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Product: Kobelco Model SK100V,SK120V,SK120LCV Hydraulic Excavator Service Repair Workshop Manual
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sk120vsk120lcv-hydraulic-excavator-service-repair-workshop-m
anual/

HYDRAULIC EXCAVATOR

SHOP MANUAL

model

SK100V
SK120V
SK120LCV

This is the shop manual for KOBELCO hydraulic excavator. Contained is the necessary technical data concerning the maintenance and repair of this model. The manual is divided into the following four major sections; GENERAL, SYSTEMS, COMPONENTS and PROCEDURE.

When checking or repairing the machine we suggest that you refer to this manual carefully. We hope that reference to this manual will help to maintain a high level of working efficiency and reliability. For further details on maintenance and checks refer to the "OPERATORS MANUAL" which has been supplied with the machine.

Although all data was correct at the time of printing, due to continual design changes and improvements, some contents may not conform to the actual machine. Take special care to order parts only after confirming the validity of the part number in the "PARTS MANUAL".

If you notice any explanatory discrepancies, after consulting one of our representatives, please update your manual according to the latest data. However, in the event of any specification changes, we will issue revised edition.

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KOBELCO

Book code No. S5LP0007E①

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sk120vsk120lcv-hydraulic-excavator-service-repair-workshop-m
anual/

⚠ 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 Compartment.
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 OPERATOR'S MANUAL. Improper machine operation is dangerous and could result in injury or death.

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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 implements to the ground before performing any work on the machine. If this cannot be done, make sure the bucket, blade, ripper or other implement 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 compartments.

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.

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⚠ 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.

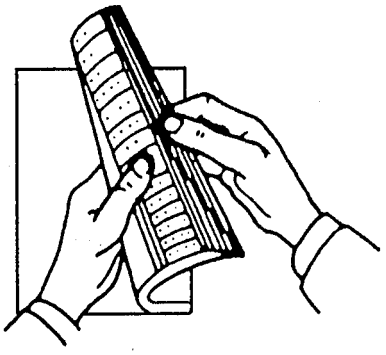
a. Never use compressed air for cleaning.
b. Avoid brushing or grinding of asbestos containing materials.
c. For clean up, use wet methods or a vacuum equipped with a high efficiency particulate air (HEPA) filter.
d. Use exhaust ventilation on permanent machining jobs.
e. Wear an approved respirator 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 SK100V SK120V SK120LCV

TABLE OF CONTENTS

○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
SK120V
SK120LCV

List of Shop Manual GENERAL Section

Index No.	Title	Book Code No. / Distribution Year-Month		
LP01	SPECIFICATION	S5LP0106E 1994-04		
—	OPERATION	S2LP1014E Refer to Operators manual		
LP03	LOCATION AND WEIGHT OF COMPONENTS	S5LP0306E 1994-04		
LP04	MAINTENANCE STANDARDS AND TEST PROCEDURES	S5LP0408E 1994-04		
—	PREVENTIVE MAINTENANCE	S2LP1014E Refer to Operators manual		
LP07	WORKING STANDARDS	S5LP0704E 1994-04		
LP08	STANDARD MAN-HOUR TABLE	S5LP0802E 1994-04		
	Applicable Machines	YW06501~ LP11001~ YP02301~		

Book code No. S5LP0106E

KOBELCO

SHOP MANUAL

SK100V
SK120V
SK120LCV

LP01

SPECIFICATION

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KOBE STEEL, LTD.

Applicable Machines

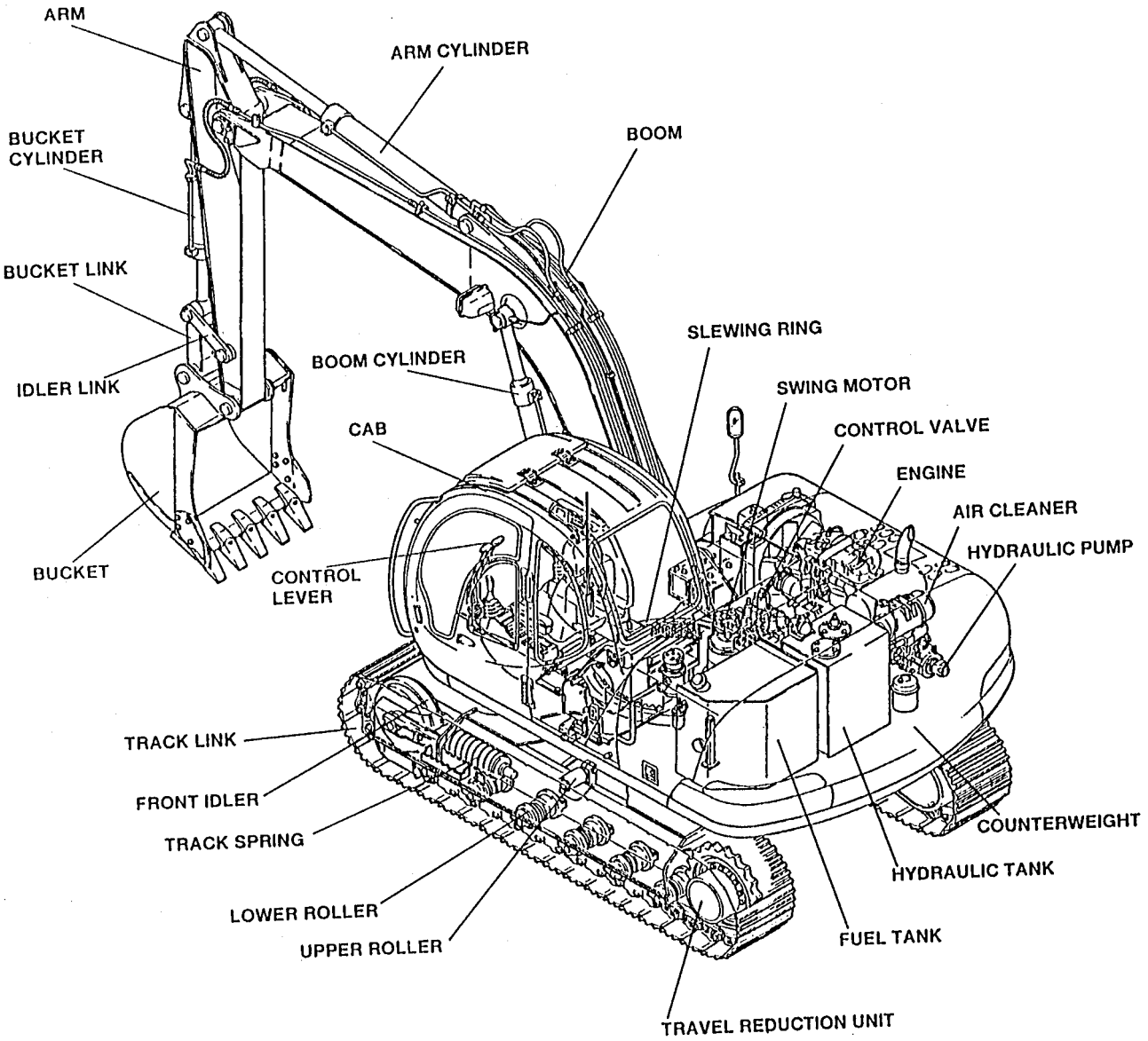
YW06501~

LP11001~

YP02301~

Revision	Date of Issue	Remarks
First edition	April, 1994	S5LP0106E K

1. NAME OF COMPONENTS

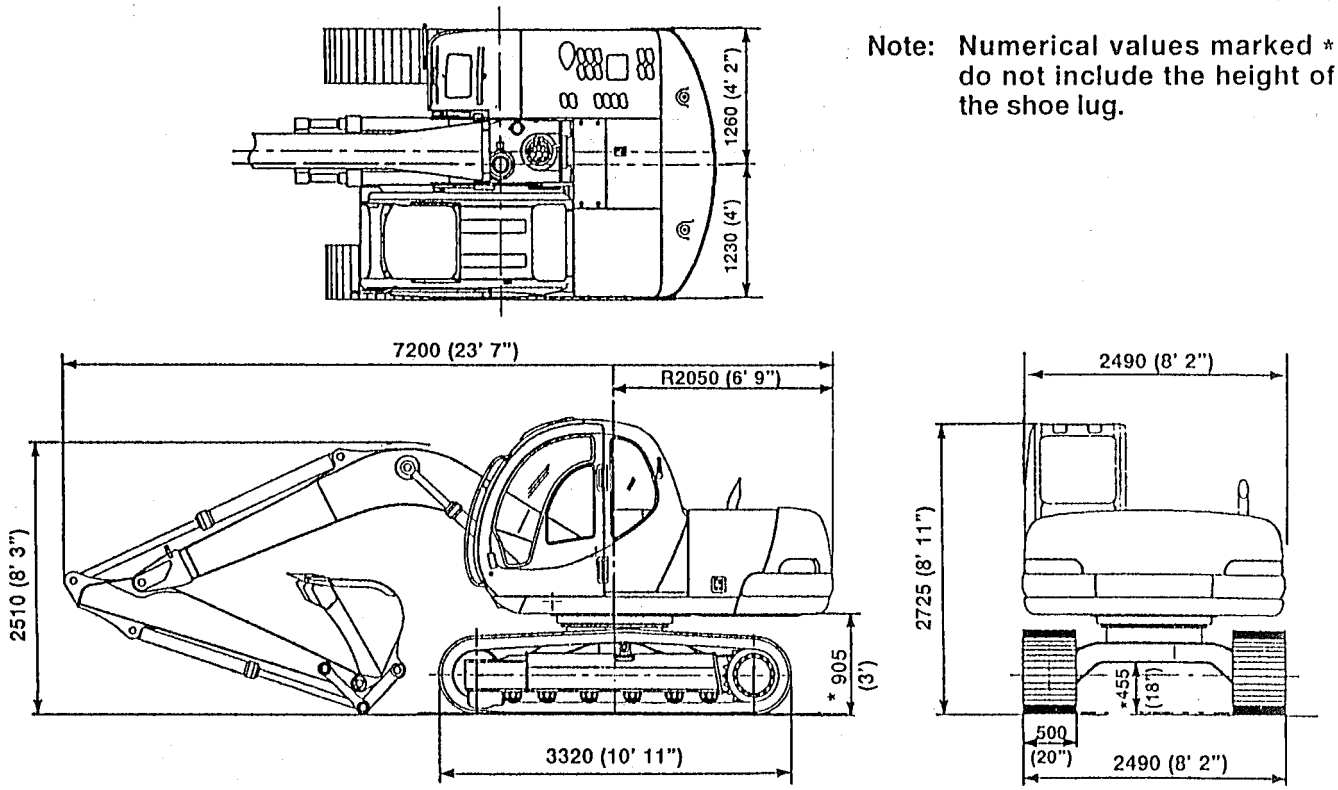


LP-0-1

2. GENERAL DIMENSIONS

● SK100 v with 4.26 m (14 ft) boom and 2.22 m (7 ft-3 in) standard arm

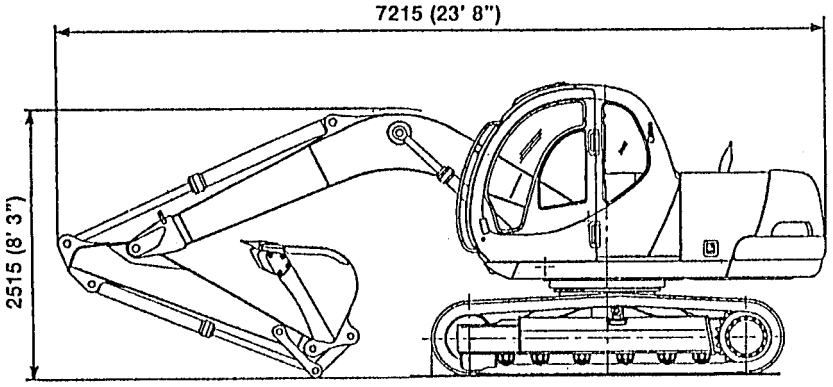
Unit: mm (ft-in)



