Engineering Spec

IC-40-2B

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Replaces:	Form JD106A
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BMC's IC-40-2B is a self-propelled, industrial crane designed for in-plant lifting and material handling applications. It has the special features of low height, narrow width, short length, cargo deck, four-wheel steer, and four-wheel drive. The basic unit consists of a chassis and a hydraulic boom assembly. The chassis includes a frame, four hydraulic outriggers, an engine, a variable speed hydrostatic transmission, and two drive axles with power steering. The boom assembly includes a hydraulic-powered continuous rotation turret, a three-section telescopic boom, a hydraulic boom-elevating cylinder, hydraulic boom extension cylinders, and a hydraulic-powered hoist. A Rated Capacity Limiter is standard.

IC-40-2B:

This model includes a 3-section hydraulically extended boom with capacity of 9,000 lb (4,080 kg) at a 4 ft (1.22 m) load radius. It has a horizontal reach of 19 ft 2 in (5.84 m), and a vertical reach of 26 ft (7.92 m). Hoist is located on back of turret.

GENERAL:

Length:	
Chassis	10 ft 8 in (3.25 m)
Overall	12 ft 2 in (3.71 m)
Width:	5 ft 4 in (1.63 m)
Height:	
Deck	31 in (79 cm)
Overall	6 ft 9 in (2.06 m)
Wheelbase:	6 ft 6.5 in (1.99 m)
Ground Clearance:	
Chassis	9 in (23 cm)
Minimum (Axle)	8 in (20 cm)
Angle of Approach:	24°
Angle of Departure:	24°
Turning Radius: (Minimum)	9 ft 10 in (3.00 m)
Aisle Width: 90º Turn (Min.)	8 ft 0 in (2.44 m)
Travel Speed: (Max.)	10 MPH (16 KPH)
Weight Distribution:	
Front Axle	4,170 lb (1,900 kg)
Rear Axle	4,730 lb (2,150 kg)
Total	8,900 lb (4,050 kg)
Tire Footprint Area:	40 in^2 (258 cm^2), each
Outrigger Footprint Area:	48 in^2 (310 cm^2), each
Drawbar Pull:	2,000 lb (910 kg)
Gradeability:	24% (13°)

Boom Movement:

Rotation	Continuous
Elevation	70°
Extension	12 ft (3.66 m)
Tailswing	3 ft 7 in 1.09 m)

Boom Speeds:

Rotation	(1.4 RPM)
Elevation	17 seconds
Extension	32 seconds

Sheave Height:

Without Jib	26 ft 3 in (8.00 m)
With Jib	33 ft 6 in (10.21 m)

Horizontal Reach:

Without Jib	19 ft 2 in (5.84 m), C/L Rotation
With Jib	27 ft 2 in (8.28 m), C/L Rotation

Engine:

Standard Gasoline:

GM 2.4L, Woodward EFI Dual Fuel, EPA Tier II Certified:

Industrial gasoline engine complete with multi-port electronic fuel injection, dual fuel, and engine management system. Water-cooled, 4-cylinder, 147 CID (2.4 L), 3.44 in (8.74 cm) bore, 3.94 in (10.01 cm) stroke, 65 HP (48 kw) at governed speed of 2,500 RPM. Maximum torque- 137 foot pounds (186 N-m) at 2,300 RPM. 70-amp alternator, 13.5 gallon (51 L) gas tank, and 33 lb (15 kg) LPG tank. Includes high temperature, low oil pressure shutdown, and engine management system. Also includes a catalytic converter muffler.

Optional Engines and Accessories:

Cummins 2.3L, EPA Tier IV Certified:

Cummins Model A2300 diesel engine. Water-cooled, 4-cylinder, 140 CID (2.3 L), 3.46 in bore (8.79 cm), 3.70 in (9.40 cm) stroke. 46 HP (34.0 kw) at governed speed of 2,600 RPM. Maximum torque, 110 foot pounds (150 N-m) at 1,800 RPM. 45-amp alternator. (No weight change from gasoline engine)

Spark Arrestor Muffler:

Spark arrestor muffler used in addition to standard muffler. Net Weight 10 lb (4.5 kg)

Engine Shutdown Kit:

Consists of Murphy switches that shut engine down if water temperature is excessive, or if oil pressure is too low. For diesel engine only.

Hydrostatic Transmission Pump:

Standard:

Piston type, 2.8 CID (46 cm^3) per revolution, direct driven from engine crankshaft. Maximum flow 34 GPM (129 LPM). Maximum pressure 4,000 PSI (276 bar). Electrohydraulic servo and electronic, automotive type controller.

