

CX31B

**COMPACT EXCAVATOR
TIER IV COMPLIANT**

ENGINE

Model	Yanmar 3TNV88-BPYB Tier IV compliant
Cylinders	3
Bore/Stroke	3.46 in x 3.54 in (88 x 90 mm)
Displacement	100 in ³ (1642 cc)
Fuel injection	Direct
Fuel injection pump	Mechanical
Fuel	Diesel
Fuel filter	Full flow
Cooling	Liquid
Horsepower per SAE J1349	
Net	28.4 hp (21.2 kW) @ 2400 rpm
Maximum torque @ 1440 rpm	
Net	72.6 lb-ft (98.4 N·m)

BOOM/ARM

Boom	
Swing	70° left/60° right
Length	7 ft 7 in (2.31 m)
Boom w/arm cylinder & plumbing	452 lb (205 kg)
Arm	
Length	3 ft 11 in (1.19 m)
Bare arm	157 lb (71.2 kg)
Bucket cylinder linkage & plumbing	108 lb (49 kg)
Total weight	265 lb (116 kg)

UNDERCARRIAGE

Number of rollers	
Top, each track	1
Bottom, each track	4
Gradeability	58% (30°)
Drawbar Pull	8,655 lb (3926 kg)

HYDRAULICS

Pumps	Tandem variable displacement axial piston pump
Capacity –	
Maximum	2 x 10.1 gpm (2 x 38.4 L/min)
Auxiliary Flow	15.5 gpm (59.0 L/min)
System relief pressure –	
Standard	3,336 psi (23 MPa)
Pilot control hydraulic system –	
Pump (1)	Gear pump
Maximum capacity	3.1 gpm (11.7 L/min)
Relief pressure	514 psi (3.5 MPa)
Control valves –	
10 spool	
Pilot control for left/right track travel, boom, arm, bucket & swing	
Manual control for breaker & backfill blade	
Swing/Dozer blade	
Motor (1)	Fixed displacement axial piston design
Speed	0-8.9 rpm
Brake	Spring applied, hydraulically released with dual cushion relief
Tail swing radius	2 ft 7 in (775 mm)
Tail swing overhang	0 ft 0 in (0 mm)
Travel –	
Motor (2)	Two-speed axial piston design
Final drive	Planetary gear reduction
Travel speeds –	
Forward/Reverse	
Low	1.6 mph (2.6 km/h)
High	2.8 mph (4.5 km/h)

HYDRAULIC CYLINDERS

Boom cylinder (1)	
Bore diameter	3.15 in (80 mm)
Rod diameter	1.77 in (45 mm)
Stroke	23.0 in (585 mm)
Arm cylinder (2) –	
Bore diameter	2.95 in (75 mm)
Rod diameter	1.77 in (45 mm)
Stroke	21.30 in (541 mm)
Bucket cylinder (1) –	
Bore diameter	2.56 in (65 mm)
Rod diameter	1.38 in (35 mm)
Stroke	19.6 in (497 mm)

ELECTRICAL

Voltage	12 volts,
Alternator	24 amp
Batteries (1) 12V	Low-maintenance

SERVICE CAPACITIES

Hydraulic tank	
Refill capacity	10 gal (38 L)
Total system	12.7 gal (48 L)
Engine w/filter change	1.8 gal (6.7 L)
Fuel	10 gal (38 L)
Radiator	1.2 gal (4.6 L)

OPERATING WEIGHT

With 165 lb (75 kg) operator, 179 lb (81 kg) bucket, full fuel and standard equipment 6,679 lb (3030 kg)

LIFT CAPACITIES

Canopy model – 3 ft 11 in (1.2 m) Arm *Lift capacities calculated using 11.8 in (300 mm) shoes, 179 lb (81 kg) bucket, blade down.*

