# Engineering Spec





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Replaces: Dated: Form DD108G August 2008

The IC-200-H is a self-propelled Industrial Crane designed for material handling and installation, maintenance and repair of equipment, with special features of self-loading cargo decks, 4-wheel steer, and front-wheel drive (4-wheel drive optional). The basic unit consists of a chassis and hydraulic boom assembly. The chassis includes a frame, four hydraulic independently controlled outriggers, engine, torque converter, powershift 4-speed transmission, front planetary drive/steer axle and rear steer-only axle, fuel tank, hydraulic tank, control station, power steering and dual power brakes. The boom assembly includes a hydraulic powered continuous rotation turret, 3 or 4-section telescopic boom, hydraulic boom elevating cylinder, hydraulic boom telescope cylinders and hydraulic powered hoist. A Rated Capacity Limiter is standard.

# <u>IC-200-2H</u>:

3-section hydraulically extended boom with capacity of 30,000 pounds (13,600 kg) at a 6-foot (1.8 m) load radius. Horizontal reach of 36 feet (11.0 m) and vertical reach of 45 feet (13.7 m).

# <u>IC-200-3H</u>:

4-section proportional hydraulically extended boom with capacity of 30,000 pounds (13,600 kg) at a 6-foot (1.8 m) load radius. Horizontal reach of 50 feet (15.2 m) and vertical reach of 58 feet (17.7 m).

# General:

	<u>IC-200-2H</u>	<u>IC-200-3H</u>	
Weight:			
Front Axle	13,960 pounds (6,340 kg)	15,390 pounds (6,990 kg)	
Rear Axle	14,540 pounds (6,600 kg)	15,690 pounds (7,120 kg)	
Total	28,500 pounds (12,940 kg)	31,080 pounds (14,110 kg)	
Length:			
Overall	22 feet, 6 inches (6.86 m)	22 feet, 10 inches (6.96 m)	
Chassis	14 feet, 11 inches (4.55 m)		
Width:	7 feet, 10.5 inches (2.40 m)		
Height:			
Overall	8 feet (2.45 m)		
Deck	47 inches (1.19 m)		
Wheelbase:	97 inches (2.46 m	)	
Ground Clearance:	11 inches (349 mn	n)	
Angle of Approach:	24 degrees		
<u>General (Cont'd):</u>			
Angle of Departure:	24 degrees		
Outriggers:			
Spread	11 feet, 10 inches	(3.61 m)	
Penetration	3.5 inches (89 mm)		
Turning Radius:			
4-Wheel Steering	14 feet, 5 inches (	4.42 m)	



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Aisle Width for 90° Turn:		11 feet, 10 inches (3.61 m)		
Steering Modes:		Rear Steer, Round Steer, Crab Steer		
Road Speed:		18 MPH (29.0 km/h)		
Gradeability (Calculated):		54 percent (28 degrees) 1		
<ul> <li>Grade Limit: 15 percent (9 degrees) 1</li> <li>1) Calculated values based on GM 4.3L Gasoline Engine. (Wheels may spin before these values are reached.)</li> </ul>				
Boom Movement: Rotation Elevation Telescope	IC-200-2H Continuous 0 to 73 degre 21 feet (6.40		<u>IC-200-3H</u> Continuous 0 to 73 degrees 34.5 feet (10.52 m)	
Boom Speeds: Rotation Elevation Extension	1.7 RPM 20 seconds 33 seconds		1.7 RPM 20 seconds 50 seconds	
<u>Sheave Height</u> (Nominal W/O Boom Extension With Boom Extension	45 feet, 4 inc	hes (13.8 m) hes (18.10 m)	58 feet, 8 inches (17.90 m) 73 feet, 8 inches (22.40 m)	
Horizontal Reach: W/O Boom Extension With Boom Extension	36 feet (11.0 51 feet (15.5	,	50 feet (15.2 m) 66 feet (20.1 m)	

