National Crane 500E2 Series

Product Guide

Features

- 16,3 t (18 USt) rating
- 21,6 m (71 ft) three-section boom
- Self-lubricating Easy Glide wear pads
- Internal anti-two block

Features

National Crane Series 500E2

•16,3 t (18 USt) maximum capacity
• 36,9 m (121 ft) maximum vertical reach
• 24,7 m (81 ft) maximum vertical hydraulic reach

Three-section boom

With a capacity of 16,3 t (18 USt) the Series 500E2 is equipped with a three-section 21,6 m (71 ft) boom. The long boom allows the operator to perform more lifts without the use of a jib, reducing setup time and improving efficiency.

Outriggers

The Series 500E2 comes equipped with A-frame stabilizers and an optional single front outrigger.

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 extension 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

Features

Best in class performance and serviceability

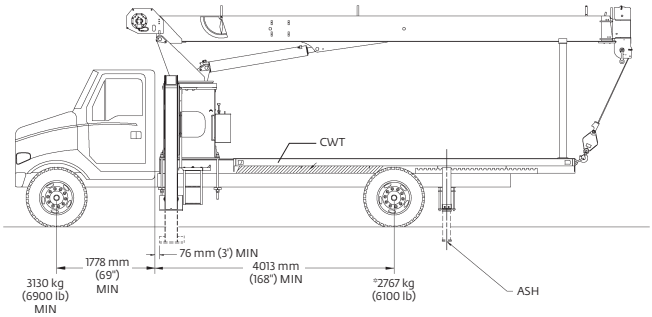
- The steel torsion box and flatbed further reduce frame flex
- Speedy-reeve boom tip and sheave blocks simplify rigging changes by decreasing the time needed to change line reeving
- Crane components painted before assembly reduce the chance of rust, improve serviceability and enhance the appearance of the crane
- A control knob located on the swing motor brake release valve can be easily adjusted to the crane operator's swing speed preference
- Rear stabilizers include an independent stabilizer control and bolt/clamp on mounting

* Product may be shown with optional equipment.

Contents

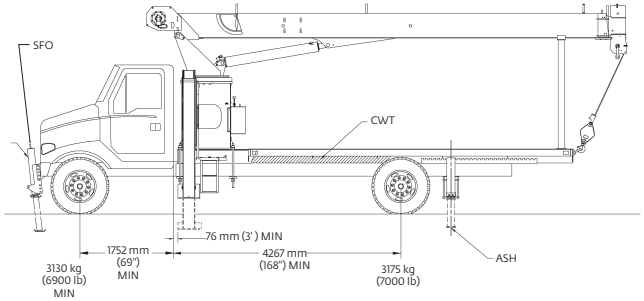
Mounting configurations

The configurations are based on the Series 500E2 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.



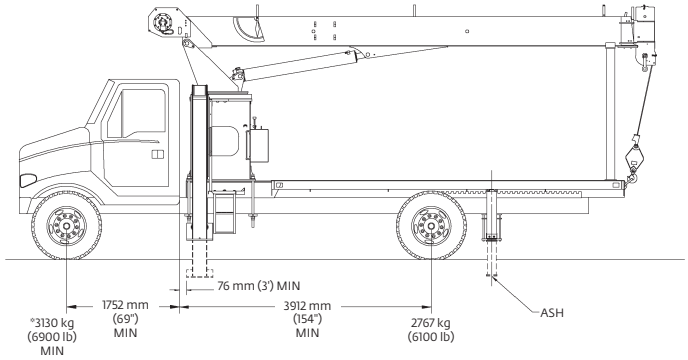
This configuration is the least expensive method for the Model 571E2. This mount, with the crane mounted behind the cab, requires the least weight of all mounts for stability; thus, you can haul larger payloads on your truck. It requires standard subbase and rear (ASH) stabilizers.

