

KOBELCO

SERVICE MANUAL

HYDRAULIC EXCAVATOR

SK100 V

SK100L V

SK120 V

SK120LC V

Applicable: SK100 V YW07901~
SK100L V LX10201~
SK120 V LP13601~
SK120LC V YP02501~

WARNING

SAFETY

WARNING

The proper and safe lubrication and maintenance for this machine, recommended by KOBELCO are outlined in the OPERATION & MAINTENANCE GUIDE for this machine.

Improper performance of lubrication or maintenance procedures is dangerous and could result in injury or death. Read and understand the OPERATION & MAINTENANCE GUIDE before performing any lubrication or maintenance.

The serviceman or mechanic may be unfamiliar with many of the systems on this machine. This makes it important to use caution when performing service work. A knowledge of the system and or components is important before the removal or disassembly of any component.

Because of the size of some of the machine components, the serviceman or mechanic should check the weights noted in this Manual. Use proper lifting procedures when removing any components.

Following is a list of basic precautions that should always be observed.

1. Read and understand all Warning plates and decals on the machine before operating, lubricating or repairing this product.
2. Always wear protective glasses and protective shoes when working around machines. In particular, wear protective glasses when pounding on any part of the machine or its attachments with a hammer or sledge. Use welders gloves, hood/goggles, apron and other protective clothing appropriate to the welding job being performed. Do not wear loose-fitting or torn clothing. Remove all rings from fingers when working on machinery.
3. Disconnect battery and discharge any capacitors before starting to work on machine. Hang "Do Not Operate" tag in the Operator's Cab.
4. If possible, make all repairs with the machine parked on a level, hard surface. Block machine so it does not roll while working on or under machine.
5. Do not work on any machine that is supported only by lift jacks or a hoist. Always use blocks or jack stands to support the machine before performing any disassembly.

WARNING

Do not operate this machine unless you have read and understand the instructions in the OPERATORS MANUAL. Improper machine operation is dangerous and could result in injury or death.

6. Relieve all pressure in air, oil or water systems before any lines, fittings or related items are disconnected or removed. Always make sure all raised components are blocked correctly and be alert for possible pressure when disconnecting any device from a system that utilizes pressure.
7. Lower the bucket, blade, ripper or other attachment to the ground before performing any work on the machine. If this cannot be done, make sure the bucket, blade, ripper or other attachment is blocked correctly to prevent it from dropping unexpectedly.
8. Use steps and grab handles when mounting or dismounting a machine. Clean any mud or debris from steps, walkways or work platforms before using. Always face machine when using steps, ladders and walkways. When it is not possible to use the designed access system, provide ladders, scaffolds, or work platforms to perform safe repair operations.
9. To avoid back injury, use a hoist when lifting components which weigh 23 kg (50 lbs) or more. Make sure all chains, hooks, slings, etc., are in good condition and are in the correct capacity. Be sure hooks are positioned correctly. Lifting eyes are not to be side loaded during a lifting operation.
10. To avoid burns, be alert for hot parts on machines which have just been stopped and hot fluids in lines, tubes and components.
11. Be careful when removing cover plates. Gradually back off the last two bolts or nuts located at opposite ends of the cover or device and pry cover loose to relieve any spring or other pressure, before removing the last two bolts or nuts completely.
12. Be careful when removing filler caps, breathers and plugs on the machine. Hold a rag over the cap or plug to prevent being sprayed or splashed by liquids under pressure. The danger is even greater if the machine has just been stopped because fluids can be hot.

⚠ WARNING

13. Always use tools that are in good condition and be sure you understand how to use them before performing any service work.
 14. Reinstall all fasteners with same part number. Do not use a lesser quality fastener if replacements are necessary.
 15. Repairs which require welding should be performed only with the benefit of the appropriate reference information and by personnel adequately trained and knowledgeable in welding procedures. Determine type of metal being welded and select correct welding procedure and electrodes, rods or wire to provide a weld metal strength equivalent at least to that of parent metal. Always disconnect battery during welding operations to protect sensitive electric equipment.
 16. Do not damage wiring during removal operations. Reinstall the wiring so it is not damaged nor will it be damaged in operation by contacting sharp corners, or by rubbing against some object or hot surface. Do not connect wiring to a line containing fluid.
 17. Be sure all protective devices including guards and shields are properly installed and functioning correctly before starting a repair. If a guard or shield must be removed to perform the repair work, use extra caution.
 18. Loose or damaged fuel, lubricant and hydraulic lines, tubes and hoses can cause fires. Do not bend or strike high pressure lines or install ones which have been bent or damaged. Inspect lines, tubes and hoses carefully. Do not check for leaks with your hands. Pin hole (very small) leaks can result in a high velocity oil stream that will be invisible close to the hose. This oil can penetrate the skin and cause personal injury. Use cardboard or paper to locate pin hole leaks.
 19. Tighten connections to the correct torque. Make sure that all heat shields, clamps and guards are installed correctly to avoid excessive heat, vibration or rubbing against other parts during operation. Shields that protect against oil spray onto hot exhaust components in event of a line, tube or seal failure must be installed correctly.
 20. Do not operate a machine if any rotating part is damaged or contacts any other part during operation. Any high speed rotating component that has been damaged or altered should be checked for balance before reusing.
 21. On track-type machines, be careful when servicing or separating tracks. Chips can fly when removing or installing a track pin. Wear safety glasses and long sleeve shirts. Track can unroll very quickly when separated. Keep away from front and rear of machine. The machine can move unexpectedly when both tracks are disengaged from the sprockets. Block the machine to prevent it from moving.
 22. Caution should be used to avoid breathing dust that may be generated when handling components containing asbestos fibers. If this dust is inhaled, it can be hazardous to your health. Components in KOBELCO products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates and some gaskets. The asbestos used in these components is usually bound in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust which contains asbestos is not generated.
- If dust which may contain asbestos is present, there are several common sense guidelines that should be followed.
- a. Never use compressed air for cleaning.
 - b. Avoid brushing or grinding of asbestos containing materials.
 - c. For clean up, use wet methods or a vacuum equipped with a high efficiency particulate air (HEPA) filter.
 - d. Use exhaust ventilation on permanent machining jobs.
 - e. Wear an approved respirator if there is no other way to control the dust.
 - f. Comply with applicable rules and regulations for the work place.
 - g. Follow environmental rules and regulations for disposal of asbestos.
 - h. Avoid areas where asbestos particles may be in the air.

