Engineering Spec

IC-80-H

BRODERSON Manufacturing Corp.
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Date: Aug 2009

Replaces:
Dated:

The IC-80-H is a self-propelled Industrial Crane designed for in-plant lifting and material handling applications, with special features of low height, narrow width, short length, cargo deck, and standard four-wheel steer and front-wheel drive. The chassis includes a frame, four independently controlled hydraulic outriggers, engine, torque converter, 4-speed powershift transmission, front planetary drive/steer and rear steer axles, fuel tank, hydraulic tank, control station, and full power steering. The boom assembly includes a hydraulic powered continuous rotation turret, 3-section boom, hydraulic boom elevating cylinder, hydraulic boom telescopic cylinders, and hydraulic powered hoist. Rated Capacity Limiter is standard.

IC-80-1H:
3-section hydraulically extended boom with capacity of 18,000 pounds (8,160 kg) at a 5-foot (1.52 m) load radius.

IC-80-2H:
3-section hydraulically extended boom with capacity of 18,000 pounds (8,160 kg) at a 5-foot (1.52 m) load radius.

IC-80-3H:
3-section hydraulically extended boom with capacity of 18,000 pounds (8,160 kg) at a 5-foot (1.52 m) load radius.

General:

Length:	
IC-80-1H	14 feet 6 inches (4.42 m)
IC-80-2H	15 feet 10 inches (4.83 m)
IC-80-3H	17 feet 10 inches (5.44 m)
Width	6 feet 6 inches (1.98 m)
Height:	
Overall	7 feet 3 inches (2.21 m)
Deck	3 feet 5 inches (1.04 m)
Wheelbase	7 feet 2 inches (2.18 m)
Ground Clearance:	
Chassis	11 inches (28 cm)
Minimum (rear axle)	7 inches (18 cm)
Angle of Approach	22 degrees
Angle of Departure	21 degrees
Outriggers:	
Spread	9 feet 7 inches (2.92 m)
Penetration	3 7/16 inches (8.7 cm)

Boom Movement:	**IC-80-1H**	**IC-80-2H**	**IC-80-3H**
Rotation	Continuous	Continuous	Continuous
Elevation	0° to 70°	0° to 70°	0° to 70°
Telescope	12 ft (3.66 m) Hyd.	14½ ft (4.42 m) Hyd.	18½ ft (5.64 m)Hyd.
Boom Speeds:			
Rotation	2 RPM	2 RPM	2 RPM
Elevation	10 seconds	10 seconds	10 seconds
Telescope	17 seconds	21 seconds	27 seconds

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General Continued:

Sheave Height: (Nominal)	**IC-80-1H**	**IC-80-2H**	**IC-80-3H**
W/O Boom Extension	28 ft 2 in (8.59 m)	31 ft 9 in (9.68 m)	37 ft 5 in (11.40 m)
With Boom Extension	37 ft 5 in (11.40 m)	41 ft 0 in (12.50 m)	46 ft 8 in (14.22 m)
Horizontal Reach:			
W/O Boom Extension	20 ft 2 in (6.15 m)	24 feet (7.32 m)	30 feet (9.14 m)
With Boom Extension	30 ft 2 in (9.19 m)	34 feet (10.36 m)	40 feet (12.19 m)
Weight: (Nominal)			
4-Wheel Steer:	16,150 lb (7,325 kg)	16,350 lb (7,415 kg)	16,750 lb (7,600 kg)
Front Axle	7,250 lb (3,290 kg)	7,600 lb (3,445 kg)	8,300 lb (3,765 kg)
Rear Axle	8,900 lb (4,035 kg)	8,750 lb (3,970 kg)	8,450 lb (3,835 kg)
4-Wheel Drive:	17,000 lb (7,710 kg)	17,200 lb (7,800 kg)	17,600 lb (7,985 kg)
Front Axle	7,550 lb (3,425 kg)	7,900 lb (3,585 kg)	8,550 lb (3,880 kg)
Rear Axle	9,450 lb (4,285 kg)	9,300 lb (4,215 kg)	9,050 lb (4,105 kg)
Steering:			
Turning Radius	10 feet 0 in (3.05 m) (4-Wheel Steer)		
Aisle Width for 90° Turn	9 feet 6 in (2.90 m)		
Steering Modes	Rear Steer, Round Steer, Crab Steer		

	STANDARD	**4-WHEEL DRIVE**
Road Speed	22 mph (35 kph)	20 mph (32 kph)
Drawbar Pull	15,500 lb[1] (7,030 kg)	19,600 lb[1] (8,890 kg)
Gradeability	63 percent[1]	71 percent [1]

1) Calculated values based on Cummins 3.3L Turbo Engine (Wheels may spin before these values are reached.)

Engine:

Standard:

Diesel Engine:

Cummins QSB 3.3L Turbo, EPA Tier III:

Cummins QSB 3.3 turbo-charged diesel industrial engine. Water cooled, 4-cylinder, 199 CID (3.3 L), bore 3.74 in. (9.50 cm), stroke 4.53 in. (11.51 cm), 85 HP (63.4 kw) at governed speed of 2,600 RPM. Maximum torque, 274 ft lb (371 n-m) at 1,400 RPM. 90-amp alternator included. 17.6 gallon (66.6 L) fuel tank. High temperature and low oil pressure shutdown is included in engine management system. Throttle control switch for setting engine speed at 1,200 or 1,800 RPM. Charge air cooler and grid heater included. Net Weight: 180 lb (81.6 kg)

Optional Engines and Engine Accessories:

Spark Arrester Muffler:

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

Catalytic Converter:

Catalytic converter for diesel engine. Reduces emissions. Net Weight: 10 lb (4.5 kg)

Engine Heater:

Engine coolant heater installed with hoses in coolant system to circulate warm water through engine. Plugs into 120-volt AC extension cord. 1,500 watts.

Transmission:

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 forward, neutral, reverse and speed selection. Equipped with oil cooler and filter.

Ratios		STANDARD				4-WHEEL DRIVE			
Transmission Gear	Forward or Reverse	Travel Speed MPH	(KPH)	Drawbar Pull[1] lb	(KG)	Travel Speed MPH	(KPH)	Drawbar Pull[1] lb	(KG)
1st	5.72:1	4	(6)	15,500	(7,030)	3	(5)	19,600	(8,890)
2nd	3.23:1	7	(11)	8,700	(3,945)	6	(10)	11,000	(4,990)
3rd	1.77:1	13	(21)	4,600	(2,085)	11	(11)	5,900	(2,675)
4th	1.00:1	22	(35)	2,500	(1,135)	20	(32)	3,300	(1,495)

1) Drawbar pull is calculated based on Cummins 3.3L Turbo diesel engine.

Torque Converter:

Stall torque ratio of 2.2/1. Attached to engine flywheel.

Front Axle:

Standard:

Planetary drive axle with 11.625:1 ratio. Differential is “No Spin”. Front axle is mounted rigidly to frame.

Optional 4-Wheel Drive:

Planetary drive/steer axle with integral drop box input for an overall 13.76:1 ratio. Differential is “No Spin” Oscillation is 1 1/2 degrees in either direction. Only available with mining and industrial tires.

Rear Axle:

Standard:

Drop-center axle beam casting with 1½ degree oscillation in either direction.

Optional 4-Wheel drive:

Planetary drive/steer axle with overall 13.76:1 ratio including the reduction through the front-axle-mounted drop box. Differential is limited slip. Oscillation is 1 1/2 degrees in either direction. Only available with mining and industrial tires. Diesel engine is required for this option. Net Weight: 550 lb (250 kg) including front axle.

Steering:

Standard:

Hydraulic steering unit with two cylinders on rear axle and one double-rod cylinder on front 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.

Brakes:

Standard:

Four-wheel hydraulic. Rear axle has drum type on 4x2. Front axle has wet disc brakes. Parking brake is disc type.

Brakes on Optional 4-Wheel Drive:

Wet disc on both axles. Parking brake is disc type.