Front Axle:

Standard:

Planetary drive/steer axle with an overall 16.15:1 ratio. Differential is limited slip. Axle is rigidly mounted to frame.

Rear Axle:

Standard:

Planetary drive/steer axle with an overall 16.15:1 ratio. Differential is limited slip. Axle oscillates 1.5° in either direction.

Steering:

Standard:

Full-hydraulic steering unit controls a steering cylinder attached to each axle. Limited steering if engine dies. 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.

Brakes:

Standard:

Primary braking from hydrostatic transmission. Foot-actuated wet-disc brakes in each axle for additional braking in some conditions. Lever-actuated parking brake to hold crane when not being driven.

Tires:

Standard:

28x9-15 pneumatic tires, 12-Ply Rating. Pressurized to 120 PSI for crane rated loads.

Optional Tires:

Foam Filling of Tires:

Standard tires, foam filled to prevent flats. Net Weight 390 lb (177 kg)

Spare Tire & Wheel:

28x9-15 pneumatic tire, 12-Ply Rating. Net Weight: 140 lb (64 kg)

Spare Tire & Wheel:

28x9-15 foam filled. Net Weight: 220 lb (100 kg)

Chassis:

Standard:

Cargo Deck:

29 ft^2 area (2.7 m^2). A maximum of 6,000 lb (2,720 kg) may be carried on the deck when centered over, or to the rear of the front axle. Nine stake pockets are provided in deck, and nine 1 in (2.54 cm) diameter pipe stakes.

Outriggers:

Four hydraulic outriggers with box beam construction. Independent controls for each. Hydraulic cylinders are equipped with direct connected holding valves. Pad dimensions are 6 in (15 cm) by 8 in (20 cm).

Lifting Rings:

Includes four lift rings. One at each corner of the chassis for attaching lifting sling cables.

Front Pulling Eye:

Heavy eye in front bumper provides for attachment of hook block, so main winch line can be used for pulling loads at or near floor level.

Optional Chassis 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 3,000 lbs (1360 kg), at 20 ft (6.10 m) per minute. Winch drum is 3 ½-in (8.9 cm) diameter by 6 1/4 in (15.8 cm) long. The winch includes 80 ft (24 m) of 5/16 in (7.9 mm) wire rope, hook, and four-way roller guide. Net Weight: 120 lb (54 kg)

Pintle Hook:

T-60-A Holland 5-ton (4,500 kg) pintle hook mounted on rear frame member. Net Weight: 7 lb (3.2 Kg)

Lifting Sling:

Sling to attach to Lifting Rings. Net Weight: 20 lb (9.1 kg)

Headlight and Taillight Grilles:

Consists of welded steel protective grilles for headlights and taillights. Easily removable or swung out of way for replacing bulbs. Net Weight: 20 lb (9.1 kg)

Optional Chassis Accessories: (Cont'd)

Rear View Mirrors:

One right-hand and one left-hand mirror, 6 in (15 cm) diameter, mounted on deck stakes. Pivot out of way when contacted by obstacle on side of deck. Net Weight: 12 lb (5.4 kg)

Operator's Compartment:

Standard:

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

Operator's Compartment Accessories:

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. Cab door adds 2 in (5 cm) to crane width on operator's side. Includes heater with 2-speed fan and 12-volt electric windshield wiper. Includes sliding window in the door, and one fold out window in rear to provide flow-through ventilation. Defroster fan and dome light included. Net Weight: 180 lb (82 kg)

Cab Heater:

Heater with two-speed fan for units without All Weather Cab. Net Weight: 15 lb (6.8 kg)

Operator Guard:

Tubular steel weldment with heavy expanded steel mesh top bolts over operator's compartment. Net Weight: 55 lb (25 kg)

Electrical System:

Standard:

Electrical Group:

12-Volt DC.

Battery:

Group 24 with 550 CCA rating.

Lighting Group:

Consists of 2 headlights and taillights, and a 12-volt horn activated by button on instrument panel.

Instrument Group:

Located at operator's station. Includes: fuel gauge, ammeter, oil pressure, water temperature gauges, and hydraulic oil temperature gauges. Hourmeter records hours only during actual engine operation.

Outrigger Alarm System:

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

Back-up Alarm:

Provides pulsating 97-decibel sound from solid-state alarm when ignition is ON and transmission is in **REVERSE.**

Optional Electrical Accessories:

Strobe Lights:

Two yellow strobe lights mounted on turret for high visibility. Flash 60-120 times per minute. Draw 0.5 amps each. Includes operator-controlled switch.

