

National Crane 400B Series

Product Guide



Features

- 17,1 m (56 ft) three-section boom
- 9,1 t (10 USt) rating
- Self-lubricating "Easy Glide" wear pads
- Internal anti-two block

Features

National Crane Series 400B

- 9,07 t (10 USt) maximum capacity
- 20,11 m (66 ft) maximum vertical hydraulic reach (main boom)

Easy Glide boom wear pads

Easy Glide Boom Wear Pads reduce the conditions that cause boom chatter and vibration. The net result is smoother crane operation.



Improved serviceability

- Bearings on the boom and retract cables can be greased through access holes in the boom side plates.
- Removable winch allows the internal telescoping cylinder to be removed quickly, without dismantling the boom
- Internal anti-two-block wire routing eliminates external reel and wire to protect crane components
- The boom sheave case is open, allowing access to replace the internal anti-two-block wire and to observe internal boom components
- Internal boom parts have been reduced, decreasing service time when rebuilding the machine
- Crane components painted before assembly reduce the chance of rust, improve serviceability and enhance the appearance of the crane.



The strength to get the job done

With a 9,07 t (10 USt) maximum capacity and a 20,11 m (66 ft) maximum vertical hydraulic reach with main boom, the Series 400B has the strength and versatility you need to tackle the toughest jobs.



Speedy-reeve boom tip and sheave blocks

These standard features simplify rigging changes

Best in class performance and serviceability

- A large oil reservoir helps reduce heat build-up
- Control valve is mounted in the console, making it much easier to service
- Convenient mounting of hydraulic oil filter and filler cap as well as an anti-splash breather on oil tank makes routine maintenance hassle free.
- Space inside the frame makes the unit easily serviceable
- Crane wiring harness simplifies design and cleans up inside of the console, providing easy access and service

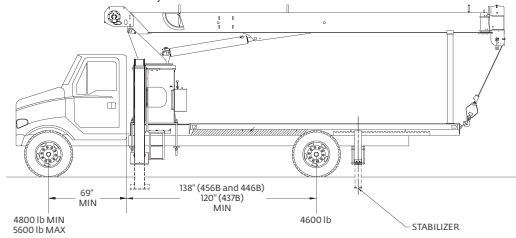


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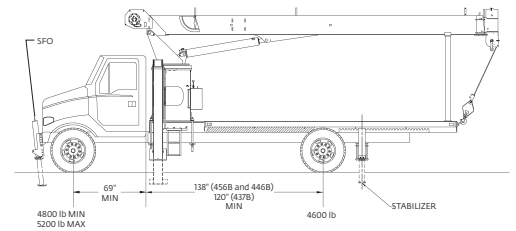
Mounting configurations

The configurations are based on the Series 400B with an 85% stability factor. The complete unit must be installed in accordance with factory requirements and a test performed to determine actual stability and counterweight requirements since individual truck chassis vary.



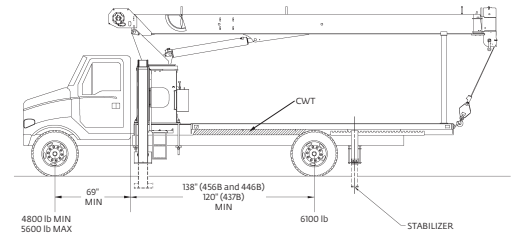
Configuration 1 with Subbase	
Working area	180°
Gross Axle Weight Rating Front	4082 kg (9000 lb)
Gross Axle Weight Rating Rear	8618 kg (19,000 lb)
Gross Vehicle Weight Rating	12 700 kg (28,000 lb)
Wheelbase	650 cm (184 in) on 437B, 526 cm (207 in) on 446B, 456B
Cab to Axle/trunnion (CA/CT)	305 cm (120 in) on 437B, 351 cm (138 in) on 446B, 456B
Frame Section Modulus (SM) under crane w/ 758 MPa (110,000 PSI)	164 cm ³ (10.0 in ³)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI)	164 cm ³ (10.0 in ³)
Stability Weight, Front	2177 kg (4800 lb) minimum, 2540 kg (5600 lb) maximum*
Stability Weight, Rear	2087 kg (4600 lb) minimum*
Estimated Average Final Weight	9524 kg (21,000 lb)**

Allows the installation of Series 400B on a chassis with small frame by using standard subbase. In most cases, chassis will not require reinforcing and counterweight will not be required. This configuration gives a payload of app. 2722 kg (6000 lb) on minimum truck. Requires standard subbase and rear stabilizers. Full capacity work area in rear 180° of vehicle from outrigger to outrigger.



