

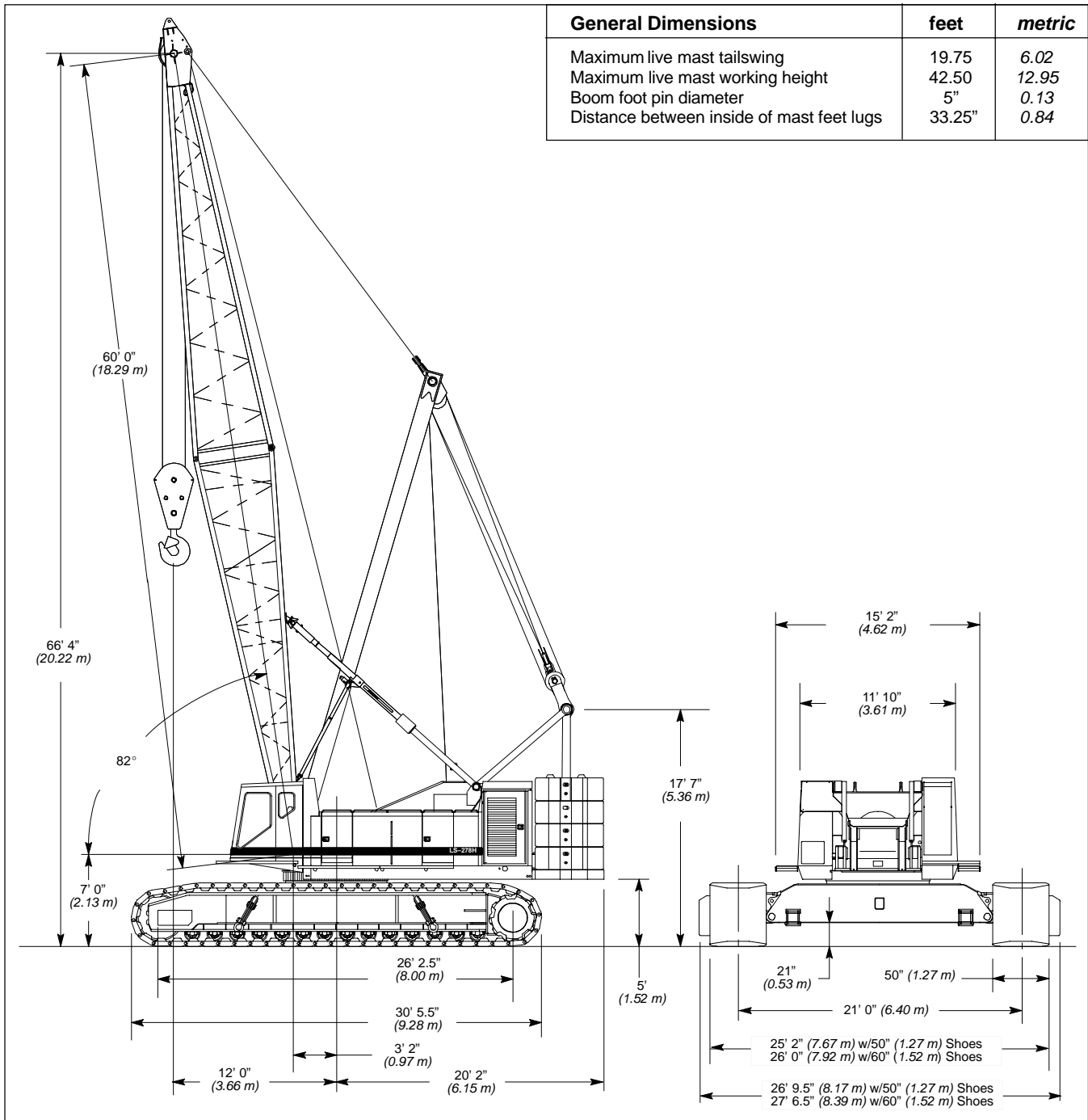
Specifications

Hydraulic Lattice Boom Crawler Crane

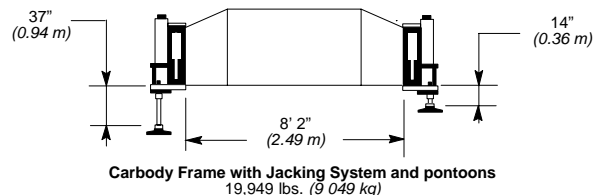
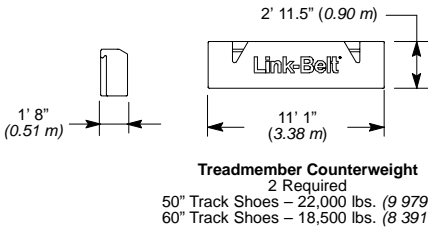
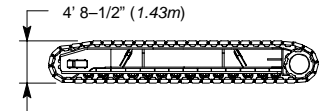
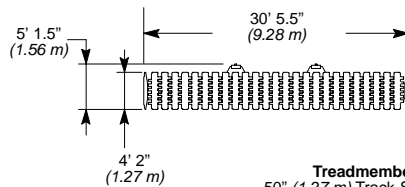
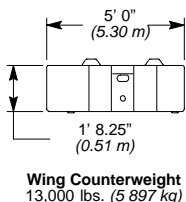
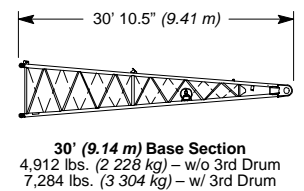
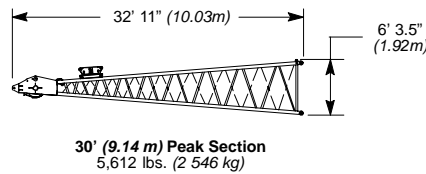
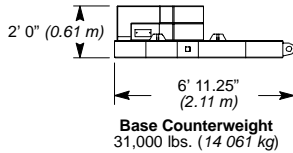
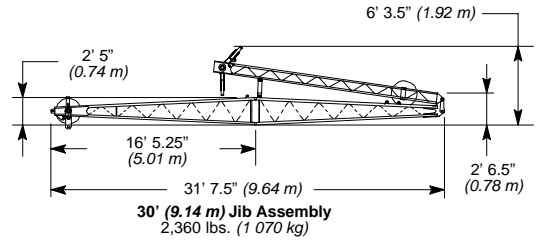
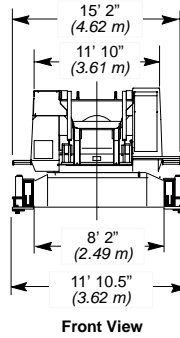
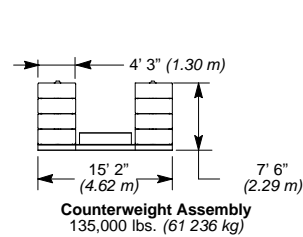
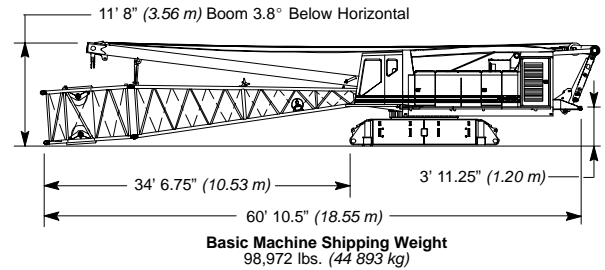
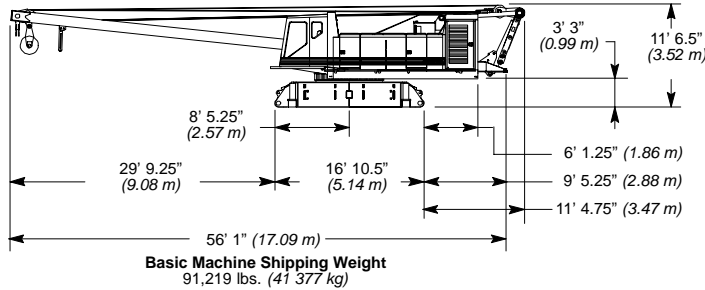
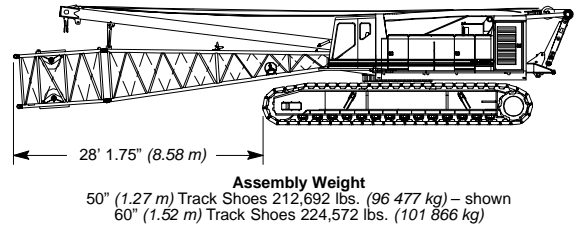
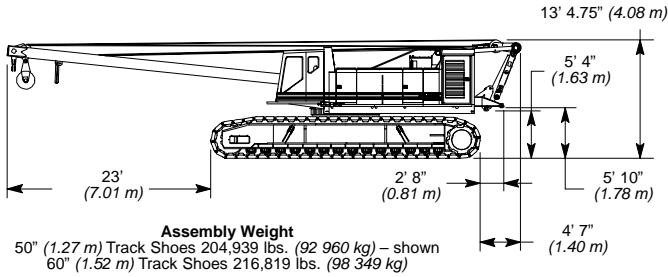
LS-278H

250-Ton (227 metric ton)

HYLAB Series



LS-278H Machine Transport Weights



Base Counterweight	31,000 lbs. (14 062 kg)
Base Counterweight + 4 Wing Counterweights	83,000 lbs. (37 649 kg)
Base Counterweight + 8 Wing Counterweights	135,000 lbs. (61 236 kg)

LS-278H Transportation Weights – approximate

Base Machine: Jacking system with four floats, 18-part bail assembly, 50 gallons (189 L) of fuel, 30' (9.14 m) live mast, 18-part boom hoist reeving, boom backstops, auxiliary lifting bail, 1,025' (312.4 m) front hoist rope and 850' (259.1 m) rear hoist rope.

Item Description	Gross Weight		Transport Loads										Notes and Load Summary	
	lb.	kg.	1	2	3	4	5	6	7	8	9	10		
Base Machine	91,219	41 376	1											Numbers in the load columns to the left represent quantities. Estimated transport assumes the load out consist of 230' (70.1m) of tube boom + 75' (22.86m) of jib with full counterweight. Support loads were targeted at 45,000 lb (20 412kg), 8'-6" (2.6m) wide, 48' (14.6m) long, and 13'-6" (4.1m) high using a drop deck trailer. This may vary depending on state laws, empty truck/trailer weights, and style of trailer. Estimated weights vary by +/- 2%. Estimated Total Load of #1 91,219 lbs. (41 376 kg) Estimated Total Load of #2 56,860 lbs. (25 791 kg) Estimated Total Load of #3 56,860 lbs. (25 791 kg) Estimated Total Load of #4 44,482 lbs. (20 358 kg) Estimated Total Load of #5 42,413 lbs. (19 238 kg) Estimated Total Load of #6 32,449 lbs. (14 719 kg) Estimated Total Load of #7 31,576 lbs. (14 319 kg) Estimated Total Load of #8 40,567 lbs. (18 401 kg) Estimated Total Load of #9 39,567 lbs. (17 947 kg) Estimated Total Load of #10 8,328 lbs. (3 778 kg)
Add treadmember with 50" (1.27 m) pads – 2 required	56,860	25 791		1	1									
