

KOBELCO

Hydraulic Excavator

SK850 LC

SK850LC-10

**DRIVEN BY
PASSION**

- **Bucket Capacity :**
1.78 - 8.50 cu yd (1.36 - 6.5 m³) SAE
- **Engine Power :**
510 hp {380 kW}/1,800 rpm
(SAE NET)
- **Operating Weight :**
185,700 lbs {84,800 kg}



Note: This document may contain attachments and optional equipment that are not available in your area. It may also contain photographs of machines with specifications that differ from those sold in your area. Please contact your nearest KOBELCO dealer for items you require.
Due to our policy of continuous product improvement, all designs and specifications are subject to change without advance notice.
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Bulletin No. SK850LC-NA-201-1905KCMU

Complies with the latest exhaust emission regulations

 US EPA Tier IV Final	 EU (NRMM) Stage IV	 Japanese Regulations
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Power Meets Efficiency

Increased POWER
means increased
PRODUCTIVITY

Greater fuel
economy means
higher efficiency

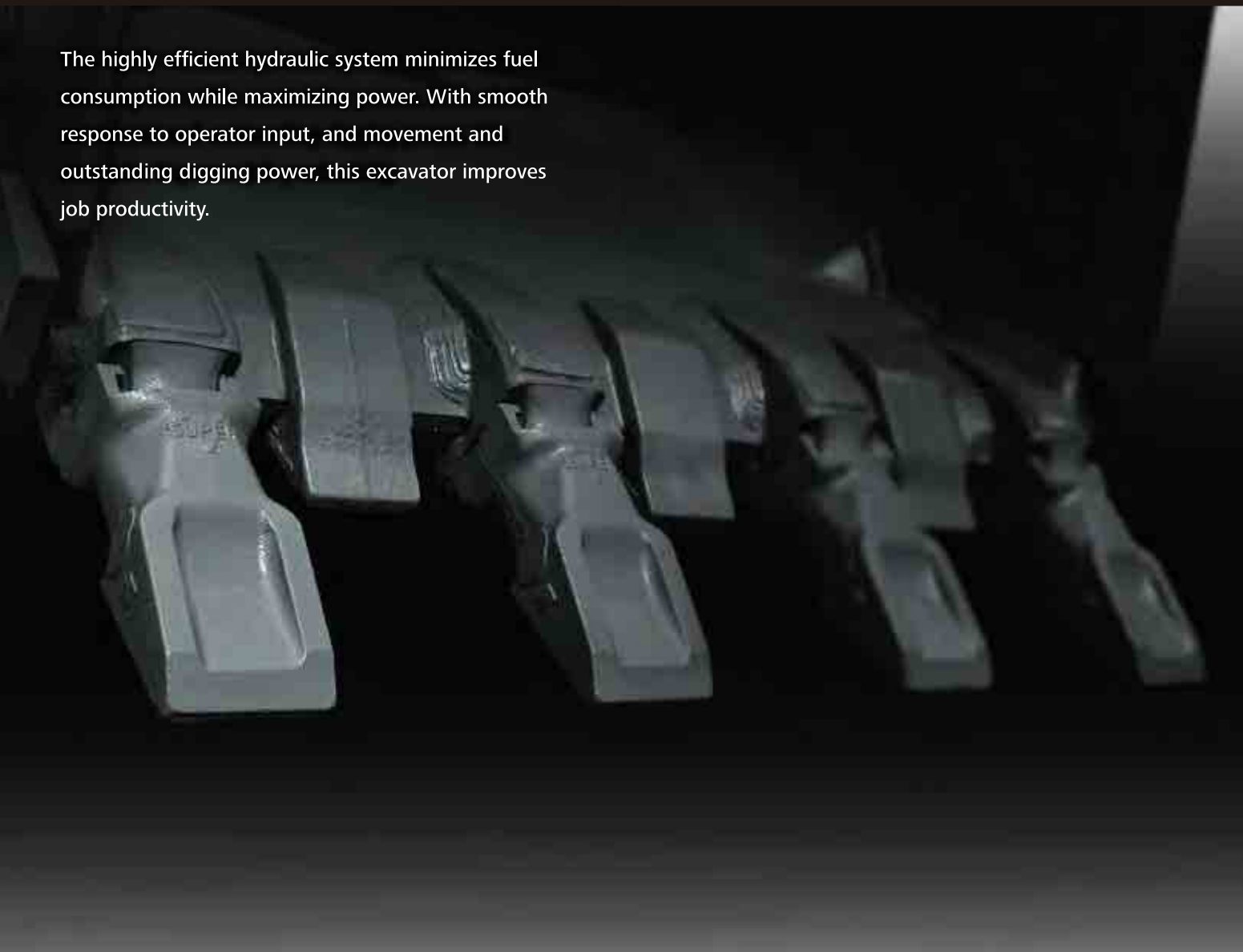
From urban centers to mines around the world, KOBELCO's all-out innovation brings you durable, Earth-friendly construction machinery that's equal to any task all over the planet. Increased power and better fuel economy bring greater efficiency to any project. KOBELCO SK850LC conventional excavators are more durable than ever, able to withstand the rigors of the toughest job sites. Focusing on the global environment of the future, KOBELCO offers next-generation productivity to meet the need for lower life cycle costs and exceed the expectations of customers the world over. It all adds up to new levels of value that are a step ahead of the times.



SK850LC

More Power and Higher Efficiency

The highly efficient hydraulic system minimizes fuel consumption while maximizing power. With smooth response to operator input, and movement and outstanding digging power, this excavator improves job productivity.



Power to do more, faster

Digging Volume

The SK850LC offers dynamic digging force even as it minimizes fuel consumption, achieving class-leading work volume.

- Max. Bucket Digging Force (ISO 6015)
Normal: **90,598 lbf** {403kN}
- Max. Arm Crowding Force (ISO 6015)
Normal: **61,148 lbf** {272kN}
HD Semi Long Arm (4.40m)

Drawbar Pulling Force

Excellent drawbar force lets you conquer rough terrain and slopes.

146,800 lbf {653kN}

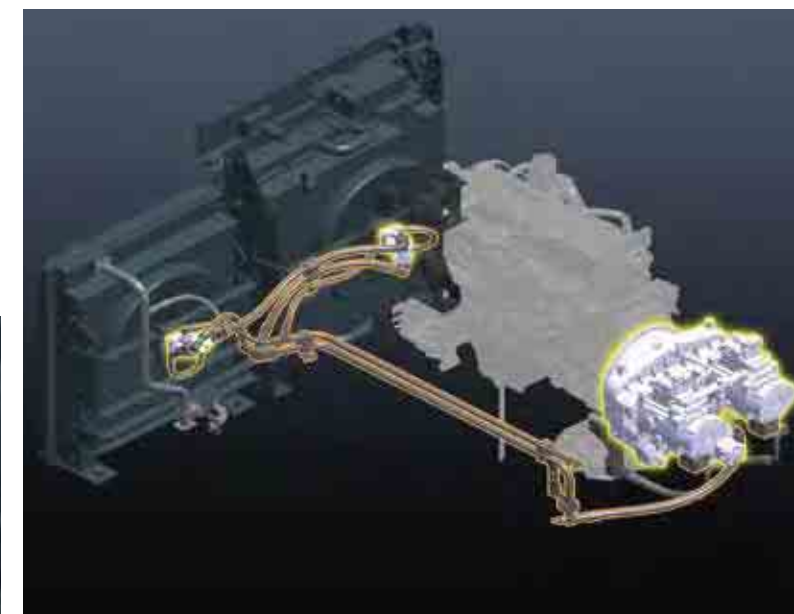
Built to operate in tough working environments

Hydraulic Drive for Engine Cooling Fan, Independent Oil Cooler Fan

Hydraulic drive optimizes the cooling fan rotation speed to improve fuel economy and reduce noise. Also, the independent oil cooler fan better matches cooling to the hydraulic oil temperature, for optimal oil temperature control.



Hydraulic drive fan radiator and intercooler Hydraulic drive fan for oil cooler



Conforms to Tier IV Final exhaust emissions standards

Next-Generation Electronic Engine Control

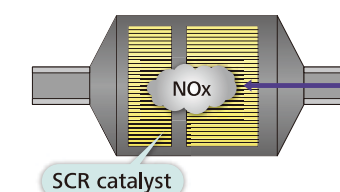
The new electronic-control common-rail engine features high-pressure fuel injection and multiple injection with improved precision. It is fitted with an EGR cooler, Diesel Particulate and SCR filter which deliver high output from optimized combustion and greatly reduce PM and NOx emissions.



SCR System with DEF NEW

Engine exhaust system utilizes Selective Catalytic Reduction (SCR) to convert NOx* into harmless nitrogen and water emissions. SCR combined with a Diesel Particulate Filter (DPF) makes the SK850LC a much cleaner machine.