Load (Lift Point) Height	5 ft (1.5 m)		7.5 ft (2.3 m)		10 ft (3.0 m)		12.5 ft (3.8 m)	
	END	SIDE	END	SIDE	END	SIDE	END	SIDE
+10 ft (3.0 m)					1,210 lb 550 kg	1,130 lb 510 kg		
+7.5 ft (2.3 m)					1,440 lb 650 kg	1,090 lb 490 kg	1,410 lb 640 kg	720 lb 320 kg
+5 ft (1.52 m)			2,720 lb 1230 kg	1,620 lb 730 kg	1,880 lb 850 kg	1,020 lb 460 kg	1,580 lb 710 kg	690 lb 310 kg
+2.5 ft (0.8 m)			3,810 lb 1730 kg	1,450 lb 660 kg	2,340 lb 1060 kg	940 lb 420 kg	1,780 lb 810 kg	650 lb 290 kg
Ground Level	2,540 lb 1150 kg	2,540 lb 1150 kg	4,150 lb 1880 kg	1,390 lb 630 kg	2,610 lb 1180 kg	890 lb 400 kg	1,910 lb 860 kg	630 lb 280 kg
-2.5 ft (-0.8 m)	4,170 lb 1890 kg	2,870 lb 1300 kg	3,960 lb 1790 kg	1,390 lb 630 kg	2,590 lb 1170 kg	880 lb 400 kg		
-5 ft (-1.52 m)	5,820 lb 2640 kg	2,950 lb 1340 kg	3,290 lb 1490 kg	1,430 lb 650 kg	2,130 lb 960 kg	910 lb 410 kg		

*Rated loads are hydraulic limits rather than tipping load limits.

Cab model – 3 ft 11 in (1.2 m) Arm *Lift capacities calculated using 11.8 in (300 mm) shoes, 179 lb (81 kg) bucket, blade down.*

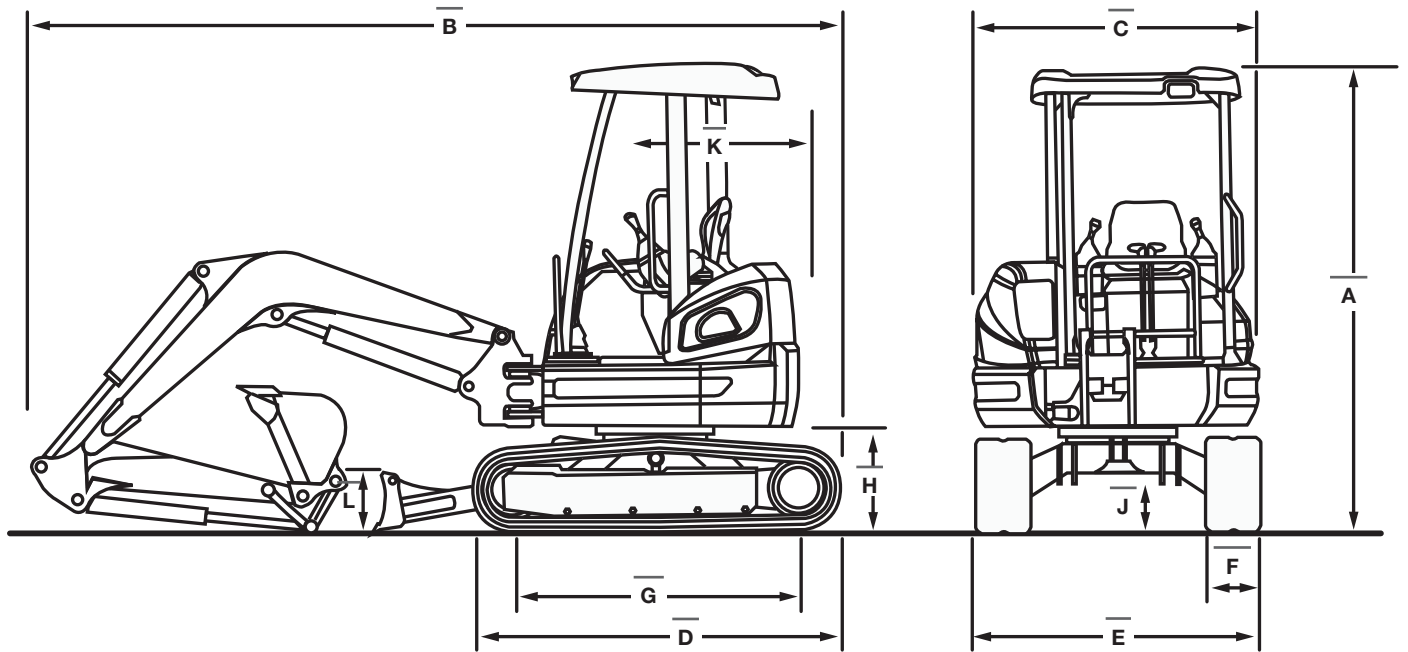
Load (Lift Point) Height	5 ft (1.5 m)		7.5 ft (2.3 m)		10 ft (3.0 m)		12.5 ft (3.8 m)	
	END	SIDE	END	SIDE	END	SIDE	END	SIDE
+7.5 ft (2.3 m)							1,410 lb 640 kg	780 lb 350 kg
+5 ft (1.5 m)			2,720 lb 1230 kg	1,720 lb 780 kg	1,880 lb 850 kg	1,090 lb 490 kg	1,580 lb 710 kg	740 lb 330 kg
+2.5 ft (0.8 m)			3,810 lb 1730 kg	1,560 lb 700 kg	2,340 lb 1060 kg	1,010 lb 460 kg	1,780 lb 810 kg	710 lb 320 kg
Ground Level	2,540 lb 1150 kg	2,540 lb 1150 kg	4,150 lb 1880 kg	1,500 lb 680 kg	2,610 lb 1180 kg	970 lb 440 kg	1,910 lb 860 kg	680 lb 310 kg
-2.5 ft (-0.8 m)	4,170 lb 1890 kg	3,070 lb 1390 kg	3,960 lb 1790 kg	1,500 lb 680 kg	2,590 lb 1170 kg	960 lb 430 kg		
-5 ft (-1.52 m)	5,820 lb 2640 kg	3,150 lb 1430 kg	3,290 lb 1490 kg	1,540 lb 700 kg	2,130 lb 960 kg	990 lb 440 kg		