Add 60" (1.52 m) shoes in place of standard – 2 required	5,940	2 694												
Add 31,000 lbs. (14 061 kg) base counterweight	31,000	14 061				1								
Add 13,000 lbs. (5 897 kg) wing counterweight – 8 required	13,000	5 897						2	2	2	1	1		
Add treadmember ctwt. for 50" track shoes – 2 required	22,000	9 979									1	1		
Add treadmember ctwt. for 60" track shoes – 2 required	18,500	8 391												
Add third drum ready base section	4,912	2 228				1								
Add 30' (9.14 m) top section with six head sheaves	5,612	2 546						1						
Add 10' (3.10 m) "JE" wall ext. with pins and pendants	1,727	783												
Add 10' (3.05 m) "JE" wall ext. with sheaves, pins and pendants	3,251	1 474				1								
Add 20' (6.10 m) "JE" wall ext. with pins and pendants	2,514	1 140						1				1		
Add 30' (9.14 m) "JE" wall ext. with pins and pendants	3,454	1 567										1		
Add 40' (12.19 m) "JE" wall ext. with pins and pendants	4,567	2 072											1	
Add 50' (15.24m) "JE" wall ext. with pins and pendants	5,567	2 525							1	1	1			
Add auxiliary tip extension	980	445												
Add hydraulic third drum plumbing	500	227												
Add hydraulic third drum without rope	2,372	1 076												
Add 30' (9.14 m) tubular jib	2,360	1 070										1		
Add 10' (3.10 m) jib extension	259	117						1						
Add 20' (6.14 m) jib extension	441	200						1	2					
Add hammerhead top section with 10' transition section	5,514	2 501												
Add auxiliary hammerhead tip extension	976	443										1		
Add jib wire rope 1.12" x 850' type "RB"	2,338	1 060										3		
Add jib wire rope 1" x 1,210' type "RB"	2,626	1 191												
Add jib wire rope 1" x 1,210' type "DB"	2,130	966												
Add drum wire rope 1" x 1,050' type "RB"	2,279	1 034												
Add 15-ton (13.6 mt) Hook Ball – Non Swivel	1,400	635						1						
Add 15-ton (13.6 mt) Hook Ball – Swivel	1,400	635												
Add 60-ton (54 mt) 2 Sheave Hook Block	5,720	2 595				1								
Add 150-ton (136 mt) 6 Sheave Hook Block	1,400	635												
Add 200-ton (181 mt) 6 Sheave Hook Block	3,860	1 751												
Add 250-ton (227 mt) 6 Sheave Hook Block	5,650	2 563						1						
Add 100 gallons of fuel	724	328												
Add left and right side catwalks	537	244										1		
Remove 4 floats for jacking system	-235	-107												
Remove jacking system without floats	-1,739	-789												
Remove front hoist rope	-2,398	-1 088												
Remove rear hoist rope	-1,700	-771												
Remove auxiliary lifting bail	-410	-186												

