

HYDRAULIC EXCAVATOR

**SHOP
MANUAL**

**model SK115SR-1ES
SK135SR(LC)-1ES
SK135SRL-1ES**

INDEX

1	SPECIFICATION SECTION
2	MAINTENANCE SECTION
3	SYSTEM SECTION
4	DISASSEMBLY SECTION
5	TROUBLESHOOTING
6	ENGINE SECTION
7	INSTALLATION PROCEDURES FOR OPTIONAL ATTACHMENT

SPECIFICATION

MAINTENANCE

SYSTEM

DISASSEMBLING

TROUBLESHOOTING

KOBELCO

Book code No. S5YY0007E

SK115SR-1ES
SK135SR(LC)-1ES Index of Shop Manual
SK135SRL-1ES

Book Code No. Distribution Year--Month		Index No	Title		
S5YY0107E 2004-09			SPECIFICATION	OUTLINE	YY01
S5YY0207E 2004-09				SPECIFICATION	YY02
S5YY0307E 2004-09				ATTACHMENT DIMENSION	YY03
S5YY1107E 2004-09			MAINTENANCE	TOOLS	YY11
S5YY1207E 2004-09				STANDARD MAINTENANCE TIME SCHEDULE	YY12
S5YY1307E 2004-09				MAINTENANCE STANDARD AND TEST PROCEDURE	YY13
S5YY2107E 2004-09				MECHATRO CONTROL SYSTEM	YY21
S5YY2207E 2004-09			SYSTEM	HYDRAULIC SYSTEM	YY22
S5YY2307E 2004-09				ELECTRICAL SYSTEM	YY23
S5YY2407E 2004-09				COMPONENTS SYSTEM	YY24
S5YY2507E 2004-09				AIR-CONDITIONER SYSTEM	YY25
—				—	
S5YY3107E 2004-09			DISASSEMBLING	DISASSEMBLING AND ASSEMBLING	YY31
S5YY3207E 2004-09				ATTACHMENT	YY32
S5YY3307E 2004-09				UPPER STRUCTURE	YY33
S5YY3407E 2004-09				TRAVEL SYSTEM	YY34
S5YY4107E 2004-09			TROUBLESHOOTING	MECHATRO CONTROL	YY41
S5YY4207E 2004-09				HYDRAULIC	YY42
S5YY4307E 2004-09				ELECTRICAL	YY43
S5YY4407E 2004-09				ENGINE	YY44
S5YY5107E 2004-09			E/G	ENGINE	YY51
S5YY6307E 2004-09			OPT.	MOUNTING THE BREAKER AND NIBBLER & BREAKER	YY63
YV04-03001 ~ YY04-06001 ~ YH04-03001 ~ LK04- ~				APPLICABLE MACHINES	

KOBELCO

Book code No.

S5 YY01 07E

SHOP MANUAL **SK115SR-1ES**
SK135SR(LC)-1ES
SK135SRL-1ES **YY01**

OUTLINE

TABLE OF CONTENTS

1. GENERAL PRECAUTIONS FOR MAKING REPAIRS 1
2. INTERNATIONAL UNIT CONVERSION SYSTEM 4

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Applicable Machines

SK115SR-1ES YV04-03001~
SK135SR-1ES YY04-06001~
SK135SRLC-1ES YH04-03001~
SK135SRL-1ES LK04- ~

Revision	Date of Issue	Remarks
First edition	September, 2004	S5YY0107E K

1. GENERAL PRECAUTIONS FOR MAKING REPAIRS



1.1 PREPARATION BEFORE DISASSEMBLING

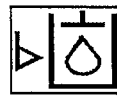
- (1) Knowledge of operating procedure
Read Operator's Manual carefully to understand the operating procedure.
- (2) Cleaning machines
Clean machines of soil, mud, and dust before carrying into the repair shop.
Carrying a soiled machine into the repair shop, causes making less efficient work and damage of parts, and interferes with rust prevention and dust protection while reassembling.
- (3) Inspecting machines
Confirm the disassembling section before starting work, determine the disassembly procedure taking the conditions in work shop into account, and request to procure necessary parts in advance.
- (4) Recording
Record the following items to keep contact and prevent malfunction from recurring.
 - 1) Inspecting date, place
 - 2) Model name, Applicable machine No., Records on hour meter
 - 3) Trouble condition, place, cause
 - 4) Visible oil leakage, water leakage and damage
 - 5) Clogging of filters, etc., oil level, oil quality, oil contamination and looseness which can be inspected.
- (6) Examine the problems on the basis of operation rate with the last inspection date and records on hour meter.
- (5) Arrangement and cleaning in repair shop
 - 1) Tools required for repair work.
 - 2) Specify places to put the disassembled parts on in advance.
 - 3) Prepare oil pans for leaking oil, etc.



1.2 SAFETY WHEN DISASSEMBLING AND ASSEMBLING

- (1) Safety
 - 1) Wear appropriate clothing, safety shoes, safety helmet, goggles, and clothes with long sleeves.
 - 2) Suspend warning tag "Don't operate" from lever, and begin preliminaries before getting down to work.
 - 3) Before starting inspection and maintenance which contain the danger of being caught in machine, stop the engine.

