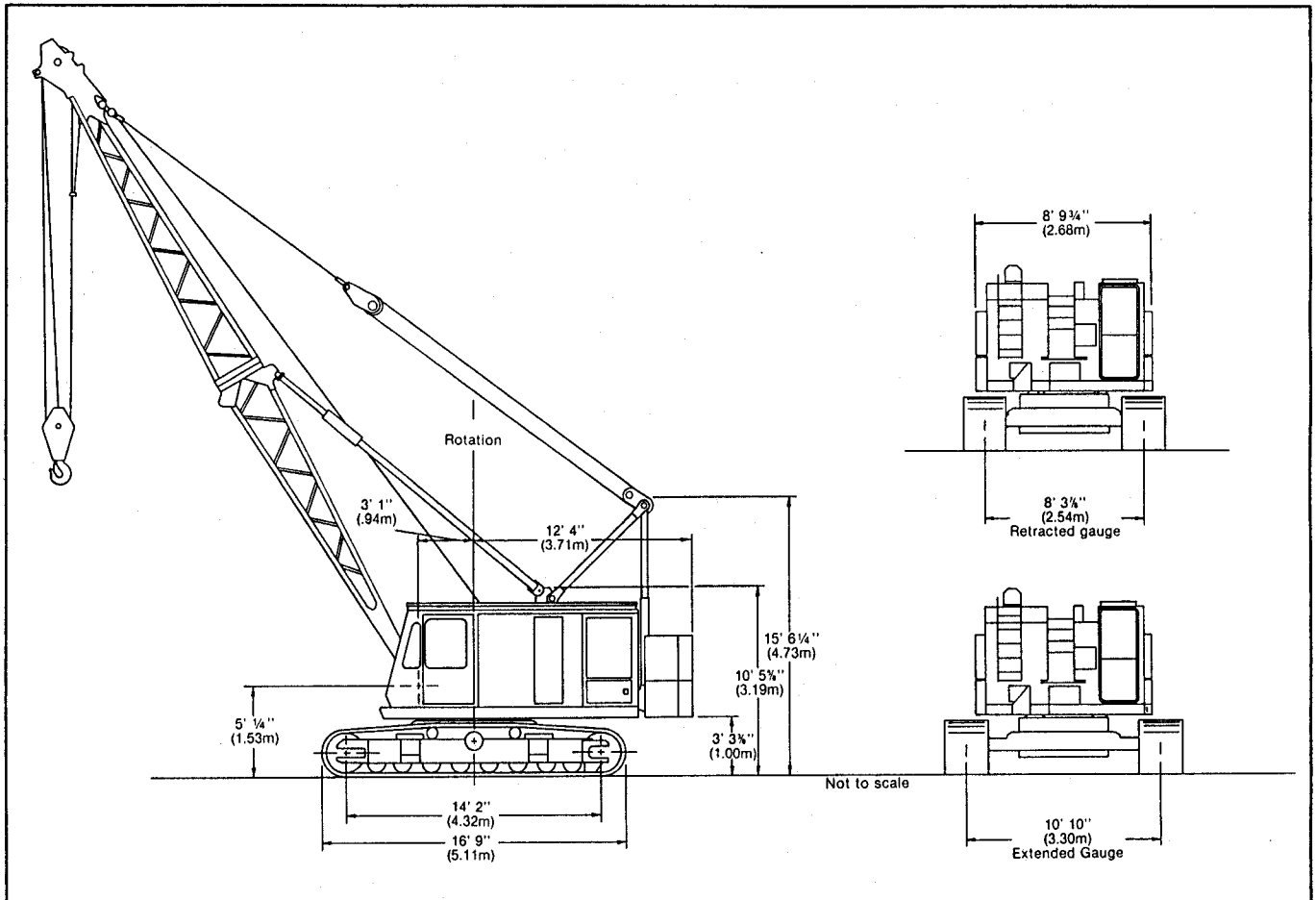


LS-98C Specifications

40 ton (36 metric ton)

