Steensby Inlet Marine Structures

Floating Construction Docks (Steensby and Milne) – Design Criteria

Mary River Project

PERMIT TO PRACTICE
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1. Introduction

Baffinland Iron Mines (BIM) plans to ship up to 18 million tonnes of iron ore per year from a new port at Steensby Inlet, Baffin island, Canada. The shipping operation will be year round, using ice breaking ore carriers.

To support the importing of goods, fuel and equipment the project will require:

- two floating construction docks and one lightering beach at the Steensby Inlet Mainland Shore
- one Floating construction dock and one lightering beach at Milne Inlet.

The function of the construction docks will be to:

- support the unloading of goods from barges and lightering barges that will unloading the goods and materials from ships
- to unload fuel during the four years of the construction of the Mary River Project.

At the end of the project life all components of the freight dock except for rockfill must be removable.

Provisions for permits are excluded from this document.

2. Construction Dock Components

In accordance with decisions from trade off studies, the following criteria has been defined.

2.1 Dock Length

The dock length is approximately 100 m. This allows for a ship of up to 200 m long to dock at the facility.

2.2 Water Depth

The minimum water depth is set at 4.0 m chart datum. This allows for a barge with 3.5 m of draft to dock at low tide.

2.3 Dock Width

Twenty-two metres minimum - sized adequately to allow for removal of goods and vehicle turn around.

2.4 Cranes

The dock will be serviced by 200 ton capacity track mounted and rubber tired mobile cranes as required.

2.5 Storage

No storage is required on the dock. Staging storage will be provided under the infrastructure design.

2.6 Ship Services and Access

- An access road will provide access to dock.
- No Services will be provided on the dock.

2.7 Deck Surface

The deck surface will be a wood plank or concrete mat.

2.8 Spill Protection

No specific measures for spill protection into the water during unloading operations will be provided in the design. See other documentation for spill protection measures.

2.9 Power / Lighting

Mobile lighting will be provided on the dock.

No Navigational lights will be placed on the dock.

2.10 Provision for Expansion

No provision will be made for future expansion.

2.11 Provision for Removable and Re-Assembled

Design and construction methods must account for removing all components in the fall and reassembling in the summer.

2.12 Provision for Winter Storage

Provision for disassemble and anchorage over the winter in the harbour ice is required.

2.13 Steensby Inlet Lightering Beach Protection

The existing Steensby Beach has been used for lightering operations and is reported to be robust with cobles and stones.

No beach protection is anticipated.

2.14 Steensby Inlet Floating Dock / Beach Protection

The existing Steensby Beach is reported to be robust with cobles and stones.

Protection will be placed on the beach to protect the barges. Protection will include mats and rockfill.

2.15 Milne Inlet Lightering Beach Protection

The existing Milne Beach has been used for lightering operations, however it is reported the shore is loose sand.

Beach protection is anticipated and will include mats (Possibly blasting mats).

2.16 Milne Inlet Floating Dock / Beach Protection

The existing Milne Beach is loose sand.

Protection will be placed on the beach to protect the barges. Protection will include mats and rock fill.

2.17 Milne Inlet Beach

The existing Milne Inlet Beach has been used for lightering operations and it is reported the sand is losses and can be damaged.

The design is to include a method of beach protection for beach lightering operations from 2013 to 2016.

3. Design Proposal

3.1 Dock Structure and Certification

The floating dock structure will be steel construction with a reinforced deck.

The floating dock barges must be **"Load Line" Certified** and carry the certification for a 4 year period.

The minimum length of barge shall be 75 metres.

The minimum width of barge shall be 22 metres.

3.2 Safety

The dock structure must comply with Federal Marine Occupational Safety Regulations and include provisions for:

- hand Rails
- vehicle Rails
- ladders
- life Rings.

3.3 Docking

Pending further study, it is recommended that docking velocity of the barges be assumed to be 150 mm/sec.

A fendering system for protection of the barge face will be provided.

3.4 Mooring

Fifteen ton stationary cleats will be located at each end of the dock and between as required, for mooring and spring lines.

3.5 Floating Dock Anchorage

The floating barge dock will anchored with a series of:

- spuds
- gravity anchors in water
- anchors on shore.

4. Design Criteria

The following design criteria will be followed for the design and construction of the floating dock.

4.1 Codes and Standards

Note: Design and construction of docks is not explicitly covered by any Canadian Standard. The proposed dock structural arrangement is more like a vessel than a building. The designers must use judgment and follow accepted practice for similar structures. Therefore the Codes and Standards listed below will be referenced, as deemed appropriate by the designers:

- American Bureau of Shipping (ABS) Rules for Building and Classing Steel Barges – 2009
- ASTM Volume 01.07 Ships and Marine Technology
- British Standards - Shipbuilding and Marine Structures Series
- Canada Shipping Act including all Transport Canada, Canada Shipping Act technical publications
- National Building Code of Canada 2005 (NBCC)
- CAN / CSA-S6-06: Canadian Highway Bridge Design Code (S6)
- CSA A23.3-04: Design of Concrete Structures (A23.3)
- CSA S-16-1: Design of Steel Structures (S16)
- Canadian Institute of Steel Construction Handbook of Steel Construction
- CAN / CSA W59 – Welded Steel Construction
- CAN / CSA G40.20/G40.21 – General Requirements for Rolled or Welded Structural.

4.2 Datum

4.2.1 Steensby Inlet

Canadian Geodetic Datum (CGD) 0.0 has been calculated to be 2.94 m. above Chart datum 0.0.

THIS INFORMATION MUST BE CONFIRMED BEFORE UNDERTAKING FINAL DESIGN.

4.2.2 Milne Inlet

Canadian Geodetic Datum (CGD) 0.0 has been calculated to be X.X m above Chart datum 0.0.

THIS INFORMATION MUST BE CONFIRMED BEFORE UNDERTAKING FINAL DESIGN.

4.3 Units

The SI (metric) system will be used.

4.4 Climatic Data (Aker Kvaerner DFS, Appendix A Unless Noted Otherwise)

4.4.1 Temperature

- Minimum temperature (2.5%): to follow
- Maximum temperature (2.5%): to follow
- Minimum mean daily temperature (S6): -46ºC
- Maximum mean daily temperature (S6): +15ºC

4.4.2 Rainfall

- Maximum (1 in 10 yrs) 15 minutes rainfall: 4 mm
- Maximum (1 in 30 yrs) 24 hours rainfall: 45 mm
- Total annual precipitation: 251 mm

4.4.3 Snow

- Ss: 1.7 kPa
- Sr: undefined

4.4.4 Harbour Ice

- Thickness (level ice): 2.0 m

4.4.5 Ice Accretion (S6)

- 12 mm

4.4.6 Wind

Hourly wind pressure:

- 1/10 probability of exceeding in a year: undefined
- 1/50 probability of exceeding in a year: 0.66 kPa

4.4.7 Water Characteristics, Steensby Inlet

- Water: saline
- Tides: yes, semi-diurnal
- High high tide level: el. +4.8 m CD
- High tide level: el. +4.3 m CD
- Low tide level: el. +0.2 m CD
- Low low tide level: el. 0.0 m CD
- Current: Predominantly tidal, see separate report

- Waves: see separate report.

4.4.8 Water Characteristics, Milne Inlet

- Water: saline
- Tides: yes, semi-diurnal
- High high tide level: el. +2.5 m CGC (large tide)
- High tide level: el. +2.2 m CGC (mean tide)
- Low tide level: el. +0.2 m CGC (mean tide)
- Low low tide level: el. +0.0 m CGC (large tide)

4.5 Geotechnical

4.5.1 Site Conditions – Steensby Inlet

Detailed site stratigraphy investigation and existing soil properties is pending.

Previous investigations has indicated a site stratigraphy as follows:

- approximately 0.0 m – 0.5 m of soft material at shore
- approximately 0.5 m – 2.0 m of sand (soft material) at -4.0 Chart Datum

4.5.2 Site Conditions – Milne Inlet

Site existing soil properties is pending.

Previous investigations has indicated a site stratigraphy as follows:

- loose to dense sand at surface
- dense sand at depths of 2 m plus.

4.5.3 Fill / Rockfill Specifications

Pending results of geophysical and geotechnical investigations, parameters for fill at shore is as shown in Table 4.1:

Table 4.1 Rockfill Specifications

Select Rock Fill	Sieve Size (mm)	Passing (mm)
	150	100
	100	75 – 100
	25	25 – 50
	5	5 - 20

4.6 Docking Design Vessels

The docking design vessel considered as a base for the design of the dock is a generic 10,000 DWT Barge. Its characteristics are shown in Table 4.2.

Table 4.2: Design Ship Characteristics

Name	Lightering Barge
Length overall (m)	75
Beam (m)	25
Deadweight tons (DWT)	10,000
Draft (m)	3.5
Displacement Tons	N/A
Estimated Cargo (MT)	10,000

5. Design Loads

5.1 Dead Loads

- Reinforced concrete 24 kN/m^3
- Steel 77 kN/m^3

5.2 Operations Loads

On the dock:

- *200* t capacity rubber tired mobile crane, unfactored outrigger load: 1,200 kN (to be confirmed)
- unfactored surcharge on deck: 60 kPa
- see Appendix A and Appendix B for additional equipment loads

5.3 Crane Load

See above.

5.4 Docking Forces

- Displacement: 10,000 t.
- Docking speed for barge approaching at 5 degrees: 0.15 m/s.
- Kinetic energy to be absorbed by dock and fenders: Approximately 500 kN-m.

5.5 Mooring Forces

- Tying forces: 15 t/cleats

5.6 Ice Loads

N/A during summer shipping season.

5.7 Lateral Push-Off Force

N / A

5.8 Sound Control

Refer to Environmental Studies.

5.9 Marine Siltation Control

All components of the dock construction will be completed inside a siltation curtain placed from surface to harbour bottom.

5.10 Attenuation of Marine Noise / Vibration

N / A

5.11 Steel Corrosion

- The water is sea water.
- Loss of metal to corrosion is estimated at 0.1 mm per year.

5.12 Construction Procedures

To be considered as it affects the design:

- Site preparation – excavation and rockfill along shore line as required.
- Operation Schedule – summer open water period July 15 to October 15.

