



- *Integrated Hi-Rail system by Badger*
- *Thread rail*
- *Lift rail onto tracks*
- *Hoist machinery on/off tracks*
- *Built to tough railroad standards*
- *F.R.A compliant*
- *Integrated safety features*
- *Ergonomically engineered*
- *Tier III Cummins engine*



SERIES GD4430R Rough Terrain Crane



FEATURES

- **2 Section 53' Boom**
- **Self Lubricating Boom Slider Pads**
- **Two Speed Planetary Grooved Drum Hoist - with negative draft flange**
- **Auxiliary Hoist Option**
- **Hoist Drum Rotation Indicator**
- **High Visibility Cab – with multi position seat, in dash display, main wiper and upper wiper**
- **Electronic Joystick Controls**
- **Continuous 360 Degree Rotation**
- **Optional Load Moment Indicator – with digital display, CANbus system interface and overload shutdown**
- **Radio Anti Two Block System**
- **Rugged, Weatherproof Automotive Style Electrical System**
- **Design meets ANSI B30.5 Recommendations**
- **Heavy Duty Steel Fenders – integrated with the fuel and hydraulic tanks**
- **Electronically Controlled Powershift – six (6) forward speeds and six (6) reverse speeds**
- **All Wheel Drive – all wheel steer and crab steering**
- **Auto Centering Axles – rear have oscillation**
- **Hydraulic Disc Brakes (4)**
- **Planetary Swing Drive - two on the 4430R**
- **Swing Brake – two on the 4430R**
- **24 Volt System**
- **Cantilever Style Outriggers**
- **Operators Manual, Parts and Service Manual Included**

ENGINE

Cummins QSB 4.5 diesel engine, turbocharged, 4 cylinder water cooled 160 HP @2500 RPM (or Optional QSB 6.7 160 HP 6 cylinder). Electronic sensors and controls to reduce service issues and provide easy maintenance. Cummins 2 year, 2000 hour standard engine warranty.

Engine accessories:

Dry type air cleaner, with restriction indicator.

- **Grid block heater.**

POWER TRAIN:

Electronically controlled powershift with six (6) forward speeds and six (6) reverse speeds. Torque converter.

- **3 forward speeds, high range.**
- **3 forward speeds, low range**
- **Rear axle disconnect**

Maximum top travel speed of 25-MPH.

AXLES:

Front: Rigid, front planetary type steer axle.

Rear: Oscillating rear planetary steer axle.

Both offer optional Auto Centering feature.

SUSPENSION:

Oscillation with hydraulic lockout device.

BRAKES:

Fully hydraulic disc type brakes on all four wheel locations.

Emergency braking and parking brake system is spring applied and hydraulic release mounted on the front axle input shaft.

TIRES:

Manufacturers standard of sufficient load capacity for a fully loaded crane to perform pick and carry operation. All optional foam-filled tires are matching and of premium grade. Spare tire mounted on rim is optional.

STEERING:

Hydraulic four wheel power steering with tilt steering column.

Hydraulic type steering with four (4) steering modes.

- **2 wheel front**
- **2 wheel rear**
- **4 wheel coordinated**
- **4 wheel crab**

Synchronized auto centering is standard.

ELECTRICAL:

24 volt charging system with weather proof electrical harnesses.

Alternator: 70 ampere minimum rated capacity

Batteries: Two (2) batteries.

FUEL TANK:

Tank capacity is 75 gallons. Optional 110 gallon capacity.

CARRIER:

High tensile steel with all welded triple-box beam construction fully reinforced. Fully machined turn-table mounting plate and integrally welded outrigger mounts. Decking has skid resistant surfaces including tool storage compartment. Access steps and grab handles are provided on left and right sides as well as front and rear corners. High-tensile steel design that produces high strength frame that reduces bending and weight.

General Sp

OPERATORS CAB:

Fully enclosed one (1) person clearview pressurized cab mounted on the front center of the carrier. All steel construction and has two hinged entry doors with tinted safety glass windows and shatter resistant windshield and roof glass.