Tires:

Standard:

10.00 x 15, Load Range H bias ply tires, 16-ply rating.

Mining and Industrial Tires (Standard with 4 x 4):

36 x 11-15, 16-ply rating pneumatic tires. Optional for 4 x 2. Net Weight: 120 lb (55 kg)

Non-Marking Option for Mining and Industial Tires:

Non-marking option for Mining and Industrial Tires. Net Weight: 120 lb (55 kg)

Tire Options:

Solid Rubber Tires:

8:25x15. These tires will reduce overall height & ground clearance by 1½ in (3.8 cm). Net Weight: 400 lb (180 kg)

Foam Filling of Tires:

All four tires foam-filled. Net Weight: 900 lb (410 kg)

Spare Tire and Wheel Mounted:

Radial, Net Weight: 163 lb (74 kg)

Bias, Net Weight: 163 lb (74 kg)

Mining and Industrial Tire, Net weight: 193 lb (88 kg)

Mining and Industrial Tire, Non-Marking: Net Weight: 193 lb (88 kg)

Chassis:

Standard:

Cargo Deck:

Total Deck Area: 53 Sq Ft (4.92 m^2) a maximum of 14,000 lb (6,350 kg) may be carried on the deck when centered over or between axles.** Seven stake pockets are provided along edges of deck for 1.0 in (2.5 cm) pipe stakes. Stakes furnished. Cargo decks have skid resistant coating.

** 14,000 lb (6,350 kg) allowed at creep speed below 2 mph (3.2 kph) & less than 200 ft (61 m) in 30 minutes.

Fire Extinguisher:

1-A:10-BC, 2½ lb (1.13 kg) dry chemical. Mounted in operator's compartment.

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.

Tie Downs:

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

Steps:

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

Battery:

Located behind door on left hand rear corner of chassis. Compartment available on right hand rear corner of chassis for second battery if necessary.

Outriggers:

Four hydraulic outriggers of box-beam construction. Independent controls for each outrigger. Hydraulic cylinders are equipped with direct-connected holding valves. Pad dimensions: 9 in (23 cm) x 12 in (30 cm)

Pulling Eyes:

Heavy eyes on front bumper provided for attachment of hook block so main hoist line can be used for pulling loads at or near floor level.

Vandalism Protection:

Lockable hood for protection of engine compartment.

Accessory Storage Box:

Consists of box under front deck plate for carrying sheave block and other items. Flush fitting cover is lockable. Storage box is 14 in (35.5 cm) deep x 10½ in (26.7 cm) wide x 27 in (68.6 cm) long.

Chassis Options and Accessories:

Auxiliary Winch:

Optional worm gear winch, mounted behind front bumper, with a lever control at the operator's console. Hydraulic powered to provide bare drum line pull of 5,000 lb (2,268 kg) at 46 feet (14 m) per minute. Winch drum is 3½ in (8.9 cm) diameter by 11 in (27.9 cm) long. This winch includes 75 ft (22.9 m) of 3/8 in (9.5 mm) wire rope, hook and four-way roller guide. Net Weight: 100 lb (45 kg)

Pintle Hook - Rear:

T-60-A Holland pintle hook mounted on rear frame member provides capacity for 2,000 lb (905 kg) tongue weight and 10,000 lb (4,535 kg) trailer weight. Net Weight: 10 lb (4.5 kg)

Pintle Hook - Front:

T-60-A Holland pintle hook mounted on front frame member. Provides same capacity as rear pintle hook. Net Weight: 25 lb (11.3 kg)

Headlight and Taillight Grilles:

Consists of welded steel protective grilles for headlights and taillights. Easily removable for replacing bulb Net Weight: 40 lb (18.1 kg)

Rearview Mirrors:

One right-hand and one left-hand mirror, 6 in (15.2 cm) wide x 16 in (40.6 cm) high, mounted on deck stakes. Pivot out of way when contacted by obstacle at side of deck. Net Weight: 12 lb (5.4 kg)

Operator's Compartment:

Standard:

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

Operator's Compartment Options and Accessories:

Operator's Guard: (Not Available with Cab)

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

Operator's Guard Cover:

Clear vinyl cover goes over guard for inclement weather. Has zipper and velcro roll-up door. Net Weight: 15 lb (6.8 kg)

Operator's Guard Door:

Hinged door covers operator compartment side opening. Has latch handle outside and knob inside. Rubber gasket contacts chassis. Net Weight: 40 lb (18.1 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, 24,000 BTU heater with two-speed fan and 12V electric windshield wiper. There are sliding windows in the door and right-hand side. Dome light is included for operator's convenience. Also includes locking caps for fuel and hydraulic tanks. Net Weight: 215 lb (97.5 kg)

Cab Heater Only:

Provides 24,000 BTU heater with two-speed fan for units without All Weather Cab. Net Weight: 12 lb (5.4 kg)

Windshield Washer:

Provides reservoir, pump and nozzle for windshield washer.

Floor Mat:

Vinyl mat with foam backing covers floor, front wall and lower portion of right hand wall of operator's compartment.

Operator's Suspension Seat:

Grammer suspension seat provides additional operator comfort. Net Weight: 15 lb (6.8 kg)

Operator's Compartment Options and Accessories: (Cont'd)

Noise Reduction Kit - Cab:

Includes rubber floor mats and control valve cover and side panels of foam-backed perforated vinyl for noise reduction. Net Weight: 13 lb (5.9 kg)

Air Conditioning:

Complete system using 134a coolant. Has combination cooling and heating unit in cab. Net Weight: 125 lb (56.7 kg)

Electrical System:

Standard:

12-Volt Battery:

Diesel Units: Group 31 with 950 CCA rating.

Instrument Group:

Located at operator's station and includes fuel gauge, hourmeter and bubble level. Hourmeter records hours only during actual engine operation. Also included are: warning lights for low oil and transmission pressure, turn signal, high beams, hazard lights, parking brake, hydraulic oil temperature, battery, check engine, stop engine, coolant temperature, engine oil pressure, transmission temperature, outriggers, and optional 4-wheel drive.

Lighting Group:

Consists of two 12V lamps, with high and low beams for driving; integral 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.

Back-Up Alarm:

Provides pulsating sound from a 97 dB alarm when ignition is on and transmission is in reverse. Conforms to SAE J994b.

Outrigger Alarm System:

112 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. Flash 60-120 times per minute. Each strobe draws only one-half amp. Includes operator controlled switch.

Amber Rotating Beacons:

Amber rotating beacon mounted on each side of turret weight box. Net Weight: 10 lb (4.5 kg)

Boom Work Lights:

Two 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 lb 4.5 kg)

Work Light Rear:

Two work lights recessed into rear bumper. Provides lighted work area to rear of machine.

Hydraulic System:

Standard:

Tandem pump, direct-driven by engine crankshaft, delivers 16 GPM (61 LPM) at 2,600 PSI (179 bar) and 32 GPM (121 LPM) at 2,500 PSI (172 bar) at 2,500 RPM governed engine speed. System protected by relief valves, suction line strainer and 10-micron full-flow return line filter. 25 gallon (94.6 L) reservoir equipped with filler cap and breather element.

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. Telescope cylinder and the boom elevation cylinder are equipped with direct-connected holding valves. Boom angle indicator on side of boom.

Boom Rotation:

Standard:

Heavy-duty bearing rotation gear with external teeth supports boom. Rotation is powered by hydraulic motor and worm gear drive. Rotation 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 bare-drum line pull of 10,000 lb (4,535 kg) at a speed of 110 ft (33.5 m) per minute. Hoist drum 9¾ in (24.8 cm) diameter by 13 in (33 cm) long. Provides even pull and long cable life. The hoist includes 125 ft (38.1 m) of 9/16-in (14.3 mm) wire rope.

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 which is connected through cable reel mounted on turret 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** or **TELESCOPE RETRACT** control.

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 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.