- 4) Confirm the position of first-aid box and fire extinguisher, and also where to make contact for emergency measure and ambulance to prepare for accidents and fire.
- 5) Choose a hard, flat and safe place, and put attachment on the ground without fail.
- 6) Use crane, etc. to remove parts of heavy weight (20kg [44 lbs] or more).
- 7) Use proper tools, and change or repair defective tools.
- 8) Machine and attachment required to work in the lifting condition should be supported with supports or blocks securely.



1.3 DISASSEMBLING AND ASSEMBLING HYDRAULIC EQUIPMENT

- (1) Removing hydraulic equipment assy
 - 1) Before removing pipes, release the pressure of hydraulic oil tank, or open the cover on the return side to tank, and take out the filter.
 - 2) Put the oil in the removed pipes in reservoir taking care it is not spilled on the ground.
 - 3) Pipes with plugs or caps to prevent oil leaking, entry of dust, etc.
 - 4) Clean the outside surface of equipment, etc. before disassembling, and drain hydraulic oil and gear oil before putting them on working bench.
- (2) Disassembling hydraulic equipment
 - 1) Since performance and function of hydraulic equipment after disassembly and assembly results in immunity from responsibility on the manufacture's side, disassembly, assembly and conversion without permission are strictly prohibited.
 - 2) If it is unavoidably necessary to disassemble and convert, it should be carried out by experts or personnel authorized through service training.
 - 3) Make match mark on parts for reassembling.
 - 4) Before disassembling, read Disassembling Instruction supplied with equipment in advance, and determine if the disassembly and assembly are permitted or not.
 - 5) For parts which are required to use jig and tools, don't fail to use the specified jig and tools.
 - 6) For parts which can not be removed in the specified produre, never force removzl. First check for the cause.

- 7) The removed parts should be put in order and tagged so as to install on proper places without confusion.
 - 8) For common parts, pay attention to the quantity and places.
- (3) Inspecting parts
- 1) Check that the disassembled parts are free from adherence, interference and non-uniform working face.
 - 2) Measure the wear of parts and clearance, and record the measured values.
 - 3) If an abnormality is detected, repair or replace the parts.
- (4) Reassembling hydraulic equipment
- 1) Before cleaning, turn the fan on or open doors to ventilate air.
 - 2) Before assembly, clean parts roughly first, and then completely.
 - 3) Remove with oil by compressed air, and apply hydraulic oil or gear oil, and then assemble them.
 - 4) Replace the removed O ring, back-up rings and oil seal with new ones, and apply grease oil on them before assembling.
 - 5) Removes stain and water on the surface on which liquid sealant are applied, decrease them, and apply liquid sealant on them.
 - 6) Before assembling, remove rust preventives on new parts.
 - 7) Use special tools to fit bearings, bushing and oil seal.
 - 8) Assemble parts matching to the marks.
 - 9) After completion, check that there is no omission of parts.

(5) Installing hydraulic equipment

- 1) Confirm hydraulic oil and lubrication oil.
- 2) Air release is required in the following cases ;
 - a. Change of hydraulic oil
 - b. Replacement of parts on suction pipe side
 - c. Removing and attaching hydraulic pump
 - d. Removing and attaching swing motor
 - e. Removing and attaching travel motor
 - f. Removing and attaching hydraulic cylinder

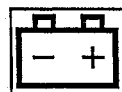
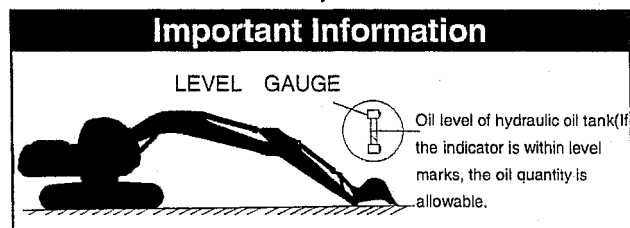
! If hydraulic oil and lubricating oil are not filled and also air bleed is not performed, the hydraulic equipment may be damaged.

- 3) For air bleed of hydraulic pump and swing motor, loosen drain plug on the upper part, start engine, and run in low idling, then bleed air until hydraulic oil is oozed out. After completion of air bleed, tighten plug securely.
- 4) For air bleed of travel motor and hydraulic cylinder, starts engine and operate it for 10 minutes or more at no-load and low speed.

! For cylinder, don't move it to the stroke end at beginning.

- 5) Air in pilot circuit can be bled out by only operating digging, swing and traveling motions thoroughly.
- 6) Check hydraulic oil level.
Move attachments to hydraulic oil check position, and check hydraulic oil level of tank. Refill oil if the oil level is lower than the minimum level.

How to check oil level of hydraulic oil tank



1.4 ELECTRICAL EQUIPMENT

- (1) The disassembly of electrical equipment is not allowed.
- (2) Handle equipment with care so as not to drop it or bump it.
- (3) Connector should be removed by unlocking while holding the connector.
Never stress in tension to the caulked section by pulling wire.
- (4) Check that connector is connected and locked completely.
- (5) Switch key off before removing and connecting connector
- (6) Switch key off before touching terminals of starter and alternator.
- (7) Remove battery grounding terminal before beginning work close to battery and battery relay with tools.
- (8) Wash machine with care so as not to splash water on electrical equipment and connector.