- **Air conditioning, automotive dash style**
- **Two each lockable exit doors**
(right and left side with shock absorber design)
- **Sliding windows in doors**
- **Mirrors**
- **Fire extinguisher**
- **Adjustable sun visor**
- **Windshield wiper**
- **Heater and defroster - 12000 btu hot water**
- **Eleven way adjustable, cushioned seat with seat belt.**

ELECTRONIC INSTRUMENT PANEL:

- **Fuel level**
- **Tachometer**
- **Speedometer**
- **6.5" LCD CANbus display**
- **Engine oil pressure**
- **Hydraulic oil pressure**
- **Engine water temperature**
- **Torque converter oil temperature**

Additional Equipment:

- **Slow moving vehicle sign**
- **Emergency 24v pump for hydraulics**
- **Factory installed work lights**
- **Factory installed turn signals**
- **Back up alarm, steam cleanable, "ECCO"**

HYDRAULIC SYSTEM:

- **Boom telescope**
- **Boom hoist**
- **Boom swing**
- **Winching**
- **Outriggers**

PUMPS:

Three (3) variable piston pumps for all crane functions.

CYLINDERS:

Double acting and of adequate size and length for all service functions.

HYDRAULIC RESERVOIR:

110 gallon minimum capacity reservoir with oil level and temperature indicator. Tank is constructed of steel and has internal baffles and diffuser. Filtration is 10-micron return filter with bypass protection and is located on the exterior of the hydraulic tank.
[Class 22/18/13E ISO4406-1999]

HYDRAULIC LINES:

All hydraulic lines are pressure compensated/load sensing system for all crane operating functions and have provisions to prevent chaffing during operation. All fittings are O-Ring face seal type.

BOOM:

Fully synchronized, two (2) section boom (30.5' to 53' in length) of six-sided box type construction. Consists of one (1) double acting telescopic cylinder. The cylinder is equipped with integral holding valves. Accessible wear pads for both vertical and horizontal forces support boom sections. Made of formed and welded high-tensile steel plate for maximum strength and weight ratio. Contact factory for boom options.



Specifications

UPPER STRUCTURE:

All welded design made from high alloy steel plate.
Bolt on cast counterweight – 9000 lbs.

BOOM HEAD:

Welded to the inner boom section with a minimum of five (5) sheaves mounted on heavy duty anti-friction bearings.

Auxiliary lifting sheave mounted on the main boom for single line work.

TURNTABLE:

Upper structure is mounted on an anti-friction bearing of the shear ball design. Single row, ball type with external teeth and is bolted to the revolving upper structure and bolted to the carrier frame.

BOOM SWING AND BRAKE SYSTEM:

Boom swing is 360 continuous and is hydraulically driven through planetary reduction type gears. Maximum swing speed (unloaded) is 3 R.P.M. Swing brake is heavy duty multiple disk actuated automatically from the operators cab. Two (2) position swing lock for pick and carry as well as travel modes.

MAIN HOIST:

Lebus grooved drum driven by a 2 speed hydraulic axial piston motor through a winch speed reducer for power load lowering and raising. Equipped with a counterbalance and wet disk brake system. Includes a drum rotation indicator.

WIRE ROPE:

Has three (3) complete wraps of cable on the drum at maximum boom extension and elevation with line at maximum parting and the hook block at ground level. Cable is 5/8" x 433 feet minimum. Maximum permissible load is 10,000 pounds with a minimum line speed of 385-FPM.

LOAD BLOCK:

Rating exceeds the cranes gross lift capacity and is equipped with a safety latch and is permanently marked with the maximum capacity. A five (5)-part sheave block and swivel hook with safety latch is provided.

OPTIONAL AUXILIARY HOIST:

Lebus grooved drum driven by a 2 speed hydraulic axial piston motor through a winch speed reducer for power load lowering and raising. Equipped with an automatic brake and counterbalance valve. Auxiliary hoist is controlled independently of the main hoist.

WIRE ROPE:

Three (3) complete wraps of cable on the auxiliary drum at maximum boom extension and elevation (including jib use) with the hook block at ground level.

OPTIONAL 7.5 TON OVER HAUL BALL:

Furnished with a down-haul weight of sufficient size and weight to keep the cable tightly wrapped on the auxiliary winch drum. Hook is equipped with a safety latch.

ANTI TWO BLOCK DEVICE:

Unit has a pendant type wireless warning device with audio alarm and warning light.

CONTROLS:

Hand Controls are electronic joystick controlled type. All levers and pedals will be positioned for optimum efficiency.