SHOP MANUAL

model

SK 100(L) v
SK 120 v
SK 120LC v

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5.
6. PREVENTIVE MAINTENANCE (Refer to Operators Manual)
7. WORKING STANDARDS
8. STANDARD MAN-HOUR TABLE

LP01

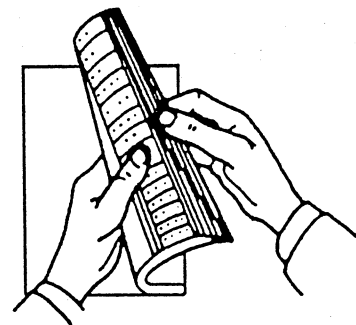
LP03

LP04

LP07

LP08

○How to Index each Shop Manual Section
The GENERAL of this shop manual consists of 8 headings as shown above. Each section can be easily referred to by indexes appended to the margin of the page as indicated on the right. Please use the indexes for speedy reference.



KOBELCO

GENERAL

SK100V
 SK100LV
 SK120V
 SK120LCV

List of Shop Manual GENERAL Section

Index No.	Title	Book Code No.		
		Distribution Year-Month		
LP01	SPECIFICATION	S5LP0107E① 1996-02		
—	OPERATION	S2LP1017E Refer to Operators manual		
LP03	LOCATION AND WEIGHT OF COMPONENTS	S5LP0307E① 1996-02		
LP04	MAINTENANCE STANDARDS AND TEST PROCEDURES	S5LP0409E① 1996-02		
—	PREVENTIVE MAINTENANCE	S2LP1017E Refer to Operators manual		
LP07	WORKING STANDARDS	S5LP0705E 1995-12		
LP08	STANDARD MAN-HOUR TABLE	S5LP0803E 1995-12		
	Applicable Machines	YW07901~ LX10201~ LP13601~ YP02501~		

KOBELCO

SHOP MANUAL

Book code No.

S5LP0107E①

SK100(L) V

SK120 V

SK120LC V

LP01

SPECIFICATION

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KOBE STEEL, LTD.