- (9) When water has entered in the waterproofed connector, the removing of water is not easy. So check the removed waterproofed connector with care to protect it from entry of water. If moisture adheres on it, dry it completely before connecting.



Battery electrolyte is dangerous.

The battery electrolyte is dilute sulfuric acid, and causes scald and loss of eyesight by adhering on eyes, skin and clothes. When the electrolyte has adhered on them, take an emergency measure immediately and see a doctor for medical advice.

- When it has adhered on skin ;
Wash with soap and water.
- When it has got in eyes ;
Wash in water for 10 minutes or more immediately.
- When it has spilled out in large quantity ;
Use sodium bicarbonate to neutralize, or wash away with water.
- When it was swallowed ;
Drink milk or water.
- When it has adhered on clothes ;
Wash it immediately.



1.5 HYDRAULIC PARTS

1) O ring

- Check that O ring is free from flaw and has elasticity before fitting.
- Even if the size of O ring is equal, the usage differs, for example in dynamic and static sections, the rubber hardness also differs according to the pressure force, and also the quality differs depending on the materials to be seated. So, choose proper O ring.
- Fit O ring so as to be free from distortion and bend.
- Floating seal should be put in pairs.

2) Flexible hose (F hose)

- Even if the connector and length of hose are the same, the parts differ according to the withstanding pressure. Use proper parts.

- Tighten it to the specified torque, and check that it is free from distortion, over tension, interference, and oil leakage.

1.6 WELD REPAIR

- (1) The weld repair should be carried out by authorized personnel in the specified procedure after disconnecting the grounding cable of battery. If the grounding cable is not disconnected, the electrical equipment may be damaged.
- (2) Remove parts which may cause flame due to the entry of spark beforehand.
- (3) Repair attachments which are damaged, giving particular attention to the plated section of piston rod to protect it from sparks, and don't fail to cover the section with fire clothes.

1.7 ENVIRONMENTAL ISSUES

- (1) Engine should be started and operated in the place where air can be sufficiently ventilated.
- (2) Industrial waste disposal
The following parts follows the regulation.
Waste oil, waste container
Battery
- (3) Asbestos parts
Breathing dust that may be generated when handling components containing asbestos fibers raises danger of getting lung cancer. Don't raise dust by compressed air and breath it.

Parts to be handled with care :
Brake parts, gasket, etc.

- (4) Precautions for handling hydraulic oil
Hydraulic oil may cause inflammation of eyes. Wear goggles to protect eyes on handling it.
 - When it has got in eyes ;
Wash eyes with water until the stimulus is gone.
 - When breathed dust ;
Immediately see a doctor for medical advice.
 - When it has adhered on skin ;
Wash with soap and water.
- (5) Others
For spare parts, grease and oil, use KOBELCO genuine ones.

2. INTERNATIONAL UNIT CONVERSION SYSTEM

Introduction

Although this manual uses the JIS unit system.

If you need SI unit, refer to following international system of units.

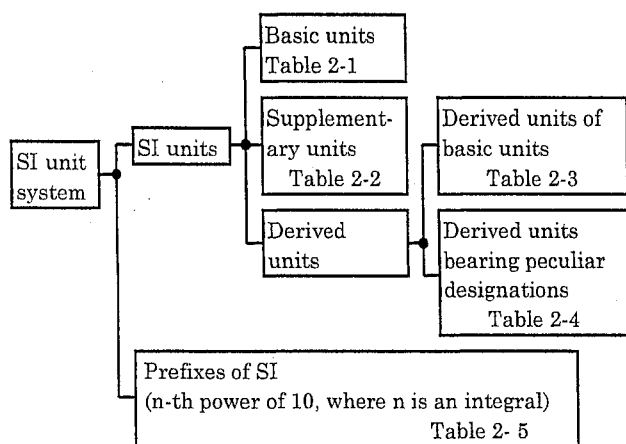
Given hereinunder are an excerpt of the units that are related to this manual :

1. Etymology of SI Units

French : Le Système International d' Unités

English: International System of Units

2. Construction of SI Unit System



(1) Basic Units

Table 2-1

QUANTITIES	DESIGNATION	SIGN
Length	Meter	m
Mass	Kilogram	kg
Time	Second	s
Current	Ampere	A
Thermodynamic temperature	Kelvin	K
Gram molecule	Mol	mol
Luminous intensity	Candela	cd

(2) Supplementary Units

Table 2-2

QUANTITIES	DESIGNATION	SIGN
Plane angle	Radian	rad
Solid angle	Steradian	sr

(3) Derived Units of Basic Units

Table 2-3

QUANTITIES	DESIGNATION	SIGN
Area	Square meter	m ²
Volume	Cubic meter	m ³
Velocity	Meter per second	m/s
Acceleration	Meter per second / second	m/s ²
Density	Kilogram per cubic meter	kg/m ³