# Engine:

#### Standard:

# GM 4.3L V-6, EPA Tier 2 Woodward Dual Fuel:

GM Model 4.3L V-6 industrial gasoline engine with multiport electronic fuel injection, dual fuel, catalytic converter, and engine management system. Water cooled, 262 CI (4.3L) displacement, 4-inch (102 mm) bore, 3.48-inch (88 mm) stroke, 93 HP (69 kW) at governed speed of 2500 RPM. Maximum torque 206 ft-lbs (279 Nm) at 1650 RPM. Includes special exhaust valves, seats and valve rotators for use with LPG, 70-amp alternator, 30-gallon (113L) fuel tank and 43-pound (19.5 kg) LPG tank. High temperature and low oil pressure shutdown is included in engine management system. Throttle control switch for setting engine speed at 1200 or 1800 RPM.

# **Optional Engines and Engine Accessories:**

### **Diesel Engine:**

# Cummins QSB3.3L Turbo, EPA Tier 4i:

Cummins QSB3.3 Tier 4 Interim turbocharged diesel engine. Water cooled, 4-cylinder, 199 CID (3.3L), 3.74-inch (95 mm) bore, 4.53-inch (115 mm) stroke, 100 HP (75 kW) at governed speed of 2600 RPM. Maximum torque is 306 ft-lbs (415 Nm) at 1600 RPM. 120-amp alternator included. 30-gallon (114 L) fuel tank capacity. High temperature and low oil pressure shutdown included in engine management system. Throttle control switch for setting engine speed at 1200 or 1800 RPM. Charge air cooler, 1500 watt, 120vac block heater, and grid heater included. Net Weight: 200 pounds (91 kg).

# Spark Arrester Muffler:

Spark arrester muffler used in addition to standard muffler. Net Weight: 10 pounds (5 kg).



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# Engine Heater for Dual Fuel Engine Only:

Heater for engine. Engine coolant heater installed with hoses in coolant system to circulate warm water through engine. Plugs into 120V AC extension cord. 1500 watts.

#### Transmission:

# Standard 2-Wheel Drive:

Powershift transmission with four speeds in forward and reverse. Provides powershifts at any engine speed in any gear. All shifting is done with a single lever electrical control mounted on the steering column. Multiple-disc clutch packs operated by solenoid valves provide reverse, neutral, forward and speed selection. Equipped with oil cooler and filter.

#### **Optional 4-Wheel Drive Transmission:**

Same as 2WD transmission with an additional output shaft to drive the rear axle. Electro-hydraulic control for shifting between 2WD and 4WD. This option includes the 4-wheel drive axle listed below.

Transmission gear ratios:	Forward and Reverse (2WD & 4WD)
1st	5.72 to 1.0
2nd	3.23 to 1.0
3rd	1.77 to 1.0
4th	1.00 to 1.0

# Torque Converter:

Standard:

Stall torque ratio of 2.2:1, attached to engine flywheel.

# Front Axle:

# Standard:

Planetary drive/steer front axle with 15.78 to 1.0 ratio. Differential equipped with "limited slip" feature. Driving effort is applied to wheel that has traction. Front axle mounted rigidly to frame.

#### Calculated Performance:

<u>Gear</u>	<u>Drawbar Pull (pounds)</u>	<u> Travel Speeds (MPH)</u>
1st	17,000*	3
2nd	8,900*	5
3rd	5,100*	10
4th	2,700*	18
*		

\*Calculated for GM 4.3L engine. Wheels will spin in 1st or 2nd gear before these values are reached with 2-wheel drive.

# Rear Axle:

#### Standard 2-Wheel Drive:

Steering axle with 1½ degree oscillation in either direction.

#### **Optional 4-Wheel Drive:**

Planetary drive/steer axle with 24.98 to 1.0 ratio. Differential is not "limited slip" in rear axle. 1½ degree oscillation in either direction. (Axle ratio compatible with 4WD transmission output for front axle match.) Net Weight: 160 pounds (73 kg).

# Steering:

# Standard:

Hydraulic steering unit with two, 3-inch (7.6 cm) cylinders attached to each axle. Allows limited steering when engine is not running. Rear axle is the primary steer. An electric switch in the operator's compartment is used to select rear-wheel steering, four-wheel round steering or crab steering. Electronic sensors and control box automatically align the steering when a new mode is selected.



