



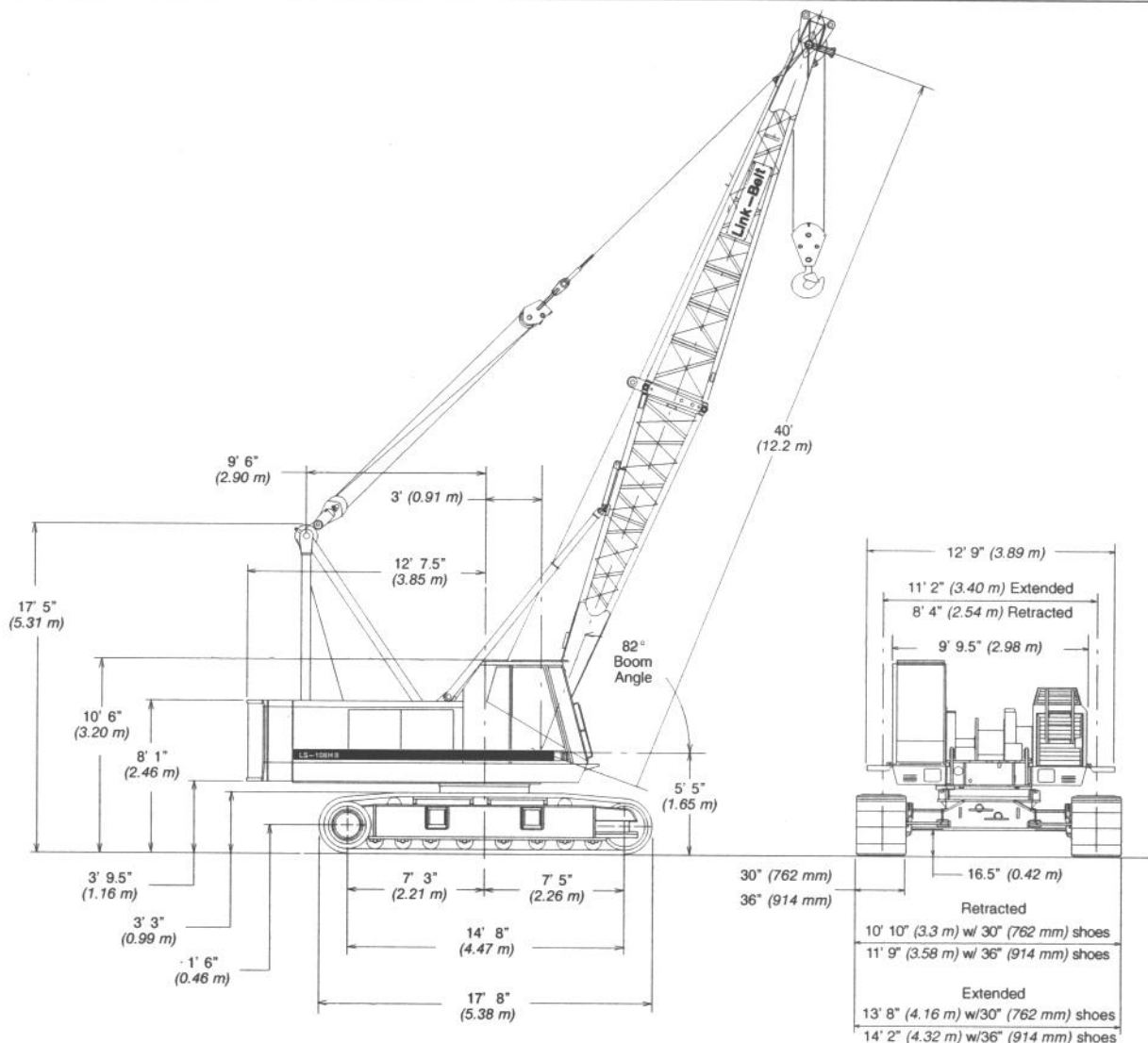
# Specifications

Lattice Boom Crawler Crane

## LS-108H II

50-ton\* (50 metric ton)

