

**Engineering
Spec****IC-20-G**

Page 1 of 7
Date: June 2006

Replaces: Form BD104G
Dated: May 2004

The IC-20-1G is a self-propelled industrial crane designed for in-plant lifting and material handling applications. It is powered by either a dual fuel (gasoline/LPG) or diesel engine. The IC-20 has special features of low height, narrow width, short length, cargo deck, rear wheel steer and front wheel drive. The basic unit consists of a chassis and hydraulic boom assembly. The chassis includes a frame, three hydraulic outriggers, oil tank, control station and full power steering. The boom assembly includes a hydraulic powered 90 degree swing turret, three section telescopic boom, hydraulic boom elevating cylinder and hydraulic powered hoist.

IC-20-1G:

Standard equipment includes a dual fuel (gasoline/LPG) engine, variable speed hydrostatic transmission and front wheel drive.

General:**Length:**

Overall 9 feet 1 inch
Chassis 9 feet 1 inch

Width

4 feet

Height:

Deck 28 inches
Overall 5 feet 6 inches

Wheelbase

4 feet 6 inches

Ground Clearance:

Chassis 8 inches
Rear Axle (min.) 5-7/8 inches

Angle of Approach

28 degrees

Angle of Departure

16 degrees

Turning Radius (min.)

11 feet 6 inches

**Aisle width for 90
degree turn (min.)**

7 feet 8 inches

Travel Speed

5.5 MPH

Weight

6,180 pounds

Weight Distribution:

Left-hand, front wheel 1,100 pounds
Right-hand, front wheel 1,100 pounds
Left-hand, rear wheel 1,230 pounds
Right-hand, rear wheel 2,750 pounds

Tire Footprint

46 square inches, each

Outrigger Footprint

39 square inches, each

Drawbar Pull

2,800 pounds

Gradeability

46% (25 degrees)

**General Cont'd:****Boom Movement:**

Rotation	90 degrees
Elevation	75 degrees
Extension	9 feet
Tailswing	2 feet 5-5/8 inches

Boom Speeds:

Rotation (90 degrees)	12 seconds
Elevation	10 seconds
Extension	27 seconds

Sheave Height:

Without Jib	21 feet
With Jib	27 feet 9 inches

Horizontal Reach:

Without Jib	15 feet - C/L rotation 9 feet - Front of frame
With Jib	22 feet - C/L rotation 16 feet - Front of frame

Engine:**Standard:****Nissan 2.0L, Zenith EFI Dual Fuel, CARB Tier II and EPA Tier I Certified:**

Nissan Model H20 industrial gasoline engine complete with throttle body electronic fuel injection, dual fuel and engine management system. Water-cooled, 4-cylinder, 121 CID, 3.43" bore, 3.27" stroke, 51 HP at governed speed of 2,800 RPM. Maximum torque, 105 ft. lbs. at 1,600 RPM. 35 amp alternator, 13.5 gallon gas tank and 33 lb. aluminum LPG tank. High temperature and low oil pressure shutdown engine management system. Includes catalytic converter muffler.

Optional Engines and Accessories:**Cummins 2.3L, CARB Tier II and EPA Tier II Certified:**

Cummins Model A2300 diesel engine. Water-cooled, 4-cylinder, 140 CID, 3.46" bore, 3.70" stroke. 47 HP at governed speed of 2,600 RPM. Maximum torque, 111 ft. lbs. at 1,800 RPM. 45-amp alternator.
(Net Weight: 60 pounds)

Spark Arrester Muffler:

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

Engine Shutdown Kit:

Consists of Murphy switches that shut engine down if coolant temperature is excessive or oil pressure is too low.

Hydrostatic Pump:**Standard:**

Sundstrand piston type, 2.8 CID/revolution. Direct driven from engine crankshaft. Maximum delivery 30 GPM, maximum pressure 3,000 PSI.

Axles:**Standard:****Front Axle:**

Channel shaped structure houses torque hubs, brakes and hydraulic drive motors. Front axle oscillates a total of 1-1/2 inches to minimize wheel spin on uneven surfaces.

Rear Axle:

Fixed rigidly to frame. Box beam crossmember and thrust bearing supported wheel hubs.



Steering:

Standard:

Full hydraulic unit controls 2-1/2 inch steering cylinder attached to rear axle. Limited steering if engine dies.

Brakes:

Standard:

Primary braking from hydrostatic transmission. Foot-actuated hydraulic disc brakes for additional braking. Spring applied hydraulic released park brake, actuated from a toggle switch on operator's control panel. All braking is on front wheels.

Tires:

Standard:

7.50 x 10 pneumatic tires, 16-ply. Pressurized to 150 PSI for crane rated loads.

Optional Tire:

Solid Rubber Tires:

For hazardous ground conditions. These tires do not change the overall height or ground clearance.
(Net Weight: 240 pounds)

Solid Rubber Non-Marking Tires:

Non-marking tires for hazardous ground conditions. These tires do not change the overall height or ground clearance. (Net Weight: 240 pounds)

Foam Filling of Tires:

Standard tires, foam filled to prevent flats. (Net Weight: 312 pounds)

Spare Tire & Wheel:

7.50 x 10 pneumatic tires, 16-ply. Front or rear axle must be specified. (Net Weight: 80 pounds)

Chassis:

Standard:

Cargo Decks:

Nineteen (19) square foot area. A maximum of 5,000 pounds may be carried on the deck when centered over front axle. Six stake pockets are provided in deck and six, one-inch diameter pipe stakes.