Boom Work Lights:

Two work lights, one on the side of the boom to light the boom tip, and one on the side of the turret to light the ground under the boom tip. Includes switch at operator's station. Net Weight: 10 lb (4.5 kg)

Hydraulic System:

Standard:

Tandem pump mounted to rear end of hydrostatic piston pump, which is driven by the engine crankshaft. Delivers 6 GPM (23 LPM) at 2,600 PSI (179 bar) for boom circuits and 17 GPM (64 LPM) at 2,500 PSI (172 bar) (for hoist circuit). System protected by relief valves and two 10-micron filters. Hydraulic reservoir with 14 gallons (53 L) capacity.

Boom Assembly:

Standard:

Three-section, high-strength steel construction, equipped with bearing pads for efficient support and extension. Double-acting hydraulic cylinders extend boom sections. The primary extension cylinder and the double-acting boom elevation cylinder are equipped with direct connected holding valves. Boom angle indicator provided on the side of boom.

Boom Hoist:

Standard:

Turret mounted, planetary gear hoist is hydraulically powered to provide bare-drum line pull of 5,000 lb (2,270 kg) and a line speed of 86 feet-per-minute (26 meters per minute). Hoist includes 85 ft (26 m) of 3/8 in (9.5 mm) wire rope, downhaul weight, swivel hook and sheave block for 2-part line. (Required for lifts over 4,500 lb (2,040 kg)). Sheave block weight is 60 lb (27 kg). Downhaul weight is 40 lb (18 kg).

Boom Swing:

Standard:

Heavy-duty ball bearing rotation gear with external teeth support the boom. Rotation is powered by hydraulic motor and worm gear drive. 360° continuous rotation.

Boom Attachments:

Standard:

Anti-Two-Block Device:

Has electric solenoid dump valve, which prevents damage to hoist rope and machine components from accidentally pulling load hook against boom tip. This valve will dump **HOIST RAISE, TELESCOPE EXTEND, BOOM LOWER, SWING LEFT**, and **SWING RIGHT** circuits. No other circuits are affected. These circuits are returned to normal operations by operating the **HOIST LOWER** or the **TELESCOPE RETRACT** control. This system uses a trip arm to activate switch.

Rated Capacity Limiter:

Warns operator of impending overload with audible and visual signals. Has read-outs for load, boom angle, boom length, and load radius. Prevents overload by dumping boom functions that cause overload: **HOIST RAISE, TELESCOPE EXTEND, BOOM LOWER, SWING LEFT**, and **SWING RIGHT**. These circuits are returned to normal by lowering the load to a safe resting place with hoist, or by retracting or raising boom to a shorter load radius. There is an override switch under the dashboard.

Optional Boom Attachments:

Boom Extension - 8 Ft (2.44 m):

Provides 8 ft (2.44 m) of additional length for lifting loads with load line. Boom extension may be stowed along side base boom section when not in use. Tip sheave, attaching brackets, and pins included. Deduct 100 lb (45 kg) from Capacity Chart when boom extension is in stowed position. Includes switch and trip arm for Anti-Two-Block system. Net Weight: 130 lb (59 kg)

Optional Boom Attachments: (Cont'd)

Boom Extension - 8 Ft (2.44 m) Offset:

Provides 8 ft (2.44 m) of additional length for lifting loads with load line. Boom extension may be stowed along side base boom section when not in use. Tip sheave, attaching brackets, and pins included. Deduct 100 lb (45 kg) from Capacity Chart when boom extension is in stowed position. Includes switch and trip arm for Anti-Two-Block system. Three settings: 0° (in-line), 15° offset, and 30° offset. Net Weight: 150 lb (68 kg)

Searcher Hook:

2,000 lb (907 kg) capacity. Swivel hook with spring latch hangs from support structure, projecting outward from boom tip. Net Weight: 30 lb (14 kg)

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

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Dimensions and values shown are for reference purposes only. Specifications subject to change.