Hand operated controls include the following:

- Swing
- Main winch
- Auxiliary winch
- Throttle lock
- Boom hoist
- High and low winch speed control
- Swing Brake
- Boom telescope
- Horn

Foot controls include:

- Accelerator
- Service brakes

Control switches include the following:

- Lights
- Ignition
- Engine stop
- Parking brake
- Steering modes
- Windshield wipers
- A.C./Heater/Defroster
- Outriggers

Permanently engraved labels, indicating control function and direction are furnished.

MULTI POSITION OUTRIGGERS:

Cantilever style outriggers are standard.

LIGHTING:

The following lights are furnished and installed:

Two (2) brake/turn taillights.
Two (2) sealed beam headlights.
Optional Four (4) worklights.
Optional perimeter lighting.
Strobe lights.

F.R.A. COMPLIANT PACKAGE:

Standard on the CD4425R and CD4430R. Friction drive High-Rail gear with anti-free wheel design.

WARRANTY:

1 year and 1500 hours standard warranty.

All specifications are subject to change.

LSI SYSTEM

The Standard System currently included is a load indicator system A2B; this is a wireless system that has only audible alarm and function kick-out for A2B. This is standard equipment and is required by ASME B30.5 crane standard. It indicates load, boom length, boom angle, and two block status. This gives you an automatic shut down safety feature, and additional LSI graphical display on the dashboard. This system prevents the operator from lifting an un-safe load as long as the operator does not bypass the system in any way (ie removing the load cell from the hook or pressing the bypass switch). Be advised that the load cells and A2B switches should not be used during duty cycle work (ie threading rail or other rapid swinging and lowering operation) and should be stored on the machine.

OPTIONS

- Recovery Winch
- Side Handrails
- Front Windshield Protection Screening
- All Windows Anti-Vandal Protection Screening
- Rear View Wide Angle Camera(s) With Color Monitor in Dash
- Hydraulic Tool Ports and Hose Reel
- Pintle Hitch – Rear
- Boom Tip Fairlead
- F.R.A. Compliance Package (std on CD4425R and CD4430R)
- Anti-Vandal Kit for Locks and Caps
- Install Customer Accessories, Radios and Sirens
- Custom Fleet Colors
- Wide Stance Machine (rail models only)
- Work Lights
- Perimeter Night Lighting
- Extra Mirrors to View Outriggers
- Outrigger Travel Latches
- Open Door Latches
- Optional Heated Seat



CD4425R
20-25 TON CAPACITY
Machine weight 55,500 lbs.



CD4430R
30 TON CAPACITY
HI-RAIL EQUIPPED
Machine weight 58,500 lbs. (2 section boom)



CD4425R

LIFTING CAPACITIES - POUNDS 2 SECTION (30.5' - 53' BOOM)

On OUTRIGGERS

LOAD RADIUS (ft)	BOOM LENGTH (ft)																	
	31			35			40			45			50			53		
	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)
10	61	50000	50000	65	45800	45800	68	45800	45800	71	45800	45800						
12	57	41650	41650	61	41650	41650	65	41650	41650	68	41650	41650	70	37500	37500	71	35000	35000
15	50	33300	33300	55	33000	33300	60	33300	33300	64	33300	33300	66	33300	33300	68	28000	28000
20	36	25000	25000	44	25000	25000	51	25000	25000	56	25000	25000	60	25000	25000	62	25000	25000
25	15	20000	20000	31	20000	20000	41	20000	20000	48	20000	20000	53	20000	20000	56	20000	20000
30				0	16650	16650	29	16650	16650	39	16650	16650	46	16650	15000	49	16000	15000
35							0	14250	13100	27	14250	11000	37	14000	11000	41	14000	11000
40										0	12500	8500	26	12000	8500	32	12000	8500
45													0	10000	7800	19	10000	7800
48																0	9000	6700

On RAIL

On RAIL

		360° STATIONARY				15° DEFINED ARC COVER FRONT				
		Superelevation				Creep (Superelevation)				
LOAD RADIUS (ft)	50 MAX BOOM LENGTH (ft)	0 (mph)	< 2 (in)	2 < 4 (in)	4 < 6 (in)	0 (mph)	< 2 (in)	2 < 4 (in)	4 < 6 (in)	MAX NO LOAD LOAD BOOM (deg)
10	30.5	18000				39750				61
12	30.5	16100				35250	28200			56
15	30.5	13500	10800	9000	7200	30000	24000	20000	16000	49
20	35	9150	7320	6100	4880	22500	18000	15000	12000	44
25	37	5250	4200	3500	2800	17400	13920	11600	9280	36
30	40	4300	3456	2880	2304	13425	10740	8950	7160	29
35	45	3500	2805	2338	1870	10500	8400	7000	5600	27
40	50	2700	2220	1850	1480	8475	6780	5650	4520	26
45	53	2000	1620	1350	1080	7050	5640	4700	3760	19
48	53	1700	1356	1130	904	6450	5160	4300	3440	0