Applicable Machines

YW07901~

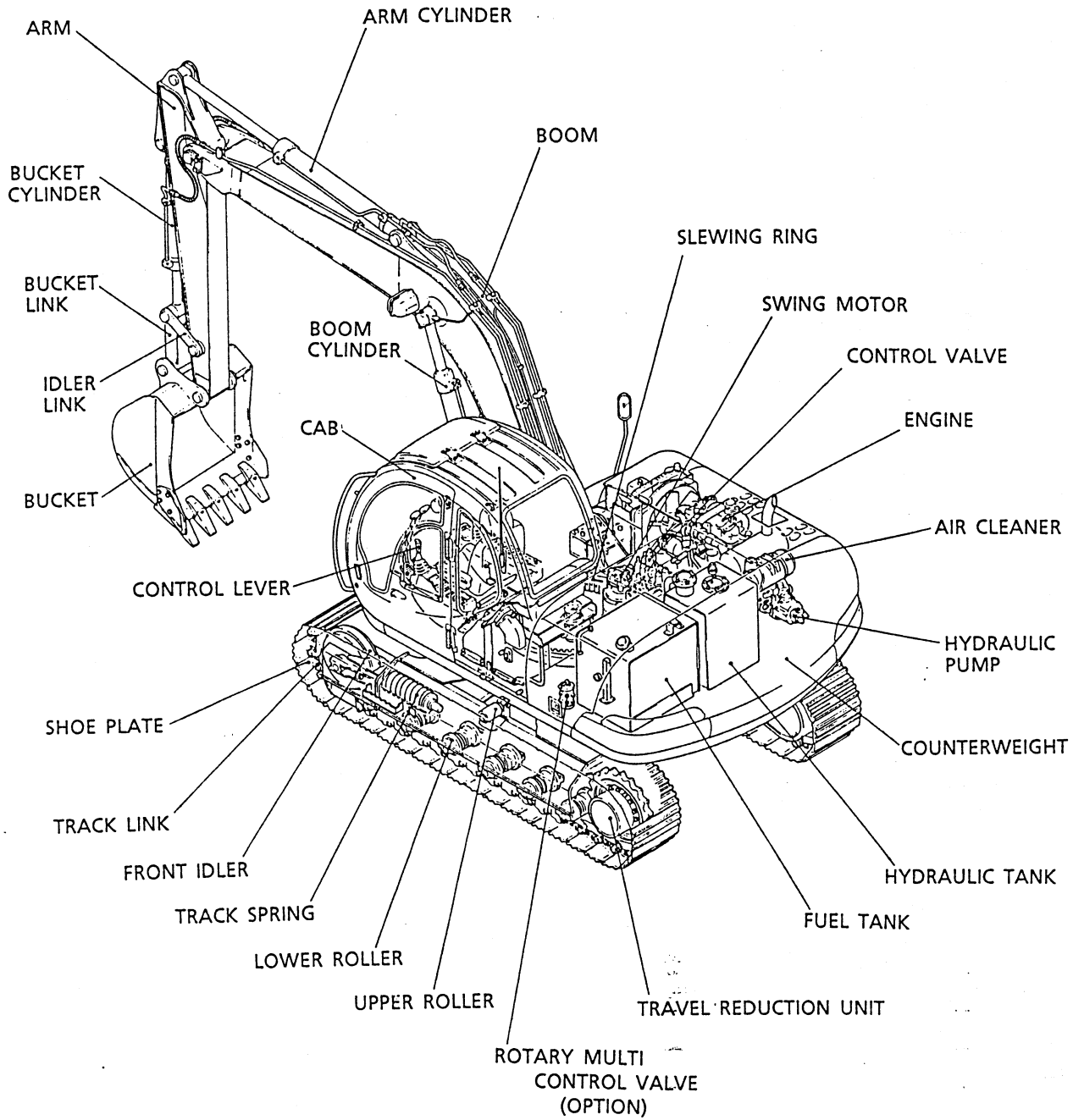
LX10201~

LP13601~

YP02501~

Revision	Date of Issue	Remarks
First edition	December, 1995	S5LP0107E K
First revision	February, 1996	S5LP0107E① K

1. NAME OF COMPONENTS



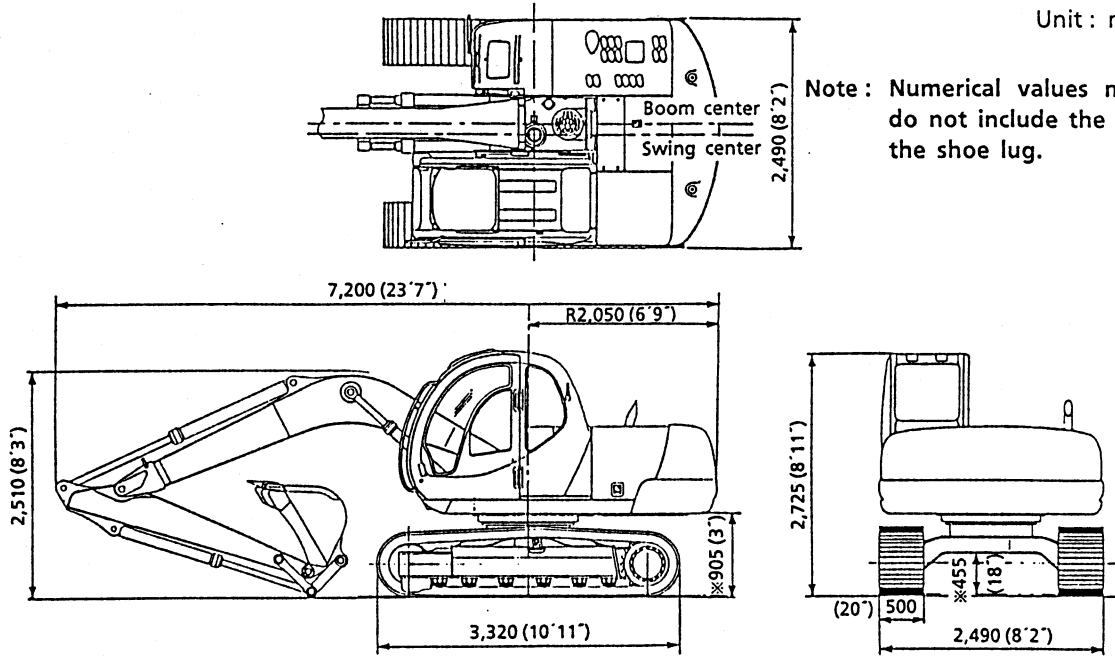
2. GENERAL DIMENSIONS

2.1 GENERAL DIMENSIONS SK100 v

- 2.22m (7ft-3in) standard arm with 4.26m (14ft) boom

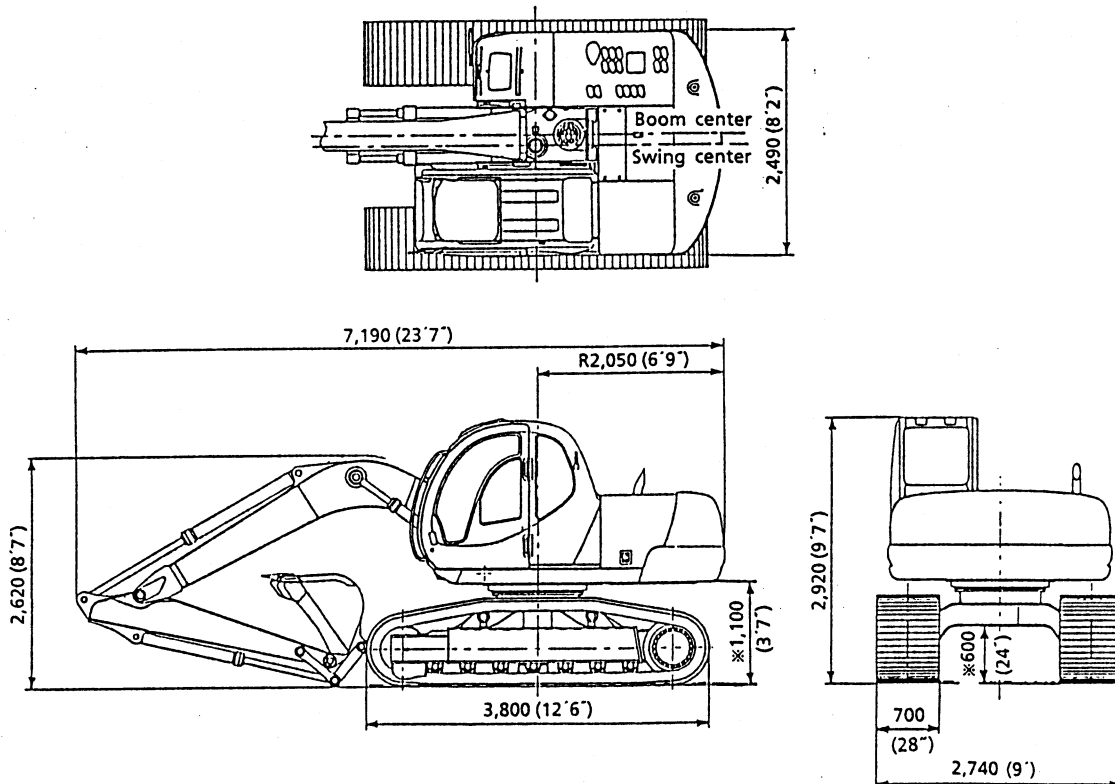
Unit: mm (ft-in)

Note: Numerical values marked ※ do not include the height of the shoe lug.