Notes:

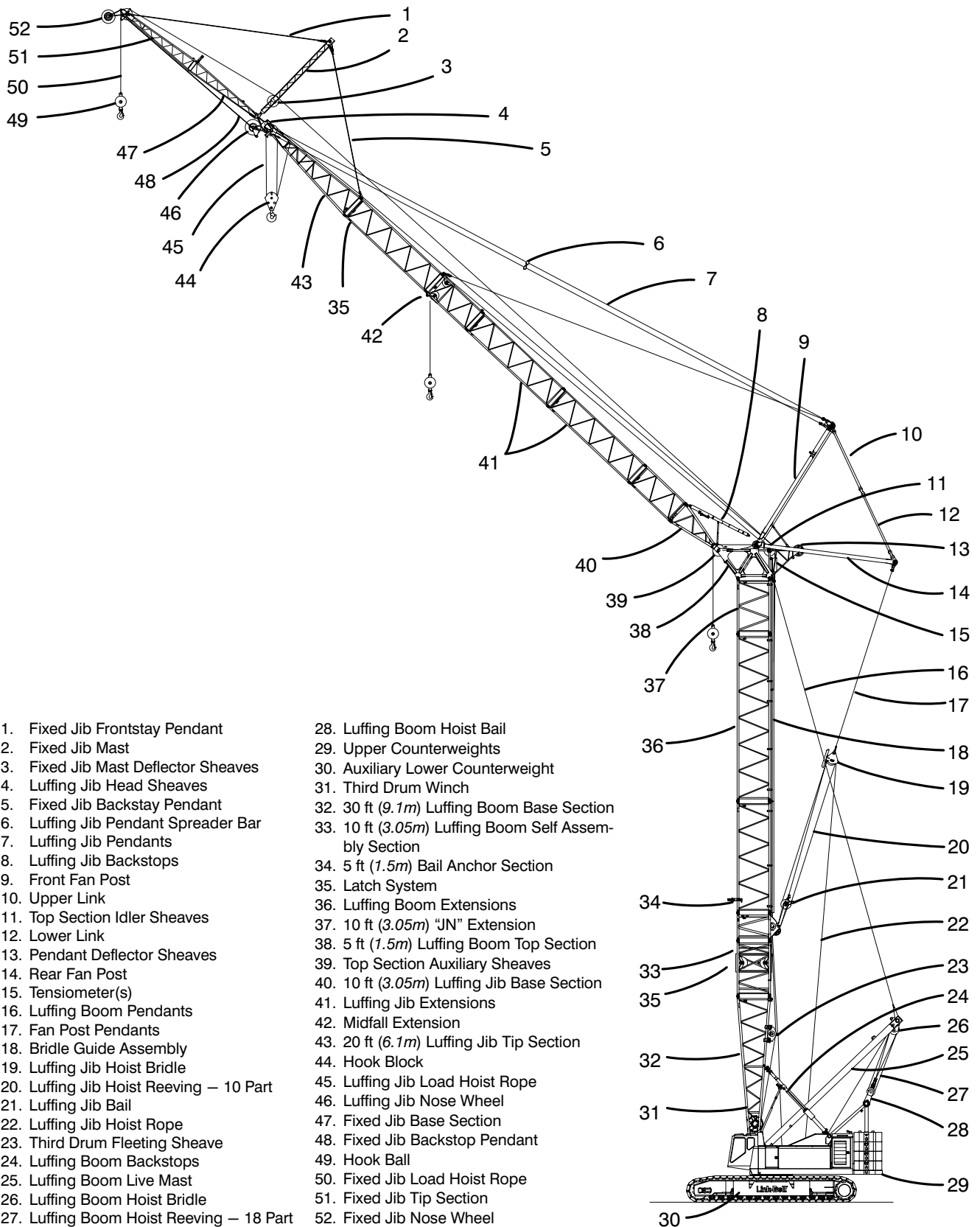
- Estimated transport loads assume the load out consist of 330' (100.58 m) of main boom plus 100' (30.48 m) of jib with full counterweight.
- Support loads were targeted at 45,000 lbs. (20 412 kg), 8' 6" (2.59 m) wide, 48' (14.63 m) long and 13' 6" (4.11 m) high using a single drop trailer. This may vary depending on state laws, empty truck/trailer weights and style of trailer.
- Estimated loads may vary by +/- 2%.