On TIRES

LOAD RADIUS (ft)	MAX BOOM LENGTH (ft)	PICK AND CARRY		
		Stationary	Creep	2.5 MPH
10	30.5	18000	33000	21000
12	30.5	15000	29000	18000
15	40	11000	23000	15000
20	40	7000	15000	11000
25	45	5000	11000	8000
30	45	3000	7000	6000
35	45	2000	6000	5000
40	53	1500	5000	4000
45	53		3500	3500
48	53		3000	3000

Recommended Tire Pressure				
Tire Size	Stationary	Creep	2.5 MPH	Travel
16.00 X 25-32 PLY	125 PSI	125 PSI	95 PSI	95 PSI

Parts of Line	1	2	3	4	5	6
MAX. HOOK LOAD	10000	20000	30000	40000	50000	60000

1. All operators and support personnel shall read and fully understand manufacturer furnished operator's manual, latest applicable American National Standards Institute (ANSI) Safety Standards for Cranes, and any applicable federal, state, or local safety regulations before operating machine. Crane and load ratings comply with ANSI and Power Crane & Shovel Association (PCSA) Standards.

2. All "ON OUTRIGGER" lifts shall be made with outrigger arms fully extended to fully support and level machine (tires off supporting surface). Additional structural blocking or cribbing may be required for some applications.

3. All ratings where reversed text appears are based on 85% of tipping load "ON OUTRIGGERS" and 75% of tipping "ON TIRES" with machine stable on firm level

ground. Ratings where text is **not** reversed are based on structural competence. Boom angles are undeflected boom angles.

4. **DO NOT EXCEED** crane load ratings. When load radius or boom angle are between listed values, use the smaller load rating. **DO NOT ATTEMPT TO TIP MACHINE TO DETERMINE ALLOWABLE LOADS.**

5. Weights of hook blocks, bucket, slings, and all other load handling devices are not accounted for in the load chart. The load handling devices must be considered as part of the load.

6. Reduce ratings appropriately for wind conditions, speed of operation, soft or uneven supporting surfaces, etc.

CAUTION - IN WIND OVER 30 MPH, CEASE OPERATION; POSITION BOOM AWAY FROM WIND AND LOWER BOOM BELOW 60°.

IN WIND OVER 50 MPH, FULLY RETRACT AND LOWER BOOM TO LOWEST POSSIBLE POSITION.

7. Load ratings apply to this machine only as originally manufactured and equipped. Unauthorized modification or optional equipment may reduce load capacity. Please consult Badger Equipment **BEFORE** modification or use of optional equipment not covered in this chart.

8. **DO NOT** lift over operator cab.

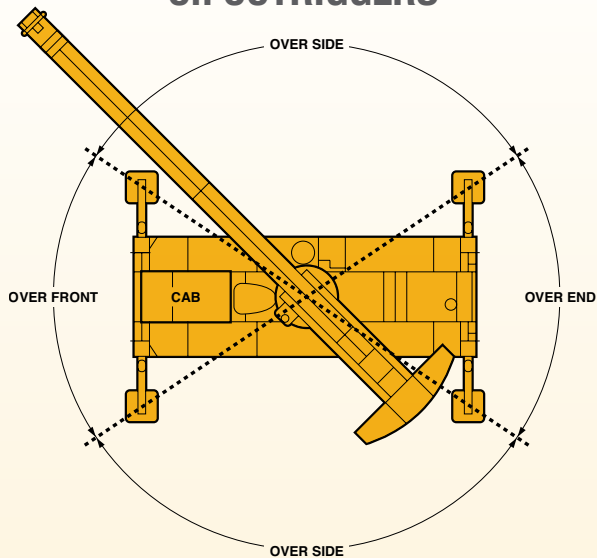
9. **WARNING** - These load ratings are for lift service only.