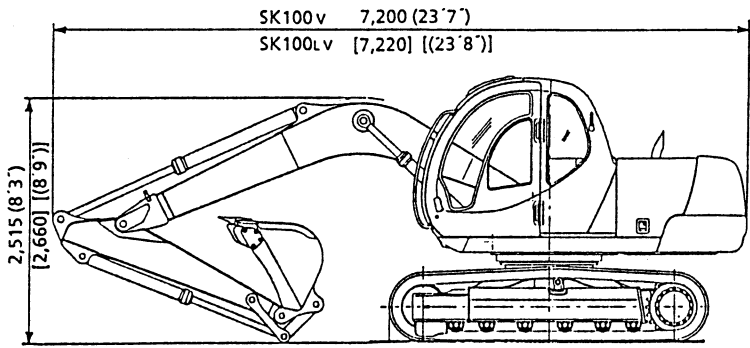


2.2 GENERAL DIMENSIONS SK100L v

- 2.22m (7ft-3in) standard arm with 4.26m (14ft) boom



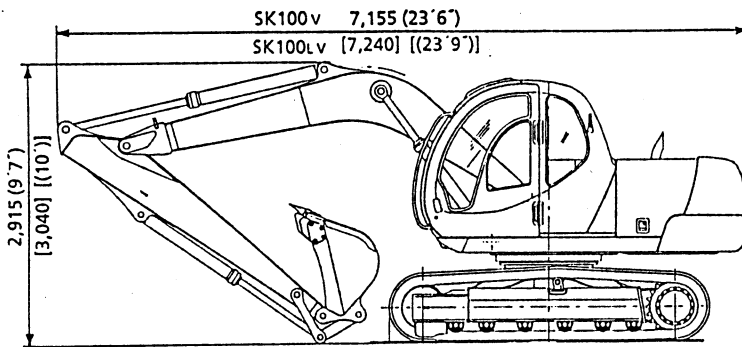
- 1.9m (6ft-3in) short arm with 4.26m (14ft) boom



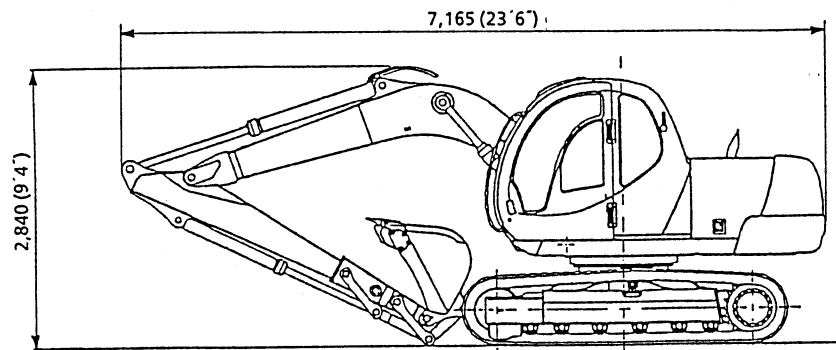
Unit: mm (ft-in)

Note: Numerical values enclosed in parentheses [] indicate L specifications.

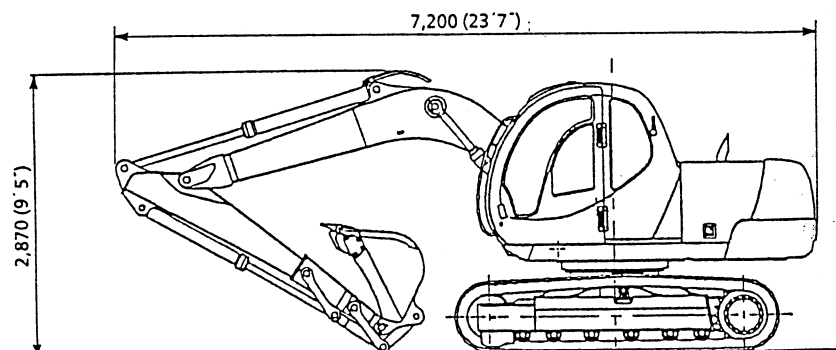
- 2.7m (8ft-10in) long arm with 4.26m (14ft) boom