Wire rope crawler crane/excavator



General dimensions	Feet	meters
Basic angle boom length,	40' 0"	12.19
Overall width side frames extended		
—30" (0.76 m) track shoes	13' 3-7/8"	4.06
—36" (0.91 m) track shoes	13' 9-7/8"	4.22
Overall width side frames retracted		
—30" (0.76 m) track shoes	10' 10"	3.30
—36" (0.91 m) track shoes	11' 4"	3.46
Minimum ground clearance	11-5/8"	0.29

General dimensions	Feet	meters
Ground clearance - cwt. "A"	3' 3-3/8"	1.0
Ground clearance - cwt. "AB"	3' 3-3/8"	1.0
Overall width of counterweight	9' 10"	3.0
Tailswing of counterweight "A"	12' 4"	3.76
Tailswing of counterweight "AB"	12' 4"	3.76
Overall width less catwalks	8' 9-3/4"	2.68
Overall height for transport, gantry lowered	10' 5-5/8"	3.19

Machine working weights - approximate

Complete basic machine with Isuzu 6SA1 diesel engine and friction clutch, turntable bearing, independent swing and travel, swing brake, front and rear drum laggings with necessary hoist lines, independent boomhoist with lowering clutch, 40' (12.19 m) angle boom but no bucket or hookblock.	Track shoes	
	30" (0.76 m)	36" (0.91 m)
	pounds	pounds
11,680 pound counterweight "A"	73,900	78,020
21,160 pound counterweight "AB"	83,500	87,620

Ground contact area

Note: Determining ground bearing pressure - divide the total weight of machine as shown above by the respective ground contact area.

Track shoes		Ground contact areas	
inches	meters	in ²	cm ²
30	0.76	10,860	70,050
36	0.91	13,050	84,220

Weight deductions for transporting - approximate

Deduct for the removal of the following components:	pounds
Counterweight "A"	11,680
Counterweight "AB"	21,160
Basic 40' (34") angle boom:	
Tip: (includes head machinery)	1,905
Base (includes backstops, bridle frame, boom pendants and necessary wire rope.)	3,625
Catwalk	175
Side frames	
30" track shoes	19,530
36" track shoes	23,650
Add for: Fairlead	600
10' extension and pendants	780
20' extension and pendants	1,325
Tagline winder (single drum)	325

LS-98C Performance Specifications

Wire rope and rope drum data

Main load hoist wire rope length – using 3/4" (19 mm) diameter wire rope

Parts of line	Boom lengths													
	40' (12.19 m)		50' (15.24 m)		60' (18.29 m)		70' (21.34 m)		80' (24.38 m)		90' (27.43 m)		100' (30.48 m)	
	ft.	meters	ft.	meters	ft.	meters	ft.	meters	ft.	meters	ft.	meters	ft.	meters
1	95	28.96	115	35.05	135	41.15	155	47.24	175	53.34	195	59.44	215	65.53
2	140	42.67	170	51.82	200	60.96	230	70.10	260	79.25	290	88.39	320	97.54
3	185	56.39	225	65.58	265	80.77	305	92.96	345	105.16	385	117.35	425	129.54
4	230	70.10	280	85.34	330	100.58	380	115.82	430	131.06	480	146.30	530	161.54
5	275	83.82	335	102.11	395	120.40	455	138.68	515	156.97	575	175.26	635	193.55
6	320	97.54	390	118.87	460	140.21	530	161.54	600	182.88	670	204.22	740	225.55

Dragline or clamshell wire rope lengths – using one part of line

Attachments	Function	Boom Lengths					
		40' (12.12 m)		50' (15.24 m)		60' (18.29 m)	
		Feet	meters	Feet	meters	Feet	meters
Clamshell	Holding Closing	105	32.00	125	38.10	145	44.20
		140	42.76	160	48.77	180	54.86
Dragline	Hoist Inhaul	95	28.96	115	35.05	135	41.15
		52	15.85	64	19.51	76	23.16

Drum wire rope capacities:

Wire rope layer	Front or rear drum - 14-1/4" (0.36m) root diameter grooved lagging, 3/4" (19 mm) wire rope				Third drum - 12" (0.30m) root diameter smooth lagging, 5/8" (16 mm) wire rope				Boomhoist drum - 12" (0.30m) root diameter grooved lagging, 5/8" (16 mm) wire rope			
	Rope per layer		Total wire rope		Rope per layer		Total wire rope		Rope per layer		Total wire rope	
	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters	Feet	meters
1	74	22.7	74	22.7	74	22.6	74	22.6	38	11.6	38	11.6
2	82	25.0	156	47.8	81	24.8	155	47.5	41	12.7	79	24.3
3	89	27.3	246	75.1	88	27.1	244	74.6	45	13.9	124	38.2
4	97	29.6	343	104.6	96	29.3	340	103.5	49	15.0	174	53.2
5	104	31.8	447	136.5	103	31.6	444	135.5	53	16.2	227	69.4
6	111	34.1	559	170.6	111	33.8	555	169.3	56	17.3	284	86.7
7					118	36.1	673	205.4				

LS-98C Load Hoisting Performance

Available line speed and line pull - based on ISUZU 6SA1 with friction clutch, at 1850 rpm full load speed.

Line pulls are not based on wire rope strength. See wire rope chart for maximum permissible single part of line working loads.

Rope Layer	14½" Front or Rear Drum				12" Third Drum			
	fpm	m/min	pounds	kilograms	fpm	m/min	pounds	kilograms
1	212	64.5	19,555	8870	204	62.3	18,740	8378
2	233	70.9	17,792	8066	225	68.5	16,803	7622
3	254	77.4	16,303	7395	245	74.7	15,412	6991
4	275	83.8	15,051	6827	265	80.9	14,233	6456
5	296	90.2	13,977	6340	285	87.0	13,221	5997
6	317	96.7	13,749	5919	306	93.2	12,343	5599
7					326	99.4	11,576	5251

Wire rope: size, type and working strength

Wire rope application	Size: diameter		Type	Maximum permissible load	
	inches	mm		pounds	kilograms
Boomhoist	5/8	16	W	11,700	5307
Main load hoist	3/4	19	N	16,800	7620
Dragline inhaul	3/4	19	M	16,800	7620
Dragline hoist	3/4	19	N	16,800	7620
Clamshell Holding (hoist)	3/4	19	N	16,800	7620
Clamshell closing	3/4	19	N	16,800	7620
Third drum	5/8	16	N	11,700	5307
Boom pendants - 34" angle boom	1-1/8	29	N	31,700	16829

Wire rope: types available

- Type "M" - 6 X 25 (6 X 19 class), filler wire, extra improved plow steel, preformed, independent wire rope center, right lay, lang lay.
- Type "N" - 6 X 25 (6 X 19 class), filler wire, extra improved plow steel, preformed, independent wire rope center, right lay, regular lay.
- Type "W" - 6 X 26 (6 X 19 class), extra improved plow steel, preformed, independent wire rope center, right lay, alternate lay.

General Specifications

Crawler lower

Lower frame

All welded precision machined; line bored 10' 10" extended, 8'3-7/8" retracted gauge X 16'9" length.

Turntable bearing

Outer race with integral external swing gear bolted to lower frame. Inner race bolted to upper frame.

Crawler side frames

Hydraulically extended / retracted and removable without disconnecting track drive chains.

Track drive sprockets and idler wheels

Cast steel, heat treated; mounted on bronze brushings. Sealed for lifetime lubrication.

Track rollers

Eight per side. Tractor type, oil filled for lifetime lubrication.

Track carrier rollers

Two tractor type rollers mounted on top of each crawler side frame. Oil filled for lifetime lubrication.

Tracks

Heat treated, self cleaning, multiple hinged track shoes joined by one piece full floating pins: 53 shoes per side frame. Standard shoes 30" wide; optional shoes 36" wide.

Track chain adjustment - Track drive chain adjusted by positioning axle of chain drive sprocket with jack screw and shims. Track adjusted with threaded adjusting bolt attached to track idler (wheel) axle.

Independent travel

Travel independent of swing; permits simultaneous swing and travel with separate set of shafts and clutches. Horizontal traction shaft powered through bevel gear drive enclosed in oil. Travel / steer jaw clutch splined to shaft; all shaft components mounted within lower frame.

Travel speed - 1.18 mph (1.9 km/h)

Gradeability - 30%

Steering - Power hydraulic. Travel/steer jaw clutches hydraulically engaged, spring released. Spring applied, hydraulically released travel/steer/digging/parking external contracting band brakes simultaneously released by interconnecting mechanical linkage to jaw clutches. Brakes automatically set when steer lever is in neutral. Two 18" diameter by 4" wide brake bands. Steer brakes also serve as parking/digging brakes.