*Rated loads are hydraulic limits rather than tipping load limits.

Canopy model – 4 ft 10 in (1.47 m) Arm *Lift capacities calculated using 11.8 in (300 mm) shoes, 179 lb (81 kg) bucket, blade down.*

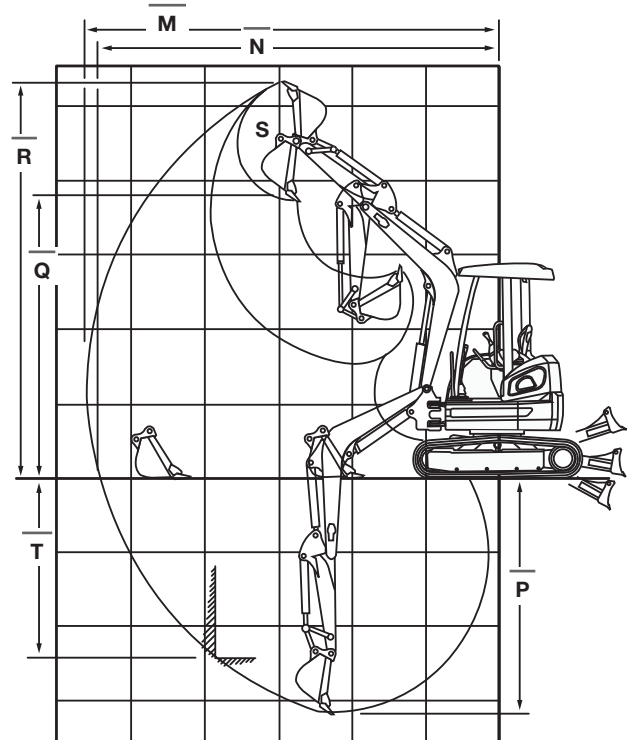
Load (Lift Point) Height	5 ft (1.5 m)		7.5 ft (2.3 m)		10 ft (3.0 m)		12.5 ft (3.8 m)	
	END	SIDE	END	SIDE	END	SIDE	END	SIDE
+10 ft (3.0 m)							1,140 lb 510 kg	740 lb 330 kg
+7.5 ft (2.3 m)					1,170 lb 530 kg	1,100 lb 500 kg	1,210 lb 550 kg	720 lb 320 kg
+5 ft (1.5 m)			2,160 lb 980 kg	1,670 lb 750 kg	1,620 lb 730 kg	1,020 lb 460 kg	1,410 lb 640 kg	680 lb 310 kg
+2.5 ft (0.8 m)			3,420 lb 1550 kg	1,460 lb 660 kg	2,140 lb 970 kg	930 lb 420 kg	1,650 lb 750 kg	640 lb 290 kg
Ground Level	2,290 lb 1030 kg	2,290 lb 1030 kg	4,020 lb 1820 kg	1,370 lb 620 kg	2,500 lb 1130 kg	870 lb 390 kg	1,830 lb 830 kg	600 lb 270 kg
-2.5 ft (-.8 m)	3,560 lb 1610 kg	2,780 lb 1260 kg	4,040 lb 1830 kg	1,350 lb 610 kg	2,590 lb 1170 kg	850 lb 380 kg	1,850 lb 840 kg	590 lb 270 kg
-5 ft (-1.5 m)	5,170 lb 2340 kg	2,850 lb 1290 kg	3,580 lb 1620 kg	1,370 lb 620 kg	2,340 lb 1060 kg	860 lb 390 kg		
-7.5 ft (-2.3 m)	4,180 lb 1890 kg	2,990 lb 1350 kg	2,330 lb 1050 kg	1,460 lb 660 kg				

*Rated loads are hydraulic limits rather than tipping load limits.