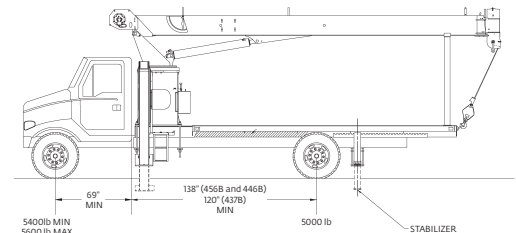
Configuration 2 with Subbase and SFO	
Working area	360°
Gross Axle Weight Rating Front	4082 kg (9000 lb)
Gross Axle Weight Rating Rear	8618 kg (19,000 lb)
Gross Vehicle Weight Rating	12 700 kg (28,000 lb)
Wheelbase	650 cm (184 in) on 437B, 526 cm (207 in) on 446B, 456B
Cab to Axle/trunnion (CA/CT)	305 cm (120 in) on 437B, 351 cm (138 in) on 446B, 456B
Frame Section Modulus (SM) under crane w/ 758 MPa (110,000 PSI)	164 cm ³ (10.0 in ³)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI)	164 cm ³ (10.0 in ³)
Stability Weight, Front	2177 kg (4800 lb) minimum, 2359 kg (5200 lb) maximum*
Stability Weight, Rear	2087 kg (4600 lb) minimum*
Estimated Average Final Weight	9707 kg (21,400 lb)**

Requires front stabilizer for full capacity 360° around the truck. Requires front and rear stabilizers and standard subbase. Front stabilizer for this configuration requires 13.5 inch³ (50,000 PSI), or 6.2 inch³ (110,000 PSI) section modulus from back of the front spring hangers through front suspension and to the front stabilizer. Normally a tapered front frame cannot be reinforced to these minimums.



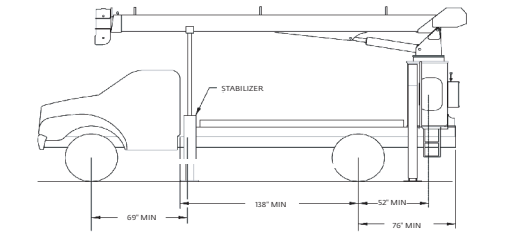
Configuration 3 with Subbase and Counterweight	
Working area	360°
Gross Axle Weight Rating Front	4082 kg (9000 lb)
Gross Axle Weight Rating Rear	8618 kg (19,000 lb)
Gross Vehicle Weight Rating	12 700 kg (28,000 lb)
Wheelbase	650 cm (184 in) on 437B, 526 cm (207 in) on 446B, 456B
Cab to Axle/trunnion (CA/CT)	305 cm (120 in) on 437B, 351 cm (138 in) on 446B, 456B
Frame Section Modulus (SM) under crane w/ 758 MPa (110,000 PSI)	164 cm ³ (10.0 in ³)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI)	164 cm ³ (10.0 in ³)
Stability Weight, Front	2177 kg (4800 lb) minimum, 2540 kg (5600 lb) maximum*
Stability Weight, Rear	2767 kg (6100 lb) minimum*
Estimated Average Final Weight	10 206 kg (22,500 lb)**

Allows 360° stability at full capacity without front stabilizer. Requires additional weight at rear of the truck to reduce loading on the front axle when lifting over the front. This mount is recommended only for occasional lifting over the front of the vehicle. If continually lifting over the front, the vehicle must be equipped with front stabilizer to eliminate fatigue on front axle components. Requires rear stabilizers and standard subbase with counterweight in subbase or underside of bed.