(4) Derived Units bearing Peculiar Designations

Table 2-4

QUANTITIES	DESIGNATION	SIGN	DERIVED UNIT
Frequency	Hertz	Hz	1Hz=1s ⁻¹
Force	Newton	N	1N=1kgf·m/s ²
Pressure, Stress	Pascal	Pa	1Pa=1N/m ²
Energy, Work, Quantity of heat	Joule	J	1J=1N·m
Power, Motive power, Electric power	Watt	W	1W=1J/s
Charge, Quantity of electricity	Coulomb	C	1C=1A·s
Potential, Voltage, Electromotive force	Volt	V	1V=1J/C (1W/A)
Quantity of static electricity, Capacitance	Farad	F	1F=1C/V
Electric resistance	Ohm	Ω	1Ω=1V/A
Celcius temperature	Celcius degree or degree	°C	
Illuminance	lux	ℓX	1. ℓX=1 ℓm/m ²

(5) Prefixes of SI

Table 2-5

PREFIX		POWER
DESIGNATION	SIGN	
Giga-	G	10 ⁹
Mega-	M	10 ⁶
Kilo-	k	10 ³
Hecto-	h	10 ²
Deca-	da	10
Deci-	d	10 ⁻¹
Centi-	c	10 ⁻²
Milli-	m	10 ⁻³
Micro-	μ	10 ⁻⁶
Nano-	n	10 ⁻⁹
Pico-	p	10 ⁻¹²

(6) Unit Conversion Table

Table 2-6

QUANTITIES	JIS	SI	REMARKS
Mass	kg	kg	
Force	kgf	10N	9.807N
Torque	kgf·m	10N·m	9.807N·m
Pressure	kgf/cm ²	0.1MPa	0.098MPa
Motive power	PS	0.7355kW	
Revolution	rpm	min ⁻¹	r/min ※1

※1 Units that are allowed to use

KOBELCO

Book code No.

S5 YY02_{07E}

SHOP MANUAL

SK115SR-1ES
SK135SR(LC)-1ES
SK135SRL-1ES

YY02

SPECIFICATION

TABLE OF CONTENTS

1. NAME OF COMPONENTS	1
2. GENERAL DIMENSION	2
3. WEIGHT OF COMPONENTS	3
4. TRANSPORTATION DIMENSION AND WEIGHT	4
5. SPECIFICATIONS AND PERFORMANCE	12
6. TYPE OF CRAWLER	14
7. TYPE OF BUCKET	16
8. COMBINATIONS OF ATTACHMENT	17
9. ENGINE SPECIFICATION	18

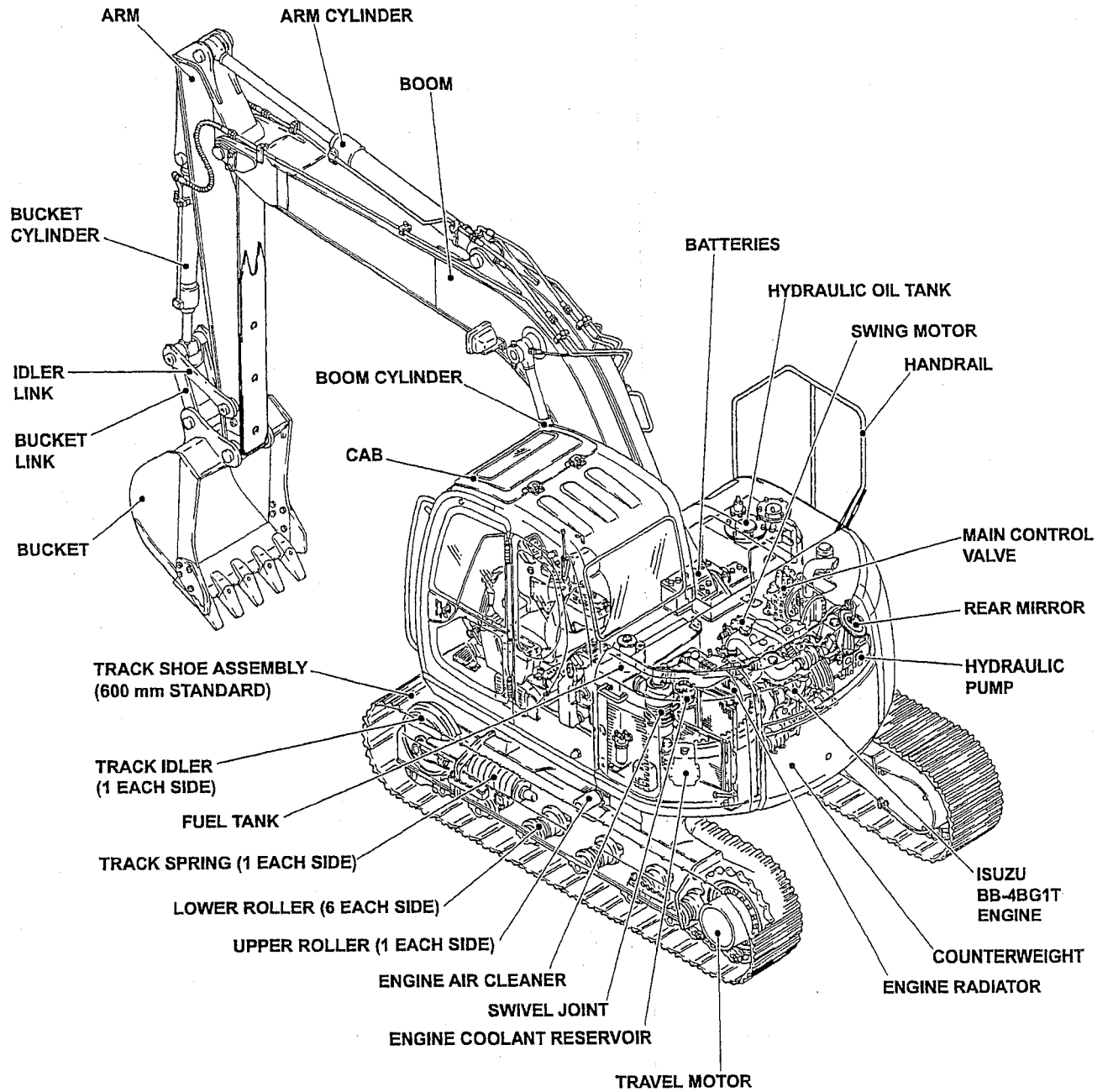
KOBELCO CONSTRUCTION MACHINERY CO., LTD.