- 2.22m (7ft-3in) arm and 0.6m (2ft) extension arm with 4.26m (14ft) boom

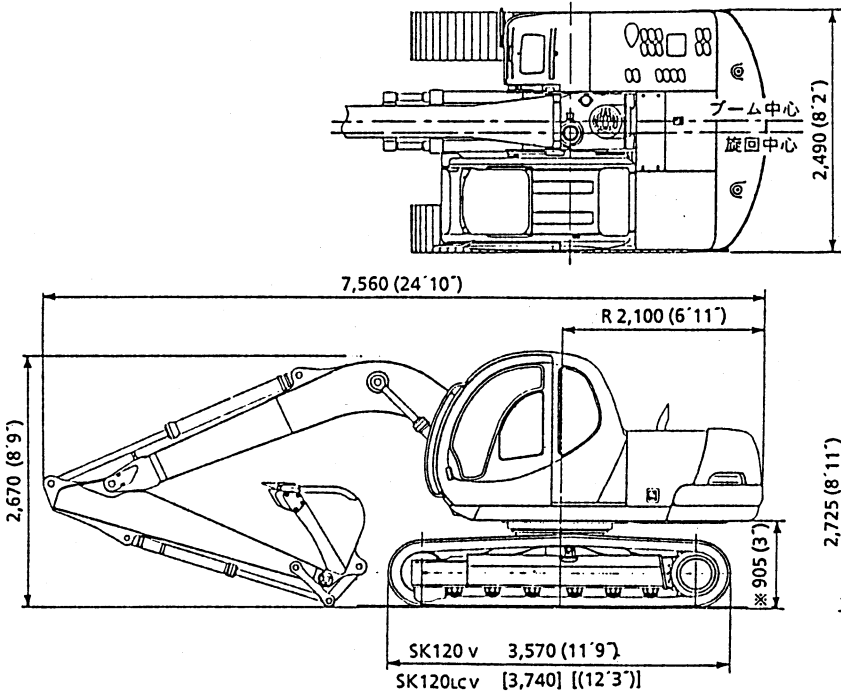


- 1.9m (6ft-3in) arm and 0.6m (2ft) extension arm with 4.26m (14ft) boom



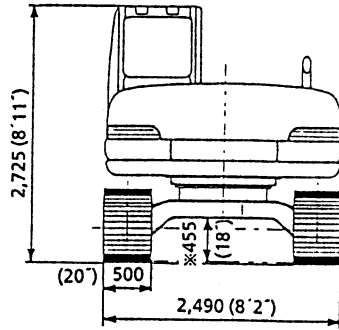
2.3 GENERAL DIMENSIONS SK120 v and SK120Lcv

- 2.5m (8ft-2in) standard arm with 4.6m (15ft-1in) boom

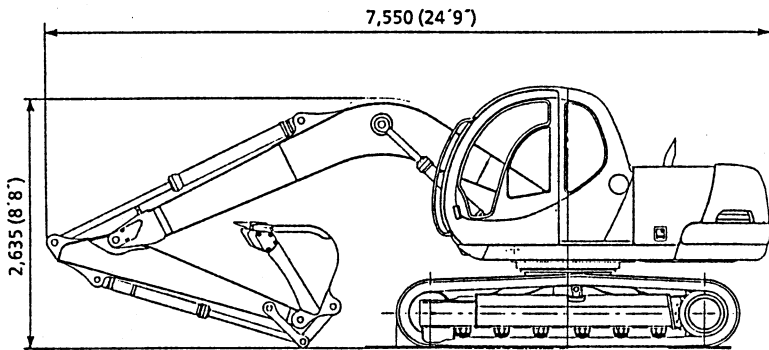


Unit : mm (ft-in)

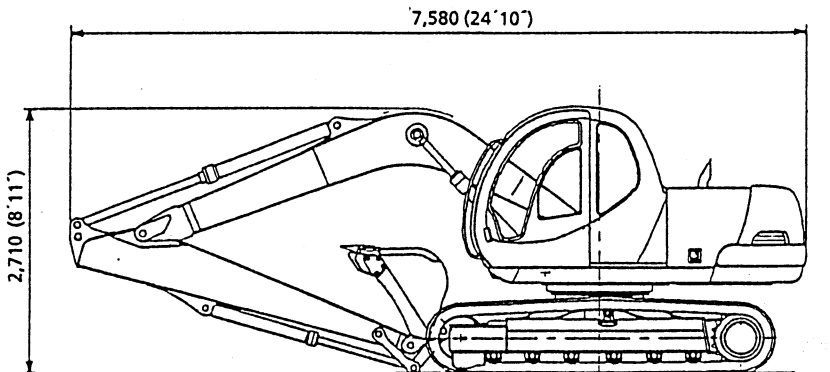
Note : Numerical values marked * do not include the height of the shoe lug. Numerical values enclosed in parentheses [] indicate L specifications.



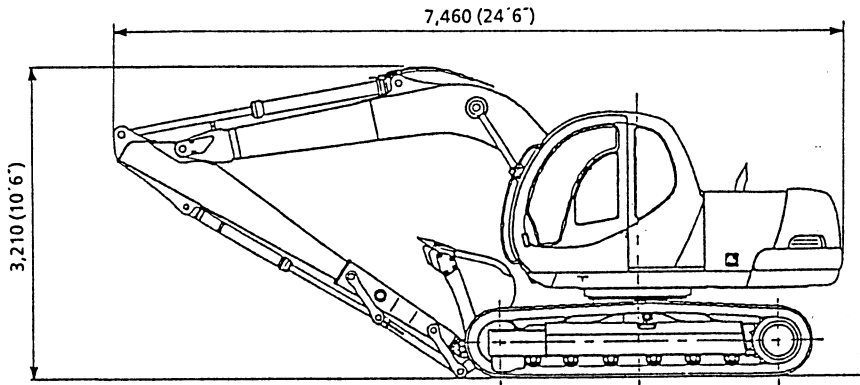
- 2.1m (6ft-11in) short arm with 4.6m (15ft-1in) boom