Configuration 4 without Subbase	
Working area	180°
Gross Axle Weight Rating Front	4082 kg (9000 lb)
Gross Axle Weight Rating Rear	8618 kg (19,000 lb)
Gross Vehicle Weight Rating	12 700 kg (28,000 lb)
Wheelbase	650 cm (184 in) on 437B, 526 cm (207 in) on 446B, 456B
Cab to Axle/trunnion (CA/CT)	305 cm (120 in) on 437B, 351 cm (138 in) on 446B, 456B
Frame Section Modulus (SM) under crane w/ 758 MPa (110,000 PSI)	246 cm ³ (15.0 in ³)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI)	164 cm ³ (10.0 in ³)
Stability Weight, Front	2177 kg (5400 lb) minimum, 2540 kg (5600 lb) maximum*
Stability Weight, Rear	2268 kg (5000 lb) minimum*
Estimated Average Final Weight	10 206 kg (22,500 lb)**

The Series 400B can be mounted without the factory-furnished subbase provided the truck is above minimum specifications for truck frame strength and chassis weight. A 400B mounted in this manner will be 180° stable over the rear of the vehicle from outrigger to outrigger.



Configuration 5 - Rear Mount with HD Subbase	
Working area	360°
Gross Axle Weight Rating Front	4082 kg (9000 lb)
Gross Axle Weight Rating Rear	8618 kg (19,000 lb)
Gross Vehicle Weight Rating	12 700 kg (28,000 lb)
Wheelbase	526 cm (207 in)
Cab to Axle/trunnion (CA/CT)	351 cm (138 in)
After Frame (AF)	193 cm (76 in) minimum
Frame Section Modulus (SM) under crane w/ 758 MPa (110,000 PSI)	213 cm ³ (13.0 in ³)
Frame Section Modulus (SM) over rear stabilizers: 758 MPa (110,000 PSI)	213 cm ³ (13.0 in ³)
Stability Weight, Front	2676 kg (5900 lb) minimum*
Stability Weight, Rear	3084 kg (6800 lb) minimum*
Estimated Average Final Weight	11 113 kg (24,500 lb)**

The advantages of a rear-mounted Series 400B are: (1) it allows the operator to effectively use the close-in working area to lift heavier loads, and (2) 360° solid stability at full rated load. Counterweight up to 3000 lb will be required on a minimum truck. With this configuration, a payload of approximately 3500 lb (1588 kg) can be hauled on a minimum truck. Underframe stabilizers behind the cab may interfere with the drive line or cause ground clearance problems. If so, contact the factory for alternatives.

Notes:

- Gross Vehicle Weight rating (GVWR) is dependent on all components of the vehicle (axles, tires, springs, frame, etc.) meeting manufacturers' recommendations; always specify GVWR when purchasing trucks
- Diesel engines require a variable speed governor and energize-to-run fuel solenoid for smooth crane operation; electronic fuel injection requires EET engine remote throttle

- All mounting data is based on a National Crane Series 400B with an 85% factor
- The complete unit must be installed in accordance with factory requirements, and a test performed to determine actual stability and counterweight requirements per SAE J765; contact the factory for details
- Transmission neutral safety interlock switch is required

**Estimated axle scale rates prior to installation of crane, stabilizers and subbase for 85% stability.*

Specifications

Boom data

Available in three basic models.

Model 437B – Equipped with a 4,62 m - 11,28 m (15 ft 2 in - 37 ft) three-section boom. Maximum tip height is 14,32 m (47 ft).

4,62 m - 11,28 m (15 ft 2 in - 37 ft) three-section boom



Model 446B – Equipped with an 5,54 m - 14,02 m (18 ft 2 in - 46 ft) three-section boom.

5,54 m - 14,02 m (18 ft 2 in - 46 ft) three-section boom



Model 456B – Equipped with a 6,55 m - 17,07 m (21 ft 6 in - 56 ft) three-section boom.

6,55 m - 17,07 m (21 ft 6 in - 56 ft) three-section boom.

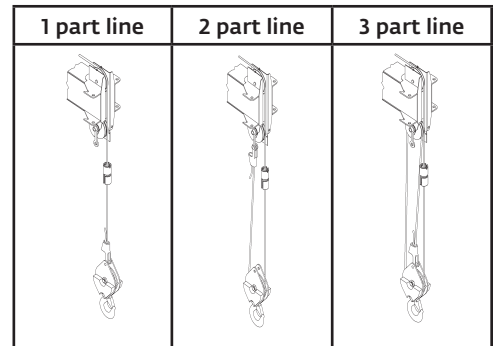


Note: Maximum tip is measured with outriggers/stabilizers fully extended.