Revolving upperstructure

Frame

All-welded, precision machined unit; machinery side housing bolted to upper frame.

Fuel tank

66 gallon (250 L) capacity

Engine Specifications	Isuzu 6SA1 with friction clutch
Number of cylinders	6
Bore and stroke - inch	4 - 17/32 X 5 - 5/16
- (mm)	(115 X 135)
Piston displacement	513
- cubic inches	(8413)
- (cm ³)	
Engine rpm at full load speed	1850
Net engine horsepower at full load speed, (H·P)	120 (89520W)
Peak torque - foot pounds	376
- (joule)	510
Peak torque - rpm	1200
Electrical system	24 volt
Batteries	2 - 12 volt
Type of clutch or take-off	Single plate, dry

Power train

Transmission

Quadruple roller chain enclosed in oil-tight chain case and running in oil.

Machinery gear train

"Full function" design; two directional power available to all operating shafts; shafts mounted on anti-friction bearings in precision bored machinery side housings. Load hoist, swing and boom-hoist functions completely independent of one another.

Principal operating functions

Control system

Speed-o-Matic® power hydraulic control system, a variable pressure system requiring no bleeding. Operating pressure transmitted to all two-shoe clutch cylinders, and other hydraulic clutches as required. System includes a constant displacement, engine driven, vane type hydraulic pump to provide constant flow of oil; accumulator to maintain system operating pressure, unloader valve to control pressure in accumulator, relief valve to limit maximum pressure build-up in system, full-flow 40 micron disposable filter and variable control valves.

Independent travel

Travel independent of all other functions standard; spur gear driven single speed travel.

Clutches – One clutch each for forward and reverse. Clutch drum 18" diameter, 4½" wide. Swept area is 254 sq. in. .

Load hoisting and lowering

Independent load hoisting and lowering. **Standard** - hoisting controlled by Speed-o-Matic® power hydraulic two-shoe clutch and lowering controlled by foot controlled brake. **Optional** - load lowering controlled by Speed-o-Matic® power hydraulic two-shoe clutch in addition to foot controlled brake.

Load hoist drums

Front and rear main operating drums, two piece, removable grooved laggings bolted to brake drums which are splined to drum shaft. Lift crane, dragline and clamshell laggings are grooved, 14-1/4" root diameter.

Third operating drum - Optional mounts forward of front main operating drum. Two piece 12" root diameter smooth drum lagging bolted to brake drum. Brake drum splined to shaft.

Note: Third drum limitations

For dragline operation third drum shaft cannot be mounted. For crane / clamshell operations, quantity of front drum wire rope must be limited in some cases to avoid interference between front drum rope and third drum brake enclosure.

Drum clutches

Speed-o-Matic® power hydraulic two-shoe clutches; internal expanding, lined shoes. Clutch spiders are splined to shafts; clutch drums are bolted to drum spur gears and mounted on shafts on anti-friction bearings.

Load hoist clutches - Front and rear main drums - clutch drums 18" diameter, 4½" face width. Swept area is 254 square inches.

Optional third operating drum - clutch drum 18" diameter, 4½" face width. Swept area is 254 square inches.

Load lowering clutches - *Optional*; available on front and rear main operating drums. Clutch drums 18" diameter, 4½" face width. Swept area is 254 square inches.

Drum brakes

External contracting band type; brake drum splined to shaft. Mechanically foot pedal operated; each brake foot pedal equipped with latch to permit locking brake in applied position.

Front and rear main drums - Brake drum 27" diameter, 4" face width. Swept area is 339 square inches.

Optional third drum - Brake drum 22" diameter 3" face width. Swept area is 207 square inches.

Drum rotation indicators

Optional for front and rear drums. Audible-type indicators.

Swing system

Spur gear driven, single bevel gears (enclosed and running in oil) on horizontal swing shaft. Swing pinion splined to vertical swing shaft, meshes with external teeth of swing gear.

Swing clutches

Clutch drums 20" diameter 5" face width. Swept area is 314 sq. inches.

