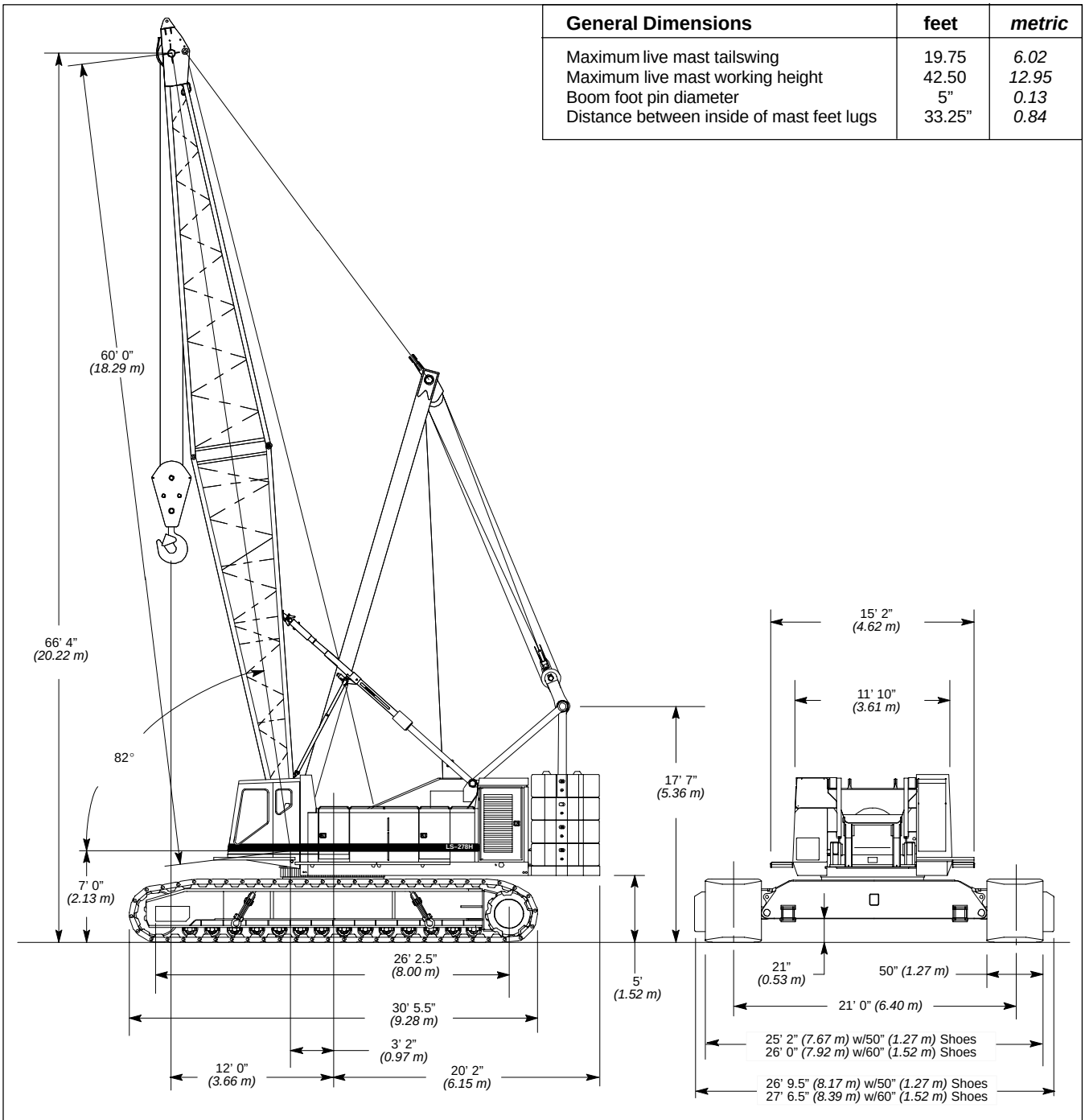
Specifications

Hydraulic Lattice Boom Crawler Crane

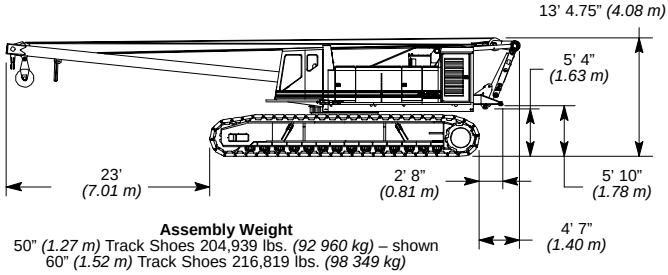
LS–278H **250–Ton** *(227 metric ton)*

HYLAB Series

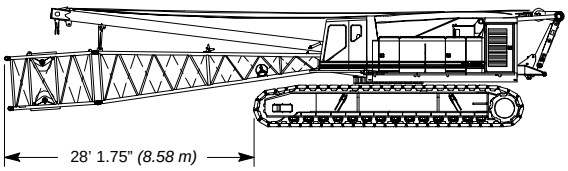
General Dimensions	feet	*metric*
Maximum live mast tailswing	19.75	*6.02*
Maximum live mast working height	42.50	*12.95*
Boom foot pin diameter	5”	*0.13*
Distance between inside of mast feet lugs	33.25”	*0.84*



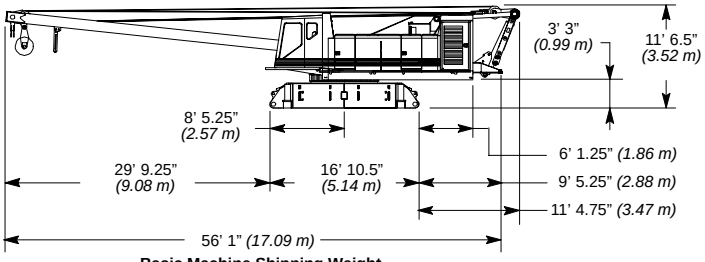
LS–278H Machine Transport Weights



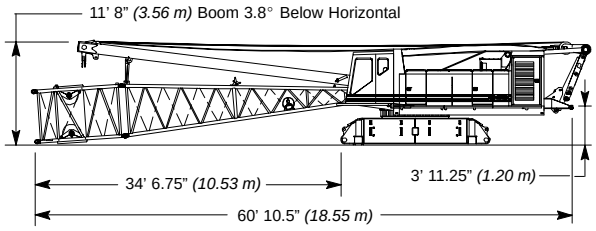
Assembly Weight
50" *(1.27 m)* Track Shoes 204,939 lbs. *(92 960 kg)* – shown