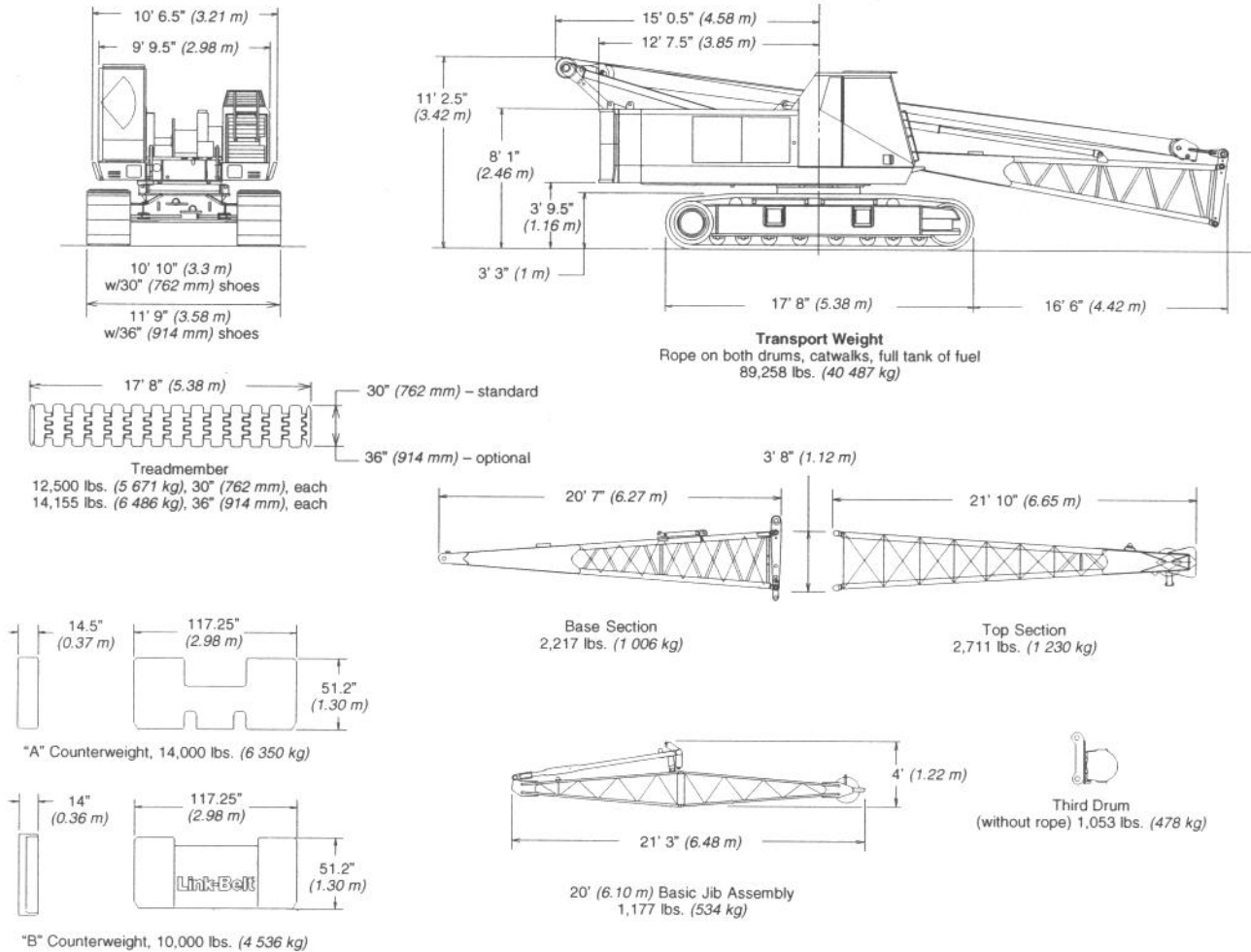
HYLAB Series



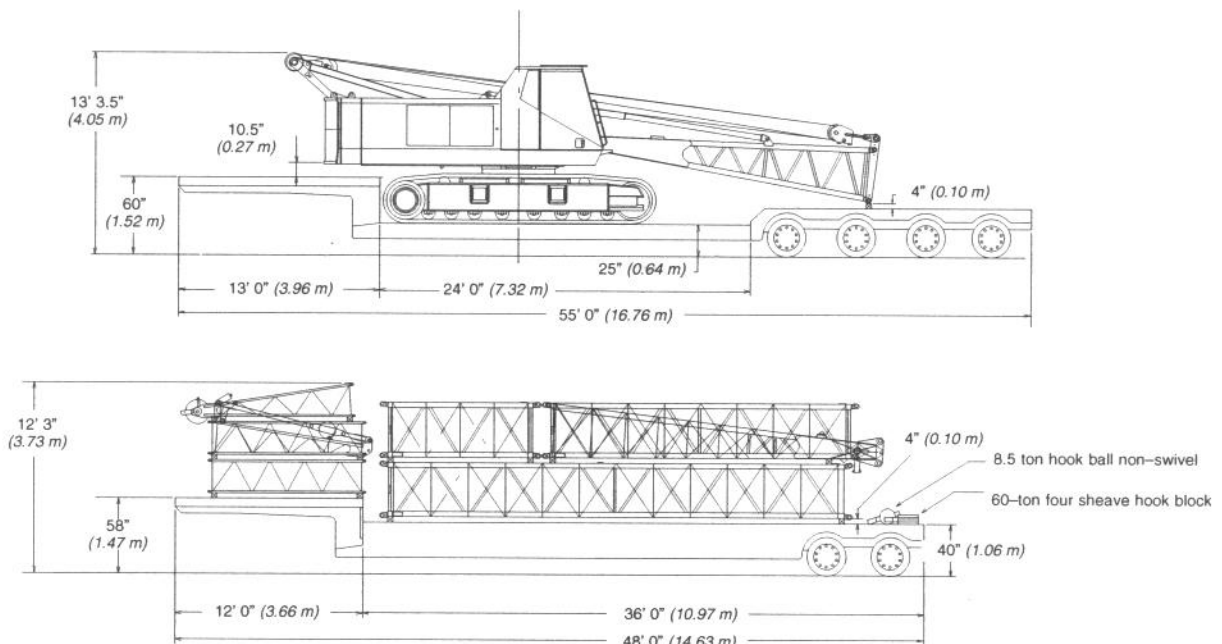
\* - Nominal capacity rating may vary based on specification.

General Dimensions	English	Metric
Tailswing of upper frame with counterweight "A"	12' 5"	3.79 m
Tailswing of upper frame with counterweight "AB"	12' 10"	3.91 m
Boom foot pin diameter	3.5"	88.8 mm
Distance between inside of boom feet lugs	39.76"	101 mm

## LS-108H II Machine Transport Weights – approximate

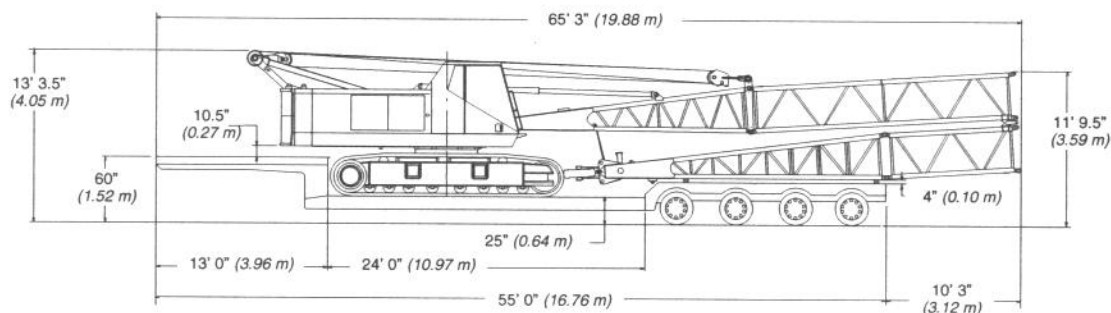


## LS-108H II Transport Configuration Loads




**LS-108H II Transport Configuration Loads (continued)**

Load #1 with 70 ft. (21.34 m) of boom.


**LS-108H II Transportation Weights – approximate**
**Base Machine:** Rigid Boom Backstops, 77 Gallons (291 L) of Fuel, Catwalks (left and right side), 20' (6.10 m) Base Section, Bridle / Spreader Bar, Boom Hoist Reeving, 600' (182.88 m) of Type 'DB' Front Hoist Rope, 500' (152.40 m) of Type 'RB' Rear Hoist Rope.