IC-40-2B Chart

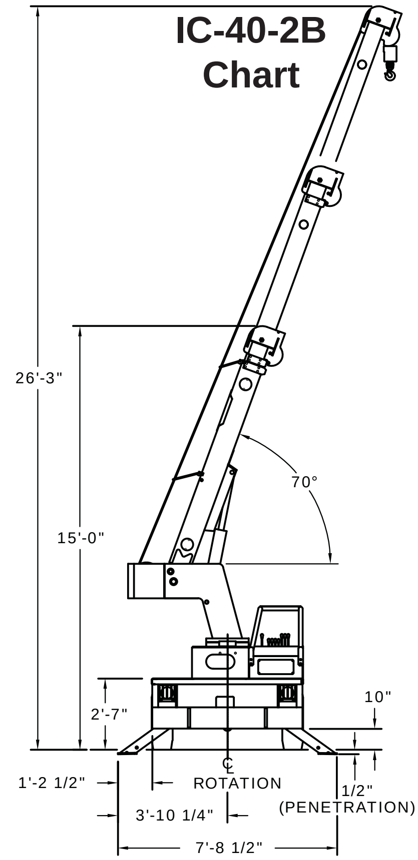
	CAPACITIES APPLY TO OPERATION ON FIRM LEVEL SURFACE			
LOAD RADIUS FEET	MAIN BOOM OR EXTENSION CAPACITIES IN POUNDS			
	360° ROTATION		OVER FRONT	
	ON RUBBER	ON OUTRIGGERS	ON RUBBER	ON OUTRIGGERS
MAIN BOOM				
4	7000	8500	7200	9000
5	5000	7000	6000	7000
6	3700	5850	5300	5850
8	2300	4150	4150	4150
10	1450	3400	3200	3400
12	1050	2850	2400	2850
14	900	2350	1900	2450
16	750	1900	1600	2150
18	650	1600	1300	1950
19	600	1450	1150	1850
8' BOOM EXTENSION				
20	550	1450	1150	1600
22	450	1250	1000	1450
24	400	1050	850	1300
26	350	850	750	1150
27	300	750	650	1100

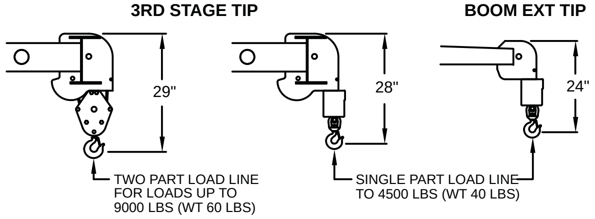
BOOM EXTENSION ANGLE	8-FOOT BOOM EXTENSION - STRAIGHT OR OFFSET: MAIN BOOM ANGLE 0°	10°	20°	30°	40°	50°	60°	70°
+ 0°	1100	1200	1300	1450	1600	1850	2300	3500
* 15°	—	—	1100	1250	1350	1500	1700	2050
* 30°	—	—	—	1100	1200	1300	1450	1600

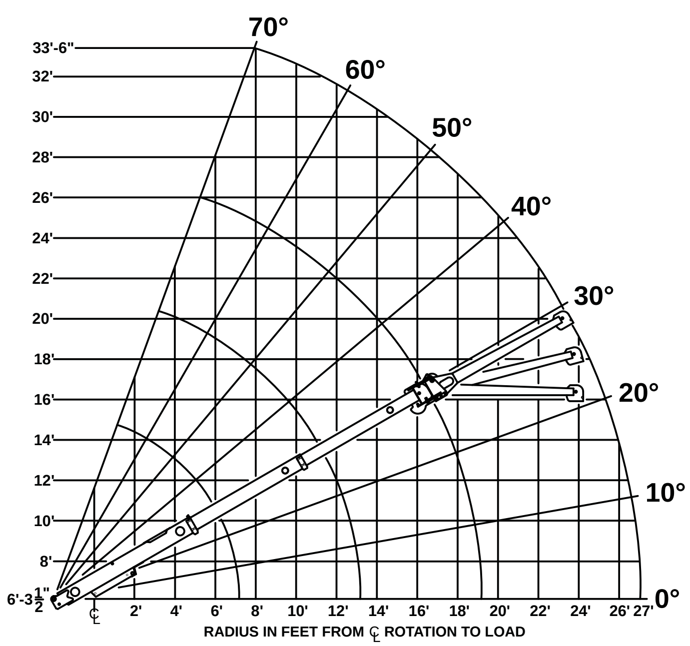
+ USE 0° FOR STRAIGHT BOOM EXTENSION.
* USE 0°, 15° OR 30° FOR OFFSET BOOM EXTENSION.