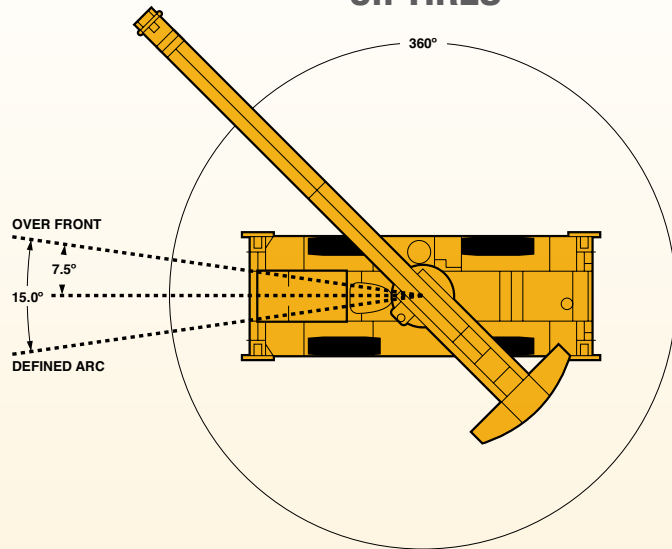
Load Chart

TOP-DOWN DIAGRAMS

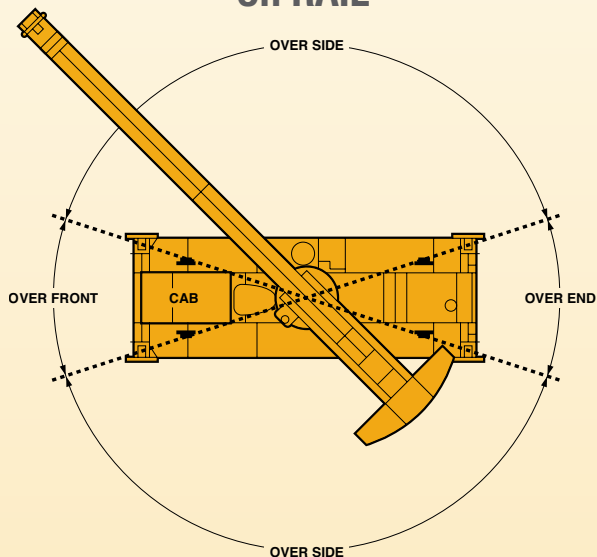
On OUTRIGGERS



On TIRES



On RAIL



10. Pick and carry load ratings are shown in load chart for on tires. Boom must be above 0°.

11. Load shall be restrained from swinging and shall be positioned as close to the ground as possible over the front along the carrier's lengthwise centerline. **DO NOT** exceed 2.5 MPH (4 Km/h) travel speed using smooth starts and stops. "Creep" is movement not to exceed 200 ft in a 30 min period. Other crane operations **SHALL NOT** be permitted when transporting a load.

OPTIONAL – Foam Filled Tires

RECOMMENDATIONS:

5/8" – 6 x 19 Class – 6 x 25 FW, PRF, RRL, XIP, IWRC Wire Rope



217 Patneau Drive
Winona, Minnesota 55987
Phone: (507) 454-1563
Fax: (507) 453-6441
www.badgerequipment.com



A Manitex International, Inc. Company



CD4430R

LIFTING CAPACITIES - POUNDS 2 SECTION (30.5' - 53' BOOM)

On OUTRIGGERS

LOAD RADIUS (ft)	BOOM LENGTH (ft)																	
	31			35			40			45			50			53		
	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)	BOOM ANGLE (deg)	OVER FRONT (lb)	360° (lb)
10	61	60000	60000	65	55000	55000	68	55000	55000	71	55000	55000						
12	57	50000	50000	61	50000	50000	65	50000	50000	68	50000	50000	70	45000	45000	71	42000	42000
15	50	40000	40000	55	40000	40000	60	40000	40000	64	40000	40000	66	40000	40000	68	33600	33600
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35							0	17100	13100	27	17100	11000	37	14000	11000	41	14000	11000
40										0	14000	8500	26	12000	8500	32	12000	8500
45													0	10000	7800	19	10000	7800
48																0	9000	6700

On RAIL

On RAIL		360° STATIONARY				15° DEFINED ARC COVER FRONT				MAX NO LOAD LOAD BOOM (deg)
		Superelevation				Creep (Superelevation)				
LOAD RADIUS (ft)	50 MAX BOOM LENGTH (ft)	0 (mph)	< 2 (in)	2 < 4 (in)	4 < 6 (in)	0 (mph)	< 2 (in)	2 < 4 (in)	4 < 6 (in)	
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48	53	1700	1356	1130	904	6450	5160	4300	3440	0