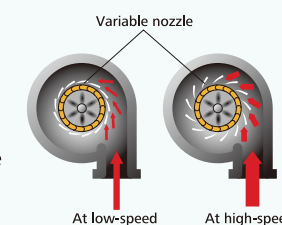
*NOx: Nitrogen Oxide



■ NOx reduction rate (Compared to previous models) **Up to 80% decrease***

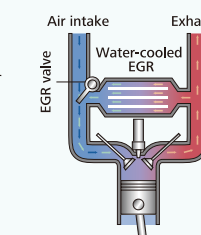
VG turbo reduces PM

The variable-geometry turbocharger adjusts air intake to maximize combustion efficiency and promotes faster, cleaner response to varying engine load. At low engine speeds the nozzles are closed, the turbo speed increased and intake air is boosted. This helps lower fuel consumption.



EGR cooler reduces NOx

Cooled exhaust gases from the EGR cooler are mixed with fresh air in the intake. The recirculated air lowers the combustion temperature which reduces NOx.



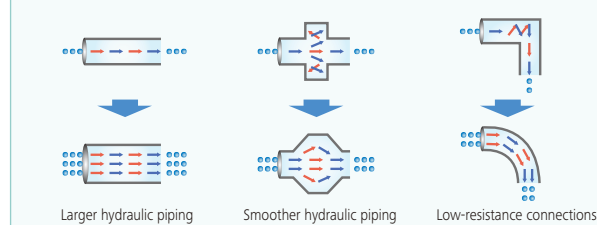
Evolution Continues, with Improved Fuel Efficiency



Hydraulic Circuit Reduces Energy Loss

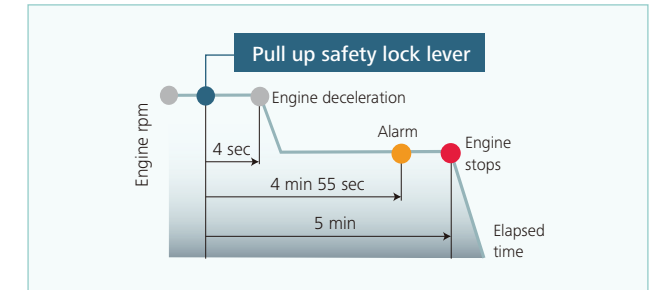
Improved hydraulic line layout minimizes hydraulic pressure resistance from turbulence and valve restrictions. Fuel efficiency is increased because it takes less energy to move fluid through a circuit with low flow resistance.

Improved hydraulic piping is an effective means of reducing pressure loss.



AIS (Auto Idle Stop)

The engine will stop automatically after 5 minutes (Adjustable) of inactivity if the safety lock lever is in the up position. This eliminates wasteful idling during standby, saving fuel and reducing CO₂ emissions.



Top-of-Class Working Ranges

Max. digging reach:	47' 10" {14,560mm}
Max. digging depth:	31' 10" {9,700mm}
Max. vertical wall digging depth:	24' 6" {7,480 mm}

Value are for 14' 5" {4.4m} arm



Revolutionary technology boosts efficiency and minimizes fuel consumption

Operation Mode

■ Optimal operation with three modes

H H-mode Maximum power for maximum productivity on your toughest jobs

S S-mode Ideal balance of productivity and fuel efficiency for a range of urban engineering projects

E ECO-mode ... Minimum fuel consumption for utility projects and other work that demands precision

Improved fuel economy in ECO-modes

■ Compared to previous models (SK850LC-8, S-mode)

E ECO-mode ... About **17%** improvement

Total Support for Machines with Network Speed and Accuracy

KOMEXS is a cellular-based system for receiving machine information. Manage your machines anywhere in the world using the Internet. Location, workload and diagnostic data aid business operations.

Direct Access to Operational Status

Location Data

Accurate location data can be obtained even from sites where communications are difficult.

Operating Hours

A comparison of operating times of machines at multiple locations shows which locations are busier and more profitable.

Operating hours on site can be accurately recorded, for running time calculations needed for rental machines, etc.

Fuel Consumption Data

Data on fuel consumption and idling times can be used to indicate improvements in fuel consumption.

Graph of Work Content

The graph shows how working hours are divided among different operating categories, including digging, idling, traveling, and optional operations (NGB).



Maintenance Data and Warning Alerts

Machine Maintenance Data

Provides maintenance status of separate machines operating at multiple sites. Maintenance data is also relayed to KOBELCO service personnel, for more efficient planning of periodic servicing.

Security System

Engine Start Alarm

Sends a notification if the engine is started outside of pre-defined hours.

Area Alarm

Sends a notification if the machine leaves a pre-defined area.

Increased Power with Enhanced Durability to Maintain the Machine's Value

Smart system design increases strength and eliminates hydraulic problems. Enhanced POWER, reliability, and durability takes productivity to a new level.



Improved filtration system reliability

Clean, contaminant-free fuel and hydraulic fluid are essential to stable performance. The improved filtration systems reduce the risk of mechanical trouble and enhance longevity and durability.

Hydraulic Fluid Filter ^{NEW}

Recognized as the best in the industry, our super-fine filter separates out even the smallest particles. A new cover prevents contamination from falling into the main hydraulic reservoir during filter change maintenance.

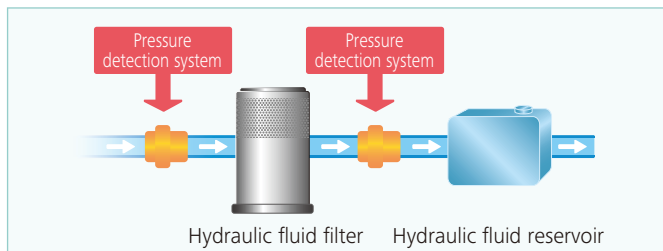


Long-life hydraulic fluid:
5,000 hours

Hydraulic fluid filter replacement cycle is
1,000 hours

Hydraulic Fluid Filter Restriction Indicator ^{NEW}

Pressure sensors located at the inlet and outlet of the main hydraulic filter assembly, monitor the differential pressure across the filters to determine clog or cleanliness levels of the main filters. Once this differential pressure exceeds a predetermined level, a filter warning icon appears on the machine's monitor. This allows proper servicing of these filters as well as an indication of the condition of the hydraulic components.



Easy grease refill

Newly designed side door and catwalk are installed to right side body. Thanks to the door and catwalk, refilling of the grease canister is simplified.



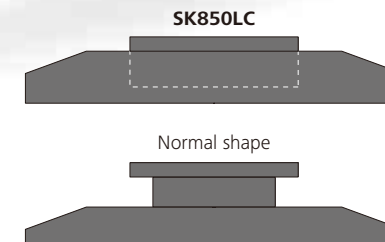
Access door for grease gun

Grease gun is accessed from the front of the right storage compartment. The access door enables the operator or maintenance technician to conveniently pull the grease gun hose from ground level.



Strong Carbody Structure

Strength is especially crucial in the carbody. The swing bearing support tower is integrated into the lower frame structure, thereby increasing the carbody's cross-section size for greater strength.



Full Track Guides (Option)

Optional full track guides withstand powerful vibrations and eliminate de-track concern.



Three Track Guides

Three heavy-duty track guides installed on each crawler side frame assure stability in the most demanding situations.



Protective Lower Undercover

The undercover attached to the lower frame protects the hydraulic piping and equipment from flying rocks, bits of rebar, and other debris.



Comprehensive Safety and Intuitive Operation

User-friendly design and enhanced safety means greater efficiency and productivity.



Safety



Mounting brackets for vandalism guards are standard equipment (contact your KOBELCO dealer to fit vandalism or front rock guards).



Standard FOPS, Top Guard Level II. (Meets ISO10262)

Expanded Field of View for Greater Safety



Left and right rear-view mirrors/Right bottom clearance mirror



Rear View Camera

Rear

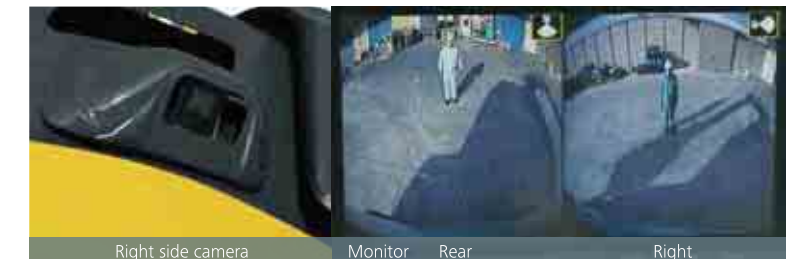
Optional right side camera NEW



Standard rear swing flashers and rear work lights.