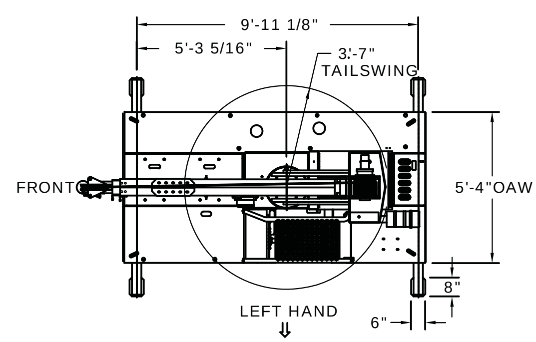
CAUTION: BOOM EXTENSION LOADS MUST NOT EXCEED MAIN BOOM CAPACITY. BOOM EXTENSION DEDUCT: 100 LBS. WHEN STOWED ON BASE BOOM, DO NOT PICK AND CARRY WITH LOADS ON BOOM EXTENSION.

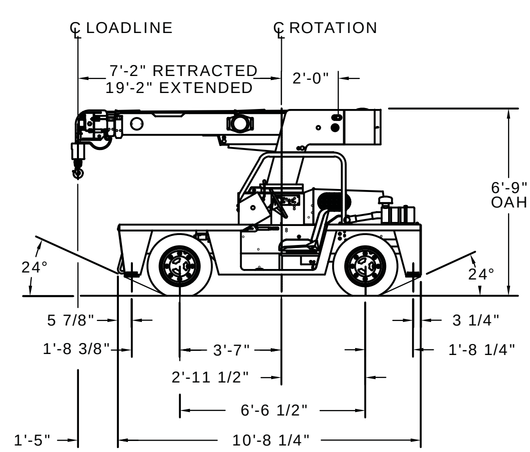
CAPACITIES ON OUTRIGGERS ARE 85% OF TIPPING LOADS. CAPACITIES ON RUBBER ARE 75% OF TIPPING LOADS. CAPACITIES BELOW **BOLD** LINE ARE LIMITED BY TIPPING. OTHER CAPACITIES ARE LIMITED BY STRUCTURAL OR HYDRAULIC CAPABILITIES. MAXIMUM HYDRAULIC PRESSURE 2600 PSI.