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# <u>Brakes:</u>

# Standard:

Split-system, four-wheel hydraulically-boosted multiple-plate wet disc brakes. Uses mineral oil. Hand lever actuated disc-type parking brake on transmission.

# <u>Tires:</u>

# Standard 2-Wheel & 4-Wheel Drive:

15x22.5, 16-ply rating.

# **Tire Options:**

# Non-Marking Pnuematic:

385/65D22.5 16-ply rating Net Weight: 20 pounds (9 kg).

# Foam Filling of Tires:

Foam filling of four IC-200 tires. Net Weight: 2000 pounds (907 kg).

# Spare Tire and Wheel Mounted Standard Tire:

Extra wheel with standard tire (15X22.5, 16-ply) mounted, ready for service. Net Weight: 350 pounds (159 kg).

# Spare Tire and Wheel Mounted, Non-Marking Pnuematic:

Extra wheel with Non-Marking tire (385/65D22.5,16 ply) mounted, ready for service. Net Weight: 350 pounds (159 kg).

# <u>Chassis:</u>

# Standard:

# Cargo Deck:

Total Deck Area: 66 Square Feet (6 m<sup>2</sup>). A maximum of 17,000 pounds (7,700 kg) may be carried on the deck at creep speed when centered over or between axles. Seven stake pockets are provided along edges of deck for 1-inch (25 mm) pipe stakes. Stakes furnished. Cargo decks have skid resistant coating.

# Lifting Rings:

Consists of four rings, one at each corner of the load deck, so sling can be attached for lifting crane. Rings hang below deck surface when not in use.

# Steps:

A step is located on each front corner providing access to deck area.

# **Outriggers:**

Four hydraulic outriggers of box -beam construction. Independent control for each outrigger. Hydraulic cylinders are equipped with direct-connected holding valves. Pad dimensions: 11 inches (28 cm) x 16 inches (41 cm).

# Pulling Eyes:

Two heavy eyes in front bumper provide for attachment of hook block so main winch line can be used for pulling loads at or near floor level. Also for anchoring tag lines from load on hook.

# Tie Downs:

Two holes in the rear bumper (in conjunction with the pulling eyes) provide tie down locations for transporting crane by truck or cargo container.

# Accessory Storage Box:

Consists of front deck plate with removable and lockable cover, and box for carrying sheave block and other items. Storage box is 14 inches (35 cm) deep x  $10\frac{1}{2}$  inches (26 cm) wide x  $36\frac{1}{2}$  inches (93 cm) long.



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# Headlight and Taillight Grilles:

Consists of welded steel protective grilles for headlights and taillights. Easily removable for replacing bulbs.

# Chassis Options and Accessories:

# Auxiliary Winch:

Optional worm gear winch, mounted behind front bumper, with a single lever control at the operator's console. Hydraulic powered to provide bare drum line pull of 10,000 pounds (4,540 kg) at 33 feet per minute (10.2 m/min). Winch drum is 3½ inches (90 mm) in diameter by 10 inches (250 mm) long. This winch includes 115 feet (35 m) of 7/16-inch (11.1 mm) wire rope, hook and 4-way roller guide. This rope can pull 5,800 pounds (2,630 kg) with a safety factor of 3.5:1. Net Weight: 250 pounds (113 kg).

#### Pintle Hook - Rear:

T-60-AOL Holland pintle hook mounted on rear frame member, provides capacity for 6,000-pound (2,700 kg) tongue weight and 30,000-pound (13,600 kg) trailer weight. Net Weight: 15 pounds (7 kg).

# Pintle Hook - Front:

T-60-AOL Holland pintle hook mounted on front frame member, provides same capacity as rear pintle hook. Net Weight: 45 pounds (20 kg).

# **Rearview Mirrors:**

One right-hand and one left-hand mirror, 6 inches (152 mm) wide x 16 inches (406 mm) high, mounted on deck stakes. Pivot out of way when contacted by obstacle at side of deck. Net Weight: 12 pounds (5 kg).