Sheave Block and Downhaul Weight:

A 124-lb (56 kg) sheave block is provided for two-part line requirements. Block is shorter than normal, 21½ in (54.6 cm) from top to saddle of load hook. 10 in (25.4 cm) O.D. sheave for 9/16 in (14.3 mm) rope. Has swivel hook with safety latch. A 90 lb (40 kg) downhaul weight and swivel hook are also provided for single-part line.

Optional Boom Attachments:

Boom Extension - 10 Ft (3.09 m):

Provides 10 ft (3.09 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 100 lb (45 kg) from Capacity Chart when boom extension is in the stowed position. Includes switch for Anti-Two-Block. Net Weight: 300 lb (135 kg)

Boom Extension - 10 Ft (3.09 m) Offset:

Has three settings: 0 degrees (in-line), 15 degrees offset and 30 degrees offset. Net Weight: 350 lb (160 kg)

Searcher Hook - Nose Mount:

5,000 lb (2,267 kg) capacity. Swivel hook with spring latch hangs from support structure projecting outward from boom tip. Net Weight: 41 lb (18.6 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-80-1H Chart

	CAPACITIES APPLY TO OPERATION ON FIRM LEVEL SURFACE				
	LOAD RADIUS	MAIN BOOM OR EXTENSION CAPACITIES IN POUNDS			
		360° ROTATION		OVER FRONT	
	FEET	ON RUBBER	ON OUTRIGGERS	ON RUBBER	ON OUTRIGGERS
MAIN BOOM	5	9600	17000	11700	18000
	6	7900	14500	10400	14500
	8	5750	10250	8400	10250
	10	4150	7700	6300	7700
	12	3100	6550	4650	6550
	14	2425	5550	3750	5550
	16	2000	4650	3100	4650
	18	1700	4100	2650	4150
	20	1450	3550	2300	3800
10' BOOM EXT.	22	1275	3000	2000	3000
	24	1075	2800	1725	2800
	26	925	2500	1500	2600
	28	775	2200	1300	2400
	30	675	2000	1150	2250

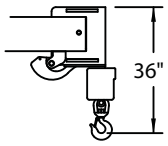
BOOM EXT	10-FOOT BOOM EXTENSION - STRAIGHT OR OFFSET				
	MAIN BOOM ANGLE				
ANGLE	0°	30°	45°	60°	70°
*† 0°	2250	2600	3200	5000	7000
†15°	---	2400	2700	3500	4200
†30°	---	2250	2500	3000	3300

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

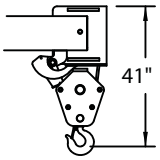
CAUTION BOOM EXTENSION LOADS MUST NOT EXCEED MAIN BOOM CAPACITY. DO NOT PICK & CARRY WITH LOADS ON BOOM EXTENSION.

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 CAPABILITY.

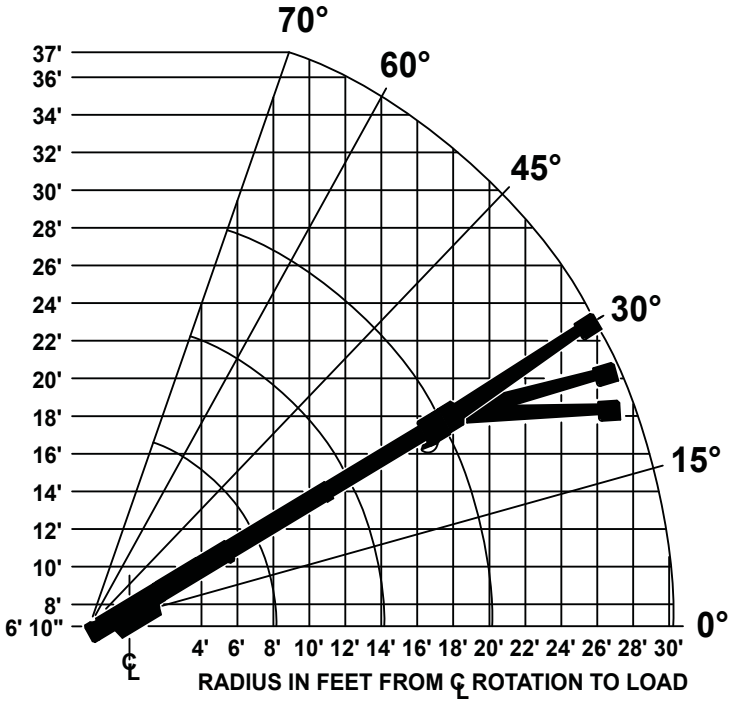
BOOM EXTENSION DEDUCT: 100 LBS WHEN STOWED ON BASE BOOM.

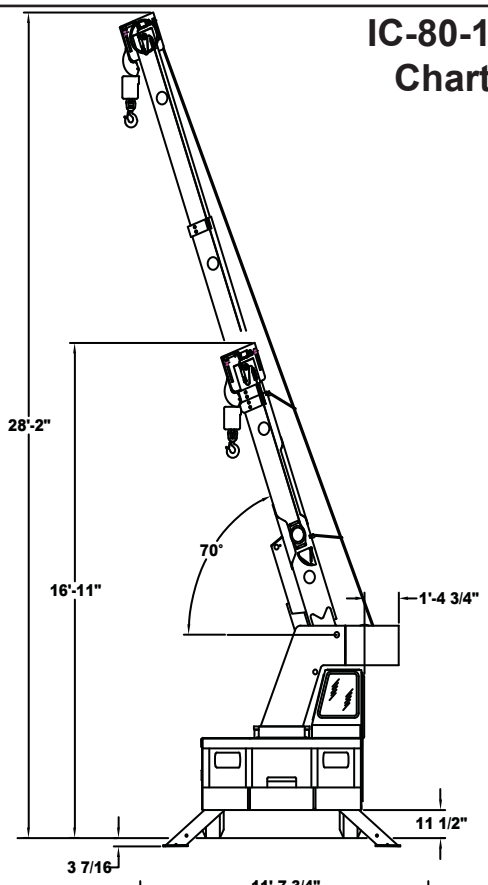


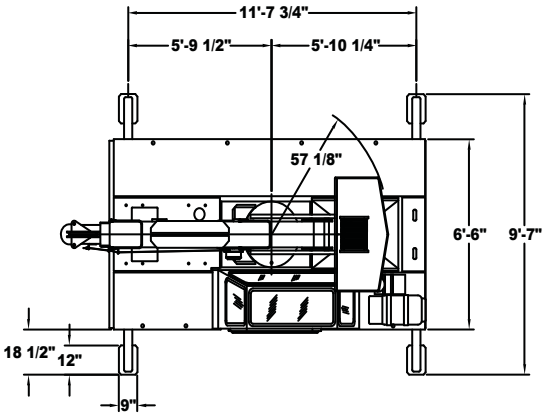
USE SINGLE PART LOAD LINE FOR LOADS TO 9000 LBS. (WT. 90 LBS.)

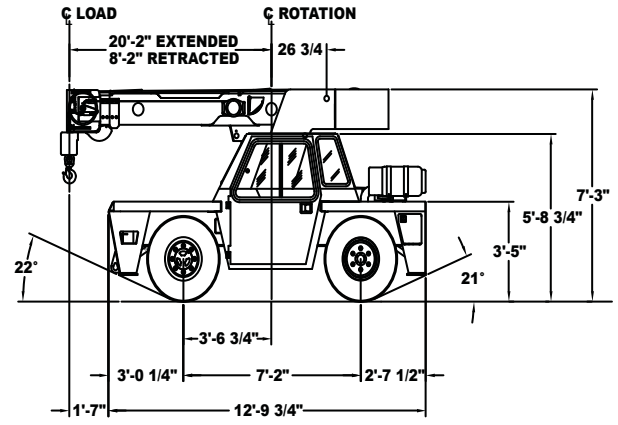


USE TWO PART LOADLINE FOR LOADS TO 18000 LBS. (WT. 124 LBS.)