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

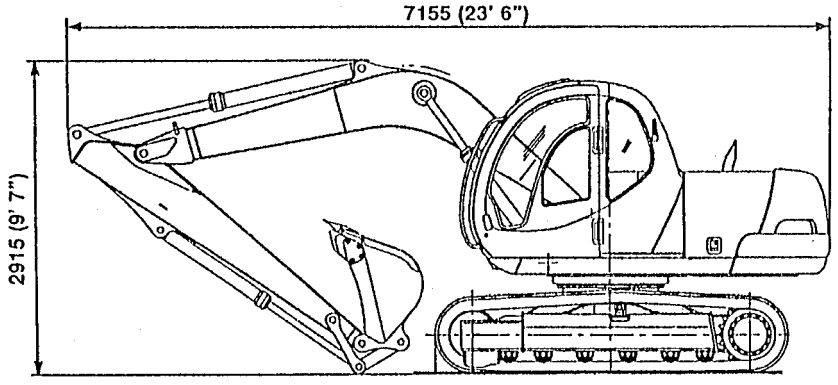
LP-6-1

● SK100 v with 4.26 m (14 ft) boom and 1.9 m (6 ft-3 in) short arm



LP-6-2

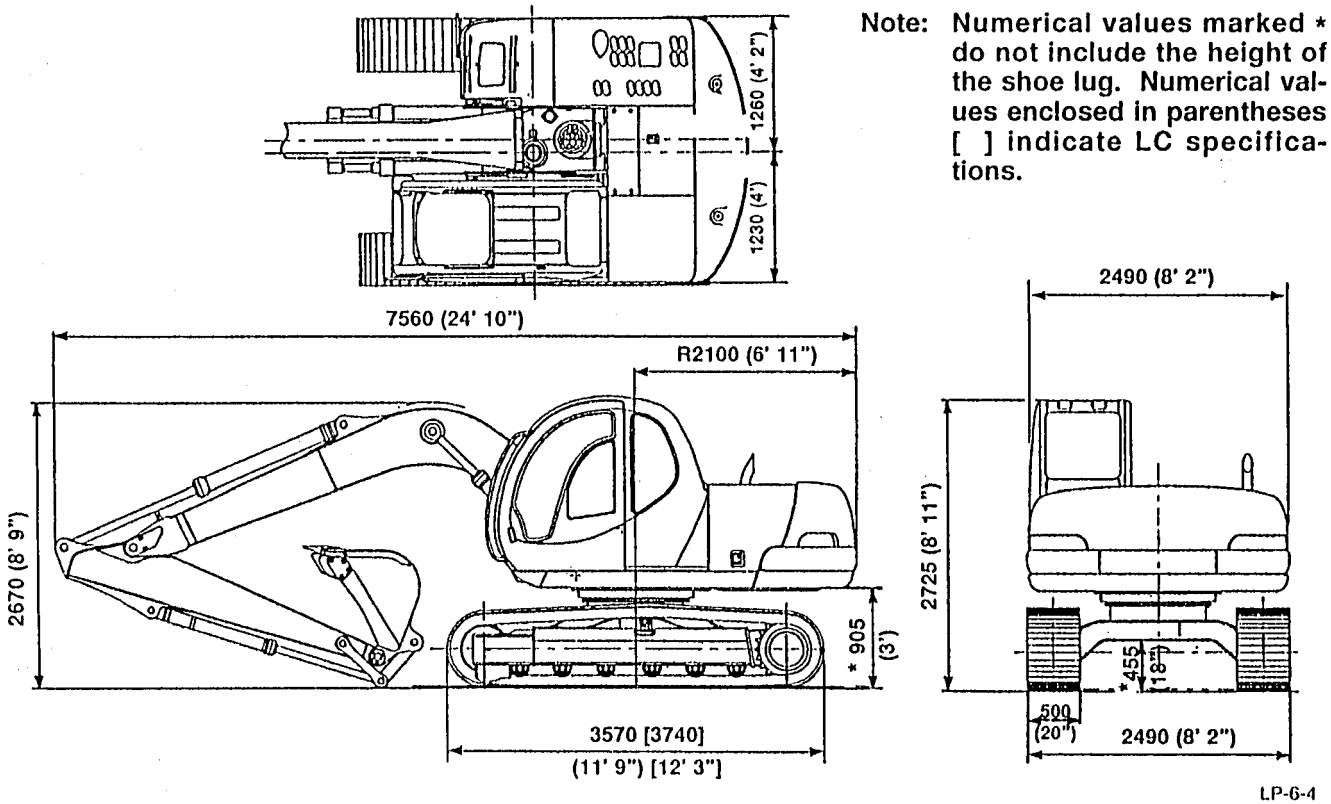
● SK100 v with 4.26 m (14 ft) boom and 2.7 m (8 ft-10 in) long arm



LP-6-3

● SK120 v AND SK120LC v with 4.6 m (15 ft-1 in) boom and 2.5 m (8 ft-2 in) standard arm

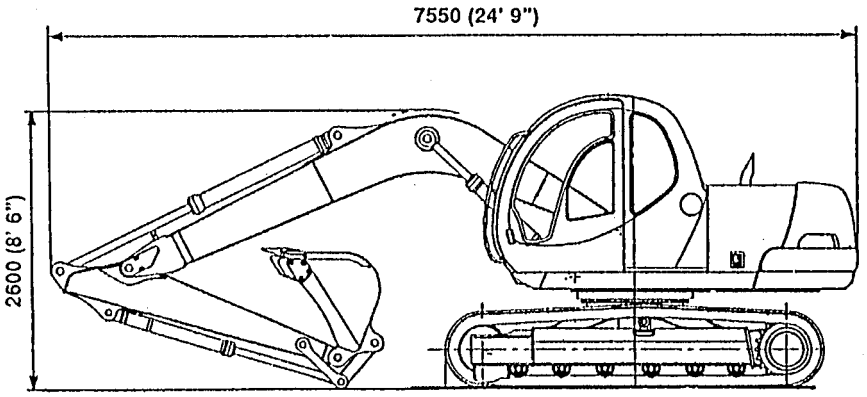
Unit: mm (ft-in)



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

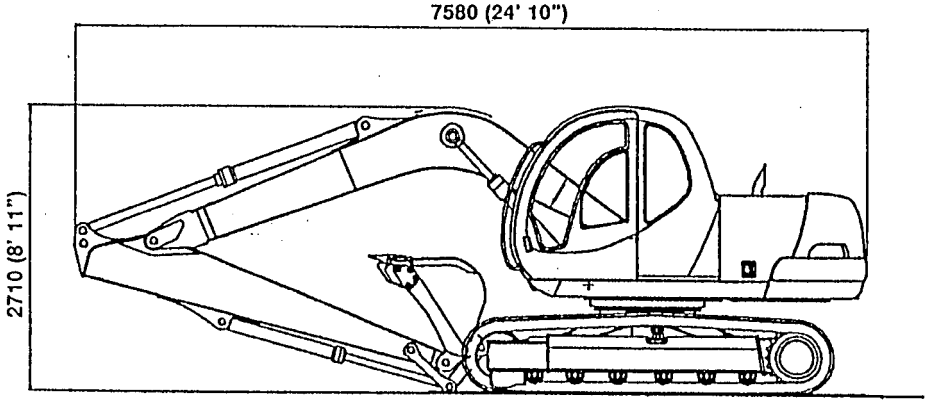
LP-6-4

● SK120 v AND SK120LC v with 4.6 m (15 ft-1 in) boom and 2.1 m (6 ft-11 in) short arm



LP-6-5

● SK120 v AND SK120LC v with 4.6 m (15 ft-1 in) boom and 3.0 m (9 ft-10 in) long arm



LP-6-6

3. SPECIFICATIONS AND PERFORMANCE

● SPEED AND CLIMBING CAPABILITY

Item \ Model	SK100 v	SK120 v, SK120LC v
Swing Speed (high/low) rpm	12/4	←
Travel Speed (high/low) km/h	7/1 km/h (4.3/0.6 mph)	←
Gradeability	70% (35°)	←

● ENGINE

Item \ Model	SK100 v	SK120 v, SK120LC v
Engine model	ISUZU 4BD1	ISUZU 4BD1T
Type	4-cycle, water-cooled direct injection type diesel	4-cycle, water-cooled direct injection type with turbo charger
Number of Cylinder — Bore × Stroke	4—102 mm × 118 mm (4 in. × 4.64 in.)	←
Total displacement	3856 c.c. (235 cuin)	←
Rated Output/Rotation Speed	76 PS / 2300 rpm	85 PS / 2100 rpm
Maximum Torque/Rotation Speed	24 kgf·m / 1600 rpm	30.5 kg·m / 1600 rpm

● HYDRAULIC COMPONENTS

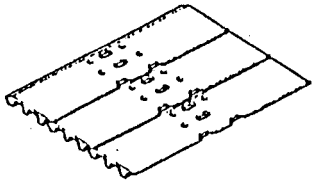
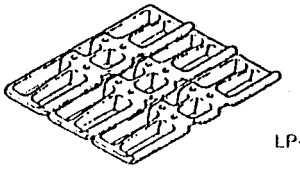
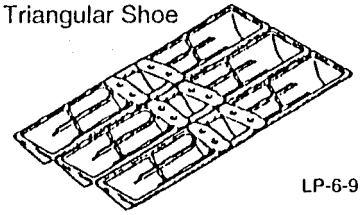
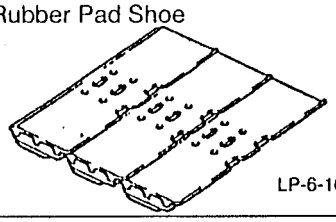
Item \ Model	SK100 v	SK120 v, SK120LC v
Hydraulic Pump	Double-pump variable displacement axial piston + gear pump	←
Hydraulic Motor (swing)	Axial piston motor	←
Hydraulic Motor (Travel)	Axial piston motor	←
Control Valve	6-section multiple control valve	←
Cylinder (boom, arm, and bucket)	Double action cylinder	←
Oil Cooler	Air-cooled type	←

● WEIGHT

Unit: kg (lbs)

Item \ Model	SK100 v	SK120 v	SK120LC v
Fully equipped Weight	10600 (23400)	11800 (26000)	12000 (26400)
Upper Frame machinery	4650 (10250)	5500 (12100)	←
Lower Frame machinery with 500mm [20 in] grouser shoe	4000 (8820)	4150 (9150)	4350 (9590)
Attachment 4.26 m (14 ft) boom + 2.22 m (7 ft-3 in) arm + 0.4 m³ (0.52 cuyd) bucket	1950 (4300)	—	—
Attachment 4.6 m (15 ft-1 in) boom + 2.5 m (8 ft-2 in) arm + 0.45 m³ (0.59 cuyd) bucket	—	2150 (4740)	←

4. TYPE OF SHOES

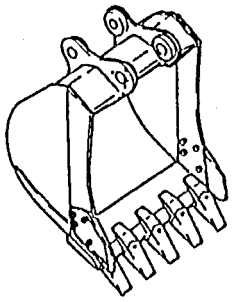
Shape	Model	Shoe Width mm (in.)	Total Width of Crawler mm (ft-in)	Ground Pressure kg/cm² (psi)
Grouser Shoe  LP-6-7	SK100 v 41 links	500 (20)	2490 (8' 2")	0.37 (5.26)
		600 (24)	2590 (8' 6")	0.32 (4.55)
		700 (27)	2690 (8' 10")	0.28 (3.98)
	SK120 v 44 links	500 (20)	2490 (8' 2")	0.39 (5.55)
		600 (24)	2590 (8' 6")	0.33 (4.69)
		700 (27)	2690 (8' 10")	0.29 (4.12)
	SK120LC v 46 links	500 (20)	2490 (8' 2")	0.37 (5.26)
		600 (24)	2590 (8' 6")	0.31 (4.41)
		700 (27)	2690 (8' 10")	0.27 (3.84)
Flat Shoe  LP-6-8	SK100 v 41 links	500 (20)	2490 (8' 2")	0.38 (5.40)
	SK120 v 44 links	500 (20)	2490 (8' 2")	0.39 (5.55)
	SK120LC- v 46 links	500 (20)	2490 (8' 2")	0.37 (5.26)
Triangular Shoe  LP-6-9	SK100 v 41 links	800 (32)	2790 (9' 2")	0.24 (3.41)
	SK120 v 44 links	800 (32)	2790 (9' 2")	0.25 (3.56)
	SK120LC v 46 links	800 (32)	2790 (9' 2")	0.24 (3.41)
Rubber Pad Shoe  LP-6-10	SK100 v 41 links	500 (20)	2490 (8' 2")	0.39 (5.55)
	SK120 v 44 links	500 (20)	2490 (8' 2")	0.40 (5.69)
	SK200LC v 46 links	500 (20)	2490 (8' 2")	0.38 (5.40)
Rubber shoe LP-6-11 	SK100 v	500 (20)	2490 (8' 2")	0.37 (5.26)
	SK120 v	500 (20)	2490 (8' 2")	0.38 (5.40)