Item Description	Gross Weight		Transport Loads		Notes and Load Summary
	lb.	kg.	Load #1	Load #2	
<b>Base Machine</b>	65,258	29 601	1		Numbers in the load columns to the left represent quantities.
Add "A" Counterweight	14,000	6 350	1		
Add "B" Counterweight	10,000	4 536	1		
Add Hydraulic Third Drum w/o rope	1,053	478			Estimated transport loads assume the load out consist of 140' (39.62 m) of angle boom + 50' (15.24 m) of jib with full counterweight.
Add 3 Sheave Assembly to the top section	390	177			
Add 20' (6.10 m) Angle Top Section with 4 lifting sheaves	2,711	1 230		1	
Add 20' (6.10 m) Angle Top Section with 2 clam sheaves	2,680	1 216			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 drop deck trailer. This may vary dependant on state laws, empty truck/trailer weights, and style of trailer.
Add 20' (6.10 m) Angle Top Section with 1 drag sheave and 2 lifting sheaves	2,748	1 246			
Add 10' (3.05 m) Angular Extension w/pins & pendants	781	354		2	
Add 20' (6.10 m) Angular Extension w/pins & pendants	1,335	606		1	Estimated weights vary by +/- 2%.
Add 30' (9.14 m) Angular Extension w/pins & pendants	1,832	831		2	
Add Boom Folding Equipment	500	227			
Add Tagline Winder	650	295			<b>Estimated Total Load of #1</b>
Add Fairleader	1,274	578			89,258 lbs. (40 487 kg).
Add Pile Driving Adapter	198	90			<b>Estimated Total Load of #2</b>
Add 20' (6.10 m) Tubular Jib w/offset pendants	1,177	534		1	12,299 lbs. (5 579 kg).
Add 10' (3.05 m) Tubular Jib Extension	190	86		2	
Add 5' (1.5 m) Auxiliary Tip Extension	640	290			
Add Holding Rope – 0.75" x 145' Type 'DB'	151	68			
Add Closing Rope – 0.75" x 180' Type 'DB'	187	85			
Add 0.88" Front Drum Lagging	327	148			
Add Inhaul Rope – 0.88" x 95' Type 'M'	128	58			
Add 3rd Drum Wire Rope 0.63" x 385' Type 'ZB'	312	141			
Add 8.5-ton (7.71 mt) Hook Ball – Non Swivel or Swivel	360	163		1	
Add 40-ton (36.28 mt) 4 Sheave Hook Block	780	354			
Add 60-ton (54.43 mt) 4 Sheave Hook Block	1,110	503		1	
Replace 30" (762 mm) Track shoes w/36" (914 mm)	3,530	1 601			
Remove Front Hoist Rope 0.75" x 600' Type 'DB'	-624	-283			
Remove Jib Wire Rope 0.75" x 500' Type 'RB'	-550	-249			
Remove 20' (7.3 m) Angle Base Section Assembly, complete	-1,757	-797			
Remove 50 gallons (189.3 L) of Fuel	-362	-164			





## Machine Working Weight

Option	Description	30" (762 mm) Track Shoes		36" (914 mm) Track Shoes	
		Gross Weight lbs. (kg)	Ground Bearing Pressure psi (kg/cm <sup>2</sup> )	Gross Weight lbs. (kg)	Ground Bearing Pressure psi (kg/cm <sup>2</sup> )
1	Base machine equipped with 40' (12.19 m) of boom, "A" counterweight, 600' (182.88 m) front hoist rope, 500' (152.40 m) rear hoist rope, 77 gallons (291 L) of fuel, 60-ton (54.43 mt) hook block and a 200 lbs. (90.7 kg) operator.	83,405 (37 832)	7.90 (0.56)	86,935 (39 433)	6.86 (0.48)
2	Option #1 plus "B" counterweight, and 100' (30.48 m) of boom extensions to obtain 140' (39.62 m) of main boom.	99,966 (45 344)	9.47 (0.67)	103,496 (46 945)	8.17 (0.57)
3	Option #2 plus 50' (15.24 m) of jib and 8.5 hookball – subtract 30' (9.14 m) of boom extensions to obtain 110' + 50' (33.53 + 15.24 m) of main boom plus jib.	100,241 (45 468)	9.49 (0.67)	103,771 (47 070)	8.19 (0.58)

**Notes:**

1. Ground bearing pressure is based on the total weight distributed evenly over the track contact area.
2. Total contact area for 30" (762 mm) track shoes is 10,560 in<sup>2</sup> (68 129 cm<sup>2</sup>).
3. Total contact area for 36" (914 mm) track shoes is 12,672 in<sup>2</sup> (81 755 cm<sup>2</sup>).