Configuration 1 with Torsion Box – 180˚ Full Capacity Work Area
Working area ..... 180˚
Gross Axle Weight Rating Front ..... 5443 kg (12,000 lb)
Gross Axle Weight Rating Rear ..... 9525 kg (21,000 lb)
Gross Vehicle Weight Rating ..... 14 968 kg (33,000 lb)
Wheelbase ..... 602 cm (237 in)
Cab to Axle/trunnion (CA/CT) ..... 427 cm (168 in)
Frame Section Modulus (SM) under crane:
758 MPa (110,000 PSI) ..... 261 cm^3 (15.9 in^3)
Frame Section Modulus (SM) over rear stabilizers:
758 MPa (110,000 PSI) ..... 213 cm^3 (13 in^3)
Stability Weight, Front ..... 3130 kg (6900 lb) minimum*
Stability Weight, Rear ..... 2767 kg (6100 lb) minimum*
Estimated Average Final Weight ..... 13 608 kg (30,000 lb)



Requires front SFO stabilizer to give machine full capacity 360˚ around the truck. Truck must meet the minimum requirements above. Front stabilizer gives the machine a solid base, helping the operator control loads precisely.

Configuration 2 with Torsion Box – 360˚ Full Capacity Work Area
(Extended front frame rails required for SFO installation.)
Working area ..... 360˚
Gross Axle Weight Rating Front ..... 5443 kg (12,000 lb)
Gross Axle Weight Rating Rear ..... 9525 kg (21,000 lb)
Gross Vehicle Weight Rating ..... 14 968 kg (33,000 lb)
Wheelbase ..... 602 cm (237 in)
Cab to Axle/trunnion (CA/CT) ..... 427 cm (168 in)
Frame Section Modulus (SM) under crane:
758 MPa (110,000 PSI) ..... 261 cm^3 (15.9 in^3)
Frame Section Modulus (SM) over rear stabilizers:
758 MPa (110,000 PSI) ..... 213 cm^3 (13 in^3)
Stability Weight, Front ..... 3130 kg (6900 lb) minimum*
Stability Weight, Rear ..... 3175 kg (7000 lb) minimum*
Estimated Average Final Weight ..... 13 835 kg (30,500 lb)



Allows the installation of the Model 560E2 on a chassis with a small frame by using the standard sub-base for 18 ft bed. In most cases, the chassis will not require reinforcing, and the amount of counterweight required is minimized, increasing payload capacities.

Configuration 3 with Torsion Box – 180˚ Full Capacity Work Area
Working area ..... 180˚
Gross Axle Weight Rating Front ..... 5443 kg (12,000 lb)
Gross Axle Weight Rating Rear ..... 9525 kg (21,000 lb)
Gross Vehicle Weight Rating ..... 14 968 kg (33,000 lb)
Wheelbase ..... 566 cm (223 in)
Cab to Axle/trunnion (CA/CT) ..... 391 cm (154 in)
Frame Section Modulus (SM) under crane:
758 MPa (110,000 PSI) ..... 261 cm^3 (15.9 in^3)
Frame Section Modulus (SM) over rear stabilizers:
758 MPa (110,000 PSI) ..... 213 cm^3 (13 in^3)
Stability Weight, Front ..... 3084 kg (6800 lb) minimum*
Stability Weight, Rear ..... 2494 kg (5500 lb) minimum*
Estimated Average Final Weight ..... 13 040 kg (28,750 lb)

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 for smooth crane operation; electronic fuel injection requires EET engine remote throttle
- All mounting data is based on a National Series 500E2 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 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 and jib combinations data

Available in two basic models:

Model 560E2 – Equipped with a 7,31 m - 18,29 m (24 ft - 60 ft) three-section boom. This model can be equipped with a 7,01 m - 12,50 m (23 ft - 41 ft) two-section jib. Maximum tip height with 12,50 m (41 ft) jib is 33,53 m (110 ft).

7,31 m - 18,29 m (24 ft - 60 ft) three-section boom. **5FJ41M** 7,01 m - 12,50 m (23 ft - 41 ft) two-section jib

Model 571E2 – Equipped with a 8,23 m - 21,65 m (27 ft - 71 ft) three-section boom. This model can be equipped with a 7,01 m - 12,50 m (23 ft - 41 ft) two-section jib. Maximum tip height with 12,50 m (41 ft) jib is 36,9 m (121 ft).