Note: **Use grouser shoes 500 mm (20 in) 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 BUCKET

SK100V

Hoe Bucket

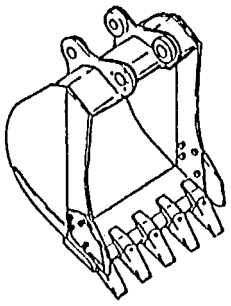


LP-6-12

Heaped Capacity m³ (cuyd)	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				
0.15 (0.20)	—	450 (1' 6")	3	No	Yes	200 (440)
0.21 (0.27)	600 (2')	500 (1' 8")	3	Yes	Yes	250 (550)
0.26 (0.34)	700 (2' 4")	600 (2')	3	Yes	Yes	280 (620)
0.32 (0.42)	800 (2' 7")	700 (2' 4")	4	Yes	Yes	310 (680)
0.4 (0.52) (STD)	950 (3' 1")	850 (2' 9")	4	Yes	Yes	340 (750)
0.45 (0.59)	1000 (3' 3")	900 (2'11")	5	Yes	Yes	360 (790)
—	—	—	—	—	—	—

SK120V, SK120LCV

Hoe Bucket



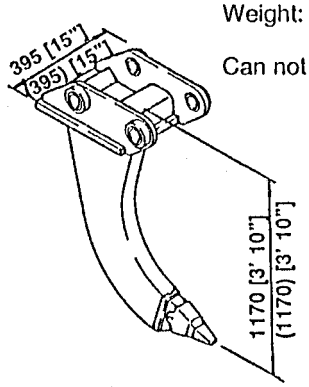
LP-6-13

Heaped Capacity m³ (cuyd)	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				
0.22 (0.28)	600 (2')	500 (1' 8")	3	Yes	Yes	270 (600)
0.27 (0.35)	700 (2' 4")	600 (2')	3	Yes	Yes	290 (640)
0.33 (0.43)	800 (2' 7")	700 (2' 4")	4	Yes	Yes	320 (700)
0.4 (0.52)	900 (2'11")	800 (2' 9")	4	Yes	Yes	340 (750)
0.45 (0.59) (STD)	1000 (3' 3")	900 (2'11")	5	Yes	Yes	370 (820)
0.5 (0.65)	1100 (3' 7")	1000 (3' 3")	5	Yes	Yes	400 (880)
0.6 (0.78)	—	1150 (3' 9")	5	Yes	Yes	390 (860)

Note: SK120 V, SK120LC V has the dimensions given in parentheses ( ).

Ripper

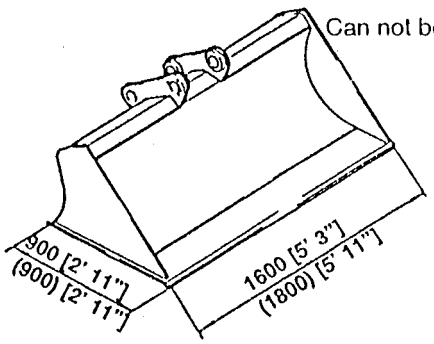
Weight: 250 kg [550 lbs]
(250 kg) [550 lbs]
Can not be turned over



LP-6-14

Slope Finishing Bucket

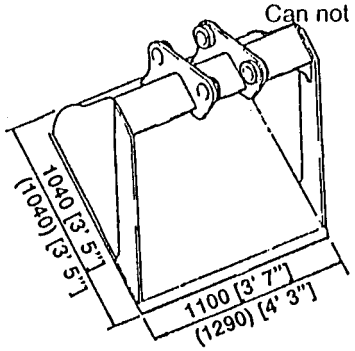
Weight: 480 kg [1060 lbs]
(550 kg) [1210 lbs]
Can not be turned over



LP-6-16

Scraper bucket

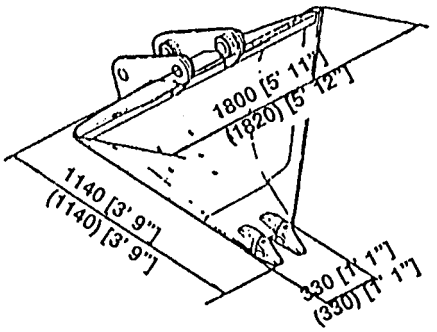
Capacity: 0.45 m³ [0.59 cuyd]
(0.55 m³) [0.72 cuyd]
Weight: 380 kg [840 lbs]
(390 kg) [860 lbs]
Can not be turned over



LP-6-15

V-Bucket

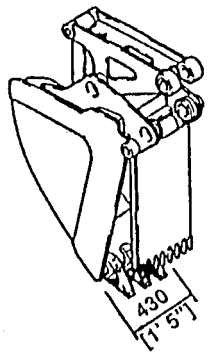
Capacity: 0.38 m³ [0.5 cuyd]
(0.38 m³) [0.5 cuyd]
Weight: 280 kg [620 lbs]
(290 kg) [640 lbs]
Can not be turned over



LP-6-17

Backet With Ejector

Capacity: 0.2 m³ [0.26 cuyd]
(0.2 m³) [0.26 cuyd]
Weight: 400 kg [880 lbs]
(400 kg) [880 lbs]
Can not be turned over



LP-6-18

6. COMBINATION OF ATTACHMENTS

SK100v

Type	Bucket			Applicable Arm			
	JIS heaped capacity m³ (cuyd)	SAE heaped capacity m³ (cuyd)	JIS, SAE struck capacity m³ (cuyd)	1.9 m (6 ft-3 in) Arm (short)	2.22 m (7 ft-3 in) Arm (STD)	2.7 m (8 ft-10 in) Arm (long)	2.22 m (7 ft-3 in) +0.6 m (2 ft) Extension Arm
Hoe Bucket	0.15 (0.20)	0.17 (0.22)	0.13 (0.17)	○	○	○	○
	0.21 (0.27)	0.23 (0.30)	0.19 (0.25)	○	○	○	○
	0.26 (0.34)	0.30 (0.39)	0.22 (0.29)	○	○	○	◎
	0.32 (0.42)	0.37 (0.48)	0.27 (0.35)	○	○	◎	△
	0.4 (0.52) (STD)	0.45 (0.59)	0.35 (0.46)	○	◎	△	×
	0.45 (0.59)	0.52 (0.68)	0.38 (0.50)	◎	△	×	×
Bucket with ejector	0.20 (0.26)	0.22 (0.29)	0.19 (0.25)	○	○	○	○
Slope Finishing Bucket	Width × Depth 1.6 m × 0.9 m (5' 3" × 2' 11")	—	—	△	△	△	△
Ripper	—	—	—	○	○	×	×
V-Bucket	0.38 (0.50)	0.46 (0.60)	0.30 (0.39)	△	△	△	△
Scraper Bucket	0.45 (0.59)	0.51 (0.67)	0.38 (0.50)	△	△	△	△
Breaker	—	—	—	○	○	×	×

SK120V, SK120LCV

Type	Bucket			Applicable Arm			
	JIS heaped capacity m^3 (cuyd)	SAE heaped capacity m^3 (cuyd)	JIS, SAE struck capacity m^3 (cuyd)	2.1 m (6 ft-11 in) Arm (short)	2.5 m (8 ft-2 in) Arm (STD)	3.0 m (9 ft-10 in) Arm (long)	2.5 m (8 ft-2 in) +1.0 m (3 ft-3 in) Extension Arm
Hoe Bucket	0.22 (0.29)	0.24 (0.31)	0.20 (0.26)	○	○	○	○
	0.27 (0.35)	0.31 (0.41)	0.23 (0.30)	○	○	○	◎
	0.33 (0.43)	0.38 (0.50)	0.28 (0.37)	○	○	◎	△
	0.40 (0.52)	0.45 (0.59)	0.35 (0.46)	○	○	△	×
	0.45 (0.59) (STD)	0.52 (0.68)	0.38 (0.50)	○	◎	×	×
	0.50 (0.65)	0.57 (0.75)	0.43 (0.56)	◎	△	×	×
	0.60 (0.78)	0.70 (0.91)	0.50 (0.68)	△	×	×	×
Slope Finishing Bucket	Width × Depth 1.8 m × 0.9 m (5' 11" × 2' 11")	—	—	△	△	△	△
V-Bucket	0.38 (0.50)	0.46 (0.60)	0.30 (0.39)	△	△	△	△
Scraper Bucket	0.55 (0.72)	0.65 (0.85)	0.42 (0.55)	△	△	△	△
Breaker	—	—	—	○	○	×	×

Legend

◎ **Standard combination**
○ **General operation: Excavation or loading of sand, gravel, and clay**
△ **Light operation: Mainly loading of loose gravel (e.g., cultivation or loading of sand or gravel)**
× **Prohibited combination: KOBELCO's warranty does not cover any damages resulting from theses 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.