Emergency escape hammer



Right side camera

Monitor

Rear

Right

Operator-friendly features that are easy to see, easy to use



Color Multi-display

Brilliant colors differentiate multiple graphics on cab LCD. Graphics indicate fuel consumption, maintenance intervals and more.

- 1 Analog-style gauges provide an intuitive reading of fuel level and engine temperature
- 2 Green light indicates efficient and fuel saving operational techniques.
- 3 PM accumulation (left)/DEF level (right)
- 4 Fuel consumption/Rear-view camera
- 5 Digging mode switch
- 6 Monitor display switch

One-touch Attachment Mode Switch

A simple flick of switch converts the hydraulic circuit and flow amount to match attachments. Helpful icons let the operator confirm the proper configuration at a glance.



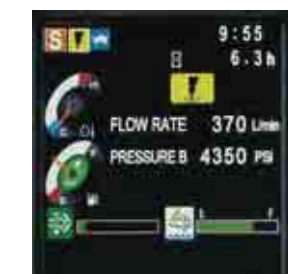
PM accumulation/DEF level



Fuel consumption



Maintenance



Breaker mode



Nibbler mode

Cab Comfort Takes a Step Ahead

The newly refined cab puts the operator first, ensuring a quieter, more comfortable work environment and easier operation.



Standard suspension seat



Comfort

Climate Control Outlets behind the Seat **NEW**



Five air outlets deliver warm or cool air directly to the operator.

A Light Touch on the Lever Means Smoother, **NEW** Less Tiring Work



It takes 25% less effort to work the operation lever, which reduces fatigue over long working hours or continuous operations. *Compared to SK850LC-9 model

More Comfortable Seat Means Higher Productivity



Suspension seat absorbs vibration



Double slides allow adjustment for optimum comfort



Air suspension seat(option)

Quiet Inside



The high level of air-tightness ensures a quiet, comfortable cabin interior.

Interior Equipment Adds to Comfort and Convenience



Bluetooth installed AM/FM stereo radio



USB connector/12V power outlet

Large Door Allows Easy Access In and Out of the Cab

The expanded cab provides plenty of room for a large door, more headroom and smoother entry and exit.



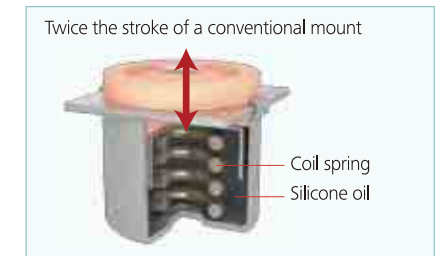
Spacious storage tray



Large cup holder

Low Vibration

Coil springs absorb small vibrations and high suspension mounts filled with silicone oil reduce heavy vibration. The long stroke achieved by this system provides excellent vibration protection.



Wide, Open Unobstructed Operator Visibility

The front window features one large piece of glass without a center pillar on the right side for a wide, unobstructed view.

Efficient Maintenance Keeps the Machine in Peak Operating Condition

Easy Maintenance That Supports Large-Scale Operation

Double Service Doors Open and Close Easily

- Intercooler • A/C condenser
- Fuel cooler • Radiator • Oil cooler



- Air cleaner



Auto-Coil Grease Gun Holder

- Grease tank
- Lubrication hose



DEF/AdBlue* tank

Located inside the standard machine storage compartment
* AdBlue® is a registered trade mark of the Verband der Automobilindustrie e. V. (VDA).



Simple Filtration

- Hydraulic oil filter x 3



- Suction filter



- Battery



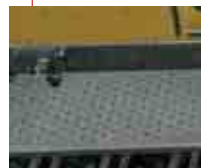
- Drain filter



- Large tool box



- Cat walk



Around the Engine Compartment



- Fuel filter



- Fuel pre-filter with water separator



- Engine oil drain valve



- Engine oil filter

Engine oil filters on the engine



Daily maintenance checks are essential for the successful operation of large, continuously operating excavators. Inspections and maintenance must be quick and easy to maximize productivity. With its maintenance walk, the SK850LC provides easy access to essential components and systems so that more time is spent on the job.



Easy Inspection of Grease for Swing Bearing, Gear and Bolt.

A small access port is located in front of the upper frame to make it easier to inspect the swing bearing, gear and bolt.



Machine information display function

- Displays only the maintenance information that's needed, when it's needed
- Self-diagnostic function provides early-warning detection and display of electrical system malfunctions
- Service-diagnostic function makes it easier to check the status of the machine
- Record function for any possible on going or intermittent service issues

MAINTENANCE			
	INTERVAL	REMAINING TIME	EXCHANGE DAY
ENGINE OIL	500	495	--/--/--
FUEL FILTER	500	495	--/--/--
HYD. FILTER	1000	995	--/--/--
HYD. OIL	5000	4995	--/--/--

6.3h

Examples of displaying maintenance information

Easy Access to In-cab Maintenance Features



Easy-access fuse box.



DPF Manual Regeneration Switch

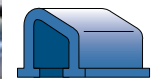


Air conditioner filter can be easily removed without tools for cleaning. One for outside air and one for inside air.

Easy Cleaning



Special sloped crawler side frame design is easily cleaned of mud.



Detachable two-piece floor mat with handles for easy removal.



Fuel tank features bottom flange and large drain valve for easy maintenance.

Engine

Model	HINO E13CYM-KSDB
Type:	Water-cooled, 4 cycle 6 cylinder electronically-controlled common rail system type diesel engine with turbo-charger Meets North American Emission regulations applicable to Tier IV final.
No. of cylinders:	6
Bore and stroke:	5.39" {137 mm} x 5.75" {146 mm}
Displacement:	787 cu.in {12.913 L}
Rated power output:	510 hp {380 kW} / 1,800 rpm (SAE NET)
Max. torque:	1,564 lb-ft {2,120 N.m} / 1,300 rpm (SAE NET)

Hydraulic System

Pump	
Type:	Two variable displacement pumps + 1 gear pump
Max. discharge flow:	2 x 133 US.gal {504 L/min}, 1 x 7.93 US.gal {30 L/min}
Relief valve setting	
Boom, arm and bucket:	4,790 psi {33.0 MPa}
Travel circuit:	4,790 psi {33.0 MPa}
Swing circuit:	3,760 psi {25.9 MPa}
Control circuit:	725 psi {5.0 MPa}
Pilot control pump:	Gear type
Main control valves:	6-spool
Oil cooler:	Air cooled type

Swing System

Swing motor:	Axial-piston motor
Brake:	Hydraulic; locking automatically when the swing control lever is in neutral position
Parking brake:	Oil disc brake, hydraulic operated automatically
Swing speed:	7.3 rpm
Swing torque:	197,200 lb-ft {268 kN-m} (SAE)
Tail swing radius:	15'00" {4,580 mm}
Min. front swing radius:	20'10" {6,340 mm}

Travel System

Travel motors:	2 x axial-piston, two-speed motors
Parking brakes:	Oil disc brake per motor
Track shoes:	51 each side
Travel speed:	2.6 / 1.7 mph {4.2 / 2.7 km/h}
Drawbar pulling force:	146,800 lbf {653 kN} {SAE J 1309}
Gradeability:	70 % {35°}
Ground clearance:	33.5" {850 mm}

Cab & Control

Cab	
All-weather, sound-suppressed steel cab mounted on the silicon-sealed suspension mounts and equipped with a heavy, insulated floor mat.	
Control	
Two hand levers and two foot pedals for travel	
Two hand levers for excavating and swing	
Electric rotary-type engine throttle	