IC-80-2H Chart

	CAPACITIES APPLY TO OPERATION ON FIRM LEVEL SURFACE				
	LOAD RADIUS FEET	MAIN BOOM OR EXTENSION CAPACITIES IN POUNDS 360° ROTATION ON RUBBER	360° ROTATION ON OUTRIGGERS	OVER FRONT ON RUBBER	OVER FRONT ON OUTRIGGERS
MAIN BOOM	5	9500	17000	11600	18000
	6	7800	14500	10200	14500
	8	5650	10250	8250	10250
	10	4000	7700	6200	7700
	12	3000	6550	4650	6550
	14	2350	5550	3650	5550
	16	1900	4550	2950	4550
	18	1600	3950	2500	4050
	20	1350	3350	2150	3650
	22	1150	2950	1850	3300
	24	1000	2550	1650	3100
10' BOOM EXT.	26	850	2450	1450	2750
	28	725	2175	1275	2500
	30	625	1900	1125	2300
	32	525	1725	1000	2100
	34	425	1500	900	1950

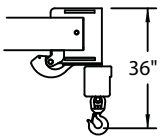
BOOM EXT. ANGLE	10-FOOT BOOM EXTENSION - STRAIGHT OR OFFSET MAIN BOOM ANGLE 0°	30°	45°	60°	70°
*† 0°	2250	2600	3200	5000	7000
†15°	---	2400	2700	3500	4200
†30°	---	2250	2500	3000	3300

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

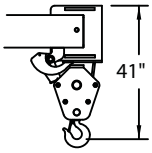
CAUTION BOOM EXTENSION LOADS MUST NOT EXCEED MAIN BOOM CAPACITY. DO NOT PICK & CARRY WITH LOADS ON BOOM EXTENSION.

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 CAPABILITY.

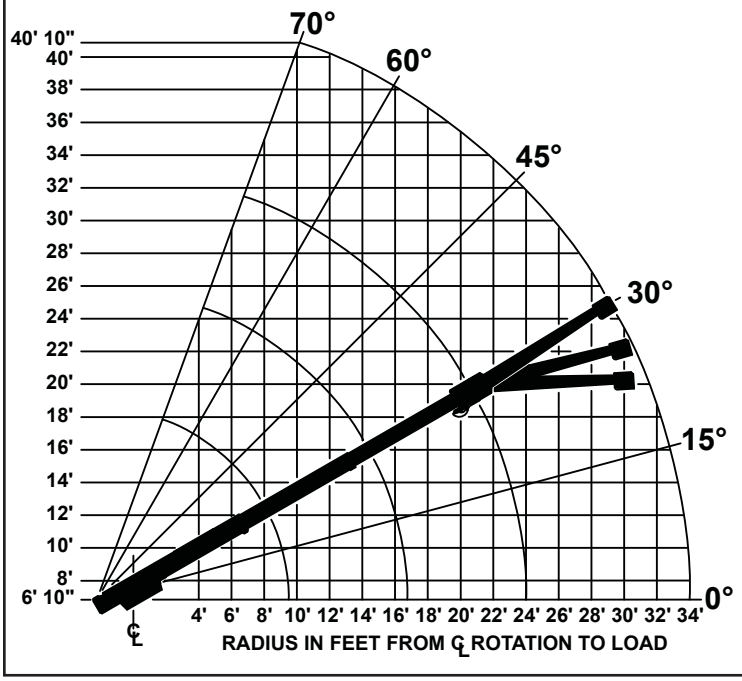
BOOM EXTENSION DEDUCT: 100 LBS WHEN STOWED ON BASE BOOM.

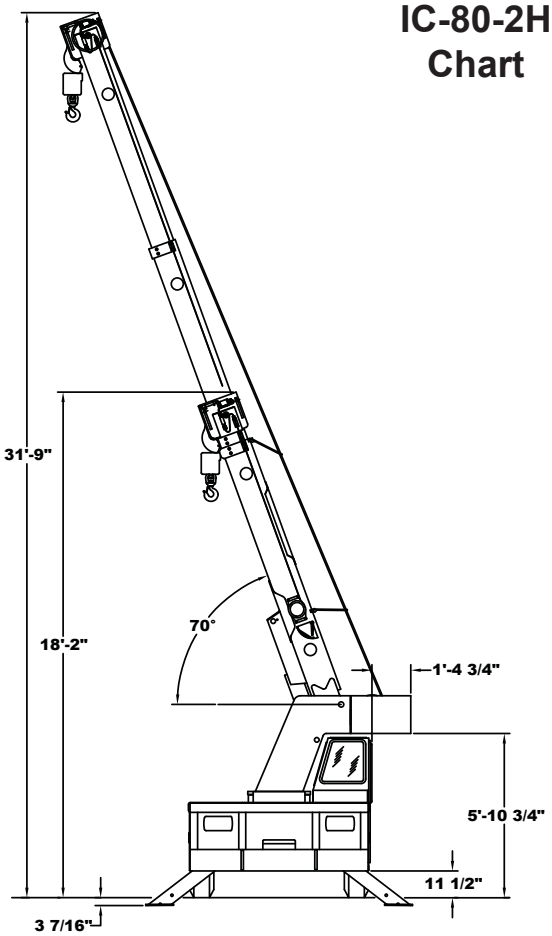


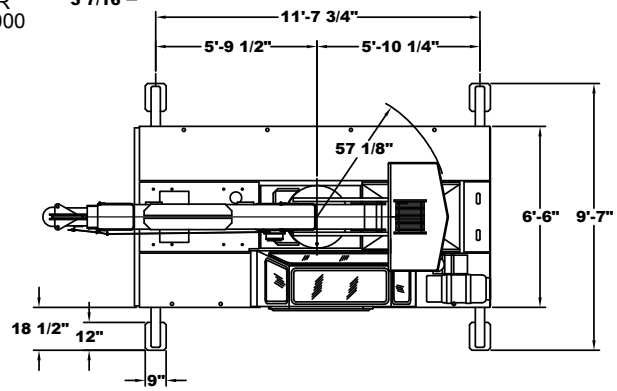
USE SINGLE PART LOAD LINE FOR LOADS TO 9000 LBS. (WT. 90 LBS.)

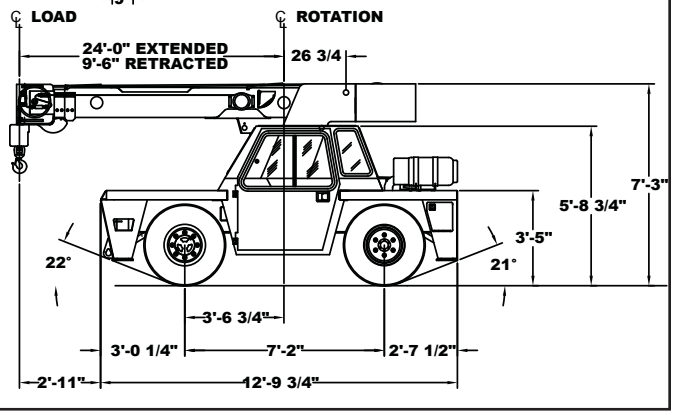


USE TWO PART LOADLINE FOR LOADS TO 18000 LBS. (WT. 124 LBS.)









IC-80-3H Chart

	CAPACITIES APPLY TO OPERATION ON FIRM LEVEL SURFACE			
LOAD RADIUS	MAIN BOOM OR EXTENSION CAPACITIES IN POUNDS			
	360° ROTATION		OVER FRONT	
FEET	ON RUBBER	ON OUTRIGGERS	ON RUBBER	ON OUTRIGGERS
MAIN BOOM 5	9400	17000	11400	18000
6	7550	14000	10000	14000
8	5600	10000	8100	10000
10	4300	7700	6100	7700
12	3200	6100	4450	6100
14	2550	5200	3400	5200
16	2050	4400	2700	4400
18	1650	3900	2200	3900
20	1350	3400	1800	3400
22	1150	3050	1550	3050
24	1000	2750	1350	2800
26	850	2450	1200	2550
28	750	2200	1100	2350
30	650	1950	1000	2150
10' BOOM EXT. 32	450	1750	900	1950
34	350	1600	800	1800
36	250	1450	700	1650
38	200	1300	600	1500
40	150	1150	500	1400

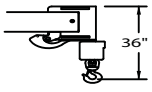
BOOM EXTENSION ANGLE	10-FOOT BOOM EXTENSION - STRAIGHT OR OFFSET MAIN BOOM ANGLE				
	0°	30°	45°	60°	70°
*†0°	2250	2600	3200	5000	7000
†15°	---	2400	2700	3500	4200
†30°	---	2250	2500	3000	3300

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

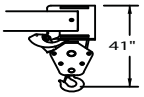
CAUTION BOOM EXTENSION LOADS MUST NOT EXCEED MAIN BOOM CAPACITY. DO NOT PICK & CARRY WITH LOADS ON BOOM EXTENSION.