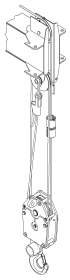
8,23 m - 21,65 m (27 ft - 71 ft) three-section boom. **5FJ41M** 7,01 m -12,50 m (23 ft - 41 ft) two-section jib

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

Specifications

500E2 winch data

- All winch pulls and speeds are shown on the fourth layer.
- Winch line pulls would increase 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, shown below this chart.
- Hook blocks are rated at maximum capacity for the block. **Do not exceed rated cable pull with any block.**

1 part line	2 part line	3 part line	4 part line	5 part line
				

Winch	Cable supplied	Average breaking strength	Max pull	Max pull	Max pull	Max pull	Max pull
Standard planetary winch	9/16 in diameter rotation resistant	17 463 kg (38,500 lb)	3492,66 kg (7700 lb)	6985,32 kg (15,400 lb)	10 477,98 kg (23,100 lb)	13 970,65 kg (30,800 lb)	14 514,96 kg (36,000 lb)

Layer	Winch pull		Winch speed		BOS winch speed		Rope capacity	
	kg	lb	mpm	fpm	mpm	fpm	m	ft
1	4708	10,380	48	157	68	222	19	64
2	4246	9360	53	175	75	246	41	136
3	3865	8520	59	192	83	271	65	215
4	3547	7820	64	209	90	294	91	301
5	3279	7230	69	257	97	318	120	394

Note: All ratings based on 128,7 LPM at 22,75 MPa (34 GPM at 3300 psi)
Burst of Speed maximum pull = 1361 kg (3000 lb)

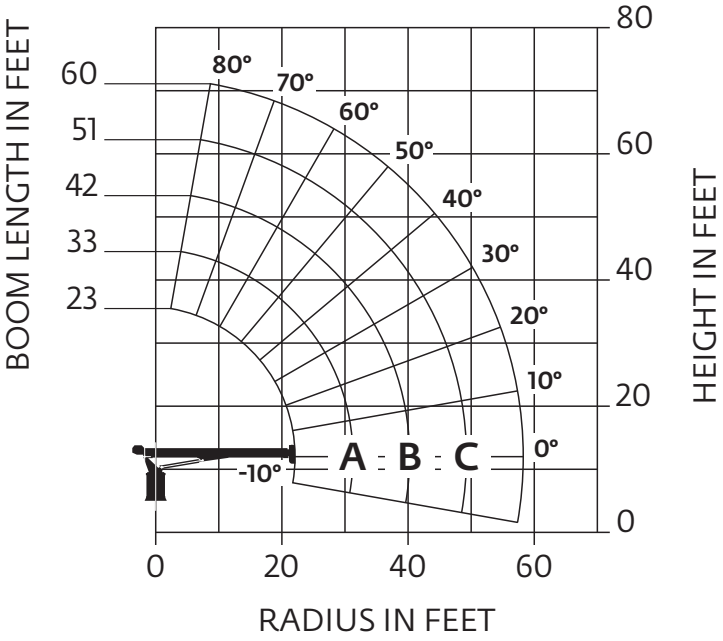
Winch	Bare drum pull	Allowable cable pull
With standard rotation resistant rope	4627 kg (10,2000 lb)	3493 kg (7700 lb)

Loadline deduct		
Block type	**Rating**	**Weight**
Downhaul weight	3,49 t (3.85 USt)	68 kg (150 lb)
1-sheave block	10,48 t (11.55 USt)	91 kg (200 lb)
2-sheave block	17,46 t (19.25 USt)	161 kg (355 lb)

Capacities

Series 560E2: 60 ft boom

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.**
- Jib and 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 exceed jib capabilities at any reduced boom lengths.
- 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

LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	23 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 33 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 42 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	C 51 ft BOOM (lb)	LOADED BOOM ANGLE deg)	60 ft BOOM (lb)
5	75	36,000								
8	67	23,150	74	21,350						
10	61.5	19,550	70	18,500	75	17,850				
12	56	16,900	66.5	16,000	72.5	15,350	76	14,700		
14	50.5	14,750	63	14,100	69	13,500	74	12,900	77	11,200
16	42	12,950	58.5	12,605	66.5	12,050	71.5	11,500	75.5	10,500
20	23	9400	50	10,250	60	9850	66.5	9400	71	9000
25			37.5	8050	52.5	8000	60.5	7650	66	7450
30			17	5550	43	6550	53.5	6400	60.5	6200
35					31	5250	46	5400	54.5	5300
40					8	3050	37	4500	48.5	4550
45							25	3600	41	3900
50									32.5	3300
55									21	2500
	0	5300	0	3350	0	2300	0	1600	0	1100

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 560E2: 60 ft boom with 41 ft jib

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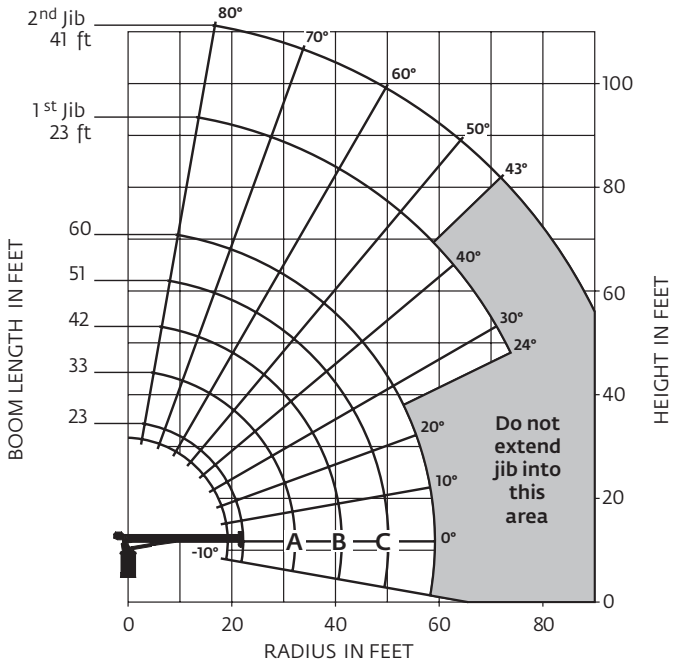

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- Jib and boom capacities shown are maximum for each section.
- Do not exceed capacities at reduced radii
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and 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 exceed jib capabilities at any reduced boom lengths.
- 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.

Note:

1. Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
2. Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.

Load chart

LOADED RADIUS (ft)	LOADED BOOM ANGLE (deg)	23 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	A 33 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	B 42 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	C 51 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	60 ft BOOM (lb)	LOADED BOOM ANGLE (deg)	23 ft JIB (lb)	LOADED BOOM ANGLE (deg)	41 ft JIB (lb)
5	75	36,000												
8	67	22,500	74	20,950										
10	61.5	18,900	70	18,050	75	17,500								
12	56	16,200	66.5	15,550	72.5	15,000	76	14,400						
14	50.5	14,100	63	13,650	69	13,150	74	12,600	77	10,950				
16	42	12,300	58.5	12,100	66.5	11,650	71.5	11,200	75.5	10,250				
20	23	8700	50	9800	60	9500	66.5	9150	71	8700	76	3450		
25			37.5	7600	52.5	7650	60.5	7350	66	7200	72.5	2850	76.5	2150
30			17	5050	43	6200	53.5	6100	60.5	6000	68	2400	73.5	1950
35					31	4900	46	5100	54.5	5050	65	2050	70.5	1600
40					8	2700	37	4200	48.5	4300	61	1750	67.5	1350
45							25.5	3300	41	3650	57	1500	64.5	1200
50									32.5	3000	53	1300	61.5	1050
55									21	2250	48.5	1150	58	900
60											43.5	1000	54.5	800
65											38	850	51	700
70											32	750	47	600
75											24	600	43	500
	0	4600	0	2900	0	1950	0	1300	0	850				

NOTE:

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2. Loaded boom angles are given as reference only.
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Capacities