60" *(1.52 m)* Track Shoes 216,819 lbs. *(98 349 kg)*



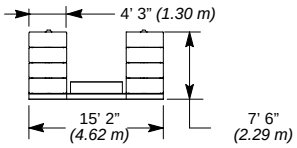
Assembly Weight
50" *(1.27 m)* Track Shoes 212,692 lbs. *(96 477 kg)* – shown
60" *(1.52 m)* Track Shoes 224,572 lbs. *(101 866 kg)*



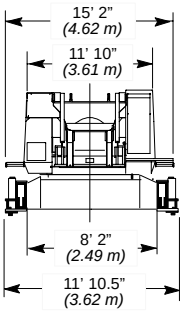
Basic Machine Shipping Weight
91,219 lbs. *(41 377 kg)*



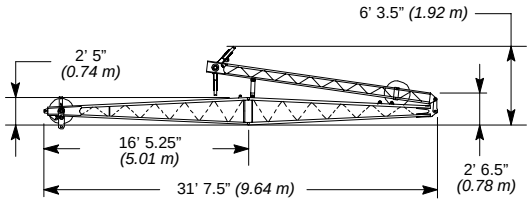
Basic Machine Shipping Weight
98,972 lbs. *(44 893 kg)*



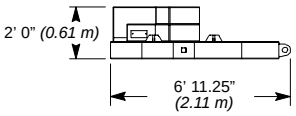
Counterweight Assembly
135,000 lbs. *(61 236 kg)*



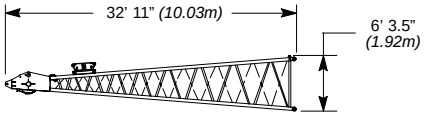
Front View



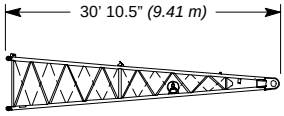
30' *(9.14 m)* Jib Assembly
2,360 lbs. *(1 070 kg)*