Boom, Arm & Bucket

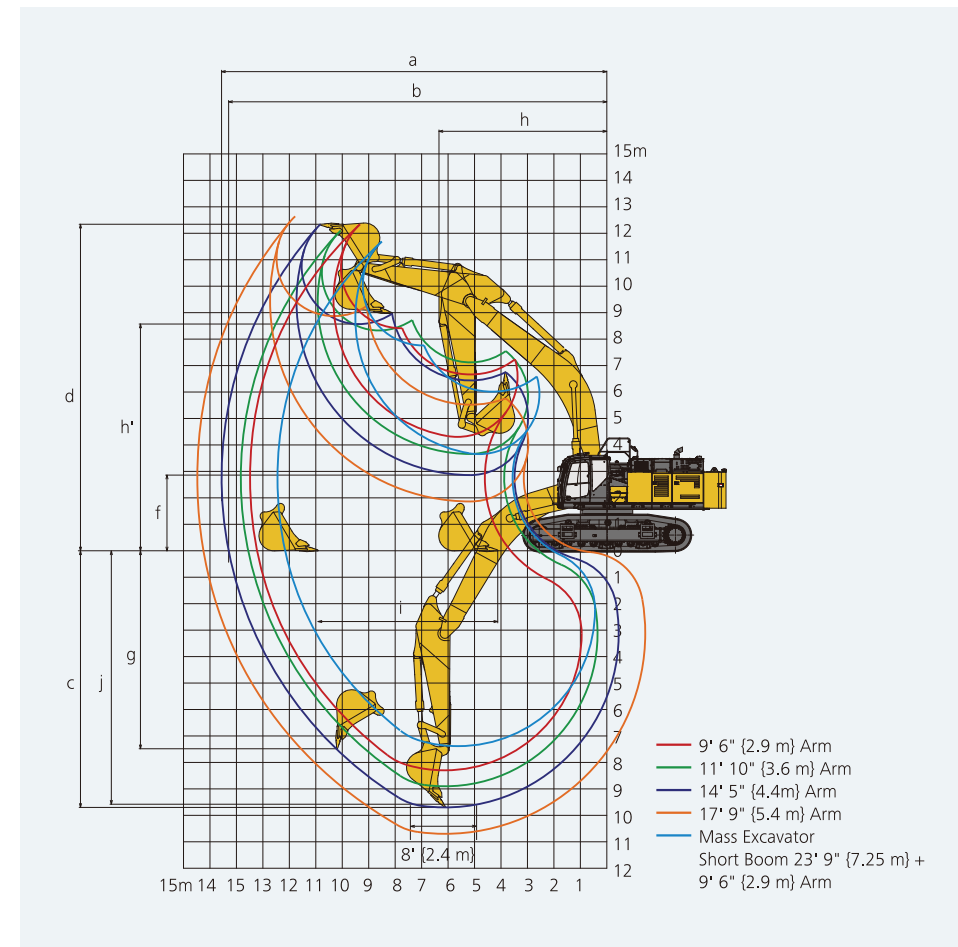
Boom cylinders:	8.3" {210 mm} x 5' 11" {1,800 mm}
Arm cylinder:	8.7" {220 mm} x 7' 2" {2,175 mm}
Bucket cylinder:	STD 7.9" {200 mm} x 5' 2" {1,570 mm}

Refilling Capacities & Lubrications

Fuel tank:	253.6 U.S.gal {960 L}
Cooling system:	19.5 U.S.gal {74 L}
Engine oil:	14.3 U.S.gal {54 L}
Travel reduction gear:	2 x 5.8 U.S.gal {2 x 22 L}
Swing reduction gear:	5.7 U.S.gal {2 x 21.5 L}
Hydraulic oil tank:	138.0 U.S.gal {522 L} tank oil level 239.1 U.S.gal {905 L} hydraulic system
DEF/AdBlue tank:	21.9 U.S.gal {83 L}

Hydraulic P.T.O

Specification	Output	Maximum Pressure PSI {Mpa}	Max Flow US GPM, {lpm}
			1,800rpm
N&B		5,220 {36.0}	266 {1,008}
Rotary		3,280 {22.6}	13 {49}



Working Ranges

Unit: ft-in (m)

Boom	27' 1" {8.25 m}				23' 9" {7.25 m}
Arm	9' 6" {2.9 m}	11' 10" {3.6 m}	14' 5" {4.4 m}	17' 9" {5.4 m}	ME 9' 6" {2.9 m}
Range					
a- Max. digging reach	44' 3" {13.48}	45' 4" {13.83}	47' 10" {14.56}	50' 10" {15.48}	40' 10" {12.45}
b- Max. digging reach at ground level	43' 3" {13.19}	44' 6" {13.55}	46' 11" {14.29}	50' 0" {15.23}	39' 10" {12.13}
c- Max. digging depth	27' 3" {8.30}	29' 2" {8.9}	31' 10" {9.7}	35' 1" {10.70}	24' 3" {7.38}
d- Max. digging height	40' 6" {12.34}	39' 9" {12.11}	40' 6" {12.35}	41' 6" {12.64}	38' 4" {11.69}
e- Max. dumping clearance	27' 7" {8.41}	27' 4" {8.34}	28' 1" {8.57}	29' 1" {8.87}	25' 6" {7.77}
f- Min. dumping clearance	14' 2" {4.31}	12' 0" {3.67}	9' 5" {2.86}	6' 1" {1.86}	12' 0" {3.66}
g- Max. vertical wall digging depth	16' 11" {5.16}	22' 1" {6.74}	24' 6" {7.48}	27' 7" {8.41}	14' 6" {4.42}
h- Min. swing radius	18' 10" {5.74}	20' 10" {6.34}	20' 10" {6.34}	21' 0" {6.39}	17' 11" {5.47}
i- Horizontal digging stroke at ground level	14' 7" {4.6}	18' 7" {5.67}	22' 4" {6.80}	26' 6" {8.08}	14' 5" {4.39}
j- Digging depth for 2.4 m (8') flat bottom	26' 9" {8.15}	28' 9" {8.75}	31' 5" {9.58}	34' 9" {10.06}	23' 9" {7.23}
Bucket capacity SAE heaped cu yd {m³}	6.0 {4.6}	4.58 {3.5}	3.66 {2.8}	3.0 {2.3}	6.0 {4.6}

Digging Force

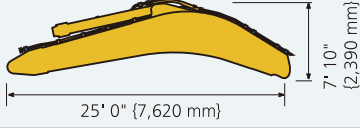
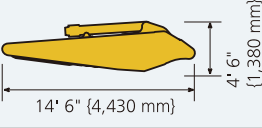
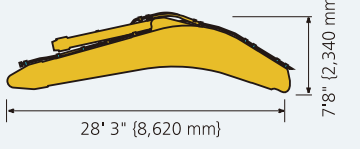
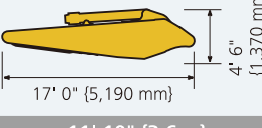
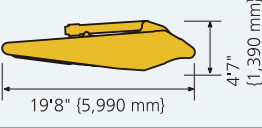
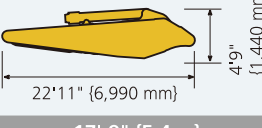
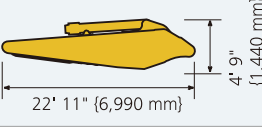
Unit: lbs (kN)

Boom	27' 1" {8.25 m}				23' 9" {7.25 m}	
Arm length	9' 6" {2.9 m}	11' 10" {3.6 m}	14' 5" {4.4 m}	17' 9" {5.4 m}	9' 6" {2.9 m}	
Bucket digging force	SAE	86,551 {385}	79,582 {354}	79,582 {354}	79,582 {354}	86,551 {385}
	ISO	97,117 {432}	90,598 {403}	90,598 {403}	90,598 {403}	97,117 {432}
Arm crowding force	SAE	75,985 {338}	67,443 {300}	59,120 {263}	51,260 {228}	75,985 {338}
	ISO	79,908 {351}	69,916 {311}	61,148 {272}	52,605 {234}	79,908 {351}

*Power Boost engaged.

Attachments

Backhoe Bucket and Arm Combination

Boom	Arm
23' 9" (7.25 m) ME Boom Weight: 17,770 lb (8,060 kg)	9' 6" (2.9 m) Weight: 8,970 lb (4,070 kg)
	
27' 1" (8.25 m) Standard Boom Weight: 18,610 lb (8,440 kg)	9' 6" (2.9 m) Weight: 8,970 lb (4,070 kg)
	
	11' 10" (3.6 m) Weight: 9,210 lb (4,180 kg)
	
	14' 5" (4.4 m) Weight: 10,280 lb (4,660 kg)
	
	17' 9" (5.4 m) Weight: 11,670 lb (5,300 kg)
	

Bucket Selection Chart

Bucket Type	Capacity (SAE) cu yd (m³)	Width in (m)	Weight lb (kg)	Boom ft-in (m)				
				27' 1" (8.25 m)				23' 9" (7.25 m)
				Arm ft-in (m)				9' 6" (2.9 m) ME
9' 6" (2.9 m)	11' 10" (3.6 m)	14' 5" (4.4 m)	17' 9" (5.4 m)					
Light Duty	7.06 (5.4)	98 (2.5)	8,000 (3,630)	M	X	X	X	H
	7.40 (5.7)	91 (2.3)	12,800 (5,820)	U	U	X	X	L
	7.90 (6.0)	95 (2.42)	13,200 (6,000)	U	X	X	X	L
	8.50 (6.5)	101 (2.58)	13,700 (6,230)	U	X	X	X	L
Heavy Duty	2.53 (1.93)	42 (1.07)	6,403 (2,904)	E	E	E	E	E
	3.00 (2.29)	48 (1.22)	6,803 (3,086)	E	E	E	E	E
	3.48 (2.66)	54 (1.37)	7,203 (3,267)	E	E	E	E	E
	3.96 (3.03)	60 (1.52)	7,780 (3,529)	E	E	E	H	E
	4.45 (3.40)	66 (1.68)	8,180 (3,710)	E	E	H	M	E
	4.94 (3.78)	72 (1.83)	8,580 (3,892)	H	H	M	X	E
	5.91 (4.52)	84 (2.13)	9,557 (4,335)	H	M	X	X	H
	6.60 (5.1)	82 (2.09)	11,900 (5,410)	L	L	X	X	M
	7.40 (5.7)	91 (2.3)	13,000 (5,890)	U	U	X	X	L
	1.78 (1.36)	35 (0.89)	5,619 (2,549)	E	E	E	E	E
Extra Heavy Duty	2.47 (1.89)	45 (1.14)	6,470 (2,935)	E	E	E	E	E
	3.26 (2.50)	56 (1.42)	7,211 (3,271)	E	E	E	E	E
	3.99 (3.05)	66 (1.68)	8,061 (3,656)	E	E	E	M	E
	4.43 (3.39)	72 (1.83)	8,466 (3,840)	E	E	H	L	E
	5.30 (4.05)	84 (2.13)	9,557 (4,335)	H	M	X	X	H
	6.00 (4.6)	75 (1.90)	10,100 (4,550)	M	U	L	X	H
	6.00 (4.6)	77 (1.96)	13,700 (6,230)	L	U	U	X	M