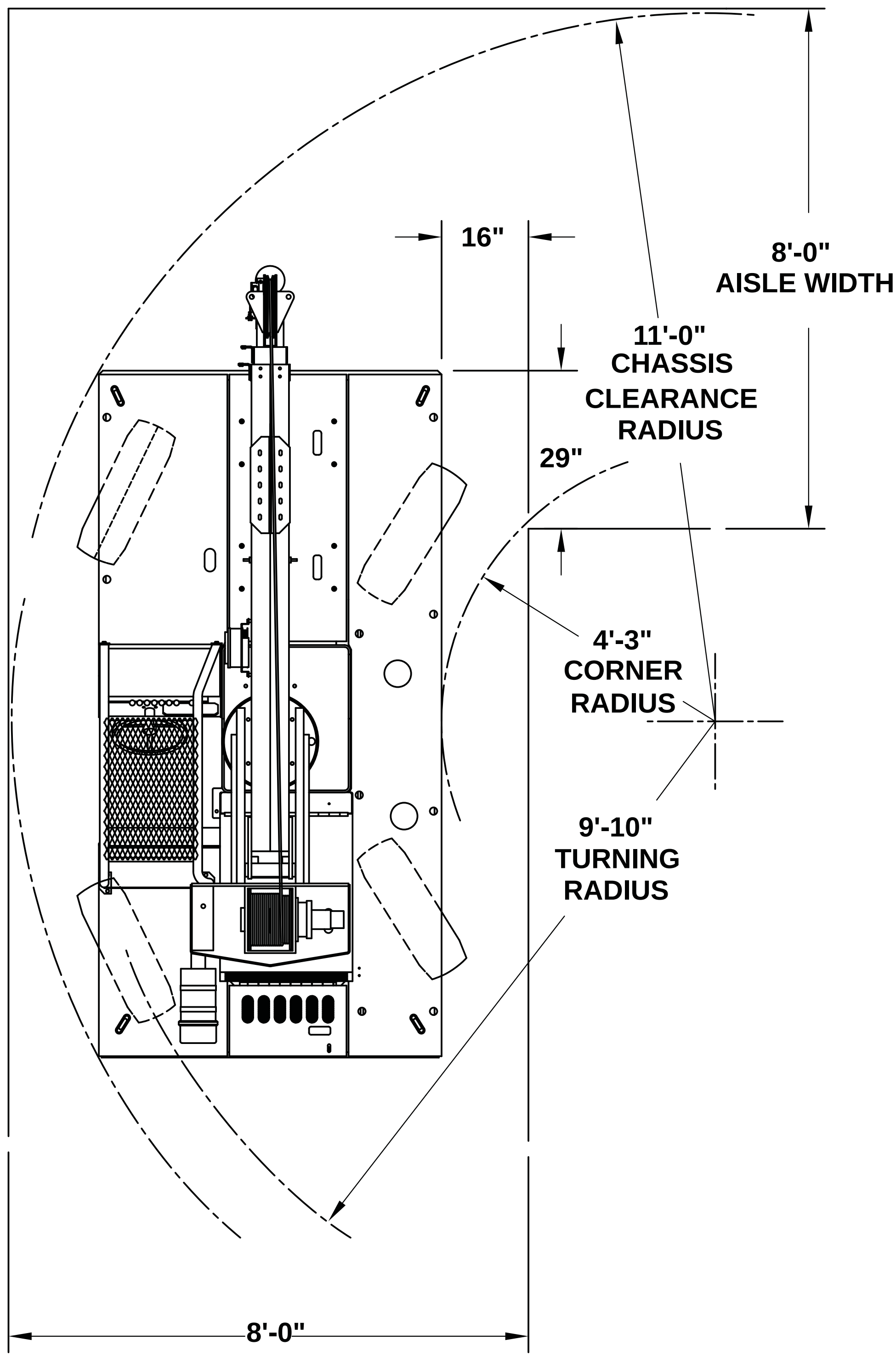








IC-40-2B
Turn Chart



IC-40-2B Metric Chart

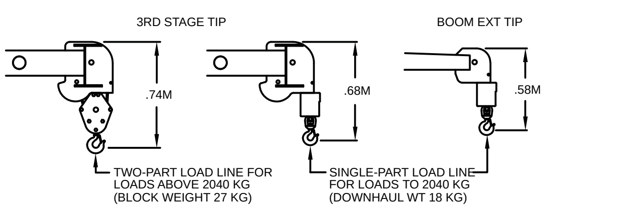
	LOAD RADIUS METERS	MAIN BOOM OR EXTENSION CAPACITIES IN KILOGRAMS — 360° ROTATION — ON RUBBER	360° ROTATION — ON OUTRIGGERS	OVER FRONT — ON RUBBER	OVER FRONT — ON OUTRIGGERS
	CAPACITIES APPLY TO OPERATION ON FIRM LEVEL SURFACE				
MAIN BOOM	1.2	3170	3850	3260	4080
MAIN BOOM	1.5	2320	3220	2750	3220
MAIN BOOM	2.0	1450	2390	2250	2400
MAIN BOOM	2.5	990	1830	1830	1830
MAIN BOOM	3.0	680	1560	1480	1560
MAIN BOOM	3.5	500	1350	1170	1350
MAIN BOOM	4.0	430	1160	940	1180
MAIN BOOM	4.5	380	980	810	1050
MAIN BOOM	5.0	330	830	700	960
MAIN BOOM	5.8	270	660	520	840
2.44M BOOM EXTENSION	6.0	260	660	520	750
2.44M BOOM EXTENSION	6.5	220	600	480	680
2.44M BOOM EXTENSION	7.0	190	520	420	620
2.44M BOOM EXTENSION	7.5	170	450	370	570
2.44M BOOM EXTENSION	8.2	130	340	290	500

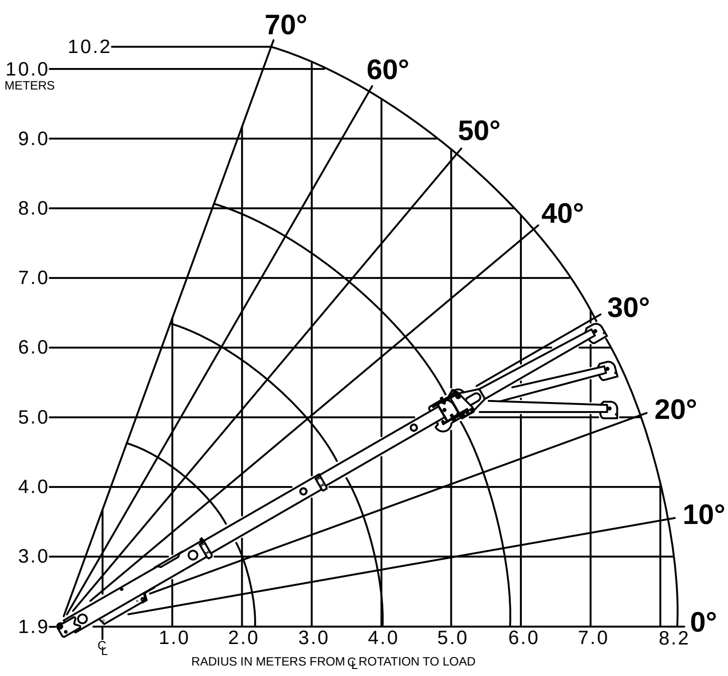
BOOM EXTENSION ANGLE	2.44M BOOM EXTENSION - STRAIGHT OR OFFSET — MAIN BOOM ANGLE 0°	10°	20°	30°	40°	50°	60°	70°
+* 0°	500	540	590	660	720	840	1040	1590
* 15°	—	—	500	560	610	680	770	930
* 30°	—	—	—	500	540	590	660	720