# **Operator Compartment:**

#### Standard:

Operator control station provides one-position access to all chassis and crane functions. Includes adjustable operator's seat and retracting seat belt, fire extinguisher, and bubble level.

# **Drum Rotation Indicator:**

Provides tactile feedback to operator when hoist drum is rotating. Feedback device attached to hoist control handle. Feedback is proportional to hoist speed.

#### **Operator Compartment Options and Accessories:**

#### Operator Guard: (Not Available with Cab)

Tubular steel weldment with heavy expanded steel mesh top section, bolts over the operator's compartment. Net Weight: 60 pounds (27 kg).

#### **Operator Guard Door:**

Hinged door covers operator compartment side opening. Has latch handle outside and knob inside. Rubber gasket contacts chassis. Net Weight: 40 pounds (18 kg).

#### All Weather Cab:

Consists of rigid mounted canopy section and removable hinged door with safety glass. Rugged canopy structure with laminated glass front and top. Door is equipped with a keyed lock to protect operator's station. Includes defroster fan, dome light, 12,400 BTU heater with 2-speed fan, and 12V electric windshield wiper. There are sliding windows in the door and right-hand side. Net Weight: 220 pounds (98 kg).

#### Cab Heater Only:

Provides 12,400 BTU heater with 2-speed fan for units without All Weather Cab. Net Weight: 12 pounds (5 kg).

#### Windshield Washer:

Provides reservoir, pump and nozzle for windshield washer.



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# Floor Mat:

Vinyl mat with foam backing covers floor, front wall, and lower portion of right hand wall of operator's compartment. Net Weight: 5 pounds (2 kg).

#### Suspension Seat:

Vinyl seat with a small suspension built in. Net Weight: 15 pounds (7 kg).

# **Deluxe Seat:**

Deluxe seat with upholstery springs provides additional operator comfort. Net Weight: 15 pounds (7 kg).

# Noise Reduction Kit - Cab:

Includes vinyl floor mats and control valve cover and side panels of foam-backed, perforated vinyl for noise reduction. Net Weight: 15 pounds (7 kg).

# Air Conditioning:

Complete system using R134a coolant has combination cooling and heating unit in cab. Net Weight: 125 pounds (57 kg).

# Electrical System:

# Standard 12 Volt DC:

# Battery:

Gas Units: Group 27 with 540 CCA rating. Diesel Units: Group 31 with 950 CCA rating.

# Lighting Group:

Consists of two 12V lamps, with high and low beams for driving; tail, brake and turn signal lights and backup lights in rear; front turn signals; and emergency flasher switch at operator's station. 12V horn actuated by button located on shifting control.

#### **Instrument Group:**

Located at operator's station, includes fuel gauge and hourmeter, which records hours only during actual engine operation. Also included are warning lights for low oil and transmission pressure, check engine, high coolant and transmission temperature, turn signals, high beams, hazard lights, parking brake and four-wheel drive.

#### Back-Up Alarm:

Provides pulsating sound from a 102 dB alarm when ignition is on and transmission is in reverse. Conforms to SAE J994B.

#### **Outrigger Alarm System:**

102 dB alarm with alternating two-tone sound is actuated by a switch when the OUTRIGGER DOWN controls are operated.

# **Optional Electrical Accessories:**

#### Strobe Lights:

Two yellow strobe lights, one on each side of turret weight box, for high visibility all around crane. Flashes 60-120 times per minute. Each strobe draws only one-half amp. Includes operator controlled switch. Net Weight: 5 pounds (2 kg).

# Rear Work Lights:

Two halogen flood lights mounted between the grille bars in the rear bumper. Includes switch at operator station. Net Weight: 10 pounds (5 kg).

# Boom Work Lights:

Two halogen work lights, one on left side of boom to light boom tip, and one on right side of the turret to light ground under boom tip. Includes switch at operator's station. Net Weight: 10 pounds (5 kg).