E: Used with material weight up to 3,500 lbs/cu yd (2,080 kg/m³)
 H: Used with material weight up to 3,000 lbs/cu yd (1,780 kg/m³)

M: Used with material weight up to 2,500 lbs/cu yd (1,483 kg/m³)
 L: Used with material weight up to 2,000 lbs/cu yd (1,186 kg/m³)

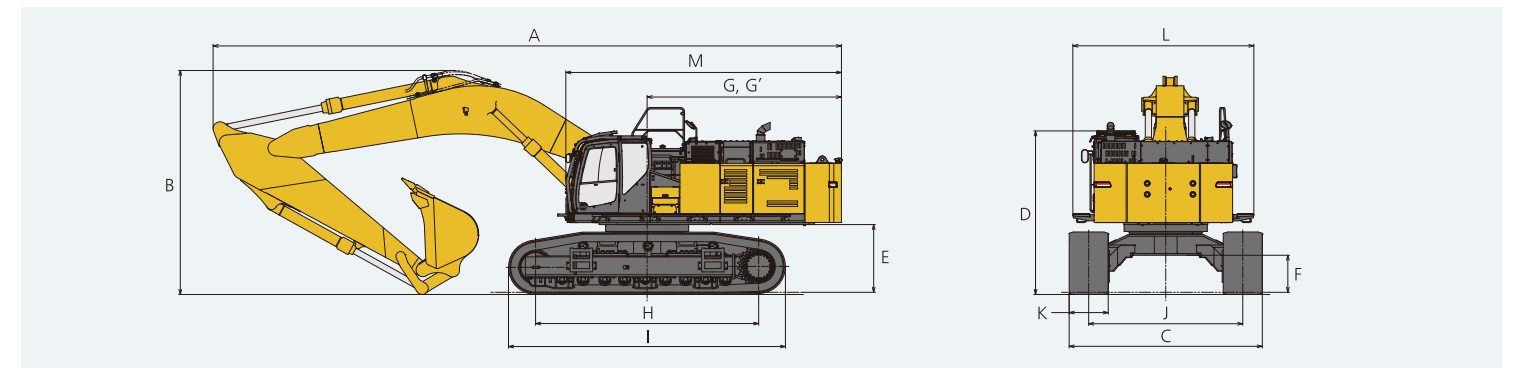
U: Used with material weight up to 1,500 lbs/cu yd (890 kg/m³)
 X: Not recommended

Dimensions

Unit: ft-in (mm)

Boom		27' 1" (8.25 m)				23' 9" (7.25 m)
Arm length		9' 6" (2.9 m)	11' 10" (3.6 m)	14' 5" (4.4 m)	17' 9" (5.4 m)	9' 6" (2.9 m)
A	Overall length	47' 11" (14,600)	47' 8" (14,530)	47' 6" (14,480)	46' 8" (14,220)	4' 7" (13,590)
B	Overall height (to top of boom)	15' 10" (4,830)	15' 7" (4,760)	16' 12" (5,160)	18' 10" (5,750)	16' 0" (4,880)
C	Overall width	Extended		14' 7" (4,450)		
		Retracted		12' 6" (3,800)		
D	Overall height (to top of cab)			12' 4" (3,770)		
E	Ground clearance of rear end*			5' 1" (1,560)		
F	Ground clearance*			2' 9" (850)		
G	Tail swing radius			15' 0" (4,580)		
G'	Distance from center of swing to rear end			14' 8" (4,480)		
H	Tumbler distance			16' 10" (5,140)		
I	Overall length of crawler			20' 11" (6,380)		
J	Track gauge	Extended		11' 8" (3,550)		
		Retracted		9' 6" (2,900)		
K	Shoe Width			35.4" (900)		
L	Overall width of upperstructure			13' 8" (4,170)**		
M	Overall length of upperstructure			10' 6" (6,350)***		

* Without including height of shoe lug **With catwalk ***With cab guard



Operating Weight & Ground Pressure

In standard trim, with 27' 1" (8.25 m) standard boom, 9' 6" (2.9 m) arm, 6.0 cu yd (4.6 m³) SAE heaped bucket and standard counterweight

Configuration	Double grouser shoes (even height)	
Shoe width	in (mm)	35.4 (900)
Overall width	ft-in (mm)	14' 7" (4,450)
Ground pressure	psi (kPa)	12.0 (83)
Operating weight	lbs (kg)	187,000 (84,800)

In standard trim, with 27' 1" (8.25 m) standard boom, 11' 10" (3.6 m) arm, 4.58 cu yd (3.5 m³) SAE heaped bucket and standard counterweight

Configuration	Double grouser shoes (even height)	
Shoe width	in (mm)	35.4 (900)
Overall width	ft-in (mm)	14' 7" (4,450)
Ground pressure	psi (kPa)	12.0 (83)
Operating weight	lbs (kg)	186,300 (84,500)

In standard trim, with 27' 1" (8.25 m) standard boom, 14' 5" (4.4 m) arm, 3.66 cu yd (2.8 m³) SAE heaped bucket and standard counterweight

Configuration	Double grouser shoes (even height)	
Shoe width	in (mm)	35.4 (900)
Overall width	ft-in (mm)	14' 7" (4,450)
Ground pressure	psi (kPa)	12.0 (83)
Operating weight	lbs (kg)	185,700 (84,800)

In standard trim, with 27' 1" (8.25 m) standard boom, 17' 9" (5.4 m) arm, 3.0 cu yd (2.3 m³) SAE heaped bucket and standard counterweight

Configuration	Double grouser shoes (even height)	
Shoe width	in (mm)	35.4 (900)
Overall width	ft-in (mm)	14' 7" (4,450)
Ground pressure	psi (kPa)	12.0 (83)
Operating weight	lbs (kg)	187,400 (85,000)

In standard trim, with 23' 9" (7.25 m) ME boom, 9' 6" (2.9 m) arm, 7.06 (5.4 m³) SAE heaped bucket and standard counterweight

Configuration	Double grouser shoes (even height)	
Shoe width	in (mm)	35.4 (900)
Overall width	ft-in (mm)	14' 7" (4,450)
Ground pressure	psi (kPa)	12.0 (83)
Operating weight	lbs (kg)	186,300 (84,500)

Four Disassembly and Transport Patterns

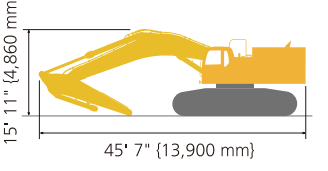
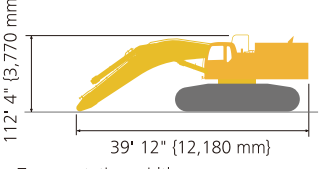
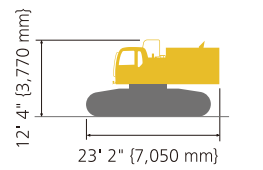
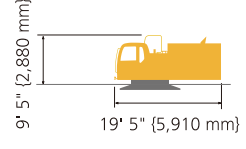
The SK850LC can be disassembled and transported in four different ways, including: no counterweight, with boom attached; main body only; main body without crawler frame; etc.

Variable Gauge Crawler

The variable gauge crawler extends the crawlers for extremely stable operation, and retracts them for easier transport.