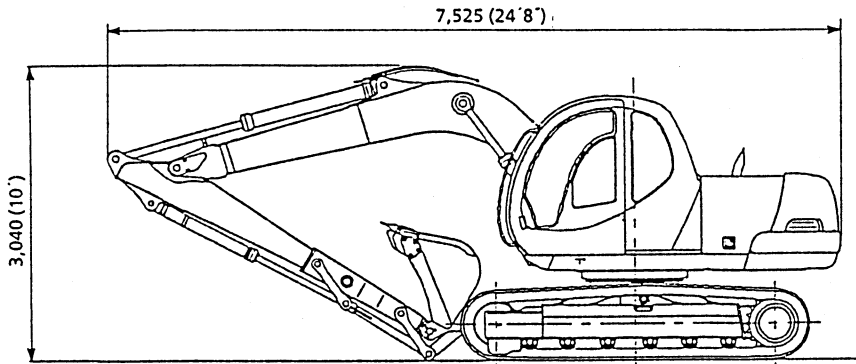
- 3.0m (9ft-10in) long arm with 4.6m (15ft-1in) boom



- 2.5m (8ft-2in) arm and 1.0m (3ft-3in) extension arm with 4.6m (15ft-1in) boom



- 2.1m (6ft-11in) arm and 1.0m (3ft-3in) extension arm with 4.6m (15ft-1in) boom



3. SPECIFICATIONS AND PERFORMANCE

● SPEED AND CLIMBING CAPABILITY

Item \ Model	SK100 v, SK100Lv	SK120 v, SK120Lc v
Swing speed	12rpm	←
Travel Speed (high/low)	7 / 4km/h (4.3 / 2.5mph)	←
Gradeability	70% (35°)	←

● ENGINE

Item \ Model	SK100 v, SK100Lv	SK120 v, SK120Lc v
Engine model	ISUZU A-4BG1	ISUZU A-4BG1-T
Type	Water-cooled 4-cycle direct injection type engine	Water-cooled 4-cycle direct injection type engine with an exhaust turbocharger
Number of Cylinders – Inner Diameter×Stroke	4 – 105mm×125mm (4.13in. × 4.92in.)	←
Total Displacement	4,329 c.c (264cu·in)	←
Rated Output / Rotation Speed	78PS / 2,300rpm	85PS / 2,050rpm
Maximum Torque / Rotation Speed	27kgf·m / 1,600rpm	32kgf·m / 1,600rpm

● HYDRAULIC COMPONENTS

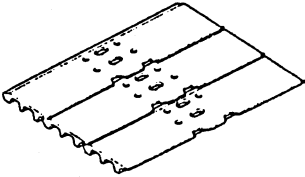

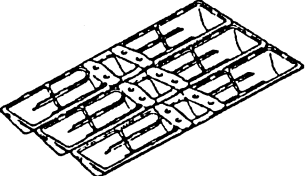
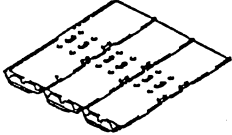

Item \ Model	SK100 v, SK100Lv	SK120 v, SK120Lc v
Hydraulic Pump	Double-pump variable displacement axial piston + gear pump	←
Hydraulic Motor (swing)	Axial piston motor	←
Hydraulic Motor (travel)	Axial piston motor	←
Control Valve	6-section multiple control valve	←
Cylinder (boom, arm, and bucket)	Double action cylinder	←
Oil Cooler	Air-cooled type	←

● WEIGHT

Unit ; kg (lbs)

Item \ Model	SK100 v	SK100Lv	SK120 v	SK120Lc v
Fully equipped Weight	10,600 (23,400)	12,900 (28,400)	11,800 (26,000)	12,000 (26,400)
Upper Frame machinery	4,900 (10,800)	←	5,700 (12,550)	←
Lower Frame machinery with 500mm (20in) grouser shoe	4,000 (8,800)	—	4,150 (9,150)	4,350 (9,550)
Lower Frame machinery with 700mm (28in) grouser shoe	—	6,300 (13,800)	—	—
Attachment ; 4.26m (14ft) boom + 2.22m (7ft-3in) arm + 0.45m ³ (0.59cuyd) bucket	1,700 (3,800)	←	—	—
Attachment ; 4.6m (15ft-1in) boom + 2.5m (8ft-2in) arm + 0.5m ³ (0.65cuyd) bucket	—	—	1,950 (4,300)	←

4. TYPE OF SHOES

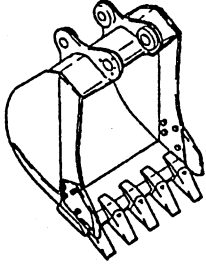
Shape	Model	Shoe Width mm (in.)	Total Width of Crawler mm (ft-in.)	Ground Pressure kg /cm ² (psi)
	SK100v 41 links	500 (20)	2,490 (8'2")	0.37 (5.26)
		600 (24)	2,590 (8'6")	0.32 (4.55)
		700 (28)	2,690 (8'10")	0.28 (3.98)
	SK100Lv 42 links	700 (28)	2,740 (9'0")	0.28 (3.98)
		800 (32)	2,840 (9'4")	0.25 (3.55)
	SK120v 44 links	500 (20)	2,490 (8'2")	0.39 (5.55)
		600 (24)	2,590 (8'6")	0.33 (4.69)
		700 (28)	2,690 (8'10")	0.29 (4.12)
	SK120LCv 46 links	500 (20)	2,490 (8'2")	0.37 (5.26)
		600 (24)	2,590 (8'6")	0.31 (4.41)
		700 (28)	2,690 (8'10")	0.27 (3.84)
		SK100v 41 Link	500 (20)	2,490 (8'2")
SK120v 44 Links		500 (20)	2,490 (8'2")	0.39 (5.55)
SK120LCv 46 Links		500 (20)	2,490 (8'2")	0.37 (5.26)
	SK100v 41 Links	800 (32)	2,790 (9'2")	0.24 (3.41)
	SK100Lv 42 Links	800 (32)	2,840 (9'4")	0.24 (3.41)
		900 (36)	2,940 (9'8")	0.22 (3.13)
	SK120v 44 Link	800 (32)	2,790 (9'2")	0.25 (3.56)
	SK100v 41 Links	500 (20)	2,490 (8'2")	0.39 (5.55)
	SK120v 44 Links	500 (20)	2,490 (8'2")	0.40 (5.69)
	SK120LCv 46 Links	500 (20)	2,490 (8'2")	0.38 (5.40)
	SK100v	500 (20)	2,490 (8'2")	0.37 (5.26)
	SK120v	500 (20)	2,490 (8'2")	0.38 (5.40)

Note : Use grouser shoes 500mm (20in) on rough ground (areas covered with rocks and gravel). If you drive or excavate with other shoes, this may cause shoe bending, shoe bolt looseness, and track assembly (link, roller, etc.) damage.