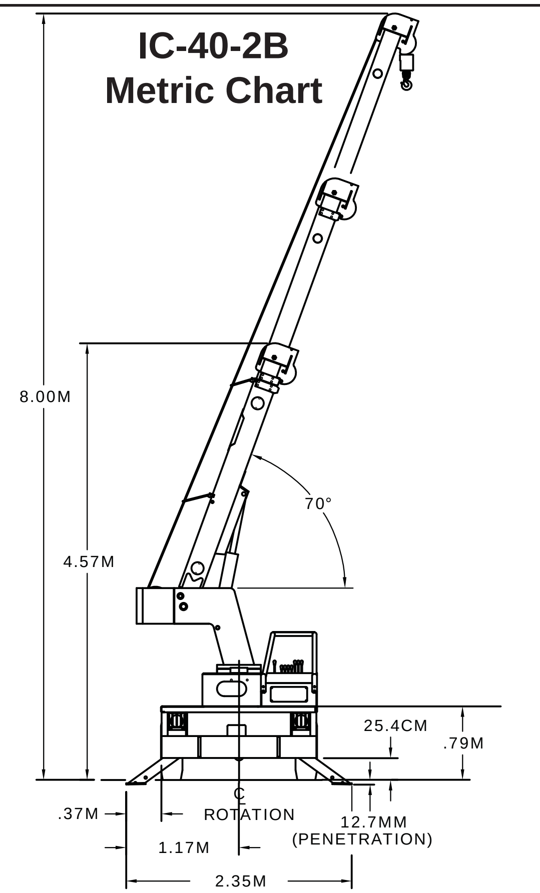
+ USE 0° FOR STRAIGHT BOOM EXTENSION.
* USE 0°, 15° OR 30° FOR OFFSET BOOM EXTENSION.

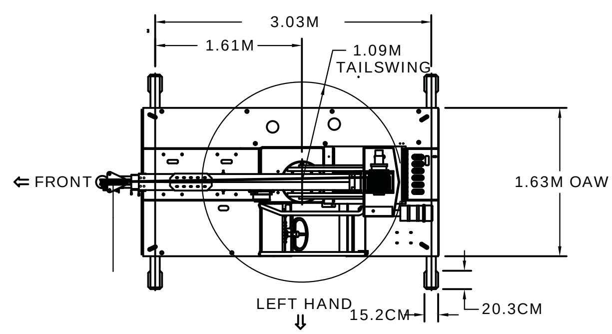
CAUTION: BOOM EXTENSION LOADS MUST NOT EXCEED MAIN BOOM CAPACITY.
BOOM EXTENSION DEDUCT: 45 KG WHEN STOWED ON BASE BOOM.
DO NOT PICK & CARRY WITH LOADS ON BOOM EXTENSION.

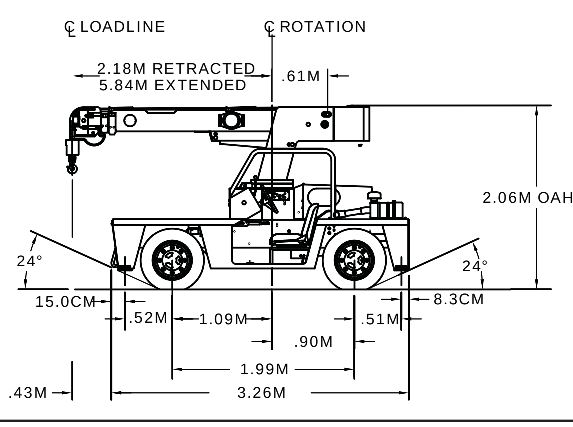
CAPACITIES ON OUTRIGGERS ARE 85% OF TIPPING LOADS. CAPACITIES ON RUBBER ARE 75% OF TIPPING LOADS. CAPACITIES BELOW **BOLD** LINE ARE LIMITED BY TIPPING. OTHER CAPACITIES ARE LIMITED BY STRUCTURAL OR HYDRAULIC CAPABILITIES. MAXIMUM HYDRAULIC PRESSURE 179 BAR.