Specifications

400B winch data

- All winch pulls and speeds are shown on the third layer.
- Winch line pulls would increase on the first and second layers.
- Winch line speed would decrease on the first and second layers.
- Winch line pulls may be limited by the winch capacity or the ANSI 5 to 1 cable safety factor.
- Hook blocks are rated at maximum capacity for the block. **Do not exceed rated cable pull with any block.**



Winch	Cable supplied	Average breaking strength	Lift and speed	Lift and speed	Lift and speed
Standard high-pull planetary winch	Standard 9/16" diameter rotation resistant	17 463 kg (38,500 lb)	3493 kg (7700 lb) 34 m/min (110 fpm)	6985 kg (15,400 lb) 17 m/min (55 fpm)	9075 kg (20,000 lb) 11 m/min (37 fpm)

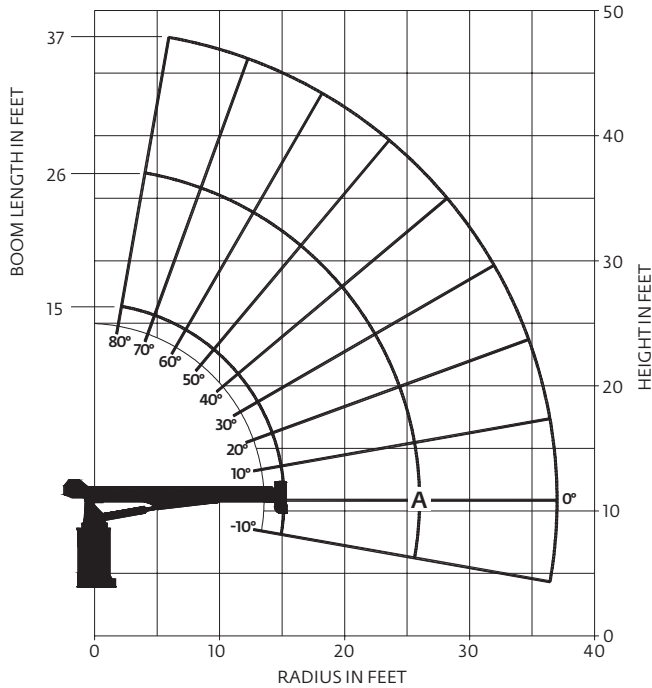
Winch	Bare drum pull	Standard cable limited
Standard planetary	4627 kg (10,200 lb)	3493 kg (7700 lb)

Block type	Loadline deduct	
	Rating	Weight
Downhaul weight	3,6 t (4.2 USt)	41 kg (90 lb)
1-sheave block	11,3 t (12.5 USt)	84 kg (185 lb)

Capacities

Series 437B: 37 ft main boom, full span outriggers, no jib

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 3 m (10 ft) of live power lines or other conductors of electricity.
- Boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii.
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

LOAD RADIUS (FEET)	LOADED BOOM ANGLE	15 ft BOOM (lb)	LOADED BOOM ANGLE	A 26 ft BOOM (lb)	LOADED BOOM ANGLE	37 ft BOOM (lb)
5	71	20,000				
6	67	16,100	77	14,050		
8	59	13,450	73	11,600		
10	49	11,500	68	9800	76	8800
12	39	10,000	63	8500	72	7800
14	23	8600	58	7650	69	6900
16			53	6950	66	6150
18			47	6400	62	5450
20			41	5750	59	4800
25			18	4500	49	4250
30					38	3600
35					21	3000
	0	6800	0	3600	0	2300

NOTE:

1. All capacities are in pounds, angles in degrees, radius in feet.
2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

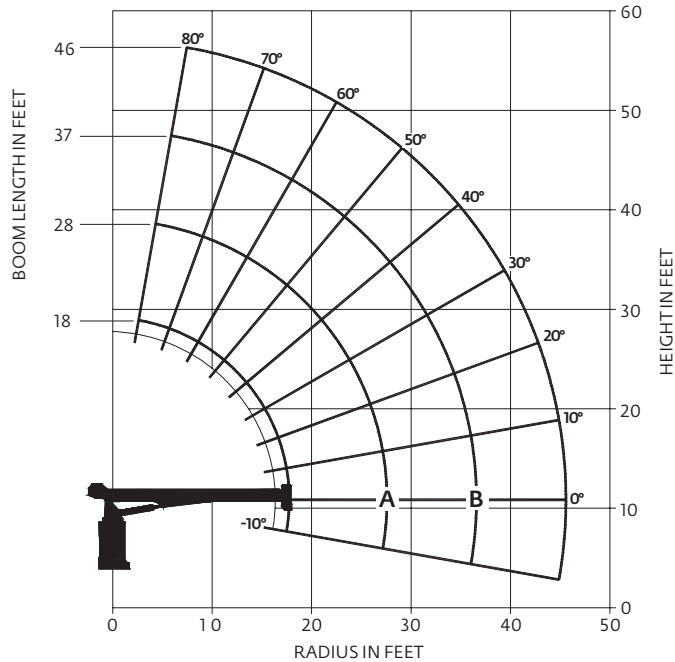
THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE.