Appendix A:
Equipment Unloaded at Steensby Construction Docks

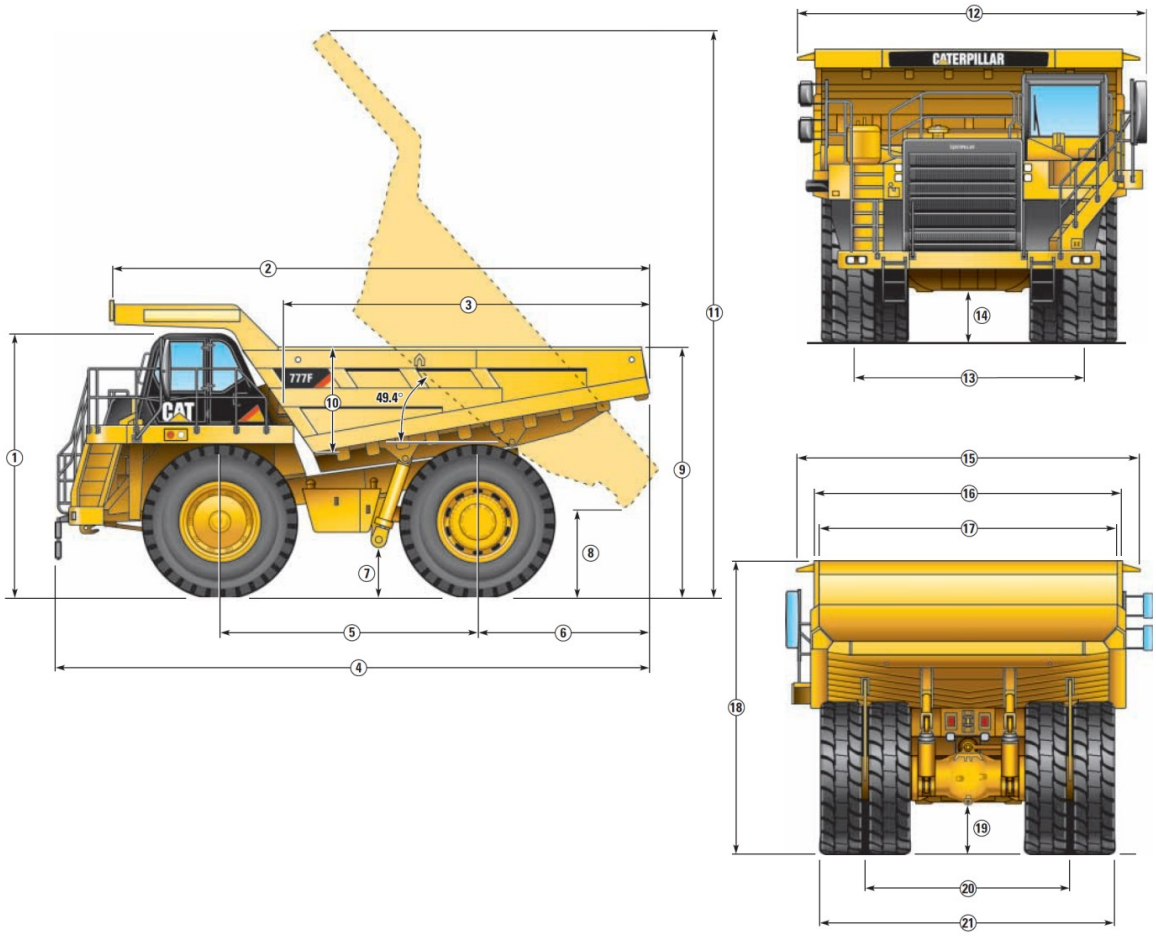
Table A-1: Largest Piece of Equipment Passing Over the Steensby Floating Construction Dock(s)

Equipment Description	Number of Units	Dimensions (m)			Weight	Year		Comments
PM503		L	W	H	(kg)	2012	2013	
Construction Equipment								
777 Rock/Haul Truck	-	10.53	5.22	5.2	163,293	X	X	See Figure 1, Figure 2, Figure 3
DEMAG 450t crane	-	8	2.99	3	120,000	X	X	See Figure 4
Bull Dozer	-	5.7	3.7	4.4	66,451	X	X	See Figure 5, Figure 6

Figure A-1: 777F Off-Highway Truck, page 1

Dimensions

All dimensions are approximate.



1	Height to top of ROPS	4715 mm	15 ft 6 in
2	Overall Body Length	9830 mm	32 ft 3 in
3	Inside Body Length	6580 mm	21 ft 7 in
4	Overall Length	10 535 mm	34 ft 7 in
5	Wheelbase	4560 mm	15 ft
6	Rear Axle to Tail	3062 mm	10 ft 1 in
7	Ground Clearance	896 mm	2 ft 11 in
8	Dump Clearance	965 mm	3 ft 2 in
9	Loading Height – Empty	4380 mm	14 ft 4 in
10	Inside Body Depth – Max	1895 mm	6 ft 3 in
11	Overall Height – Body Raised	10 325 mm	33 ft 11 in

12	Operating Width	6494 mm	21 ft 4 in
13	Centerline Front Tire Width	4050 mm	13 ft 3 in
14	Engine Guard Clearance	864 mm	2 ft 10 in
15	Overall Canopy Width	6050 mm	19 ft 10 in
16	Outside Body Width	5524 mm	18 ft 2 in
17	Inside Body Width	5200 mm	17 ft 1 in
18	Front Canopy Height	5170 mm	17 ft
19	Rear Axle Clearance	880 mm	2 ft 11 in
20	Centerline Rear Dual Tire Width	3576 mm	11 ft 9 in
21	Overall Tire Width	5223 mm	17 ft 2 in

Figure A-2: 777F Off-Highway Truck, page 2

Weight/Payload Calculation

(Example)

	Dual Slope					
	No Liner		Steel Liner (16 mm)		Rubber Liner (102 mm)	
Target Gross Machine Weight*	163 293 kg	360,000 lb	163 293 kg	360,000 lb	163 293 kg	360,000 lb
Empty Chassis Weight*	48 008 kg	105,839 lb	48 008 kg	105,839 lb	48 008 kg	105,839 lb
Body Weight	16 420 kg	36,200 lb	16 420 kg	36,200 lb	16 420 kg	36,200 lb
Body Liner	—	—	5767 kg	12,714 lb	6766 kg	14,914 lb
Empty Machine Weight	64 428 kg	142,039 lb	70 195 kg	154,753 lb	71 194 kg	156,953 lb
Attachments**	—	—	—	—	—	—
Fuel Tank Size	1136 L	300 gal	1136 L	300 gal	1136 L	300 gal
Fuel Tank – 90% fill	861 kg	1,898 lb	861 kg	1,898 lb	861 kg	1,898 lb
Debris Allowance	1921 kg	4,234 lb	1921 kg	4,234 lb	1921 kg	4,234 lb
Empty Operating Weight**	67 210 kg	148,173 lb	72 977 kg	160,885 lb	73 976 kg	163,085 lb
Target Payload*	96 083 kg	211,827 lb	90 316 kg	199,115 lb	89 317 kg	196,915 lb
Target Payload*	**96.1 tonnes**	**105.9 tons**	**90.3 tonnes**	**99.5 tons**	**89.3 tonnes**	**98.5 tons**

* Refer to the Caterpillar 10/10/20 overload policy
** Includes weight of all attachments

Figure A-3: 777F Off-Highway Truck, page 3

Gradeability/Speed/Rimpull

To determine gradeability performance: Read from gross weight down to the percent of total resistance. Total resistance equals actual percent grade plus 1% for each 10 kg/t (20 lb/ton) of rolling resistance. From this weight-resistance point, read horizontally to the curve with the highest obtainable gear, then down to maximum speed. Usable rimpull will depend upon traction available and weight on drive wheels.

Direct Drive
Torque Converter Drive
E – Typical Field Empty Weight
L – Target Gross Machine Operating Weight 163 293 kg (360,000 lb)

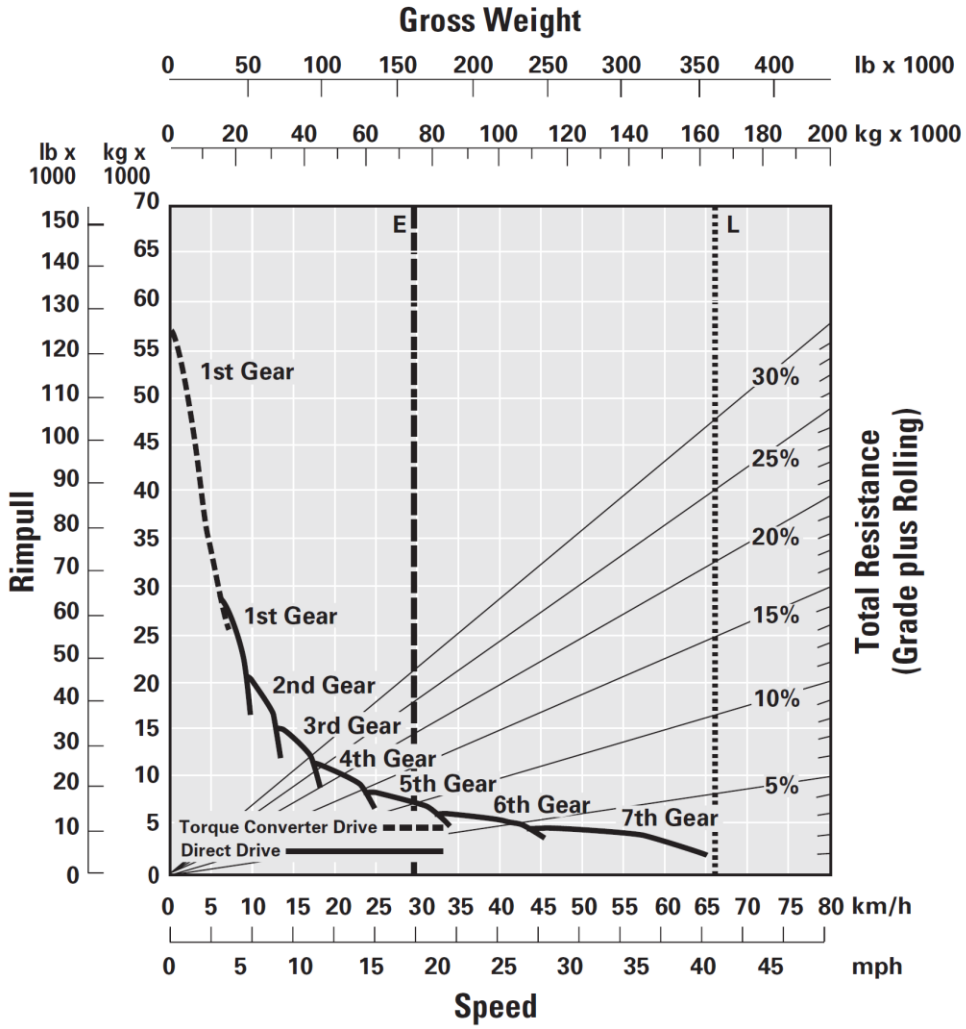


Figure A-4: DEMAG 450t crane

Sell used crawler crane 450 ton , used DEMAG crane Page 1 of 2

EC21 Global B2B Marketplace

Sell used crawler crane 450 ton , used DEMAG crane

Total 18 Related Items < Prev Next >

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Date Posted : 2011/08/07
Category : General Industrial Equipment > Material Handling Equipment > Cranes
Offer Type : Sell
Add to Basket Inquire Now >