# Hydraulic System:

# Standard:

Tandem pump, direct-driven by engine, delivers 29 GPM (109 L/min) at 2600 PSI (179 bar) and 34 GPM (129 L/min) at 2500 PSI (172 bar) at 2500 RPM governed engine speed. System protected by relief valves, suction line strainer and 10- micron return line filter. 54-gallon reservoir equipped with breather and locking filler cap. (Maximum pressure on IC-200-3G is 3000 PSI on the 29 GPM (204 L) section of the pump).

# Boom Assembly:

# Standard:

Three or four-section, high strength steel construction, equipped with bearing pads for efficient support and extension. Double-acting hydraulic cylinder telescopes booms. The telescope cylinder and the doubleacting boom elevation cylinder are equipped with direct-connected holding valves. The four sections on the 3H telescope proportionally. Boom angle indicator is on side of boom.

# Boom Swing:

# Standard:

Heavy-duty bearing swing gear with external teeth supports boom. Rotation is powered by hydraulic motor and worm gear drive. Swing gearbox may be adjusted as wear occurs to minimize backlash. Boom is attached by high strength steel weldment.

# Boom Hoist:

# Standard:

Turret-mounted planetary gear hoist is hydraulically powered to provide a baredrum line pull of 10,000 pounds (4,536 kg) at a speed of 100-feet-per-minute (30 m/min). Hoist drum is 9 7/8-inch (251 mm) diameter by 16 1/2 inches (419 mm) long. The hoist includes 240 feet (73 m) of wire rope for 2H and 291 feet (89 m) of wire rope for 3H. Wire rope is 1/2-inch (13 mm) diameter. 125-pound (57 kg) downhaul weight and swivel hook are included.

# Boom Attachments:

#### Standard:

# Anti-Two-Block Device:

Prevents damage to hoist rope and/or machine components from accidentally pulling sheave block or downhaul weight against boom tip. Consists of trip arm at boom tip, which is moved upward by sheave block or downhaul weight as hook approaches boom tip. Trip arm actuates electric switch that is connected through cable reel mounted on boom to solenoid dump valve in the hydraulic circuit. This valve will dump the HOIST RAISE, TELESCOPE EXTEND, BOOM LOWER, SWING LEFT and SWING RIGHT circuits. No other circuits are affected. These circuits are returned to normal operation by operating the HOIST LOWER, BOOM RAISE or TELESCOPE RETRACT control. There is also an override keyswitch under the dashboard.

# **Rated Capacity Limiter:**

Operator's aid that warns operator of impending overload with audible and visual signals. Has read-outs for load, boom angle, boom length and load radius. In the event of an overload, dumps the following boom functions: HOIST RAISE, TELESCOPE EXTEND, BOOM LOWER, SWING LEFT and SWING RIGHT. These circuits are returned to normal by lowering load to a safe resting place with hoist or by retracting or raising boom to a shorter load radius. There is also an override switch under the dashboard.

# Four-Part-Line Sheave Block:

Double sheave block for 4-part-line requirements. 10-inch (254 mm) O.D. sheaves for ½-inch (13 mm) diameter wire rope. Swivel hook with safety latch. 200-pound (95 kg) weight provides positive overhaul. Includes bar on top to actuate trip arm of Anti-Two-Block device.



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#### **Optional Boom Attachments:**

# Boom Extension - 15 Feet (4.6 m), 2H:

Provides 15 feet (4.6 m) of additional length for lifting loads with load line. Boom extension may be stowed alongside base boom section when not in use. Tip sheave, attaching brackets and pins included. Deduct 400 pounds (180 kg) from Capacity Chart when boom extension is in the stowed position. Includes trip arm for Anti-Two-Block device. Net Weight: 520 pounds (236 kg).

#### Boom Extension - 15 Feet (4.6 m) Offset, 2H:

Provides 15 feet of additional length for lifting loads with load line. Boom extension may be stowed alongside base boom section when not in use. Tip sheave, attaching brackets and pins included. Deduct 400 pounds (180 kg) from Capacity Chart when boom extension is in the stowed position. Includes trip arm for Anti-Two-Block device. Boom extension will tilt through three positions, in line, 15 degree offset and 30 degree offset. Net Weight: 670 pounds (304 kg).