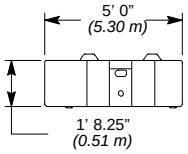
Base Counterweight
31,000 lbs. (*14 061 kg*)



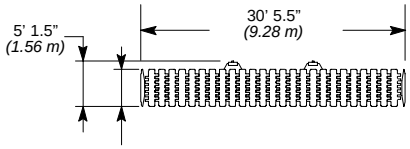
30' *(9.14 m)* Peak Section
5,612 lbs. *(2 546 kg)*

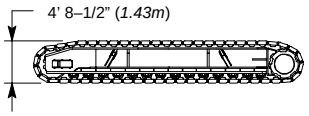


30' *(9.14 m)* Base Section
4,912 lbs. *(2 228 kg)* – w/o 3rd Drum
7,284 lbs. *(3 304 kg)* – w/ 3rd Drum

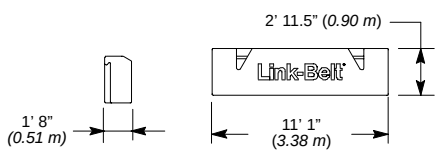


Wing Counterweight
13,000 lbs. *(5 897 kg)*

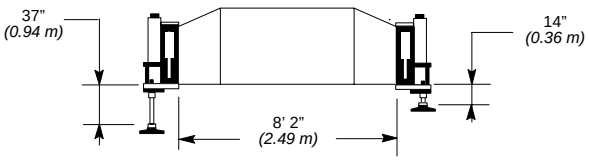




Treadmember Assembly Complete (2 Required)
50" *(1.27 m)* Track Shoes 56,860 lbs. *(25 791 kg)* each – shown
60" *(1.52 m)* Track Shoes 62,800 lbs. *(28 486 kg)* each



Treadmember Counterweight
2 Required
50" Track Shoes – 22,000 lbs. *(9 979 kg)*
60" Track Shoes – 18,500 lbs. *(8 391 kg)*



Carbody Frame with Jacking System and pontoons
19,949 lbs. *(9 049 kg)*

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.
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							Estimated transport assumes the load out consist of 230' *(70.1m)* of tube boom + 75' *(22.86m)* of jib with full counterweight.
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							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.
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		Estimated weights vary by +/– 2%.
Add 50' *(15.24m)* "JE" wall ext. with pins and pendants	5,567	*2 525*						1	1	1			
Add auxiliary tip extension	980	*445*											**Estimated Total Load of #1** 91,219 lbs. *(41 376 kg)*
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	**Estimated Total Load of #2** 56,860 lbs. *(25 791 kg)*
Add 10' (3.10 m) jib extension	259	*117*					1						
Add 20' (6.14 m) jib extension	441	*200*					1	2					**Estimated Total Load of #3** 56,860 lbs. *(25 791 kg)*
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	**Estimated Total Load of #4** 44,482 lbs. *(20 358 kg)*
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*											**Estimated Total Load of #5** 42,413 lbs. *(19 238 kg)*
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*											**Estimated Total Load of #**6 32,449 lbs. *(14 719 kg)*
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*											**Estimated Total Load of #**7 31,576 lbs. *(14 319 kg)*
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*											**Estimated Total Load of #**8 40,567 lbs. *(18 401 kg)*
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*											**Estimated Total Load of #**9 39,567 lbs. *(17 947 kg)*
Remove front hoist rope	–2,398	*–1 088*											
Remove rear hoist rope	–1,700	*–771*											**Estimated Total Load of #**10 8,328 lbs. *(3 778 kg)*
Remove auxiliary lifting bail	–410	*–186*											

Notes:

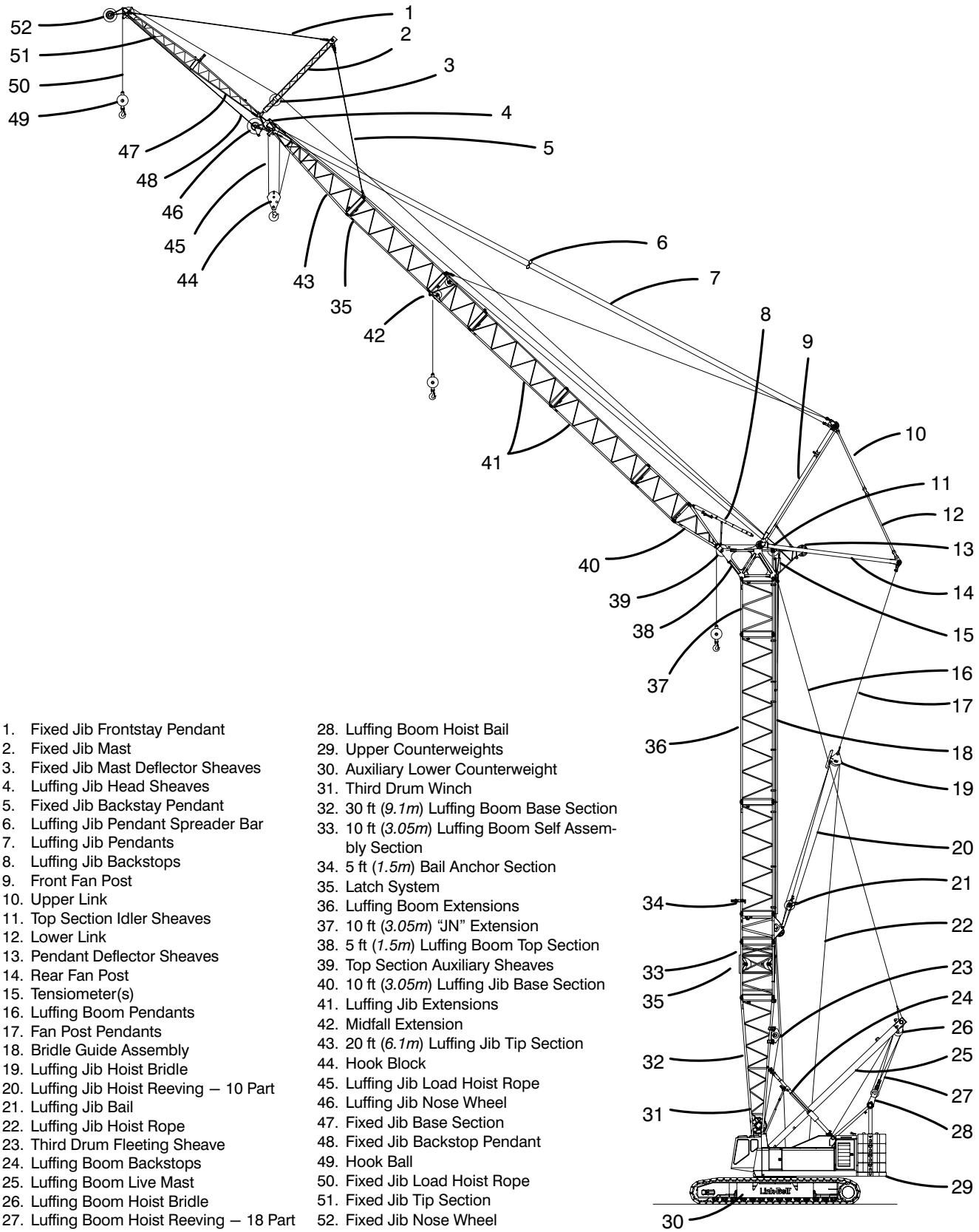
- Estimated transport loads assume the load out consist of 330' *(100.58 m)* of main boom plus 100' *(30.48 m)* of jib with full counterweight.
- Support loads were targeted at 45,000 lbs. *(20 412 kg)*, 8' 6" *(2.59 m)* wide, 48' *(14.63 m)* long and 13' 6" *(4.11 m)* high using a single drop trailer. 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

Option	Description	50" *(1.27 m)* Track Shoes		60" *(1.52 m)* Track Shoes	
		Gross Weight lbs. *(kg)*	Ground Bearing Pressure psi *(kg/cm²)*	Gross Weight lbs. *(kg)*	Ground Bearing Pressure psi *(kg/cm²)*
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*)