Henan Anpu Construction Machinery Co., Ltd

Membership Type : Free member
Registration Date : 2008-07-15
Country/Region : China
Address : middle of anpu road Anyang Henan, China
Phone : 86-1593-7218369
Fax : 86-null-null
Contact : wangyong

View all selling leads of this member(18)
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Order Credit Report

used crawler Crane DEMAG 450t in good working condition
(used crawler crane 450 ton , used DEMAG crane)
Brand: Demag Model: CC2500 Capacity:450ton Year:2004 Origin:Germany
Technical data
Maximum lifting capacity/radius: 500t at 9m
Superstructure engine: DaimlerChrysler OM 501 LA (315 kW / 420 HP)
Track width: 7,8 m Pad width: 1,2 / 1,0 / 1,5 m
Maximum transport width: 2,99 m Maximum counterweight: 120 t
Central ballast: 40t Superlift counterweight: 250t
Superlift counterweight center:20m Main boom SH: 24 - 84 m
Main boom SHLH: 42 - 108 m Main boom SSL: 36 - 84 m
Main boom SSLULSL: 78 - 126 m
Fixed fly jib LF: 12 - 36 m, max. combination: 126 + 36 = 162 m
Luffing fly jib SW: 24 - 72 m, max. combination: 72 + 72 = 144 m
Luffing fly jib SWSL: 24 - 84 m, max. Kombination: 84 + 84 = 168 m
In perfect working condition

Our company welcome to contact us with requirement, and establish long cooperation with your esteemed company

Contact: Mr. Wang (speaking english)
Mobile Phone: 0086-18030069266 0086-15937218369
E-mail: yinfuchina(at)yahoo.com.cn
MSN: yinfuchina(at)live.cn
SKYPE:yinfuchina
Henan Yinfu Construction Machinery Co., Ltd
Address: anyang City, Henan Province, China

Related Keywords: cranes, crawler cranes, demag cranes, 450Tons cranes

Other Selling Leads of this member (17 more)

Sell 30T Used TADANO TL300E TRUCK HYDRAULIC CRANE
30T Used TADANO TL300E TRUCK HYDRAULIC CRANES Make:TADANO Model:TL300E YEAR:2000 Capacity:30T Nissan engine and chassis 4-section Boom Jib Length:15m Working hours:2159H Travelled distance:2873km Gross weight:29640kg Dimensions:11855*35...

Sell 50T TADANO TR500M-2-00103 ROUGH TERRAIN CRANE
55T TADANO TR500M-2-00103 ROUGH TERRAIN CRANE ORIGINAL JAPAN Origin: Japanese Year:2005 Capacity: 55ton, 2.5 meters radius CARRIER MODEL: NISSAN PF6T 290 PS boom: 9.7 ~ 41.2 meters Maximum angle: 83 ° JIB: 7.8 ~ 12.5 meters w/o winch ho...

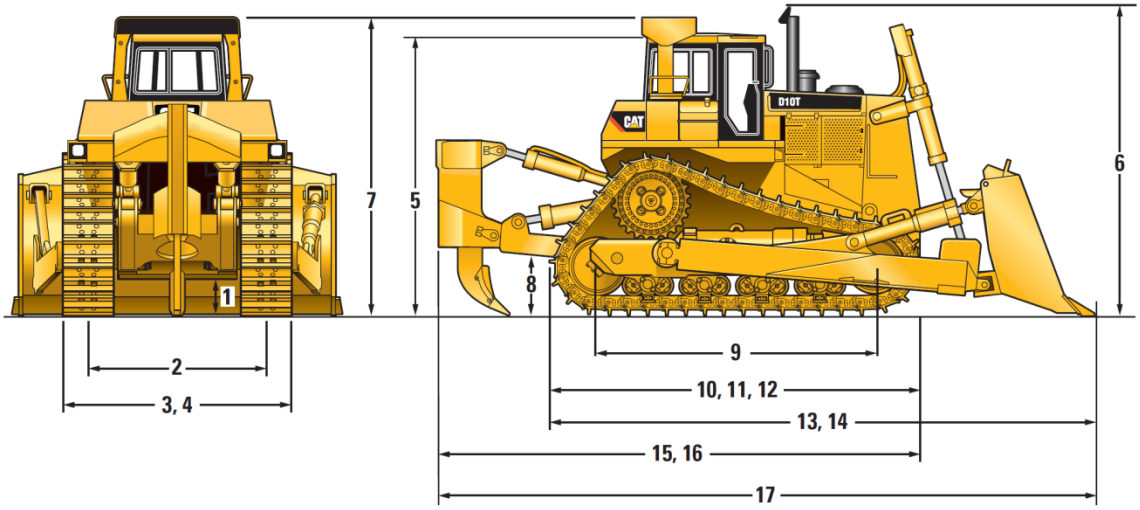
http://www.ec21.com/offer_detail/Sell_used_crawler_crane_450--8955997.html 8/12/2011

Figure A-5: D10T Track-Type Tractor Specifications, page 1

D10T Track-Type Tractor Specifications

Dimensions

All dimensions are approximate.



1	Ground Clearance	664 mm	26.1 in
2	Track Gauge	2550 mm	100.4 in
3	Width without Trunnions (Standard Shoe)	3292 mm	129.6 in
4	Width Over Trunnions	3736 mm	147.1 in
5	Height (FOPS Cab)	4098 mm	161.3 in
6	Height (Top of Stack)	4505 mm	177.4 in
7	Height (ROPS/Canopy)	4354 mm	171.4 in
8	Drawbar Height (Center of Clevis)	864 mm	34.0 in
9	Length of Track on Ground	3872 mm	152.4 in
10	Overall Length Basic Tractor	5339 mm	210.2 in
11	Overall Length Basic Tractor (with Drawbar)	5659 mm	222.8 in
12	Overall Length Basic Tractor with Winch	5744 mm	226.1 in
13	Length with SU-blade	7416 mm	292.0 in
14	Length with U-blade	7750 mm	305.1 in
15	Length with Single-Shank Ripper	7081 mm	278.8 in
16	Length with Multi-Shank Ripper	7241 mm	285.1 in
17	Overall Length (SU Blade/SS Ripper)	9158 mm	360.6 in

Figure A-6: D10T Track-Type Tractor Specifications, page 2

Blades

Type	10SU	
Capacity (SAE J1265)	18.5 m^3	24.2 yd^3
Width (over end bits)	4860 mm	15 ft 11 in
Height	2120 mm	6 ft 11 in
Digging Depth	674 mm	26.5 in
Ground Clearance	1497 mm	58.9 in
Maximum Tilt	993 mm	39.1 in
Weight* (without hydraulic controls)	10 229 kg	22,551 lb
Total Operating Weight** (with Blade and Single-Shank Ripper)	66 451 kg	146,499 lb
Type	10U	
Capacity (SAE J1265)	22 m^3	28.8 yd^3
Width (over end bits)	5260 mm	17 ft 3 in
Height	2120 mm	6 ft 11 in
Digging Depth	674 mm	26.5 in
Ground Clearance	1497 mm	58.9 in
Maximum Tilt	1074 mm	42.3 in
Weight* (without hydraulic controls)	10 784 kg	23,775 lb
Total Operating Weight** (with Blade and Single-Shank Ripper)	67 006 kg	147,723 lb

*Includes blade tilt cylinder.
Add 840 kg (1,852 lb) for 10SU ABR blade.
Add 1629 kg (3,591 lb) for 10U ABR blade.

**Total Operating Weight: Includes hydraulic controls, blade tilt cylinder, coolant, lubricants, 100% fuel, ROPS, FOPS cab, Blade, Single-Shank Ripper, 610 mm (24 in) ES shoes, and operator.

Rippers

Type	Single-Shank, Adjustable Parallelogram	
Added Length	1760 mm	5 ft 9 in
Number of Pockets	1	
Maximum Clearance Raised (under tip, pinned in bottom hole)	1058 mm	41.7 in
Maximum Penetration (standard tip)	1494 mm	58.8 in
Maximum Penetration Force (shank vertical)	205 kN	46,086 lb
Pry out Force	415.3 kN	93,363 lb
Weight (without hydraulic controls)	7117 kg	15,690 lb
Total Operating Weight* (with SU-Blade and Ripper)	66 451 kg	146,499 lb
Type	Multi-Shank, Adjustable Parallelogram	
Number of Pockets	3	
Added Length	1760 mm	5 ft 10 in
Overall Beam Width	2920 mm	115 in
Maximum Clearance Raised (under tip, pinned in bottom hole)	1045 mm	41.1 in
Maximum Penetration (standard tip)	876 mm	34.5 in
Maximum Penetration Force (shank vertical)	205 kN	46,086 lb
Pry out Force (Multi-Shank Ripper with one tooth)	415.3 kN	93,363 lb
Weight (one shank, without hydraulic controls)	7968 kg	17,566 lb
Additional Shank	526.2 kg	1,160 lb
Total Operating Weight* (with SU-Blade and Ripper)	67 302 kg	148,375 lb

*Total Operating Weight: Includes hydraulic controls, blade tilt cylinder, coolant, lubricants, 100% fuel, ROPS, FOPS cab, SU-Blade, Ripper, 610 mm (24 in) ES shoes, and operator.

Winches

Winch Model	Consult your Cat Dealer for installation arrangements.