On TIRES

LOAD RADIUS (ft)	MAX BOOM LENGTH (ft)	PICK AND CARRY		
		Stationary	Creep	2.5 MPH
10	30.5	18000	33000	21000
12	30.5	15000	29000	18000
15	40	11000	23000	15000
20	40	7000	15000	11000
25	45	5000	11000	8000
30	45	3000	7000	6000
35	45	2000	6000	5000
40	53	1500	5000	4000
45	53		3500	3500
48	53		3000	3000

Recommended Tire Pressure				
Tire Size	Stationary	Creep	2.5 MPH	Travel
16.00 X 25-32 PLY	125 PSI	125 PSI	95 PSI	95 PSI

Parts of Line	1	2	3	4	5	6
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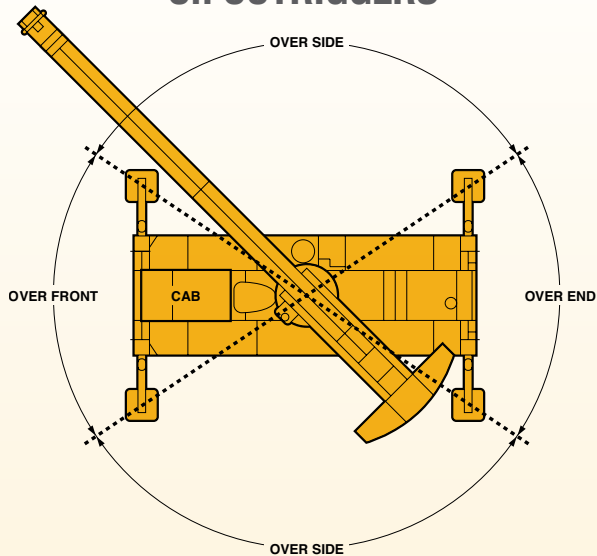
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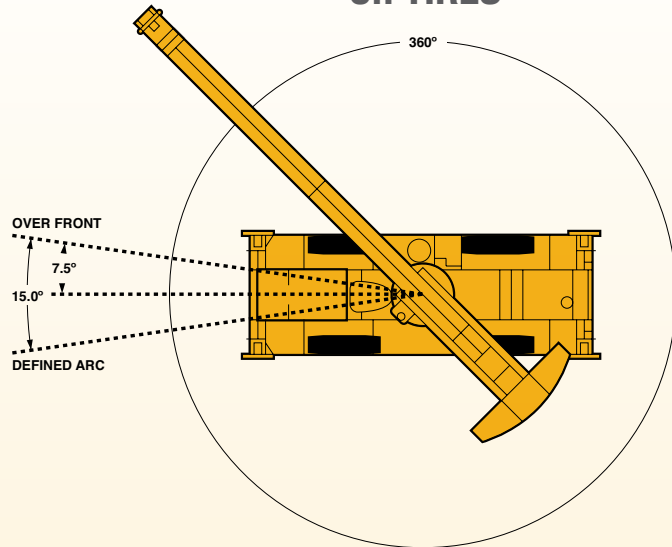
Load Chart

TOP-DOWN DIAGRAMS

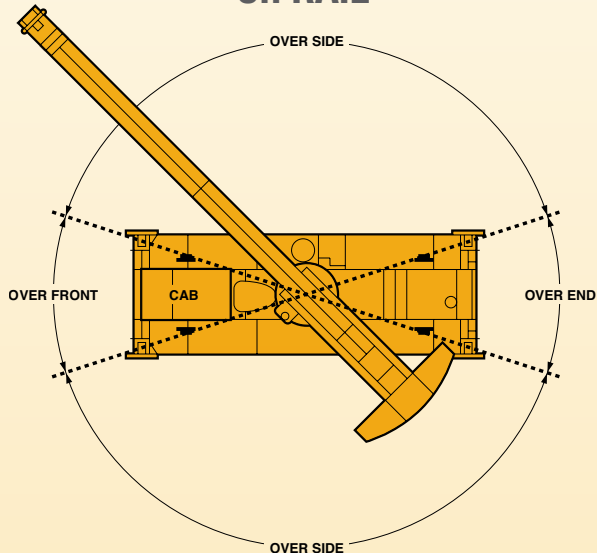
On OUTRIGGERS



On TIRES



On RAIL



Badger's Hi Rail Drive



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OPTIONAL – Foam Filled Tires