Outriggers:

Three hydraulic outriggers with box beam construction. Hydraulic cylinders are equipped with direct-connected holding valves. Pad dimensions are 6 inches x 6-1/2 inches. Pulsating alarm sounds when outriggers are being operated.

Front Pulling Eye:

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

Lifting Sling Brackets:

Two lift rings in front deck and lug on turntable for attaching lifting sling.

Optional Cargo Deck Accessory:

Deck Mats:

Rubber mats, 1/4 inch thick, covering the three deck sections. Protects delicate loads from scratching and reduces sliding of heavy loads during travel. (Net Weight: 40 pounds)



Optional Chassis Accessories:

Auxiliary Winch:

Optional worm gear winch mounted behind front bumper, with a selector valve and single lever control at the operator's console. Hydraulic powered to provide bare-drum line pull of 3,000 pounds at 20 feet per minute. Winch drum is 3-1/2 inches diameter by 6-1/4 inches long. The winch includes 80 feet of 5/16 inch wire rope, hook and four-way roller guide. (Net Weight: 130 pounds)

Pintle Hook:

T-60-A Holland 5-ton pintle hook mounted on rear frame member. (Net Weight: 7 pounds)

Lifting Sling:

Three-leg hitch consisting of heavy-duty pear link and three wire ropes with swagged clevis ends for attaching to lift points on crane chassis and turntable. (Net Weight: 10 pounds)

Operator's Compartment:

Standard:

Operator control station provides one position access to all chassis and crane functions. Includes 2-1/2 pound fire extinguisher and bubble level.

Operator's Compartment Accessories:

Operator Guard:

Tubular steel weldment with heavy expanded steel mesh top section, bolts over operator's compartment. Overall height with guard installed is 90 inches. (Net Weight: 60 pounds)

Floor Mat:

Ribbed vinyl mat with foam backing for operator comfort.

Electrical System:

Standard:

Back-Up Alarm:

Provides pulsating 97 decibel sound from solid-state alarm when ignition is on and transmission is in reverse.

Electrical Group:

12 Volt DC

Battery:

Group 24 with 550 CCA rating.

Lighting Group:

Consists of 2 headlights and taillight and 12 volt horn activated by button on instrument panel.

Instrument Group:

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

Optional Electrical Accessories:

Strobe Light:

One yellow strobe light mounted on top of operator's guard for high visibility. Flashes 60-120 times per minute. Draws 1/2 amp. Includes operator-controlled switch. When the operator's guard is not ordered the strobe light is mounted on left-hand frame rail.

Boom Work Lights:

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

Hydraulic System:

Standard:

Tandem pump mounted to rear end of hydrostatic piston pump, which is driven by the engine crankshaft. Delivers 5 GPM at 2,500 PSI for boom circuits and 16 GPM at 2,500 psi for hoist and outrigger circuits. System protected by relief valves and two 10 micron filters. Hydraulic reservoir has 9.5 gallon 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 cylinders are equipped with direct connected holding valves. Boom angle indicator provided on left side of boom.

Boom Swing:

Standard:

Two double-acting hydraulic cylinders are connected to turntable torque tube to provide 90 degrees of swing. Heavy-duty ball bearing rotation bearing supports boom.

Optional Boom Swing Lock:

Boom Swing Lock:

Welds to back of frame and engages lug under turntable to hold boom in "over front" position and prevent boom from being swung in normal 90 degree arc. (Net Weight: 12 pounds)

Boom Hoist:

Standard:

Turret-mounted, worm gear hoist is hydraulically powered to provide bare-drum line pull of 3,100 pounds. The IC-20-1G has a line speed of 46 feet per minute. Hoist drum is 5-5/8 inch diameter by 4-7/8 inches long, provides even pull and long cable life. Hoist includes 80 feet of 5/16 inch wire rope, downhaul weight and swivel hook.

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 the "hoist raise", "telescope extend", and "boom lower" circuits. No other circuits are affected. These circuits are returned to normal operations by operating the "hoist lower" or "telescope retract" control. This system uses a trip arm to activate switch.

Sheave Block:

Single sheave block for two-part line requirements. Six inch O.D. sheave for 5/16 inch diameter wire rope. Swivel hook with safety latch. Fifty pounds of weight provides positive overhaul. Includes bar on top to actuate anti-two-block system.

Optional Boom Attachments:

7 Foot Pin-On-Jib:

Consists of jib with pair of tension bars, tip sheave, cable keeper, pins, jib attaching pins. Tension bars provide two positions, in-line and 30 degree offset. (Net Weight: 97 pounds)

Rated Capacity Limiter:

Warns operator of impending overload with audible and visual signals. Prevents overload by stopping boom functions that cause overload. Readouts for load, boom angle, boom length and load radius.