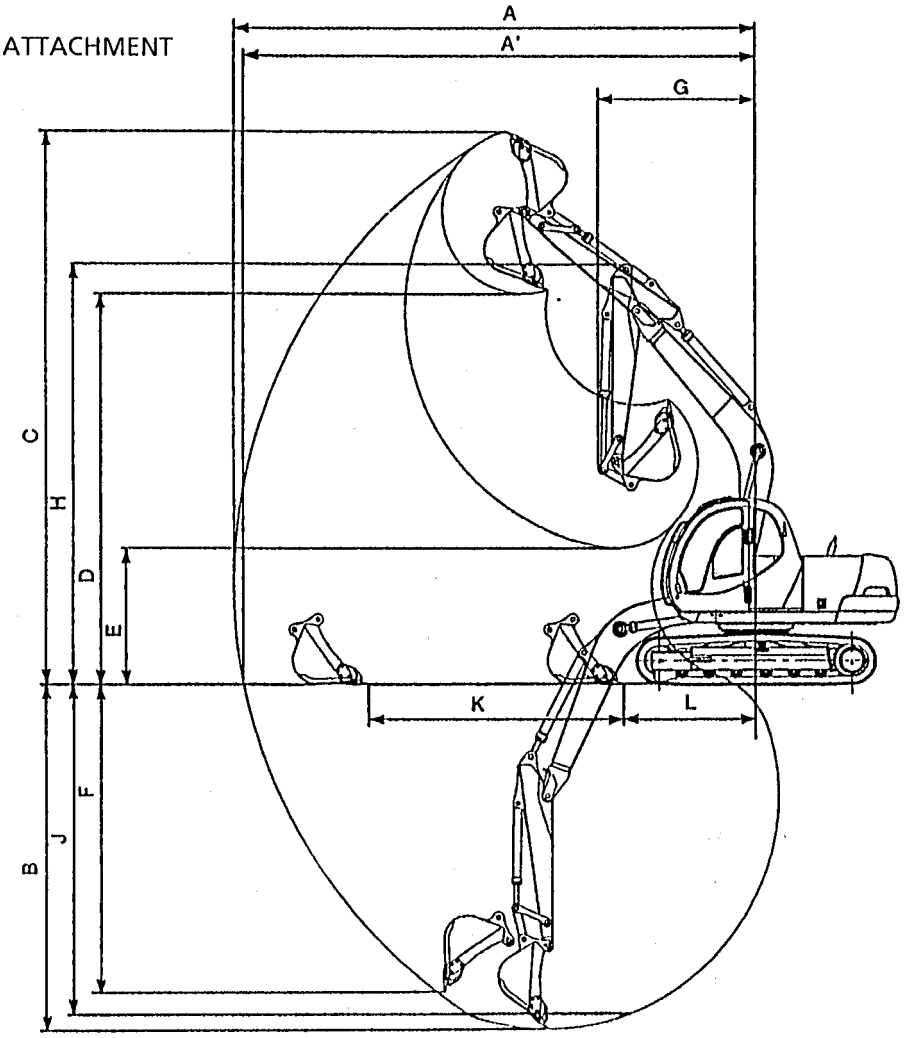
⚠ CAUTION

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

7. WORKING RANGES OF ATTACHMENTS

● BACKHOE ATTACHMENT

SK100V



LP-6-19

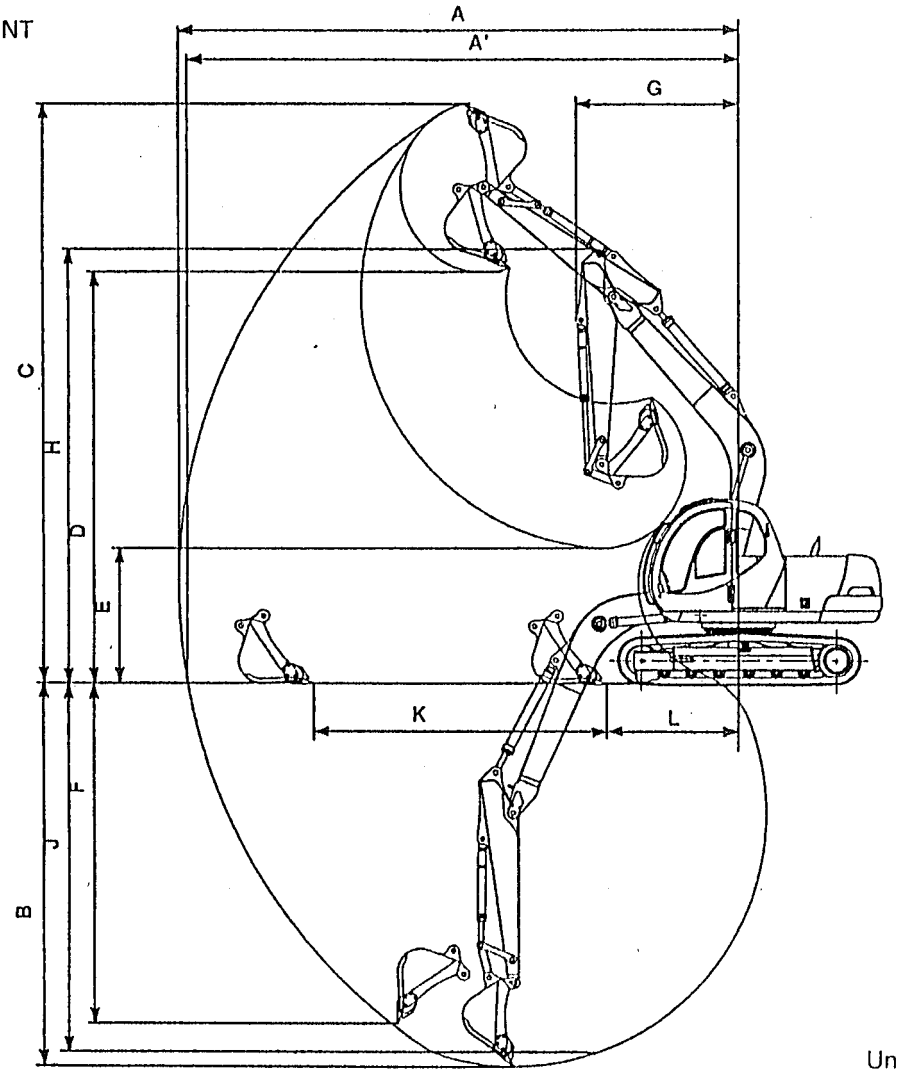
Unit: m (ft-in)

Item \ Attachment Type			1.9 m (6 ft-3 in) Arm with 0.45 m³ (0.59 cuyd) Bucket	2.22 m (7 ft-3 in) Arm with 0.4 m³ (0.52 cuyd) Bucket	2.7 m (8 ft-10 in) Arm with 0.32 m³ (0.42 cuyd) Bucket	2.22 m (7 ft-3 in) arm + 0.6 m (2 ft) extension arm with 0.26 m³ (0.34 cuyd) Bucket
A : Maximum digging radius			7.40 (24' 3")	7.70 (25' 3")	8.16 (26' 9")	8.27 (27' 2")
A': Maximum reach at ground level			7.26 (23'10")	7.56 (24'10")	8.03 (26' 4")	8.14 (26' 8")
*B: Maximum digging depth			4.78 (15' 8")	5.10 (16' 9")	5.58 (18' 4")	5.70 (18' 8")
*C: Maximum digging height			7.82 (25' 8")	8.04 (26' 5")	8.35 (27' 5")	8.41 (27' 7")
*D: Maximum dumping height			5.44 (17'10")	5.65 (18' 6")	5.96 (19' 7")	6.02 (19' 9")
*E: Minimum dumping height			2.32 (7' 7")	1.99 (6' 6")	1.54 (5' 1")	1.39 (4' 7")
*F: Vertical digging depth			4.23 (13'11")	4.56 (15')	5.02 (16' 6")	5.11 (16' 9")
G: Minimum swing radius			2.39 (7'10")	2.34 (7' 8")	2.56 (8' 5")	2.38 (7'10")
*H: Height at minimum swing			6.11 (20' 1")	6.09 (20')	6.11 (20' 1")	6.09 (20')
*J : 8-foot level digging depth			4.51 (14'10")	4.86 (15'11")	5.38 (17' 8")	5.50 (18' 1")
K	Horizontal digging distance	Stroke	3.18 (10' 5")	3.76 (12' 4")	4.33 (14' 2")	4.65 (15' 3")
L		Minimum	2.25 (7' 5")	1.97 (6' 6")	1.86 (6' 1")	1.65 (5' 5")

NOTE: Dimensions marked * do not include the height of the shoe lug.

● BACKHOE ATTACHMENT

SK120V, SK120LCV



LP-6-21

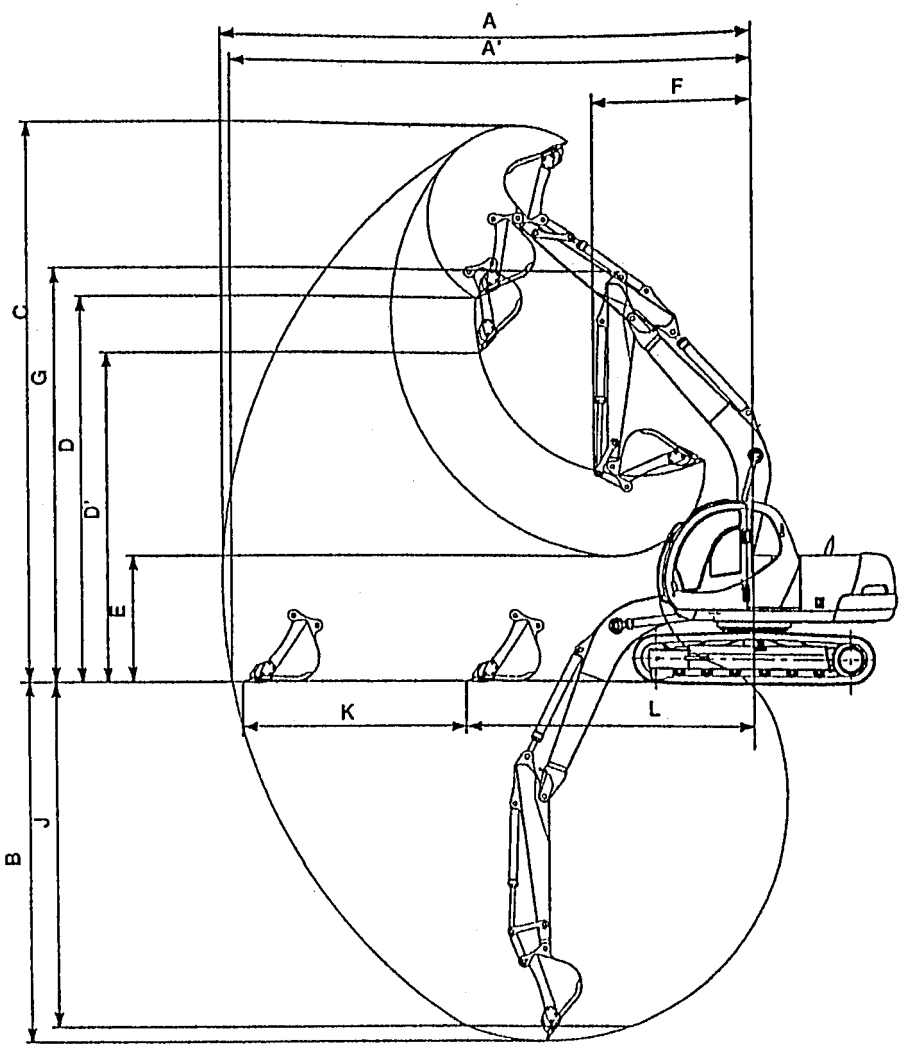
Unit: m (ft-in)

Item \ Attachment Type			2.1 m (6 ft-11 in) Arm with 0.5 m³ (0.65 cuyd) Bucket	2.5 m (8 ft-2 in) Arm with 0.45 m³ (0.59 cuyd) Bucket	3.0 m (9 ft-10 in) Arm with 0.33 m³ (0.43 cuyd) Bucket	2.5 m (8 ft-2 in) arm + 1.0 m (3 ft-3 in) extension arm with 0.27 m³ (0.35 cuyd) Bucket
A : Maximum digging radius			7.92 (26')	8.27 (27' 2")	8.73 (28' 8")	9.20 (30' 2")
A': Maximum reach at ground level			7.78 (25' 6")	8.14 (26' 8")	8.60 (28' 3")	9.09 (29'10")
*B: Maximum digging depth			5.20 (17' 1")	5.60 (18' 4")	6.10 (20')	6.60 (21' 8")
*C: Maximum digging height			8.35 (27' 5")	8.52 (27'11")	8.80 (28'10")	9.12 (29'11")
*D: Maximum dumping height			5.90 (19' 4")	6.09 (20')	6.37 (20'11")	6.68 (21'11")
*E: Minimum dumping height			2.39 (7'10")	1.98 (6' 6")	1.52 (5')	0.98 (3' 3")
*F: Vertical digging depth			4.60 (15' 1")	4.98 (16' 4")	5.40 (17' 9")	5.95 (19' 6")
G: Minimum swing radius			2.36 (7' 9")	2.39 (7'10")	2.58 (8' 6")	2.39 (7'10")
*H: Height at minimum swing			6.41 (21')	6.41 (21')	6.44 (21' 2")	6.41 (21')
*J : 8-foot level digging depth			4.96 (16' 3")	5.39 (17' 8")	5.92 (19' 5")	6.44 (21' 2")
K	Horizontal digging distance	Stroke	3.67 (12')	4.34 (14' 3")	4.86 (15'11")	5.83 (19' 2")
L		Minimum	2.26 (7' 5")	1.94 (6' 4")	1.88 (6' 2")	1.39 (4' 7")

NOTE: Dimensions marked * do not include the height of the shoe lug.