LS-278H Machine Working Weight		50" (1.27 m) Track Shoes		60" (1.52 m) Track Shoes	
		Gross Weight lbs. (kg)	Ground Bearing Pressure psi (kg/cm ²)	Gross Weight lbs. (kg)	Ground Bearing Pressure psi (kg/cm ²)
1	Base Machine equipped with 60' (18.29 m) of open throat tubular boom, live mast, 135,000 lbs of upper counterweight, lower counterweights, 1,025' (312.42 m) front hoist rope, 850' (259.08 m) rear hoist rope, 250-ton (226.8 mt) hook block, 148 gallons (560.2 L) of fuel, and 200 lbs. (90.7 kg) operator.	401,560 (182 144)	12.11 (0.85)	406,440 (184 358)	10.22 (0.72)
2	Option #1 plus midpoint pendants, and 270' (82.3 m) of boom extensions to obtain 330' (100.58 L) of main boom.	434,561 (197 114)	13.11 (0.92)	439,441 (199 327)	11.04 (0.78)
3	Option #2 plus 100' (30.48 m) of jib and 15-ton (13.6 mt) hook ball – subtract 30' (9.14 m) of boom extension and midpoint pendants to obtain maximum 300' + 100' (91.44 + 30.48 m) of main boom + jib.	436,449 (197 970)	13.16 (0.93)	441,329 (200 184)	11.09 (0.78)
4	Base Machine equipped with 45' (13.72 m) of Hammer head tube boom, live mast, 135,000 lbs. of upper counterweight, lower counterweights, 1,025' (312.42 m) front hoist rope, 850' (259.08 m) rear hoist rope, 250-ton (226.8 mt) hook block, 148 gallons (560.2 L) of fuel, and 200 lbs. (90.7 kg) operator.	401,461 (182 100)	12.11 (0.85)	406,341 (184 313)	10.21 (0.72)
5	Option #4 plus "B" counterweight and 200' (60.96 m) of boom extensions to obtain 245' (74.68 m) of main boom.	427,381 (193 857)	12.89 (0.91)	432,261 (196 070)	10.86 (0.76)

Notes:

1. Ground bearing pressure is based on the total weight distributed evenly over the track contact area.
2. Total contact area for 50" (1.27 m) track shoes is 33,158 in² (213 922 cm²) and 60" (1.52 m) track shoes is 39,788 in² (256 696 cm²)