## Attachment Options

### ■ 40' – 140' (12.2 – 42.67 m) Angle Boom

**Basic Angle Boom – 40' (12.2 m)**

two-piece design that utilizes a 20' (6.10 m) base section and a 20' (6.10 m) open throat top section with in-line connecting pins. Boom extensions are 42" (1.06 m) wide and 42" (1.06 m) deep at outside dimensions of angles.

- Boom feet on 45.2" (1.15 m) centers.
- 4" x 4" x 0.38" (101.6 x 101.6 x 9.5 mm) T-1 angle chords for base section.
- 4" x 4" x 0.31" (101.6 x 101.6 x 7.87 mm) HSLA angle cords for top section.
- Top section includes mounting lugs for all optional attachments.
- Bridle guide system located on boom base.
- Skywalk platform
- Hooks provided on the base section for loading out boom.
- Two deflector rollers on top section
- Permanent skid pads mounted on top section to protect head machinery
- Four 18" (0.45 m) root diameter steel sheaves mounted on sealed anti-friction bearings
- Mechanical boom angle indicator

**Boom Extensions** – The following table provides the lengths available and the suggested quantity to obtain maximum boom in 10' (3.05 m) increments. Midpoint pendant connections are not required.

Boom Extensions	Suggested Quantity for Max. Boom
10' (3.05 m)	2
20' (6.10 m)	1
30' (9.14 m)	2

- Deflector roller on top of each section
- Appropriate length pendants
- Maximum boom tip height of 144' (43.90 m)

**Optional**

- Clam head machinery – Two 18" (0.46 m) root diameter sheaves mounted on sealed anti-friction bearings and rope roller that bolts to the bottom of boom top.
- Drag head machinery – One 18" (0.46 m) root diameter wide mouth drag sheave mounted on greasable bearings. Two 18" (0.46 m) root diameter steel sheaves mounted on sealed anti-friction bearings. Rope roller bolts to bottom of boom top.

### ■ 20' – 50' (6.10 – 15.24 m) Tube Jib

**Basic Tube Jib – 20' (6.10 m)** two-piece design that utilizes a 10' (3.05 m) base section and a 10' (3.05 m) top section with in-line connecting pins on 30" (0.76 m) wide and 24" (0.61 m) deep centers.

- 1.5" (38.1 mm) diameter chords
- One 16.5" (0.42 m) root diameter nylon sheave mounted on sealed anti-friction bearings.
- 10' (3.05 m) jib extensions provide jib lengths at 30' (9.14 m), 40' (12.19 m) and 50' (15.24 m).
- Jib offset angles at 5, 17.5 and 30 degrees
- Maximum tip height of boom + jib is 163' (49.68 m).

### ■ Auxiliary 5' (1.5 m) Tip Extension

Designed to use instead of a jib to provide clearance between working hoist lines. The extension is equipped with two 18.12" (0.46 m) root diameter nylon sheaves mounted on sealed anti-friction bearings. Maximum capacity is 9-ton (8.16 mt).

### ■ Pile Driving Lead Adapter

Designed to mount on the boom top section to provide a single 3.63" (92.1 mm) (inside diameter) pin connection for fixed leads.

### ■ Boom Folding Equipment

Consist of bolt on brackets and pins to allow folding 50' (15.24 m) or 70' (21.34 m) of boom for transportation.

### ■ 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. Automatically limits maximum boom angle operation.

- Retractable gantry frame.
- Pin-on bail frame.
- 14-part reeving with 5/8" (15.88 mm) type 'W' wire rope.
- Bridle assembly.
- Two 1.13" (28.57 mm) pendants.
- Tubular boom backstops (telescopic type).
- Nylon sheaves contain sealed anti-friction bearings.
- Boom speed from 0° to 82° is 60 seconds with no load.





## Revolving Upperstructure

### ■ Frame

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

### ■ Engine

Isuzu A-6BGITQB-1.1 diesel engine with oil filter, oil cooler, air cleaner, fuel filter, water separator, hourmeter, tachometer and electrical shutdown.