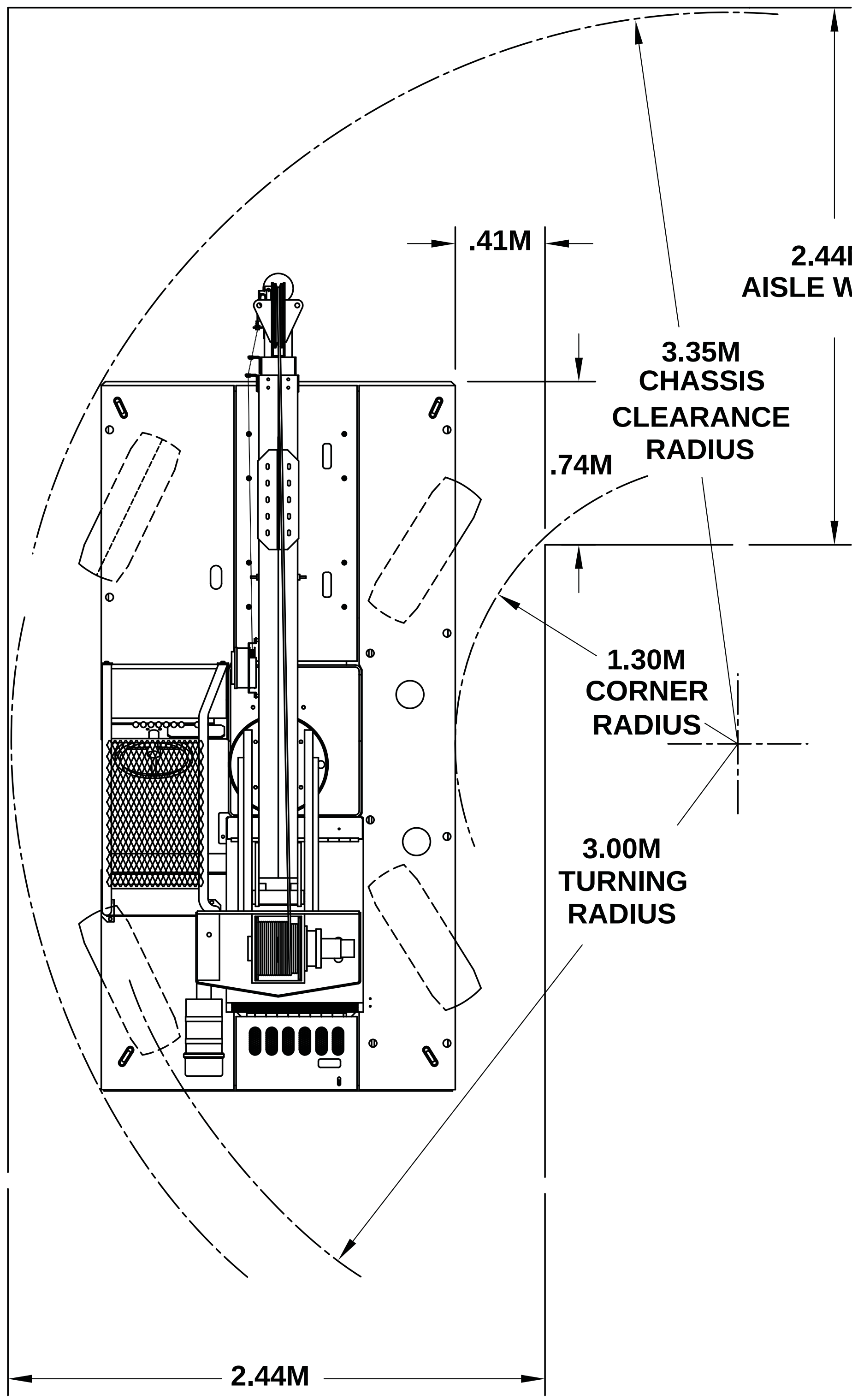








IC-40-2B
Metric Turn Chart



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