Standards

- ROPS (Rollover Protective Structure) offered by Caterpillar for the machine meets ROPS criteria SAE J1040 MAY94, ISO 3471:1994.
- FOPS (Falling Object Protective Structure) meets SAE J/ISO 3449 APR98 Level II, and ISO 3449:1992 Level II.
- The operator Equivalent Sound Pressure Level (Leq) is 80 dB(A) when "ISO 6396:2008" is used to measure the value for an enclosed cab. This is a dynamic cycle sound exposure level. The cab was properly installed and maintained. The test was conducted with the cab doors and the cab windows closed.
- The exterior sound pressure level for the standard machine measured at a distance of 15 meters according to the test procedures specified in SAE J88 APR95, mid-gear-moving operation, is 92 dB(A).

Appendix B:
Equipment Unloaded at Milne Construction Docks

Table B-1: Largest Piece of Equipment Passing Over the Milne Floating Construction Dock(s)

Equipment Description	Number of Units	Dimensions (m)			Weight	Year				Comments
PM503		L	W	H	(kg)	2012	2013	2014	2015	
Mine Trucks (fleet)										
Liebherr T282 AC drive haul truck (400t)	-	14.5	8.8	7.5	214,000		X	X		See Figure 1, Figure 2
Mine Shovels										
Terex RH340 Shovel-Superstructure centre frame	-	10.5	3.6	3.45	62,700		X	X		-
Material Handling Equipment										
Reclaimer Undercarriage, complete with bogies wheels and equalizers	2	30	16	9	522,000			X		See Figure 4, Figure 5
Stacker cwt boom section	3	30	14	7	280,000				X	See Figure 7
Reclaimer boom with mechanicals	2	60	6.4	3.8	180,000				X	See Figure 7
Stacker Boom with mechanicals	5	50	6.4	3.2	140,000				X	See Figure 7
Stacker Tripper Car gallery c/w mechanicals	4	60	3.5	2.3	120,000				X	See Figure 7
Bucket Wheel Complete	2	11.5	11.5	11.5	85,000				X	See Figure 6
Construction Equipment										
777 Rock/Haul Truck	-	10.53	5.22	5.2	163,293	X	X			See Figure 9, Figure 10, Figure 11
DEMAG 450t crane	-	8	2.99	3	120,000	X	X			See Figure 12
Bull Dozer	-	5.7	3.7	4.4	66,451	X	X			See Figure 13, Figure 14

Figure B-1: Technical Data for Liebherr T282 AC drive haul truck (400t) page 1

Technical Data

Frame

Design	Closed box structure with multiple torque tube cross members, internal stiffeners and integrated front bumper. Steel castings are used in high stress areas.
Welding	Frame girders welded inside and out with ultrasonic inspection aligned with AWS D1.1

Cab

Deluxe cab with integrated ROPS and double wall design for optimum insulation. Fully adjustable air suspension operator seat with double lumbar support and full size second seat for training requirements. Operator comfort controls include a tilt and telescoping steering wheel, heater, defroster and standard AC. Real-time vital truck information is easily displayed to the operator and also recorded for download.

Sound

Designed to meet ISO, OSHA and MSHA occupational noise criteria for truck operator weighted sound exposure.

Weights

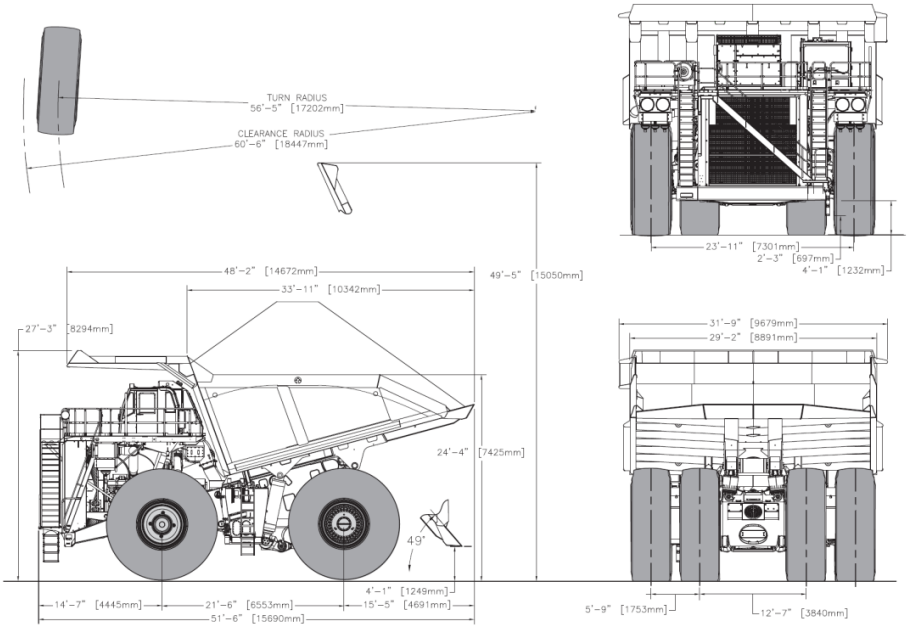
Payload	363 t / 400 ton
Gross Vehicle Weight (GVW)	600 t / 661 ton
Chassis weight *	194 t / 214 ton
Body weight	Custom for each mine site
Frame capacity **	406 t / 447 ton
Weight distribution	Empty – front 46 % / rear 54 % Loaded – front 33 % / rear 67 %

* depends on options fitted
** total weight of body and payload, subject to chassis weight

Fluid Capacities

Fuel tank	6813 L / 1800 gal
Hydraulic dump circuit	
- Tank	1.302 L / 344 gal
- System	1.514 L / 400 gal
Hydraulic brake and steering	
- Tank	924 L / 244 gal
- System	1.060 L / 280 gal
Planetary gear sets, each (2)	280 L / 74 gal
Front wheels, each (2)	60 L / 16 gal
Grease tank	90 kg / 200 lbs

Dimensions



Note: All measurements assuming unloaded using 56/80R63 tires. Loading height dependant on final dump body design

Figure B-2: Technical Data for Liebherr T282 AC drive haul truck (400t), page 2

Technical Data

Engine

Model	**MTU DD 20V4000 Tier II**
Gross horsepower @ 1,800 rpm	2.800 kW / 3,750 hp
No. of cylinders	20
Displacement	95,4 L / 5,822 in³
Wet weight	12.020 kg / 26,500 lbs
Crankcase	335 L / 88 gal
Cooling system	758 L / 200 gal
Model	**Cummins QSK 78**
Gross horsepower @ 1,900 rpm	2.610 kW / 3,500 hp
No. of cylinders	18
Displacement	78 L / 4,735 in³
Wet weight	11.300 kg / 24,912 lbs
Crankcase	295 L / 78 gal
Cooling system	721 L / 191 gal
Fan clutch (optional)	Variable speed, temperature controlled
Air cleaners	Two units with 2 elements per unit with electronic restriction monitoring in the cab
Radiator	Mesabi
Starter	Electric
Roll out power module	Radiator, engine and alternator, mounted on roll out sub frame
Batteries	6 x 12 Volt, (3 series of 2), 1,200 CCA each at -18° C (0° F), 1,475 CCA at 0° C (32° F)

Electric Drive System

Manufacturer	Liebherr - Litronic Plus AC Drive System (IGBT)
Traction alternator	AC brushless, direct drive
Traction motors	Litronic Plus AC Induction Motors (2)
Gear ratio	Standard 43.7 to 1 - haul profile dependant Optional 37.33 to 1 - haul profile dependant
Max speed	Standard 54 km/h / 34 mph Optional 64 km/h / 40 mph
Cooling fan	Electric cooling motor with twin impeller radial fan (75 kW / 100 hp)

Tires

Rims	41" x 63" bolt on rims
Tires	Michelin 56/80 R63 or Bridgestone 59/80 R63

Suspensions

Front suspension	Double A-frame with inclined king pin design pivot and spindle
Rear suspension	Three bar linkage comprised of triangular upper link plus two bottom drag links
Suspension struts	Nitrogen over oil with integral damping

Braking Systems

Electric dynamic braking with continuous rating, fan forced air over stainless steel resistor grids with a dry disc emergency braking system.

Electric dynamic braking	Max: 4.480 kW / 6,030 hp
Extended speed range	Full dynamic braking down to 0,8 km/h / 0.5 mph. Automatic brake blending with service brakes down to zero
Dynamic braking speed control	Operator adjustable and will automatically slow the truck on downhill grade
Two speed over speed	Automatic speed settings for empty and loaded truck adjustable for site requirements
Slip slide traction control	Computer controlled, propel and dynamic braking, forward and reverse, fully independent left and right
Service brakes front	Single disc, wheel speed, five calipers per wheel
Service brakes rear	Dual discs per side, one caliper per disc, armature speed
Hydraulic accumulators	2 x 7,6 L / 2 gal, separate accumulator for front and rear axle
Park brakes	Spring applied, pressure released, one caliper per each rear disc
Filtration	Cleanliness level ISO 18/16/13

Steering

Ackermann center point lever system. Full hydraulic power steering with accumulator safety backup. Fully separate from dump hydraulic system. Two double acting hydraulic cylinders.

Hydraulic accumulator	170 L / 45 gal SAE J53
Filtration	Cleanliness level ISO 18/16/13
Turning radius (SAE) – Tire centerline*	17,2 m / 56' 5"
Vehicle clearance Radius	18,45m / 60' 6"

* This is a theoretical calculation and depends on the ground surface, the strut length and tie rod length.

Dump System

Two double stage, double acting hoist cylinders with inter stage and end cushioning in both directions. Electronic joystick with full modulating control in both extend and retract.