Series 571E2: 71 ft boom

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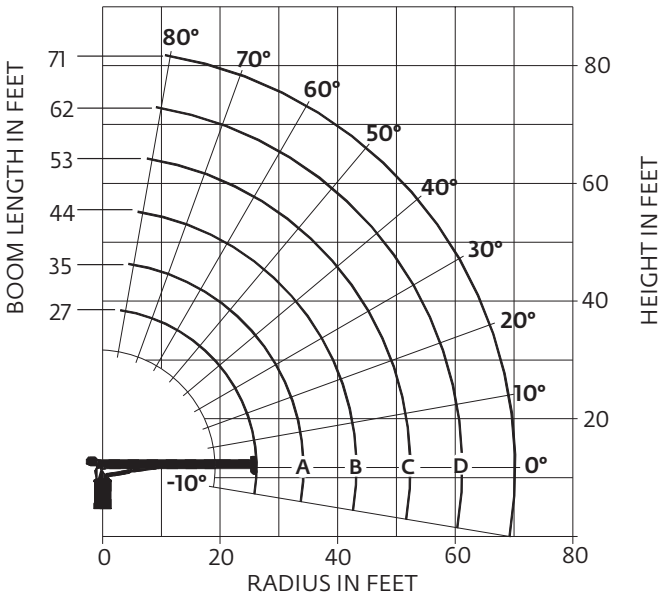

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- Do not exceed capacities at reduced radii
- Load ratings shown on the load rating charts are maximum allowable loads with the outriggers properly extended on a firm, level surface and the crane leveled and mounted on a factory recommended truck.
- 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 exceed jib capabilities at any reduced boom lengths.
- 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 (ft)	LOADED BOOM ANGLE (deg)	27 ft BOOM	LOADED BOOM ANGLE (deg)	A 35 ft BOOM	LOADED BOOM ANGLE (deg)	B 44 ft BOOM	LOADED BOOM ANGLE (deg)	C 53 ft BOOM	LOADED BOOM ANGLE (deg)	D 62 ft BOOM	LOADED BOOM ANGLE (deg)	71 ft BOOM
5	77.5	36,000										
8	70.5	24,650	75.5	20,550								
10	66	19,500	72	17,250	76.5	16,700	79.5	16,350				
12	61	16,250	68.5	14,850	73.5	14,350	77	14,000				
14	56	14,250	64.5	13,050	71	12,600	75	12,250	77.5	12,000		
16	50.5	12,600	61	11,600	68	11,200	72.5	10,850	75.5	10,650	78	9600
20	37.5	9950	53	9450	62	9150	68	8850	72	8650	75	8000
25	14	6300	41	7450	55	7350	62	7150	67	6950	70.5	6750
30			26.5	5650	46	6060	55.5	5950	62	5800	66.5	5700
35					35.5	4900	48.5	5000	56.5	4900	61.5	4800
40					20	3600	40.5	4150	50.5	4200	57	4100
45							30.5	3400	43.5	3550	51.5	3550
50							14	2300	36	3000	46	3050
55									26	2400	39.5	2600
60											32	2200
65											22.5	1650
	0	4100	0	2650	0	1750	0	1200	0	750	0	400

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.

Capacities

Series 571E2: 71 ft boom with 41 ft jib

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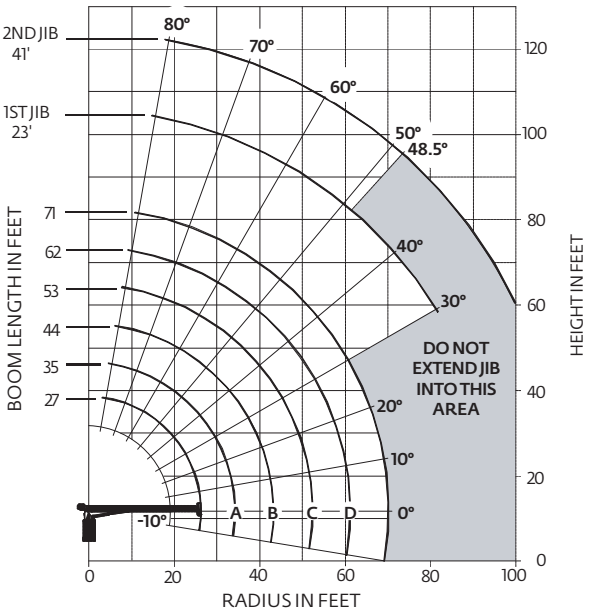

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- Do not exceed capacities at reduced radii
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- Always level the crane with the level indicator located on the crane.
- The operator must reduce load to allow for factors such as wind, ground conditions, 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 exceed jib capabilities at any reduced boom lengths.
- 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.