(Net Weight: 50 pounds)

Should you, as the end user, require an option or special equipment on your IC-20-1G that is not listed on our sales literature, please contact your dealer salesperson or the factory to receive a special quoted price.

***** Specifications subject to change without notice *****

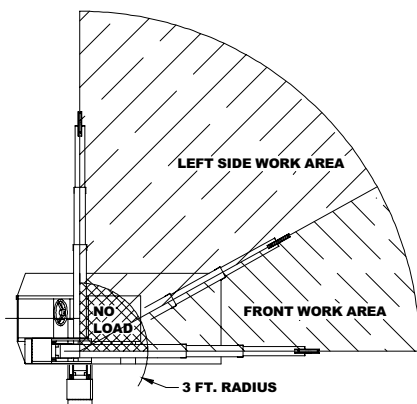
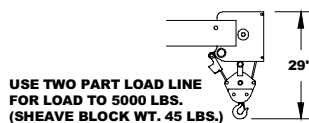
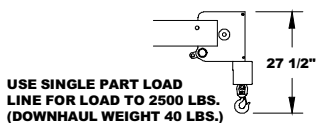


CAPACITIES APPLY TO OPERATION ON FIRM LEVEL SURFACE

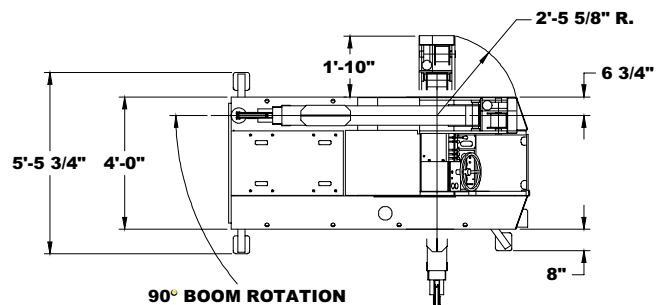
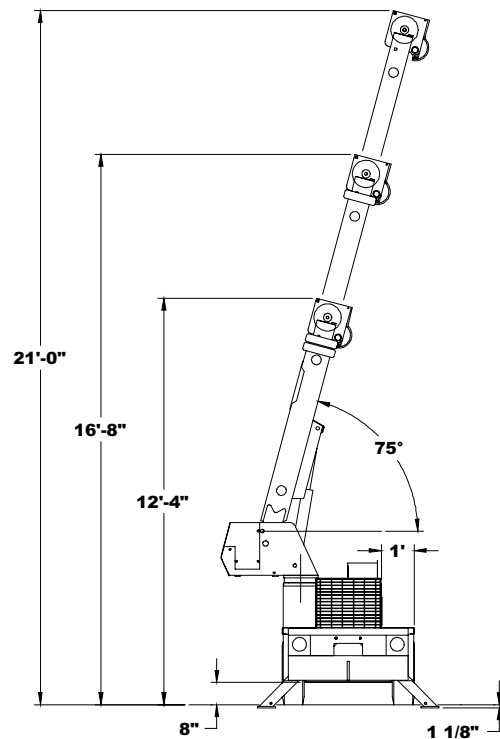
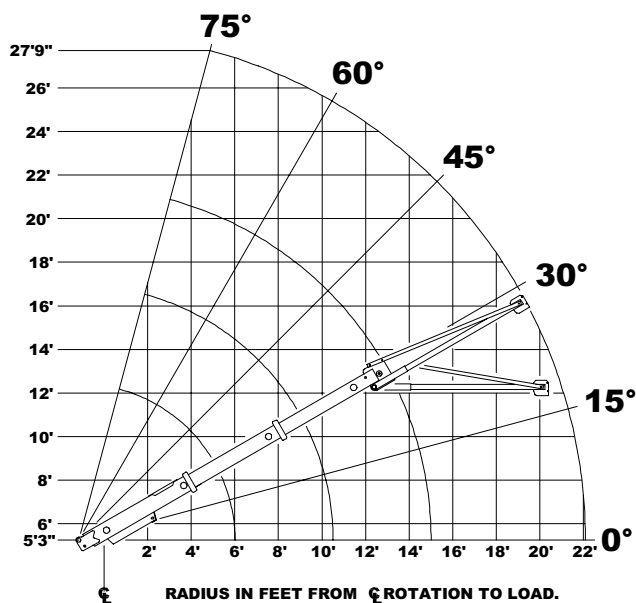
LOAD RADIUS FEET	3-SECTION BOOM				7-FT. JIB
	FRONT ON RUBBER	FRONT ON OUTRIGGERS	LEFT SIDE ON RUBBER	LEFT SIDE ON OUTRIGGERS	ON RUBBER OR OUTRIGGERS
4	2500	5000	3800	5000	1300
5	2000	4000	3100	4000	1100
6	1500	3300	2500	3300	750
8	1400	2500	1500	2500	650
10	1300	2000	1000	2000	550
12	1200	1600	750	1400	500
15	1100	1200	500	1000	500
17					425
19					325
22					225

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 CAPACITY.



WORK AREA DIAGRAM



90° BOOM ROTATION