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 CAPABILITY.

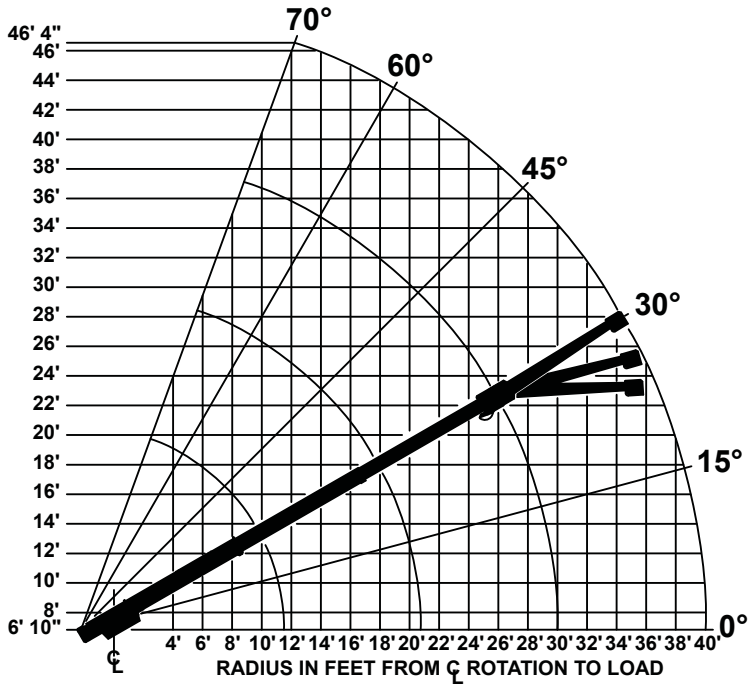
BOOM EXTENSION DEDUCT: 100 LBS WHEN STOWED ON BASE BOOM.

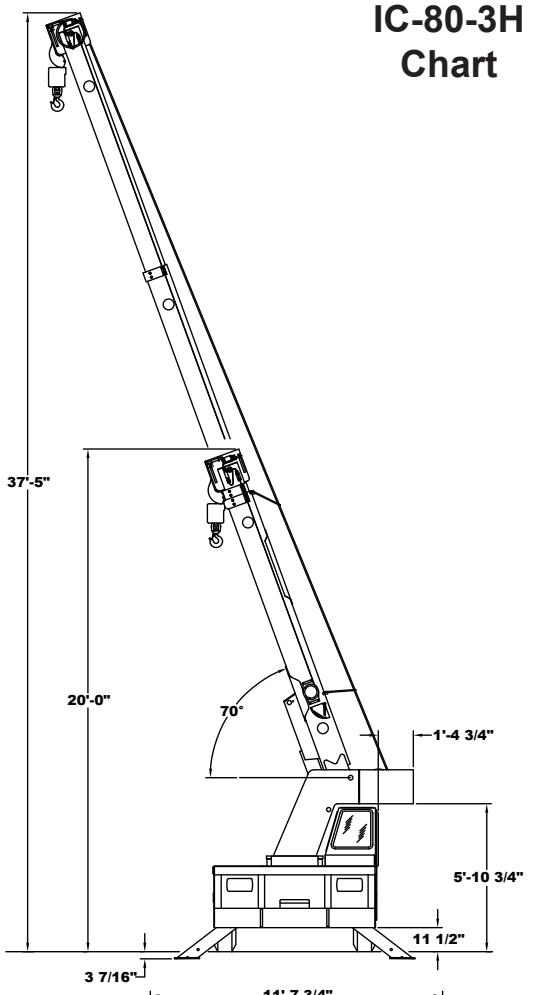


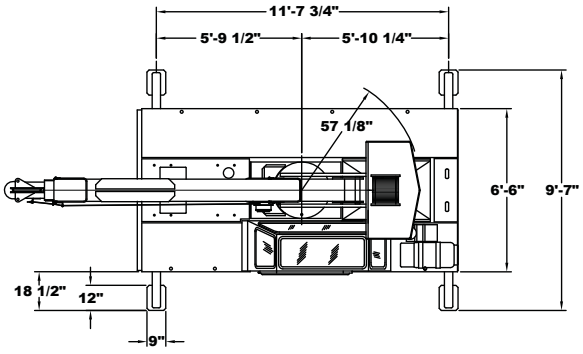
USE SINGLE PART LOAD LINE FOR LOADS TO 9000 LBS. (WT. 90 LBS.)

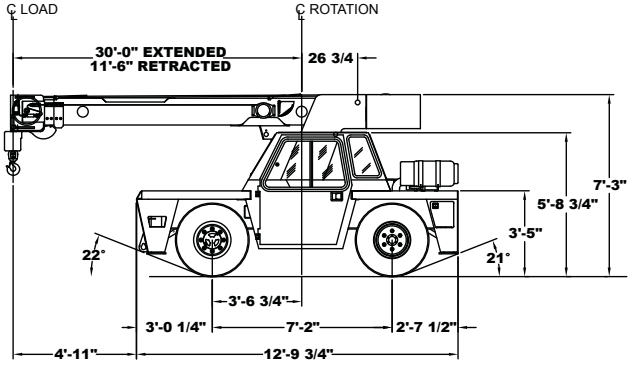


USE TWO PART LOADLINE FOR LOADS TO 18000 LBS. (WT. 124 LBS.)