Note:

1. Operate with jib by radius when main boom is fully extended. If necessary increase boom angle to maintain loaded radius.
2. Operate with jib by boom angle when main boom is not fully extended. Do not exceed rated jib capacities at any reduced boom lengths.

Load chart

LOAD RADIUS (FEET)	LOADED BOOM ANGLE	27 FT BOOM	LOADED BOOM ANGLE	A 35 FT BOOM	LOADED BOOM ANGLE	B 44 FT BOOM	LOADED BOOM ANGLE	C 53 FT BOOM	LOADED BOOM ANGLE	D 62 FT BOOM	LOADED BOOM ANGLE	71 FT BOOM
5	77.5	36,000										
8	70.5	24,050	75.5	20,100								
10	66	18,900	72	16,800	76.5	16,300	79.5	16,050				
12	61	15,650	68.5	14,400	73.5	13,950	77	13,700				
14	56	13,650	64.5	12,600	71	12,200	75	11,950	77.5	11,750		
16	50.5	12,000	61	11,150	68	10,800	72.5	10,550	75.5	10,400	78	9350
20	37.5	9350	53	9000	62	8750	68	8550	72	8400	75	7750
25	14	5700	41	7000	55	6950	62	6850	67	6700	70.5	6500
30			26.5	5200	46	5660	55.5	5650	62	5550	66.5	5450
35					35.5	4500	48.5	4700	56.5	4650	61.5	4550
40					20	3200	40.5	3850	50.5	3950	57	3850
45							30.5	3100	43.5	3300	51.5	3300
50							14	2000	36	2750	46	2800
55									26	2150	39.5	2350
60											32	1950
65											22.5	1400
	0	3500	0	2200	0	1350	0	900	0	500		

LOAD RADIUS (FEET)	LOADED BOOM ANGLE	23 FT JIB	LOADED BOOM ANGLE	41 FT JIB
20	77	3400		
25	74.3	2900	77.3	2050
30	70.6	2450	74.5	1800
35	67.5	2100	72.2	1550
40	64.1	1800	69.5	1400
45	60.3	1600	66.4	1200
50	57.5	1450	63.4	1050
55	53.8	1250	60.9	950
60	49.8	1100	57.8	850
65	46	950	55.2	750
70	41.6	850	51.7	600
75	36.6	750	48.1	500
80	31	650		