Applicable Machines

SK115SR-1ES YV04-03001 ~
SK135SR-1ES YY04-06001 ~
SK135SRLC-1ES YH04-03001 ~
SK135SRL-1ES LK04- ~

Revision	Date of Issue	Remarks
First edition	September, 2004	S5YY0207E K

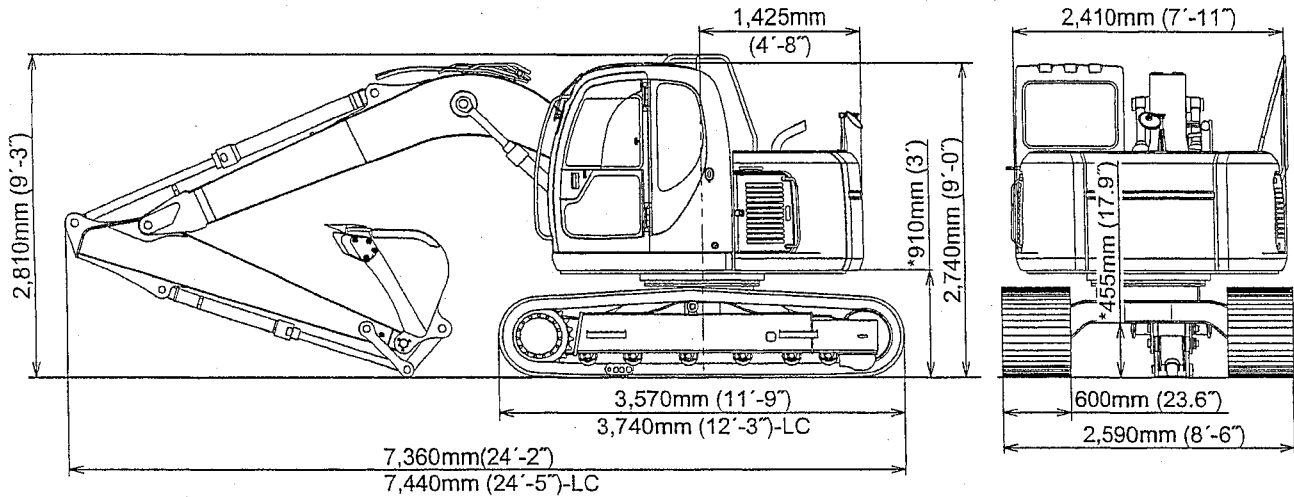
1. NAME OF COMPONENTS



2. GENERAL DIMENSION

2.1 SK135SR (LC)-1ES

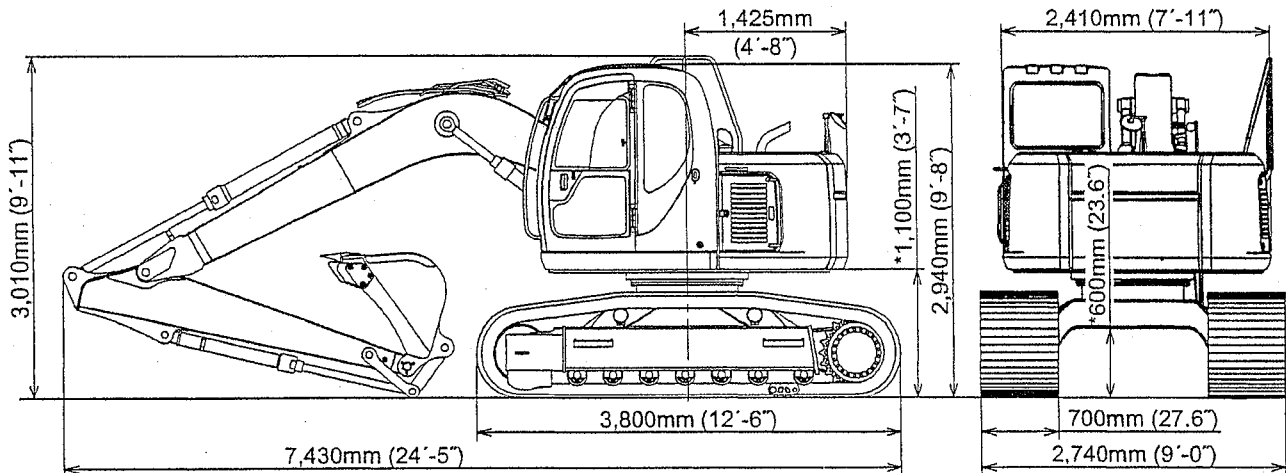
4.6m (15' 1") Boom+2.45m (8') Arm+0.5m³ (0.65cu.yd) Bucket+600mm (23.6") Shoe



*Marked dimensions do not include height of shoe lug.