The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

Capacities

Series 446B: 46 ft main boom, full span outriggers, no jib

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 3 m (10 ft) of live power lines or other conductors of electricity.
- Boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii.
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

LOAD RADIUS (FEET)	LOADED BOOM ANGLE	18 ft BOOM (lb)	LOADED BOOM ANGLE	A 28 ft BOOM (lb)	LOADED BOOM ANGLE	B 37 ft BOOM (lb)	LOADED BOOM ANGLE	46 ft BOOM (lb)
5	74	20,000						
6	71	15,550	78	14,250				
8	64	12,600	74	11,550	78	10,700		
10	56	10,600	70	9550	75	8850		
12	48	9300	65	8150	72	7600	76	6750
14	41	8250	61	7200	69	6750	73	6300
16	27	7050	56	6550	66	6050	71	5450
18			51	6050	63	5450	69	4950
20			46	5450	59	4800	66	4650
25			29	4600	49	4150	59	3850
30					38	3500	51	3450
35					21	2850	42	2900
40							31	2400
45							14	1950
	0	5300	0	3150	0	2200	0	1550

NOTE:

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2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

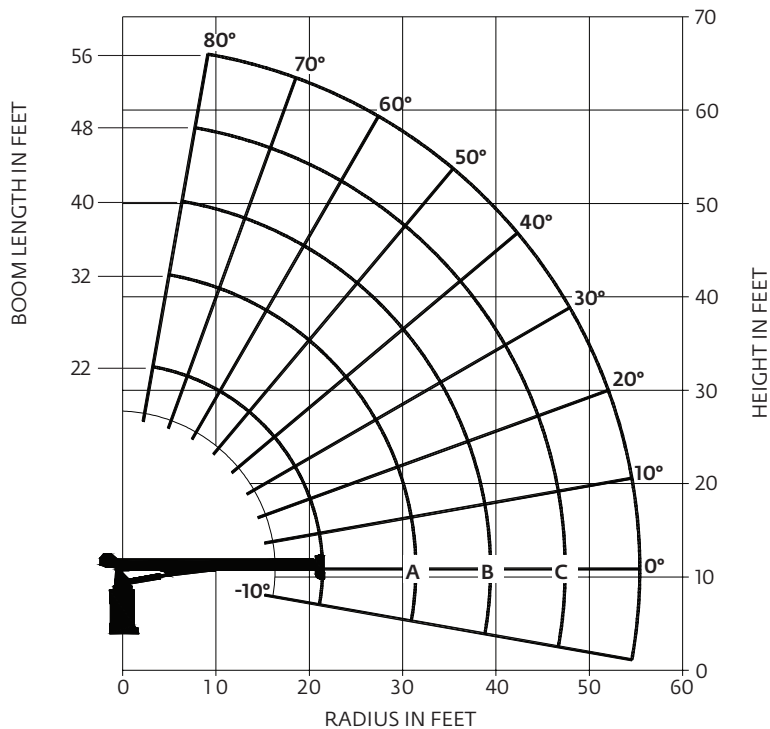
THIS CHART IS ONLY A GUIDE AND SHOULD NOT BE USED TO OPERATE THE CRANE.

The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

Capacities

Series 456B: 56 ft main boom, full span outriggers, no jib

National Crane will send you a chart on request – or you may secure needed load rating information through your nearest National Crane dealer.



CAUTION:

- Do not operate crane booms, jib extensions, any accessories or loads within 3 m (10 ft) of live power lines or other conductors of electricity.
- Boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii.
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, operating speeds and their effects on freely suspended loads.
- Overloading this crane may cause structural collapse or instability.
- Weights on any accessories attached to the boom or loadline must be deducted from the load chart capacities.
- Do not deadhead lineblock against boom tip when extending boom or winching up.
- Keep at least three wraps of loadline on drum at all times.
- Use only specified cable with this machine.