● FACE SHOVEL

SK100V



LP-6-20

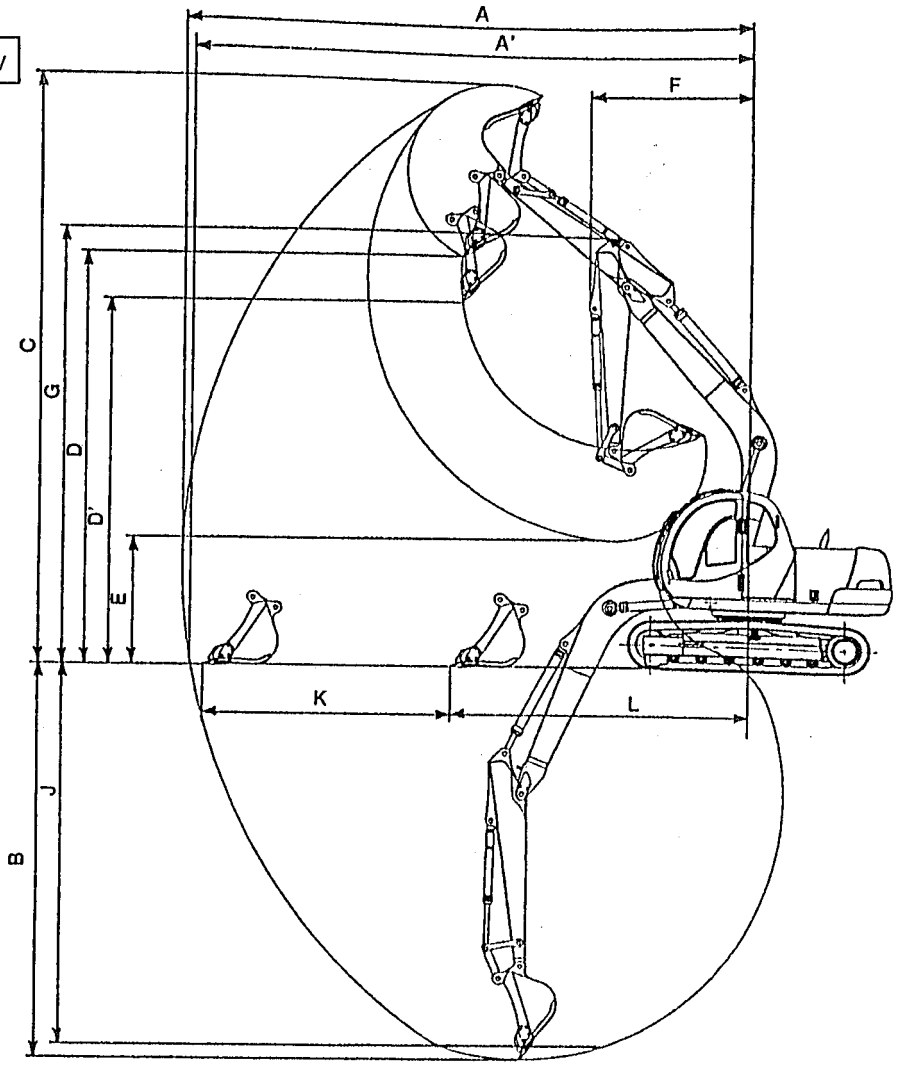
Unit: m (ft-in)

Item \ Attachment Type			1.9 m (6 ft-3 in) Arm with 0.45 m³ (0.59 cuyd) Bucket	2.22 m (7 ft-3 in) Arm with 0.4 m³ (0.52 cuyd) Bucket	2.7 m (8 ft-10 in) Arm with 0.32 m³ (0.42 cuyd) Bucket	2.22 m (7 ft-3 in) arm + 0.6 m³ (2 ft) extension arm with 0.26 m³ (0.34 cuyd) Bucket
A : Maximum digging radius			7.55 (24' 9")	7.85 (25' 9")	8.31 (27' 3")	8.42 (27' 7")
A': Maximum reach at ground level			7.40 (24' 3")	7.71 (25' 4")	8.18 (26'10")	8.29 (27' 2")
*B: Maximum digging depth			4.92 (16' 2")	5.24 (17' 2")	5.72 (18' 9")	5.84 (19' 2")
*C: Maximum digging height			8.00 (26' 3")	8.21 (26'11")	8.53 (28')	8.59 (28' 2")
*D: Maximum dumping height			5.40 (17' 9")	5.66 (18' 7")	5.98 (19' 7")	5.99 (19' 8")
*D': Minimum dumping height (45°)			4.95 (16' 3")	4.86 (15'11")	5.03 (16' 6")	5.25 (17' 3")
*E: Maximum dumping height			2.18 (7' 2")	1.84 (6')	1.39 (4' 7")	1.24 (4' 1")
F: Maximum swing radius			2.39 (7'10")	2.34 (7' 8")	2.56 (8' 5")	2.38 (7'10")
*G: Height at minimum swing			6.11 (20' 1")	6.09 (20')	6.11 (20' 1")	6.09 (20')
*J : 8-foot level digging depth			4.67 (15' 4")	5.02 (16' 6")	5.53 (18' 2")	5.66 (18' 7")
K	Horizontal digging distance	Stroke	2.70 (8'10")	3.29 (10'10")	4.15 (13' 7")	4.34 (14' 3")
L		Minimum	4.55 (14'11")	4.26 (14')	3.87 (12' 8")	3.79 (12'5")

NOTE: Dimensions marked * do not include the height of the shoe lug.

● FACE SHOVEL

SK120V, SK120LCV



LP-6-22

Unit: m (ft-in)

Item \ Attachment Type			2.1 m (6 ft-11 in) Arm with 0.5 m³ (0.65 cuyd) Bucket	2.5 m (8 ft-2 in) Arm with 0.45 m³ (0.59 cuyd) Bucket	3.0 m (9 ft-10 in) Arm with 0.33 m³ (0.43 cuyd) Bucket	2.5 m (8 ft-2 in) arm + 1.0 m (3 ft-3 in) extension arm with 0.27 m³ (0.35 cuyd) Bucket
A : Maximum digging radius			8.05 (26' 5")	8.40 (27' 7")	8.86 (29' 1")	9.34 (30' 8")
A': Maximum reach at ground level			7.92 (26')	8.27 (27' 2")	8.74 (28' 8")	9.22 (30' 3")
*B: Maximum digging depth			5.33 (17' 6")	5.73 (18'10")	6.23 (20' 5")	6.73 (22' 1")
*C: Maximum digging height			8.51 (27'11")	8.69 (28' 6")	8.97 (29' 5")	9.28 (30' 5")
*D: Maximum dumping height			5.91 (19' 5")	6.06 (19'11")	6.33 (20' 9")	6.66 (21'10")
*D': Minimum dumping height (45°)			5.27 (17' 3")	5.39 (17' 8")	5.59 (18'4")	5.74 (18'10")
*E: Maximum dumping height			2.26 (7' 5")	1.86 (6' 1")	1.39 (4' 7")	0.85 (2' 9")
F: Maximum swing radius			2.36 (7' 9")	2.39 (7'10")	2.58 (8' 6")	2.39 (7'10")
*G: Height at minimum swing			6.41 (21')	6.41 (21')	6.44 (21' 2")	6.41 (21')
*J : 8-foot level digging depth			5.11 (16' 9")	5.53 (18' 2")	6.05 (19'10")	6.57 (21' 7")
K	Horizontal digging distance	Stroke	3.02 (9'11")	3.66 (12')	4.54 (14' 11")	5.54 (18' 2")
L		Minimum	4.72 (15' 6")	4.42 (14' 6")	4.00 (13' 1")	3.49 (11' 5")

NOTE: Dimensions marked * do not include the height of the shoe lug.

8. LIFTING-UP ABILITY DIAGRAM

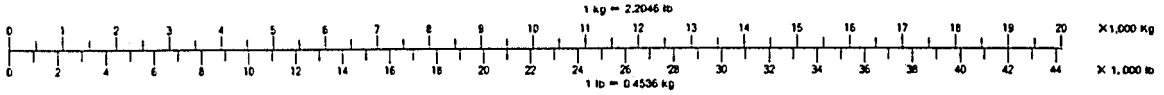
(1) Calculation condition
The lifting-up ability of this drawing is indicated by metric standard. The indicated figures fall within 87% of a set pressure of the main relief valve used in the arm and the boom cylinder and 75% of static tilting load.

1) The load point is the fulcrum of the bucket and the bucket position is an embraced posture.
2) The figures on the upper stage indicate the lifting-up abillty of a machine facing sideways, while the figures at the bottom stage repressent a machine facing longitudinally.
3) Unit : ton Shoe width : 500mm (20˝) shoe

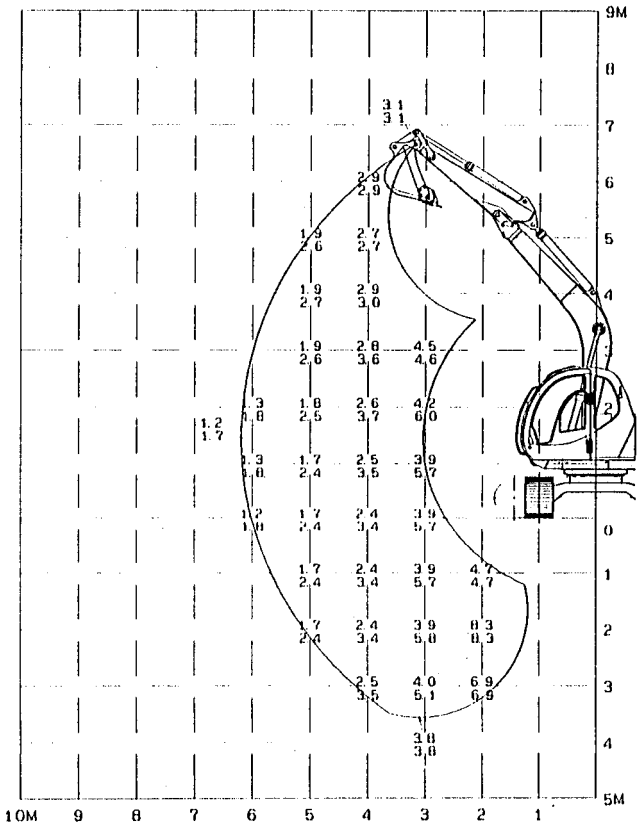
(2) Lifting-up ability diagram Item No. table

Model	Pressure kgf/cm² (psi)	Attachment			
		Short 1.9M (6´3˝)+ 0.45M³ (0.59 cuyd)	Standard 2.22M (7´3˝)+ 0.4M³ (0.52 cuyd)	Long 2.7M (8´10˝)+ 0.32M³ (0.42 cuyd)	Extention 2.22M (7´3˝)+0.6M (2´)+ 0.26M³ (0.34 cuyd)
		500 mm shoe (20 in)	500 mm shoe (20 in)	500 mm shoe (20 in)	500 mm shoe (20 in)
SK100 V	330 (4690)	1	2	3	4

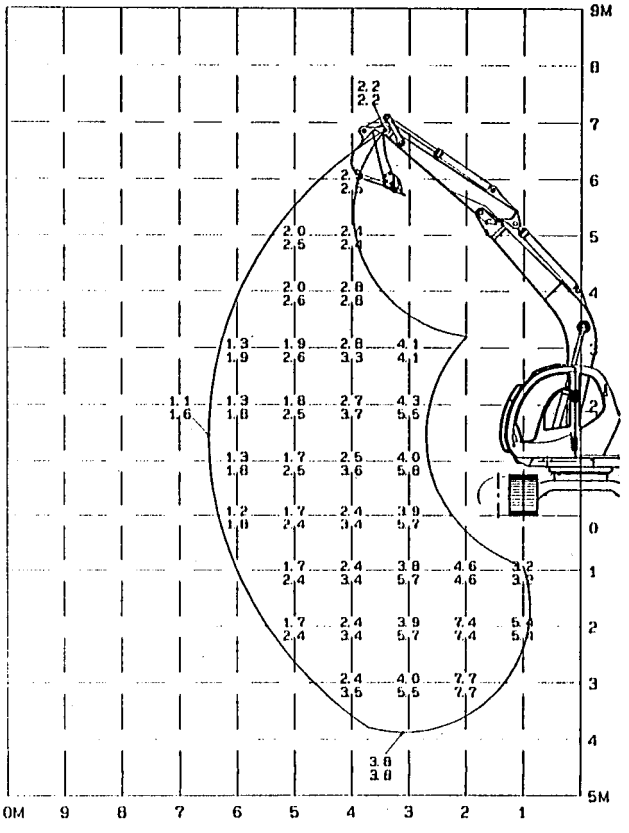
Model	Pressure kgf/cm² (psi)	Attachment			
		Short 2.1M (6´11˝)+ 0.5M³ (0.65 cuyd)	Standard 2.5M (8´2˝)+ 0.45M³ (0.59 cuyd)	Long 3.0M (9´10˝)+ 0.33M³ (0.43 cuyd)	Extention 2.5M (8´2˝)+1.0M (3´3˝) + 0.27M³ (0.35 cuyd)
		500 mm shoe (20 in)	500 mm shoe (20 in)	500 mm shoe (20 in)	500 mm shoe (20 in)
SK120 V	350 (4980)	5	6	7	8
SK120LC V	350 (4980)	9	10	11	12