2.2 SK135SRL-1ES

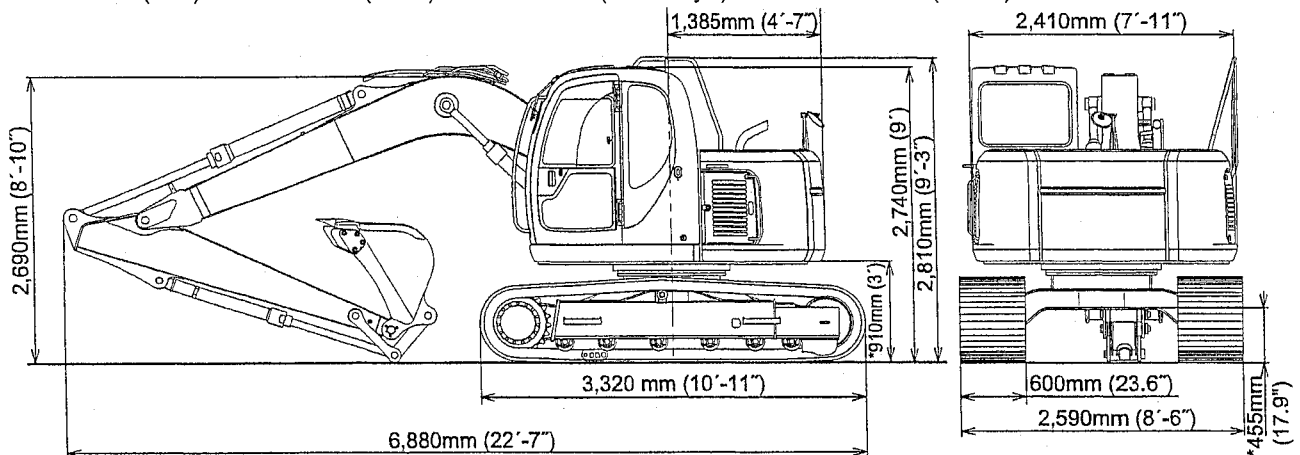
4.6m (15' 1") Boom+2.45m (8') Arm+0.5m³ (0.65cu.yd) Bucket+700mm (28") Shoe



*Marked dimensions do not include height of shoe lug.

2.3 SK115SR-1ES

4.26m (14') Boom+2.2m (7' 3") Arm+0.45m³ (0.59cu.yd) Bucket+600mm (23.6") Shoe



*Marked dimensions do not include height of shoe lug.

3. WEIGHT OF COMPONENTS

Unit : kg (lbs)

Item	Model	SK135SR-1ES	SK135SRLC-1ES [SK135SRL-1ES]	SK115SR-1ES
Machine complete		13,700(30,200)	13,900(30,640) [15,700(34,610)]	11,900(26,230)
1. Upper frame assy (including the following :)		7,330(16,160)	←	6,080(13,400)
1.1 Counterweight		3,490(7,690)	←	2,340(5,160)
Counterweight (Add-on)		600(1,320)	←	←
1.2 Cab		210(460)	←	←
1.3 Engine ※		368(810)	←	363(800)
1.4 Hydraulic oil tank ※		91(200)	←	←
1.5 Fuel tank ※		53(116)	←	←
1.6 Slewing motor (including reduction unit)		110(240)	←	←
1.7 Control valve		122(270)	←	114(251)
1.8 Boom cylinder ※		107(235)×2	←	84(235)×2
1.9 Pin (2pcs. for mounting boom)		37(82)	←	←
1.10 Pump ※		95(210)	←	←
1.11 Radiator ※		77(170)	←	65(143)
2. Lower frame assy (including the following :)		4,450(9,810)	4,650(10,250) [6,750(14,880)]	4,140(9,130)
2.1 Slewing bearing		149(330)	←	←
2.2 Travel motor (including reduction unit)		144(320)×2	←	←
2.3 Upper roller		8(18)×2	8(18)×4	8(18)×2
2.4 Lower roller		27(60)×12	27(60)×14	27(60)×12
2.5 Front idler		70(150)×2	←	←
2.6 Track tension adjuster		57(125)×2	←	←
2.7 Sprocket		36(79)×2	←	←
2.8 Swivel joint		30(66)	←	←
2.9 Track link with 700mm (28in) shoes assy		—	[1,340 (2,950)]×2	—
Track link with 600mm (24in) shoes assy		870(1,920)×2	915(2,020)×2	760(1,670)×2
Track link with 500mm (20in) shoes assy		730(1,610)×2	—	680(1,500)×2
2.9.1 Track link assy		290(640)×2	300(660)×2 [465(1,040)]×2	270(590)×2
2.10 Dozer blade (OPT)		470(1,040)	←	←
2.11 Dozer blade cylinder (OPT) ※		57(125)×2	←	←
3. Attachment		1,920(4,230)	←	1,680(3,700)
3.1 Bucket assy		380(840)	←	340(750)
3.2 Arm assy (including the following :)		580(1,280)	←	490(1,080)
3.2.1 Arm		374(820)	←	300(660)
3.2.2 Bucket cylinder ※		90(198)	←	87(190)
3.2.3 Idler link		12(26)×2	←	←
3.2.4 Bucket link		43(95)	←	35(77)
3.2.5 Attachment pin		36(79)	←	24(52)
3.3 Boom assy (Including the following :)		940(2,070)	←	850(1,870)
3.3.1 Boom		740(1,630)	←	680(1,500)
3.3.2 Arm cylinder ※		149(330)	←	128(280)
3.3.3 Pin (Mounting arm • Mounting arm cylinder)		29(64)	←	27(59)
4. Lubricant and water (including the following :)		310(680)	←	←
4.1 Hydraulic oil		138(304)	←	←
4.2 Engine oil		11(24)	←	←
4.3 Fuel + water		139(310) + 18(40)	←	←