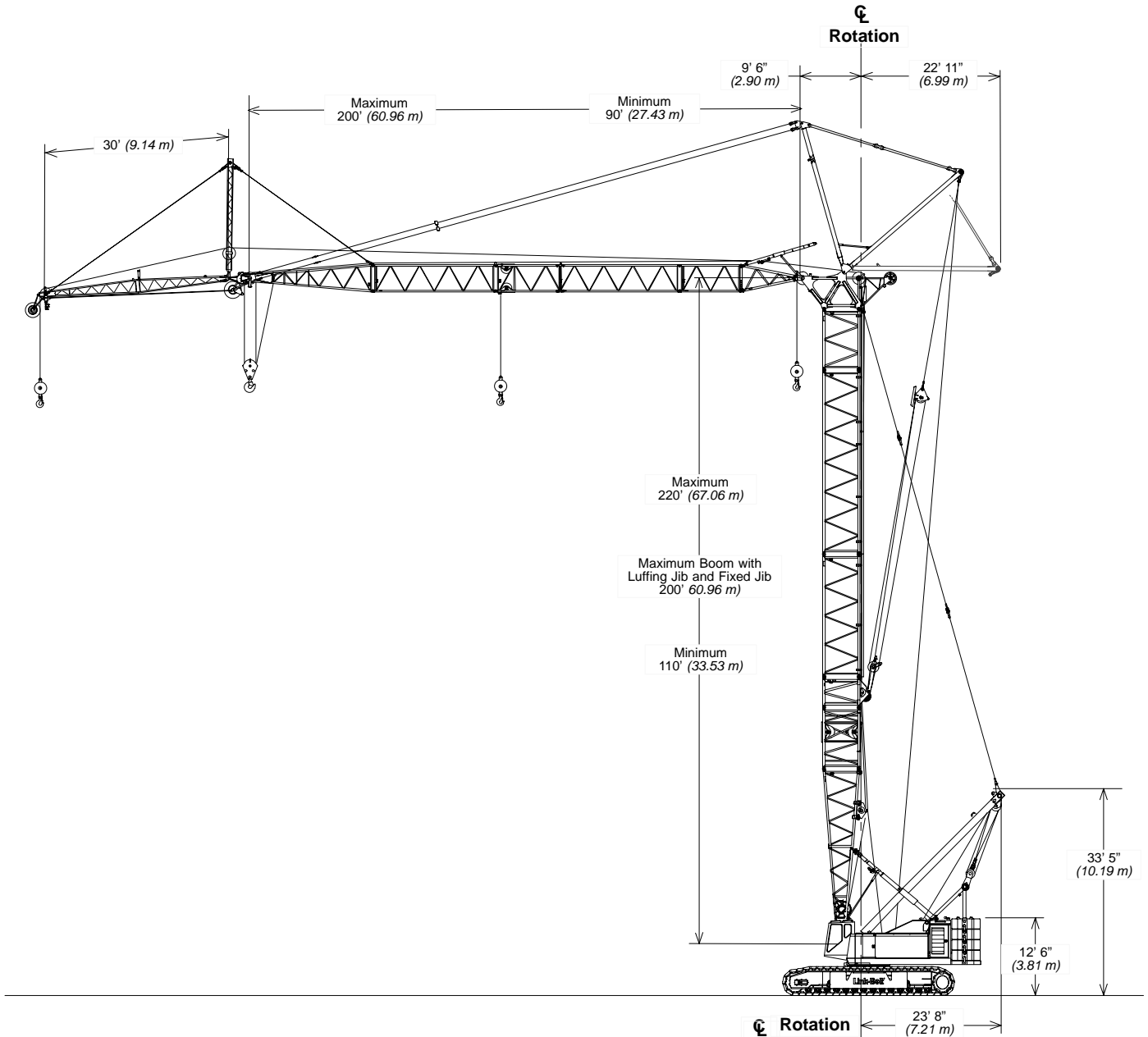
LS-278H Luffing Attachment Nomenclature



- 1. Fixed Jib Frontstay Pendant
- 2. Fixed Jib Mast
- 3. Fixed Jib Mast Deflector Sheaves
- 4. Luffing Jib Head Sheaves
- 5. Fixed Jib Backstay Pendant
- 6. Luffing Jib Pendant Spreader Bar
- 7. Luffing Jib Pendants
- 8. Luffing Jib Backstops
- 9. Front Fan Post
- 10. Upper Link
- 11. Top Section Idler Sheaves
- 12. Lower Link
- 13. Pendant Deflector Sheaves
- 14. Rear Fan Post
- 15. Tensiometer(s)
- 16. Luffing Boom Pendants
- 17. Fan Post Pendants
- 18. Bridle Guide Assembly
- 19. Luffing Jib Hoist Bridle
- 20. Luffing Jib Hoist Reeving – 10 Part
- 21. Luffing Jib Bail
- 22. Luffing Jib Hoist Rope
- 23. Third Drum Fleeting Sheave
- 24. Luffing Boom Backstops
- 25. Luffing Boom Live Mast
- 26. Luffing Boom Hoist Bridle
- 27. Luffing Boom Hoist Reeving – 18 Part

- 28. Luffing Boom Hoist Bail
- 29. Upper Counterweights
- 30. Auxiliary Lower Counterweight
- 31. Third Drum Winch
- 32. 30 ft (9.1m) Luffing Boom Base Section
- 33. 10 ft (3.05m) Luffing Boom Self Assembly Section
- 34. 5 ft (1.5m) Bail Anchor Section
- 35. Latch System
- 36. Luffing Boom Extensions
- 37. 10 ft (3.05m) "JN" Extension
- 38. 5 ft (1.5m) Luffing Boom Top Section
- 39. Top Section Auxiliary Sheaves
- 40. 10 ft (3.05m) Luffing Jib Base Section
- 41. Luffing Jib Extensions
- 42. Midfall Extension
- 43. 20 ft (6.1m) Luffing Jib Tip Section
- 44. Hook Block
- 45. Luffing Jib Load Hoist Rope
- 46. Luffing Jib Nose Wheel
- 47. Fixed Jib Base Section
- 48. Fixed Jib Backstop Pendant
- 49. Hook Ball
- 50. Fixed Jib Load Hoist Rope
- 51. Fixed Jib Tip Section
- 52. Fixed Jib Nose Wheel

LS-278H Luffing Attachment Dimensions



Attachment Options

■ 60' – 330' (18.29 – 100.58 m) Tubular Boom

Basic Boom – 60' (18.29 m) two-piece design that utilizes a 30' (9.14 m) base section and a 30' (9.14 m) open throat top section with in-line connecting pins on 80" (2.03 m) wide and 68" (1.73 m) deep centers.

- 250-ton (226.8 mt) maximum capacity
- Max boom tip height of 333' (101.5 m)
- Boom feet on 66" (1.67 m) centers
- 4.25" (10.79 cm) diameter chords

- Lugs on base section to attach carrying links
- Skywalk platform
- Deflector roller on top section
- Rigid sheave guards
- Six, 21" (0.53 m) root diameter steel sheaves mounted on sealed anti-friction bearings
- Oil filled mechanical boom angle indicator

Boom Extensions – The following table provides the lengths available and the suggested quantity to obtain maximum boom in 10' (3.05m) increments. Midpoint pendant connections are required at 140' (42.67 m) for boom lengths 250' (72.6 m) and longer.

Tube Boom Extensions	Suggested Quantity for Maximum Boom
10' (3.05 m)	1
20' (6.10 m)	2
30' (9.14 m)	2
40' (12.19 m)	2

- Deflector roller on top of each section
- Two rollers on 40' (12.19 m) and 50' (15.24 m) extensions.
- Appropriate length pendants
- The optional 10' (3.05 m) extension with lifting sheaves is used for self assembly/disassembly instead of using live mast and auxiliary lifting bail.

■ 45' – 245' (13.72 – 74.68 m) Hammer Head Boom

Basic Boom – 45' (13.72 m) three-piece design that utilizes a 30' (9.14 m) base section, a 10' (3.05 m) taper section, and a 5' (1.52 m) hammer head top section. Taper section pins to standard base section with in-line connecting pins on 80" (2.03 m) wide and 68" (1.73 m) deep centers.

- 200-ton (178.6 mt) maximum capacity
- Maximum boom tip height is 243' (74.07 m)
- 4.25 (10.80 m) tubular "JE" wall chords
- Lugs on base section to attach carrying links.
- Skywalk platform
- Deflector roller on top section
- Rigid sheave guards
- Six, 21" (0.53 m) root diameter steel sheaves mounted on sealed anti-friction bearings.
- Oil-filled mechanical boom angle indicator.

Hammer Head Boom Extensions – The following table provides the lengths available and the suggested quantity to obtain maximum boom in 10' (3.05 m) increments. Extensions are common with open throat extensions.

Hammer Head Boom Extensions "JE"	Suggested Quantity for Maximum Boom
10' (3.05 m) with or without lifting sheaves	1
20' (6.10 m)	1
30' (9.14 m)	1
40' (12.19 m)	0
50' (15.24 m)	3

- Deflector roller on top of each section. Two rollers 40' (12.19 m) and 50' (15.24 m) extensions.
- Appropriate length pendants
- 10' (3.05 m) extension with lifting sheaves is available for self-assembly and disassembly.

■ 30' – 100' (9.14 – 30.48 m) Tubular Jib

Basic Tube Jib – 30' (9.14 m) two-piece design that utilizes a 15' (4.57 m) base section and a 15' (4.57 m) top section with in-line connecting pins on 32" (0.81 m) wide and 24" (0.61 m) deep centers. Designed to be used on the open throat top section only.

- 30-ton (27.2 mt) maximum capacity
- Maximum tip height of tube boom + jib is 403.8' (123.1 m).
- Jib offset angles at 5, 15 and 25 degrees
- 2.25" (57 mm) tubular chords
- One 18.5" (0.47 m) root diameter steel sheave mounted on sealed anti-friction bearings.

Jib Extensions – The following table provides the lengths available and the suggested quantity to obtain maximum jib in 10' (3.05 m) increments.