#### Boom Extension - 16 Feet (5 m) Offset, 3H:

Provides 16 feet (5 m) of additional length for lifting loads with load line. Boom extension may be stowed alongside base boom section when not in use. Tip sheave, attaching brackets and pins included. Deduct 400 pounds from Capacity Chart when boom extension is in the stowed position. Includes trip arm for Anti-Two-Block device. Boom extension will tilt through 3 positions, in line, 15 degree offset and 30 degree offset. Net Weight: 550 pounds (249 kg).

#### Two-Part-Line Sheave Block:

Single sheave block for 2-part-line requirements. Block is specially designed to reduce height, 23 inches (58 cm) from top to saddle of load hook. 10-inch (254 mm) O.D. sheave for 1/2-inch (13 mm) rope. Swivel hook with safety latch. Includes bar on top to actuate trip arm of Anti-Two-Block device. Net Weight: 124 pounds (56 kg) for 2H and 200 pounds (91 kg) for 3H.

#### Searcher Hook: (Nose Mount)

5,000 pound capacity hook bracket is attached to the front of the boom tip with 4 pins through the boom extension attachment lugs. A hook with latch is pinned to the tip of the bracket. Net Weight: 65 pounds (29 kg).

#### \*\*\* Specifications subject to change without notice \*\*\*

Should you require an option or special equipment not listed please consult your dealer salesperson or BMC<sup>®</sup>.

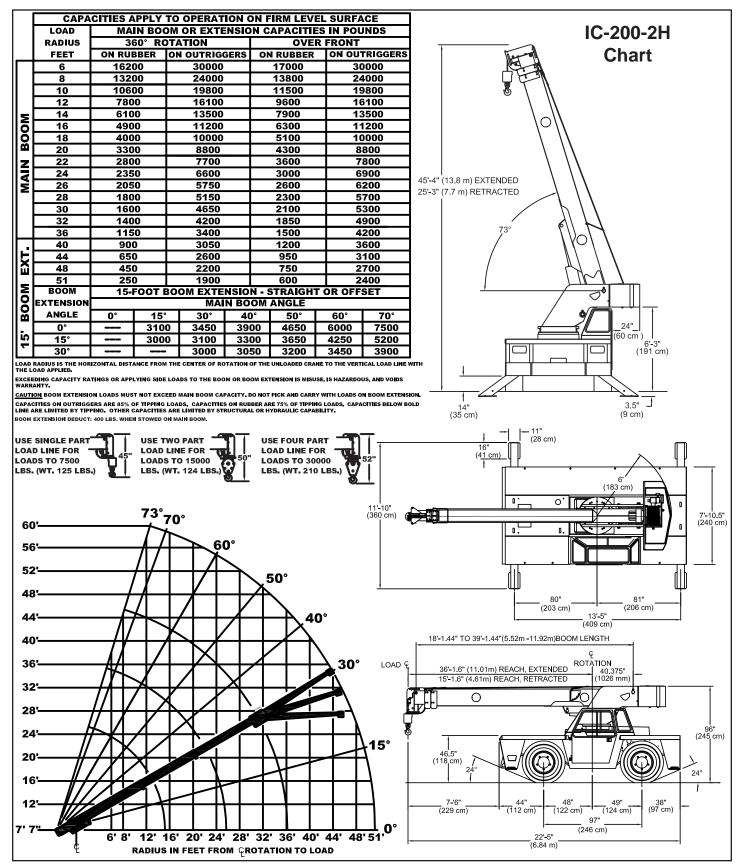


Manufacturing Corp. 14741 West 106th Street Lenexa, KS 66215 USA Tel (913) 888-0606 Fax (913) 888-8431 www.bmccranes.com Dimensions and values shown are for reference purposes only. Specifications subject to change.