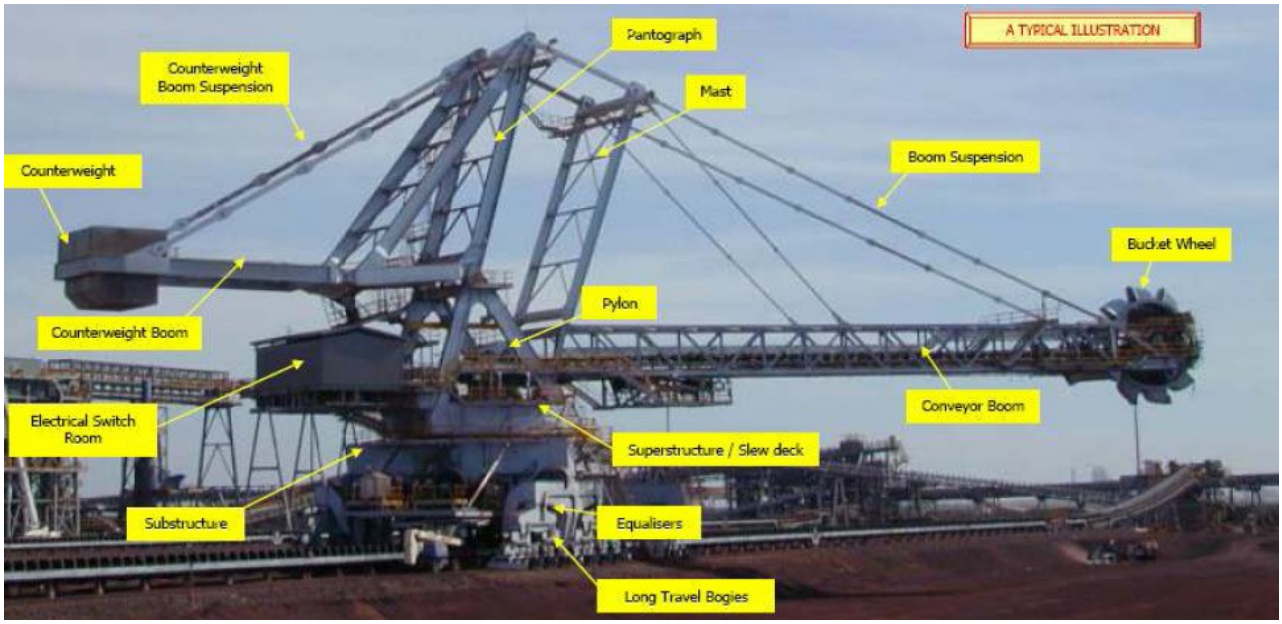
Dump angle	49° (45° with optional kick-out switch)
Cycle times	< 50 seconds
Remote dump	Quick disconnects for external power dumping (buddy dump) accessible from ground level
Filtration	High pressure filtration and return line filtration. Cleanliness level ISO 18/16/13

Body

Body sizes are custom designed to fit customer requirements and specific applications.

As shown in Figure B-3, there are many components to the Bucket Wheel Reclaimer. The main components include; Bucket Wheel, Superstructure (undercarriage), Counterweight and Conveyor boom. These components are shown below in images and drawings.

Figure B-3: Bucket Wheel Reclaimer



The Undercarriage for the Bucket Wheel Reclaimer is shown in Figure B-4 with the bogies, wheels and equalizers attached. Figure B-5 shows the bogie assembly.

Figure B-4: Bucket wheel Reclaimer Under Carriage with bogies, wheels and equalizers

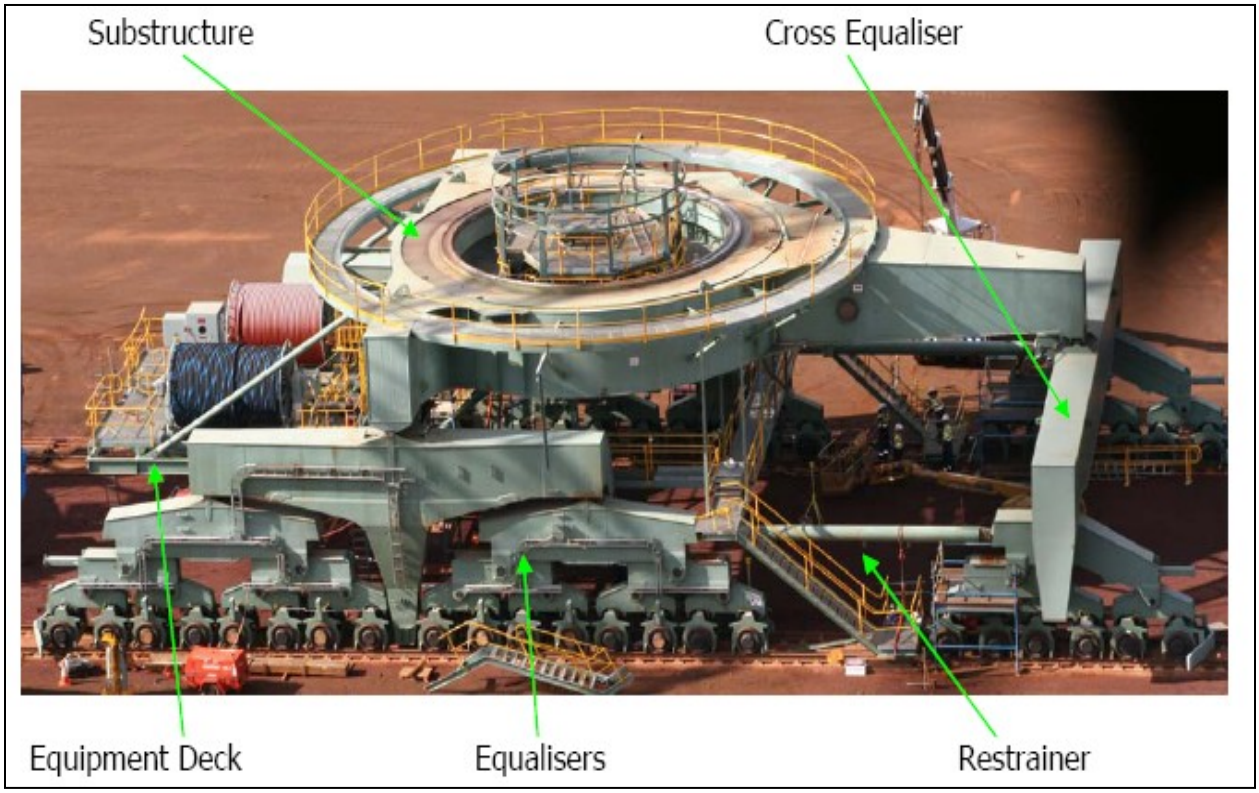
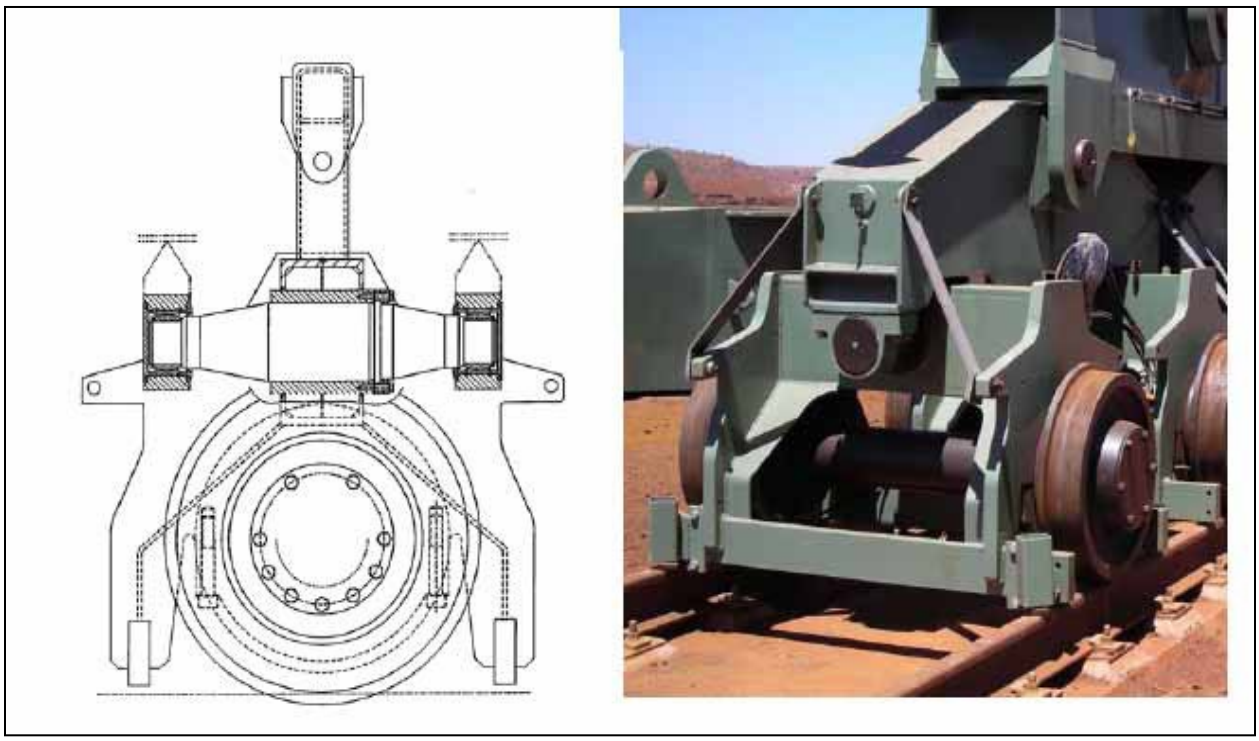


Figure B-5: Bogie Assembly



Shown in Figure B-6, is the Bucket Wheel Assembly which is one of the main components on the Bucket Wheel Reclaimer.