Jib Extensions	Suggested Quantity for Maximum Boom
10' (3.05 m)	1
20' (6.10 m)	3

- Wood wear block on top of each section.
- Appropriate length pendants.

■ 90' – 200' (27.43 – 50.29 m) Luffing Jib

Basic Luffing Jib – 90' (24.38 m) five-piece design utilizes a 5' (1.52 m) luffing boom top section, 10' (3.05 m) base section, 10' (3.05 m) extension, 20' (6.01 m) extension, 30' (9.14 m) extension, and 20' (6.10 m) top section with in-line connecting pins. Boom extensions are 50" (1.12 m) wide and 60" (1.37 m) deep at the centers.

- 54-ton (24.5 mt) maximum capacity
- Working lengths of 90' (24.38 m) to 200' (48.77 m)
- Top section includes mounting lugs for all attachment options.
- Lugs on base section to attach fan-post transport links.
- Two polyamide 24" (0.46 m) diameter luffing jib head sheaves
- Two polyamide 25" (0.54 m) diameter luffing boom auxiliary head sheaves
- Pin on nose wheel
- Ten-part luffing jib hoist.
- 1.25" (31.75 mm) diameter type "BC" pendants

Luffing Jib Extensions – The following table provides the lengths available and the suggested quantity to obtain the maximum luffing jib in 10' (3.05 m) increments. Midpoint pendants are not required.

Luffing Jib Extensions	Suggested Quantity for Maximum Boom
10' (3.05 m)	1
20' (6.10 m)	1
30' (9.14 m)	2
40' (12.19 m)	2

Midfall Extension – The midfall (if equipped) consists of a 10' (3.05 m) luffing jib extension equipped with load hoisting machinery and provides an auxiliary load hoist location for short radius light duty lifting.

- Midfall capacities and suspension adjustments are available for luffing jib lengths of 110 – 200' (33.5 – 61.0 m).
- Midfall capacities range from 18,800 lbs. (8 528 kg) to 9,400 lbs. (4 264 kg).

■ Luffing Boom

- Common base and extensions as open throat boom
- 10' (3.05 m) Self-Assembly section required for bail anchor
- Working angles of 90, 85, 80, 75, 70, and 65 degrees.
- Working lengths of 110' (25.91 m) to 220' (50.29 m)
- 1.25" (34.92 mm) diameter type "BC" pendants; same as open throat boom.

Luffing Boom Extensions – The following table provides the lengths available and the suggested quantity to obtain the maximum

luffing boom in 10' (3.05 m) increments. Midpoint pendants are not required.

Luffing Boom Extensions	Suggested Quantity for Maximum Boom
10' (3.05 m) *	2
20' (6.10 m)	1
30' (9.14 m)	1
40' (12.19 m)	1
50' (15.24 m)	3

* : 10' (3.05 m) Must be the Self-assembly and "JN" section.

- Rear hoist drum becomes luffing jib hoist
- Optional third drum provides second working hoist line, if required.
- Designed for self-assembly
- Luffing jib hoist bridle and bail can remain reeved for machine transport
- Job site mobility with attachment
- Rolled out or rolled under erection methods
- Compact transport module.

■ Auxiliary 5' (1.5 m) Tip Extension

Designed to use in place of jib to provide clearance between working hoist lines. The horsehead style extension is equipped with a single 28.3" (0.72 m) root diameter steel sheaves mounted on sealed anti-friction bearing. Maximum capacity is 25-tons (22.32 mt).

■ Auxiliary Hammer Head Tip Extension

Designed to use in place of jib to provide clearance between working hoist lines. The extension is equipped with a single 20" (0.51 m) root diameter steel sheaves mounted on sealed anti-friction bearing. Maximum capacity is 17.5-tons (15.9 mt).

■ Boom Hoist System

Designed to lift off maximum boom or maximum boom plus jib unassisted. Operates up to a maximum boom angle of 82 degrees. Boom hoist limit system limits maximum boom angle operation.

- Hydraulic controlled retractable gantry frame.
- 18-part reeving with 1" (2.54 cm) type "W" wire rope
- Bridle assembly and 35' (10.67 m) live mast
- Four 1.25" x 26' 4" (3.18 cm x 8.03 m) pendants
- Two 1" x 112' 10" (25.4 cm x 34.39 m) mid-point pendants
- Tubular spring-buffered boom backstops (rigid type)
- Sheaves contain sealed anti-friction bearings
- Boom speed from minimum to maximum operating radius for 150' (45.72 m) of open throat boom is 84 seconds.

Revolving Upper Structure

■ Frame

All welded steel frame with precision machined surfaces for mating parts.

■ Engine

Detroit Diesel Series 60 – 12.7 Liter with oil filter, oil cooler, air cleaner, fuel filter, water separator, tachometer and electrical shutdown.	
Number of cylinders	6
Bore and stroke – in. (mm)	5.12" x 6.00" (130 x 152)
Piston displacement – cu. in. (cm ³)	778 (12 751)
Max brake hp (kw)	450 (336) @ 1,800 r.p.m.
Peak torque – ft./lb. (joules)	1,550 (2 102) @ 1,350 r.p.m.
Electrical System	12V
Batteries	4, Group 31 rated @ 725 cc amps at 0 deg. (F)
Alternator	130 amps
Approximate fuel consumption	Gal./hr. (L/hr)
100% HP	20.09 (76.05)
75% HP	15.06 (57.01)
50% HP	10.04 (38.01)
25% HP	5.02 (19.00)

■ Hydraulic System Specifications

Hydraulic Pumps – The pump arrangement is designed to provide hydraulically powered functions allowing positive, precise control with independent or simultaneous operation of all crane functions.

- One variable displacement pump operating at 5,225 psi (36 025 kPa) and 94 gal/min (355 L/min) powers front hoist drum.
- One variable displacement pump operating at 5,100 psi (35 163 kPa) and 94 gal/min (355.8 L/min) powers the rear hoist drum.
- One variable displacement pump operating at 4,600 psi (31 717 kPa) and 73 gal/min (278 L/min) powers the boom hoist drum.
- Two variable displacement pumps operating at 5,000 psi (34 474 kPa) and 52 gal/min (197 L/min) powers the travel system.
- One variable displacement pump operating at 4,350 psi (29 993 kPa) and 73 gal/min (276 L/min) powers the swing system.
- One fixed displacement gear type pump operating at 1,250 psi (88 kg/cm²) and 8 gal/min (32 L/min) powers the pilot control system.