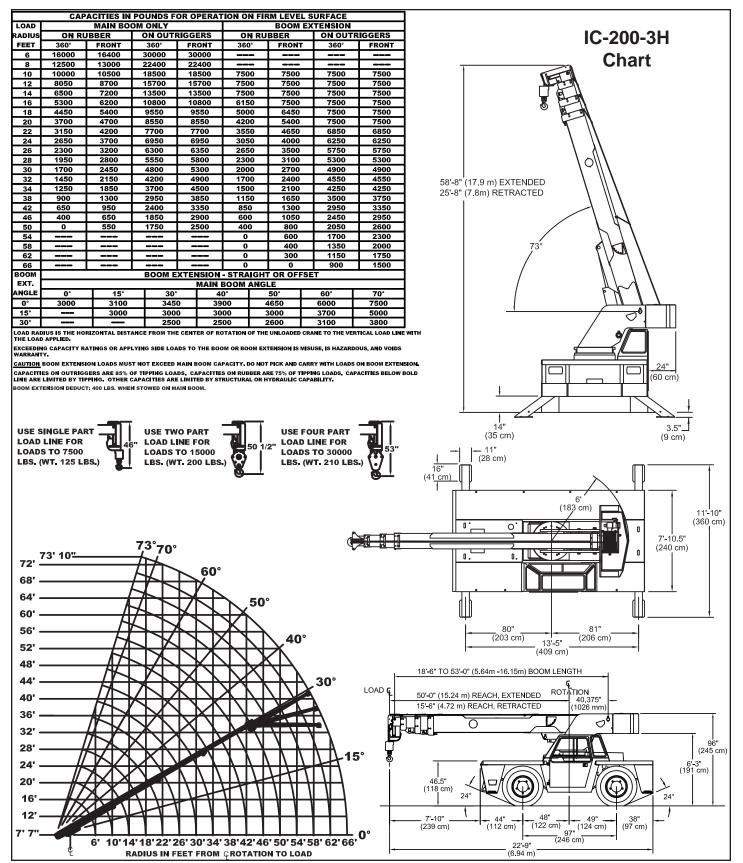


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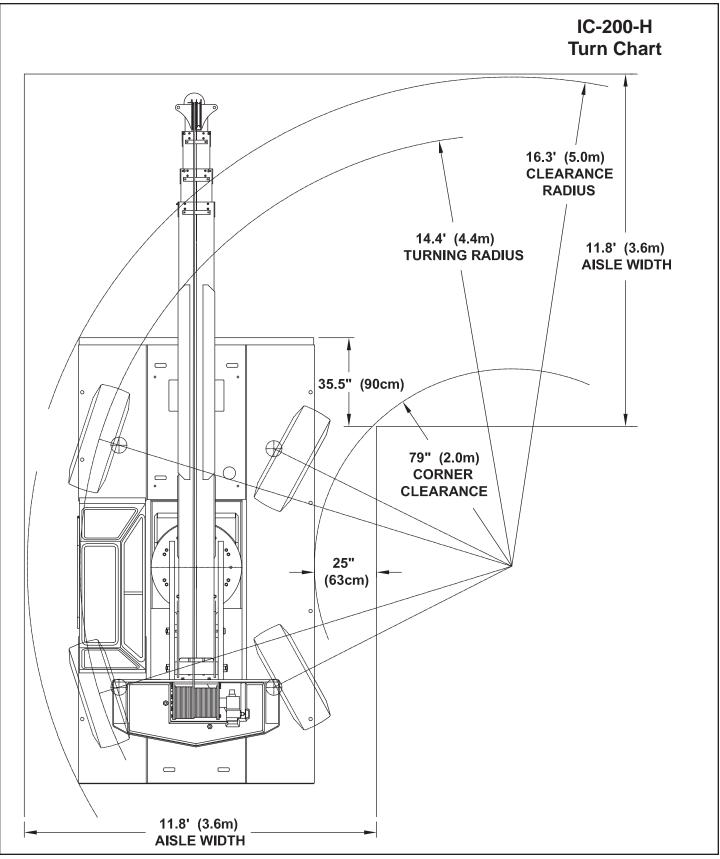
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