RECOMMENDATIONS:

5/8" – 6 x 19 Class – 6 x 25 FW, PRF, RRL, XIP, IWRC Wire Rope



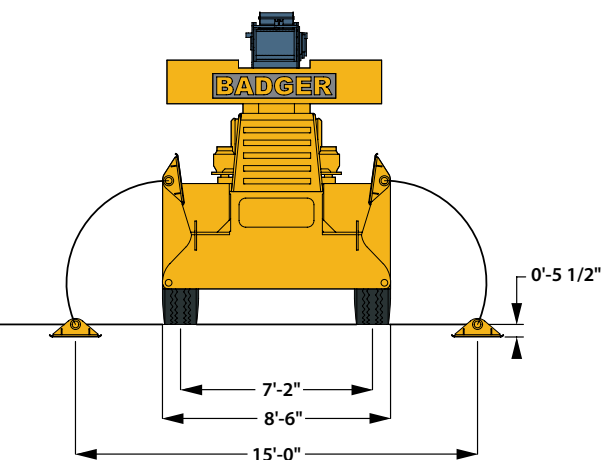
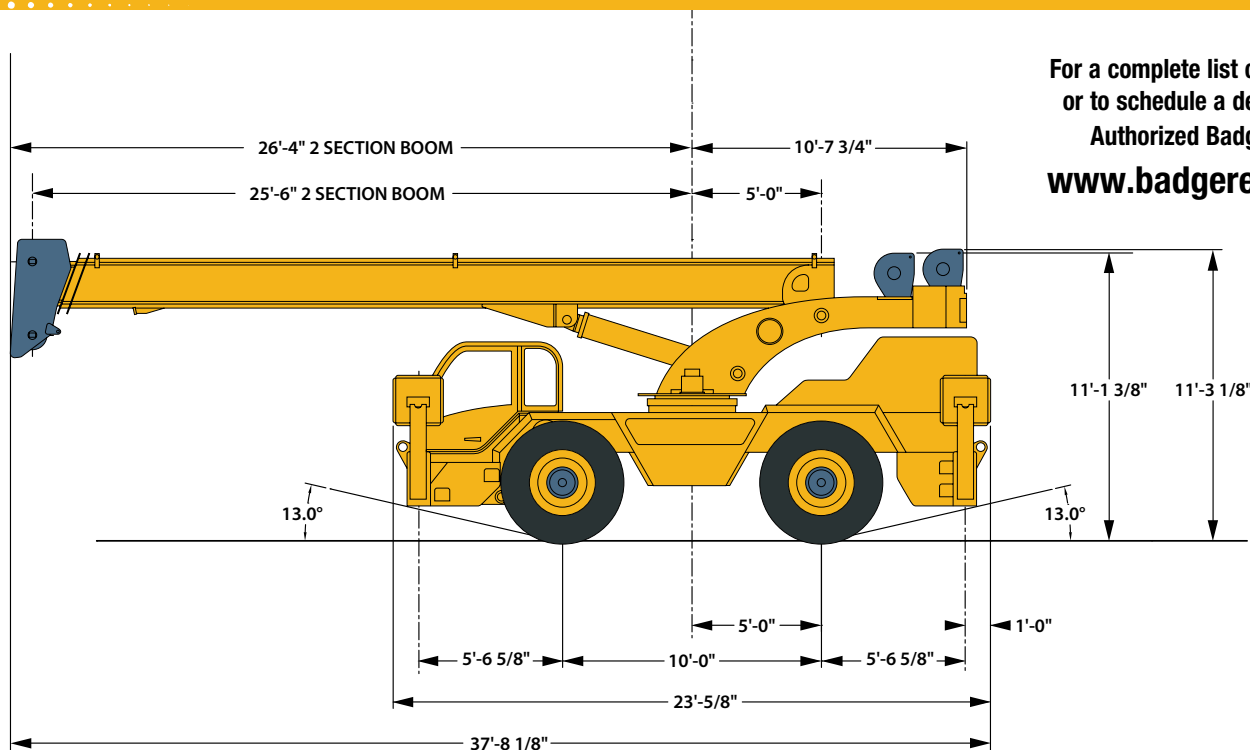
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A Manitex International, Inc. Company



General Dimensions



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A Manitex International, Inc. Company