Figure B-6: Bucket Wheel Assembly

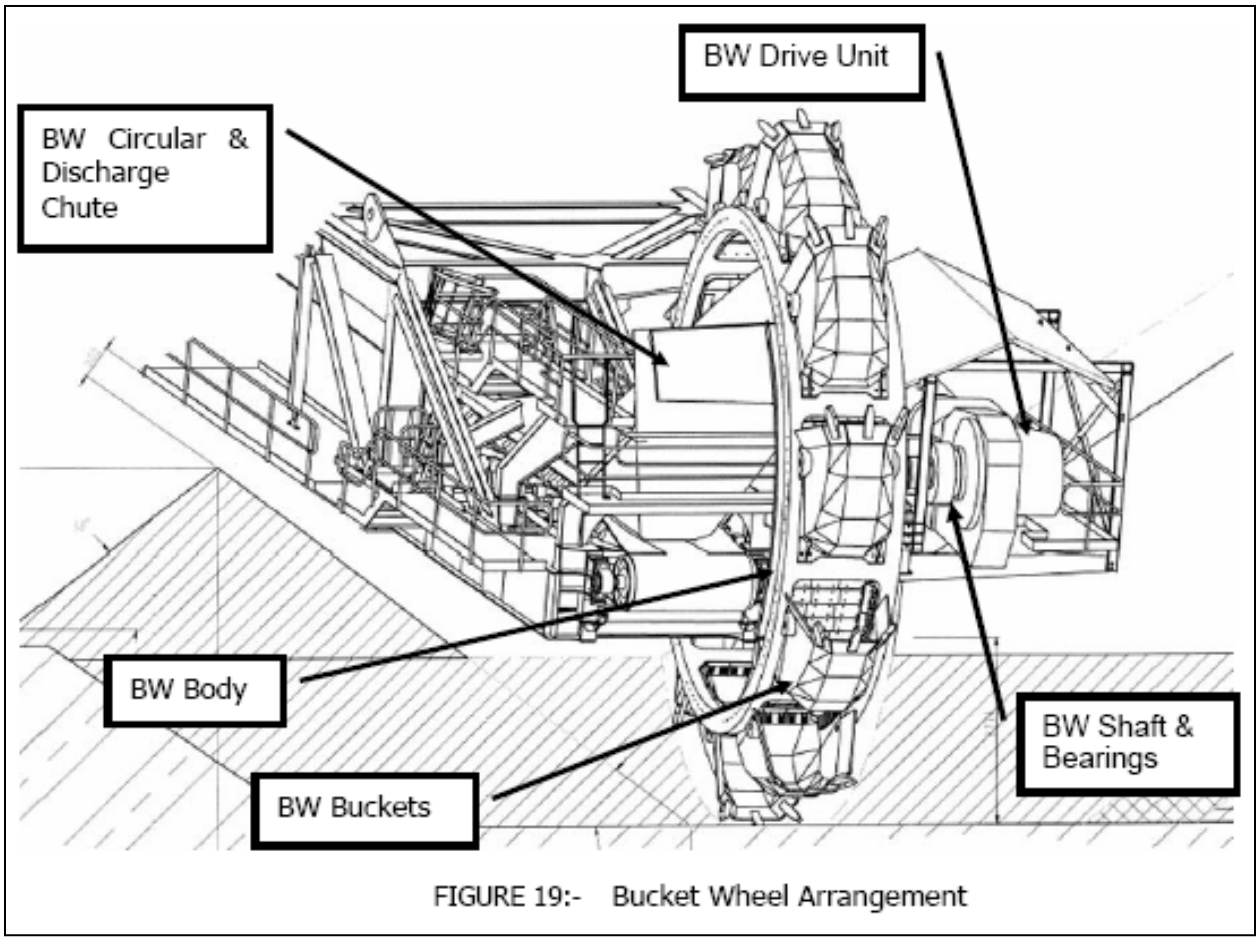


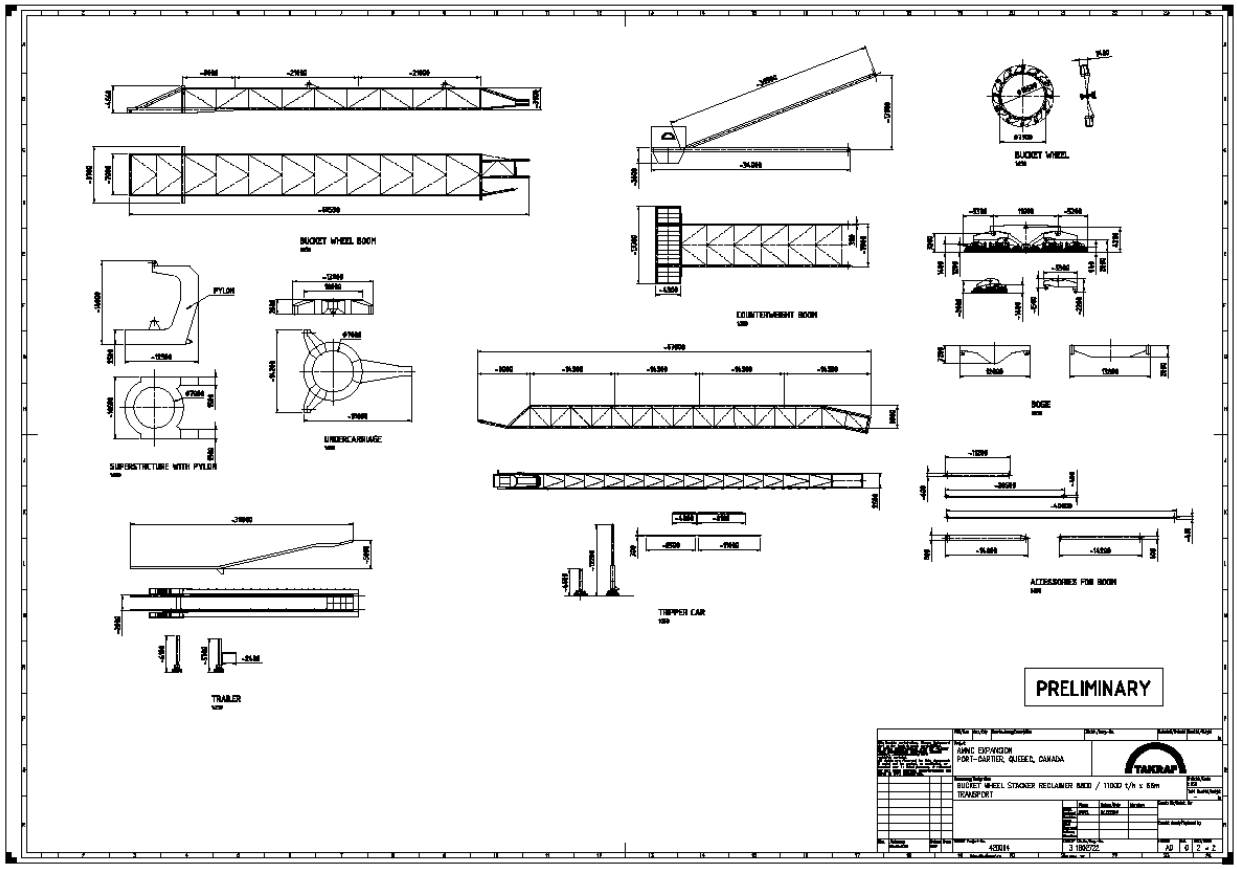
FIGURE 19:- Bucket Wheel Arrangement

All of the components mentioned in Table B-1, are shown below in Figure B-7.

Figure B-7 includes which corresponds with Table B-1:

1. Bogie
2. Counterweight Boom
3. Bucket Wheel with Boom
4. Bucket Wheel without Boom
5. Trailer and Tripper Car
6. Bucket Wheel

Figure B-7: Bucket Wheel Stacker Reclaimer 8800 / 11000 t/h x 66m Transport, page 2



In Figure B-8, are the components that are mentioned in Figure B-6 and complied together to form the Bucket Wheel Reclaimer, also shown in Figure B-3.

Figure B-8: Bucket Wheel Stacker Reclaimer 8800 / 11000 t/h x 66m Transport, page 1

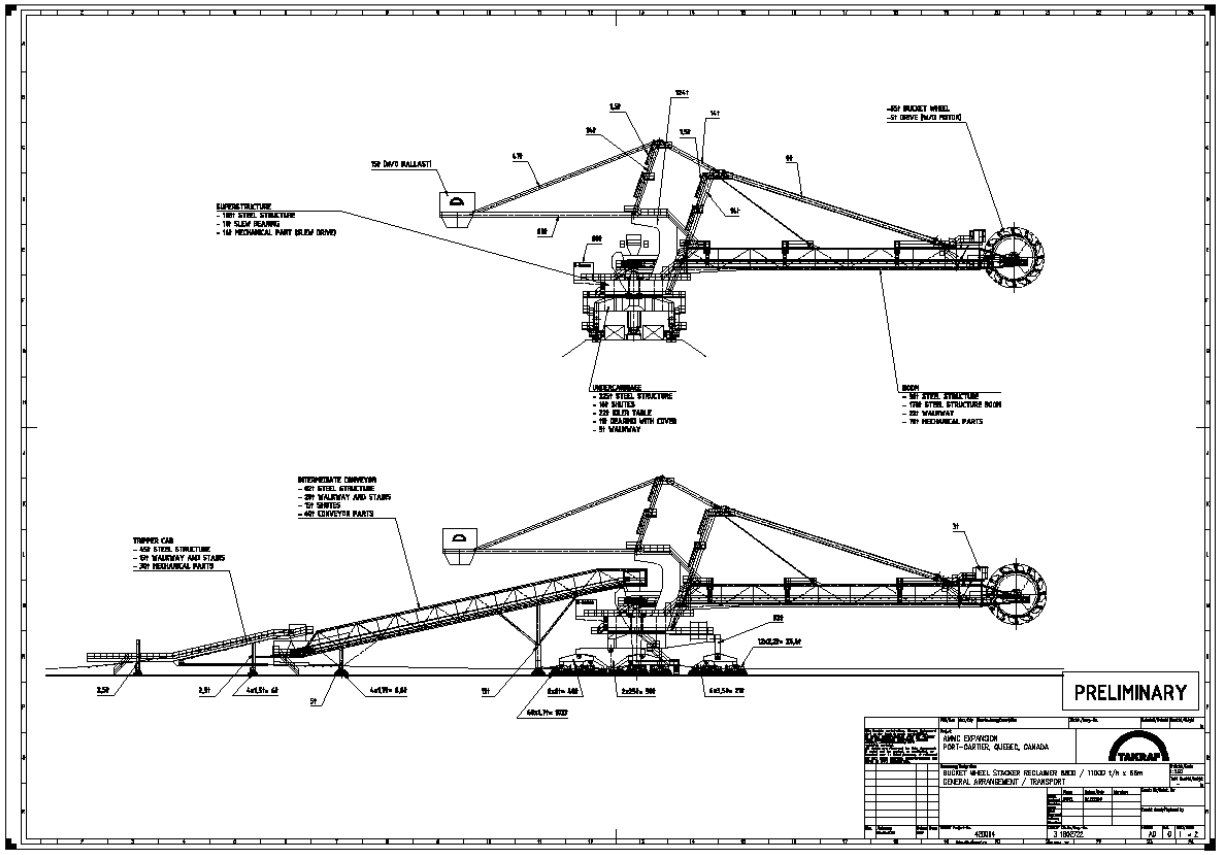
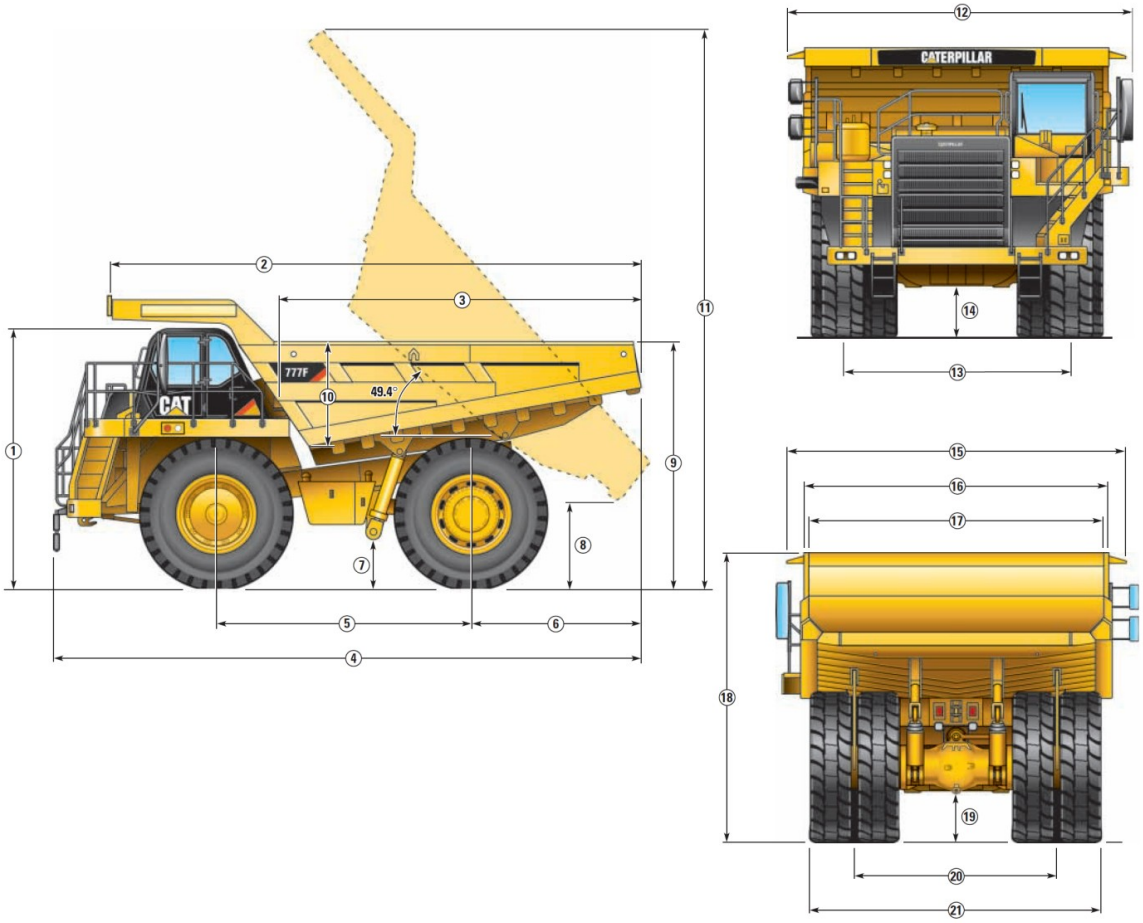