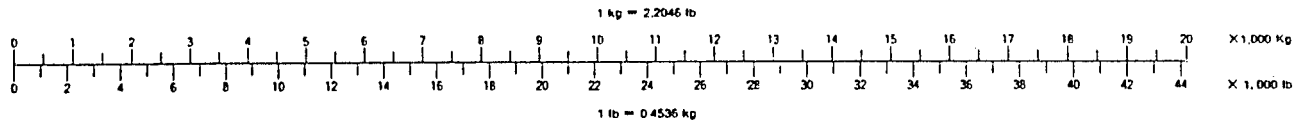


(1) Unit : ton

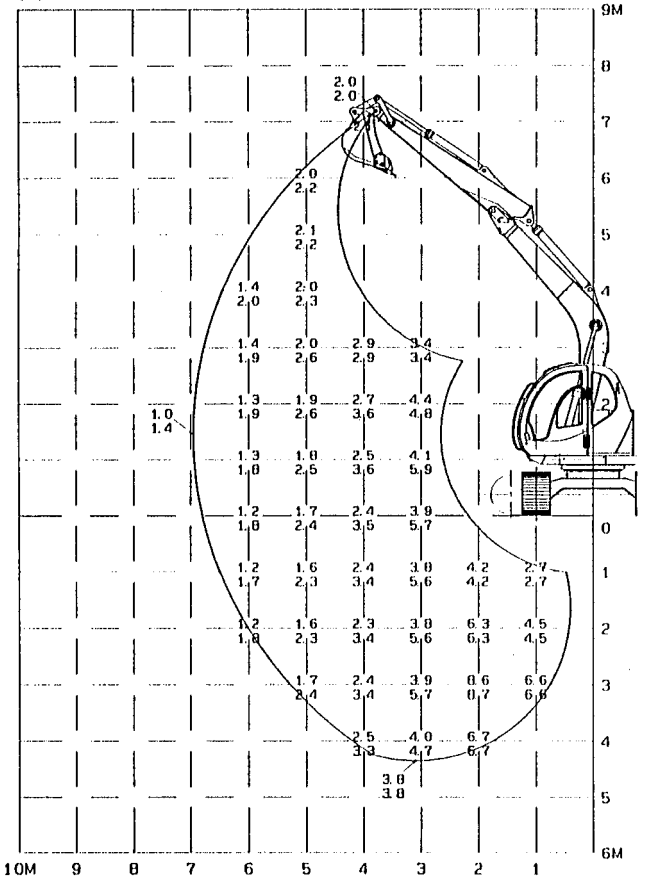


(2) Unit : ton

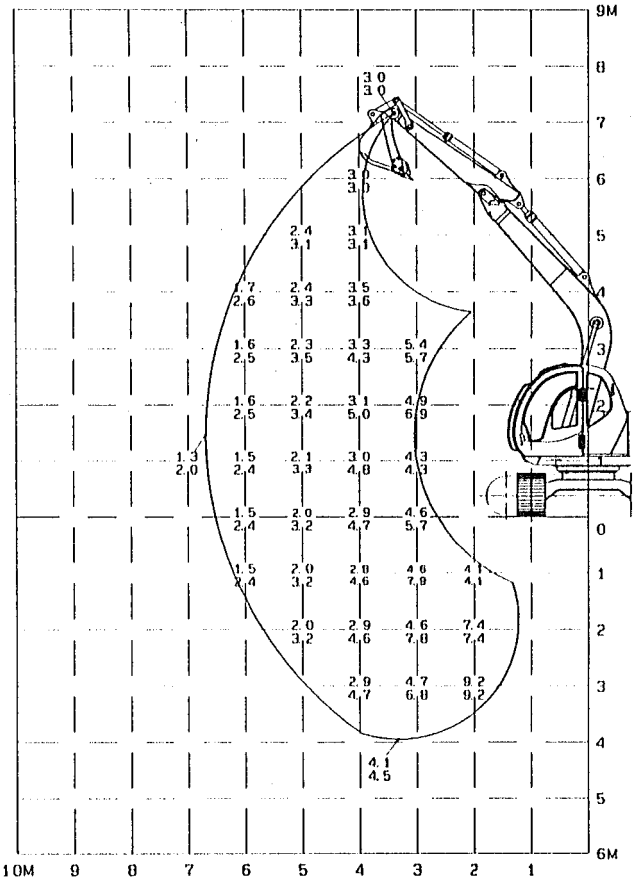




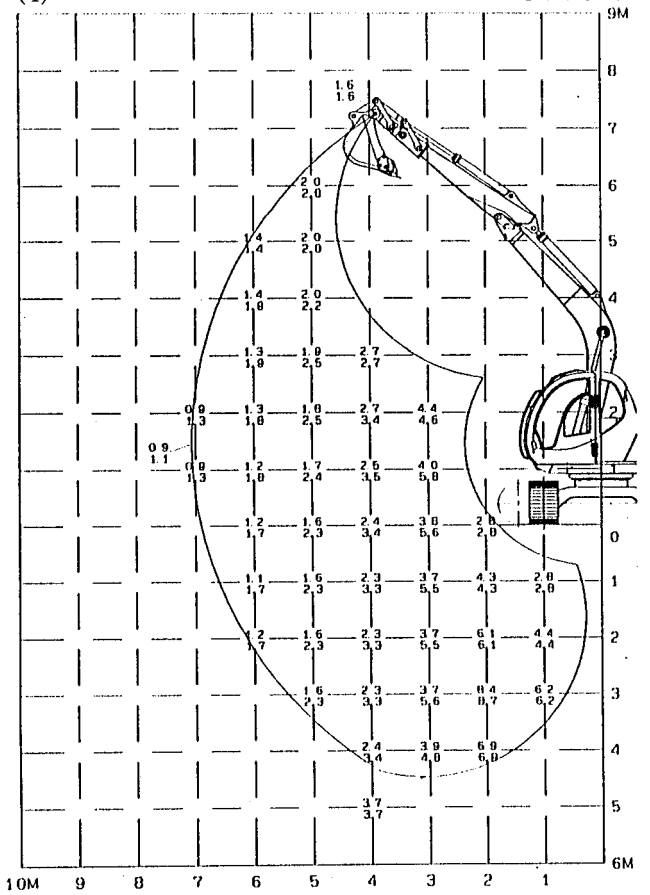
(3) Unit : ton



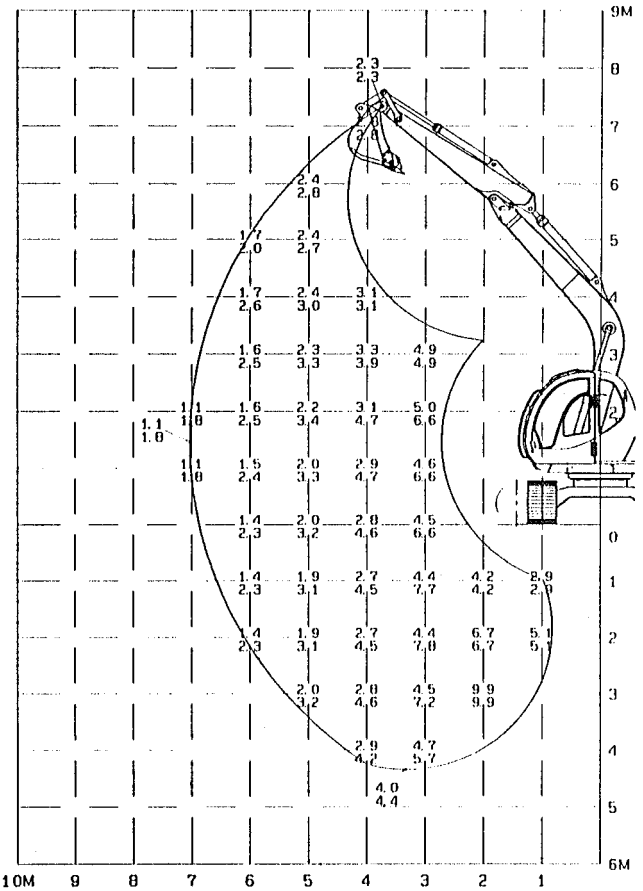
(5) Unit : ton

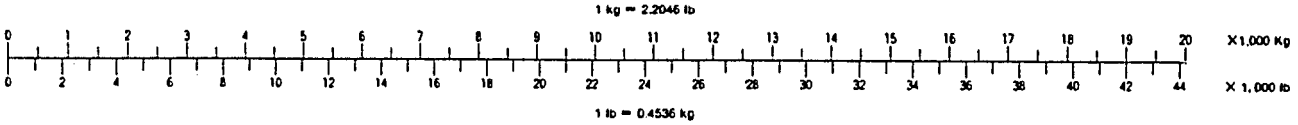


(4) Unit : ton

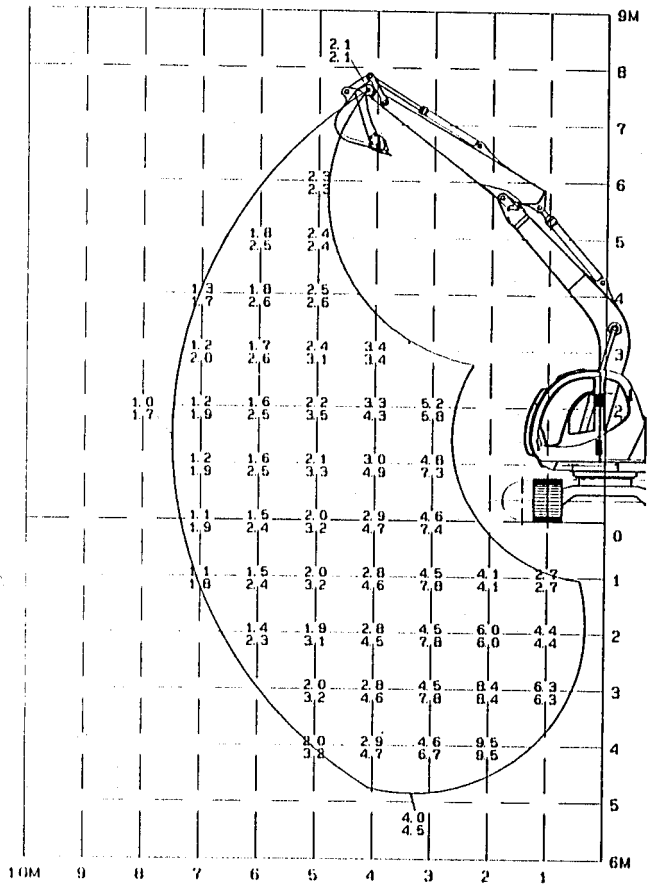


(6) Unit : ton

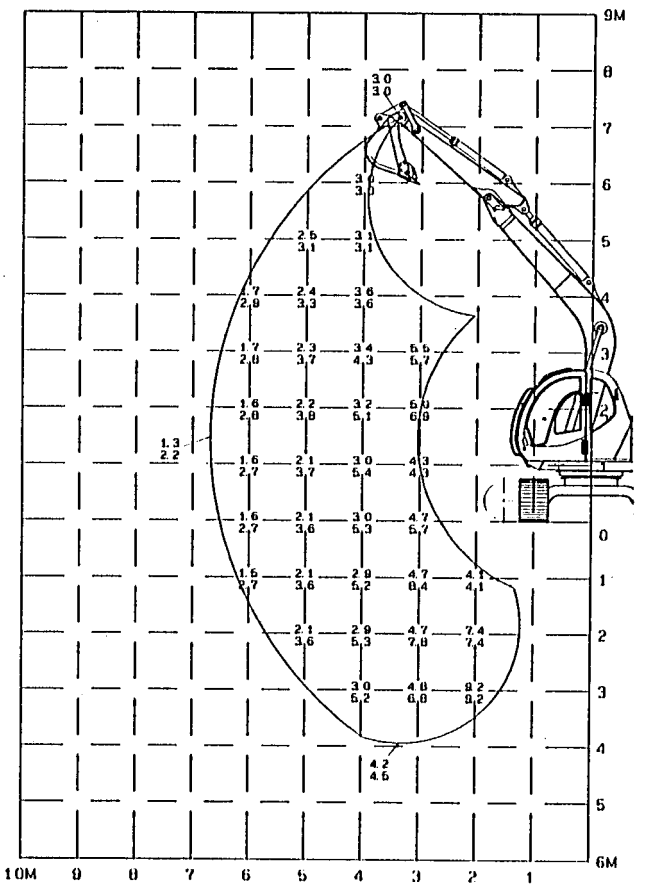




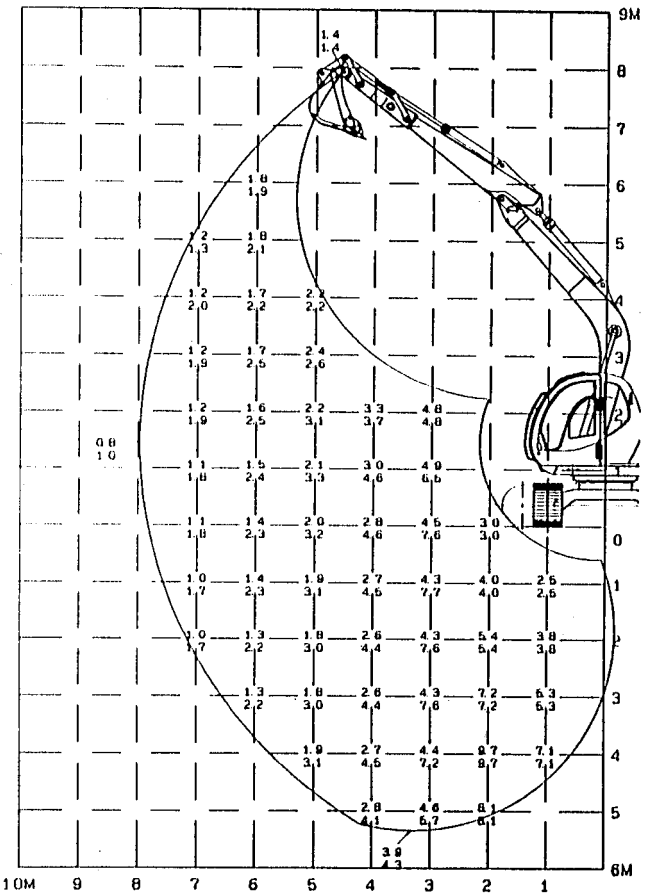
(7) Unit : ton



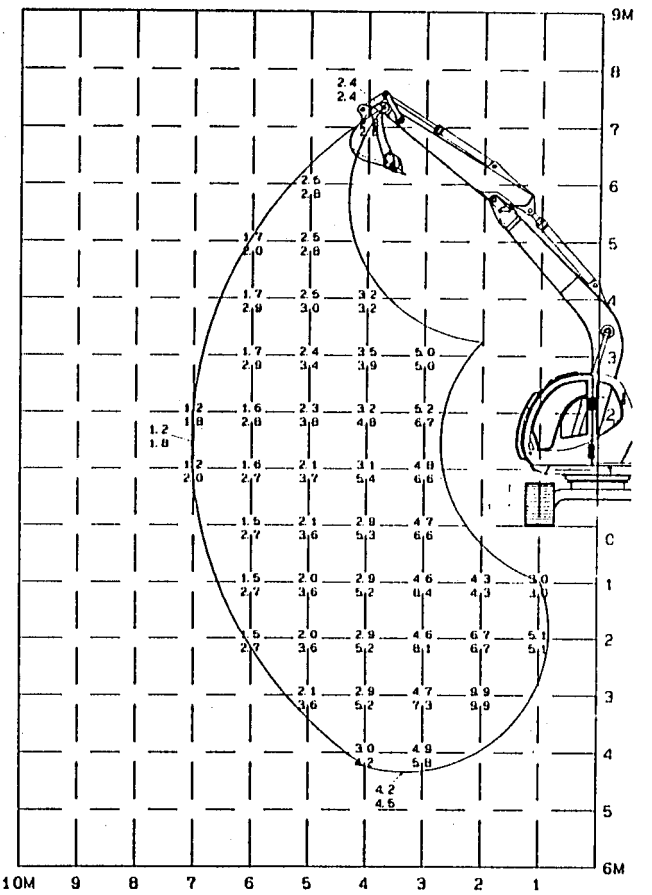
(9) Unit : ton

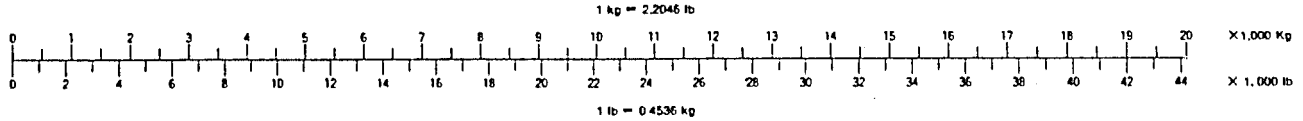


(8) Unit : ton

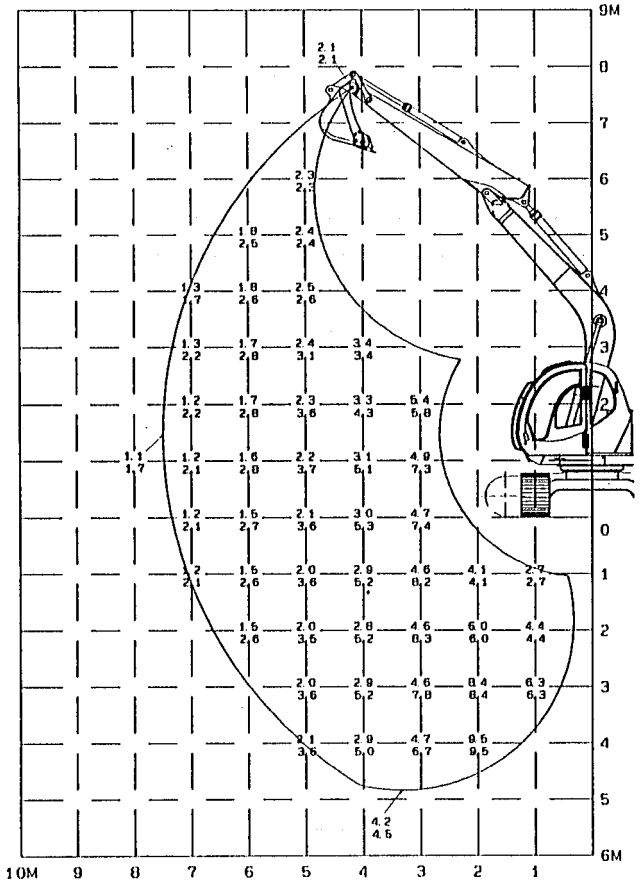


(10) Unit : ton

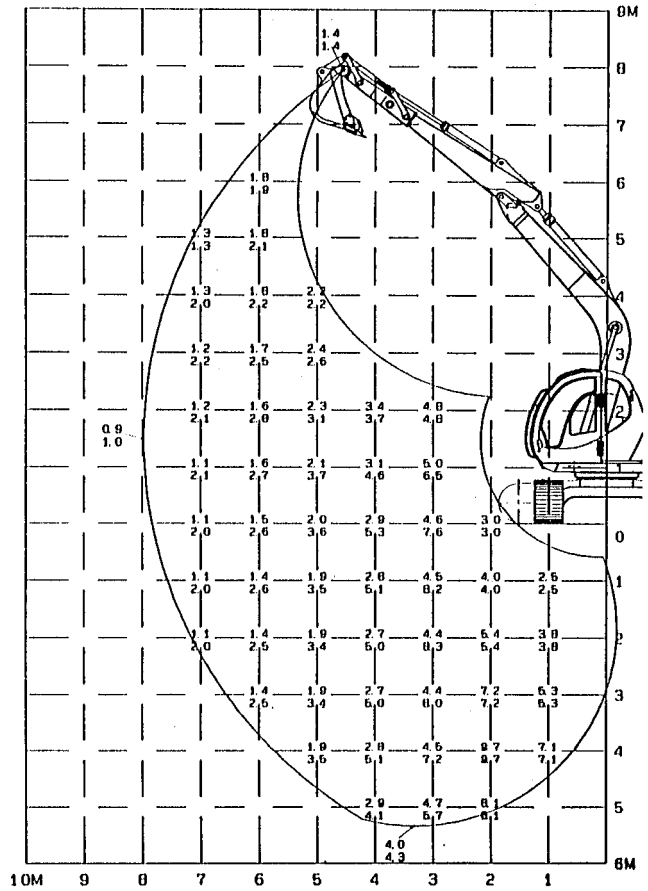




(11) Unit : ton



(12) Unit : ton

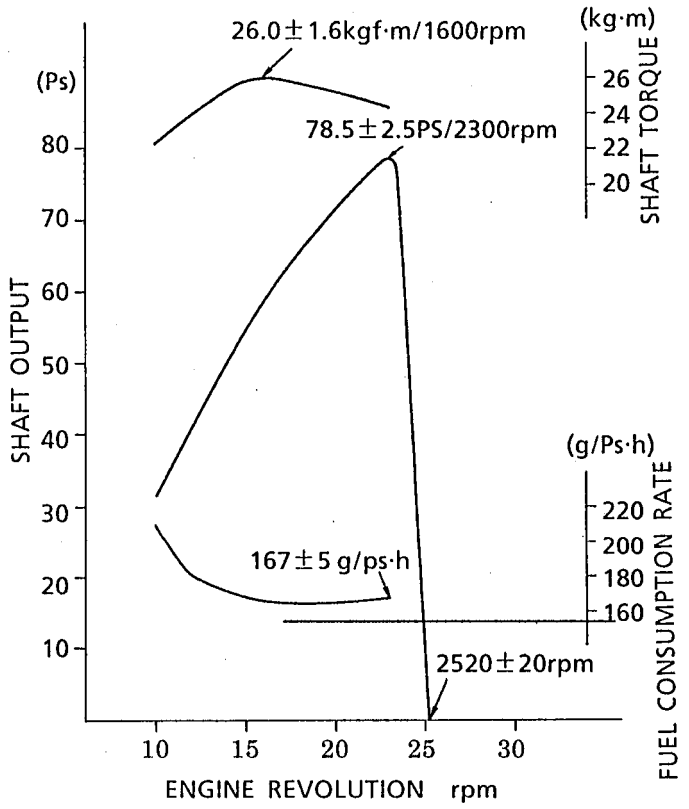


9. ENGINE SPECIFICATIONS

SK100v

Model		ISUZU 4BD1		
Type		Diesel, 4-cycle water-cooled, in-line, Direct injection		
No. of cylinders−Dir×Stroke		4−102mm×118mm (4.02 in×4.65 in)		
Total displacement		3,856cc (235 cuin)		
Compression ration		17.5		
Output rating		78.5±2.5PS / 2,300 rpm (57.7kw/ 2,300 rpm)		