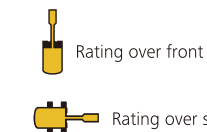
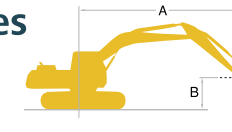
Crawler Width

Shoe	35.4" (900 mm)
Extended	14' 7" (4,450 mm)
Retracted	12' 6" (3,800 mm)

Configuration	Description	Total weight
Plan 1  <p>15' 11" (4,860 mm) 45' 7" (13,900 mm) Transportation width: 12' 6" (3,800 mm) / 35.4" (900 mm) shoe</p>	Base machine without counterweight and bucket, with lower structure, 27' 1" (8.25 m) boom and 11' 10" (3.6 m) arm	143,100 lb (64,900 kg)
Plan 2  <p>11' 4" (3,770 mm) 39' 12" (12,180 mm) Transportation width: 12' 6" (3,800 mm) / 35.4" (900 mm) shoe</p>	Base machine without counterweight, bucket and arm, with lower structure and 27' 1" (8.25 m) boom	133,180 lb (60,400 kg)
Plan 3  <p>12' 4" (3,770 mm) 23' 2" (7,050 mm) Transportation width: 12' 6" (3,800 mm) / 35.4" (900 mm) shoe</p>	Base machine with lower structure, without counterweight, bucket, arm and boom,	109,810 lb (49,800 kg)
Plan 4  <p>9' 5" (2,880 mm) 19' 5" (5,910 mm) Transportation width: 10'6" (3,190 mm)</p>	Base machine with carbody, without counterweight, bucket, bucket, arm, boom and lower structure	55,790 lb (25,300 kg)

Standard counterweight: 35,940 lb (16,300 kg)

Lifting Capacities



A – Reach from swing centerline to arm tip
 B – Arm bucket pin height above/below ground
 C – Lifting capacities in pounds (kilograms)
 Relief valve setting: 4,786 psi (33.0 MPa)

SK850LC		Boom: 27' 1" (8.25 m) Arm: 14' 5" (4.40 m), Bucket: without Shoe: 35.4" (900 mm) Standard counterweight: 35,940 lb (16,300 kg)																	
		10' (3.0 m)		15' (4.6 m)		20' (6.1 m)		25' (7.6 m)		30' (9.1 m)		35' (10.7 m)		40' (12.2 m)		At Max		Radius	
		Rating over front		Rating over side or 90 degrees		Rating over front		Rating over side or 90 degrees		Rating over front		Rating over side or 90 degrees		Rating over front		Rating over side or 90 degrees			
B	35' (10.7 m)																	*27,130 *12,300	31'0" (9.46 m)
	30' (9.1 m)																	*25,970 *11,770	34'8" (10.58 m)
	25' (7.6 m)									*29,060 *13,180	*29,060 *13,180	*28,000 *12,700	*28,000 *12,700				*25,580 *11,600	*25,580 *11,600	37'4" (11.38 m)
	20' (6.1 m)									*31,260 *14,170	*31,260 *14,170	*29,050 *13,170	*29,050 *13,170				*25,760 *11,680	*25,760 *11,680	39'1" (11.92 m)
	15' (4.6 m)					*49,390 *22,400	*49,390 *22,400	*39,610 *17,960	*39,610 *17,960	*34,060 *15,440	*34,060 *15,440	*30,640 *14,150	*30,640 *14,150	*27,950 *12,670	25,950 11,770		*26,450 *11,990	25,710 11,660	40'2" (12.25 m)
	10' (3.0 m)					*57,520 *26,090	*57,520 *26,090	*44,360 *20,120	*44,360 *20,120	*36,980 *16,770	*36,980 *16,770	*32,400 *14,690	31,200 14,150	*29,430 *13,340	25,410 11,520		*27,700 *12,560	24,780 11,240	40'7" (12.38 m)
	5' (1.5 m)					*63,140 *28,630	*63,140 *28,630	*48,230 *21,870	*48,230 *21,870	*39,520 *17,920	37,730 17,110	*33,970 *15,400	30,290 13,730	*30,150 *13,670	24,920 11,300		*29,630 *13,430	24,530 11,120	40'5" (12.32 m)
	G.L.					*65,680 *29,790	65,150 29,550	*50,630 *22,960	47,270 21,440	*41,260 *18,710	36,680 16,630	*35,010 *15,880	29,610 13,430				*30,710 *13,920	24,970 11,320	39'6" (12.06 m)
	-5' (-1.5 m)			*52,360 *23,750	*52,360 *23,750	*65,600 *29,750	64,520 29,260	*51,330 *23,280	46,530 21,100	*41,860 *18,980	36,100 16,370	*33,580 *15,930	29,270 13,270				*31,620 *14,340	26,240 11,900	38'0" (11.58 m)
	-10' (-3.0 m)	*50,630 *22,960	*50,630 *22,960	*73,020 *33,120	*73,020 *33,120	*63,210 *28,670	*63,210 *28,670	*50,150 *22,740	46,430 21,060	*40,900 *18,550	36,010 16,330	*33,580 *15,230	29,380 13,320				*32,570 *14,770	28,680 13,000	35'8" (10.87 m)
	-15' (-4.6 m)	*71,930 *32,620	*71,930 *32,620	*74,570 *33,820	*74,570 *33,820	*58,240 *26,410	*58,240 *26,410	*46,620 *21,140	*46,620 *21,140	*37,550 *17,030	36,520 16,560						*33,350 *15,120	33,110 15,010	32'4" (9.87 m)
	-20' (-6.1 m)	*81,540 *36,980	*81,540 *36,980	*62,500 *28,340	*62,500 *28,340	*49,570 *22,480	*49,570 *22,480	*39,230 *17,790	*39,230 *17,790								*33,500 *15,190	*33,500 *15,190	27'9" (8.47 m)

SK850LC		Boom: 27' 1" (8.25 m) Arm: 11' 10" (3.60 m), Bucket: without Shoe: 35.4" (900 mm) Standard counterweight: 35,940 lb (16,300 kg)																	
		10' (3.0 m)		15' (4.6 m)		20' (6.1 m)		25' (7.6 m)		30' (9.1 m)		35' (10.7 m)		At Max		Radius			
		Rating over front		Rating over side or 90 degrees		Rating over front		Rating over side or 90 degrees		Rating over front		Rating over side or 90 degrees		Rating over front					
B	30' (9.1 m)																*31,290 *14,190	*31,330 *14,210	31'10" (9.72 m)
	25' (7.6 m)																*32,060 *14,540	*32,060 *14,540	34'8" (10.58 m)
	20' (6.1 m)									*38,410 *17,420	*38,410 *17,420	*34,030 *15,430	*34,030 *15,430	*31,540 *14,300	*31,540 *14,300		*31,130 *14,120	30,400 13,780	36'7" (11.17 m)
	15' (4.6 m)					*54,620 *24,770	*54,620 *24,770	*42,940 *19,470	*42,940 *19,470	*36,590 *16,590	*36,590 *16,590	*32,810 *14,880	32,050 14,530	*32,810 *14,880	31,190 14,140		*32,060 *14,280	28,360 12,860	37'9" (11.52 m)
	10' (3.0 m)					*61,930 *28,090	*61,930 *28,090	*47,250 *21,430	*47,250 *21,430	*39,180 *17,770	38,940 17,660	*34,250 *15,530	31,190 14,140				*32,060 *14,540	27,310 12,380	38'3" (11.66 m)
	5' (1.5 m)					*65,890 *29,880	*65,890 *29,880	*50,420 *22,870	48,480 21,990	*41,280 *18,720	37,720 17,100	*35,430 *16,070	30,450 13,810				*32,780 *14,860	27,090 12,280	38'0" (11.59 m)
	G.L.					*66,660 *30,230	65,330 29,630	*51,940 *23,550	47,410 21,500	*42,440 *19,250	36,920 16,740	*35,930 *16,290	29,970 13,590				*33,610 *15,240	27,720 12,570	37'1" (11.31 m)
	-5' (-1.5 m)			*54,390 *24,670	*54,390 *24,670	*65,080 *29,510	*65,080 *29,510	*51,660 *23,430	47,020 21,320	*42,270 *19,170	36,600 16,600	*35,130 *15,930	29,890 13,550				*34,480 *15,630	29,410 13,340	35'5" (10.80 m)
	-10' (-3.0 m)	*58,170 *26,380	*58,170 *26,380	*77,160 *34,990	*77,160 *34,990	*61,310 *27,800	*61,310 *27,800	*49,330 *22,370	47,250 21,430	*40,190 *18,220	36,810 16,690						*35,270 *15,990	32,690 14,820	32'11" (10.04 m)
	-15' (-4.6 m)	*84,750 *38,440	*84,750 *38,440	*67,850 *30,770	*67,850 *30,770	*54,700 *24,810	*54,700 *24,810	*44,110 *20,000	*44,110 *20,000								*35,630 *16,160	*35,630 *16,160	29'4" (8.94 m)
	-20' (-6.1 m)			*53,220 *24,140	*53,220 *24,140	*43,180 *19,580	*43,180 *19,580										*34,470 *15,630	*34,470 *15,630	24'1" (7.35 m)