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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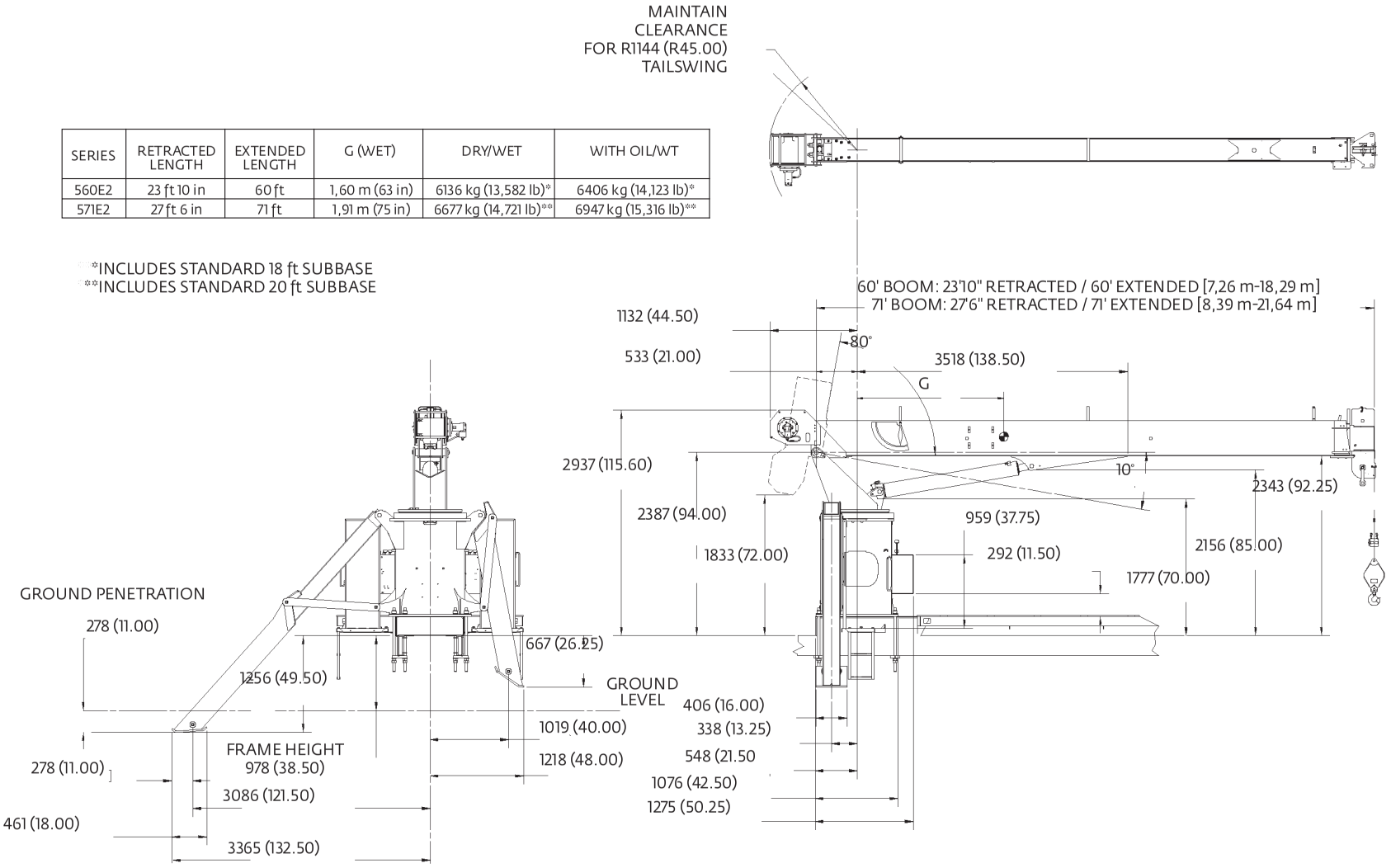
SERIES	RETRACTED LENGTH	EXTENDED LENGTH	G (WET)	DRY/WET	WITH OIL/WT
560E2	23 ft 10 in	60 ft	1,60 m (63 in)	6136 kg (13,582 lb)*	6406 kg (14,123 lb)*
571E2	27 ft 6 in	71 ft	1,91 m (75 in)	6677 kg (14,721 lb)**	6947 kg (15,316 lb)**

*INCLUDES STANDARD 18 ft SUBBASE
**INCLUDES STANDARD 20 ft SUBBASE



Dimensions are in mm (in) unless otherwise specified.

Accessories

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

- RB4R (R4 functions)

Heavy-duty Personnel Basket –
1,200-lb. (544-kg) capacity steel basket with safety loops for two passengers. Gravity leveling 72- x 42-inch (183- x 107-cm) platform. Fast attachment and secure locking systems. Load chart must show 2,300 (1043 kg) minimum to operate this accessory.

- BSA-1
- BSA-R1 (provides rotation)

Hydraulic Oil Cooler –
Automatic, self-contained radiator system with electric fans, cools oil under continuous duty-cycle operations.

- OC

Single Front Outrigger –
Center mount front stabilizer with 25" vertical stroke.

- SFO

Burst-of-Speed Winch –
Provides faster winch payout and pickup of unloaded cable.

- BOS

Bulkhead –
Steel 30" solid wall bulkhead.

- BHSD

Spanish-Language Danger Decals, Control Knobs, and Operators' Manuals –

- SDD
- SOM

Notes

Notes

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