Max. torque		26.0±1.6kgf · m / 1,600 rpm (255 N−m / 1,600 rpm)		
High idling		2,520±20 rpm		
Low idling		800±20 rpm		
Injection start pressure		150 kgf/ cm² (2,130psi)		
Ignition order		1−3−4−2		
Fuel injection timing		18°C before the top dead point		
Compression pressure		31 kgf/ cm² (440psi) at 200rpm		
Valve clearance, valve action timing		Valve clearance	Open	Close
	Suction valve	In cold state, in cold condition 0.4mm (0.016")	19° before the top dead point	47° after the bottom dead point
	Exhaust valve	In cold state, in cold condition 0.4mm (0.016")	57° before the bottom dead point	15° after the top dead point
Thermostat temperature		Valve opening 82°C Full open 95°C		
Starter capacity		24V−4.5KW		
Generator capacity		24V−30A		
Dry weight		325kg (716 lbs)		
Cooling fan drive method		Ø500 (Ø21.7in) suction type Belt drive pulley ratio:0.92		
Rotating direction		Clockwise as seen from fan side		

ENGINE CHARACTERISTIC CURVE



FUEL CONSUMPTION VOLUME

$$= \frac{\text{FUEL CONSUMPTION RATE}}{0.835\times1000} \times \text{PS} \times \text{LOAD RATIO}(\alpha)$$