5. TYPES OF BUCKETS

SK100 v, SK100L v

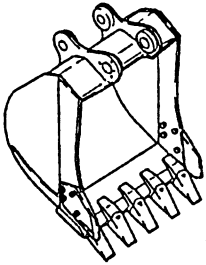
Hoe Bucket



Heaped Capacity m ³ (cu-yd)	Outside Width of Bucket mm (ft-in)		Number of teeth	Equipped with Side Cutters	Can be Turned over	Weight kg (lbs)
	With side cutters	Without side cutters				
0.17 (0.22)	—	450 (1'6")	3	No	Yes	200 (440)
0.23 (0.30)	600 (2')	500 (1'8")	3	Yes	Yes	250 (550)
0.30 (0.39)	700 (2'4")	600 (2')	3	Yes	Yes	280 (620)
0.37 (0.48)	800 (2'7")	700 (2'4")	4	Yes	Yes	310 (680)
STD 0.45 (0.59)	950 (3'1")	850 (2'9")	4	Yes	Yes	340 (750)
0.51 (0.67)	1,000 (3'3")	900 (2'11")	5	Yes	Yes	360 (790)
—	—	—	—	—	—	—

SK120 v, SK120Lc v

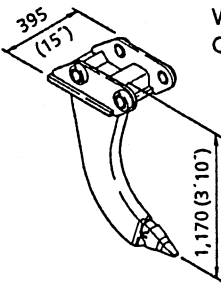
Hoe Bucket



Heaped Capacity m ³ (cu-yd)	Outside Width of Bucket mm (ft-in)		Number of teeth	Equipped with Side Cutters	Can be Turned over	Weight kg (lbs)
	With side cutters	Without side cutters				
0.24 (0.31)	600 (2')	500 (1'8")	3	Yes	Yes	270 (600)
0.31 (0.41)	700 (2'4")	600 (2')	3	Yes	Yes	290 (640)
0.38 (0.50)	800 (2'7")	700 (2'4")	4	Yes	Yes	320 (700)
0.45 (0.59)	900 (2'11")	800 (2'7")	4	Yes	Yes	350 (770)
STD 0.50 (0.65)	1,000 (3'3")	900 (2'11")	5	Yes	Yes	370 (820)
0.57 (0.75)	1,100 (3'7")	1,000 (3'3")	5	Yes	Yes	400 (880)
0.70 (0.92)	—	1,150 (3'9")	5	Yes	Yes	400 (880)

SK100 v, SK100L v

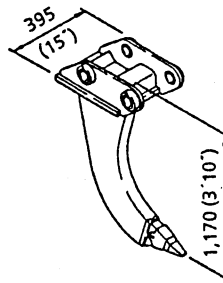
Ripper



Weight : 250kg (550 lbs)
Can not be turned over

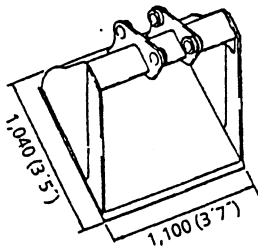
SK120 v, SK120Lc v

Ripper



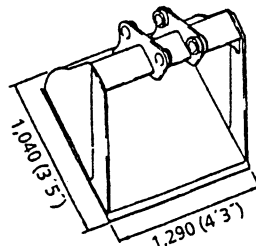
Weight : 250kg (550 lbs)
Can not be turned over

Scraper bucket



Capacity : 0.54m³ (0.71cuyd)
Weight : 380kg (840 lbs)
Can not be turned over

Scraper bucket

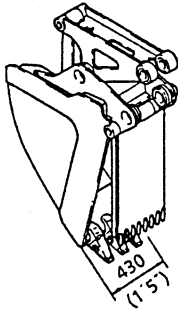


Capacity : 0.65m³ (0.85cuyd)
Weight : 455kg (1,000 lbs)
Can not be turned over

SK100 v,SK100Lv

Bucket with ejector

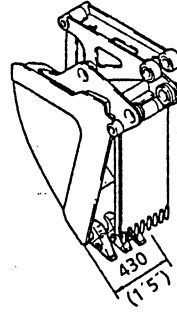
Capacity : 0.21m³ (0.27cuyd)
 Weight : 400kg (880 lbs)
 Can not be turned over



