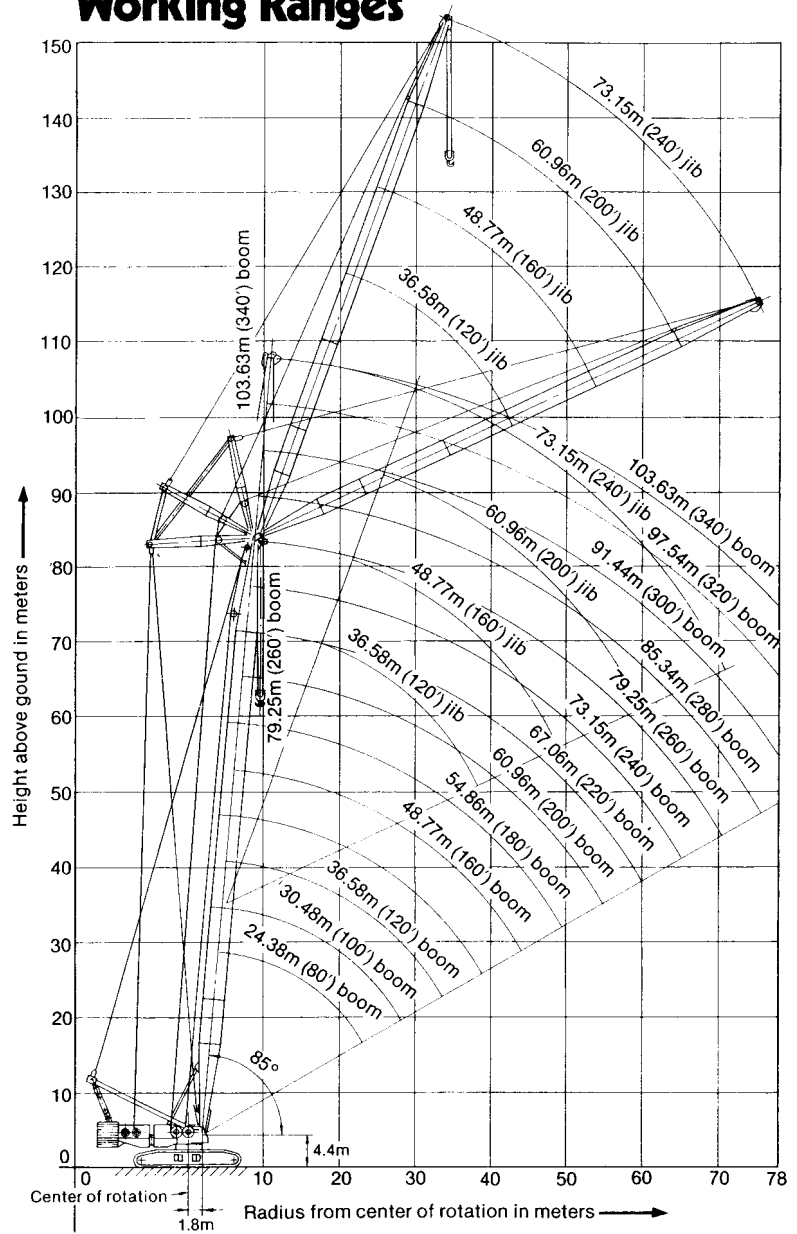
**GROUND PRESSURE**

Aver. 1.5 kg/cm<sup>2</sup> (21.3 psi)

# 650-M ton Crawler Crane

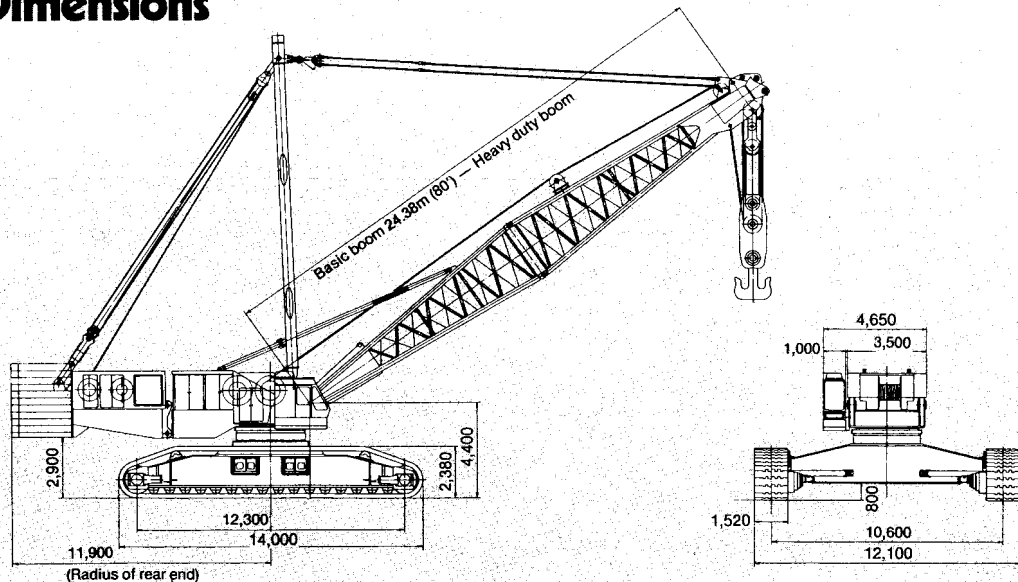
650 metric ton Crane Load  
 103.63m Boom  
 79.25m Boom + 73.15m Jib