SK850LC		Boom: 27' 1" (8.25 m) Arm: 17' 9" (5.40 m), Bucket: without Shoe: 35.4" (900 mm) Standard counterweight: 35,940 lb (16,300 kg)													
A		5' (1.5 m)	10' (3.0 m)	15' (4.6 m)	20' (6.1 m)	25' (7.6 m)	30' (9.1 m)	35' (10.7 m)	40' (12.2 m)	At Max		Radius			
B															
35' (10.7 m)	lb (kg)										*20,470 (9,280)	*20,470 (9,280)	34'11" (10.64 m)		
30' (9.1 m)	lb (kg)										*23,770 (10,780)	*23,770 (10,780)	38'2" (11.64 m)		
25' (7.6 m)	lb (kg)										*24,350 (11,040)	*24,350 (11,040)	40'7" (12.37 m)		
20' (6.1 m)	lb (kg)										*25,710 (11,660)	*25,710 (11,660)	42'3" (12.88 m)		
15' (4.6 m)	lb (kg)										*34,800 (15,780)	*34,800 (15,780)	43'3" (13.18 m)		
10' (3.0 m)	lb (kg)										*50,990 (23,120)	*50,990 (23,120)	43'7" (13.30 m)		
5' (1.5 m)	lb (kg)										*58,150 (26,370)	*58,150 (26,370)	43'5" (13.24 m)		
G.L.	lb (kg)										*40,530 (18,380)	*40,530 (18,380)	42'7" (13.00 m)		
-5' (-1.5 m)	lb (kg)										*30,220 (13,700)	*30,220 (13,700)	41'2" (12.56 m)		
-10' (-3.0 m)	lb (kg)										*35,040 (15,890)	*35,040 (15,890)	39'1" (11.91 m)		
-15' (-4.6 m)	lb (kg)										*48,160 (21,840)	*48,160 (21,840)	36'1" (11.01 m)		
-20' (-6.1 m)	lb (kg)										*79,000 (35,830)	*79,000 (35,830)	32'1" (9.78 m)		
-25' (-7.6 m)	lb (kg)										*56,400 (25,580)	*56,400 (25,580)	26'5" (8.07 m)		

SK850LC		Boom: 27' 1" (8.25 m) Arm: 9' 6" (2.90 m), Bucket: without Shoe: 35.4" (900 mm) Standard counterweight: 35,940 lb (16,300 kg)											
A		15' (4.6 m)	20' (6.1 m)	25' (7.6 m)	30' (9.1 m)	35' (10.7 m)	At Max		Radius				
B													
35' (10.7 m)	lb (kg)									*36,690 (16,640)	25'8" (7.84 m)		
30' (9.1 m)	lb (kg)									*34,840 (15,800)	30'0" (9.16 m)		
25' (7.6 m)	lb (kg)									*37,660 (17,080)	33'0" (10.08 m)		
20' (6.1 m)	lb (kg)									*41,250 (18,710)	35'1" (10.69 m)		
15' (4.6 m)	lb (kg)									*45,530 (20,650)	36'3" (11.06 m)		
10' (3.0 m)	lb (kg)									*49,370 (22,390)	36'9" (11.20 m)		
5' (1.5 m)	lb (kg)									*51,830 (23,500)	36'6" (11.13 m)		
G.L.	lb (kg)									*52,500 (23,810)	35'6" (10.84 m)		
-5' (-1.5 m)	lb (kg)									*63,540 (28,820)	33'10" (10.31 m)		
-10' (-3.0 m)	lb (kg)									*70,650 (32,040)	31'2" (9.50 m)		
-15' (-4.6 m)	lb (kg)									*60,450 (27,410)	27'4" (8.33 m)		

SK850LC		Boom: 23' 9" (7.25 m) Arm: 9' 6" (2.90 m), Bucket: without Shoe: 35.4" (900 mm) Standard counterweight: 35,940 lb (16,300 kg)									
A		10' (3.0 m)	15' (4.6 m)	20' (6.1 m)	25' (7.6 m)	30' (9.1 m)	At Max		Radius		
B											
30' (9.1 m)	lb (kg)									*41,690 (18,910)	25'9" (7.85 m)
25' (7.6 m)	lb (kg)									*41,660 (18,890)	29'3" (8.91 m)
20' (6.1 m)	lb (kg)									*51,590 (23,400)	31'6" (9.60 m)
15' (4.6 m)	lb (kg)									*59,360 (26,920)	32'10" (10.01 m)
10' (3.0 m)	lb (kg)									*66,300 (30,070)	33'4" (10.17 m)
5' (1.5 m)	lb (kg)									*70,000 (31,750)	33'1" (10.09 m)
G.L.	lb (kg)									*70,060 (31,770)	32'0" (9.77 m)
-5' (-1.5 m)	lb (kg)									*84,970 (38,540)	30'1" (9.17 m)
-10' (-3.0 m)	lb (kg)									*89,000 (40,360)	27'0" (8.25 m)
-15' (-4.6 m)	lb (kg)									*57,900 (26,260)	22'6" (6.86 m)

- Notes:
- Do not attempt to lift or hold any load that is greater than these lift capacities at their specified lift point radius and heights. Weight of all accessories must be deducted from the above lift capacities.
 - Lift capacities are based on machine standing on level, firm, and uniform ground. User must make allowance for job conditions such as soft or uneven ground, out of level conditions, side loads, sudden stopping of loads, hazardous conditions, experience of personnel, etc.
 - Arm bucket pin, without bucket is defined as lift point.
 - The above lifting capacities are in compliance with SAE J150 10567. They do not exceed 87 % of hydraulic lifting capacity or 75 % of tipping load. Lifting capacities marked with an asterisk (*) are limited by hydraulic capacity rather than tipping load.
 - Operator should be fully acquainted with the Operator's and Maintenance Instructions before operating this machine. Rules for safe operation of equipment should be adhered to at all times.
 - Lift capacities apply to only machines as originally manufactured and normally equipped by KOBELCO CONSTRUCTION MACHINERY CO., LTD.

STANDARD EQUIPMENT

ENGINE

- Engine, HINO E13CYM-KSDB, diesel engine with turbocharger and intercooler, Tier IV final certified
- Automatic engine deceleration
- Batteries (2 x 12 V, 245H52)
- Starting motor (24 V -7 kW), 90 amp alternator
- Removable clean-out screen for radiator
- Automatic shut-down for low engine oil pressure
- Engine oil pan drain cook
- Double element air cleaner x 2
- Hydraulic driven cooling fan
- Auto Idle Stop

CONTROL

- Hydraulic driven cooling fan

SWING SYSTEM & TRAVEL SYSTEM

- Swing rebound prevention system
- Straight propel system
- Two-speed travel with automatic down shift
- Sealed & Lubricated track links
- Grease-type track adjusters
- 35.4" (900 mm) track shoes
- Automatic swing brake
- Three track guides

HYDRAULIC

- Exclusive boom to arm regeneration systems
- Independent hydraulic driven cooling fan for oil cooler and engine
- Auto warm up system
- Aluminum hydraulic oil cooler

MIRRORS & LIGHTS

- Three rearview mirrors plus rear-view camera
- Two front working lights for boom and one front working light for upper structure