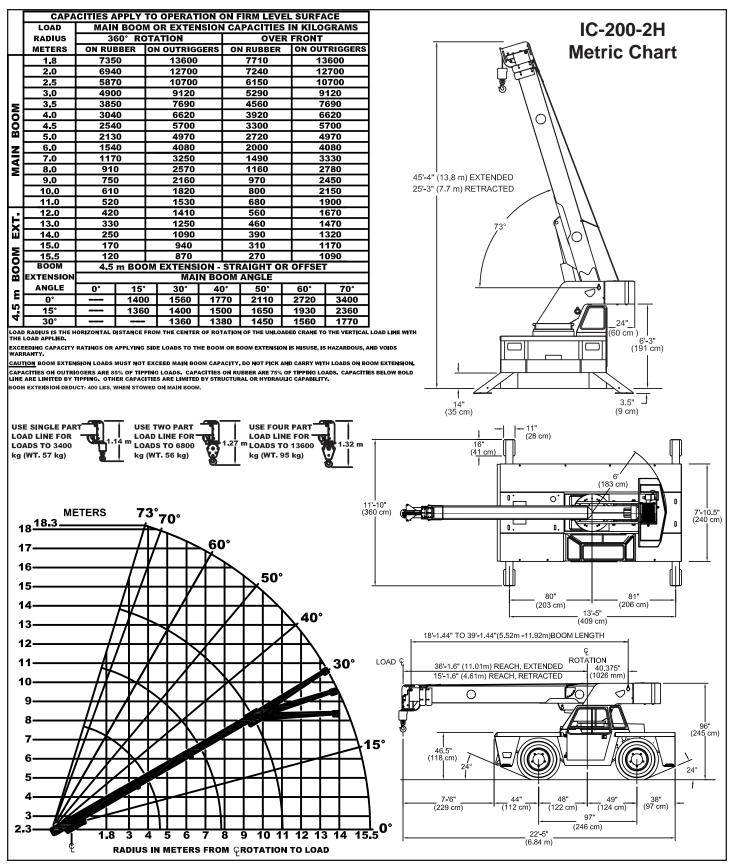
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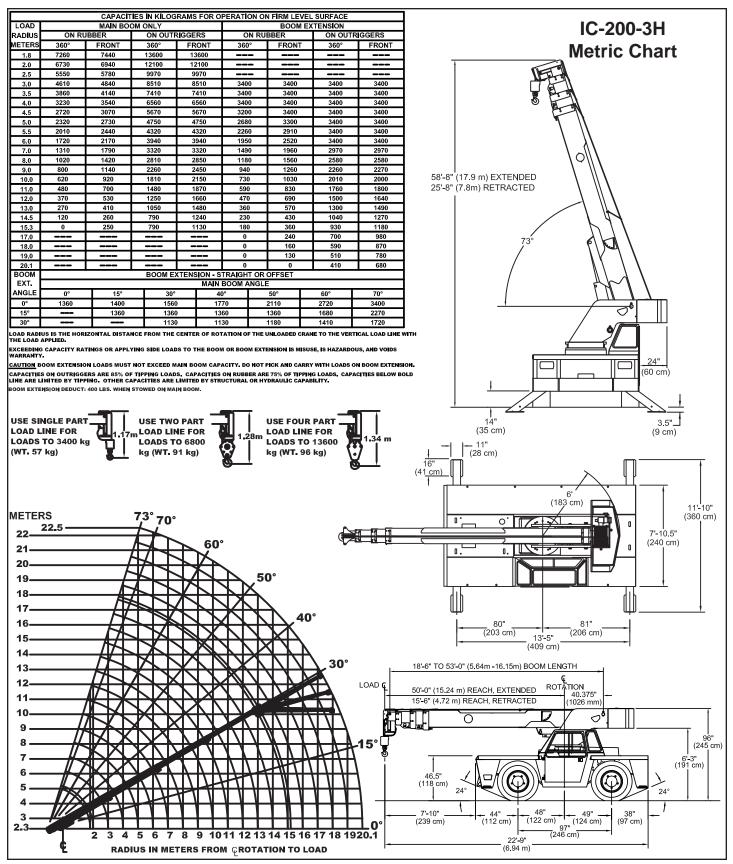








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