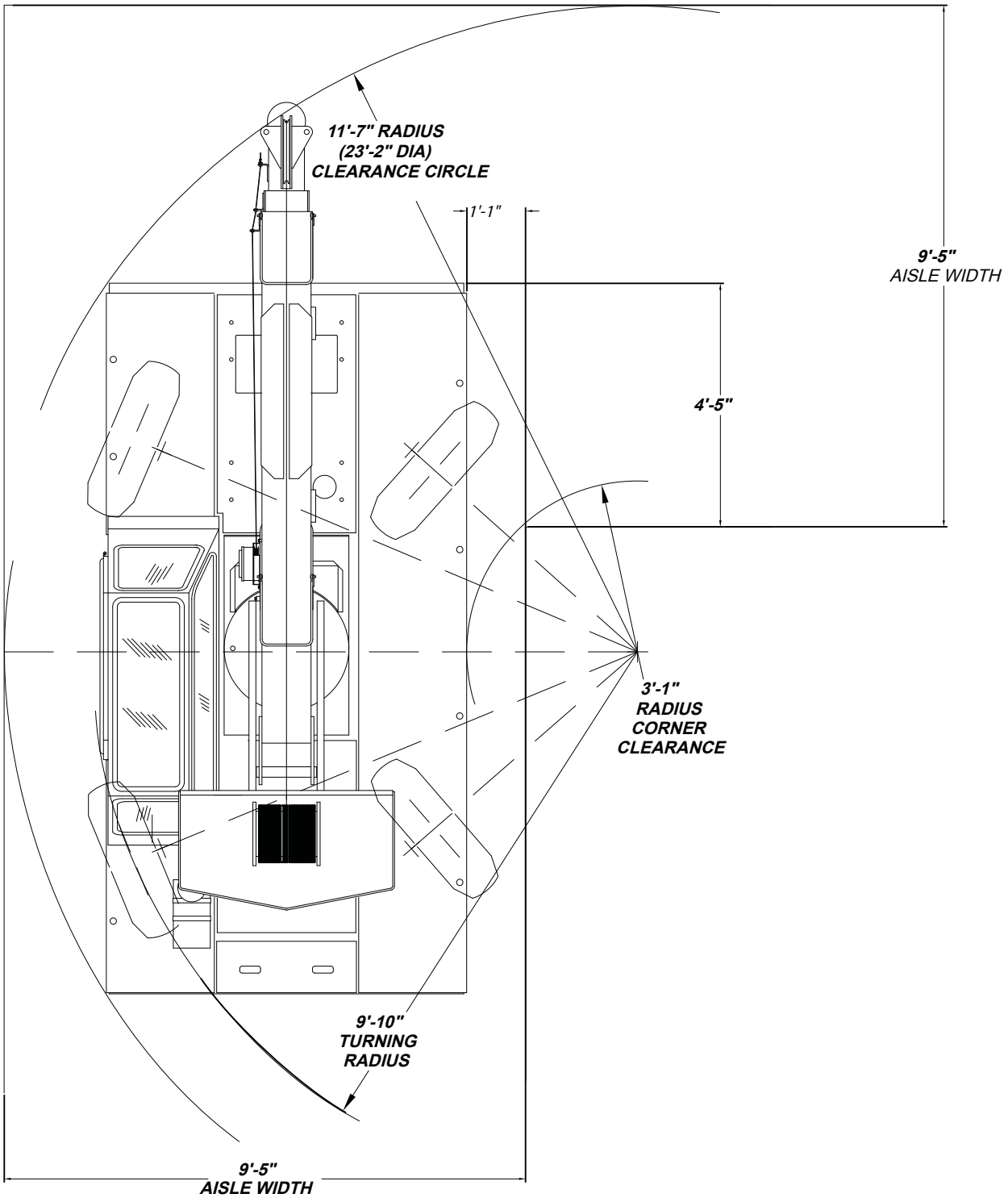








IC-80-H
Turn Chart



IC-80-1H
Metric Chart

	LOAD RADIUS METERS	CAPACITIES APPLY TO OPERATION ON FIRM LEVEL SURFACE MAIN BOOM OR EXTENSION CAPACITIES IN KILOGRAMS 360° ROTATION ON RUBBER	360° ROTATION ON OUTRIGGERS	OVER FRONT ON RUBBER	OVER FRONT ON OUTRIGGERS
MAIN BOOM	1.5	4350	7710	5300	8160
	2.0	3290	5980	4460	5980
	2.5	2520	4480	3710	4480
	3.0	1920	3540	2930	3540
	3.5	1500	3090	2260	3090
	4.0	1210	2710	1850	2710
	4.5	1010	2350	1580	2350
	5.0	870	2050	1360	2050
	5.5	760	1850	1190	1870
	6.0	670	1640	1060	1750
3M BOOM EXT.	6.5	600	1390	950	1390
	7.0	530	1310	840	1310
	8.0	410	1110	660	1160
	9.1	300	900	520	1020

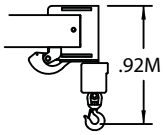
BOOM EXTENSION ANGLE	3 METER BOOM EXTENSION - STRAIGHT OR OFFSET MAIN BOOM ANGLE 0°	30°	45°	60°	70°
0°	1020	1180	1450	2260	3170
15°	---	1090	1220	1580	1900
30°	---	1020	1130	1360	1490

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

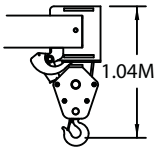
CAUTION BOOM EXTENSION LOADS MUST NOT EXCEED MAIN BOOM CAPACITY. DO NOT PICK & CARRY WITH LOADS ON BOOM EXTENSION.

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 CAPABILITY.

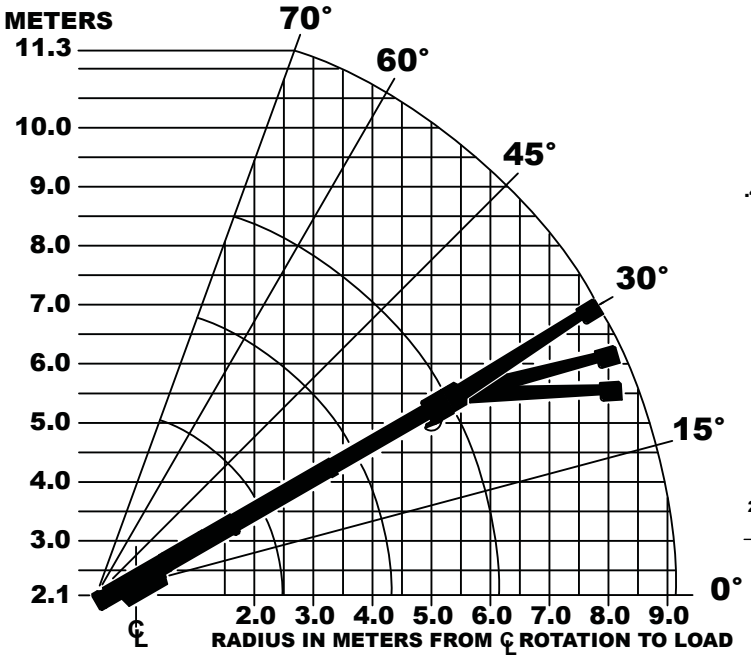
BOOM EXTENSION DEDUCT: 45 KGS WHEN STOWED ON BASE BOOM.

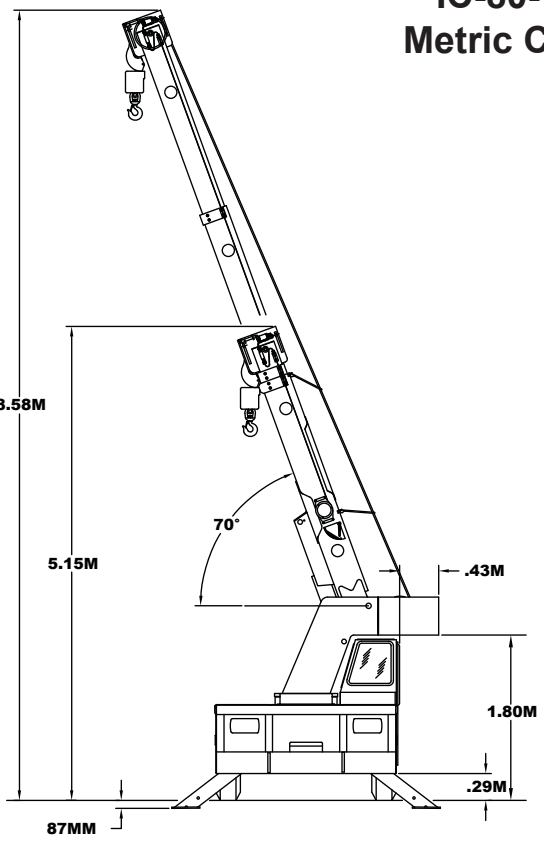


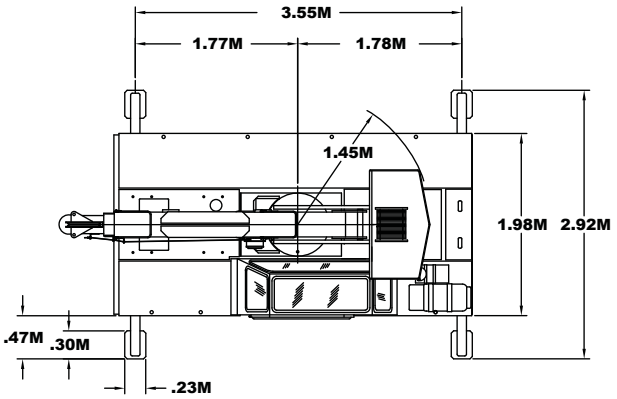
USE SINGLE PART LOAD LINE FOR LOADS TO 4090 KGS. (WT. 40 KGS.)