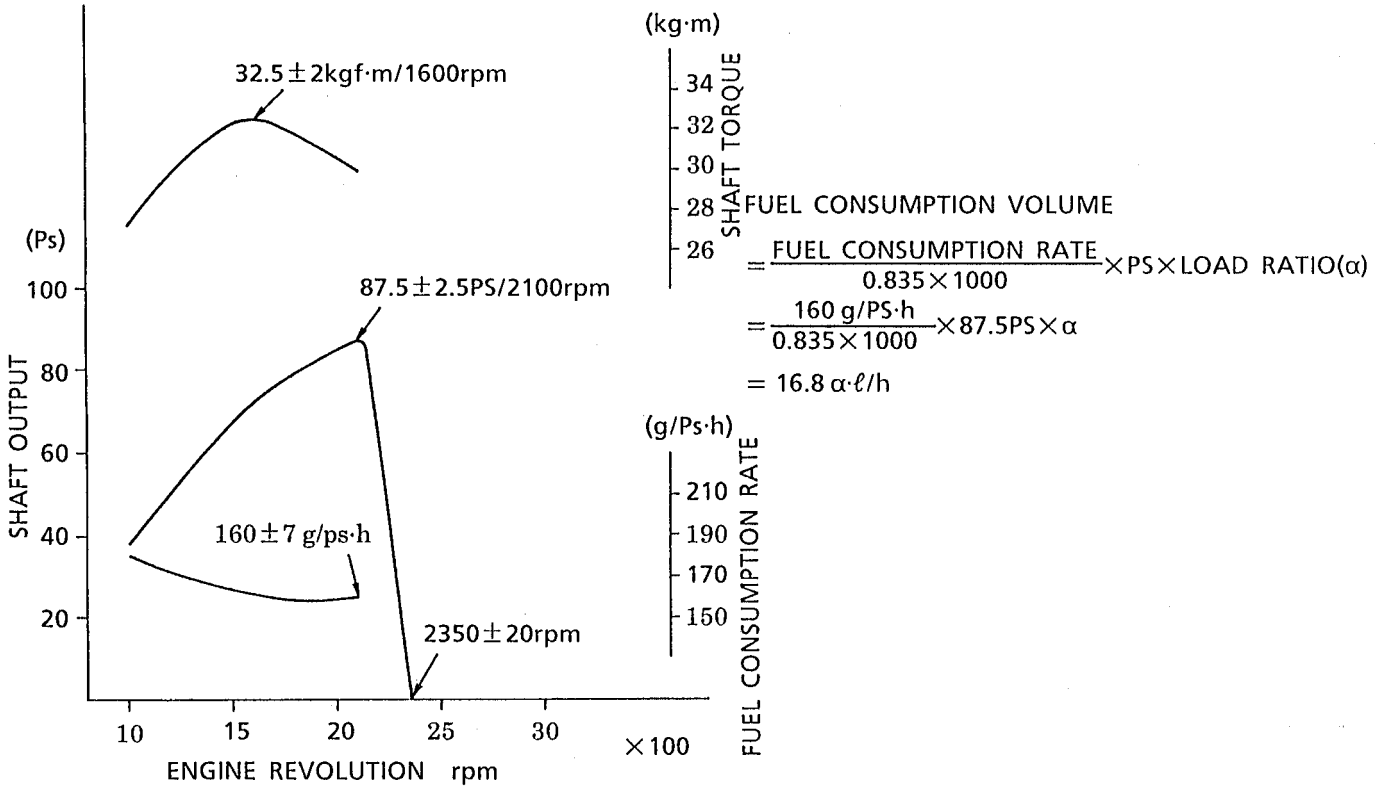
$$= \frac{167\ \text{g/PS·h}}{0.835\times1000} \times 78.5\text{PS} \times \alpha$$

$$= 15.7\ \alpha \cdot \ell/\text{h}$$

SK120V, SK120LCV

Model		ISUZU 4BD1T		
Type		Diesel, 4-cycle water-cooled, in-line, Direct injection		
No. of cylinders−Dir×Stroke		4−102mm×118mm (4.02 in×4.65 in)		
Total displacement		3,856cc (235 cuin)		
Compression ration		17.5		
Output rating		87.5±2.5PS / 2,100 rpm (64.4kw/ 2,100 rpm)		
Max. torque		32.5±2kgf · m / 1,600 rpm (319 N−m / 1,600 rpm)		
High idling		2,350±20 rpm		
Low idling		850±20 rpm		
Injection start pressure		150 kgf/ cm² (2,130psi)		
Ignition order		1−3−4−2		
Fuel injection timing		18°C before the top dead point		
Compression pressure		31 kgf/ cm² (440psi) at 200rpm		
Valve clearance, valve action timing		Valve clearance	Open	Close
	Suction valve	In cold state, in cold condition 0.4mm (0.016")	19° before the top dead point	47° after the bottom dead point
	Exhaust valve	In cold state, in cold condition 0.4mm (0.016")	57° before the bottom dead point	15° after the top dead point
Thermostat temperature		Valve opening 82°C Full open 95°C		
Starter capacity		24V−4.5KW		
Generator capacity		24V−30A		
Dry weight		345kg (761 lbs)		
Cooling fan drive method		Ø550 (Ø21.7in) suction type Belt drive pulley ratio:1.09		
Rotating direction		Clockwise as seen from fan side		

ENGINE CHARACTERISTIC CURVE



Book code No. S5LP0306E

KOBELCO

SHOP MANUAL

SK100V
SK120V
SK120LCV

LOCATION AND WEIGHT OF COMPONENTS

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LP03

KOBE STEEL, LTD.

Applicable Machines

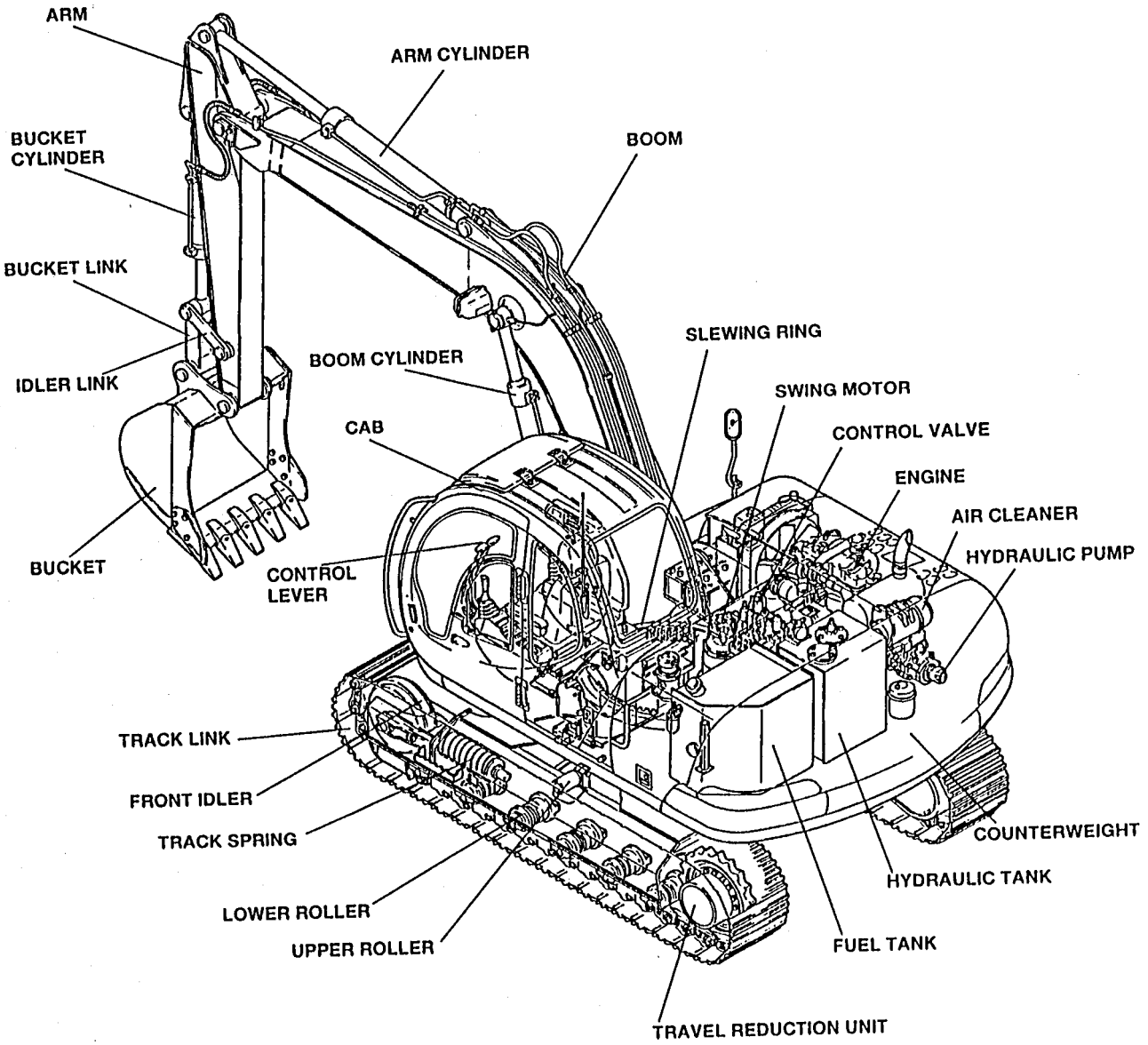
YW06501~

LP11001~

YP02301~

Revision	Date of Issue	Remarks
First edition	April, 1994	S5LP0306E K

1. LOCATION OF COMPONENTS



LP-0-1

Product: Kobelco Model SK100V,SK120V,SK120LCV Hydraulic Excavator Service Repair Workshop Manual
Full Download: https://www.arepairmanual.com/downloads/kobelco-model-sk100v
sk120vsk120lcv-hydraulic-excavator-service-repair-workshop-m
anual/

2. WEIGHT OF COMPONENTS (DRY WEIGHT)

Unit:kg (lbs)

Item \ Model	SK100 v	SK120 v	SK120LC v
Complete Machine [Std Export 500 mm (20 in) shoe]	10600 (23400)	11800 (26000)	12000 (26400)
1. Upper frame assembly	4650 (10250)	5500 (12100)	←
1.1 • Counterweight	1500 (3300)	2300 (5100)	←
1.2 • Cab	250 (550)	←	←
1.3 • Engine	✻325 (720)	✻345 (760)	←
1.4 • Hydraulic oil tank	✻98 (220)	←	←
1.5 • Fuel tank	✻72 (160)	←	←
1.6 • Swing motor and reduction unit	119 (260)	←	←
1.7 • Control valve	110 (240)	←	←
1.8 • Pump	80 (180)	←	←
1.9 • Boom cylinder	89 (200) × 2	105 (230)	←
1.10 • Radiator	✻57 (130)	←	←
2. Lower frame assembly	4000 (8820)	4150 (9150)	4350 (9590)
2.1 • Slewing ring	150 (330)	←	←
2.2 • Travel motor and reduction units	165 (360) × 2	←	←
2.3 • Upper roller	16 (35) × 2	←	←
2.4 • Lower roller	27 (60) × 12	←	27 (60) × 14
2.5 • Front idler	70 (150) × 2	←	←
2.6 • Track tention	58 (130) × 2	←	←
2.7 • Sprocket	36 (80) × 2	←	←
2.8 • Swivel joint	30 (70)	←	←
2.9 • Track link with 500 mm (20 in) shoes assembly	680 (1500) × 2	730 (1610) × 2	770 (1700) × 2
Track link with 600 mm (24 in) shoes assembly	820 (1800) × 2	880 (1940) × 2	920 (2030) × 2
Track link with 700 mm (27 in) shoes assembly	910 (2000) × 2	970 (2140) × 2	1020 (2250) × 2
2.9.1 •• Track link assembly	270 (600) × 2	290 (640) × 2	310 (680) × 2
3. Attachment			
[4.26 m (14 ft) boom + 2.22 m (7 ft-3 in) arm + 0.4 m³ bucket]	1950 (4300)	—	—
[4.6 m (15 ft-1 in) boom + 2.5 m (8 ft-2 in) arm + 0.45 m³ bucket]	—	2150 (4740)	←
3.1 • Bucket assembly (standard)	340 (750)	370 (820)	←
3.2 • Standard arm assembly (including the following:)	500 (1100)	650 (1400)	←
3.2.1 •• Standard arm	310 (680)	450 (990)	←
3.2.2 •• Bucket cylinder	87 (190)	←	←
3.2.3 •• Idler link	24 (50)	←	←
3.2.4 •• Bucket link	35 (80)	43 (90)	←
3.2.5 •• Pin (2pcs for mounting the bucket cylinder and bucket)	30 (70)	←	←
3.3 • Boom assembly (including the following:)	1080 (2380)	1230 (2710)	←
3.3.1 •• Boom	690 (1520)	800 (1760)	←
3.3.2 •• Arm cylinder	130 (290)	150 (330)	←
3.3.3 •• Pin (for mounting the arm)	14 (30)	←	←
4. Lubricant and water (including the following:)	370 (810)	←	←
4.1 • Hydraulic oil and engine oil	150 (330)	←	←
4.2 • Fuel	205 (450)	←	←
4.3 • Water	19 (40)	←	←

NOTE: Numerical values marked ✻ indicate the dry weight.

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