Number of cylinders	6
Bore and stroke – in.	4.13 x 4.92 (105 x 125 mm)
Piston displacement – in <sup>3</sup> .	396 (6 489 cm <sup>3</sup> )
Engine rpm at full load speed	2,150
Hi-idle rpm	2,420
Full load speed – h.p.	157 (117 kw)
Peak torque – ft.-lb.	398 (540 joule)
Peak torque – r.p.m.	1,700
Electrical system	24 volt
Batteries	2–12 volt
Approximate fuel consumption	Gal./hr (L/hr)
100% H.P.	8.94 (33.84)
75% H.P.	6.70 (25.36)
50% H.P.	4.47 (16.92)
25% H.P.	2.23 (8.44)

### ■ 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.

- Two variable displacement pumps operating at 4,400 psi (309 kg/cm<sup>2</sup>) and 71.5 gal/min (271 L/min) powers the travel, or 4,000 psi (280 kg/cm<sup>2</sup>) and 71.5 gal/min (271 L/min) for load hoist drums, boom hoist drum and 3rd drum.
- One fixed displacement gear type pump operating at 3,000 psi (210 kg/cm<sup>2</sup>) and 34 gal/min (128.7 L/min) powers the swing motor and retract cylinders.
- One fixed displacement gear type pump operating at 1,200 psi (84.4 kg/cm<sup>2</sup>) and 7.6 gal/min (28.8 L/min) powers the remote control valves and counterweight lifting cylinders.

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

**Hydraulic Reservoir** – 77 gal (291 L), equipped with sight level gauge. Diffusers built in for deaeration.

**Filtration** – One 10 micron, full flow, line filter in the control circuit. All oil is filtered prior to entering the 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.

### ■ Load Hoist Drums

Each 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 & free-fall operation modes
- Automatic brake mode (spring applied, hydraulically released, band type brake)
- 0.75” (19 mm) grooved lagging
- Drum pawl controlled manually
- Electronic drum rotation indicators
- Mounted on anti-friction bearings
- 15.75” (0.40 m) root diameter
- 29.92” (0.76 m) flange diameter
- 16.08” (0.41 m) width
- Bolt on spiral lagging for 0.88” (22.22 mm) wire rope. Bolts to the flange of front hoist drum. Used for dragline work.

**Note:** The freefall operational mode is designed to prevent load lowering even if the freefall switch is accidentally activated. The automatic brake mode meets all OSHA requirements for personnel handling.

**Drum Clutches** – Speed-o-Matic™ power hydraulic two shoe clutch design that uses a 20” (508 mm) diameter x 5” (127 mm) wide shoe that internally expands to provide load control. Swept area is 314 in<sup>2</sup> (2 026cm<sup>2</sup>).

**Drum Brakes** – External contacting band type 31.5” (0.80 m) diameter x 4.7” (0.12 m) wide. Spring applied hydraulic release “automatic brake mode” or mechanical linkage foot control.

### ■ Optional Third Hoist Drum

The hydraulic winch is pinned to the front or rear of the upper frame and is used in conjunction with a fleeting sheave and 3-sheave idler assembly to run the wire rope over the boom top section.

- Free-spooling capability for pile driving applications

- 10.63” (0.27 m) root diameter.
- 20” (0.51 m) flange diameter.
- 13.5” (0.34 m) width.
- Mounted on anti-friction bearings

### ■ Optional Fourth Hoist Drum

The hydraulic winch mounts to the rear of the upper frame with gravity free fall for use in pile driving applications.

- 15.75” (0.40 m) root diameter.
- 29.92” (0.76 m) flange diameter.
- 10.63” (0.27 m) drumwidth.
- Mounted on anti-friction bearings

### ■ 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.
- Drum pawl controlled automatically.
- Mounted on anti-friction bearings.
- 12.6” (0.32 m) root diameter.
- 24.41” (0.62 m) flange diameter.
- 9.57” (0.24 m) width.

### ■ Swing System

Pilot controlled bi-directional axial piston motor and planetary gear reduction unit provides positive control under all load conditions.

- Spring applied, hydraulically released, 360 degree multi-plate brake
- Free swing mode when lever is in neutral position
- Two position positive house lock
- Audio/Visual swing alarm
- Maximum swing speed is 3.4 rpm

### ■ Upper Counterweight

Consist of a two piece design that can be easily lowered to the ground using the gantry.