Figure B-9: 777F Off-Highway Truck, page 1

Dimensions

All dimensions are approximate.



1	Height to top of ROPS	4715 mm	15 ft 6 in
2	Overall Body Length	9830 mm	32 ft 3 in
3	Inside Body Length	6580 mm	21 ft 7 in
4	Overall Length	10 535 mm	34 ft 7 in
5	Wheelbase	4560 mm	15 ft
6	Rear Axle to Tail	3062 mm	10 ft 1 in
7	Ground Clearance	896 mm	2 ft 11 in
8	Dump Clearance	965 mm	3 ft 2 in
9	Loading Height – Empty	4380 mm	14 ft 4 in
10	Inside Body Depth – Max	1895 mm	6 ft 3 in
11	Overall Height – Body Raised	10 325 mm	33 ft 11 in

12	Operating Width	6494 mm	21 ft 4 in
13	Centerline Front Tire Width	4050 mm	13 ft 3 in
14	Engine Guard Clearance	864 mm	2 ft 10 in
15	Overall Canopy Width	6050 mm	19 ft 10 in
16	Outside Body Width	5524 mm	18 ft 2 in
17	Inside Body Width	5200 mm	17 ft 1 in
18	Front Canopy Height	5170 mm	17 ft
19	Rear Axle Clearance	880 mm	2 ft 11 in
20	Centerline Rear Dual Tire Width	3576 mm	11 ft 9 in
21	Overall Tire Width	5223 mm	17 ft 2 in

Figure B-10: 777F Off-Highway Truck, page 2

Weight/Payload Calculation

(Example)

	Dual Slope					
	No Liner		Steel Liner (16 mm)		Rubber Liner (102 mm)	
Target Gross Machine Weight*	163 293 kg	360,000 lb	163 293 kg	360,000 lb	163 293 kg	360,000 lb
Empty Chassis Weight*	48 008 kg	105,839 lb	48 008 kg	105,839 lb	48 008 kg	105,839 lb
Body Weight	16 420 kg	36,200 lb	16 420 kg	36,200 lb	16 420 kg	36,200 lb
Body Liner	—	—	5767 kg	12,714 lb	6766 kg	14,914 lb
Empty Machine Weight	64 428 kg	142,039 lb	70 195 kg	154,753 lb	71 194 kg	156,953 lb
Attachments**	—	—	—	—	—	—
Fuel Tank Size	1136 L	300 gal	1136 L	300 gal	1136 L	300 gal
Fuel Tank – 90% fill	861 kg	1,898 lb	861 kg	1,898 lb	861 kg	1,898 lb
Debris Allowance	1921 kg	4,234 lb	1921 kg	4,234 lb	1921 kg	4,234 lb
Empty Operating Weight**	67 210 kg	148,173 lb	72 977 kg	160,885 lb	73 976 kg	163,085 lb
Target Payload*	96 083 kg	211,827 lb	90 316 kg	199,115 lb	89 317 kg	196,915 lb
Target Payload*	**96.1 tonnes**	**105.9 tons**	**90.3 tonnes**	**99.5 tons**	**89.3 tonnes**	**98.5 tons**

* Refer to the Caterpillar 10/10/20 overload policy
** Includes weight of all attachments

Figure B-11: 777F Off-Highway Truck, page 3

Gradeability/Speed/Rimpull

To determine gradeability performance: Read from gross weight down to the percent of total resistance. Total resistance equals actual percent grade plus 1% for each 10 kg/t (20 lb/ton) of rolling resistance. From this weight-resistance point, read horizontally to the curve with the highest obtainable gear, then down to maximum speed. Usable rimpull will depend upon traction available and weight on drive wheels.

Direct Drive
Torque Converter Drive
E – Typical Field Empty Weight
L – Target Gross Machine Operating Weight 163 293 kg (360,000 lb)

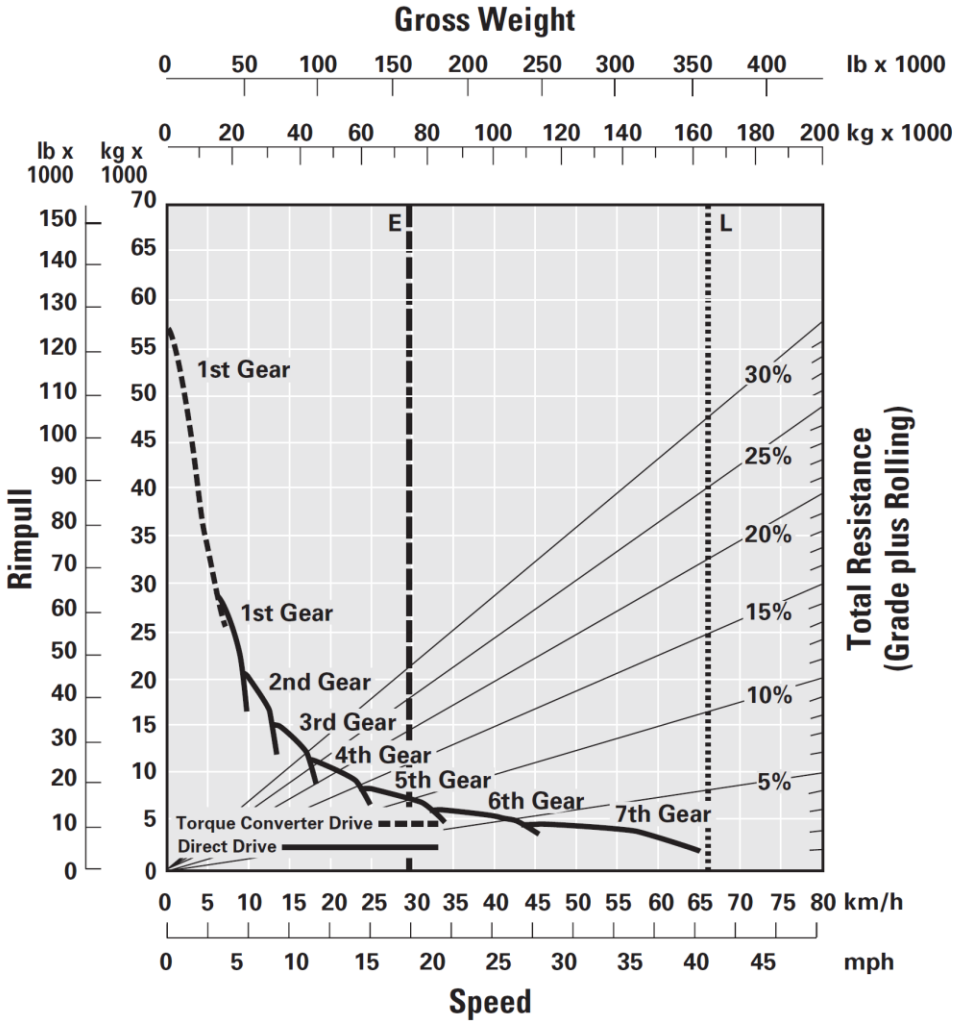


Figure B-12: DEMAG 450t crane

Sell used crawler crane 450 ton , used DEMAG crane Page 1 of 2

EC21 Global B2B Marketplace

Sell used crawler crane 450 ton , used DEMAG crane

Total 18 Related Items < Prev Next >

Date Posted : 2011/08/07
Category : General Industrial Equipment > Material Handling Equipment > Cranes
Offer Type : Sell
Add to Basket | Inquire Now >