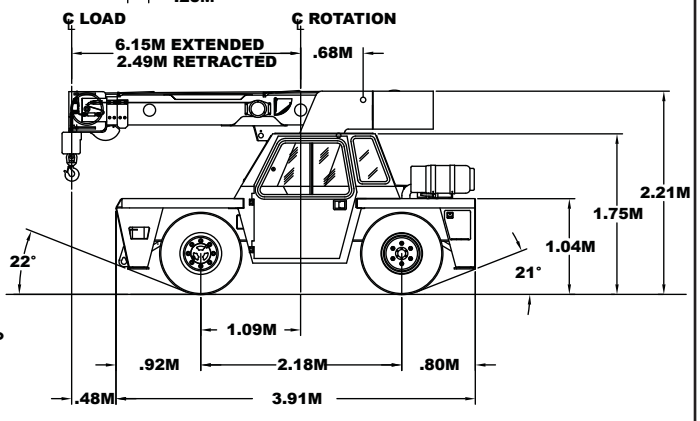


USE TWO PART LOADLINE FOR LOADS TO 8180 KGS. (WT. 56 KGS.)









IC-80-2H
Metric Chart

	CAPACITIES APPLY TO OPERATION ON FIRM LEVEL SURFACE				
	LOAD RADIUS	MAIN BOOM OR EXTENSION CAPACITIES IN KILOGRAMS			
		360° ROTATION		OVER FRONT	
	METERS	ON RUBBER	ON OUTRIGGERS	ON RUBBER	ON OUTRIGGERS
MAIN BOOM	1.5	4310	7710	5260	8160
	2.0	3250	6020	4380	5990
	2.5	2480	4480	3640	4500
	3.0	1860	3540	2870	3540
	3.5	1460	3090	2260	3090
	4.0	1170	2720	1830	2720
	4.5	980	2340	1520	2340
	5.0	830	2010	1290	2000
	5.5	720	1780	1130	1830
	6.0	630	1560	1000	1680
	6.5	550	1400	880	1550
	7.3	450	1150	750	1400
3M BOOM EXT.	8.0	380	1100	650	1230
	9.0	290	890	530	1060
	10.0	220	740	430	920
	10.4	190	680	410	880

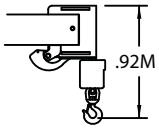
	BOOM EXT.	3 METER BOOM EXTENSION - STRAIGHT OR OFFSET				
		MAIN BOOM ANGLE				
	ANGLE	0°	30°	45°	60°	70°
3M BOOM EXT.	*† 0°	1020	1180	1450	2260	3170
	†15°	---	1090	1220	1580	1900
	†30°	---	1020	1130	1360	1490

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

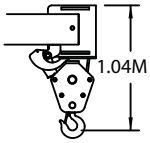
CAUTION BOOM EXTENSION LOADS MUST NOT EXCEED MAIN BOOM CAPACITY. DO NOT PICK & CARRY WITH LOADS ON BOOM EXTENSION.

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 CAPABILITY.

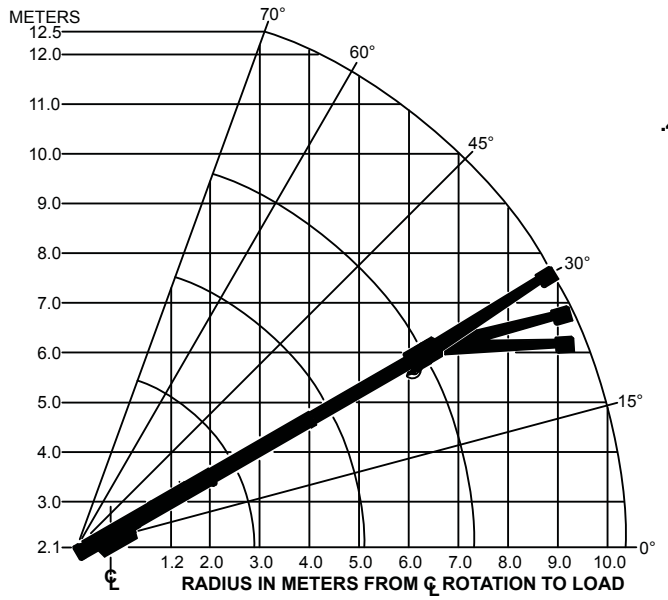
BOOM EXTENSION DEDUCT: 45 KGS WHEN STOWED ON BASE BOOM.

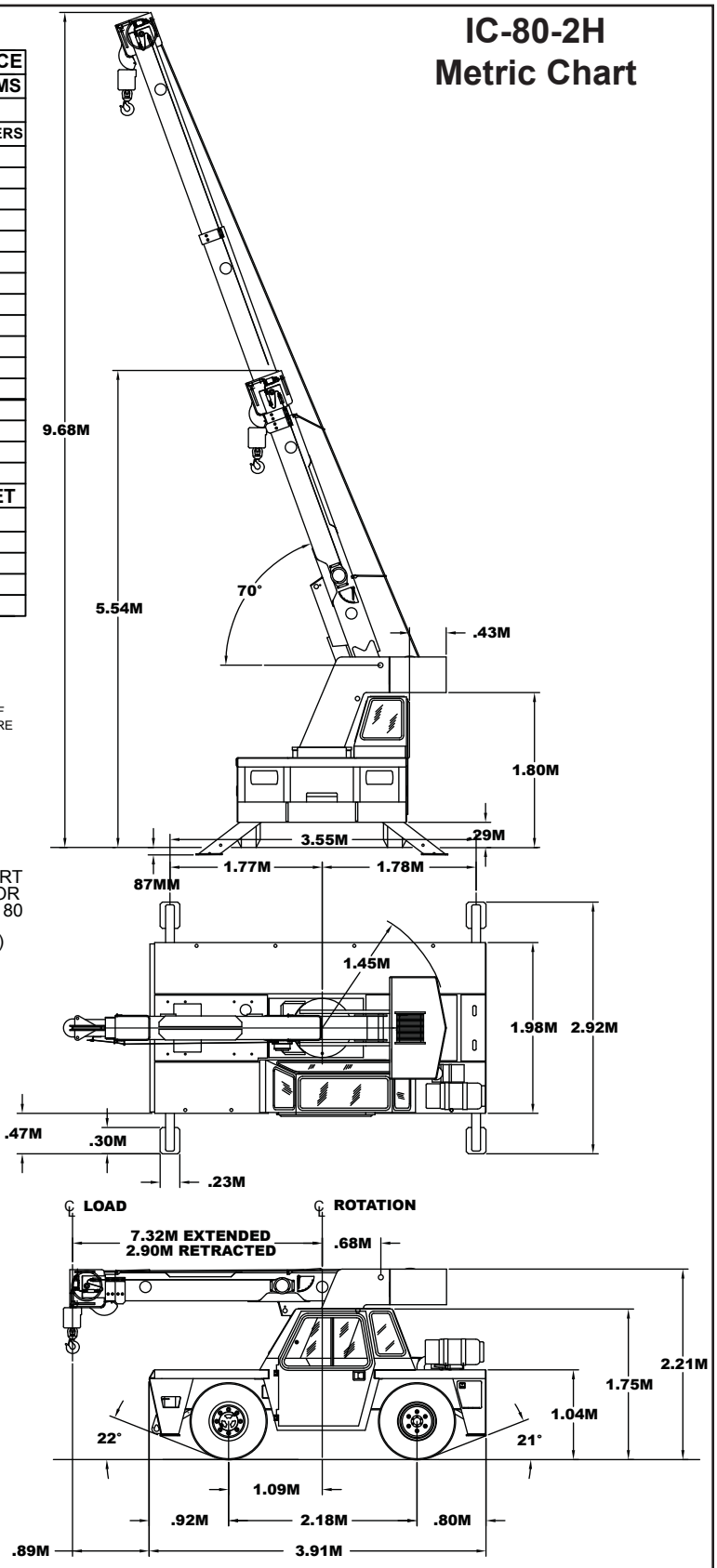


USE SINGLE PART LOAD LINE FOR LOADS TO 4090 KGS. (WT. 40 KGS.)