- 14,000 lbs. (6 350 kg) “A” counterweight
- Optional – 10,000 lbs. (4 535kg) “B” counterweight can be added to maximize capacities

### ■ 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 and front window

Continued on page 7

LS-108H II





## LS-108H II Load Hoisting Performance

Available line speed and line pull – based on Isuzu A-6BGITQB – 1.1 at 2,150 rpm full load speed. 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 or Rear Drum – 3/4" (19.05 mm) Wire Rope											
	Maximum Line Pull		No Load Line Speed		Full Load Line Speed		Pitch Diameter		Layer		Total	
	lbs.	kg	ft/min.	m/min	ft/min.	m/min	in.	mm	ft.	m	ft.	m
1	32,323	14 662	264	80.5	89	27.1	16.5	419	86	26.3	86	26.3
2	29,630	13 440	288	87.8	97	29.6	18.0	457	94	28.5	180	54.9
3	27,350	12 406	312	95.1	105	32.0	19.5	495	101	30.7	281	85.6
4	25,396	11 520	336	102.4	113	34.5	21.0	533	108	32.9	389	118.5
5	23,703	10 752	360	109.7	121	37.0	22.5	571	115	35.1	504	153.5
6	22,222	10 080	384	117.0	129	39.4	24.0	610	122	37.2	626	190.8
7	20,914	9 487	408	124.3	137	41.9	25.5	648	129	39.4	755	230.2
8	19,752	8 960	432	131.7	145	44.4	27.0	686	136	41.6	892	271.8
9	9th Layer is storage layer only						28.5	724	144	43.8	1035	315.6

Rope Layer	Front Drum – 7/8" (22.22 mm) Wire Rope (Note: Used for drag line work only)											
	Maximum Line Pull		No Load Line Speed		Full Load Line Speed		Pitch Diameter		Layer		Total	
	lbs.	kg	ft/min	m/min	ft/min	m/min	in	mm	ft	m	ft	m
1	26,188	11 879	330	100.6	110	33.5	20.4	517	86	26.3	86	26.3
2	24,116	10 939	358	109.2	119	36.3	22.1	562	94	28.5	180	54.9

Rope Layer	Boom Hoist Drum – 5/8" (15.9 mm) Wire Rope											
	Maximum Line Pull		No Load Line Speed		Full Load Line Speed		Pitch Diameter		Layer		Total	
	lbs.	kg	ft/min	m/min	ft/min	m/min	in	mm	ft	m	ft	m
1	17,080	7 747	194	59.2	172	52.5	13.2	336	48	14.8	48	14.8
2	15,605	7 078	213	64.8	188	57.4	14.5	368	53	16.1	101	30.8
3	14,364	6 515	231	70.4	205	62.4	15.7	399	57	17.3	158	48.2
4	13,306	6 036	249	76.0	221	67.3	17.0	431	61	18.6	219	66.8
5	12,393	5 622	268	81.6	237	72.3	18.2	463	65	19.9	284	86.6
6	11,598	5 261	286	87.2	253	77.2	19.5	495	69	21.1	354	107.8
7	10,898	4 943	304	92.8	270	82.2	20.7	526	74	22.4	427	130.2
8	10,278	4 662	323	98.4	286	87.2	22.0	558	78	23.7	505	153.9

Rope Layer	Optional Third Drum – 5/8" (15.9 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	15,041	6 822	157	48	143	43.6	11.25	286	57	17.4	57	17.4
2	13,537	6 140	175	53	159	48.5	12.50	318	64	19.5	121	36.9
3	12,307	5 582	192	59	175	53.3	13.75	349	70	21.3	192	58.5
4	11,282	5 117	210	64	191	58.0	15.00	381	76	23.1	269	82.0
5	10,414	4 724	228	69	207	63.1	16.25	413	83	25.2	352	107.3
6	9,671	4 387	245	75	223	68.0	17.50	445	89	27.1	442	134.7

Rope Layer	Optional Fourth Drum – 3/4" (19.05 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	22352	10139	189	57.7	126	38.5	16.5	419	56	17.1	56	17.1
2	20489	9294	207	63.0	138	42	18	457	61	18.7	117	35.8
3	18913	8579	224	68.2	149	45.5	19.5	495	66	20.2	184	56
4	17562	7966	241	73.5	161	49	21	533	71	21.8	255	77.8
5	16391	7435	258	78.7	172	52.5	22.5	571	77	23.3	332	101.1
6	15367	6970	275	84.0	184	56	24	610	82	24.9	413	126
7	14463	6560	293	89.2	195	59.5	25.5	648	87	26.4	500	152.4
8	13659	6196	310	94.5	207	63	27	686	92	28	592	180.4
9	12940	5870	327	99.7	218	66.5	28.5	724	97	29.6	689	210
10	12293	5576	344	105	230	70	30	762	102	31.1	791	241.1