Pump Control (“Fine Inching”) mode – Special pump setting, selectable from operator’s cab, that allows very slow movements of front and rear hoist for precision work.

Hydraulic Reservoir – 144 gal (545 L), equipped with sight level gauge. Diffusers built in for deaeration.

Filtration – One 10 micron, full flow, line filter in the return line of the hydraulic reservoir.

Counterbalance Valves – All hoist motors are equipped with counterbalance valves to provide positive load lowering and prevent accidental load drop if the hydraulic pressure is suddenly lost.

■ Front Hoist Drums

Drum contains a pilot controlled, bi-directional, axial piston motor and a planetary gear reduction unit to provide positive control under all load conditions.

- Power up/down operation mode
- Spring applied, hydraulically released, disc-type brake controlled automatically
- 1.12" (28.4 mm) grooved “Lebus” lagging
- Drum pawl controlled automatically
- Electronic drum rotation indicator
- Mounted on anti-friction bearings
- 20.88" (0.53 m) root diameter
- 36" (0.91 m) flange diameter
- 31.94" (0.81 m) width

■ Rear Hoist Drums

Drum contains a pilot controlled, bi-directional, axial piston motor and a planetary gear reduction unit to provide positive control under all load conditions.

- Power up/down operation mode
- Spring applied, hydraulically released, disc-type brake controlled automatically
- 1" (25.4 mm) grooved “Lebus” lagging
- Drum pawl controlled automatically
- Electronic drum rotation indicator
- Mounted on anti-friction bearings
- 30.88" (0.78 m) root diameter
- 40.5" (1.03 m) flange diameter
- 31.94" (0.81 m) width

■ Optional Third Hoist Drum

The hydraulic winch is mounted in the boom base section and is used in conjunction with a fleeting sheave and three sheave assembly to run the wire rope over the boom top section.

- Power up/down operation mode
- Automatic brake mode (spring applied, hydraulically released)
- Smooth drum
- Electronic drum rotation indicator
- Mounted on anti-friction bearings
- 12.75" (0.32m) root diameter
- 22.75" (0.58m) flange diameter
- 17" (0.43m) width

■ Boom Hoist Drum

Contains a pilot controlled, bi-directional, axial piston motor and a planetary gear reduction unit to provide positive control under all load conditions.

- Spring applied, hydraulically released, disc type brake controlled automatically
- 1" (2.54 cm) grooved lagging
- Drum pawl controlled automatically
- Mounted on anti-friction bearings
- Electronic drum rotation indicator
- 20.88" (0.53 m) root diameter
- 31" (0.79 m) flange diameter
- 30.75" (0.78 m) width

■ Swing System

Contains a pilot controlled bi-directional axial piston motors and the planetary gear reduction unit to provide positive control under all load conditions.

- Spring applied, hydraulically released, 360 degree multi-plate brake
- Free swing mode when lever is in neutral position
- 360 degree positive house lock
- Audio/visual swing alarm
- Maximum swing speed is 2.4 rpm

■ Upper Counterweight

Consist of a nine-piece design. Easily lowered to the ground using a remote control box to hydraulically retract the gantry. The design allows division of 135, 000 lbs. (61 235 kgs) of counterweight into light-weight modules for transportation. This design allows for operating with less than maximum counterweight.

- 31,000 lbs. (14 061 kg) base counterweight
- Eight, 13,000 lbs. (5 897 kg) wing counterweights
- Capacity charts exist for 135,000 lbs. (61 235 kg), 83,000 lbs. (37 648 kg) or 31,000, (14 061 kg).

■ Operator’s Cab and Controls

Fully enclosed modular steel compartment is independently mounted and insulated to protect against vibration and noise.

- All tinted/tempered safety glass
- Sliding entry door
- Swing up roof window with wiper
- Door and window locks
- Heater with circulating fan
- Engine instrumentation panel (tachometer, fuel gauge, voltmeter, engine oil pressure, engine water temperature, hydraulic oil temperature, hour meter and service monitor system)
- Electronic drum rotation indicators

(continued on page 9)

LS-278H Load Hoisting Performance

Available line speed and line pull – based on Cummins N14-C440 engine at 1,800 rpm. Line pulls are not based on wire rope strength. See Wire Rope Capacity Chart for maximum permissible single part-of-line working loads.

Rope Layer	Front Drum – 1.12" (28.45 mm) Wire Rope											
	Maximum Line Pull		No Load Line Speed		Full Load Line Speed		Pitch Diameter		Layer		Total	
	lb.	kg	ft./min.	m/min.	ft./min.	m/min.	in.	mm	ft.	m	ft.	m
1	44,390	22 403	287	87.5	142	43.3	22	558.8	148	45.1	148	45.1
2	44,808	20 325	316	96.3	157	47.9	24.25	616.1	164	50.0	312	95.1
3	41,003	18 599	346	105.5	171	52.1	26.5	673.1	179	54.6	491	149.7
4	37,794	17 143	375	114.3	186	56.7	28.75	730.3	194	59.1	684	208.5
5	35,051	15 899	404	123.1	200	61.0	31	787.4	209	63.7	893	272.2
6	32,679	14 823	434	132.3	215	65.5	33.25	844.6	224	68.3	1118	340.8
7	30,608	13 884	463	141.1	229	69.8	35.5	901.7	239	72.8	1357	413.6

NOTE: The seventh layer is for storage only

Rope Layer	Rear Drum – 1" (25.4 mm) Wire Rope											
	Maximum Line Pull		No Load Line Speed		Full Load Line Speed		Pitch Diameter		Layer		Total	
	lb.	kg	ft./min.	m/min.	ft./min.	m/min.	in.	mm	ft.	m	ft.	m
1	33,206	15 062	416	126.8	206	62.8	31.88	809.8	242	73.8	242	73.8
2	31,245	14 173	442	134.7	219	66.8	33.88	860.5	257	78.3	499	152.1
3	29,503	13 383	468	142.6	232	70.7	35.88	911.4	272	82.9	771	235
4	27,945	12 676	494	150.6	245	74.7	37.88	962.1	287	87.5	1058	322.5