Load chart

LOAD RADIUS (FEET)	LOADED BOOM ANGLE	22 ft BOOM (lb)	LOADED BOOM ANGLE	A 32 ft BOOM (lb)	LOADED BOOM ANGLE	B 40 ft BOOM (lb)	LOADED BOOM ANGLE	C 48 ft BOOM (lb)	LOADED BOOM ANGLE	56 ft BOOM (lb)
5	77.5	20,000								
6	74.5	17,500								
8	70	13,000	76.5	11,100	79.5	10,550				
10	63	10,200	73	9000	77	8800				
12	56.5	9000	69	7800	74	7400	76.5	7250		
14	50	8000	65	7000	70.5	6500	75	6250	77	6000
16	42.5	7100	61	6200	68.5	5800	72.5	5500	75.5	5250
18	34	6300	57.5	5600	65	5300	69.5	5000	73.5	4700
20	23	5600	53	5200	62	4900	67.5	4700	71	4300
25			40.5	4200	53.5	4000	61	3800	65.5	3500
30			22.5	3350	43.5	3300	53.5	3100	60	2900
35					31	2750	45.5	2700	53.5	2500
40							36	2200	46.5	2100
45							22.5	1850	39	1750
50									29	1500
55									13	1150
	0	4250	0	2500	0	1800	0	1350	0	950