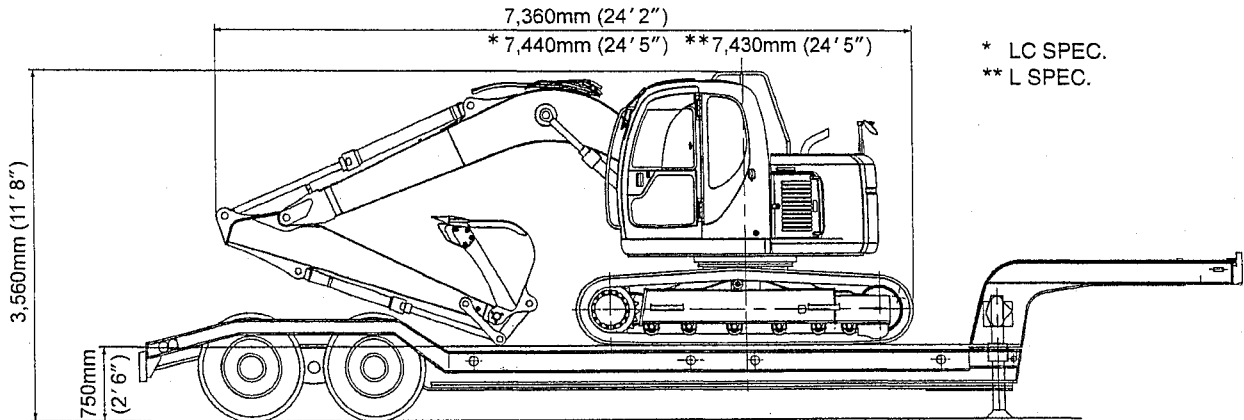
NOTE : Numerical values marked ※ indicate the dry weight.

4. TRANSPORTATION DIMENSION AND WEIGHT

SK135SR(LC)-1ES SK135SRL-1ES

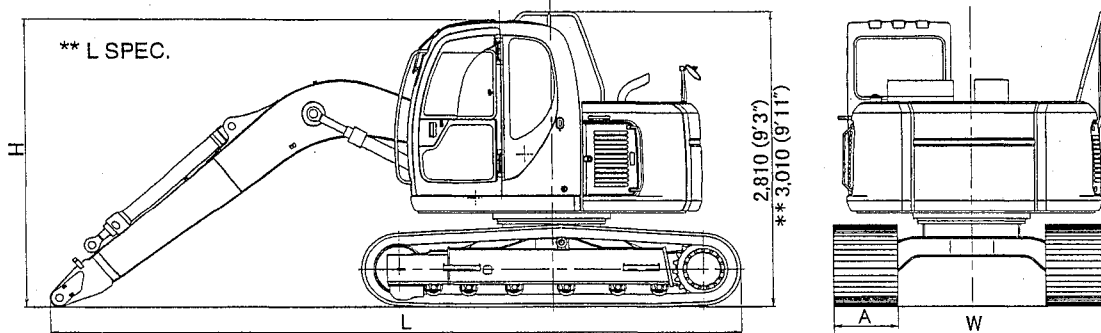
● OVERALL DIMENSIONS OF A STD COMPLETE MACHINE ON A TRAILER

Item	Model	SK135SR-1ES	SK135SRLC-1ES	SK135SRL-1ES
Shoe & Width	mm(ft-in)	600mm (24") 2,590 (8' 6")		800mm (32") 2,790 (9' 2")
Weight	kg(lbs)	13,700 (30,200)	13,900 (30,600)	16,000 (35,300)