DIMENSIONS

A. Overall height	8 ft 5 in (2.57 m)
B. Overall length	14 ft 4 in (4.39 m)
C. Width of upperstructure	5 ft 1 in (1.55 m)
D. Track overall length	6 ft 7 in (2.00 m)
E. Track overall width w/11.8 in (300 mm) shoes	5 ft 1 in (1.55 m)
F. Track shoe width	11.8 in (300 mm)
G. Center to center (idler to sprocket)	5 ft 1 in (1.54 m)
H. Upperstructure ground clearance	1 ft 10 in (570 mm)
J. Minimum ground clearance	12.9 in (330 mm)
K. Tail swing radius	2 ft 7 in (775 mm)
L. Backfill blade height	1 ft 1 in (345 mm)
Working weight	6,679 lb (3030 kg)
Ground pressure	4.3 psi (29 kPa)
Boom swing	Left 70°/ Right 60°
Tail swing overhang	0 ft 0 in (0 m)



PERFORMANCE SPECS

	4 FT 10 IN (1.47 M) ARM	3 FT 11 IN (1.2 M) ARM
M. Maximum dig radius	17 ft 1 in (5.20 m)	16 ft 2 in (4.93 m)
N. Dig radius at groundline	16 ft 7 in (5.06 m)	15 ft 6 in (4.78 m)
P. Maximum dig depth	10 ft 2 in (3.10 m)	9 ft 2 in (2.81 m)
Q. Dump height	11 ft 8 in (3.55 m)	11 ft 0 in (3.36 m)
R. Overall reach height	16 ft 3 in (4.96 m)	15 ft 7 in (4.77 m)
S. Bucket rotation	178°	178°
T. Vertical straight wall dig depth	7 ft 11 in (2.43 m)	7 ft 1 in (2.16 m)
Arm digging force	3,373 lb (1530 kg)	3,867 lb (1754 kg)
Bucket digging force		
2 position bucket- Power Position	8,430 lb (3824 kg)	8,430 lb (3824 kg)

STANDARD EQUIPMENT

OPERATOR'S COMPARTMENT

ROPS/FOPS three post canopy

Operator's controls:

Pilot operated hand controls and foot pedals

Display includes:

Engine oil pressure, water temperature lamp, air filter lamp, water separator detection lamp, low fuel warning lamp, battery charge lamp, glow plug indicator lamp, water temperature gauge, fuel gauge and hourmeter

Adjustable seat with seat belt

Arm rests

ENGINE

Yanmar 3TNV88-BPYB diesel

4 Cycle

Water cooled

Direct injection

One touch decelerator

Engine access under rear hood

Dry type air cleaner with restriction indicator

Glow plug starting aid

ELECTRICAL

12-volt electrical starting system

Heavy-duty battery

Horn

HYDRAULICS

Auxiliary hydraulics (single/bi-directional) and plumbing to arm

Large hydraulic oil cooler

Control pattern selector valve

TRACK DRIVE

Rubber tracks

Automatic 2 speed travel

Fully hydrostatic drive system

Sealed and lubricated track rollers

Track tension adjustment (grease type)

Disc type parking brake (auto release and apply)

UPPER STRUCTURE

Zero tail swing

Swing lock

Swing brake

Swing shock valve

OTHER

Swing boom (70° left/60° right)

Hydraulic backfill blade

OPTIONAL EQUIPMENT

OPERATOR'S COMPARTMENT

Cab enclosure with heater

OTHER

Steel tracks

5 ft 3 in (1.59 m) arm

Mechanical coupler

Rigid thumb

Rigid thumb-coupler

BUCKETS

Width	SAE Heaped Capacity	Weight
12 in (305 mm)	2.13 ft ³ (0.060 m ³)	155 lb (70 kg)
18 in (457 mm)	3.19 ft ³ (0.090 m ³)	182 lb (83 kg)
24 in (610 mm)	4.25 ft ³ (0.120 m ³)	218 lb (99 kg)

NOTE: All specifications are stated in accordance with SAE Standards or Recommended Practices, where applicable.

NOTE: All engines meet current EPA emissions requirements.

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