NOTE: The fourth layer is for storage only

Rope Layer	Boom Hoist Drum – 1" (25.4 mm) Wire Rope											
	Maximum Line Pull		No Load Line Speed		Full Load Line Speed		Pitch Diameter		Layer		Total	
	lb.	kg	ft./min.	m/min.	ft./min.	m/min.	in.	mm	ft.	m	ft.	m
1	42,966	19 489	239	72.8	120	36.6	21.88	555.8	160	48.8	160	48.8
2	39,367	17 857	261	79.6	131	39.9	23.88	606.6	174	53.0	334	101.8
3	36,324	16 477	283	86.3	142	43.3	25.88	657.4	189	57.6	523	159.4
4	33,718	15 294	305	93.0	153	46.6	27.88	708.2	204	62.2	727	221.6
5	31,461	14 270	327	99.7	164	50.0	29.88	759.0	218	66.4	945	288.0

Rope Layer	Third Hoist Drum – 1" (25.4 mm) Wire Rope											
	Maximum Line Pull		No Load Line Speed		Full Load Line Speed		Pitch Diameter		Layer		Total	
	lb.	kg	ft./min.	m/min.	ft./min.	m/min.	in.	mm	ft.	m	ft.	m
1	29,090	13 195	271	82.6	230	70.1	21	533.4	131	39.9	131	39.9
2	26,560	12 048	297	90.5	251	76.5	23	584.2	143	43.6	274	83.5
3	24,440	11 086	322	98.1	273	83.2	25	635.0	156	47.5	430	131.1
4	22,630	10 265	348	106.1	295	89.9	27	685.8	168	51.2	598	182.3
5	21,070	9 557	374	114.0	317	96.6	29	736.6	181	55.2	779	237.4
6	NOTE: Storage layer only								193	58.8	972	296.3

Wire Rope Application	Diameter		Length		Type	Maximum Permissible Load	
	in	mm	ft	m		lbs	kg
Boom Hoist	1	25.4	870	265.2	W	11,770	5 339
Front Hoist	1.125	28.4	1025	312.4	LB	40,850	18 529
Rear Hoist (Optional)	1	25.4	850	259.1	RB	22,760	10 324
Rear Hoist (Optional)	1	25.4	1210	368.8	RB	22,760	10 324
Rear Hoist (Optional)	1	25.4	1210	368.8	DB	29,540	13 399
Third Drum (Optional)	1	25.4	1050	320.0	RB	22,760	10 324

Rope Type	Description
W	6 x 26 (6 X 19 Class) – Extra Improved Plow Steel – Preformed – Independent Wire Rope Core – Right Lay – Alternate Lay
LB	6 x 26 (6 X 19 Class) – Filler Wire – Preformed – Independent Wire Rope Core – Right Lay – Regular Lay
RB *	19 x 19 Rotation Resistant – Extra-Extra Improved Plow Steel – Preformed – Right Lay – Regular Lay
DB	6 x 26 (6 X 19 Class) – Warrington Seale – Extra Improved Plow Steel – Preformed – Right Lay – Regular Lay

* – Use of swivel ball is not recommended.

Revolving Upper Structure (continued from page 7)

■ Operator's Cab and Controls (continued)

- Six way adjustable seat with seat belt
- Dry chemical fire extinguisher
- Twist lock hand and foot throttle
- Hand and foot operated boom hoist control
- Pilot operated arm chair single axis control levers
- Swing lever with swing brake and horn located on handle
- 12-volt power outlet

■ Load Indicator / Rated Capacity Limiter

Standard Equipment – PAT DS-350/1334 modular system that includes two lineriders, angle sensor, computer, graphic

display, and anti-two block equipment to provide the following information.

- Graphic representation of machine configuration.
- Step-by-step machine set-up
- Boom length & angle
- Jib length & angle
- Load on hook
- Rated load
- Load radius
- Tip height
- Anti-two block warning & function limiters
- Operation mode
- Provides audio/visual warning when the load on hook is within 90% of the crane's rated load.
- Provides audio/visual warning and limits functions when the load on hook is at 100% of the crane's rated load.
- Operator settable alarms include minimum

and maximum boom angle, maximum tip height, left and right swing, and range control (obstacle avoidance). These alarms provide an audio/visual warning only.

Note: Function limiters are activated for anti-two block and overload conditions. These limiters are designed to prevent hoist-up on front and rear drums and boom down.

■ Additional Equipment – Standard

- 93" (2.36 m) outside diameter turntable bearing
- Front, right and left side removable catwalks
- 143 (usable) U.S. gallons (541.3 L) fuel tank
- Machine lifting links

Lower Structure

■ Carbody

All welded box construction frame with precision-machined surfaces for turntable bearing and rotating joint.

- 10' (3.05 m) overall width
- 16' 10" (5.13 m) overall length
- Hydraulic tubing and hoses for travel system
- Four ground controlled hydraulic jacks with 24" (610 mm) aluminum floats

■ Treadmembers

All welded, precision-machined assemblies that are attached to the carbody with hydraulic assist pin pullers..

- 21' (6.40 m) extended gauge
- 30' 5" (9.27 m) overall length
- 50" (1.27 m) wide track shoes – standard
- 60" (1.52 m) wide track shoes – optional

- 14 sealed (oil filled) track rollers per treadmember
- Sealed (oil filled) idler and drive planetaries
- Compact travel drives
- Hydraulic adjusting tracks
- Ladder assembly
- Lifting links

Travel and Steering – Each treadmember contains a pilot controlled, bi-directional, axial piston motor and a planetary gear reduction unit to provide positive control under all load conditions.

- Individual control provides smooth, precise maneuverability including full counter-rotation.
- Spring applied, hydraulically released disc type brake controlled automatically.
- Maximum travel speed is 0.7 mph. (1.6 km/h).
- Designed to 30% gradeability.

■ Lower Counterweight

The design consist of a counterweight that quickly hangs on each treadmember for increased 360 degree capacities.

- Two, 22,000 lbs. (9 979 kg) counterweight are for 50" (1.27 m) track shoes.
- Two, 18,500 lbs. (8 391 kg) counterweights are for 60" (1.52 m) track shoes.
- Capacity charts exist for 135,000 lbs (61 235 kg) of upper counterweight plus lower counterweights..

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