View Larger Picture

Henan Anpu Construction Machinery Co., Ltd

Membership Type : Free member
Registration Date : 2008-07-15
Country/Region : China
Address : middle of anpu road Anyang Henan, China
Phone : 86-1593-7218309
Fax : 86-null-null
Contact : wangyong

View all selling leads of this member(18)
View all products of this member(15)

Order Credit Report

used crawler Crane DEMAG 450t in good working condition
(used crawler crane 450 ton , used DEMAG crane)
Brand: Demag Model: CC2500 Capacity:450ton Year:2004 Origin:Germany
Technical data
Maximum lifting capacity/radius: 500t at 9m
Superstructure engine: DaimlerChrysler OM 501 LA (315 kW / 420 HP)
Track width: 7,8 m Pad width: 1,2 / 1,0 / 1,5 m
Maximum transport width: 2,99 m Maximum counterweight: 120 t
Central ballast: 40t Superlift counterweight: 250t
Superlift counterweight center 200t Main boom SH: 24 - 84 m
Main boom SH/LH: 42 - 108 m Main boom SSL: 36 - 84 m
Main boom SSL/LSL: 78 - 120 m
Fixed fly jib LF: 12 - 36 m, max. combination: 126 + 36 = 162 m
Luffing fly jib SW: 24 - 72 m, max. combination: 72 + 72 = 144 m
Luffing fly jib SWSL: 24 - 84 m, max. Kombination: 84 + 84 = 168 m
In perfect working condition

Our company welcome to contact us with requirement, and establish long cooperation with your esteemed company

Contact: Mr. Wang (speaking english)
Mobile Phone: 0086180300699266 008615937218309
E-mail: yinfuchina(at)yahoo.com.cn
MSN: yinfuchina(at)live.cn
SKYPE:yinfuchina
Henan Yinfu Construction Machinery Co., Ltd
Address: anyang City, Henan Province, China

Related Keywords: cranes, crawler cranes, demag cranes, 450Tons cranes

Other Selling Leads of this member (17 more)

Sell 30T Used TADANO TL300E TRUCK HYDRAULIC CRANE
30T Used TADANO TL300E TRUCK HYDRAULIC CRANES Make:TADANO Model:TL300E YEAR:2000 Capacity:30T Nissan engine and chassis 4-section Boom Jib Length:15m Working hours:2159H Travelled distance:2873km Gross weight:26640kg Dimensions:11855*35...

Sell 50T TADANO TR500M-2-00103 ROUGH TERRAIN CRANE
55T TADANO TR500M-2-00103 ROUGH TERRAIN CRANE ORIGINAL JAPAN Origin: Japanese Year:2005 Capacity: 55ton, 2.5 meters radius CARRIER MODEL: NISSAN PE8T 290 PS boom: 9.7 ~ 41.2 meters Maximum angle: 83 ° JIB: 7.8 ~ 12.5 meters wb cinch ho...

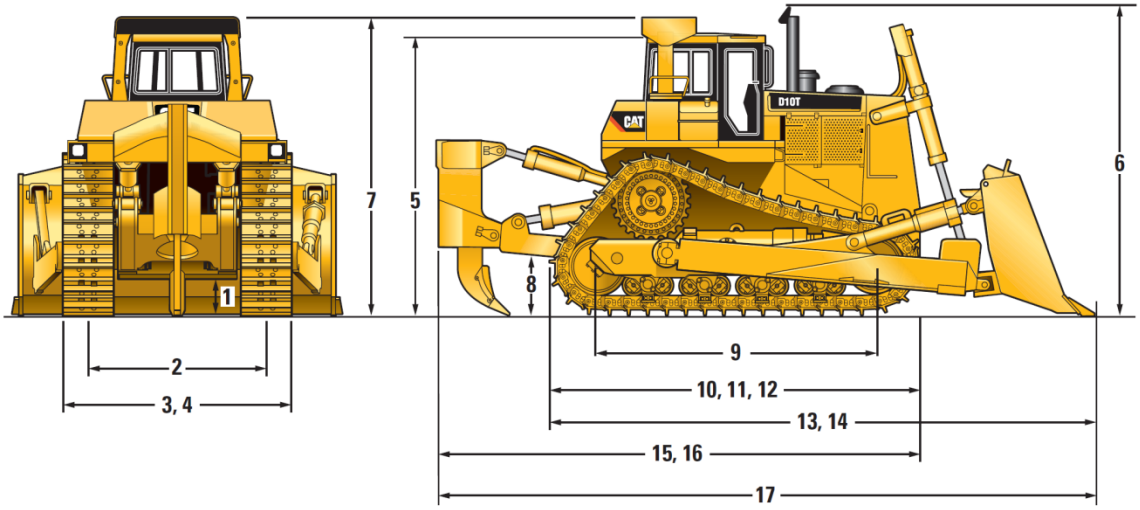
http://www.ec21.com/offer_detail/Sell_used_crawler_crane_450--8955997.html 8/12/2011

Figure B-13: D10T Track-Type Tractor Specifications, page 1

D10T Track-Type Tractor Specifications

Dimensions

All dimensions are approximate.



1	Ground Clearance	664 mm	26.1 in
2	Track Gauge	2550 mm	100.4 in
3	Width without Trunnions (Standard Shoe)	3292 mm	129.6 in
4	Width Over Trunnions	3736 mm	147.1 in
5	Height (FOPS Cab)	4098 mm	161.3 in
6	Height (Top of Stack)	4505 mm	177.4 in
7	Height (ROPS/Canopy)	4354 mm	171.4 in
8	Drawbar Height (Center of Clevis)	864 mm	34.0 in
9	Length of Track on Ground	3872 mm	152.4 in
10	Overall Length Basic Tractor	5339 mm	210.2 in
11	Overall Length Basic Tractor (with Drawbar)	5659 mm	222.8 in
12	Overall Length Basic Tractor with Winch	5744 mm	226.1 in
13	Length with SU-blade	7416 mm	292.0 in
14	Length with U-blade	7750 mm	305.1 in
15	Length with Single-Shank Ripper	7081 mm	278.8 in
16	Length with Multi-Shank Ripper	7241 mm	285.1 in
17	Overall Length (SU Blade/SS Ripper)	9158 mm	360.6 in

Figure B-14: D10T Track-Type Tractor Specifications, page 2

Blades

Type	10SU	
Capacity (SAE J1265)	18.5 m^3	24.2 yd^3
Width (over end bits)	4860 mm	15 ft 11 in
Height	2120 mm	6 ft 11 in
Digging Depth	674 mm	26.5 in
Ground Clearance	1497 mm	58.9 in
Maximum Tilt	993 mm	39.1 in
Weight* (without hydraulic controls)	10 229 kg	22,551 lb
Total Operating Weight** (with Blade and Single-Shank Ripper)	66 451 kg	146,499 lb
Type	10U	
Capacity (SAE J1265)	22 m^3	28.8 yd^3
Width (over end bits)	5260 mm	17 ft 3 in
Height	2120 mm	6 ft 11 in
Digging Depth	674 mm	26.5 in
Ground Clearance	1497 mm	58.9 in
Maximum Tilt	1074 mm	42.3 in
Weight* (without hydraulic controls)	10 784 kg	23,775 lb
Total Operating Weight** (with Blade and Single-Shank Ripper)	67 006 kg	147,723 lb

*Includes blade tilt cylinder.
Add 840 kg (1,852 lb) for 10SU ABR blade.
Add 1629 kg (3,591 lb) for 10U ABR blade.

**Total Operating Weight: Includes hydraulic controls, blade tilt cylinder, coolant, lubricants, 100% fuel, ROPS, FOPS cab, Blade, Single-Shank Ripper, 610 mm (24 in) ES shoes, and operator.

Rippers

Type	Single-Shank, Adjustable Parallelogram	
Added Length	1760 mm	5 ft 9 in
Number of Pockets	1	
Maximum Clearance Raised (under tip, pinned in bottom hole)	1058 mm	41.7 in
Maximum Penetration (standard tip)	1494 mm	58.8 in
Maximum Penetration Force (shank vertical)	205 kN	46,086 lb
Pry out Force	415.3 kN	93,363 lb
Weight (without hydraulic controls)	7117 kg	15,690 lb
Total Operating Weight* (with SU-Blade and Ripper)	66 451 kg	146,499 lb
Type	Multi-Shank, Adjustable Parallelogram	
Number of Pockets	3	
Added Length	1760 mm	5 ft 10 in
Overall Beam Width	2920 mm	115 in
Maximum Clearance Raised (under tip, pinned in bottom hole)	1045 mm	41.1 in
Maximum Penetration (standard tip)	876 mm	34.5 in
Maximum Penetration Force (shank vertical)	205 kN	46,086 lb
Pry out Force (Multi-Shank Ripper with one tooth)	415.3 kN	93,363 lb
Weight (one shank, without hydraulic controls)	7968 kg	17,566 lb
Additional Shank	526.2 kg	1,160 lb
Total Operating Weight* (with SU-Blade and Ripper)	67 302 kg	148,375 lb

*Total Operating Weight: Includes hydraulic controls, blade tilt cylinder, coolant, lubricants, 100% fuel, ROPS, FOPS cab, SU-Blade, Ripper, 610 mm (24 in) ES shoes, and operator.

Winches

Winch Model	Consult your Cat Dealer for installation arrangements.

Standards

- ROPS (Rollover Protective Structure) offered by Caterpillar for the machine meets ROPS criteria SAE J1040 MAY94, ISO 3471:1994.
- FOPS (Falling Object Protective Structure) meets SAE J/ISO 3449 APR98 Level II, and ISO 3449:1992 Level II.
- The operator Equivalent Sound Pressure Level (Leq) is 80 dB(A) when "ISO 6396:2008" is used to measure the value for an enclosed cab. This is a dynamic cycle sound exposure level. The cab was properly installed and maintained. The test was conducted with the cab doors and the cab windows closed.
- The exterior sound pressure level for the standard machine measured at a distance of 15 meters according to the test procedures specified in SAE J88 APR95, mid-gear-moving operation, is 92 dB(A).