Wire Rope Application	Diameter		Length		Type	Maximum Permissible Load	
	in	mm	ft	m		lb	kg
Boom Hoist	5/8	15.9	515	157	W	11,700	5 307
Front Hoist	3/4	19.05	600	183	DB	16,800	7 620
Rear Hoist *	3/4	19.05	500	152	RB	12,900	5 851
Third Drum *	5/8	15.9	385	117	ZB	11,080	5 026
Clamshell (Holding)*	3/4	19.05	145	45	DB	16,800	7 620
Clamshell (Closing)*	3/4	19.05	180	55	DB	16,800	7 620
Dragline (Hoist)*	3/4	19.05	185	56	DB	16,800	7 620
Dragline (Inhaul)*	7/8	22.22	95	29	M	22,740	10 315

\* – Optional

Rope Type	Description
DB	6 x 26 (6 X 19 Class) – Warrington Seale – Extra Improved Plow Steel – Preformed – Right Lay – Regular Lay – I.W.R.C.
RB*	19 x 19 Rotation Resistant – Extra-Extra Improved Plow Steel – Preformed – Right Lay – Regular Lay – Swaged – SF=5.1
W	6 x 26 WS (6 x 19 Class) Extra Improved Plow Steel – Preformed – I.W.R.C. – Right Lay – Alternate Lay
ZB	36 x 7 Non-rotating – Extra Improved Plow Steel – Right Regular Lay.

\* – Use of swivel ball is not recommended.



## Revolving Upperstructure (continued from page 5)

### (Operator's Cab and Controls continued)

- Swing up roof window with wiper
- Door and window locks
- Heater with circulating fan
- Air conditioner
- Sun visor
- Engine instrumentation panel (tachometer, voltmeter, engine oil pressure, engine water temperature, fuel level, hydraulic oil temperature, hour meter for front and rear drums, and service monitor system)
- Mechanical drum rotation indicators for front and rear hoist drums
- Six way adjustable seat
- Dry chemical fire extinguisher
- Hand and foot throttle
- Fully adjustable single axis control levers
- Swing lever with swing brake and horn located on handle

- Bubble type level
- Ergonomic gauge layout
- Control shut off lever

### ■ Load Moment Indicator/Limiter

**Standard Equipment** – PAT DS-350 LMI (load moment indicator) provides pendant mounted load cell, angle sensor, computer, graphic display, and anti-two block equipment to provide the following information.

- Boom length & angle
- Jib length & angle
- Load on hook
- Allowed load
- Load radius
- Tip height
- Anti-two block warning & function limiters

- Operation mode
- Operator settable alarms provide audio/visual warning
- Machine configuration

### ■ Additional Equipment – Standard

- 56.69" (1.44 m) outside diameter turntable bearing.
- Front, right, & left side removable catwalks.
- 77 gal (291.5L) fuel tank (usable quantity).
- Machine lifting links.

### ■ Additional Equipment – Optional

- Rud-o-matic® model 648 tagline winder.
- Full revolving type Fairleader with barrel, sheaves, and guide rollers.

## Lower Structure

### ■ Lower Frame

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

### ■ Treadmembers

All welded, precision-machined, steel frames can be hydraulically extended and retracted by a hydraulic cylinder mounted in the lower frame.

- 11' 2" (3.40 m) extended gauge
- 8' 4" (2.54 m) retracted gauge

- 17' 8" (5.38 m) overall length
- 30" (762 mm) wide track shoes – standard
- 36" (914 mm) wide track shoes – optional
- 8 sealed (oil filled) track rollers per treadmember
- Sealed (oil filled) idler and drive planetaries
- Compact travel drives
- Hydraulic self adjusting tracks

**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 2.28 mph (3.67 km/h) in high speed and 1.3 mph (2.09 km/h) in low speed.
- Designed to 40% gradeability.
- Maximum tractive effort is 55,408 lbs. (25 132 kg).