CAB & CONTROL

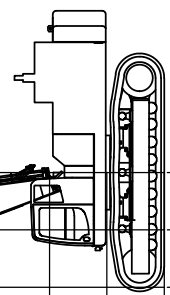
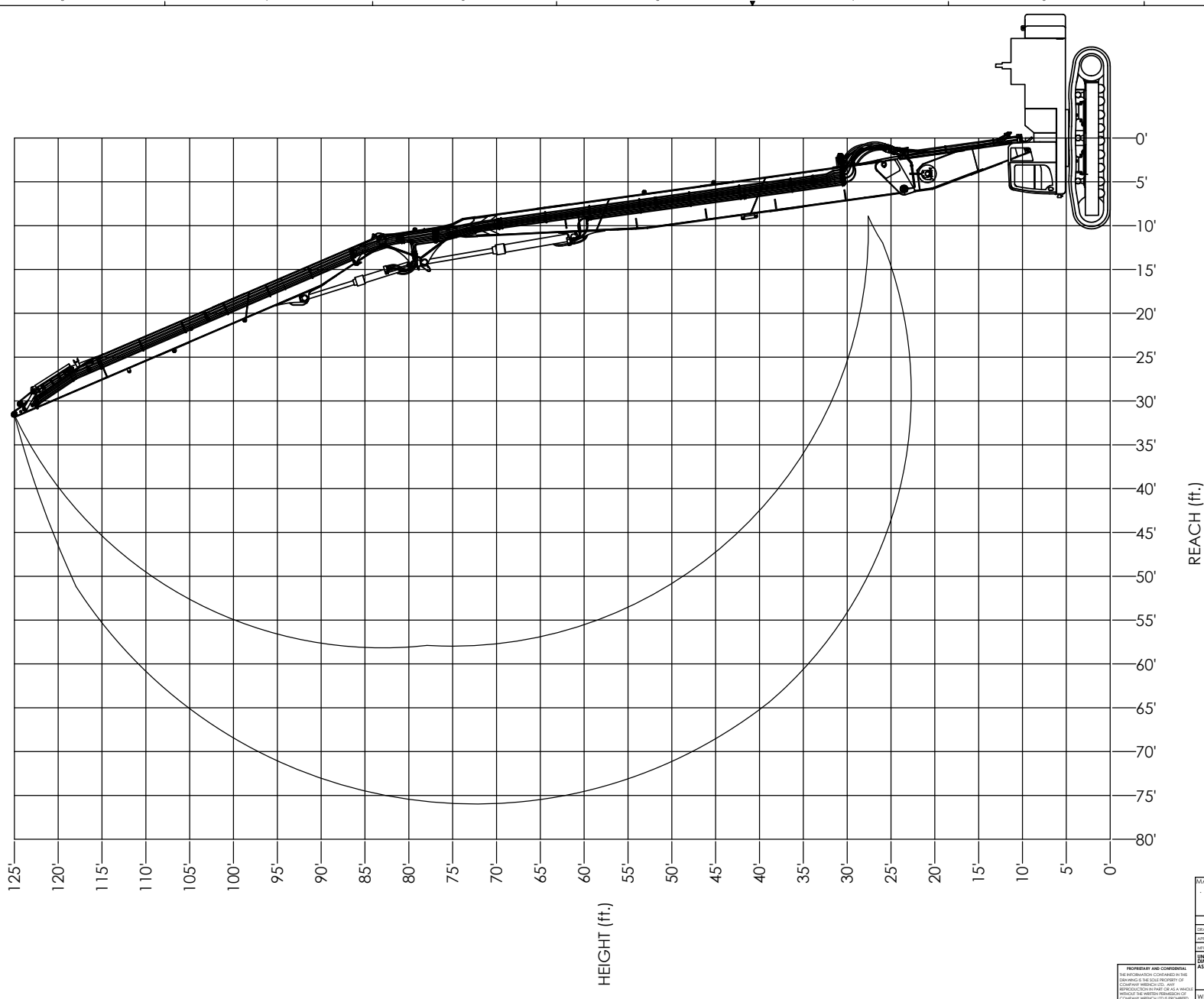
- Two control levers, pilot-operated
- Tow eyes
- Horn, electric
- Integrated left-right slide-type control box for operator access to controls
- All-weather, sound suppressed cab
- Interior cab light
- Cab mirror
- Coat hook
- Storage tray
- Large cup holder
- Detachable two-piece floor mat
- Retractable seat belt
- Headrest
- Handrails
- Heater and defroster
- Intermittent windshield wiper with double-spray washer
- Skylight
- Top guard
- Tinted safety glass
- Pull-up type front window and removable lower front window
- Easy-to-read multi-display monitor
- Automatic air conditioner
- Emergency escape hammer
- 7-way adjustable suspension seat
- Travel alarm
- Pre-air cleaner
- Manual DPF switch
- 12V converter
- DEF level gauge
- 4.40HD Arm
- Two-way control pattern changer

OPTIONAL EQUIPMENT

- Full track guides
- Additional hydraulic circuit
- Rotation circuit
- Boom and arm safety valve
- Counterweight removal device
- Right view camera
- Front guard or guards, mesh and HD
- Cab lights
- ME specification
- N&B piping
- 3.6HD Arm
- 5.40HD Long Arm
- 2.90HD Short Arm
- Air suspension seat
- Additional work light

Note: Standard and optional equipment may vary. Consult your KOBELCO dealer for specifics.

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED



REACH (ft.)

HEIGHT (ft.)

MATERIAL:		
DESIGN	DATE	SIZE
APPROVED		

Company Wrench
THE CUTTING EDGE OF CUSTOMER SERVICE
 4805 SCOOPY LANE NW
 CARROLL, OHIO 43112
 740-654-5304

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UNLESS OTHERWISE SPECIFIED
 DIMENSIONS TO DIMENSIONS ARE
 AS FOLLOWS:
 DECIMAL: 30.015"
 FRACTIONAL: #1/16"
 ANGLE: .1°

TITLE: **SK850LC 125' HIGH REACH RANGE**
 SCALE: 1/4" = 1'-0"
 SHEET 1 OF 1

SIZE: **D**
 DWG./PART NO.: **OM22694-1**



WARNING: DO NOT OPERATE MACHINE OVER SIDE. OPERATE OVER FRONT ONLY WITH DRIVES TO THE REAR OF THE MACHINE.

Lift capacities calculated at attachment pivot point on stick (lbs).
No attachment on stick. Attachment weight must be subtracted.

REACH	MAX	REACH														HEIGHT	
		75'	70'	65'	60'	55'	50'	45'	40'	35'	30'	25'	20'	15'	10'		
31'-7"	* 25,270																125'
46'-5"	* 14,420							* 15,339	* 18,852								120'
55'-4"	* 10,918					* 11,058	* 13,424										115'
60'-10"	* 9,397				* 9,705	* 11,662	* 14,070										110'
65'-1"	* 8,401			* 8,429	* 10,103	* 12,056											105'
68'-5"	* 7,706			* 8,722	* 10,340	* 12,430											100'
71'-1"	* 7,206		* 7,486	* 8,905	* 10,560												95'
73'-1"	* 6,847		* 7,628	* 9,023	* 10,719												90'
74'-6"	* 6,597		* 7,715	* 9,095	* 10,788												85'
75'-5"	* 6,435	* 6,538	* 7,761	* 9,131	* 10,788												80'
75'-11"	* 6,353	* 6,561	* 7,774	* 9,136	* 10,730												75'
75'-11"	* 6,343	* 6,551	* 7,756	* 9,113	* 10,625												70'
75'-6"	* 6,408	* 6,512	* 7,709	* 9,061	* 10,491												65'
74'-6"	* 6,550		* 7,634	* 8,979	* 10,362												60'
73'-1"	* 6,780		* 7,528	* 8,867	* 10,301	* 11,866											55'
71'-1"	* 7,116		* 7,392	* 8,721	* 10,251	* 11,687											50'
68'-6"	* 7,590			* 8,537	* 10,043	* 11,715	* 13,343										45'
65'-3"	* 8,254			* 8,314	* 9,762	* 11,441	* 13,332	* 15,325									40'
60'-7"	* 9,241				* 9,424	* 11,056	* 13,006	* 15,382	* 17,814								35'
54'-2"	* 10,901						* 12,471	* 14,749	* 17,592	* 21,182	* 25,477						30'
43'-7"	* 14,676						* 11,842		* 16,644	* 20,033	* 24,514	* 30,714	* 39,821	* 25,979			25'
							* 11,125										20'
							* 10,332										15'
							* 9,478										10'
							* 8,581										5'
							* 7,652										0'

The following notes pertain to this machine equipped with 35.4" wide track pads and 11,000# additional counterweight:

1. Do not attempt to lift or hold any load that exceeds these rated values.
2. When working, the boom must be in the fully upright position. Maximum forward tilt of boom is 10 degrees.
3. Machine must never be operated over the side.
4. The operator should be fully acquainted with machine operation before operating the machine.
5. Lifting capacities assume a machine standing on level, firm and uniform supporting surface. Operator must make allowance for job conditions such as soft or uneven ground, out of level conditions, side loads, sudden stopping of loads, hazardous conditions, inexperienced personnel, etc.
6. The above theoretical ratings are based on calculations derived from standard O.E.M. lift charts based on SAE standard No. J1097. They do not exceed 87% of hydraulic lifting capacity or 75% of tipping capacity. Rated loads marked with an asterisk (*) are limited by hydraulic lifting capacity.
7. When traveling the machine in either forward or reverse directions to the job site (more than 20 feet), with the boom straight over the front or rear of the machine, the boom should be positioned such that the tip of the tool is approximately 5 feet above the ground, with the mid link fully retracted, and the outer arm and tool perpendicular to the ground. Travel control should be set to low speed and engine RPM at mid range. At the job site, with the boom in the working position (drive sprockets to the rear, boom over the front), the machine may be moved up to 20 feet forward or reverse, travel at low speed setting, engine RPM at mid range, in order to move into the working position, provided ground is firm and level.
8. When swinging the machine 360 degrees, the boom should be in the fully upright position, with the mid link fully retracted, and the outer arm and tool perpendicular to the ground.
9. When shutting down the machine for a period of time, the mid link should be fully retracted, and the boom lowered to rest the outer arm on the ground, with the outer arm and tool positioned parallel to the ground.
10. Do not boom down with tool on the ground and front fully retracted, doing so may cause damage to machine.