USE TWO PART LOADLINE FOR LOADS TO 8180 KGS. (WT. 56 KGS.)





IC-80-3H
Metric Chart

	CAPACITIES APPLY TO OPERATION ON FIRM LEVEL SURFACE			
LOAD RADIUS METERS	MAIN BOOM OR EXTENSION CAPACITIES IN KILOGRAMS			
	360° ROTATION		OVER FRONT	
	ON RUBBER	ON OUTRIGGERS	ON RUBBER	ON OUTRIGGERS
MAIN BOOM 1.5	4260	7710	5170	8160
2.0	3140	5790	4290	5790
2.5	2470	4400	3580	4400
3.0	1990	3560	2830	3560
3.5	1560	2910	2180	2910
4.0	1270	2520	1720	2520
4.5	1060	2210	1400	2210
5.0	890	1950	1170	1950
5.5	740	1760	990	1760
6.0	630	1570	840	1570
6.5	540	1430	730	1430
7.0	480	1330	650	1330
7.5	430	1200	580	1230
8.0	380	1090	530	1140
8.5	340	1000	500	1070
9.0	290	910	460	990
3M BOOM EXT. 10.0	180	760	390	850
11.0	110	650	310	740
12.2	60	520	220	630

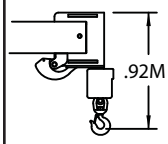
BOOM EXTENSION ANGLE	3-METER BOOM EXTENSION - STRAIGHT OR OFFSET MAIN BOOM ANGLE				
	0°	30°	45°	60°	70°
*† 0°	1020	1180	1450	2260	3170
† 15°	---	1090	1220	1580	1900
† 30°	---	1020	1130	1360	1490

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

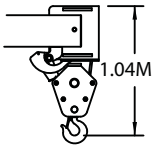
CAUTION BOOM EXTENSION LOADS MUST NOT EXCEED MAIN BOOM CAPACITY. DO NOT PICK & CARRY WITH LOADS ON BOOM EXTENSION.

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 CAPABILITY.

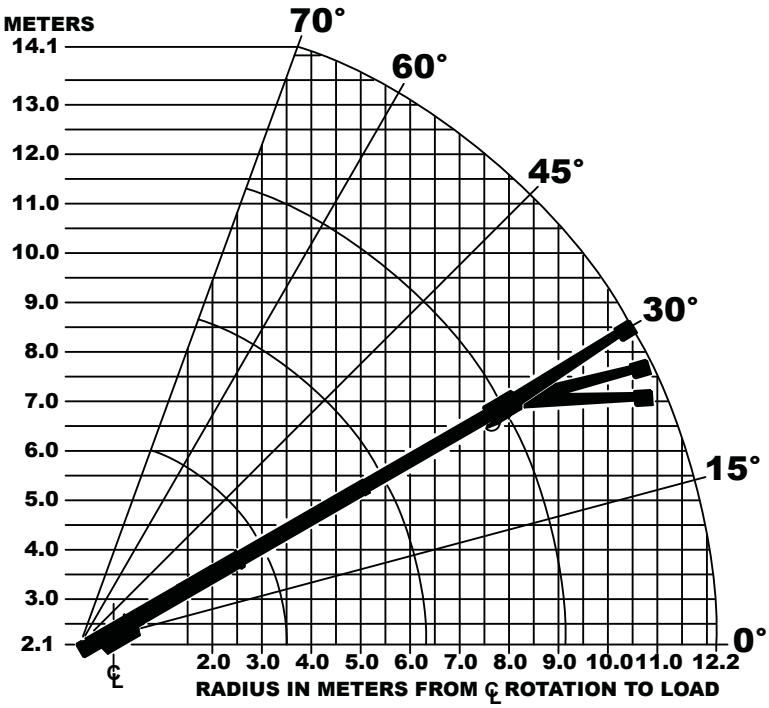
BOOM EXTENSION DEDUCT: 45 KGS WHEN STOWED ON BASE BOOM.

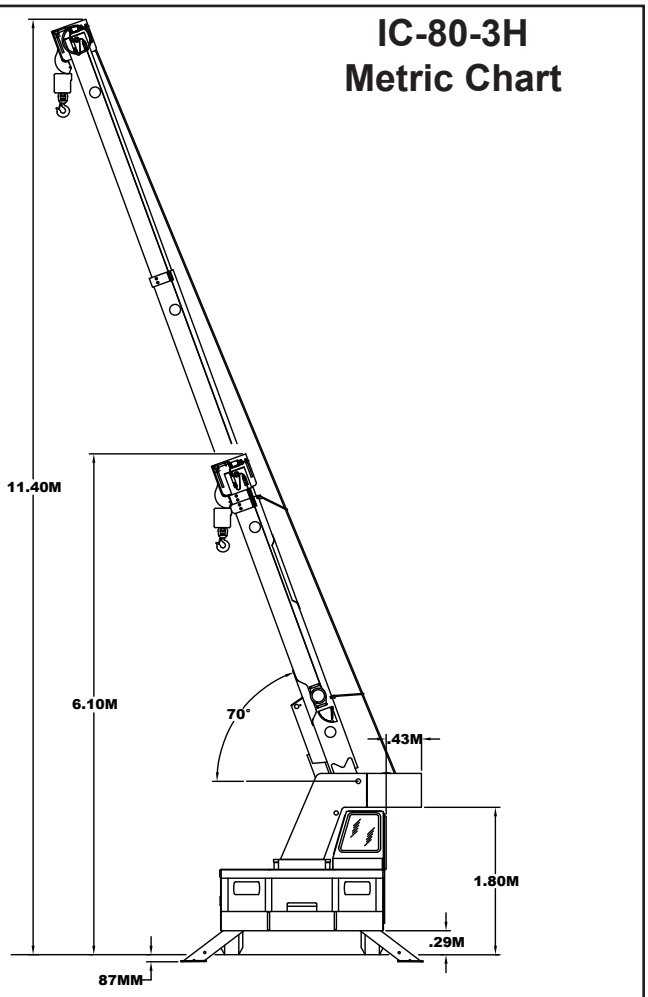


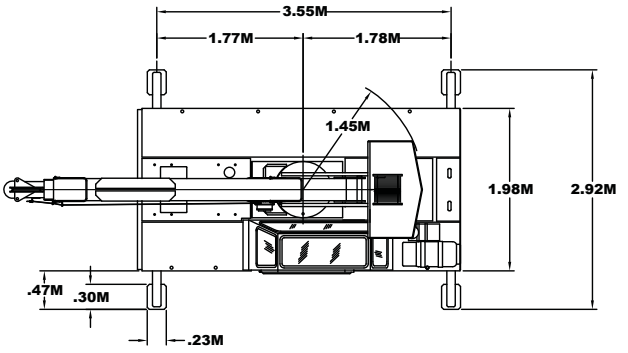
USE SINGLE PART LOAD LINE FOR LOADS TO 4090 KGS. (WT. 40 KGS.)

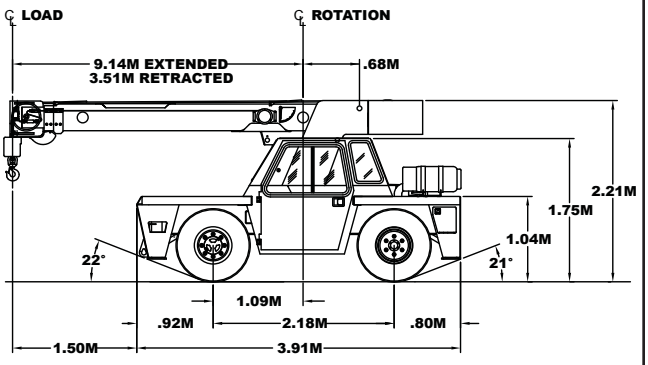


USE TWO PART LOADLINE FOR LOADS TO 8180 KGS. (WT. 56 KGS.)









IC-80-H
Metric Turn Chart