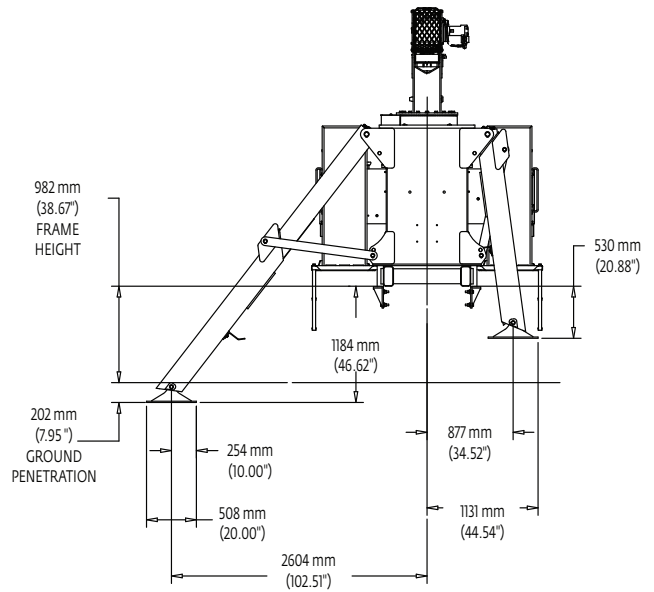
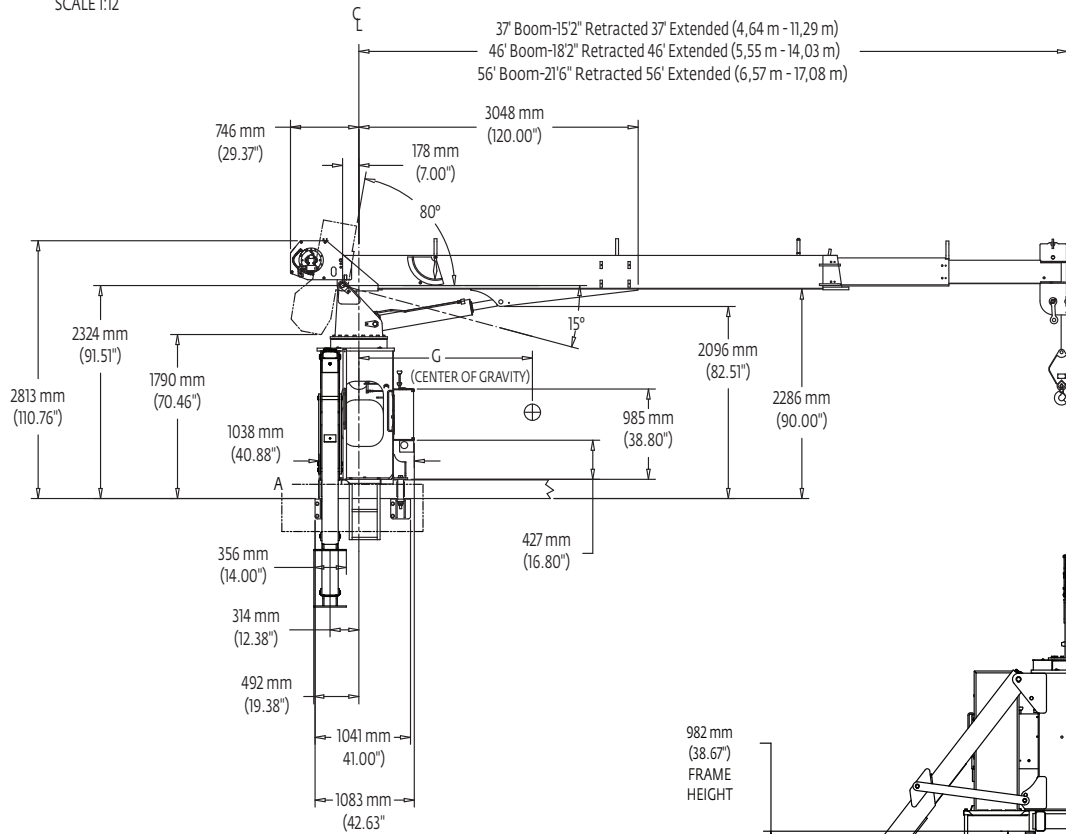
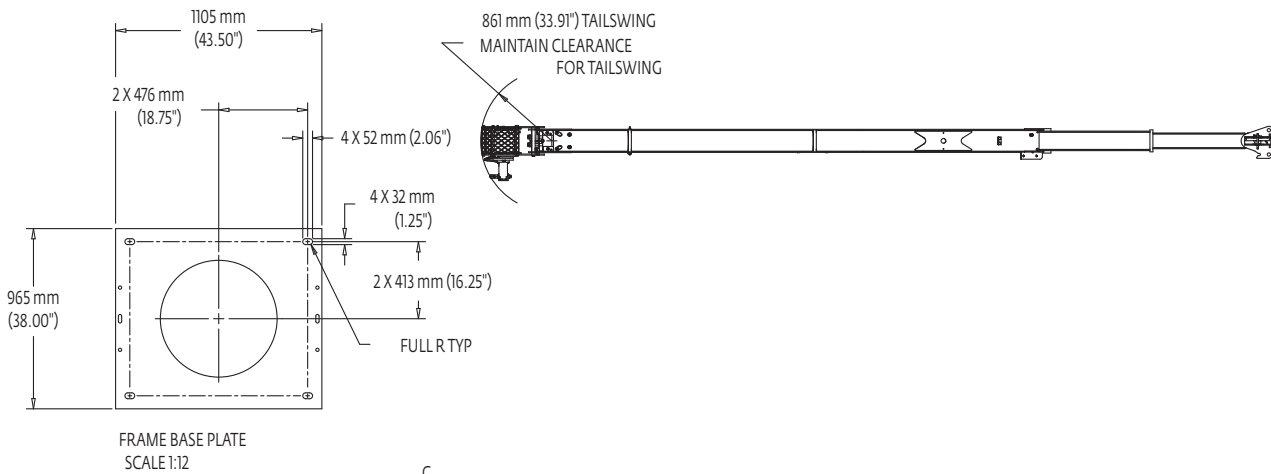
NOTE:

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2. Loaded boom angles are given as reference only.
3. Shaded areas are structurally limited capacities.

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The individual crane's load chart, operating instructions and other instructional plates must be read and understood prior to operating the crane.

Dimensions



Series	G	Dry weight	With oil weight
456B	1194 mm (47 ft)	3675 kg (8100 lb)	3825 kg (8425 lb)
446B	914 mm (36 ft)	3525 kg (7775 lb)	3675 kg (8100 lb)
437B	737 mm (29 ft)	3375 kg (7450 lb)	3525 kg (7775 lb)

*Above weights do not include subbase, rear stabilizers, jibs, PTO, pump, boom rests or options

Accessories

Radio Remote Controls –

Eliminate the handling and maintenance concerns that accompany cabled remotes. Operate to a range of about 76 m (250 ft), varying with conditions.

- **Model R4BR**

One-Person Basket –

Strong but lightweight steel basket with 139 kg (300 lb) capacity, gravity hung with swing lock and full body harness.

- **Model B1-S**

Rear mount and tractor mount configurations available.

Notes

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