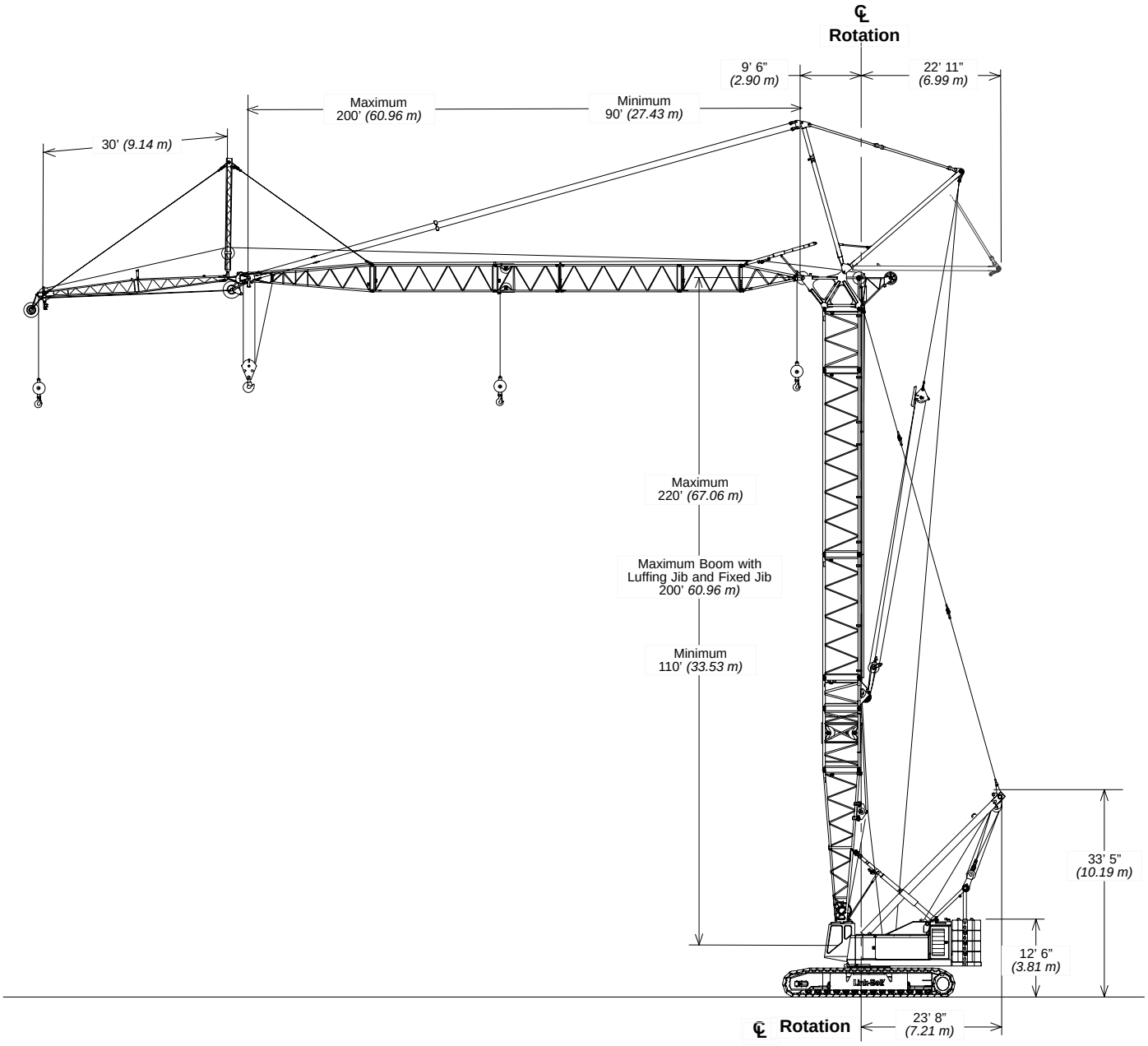
Notes:
1. Ground bearing pressure is based on the total weight distributed evenly over the track contact area.
2. Total contact area for 50" *(1.27 m)* track shoes is 33,158 in² *(213 922 cm²)* and 60" *(1.52 m)* track shoes is 39,788 in² *(256 696 cm²)*

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’ *(74.07m)*
- 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’ *(3.05m*) increments. Extensions are common with open throat extensions.

Hammer Head Boom Extensions “JE”	Suggested Quantity for Maximum Boom
10’ *(3.05m)* 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)* midpoint 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/cm^2)* 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 deaeriation.

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 lightweight 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 turn–table 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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