SK120 v,SK120Lv

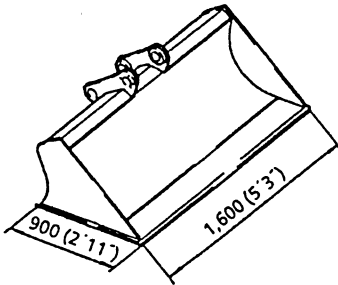
Bucket with ejector

Capacity : 0.21m³ (0.27cuyd)
 Weight : 400kg (880 lbs)
 Can not be turned over



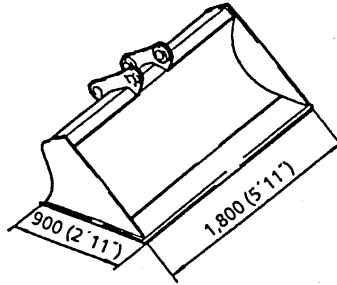
Slope finishing bucket

Capacity : 0.4m³ (0.52cuyd)
 Weight : 480kg (1060 lbs)
 Can not be turned over



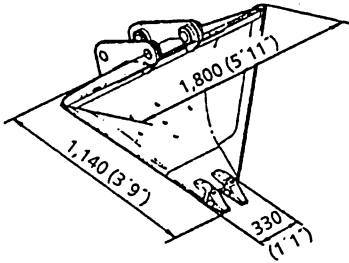
Slope finishing bucket

Capacity : 0.52m³ (0.68cuyd)
 Weight : 550kg (1,210 lbs)
 Can not be turned over



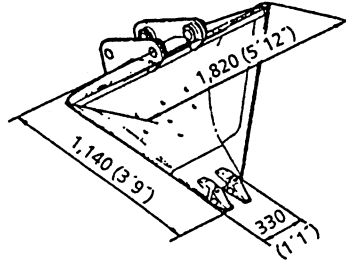
V-Bucket

Capacity : 0.46m³ (0.60cuyd)
 Weight : 280kg (620 lbs)
 Can not be turned over



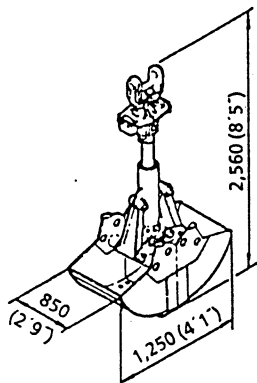
V-Bucket

Capacity : 0.46m³ (0.60cuyd)
 Weight : 290kg (640 lbs)
 Can not be turned over



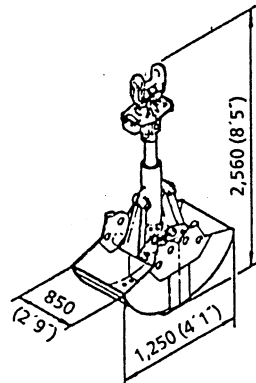
Clamshell Bucket

Capacity : 0.4m³ (0.52cuyd)
 Weight : 780kg (172 lbs)



Clamshell Bucket

Capacity : 0.4m³ (0.52cuyd)
 Weight : 780kg (172 lbs)



6. COMBINATIONS OF ATTACHMENTS

SK100 v,SK100Lv

Bucket			Applicable Arm				
Type	Capacity (JIS & SAE)		1.9m (6ft-3in) Arm (short)	2.22m (7ft-3in) Arm (STD)	2.7m (8ft-10in) Arm (long)	1.9m (6ft-3in) +0.6m (2ft) Extension Arm	2.22m (7ft3in) +0.6m (2ft) Extension Arm
	Heaped m ³ (cu-yd)	Struck m ³ (cu-yd)					
Hoe Bucket	0.17 (0.22)	0.13 (0.17)	○	○	○	○	○
	0.23 (0.30)	0.19 (0.25)	○	○	○	○	○
	0.30 (0.39)	0.22 (0.29)	○	○	○	○	◎
	0.37 (0.48)	0.27 (0.35)	○	○	◎	◎	△
	0.45 (0.59) (STD)	0.35 (0.46)	○	◎	△	△	×
	0.51 (0.67)	0.39 (0.51)	◎	△	×	×	×
Bucket with ejector	0.21 (0.27)	0.19 (0.25)	○	○	○	○	○
Slope Finishing Bucket	Width×Depth 1.6m×0.9m (5'3"×2'11")	—	△	△	△	△	△
Ripper	—	—	○	○	×	×	×
V-Bucket	0.46 (0.60)	0.30 (0.39)	△	△	△	△	△
Scraper Bucket	0.54 (0.71)	0.38 (0.50)	△	△	△	△	△
Breaker	—	—	○	○	×	×	×

SK120 v,SK120Lv

Bucket			Applicable Arm				
Type	Capacity (JIS & SAE)		2.1m (6ft-11in) Arm (short)	2.5m (8ft-2in) Arm (STD)	3.0m (9ft-10in) Arm (long)	2.1m (6ft-11in) +1.0m (3ft-3in) Extension Arm	2.5m (8ft2in) +1.0m (3ft-3in) Extension Arm
	Heaped m ³ (cu-yd)	Struck m ³ (cu-yd)					
Hoe Bucket	0.24 (0.31)	0.20 (0.26)	○	○	○	○	○
	0.31 (0.41)	0.23 (0.30)	○	○	○	○	◎
	0.38 (0.50)	0.28 (0.37)	○	○	◎	○	△
	0.45 (0.59)	0.35 (0.46)	○	○	△	△	×
	0.50 (0.65) (STD)	0.38 (0.50)	○	◎	×	×	×
	0.57 (0.75)	0.43 (0.56)	◎	△	×	×	×
	0.70 (0.92)	0.50 (0.68)	△	×	×	×	×
Slope Finishing Bucket	Width×Depth 1.8m×0.9m (5'11"×2'11")	—	△	△	△	△	△
V-Bucket	0.46 (0.60)	0.30 (0.39)	△	△	△	△	△
Scraper Bucket	0.65 (0.85)	0.42 (0.55)	△	△	△	△	△
Breaker	—	—	○	○	×	×	×

Note :

- ◎ Standard combination
 - General operation : Excavation or loading of sand, gravel, and clay
 - △ Light operation : Mainly loading or loose gravel (e.g., cultivation or loading of sand or gravel)
 - ×
- Prohibited combination : KOBELCO'S warranty does not cover any damages resulting from these combinations. Do not use these combinations.

Install only genuine attachment recommended by KOBELCO on the machine. KOBELCO is not liable for any damages to the machine or attachment arising from the installment of attachment other than the specified attachments.

⚠ CAUTION

- If any other bucket, except for the backhoe bucket, is turned over and used for excavation, damage to the arm and bucket may occur.

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