Swing brake - External contracting band; spring applied, hydraulically released by operator controlled lever. Brake drum 14" diameter, 1½" face width.

Swing lock - Mechanically controlled drop pin.

Maximum swing speed - 4.3 rpm.

Boomhoist / lowering system

Independent, spur gear driven. Precision control boom hoisting and lowering through power hydraulic two-shoe clutches.

Boomhoist drum

Single grooved lagging splined to shaft. 12" root diameter.

Boomhoist drum locking pawl

Operator controlled spring applied and mechanically released.

Boomhoist / lowering clutches

One each for boom hoisting and boom lowering; clutch drum 18" diameter, 4½" face width.

Boomhoist brake

External contracting band brake; automatic, spring applied, hydraulically released.

Boomhoist limiting device - When properly adjusted, device limits booming up beyond predetermined operating radius.

Electrical system

24 volt negative ground system. Includes: two 12-volt batteries. Standard battery lighting system includes one interior light and two adjustable floodlights on front of R.H. machinery cab roof and in front of L.H. platform. *Optional:* one adjustable floodlight mounted on boom.

Note: Three flood lights are the maximum quantity recommended.

Operator's cab

Modular type cab with hinged door and safety glass panels. Standard equipment includes dry chemical fire extinguisher, bubble-type level, electric windshield wiper, cab heater, defroster fan and sound reduction material.

Machinery cab

Hinged doors on both sides for machinery access. Equipped with roof-top access ladder, electric warning horn and machinery guards.

Catwalks

Standard for operator's side, optional on right side of cab. includes hand grab rails. Hinged to permit folding to reduce overall width.

Gantry

Retractable high gantry mounted at rear of cab may be raised or lowered under power. May also be used for power raising or lowering of counterweight.

Gantry bail

Pinned to retractable high gantry. Five sheaves are provided for 12-part boomhoist wire rope reeving. Sheaves mounted on anti-friction bearings, sealed for lifetime lubrication.

Counterweight

Removable, held in position by hooks. Power raising and lowering by standard retractable high gantry - controlled by boom hoist or boom lowering system.

"A" (11,680 lbs.) used for dragline, clamshell and magnet service.

"AB" (21,160 lbs.) used for lifting crane service only.

Booms

34" (0.86m) angle boom

Two piece 40' basic length 34" wide, 34" deep at center line of connections. Main chord angles high strength low alloy steel: base section 3½" X 3½" X 3/8" top section and extensions 3½" X 3½" X 5/16". Maximum boom length 100'.

Boom base section - 20' long; boom feet 2-¼" thick on 38-5/8" centers.

Boom extensions - Available in 10' and 20' lengths with appropriate length pendants.

Boom connections - pin connections.

Boom top section - Open throat 20' long.

Boompont machinery - 18" root diameter head sheaves mounted on anti-friction bearings. Three for lift crane, two for dragline or clamshell. *Optional:* single wide flared sheave for dragline.



Boom stops

Dual, tubular telescopic type with spring loaded bumper ends.



Boomhoist bridle

Serves as connection between boom pendants and boomhoist reeving. Equipped with 9 $\frac{1}{2}$ " root diameter sheaves mounted on anti-friction bearings, sealed for lifetime lubrication. 6 sheaves required for 12-part boomhoist reeving.

Boompont sheave guards - Standard: rigid, round steel rod bolted over top of sheaves and rigid round rods between sheaves. *Optional*: roller-type guards, mounted on anti-friction bearings, mounted on brackets beneath sheaves.

Note: Roller type guards do not permit use of center sheave unless center guard is removed.

Deflector rollers - to deflect main drum load hoist line over top side of boom; also required when third drum load hoist line passes over top side of boom. Rollers mounted on anti-friction bearings.

Basic boom - One roller standard on top section.

Recommended: *Optional rollers:* one per boom extension.

Auxiliary equipment



Boom angle indicator

Pendulum type, mounted on operator's side of boom base section.



Fairlead

Optional: full revolving type with barrel, sheaves and guide rollers mounted on anti-friction bearings.



Tagline

Rud-o-Matic® model 648; spring wound, drum-type.



... constantly improving our products and therefore reserve the right to change designs and specifications.

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