## Working Ranges



## General Dimensions

Unit: mm



# Lifting Capacities

## RATED CRANE LOADS IN KGS — MAIN BOOM IN 360° WORK AREAS

Operating Radius in Meters	18.29m (60') Boom	24.38m (80') Boom	30.48m (100') Boom	36.58m (120') Boom	42.67m (140') Boom	48.77m (160') Boom	54.86m (180') Boom	60.96m (200') Boom	Operating Radius in Meters
6	650,000								6
7	570,000	500,000							7
8	500,000	480,000	479,000						8
9	440,000	430,000	429,000	428,000					9
10	390,000	383,600	382,300	378,000	377,000				10
12	316,000	313,400	312,000	311,000	309,000	305,500			12
14	270,000	263,000	261,700	260,300	259,400	256,500	256,000	251,500	14
16	230,000	225,000	224,000	222,600	222,100	222,000	220,100	217,700	16
18		195,300	194,600	193,300	193,000	191,400	188,300	187,000	18
20		171,500	171,100	170,000	169,600	167,400	163,700	163,100	20
22		152,000	151,800	151,000	150,200	148,100	144,200	144,000	22
24			135,800	135,200	134,200	132,200	128,400	128,200	24
26			122,200	121,800	120,900	118,900	115,200	115,000	26
28			110,500	110,400	109,400	107,600	104,100	103,800	28
30				100,500	99,300	97,900	94,700	94,200	30
34					82,600	82,000	79,300	78,500	34
38					69,600	69,600	67,500	66,300	38
42						59,700	58,000	56,500	42
46							50,300	48,500	46
50								41,800	50
54								36,100	54
Operating Radius in Meters	67.06m (220') Boom	73.15m (240') Boom	79.25m (260') Boom	85.34m (280') Boom	91.44m (300') Boom	97.54m (320') Boom	103.63m (340') Boom	Operating Radius in Meters	
16	213,000							16	
18	186,900	183,000	171,300					18	
20	162,500	161,300	159,200	149,900	134,600	127,000		20	
22	143,000	142,200	140,100	138,400	130,500	124,200	113,000	22	
24	127,100	126,600	124,400	122,800	122,100	121,400	110,900	24	
26	113,900	113,500	111,400	109,800	109,400	109,000	108,500	26	
28	102,700	102,400	100,300	98,700	98,500	98,000	97,700	28	
30	93,000	92,900	90,800	89,300	89,200	88,600	88,400	30	
34	77,500	77,400	75,300	73,800	73,800	73,200	73,000	34	
38	65,400	65,200	63,200	61,800	61,800	61,200	60,800	38	
42	55,800	55,800	53,600	52,100	52,100	51,500	51,000	42	
46	47,900	47,800	45,600	44,200	44,200	43,600	42,900	46	
50	41,300	41,200	39,000	37,600	37,600	37,000	36,100	50	
54	35,800	35,300	33,400	32,000	32,000	31,400	30,300	54	
58	31,000	30,500	28,600	27,100	27,100	26,600	25,300	58	
62		26,300	24,500	23,000	23,000	22,400	20,900	62	
66			20,800	19,300	19,300	18,700	17,100	66	
70				16,100	16,000	15,500	13,700	70	
74				13,200	13,100	12,600	10,700	74	
78					10,500	10,000	8,000	78	

OPERATION OF THIS EQUIPMENT IN EXCESS OF RATED LOADS OR DISREGARD OF INSTRUCTIONS VOIDS THE WARRANTY.