● OVERALL DIMENSIONS OF WITHOUT ARM AND BUCKET

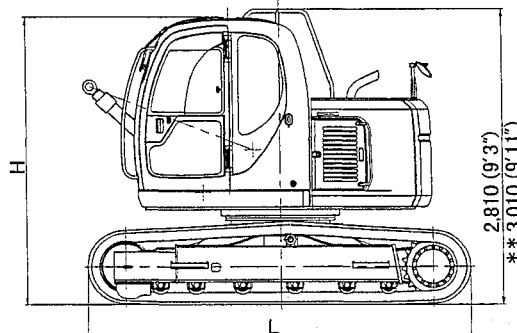
Combination	Type	A : Shoe width mm (ft-in)	L : Length mm (ft-in)	H : Height mm (ft-in)	W : Width mm (ft-in)	Weight kg (lbs)
Without Arm and Bucket	STD	600 (24")	6,510 (21' 4")	2,740 (8' 12")	2,590 (8' 6")	12,720 (28,000)
	LC	600 (24")	6,590 (21' 7")	2,940 (9' 8")	2,840 (9' 4")	12,920 (28,500)
	L	800 (32")	6,620 (21' 9")	↑	↑	14,920 (32,900)



● OVERALL DIMENSIONS OF WITHOUT BOOM, ARM AND BUCKET

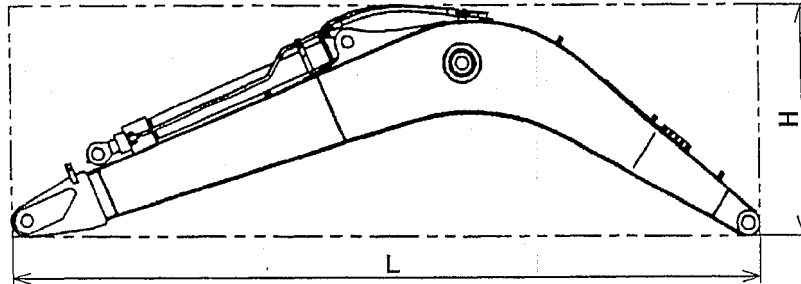
Combination	Type	A : Shoe width mm (ft-in)	L : Length mm (ft-in)	H : Height mm (ft-in)	W : Width mm (ft-in)	Weight kg (lbs)
Without Arm and Bucket	STD	600 (24")	3,570 (11' 9")	2,740 (8' 12")	2,590 (8' 6")	11,780 (26,000)
	LC	600 (24")	3,740 (12' 3")	2,940 (9' 8")	2,840 (9' 4")	11,980 (26,400)
	L	800 (32")	3,800 (12' 6")	↑	↑	13,980 (30,800)

** L SPEC.



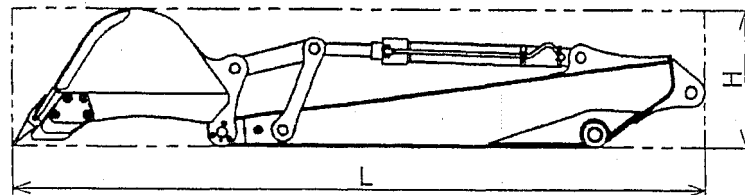
● OVERALL DIMENSIONS OF BOOM

Item	Type	4.6m (15ft-1in) Boom
Length×Height×Width L×H×W	m(ft-in)	4.76×1.39×0.57 (15' 7"×4' 7"×1' 10")
Weight	kg (lbs)	940 (2,080)



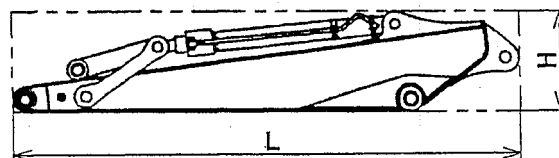
● OVERALL DIMENSIONS OF ARM+BUCKET

Item	Type	2.45m (8ft) Arm+0.5m ³ (0.65cu·yd) Bucket
Length×Height×Width L×H×W	m(ft-in)	4.36×0.81×1.00 (14' 4"×2' 8"×3' 3")
Weight	kg (lbs)	970(2,140)



● OVERALL DIMENSIONS OF ARM

Item	Type	2.45m (8ft) Arm
Length×Height×Width L×H×W	m(ft-in)	3.20×0.61×0.37 (10' 6"×2' ×1' 3")
Weight	kg (lbs)	580(1,280)

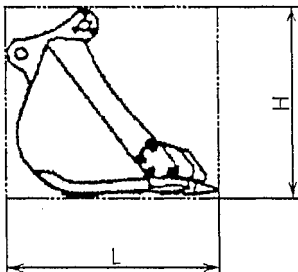


● OVERALL DIMENSIONS OF BUCKET

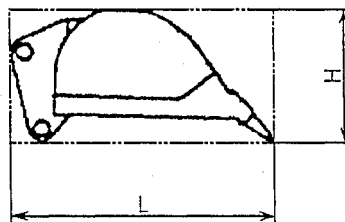
Type	Hoe bucket			
Length× Height×Width L×H×W m (ft-in)	1.19×1.07×0.70 (3' 11"×3' 6"×2' 4")	1.19×1.07×0.70 (3' 11"×3' 6"×2' 4")	1.19×1.07×0.80 (3' 11"×3' 6"×2' 7")	1.19×1.07×0.90 (3' 11"×3' 6"×2' 11")
Weight kg (lbs)	280 (620)	300 (660)	340 (750)	350 (770)
Bucket capacity m ³ (cu·yd)	0.24 (0.31)	0.31 (0.41)	0.38 (0.50)	0.45 (0.59)

Type	Hoe bucket		V-bucket	Slope finishing bucket
Length× Height×Width L×H×W m (ft-in)	1.19×1.07×1.00 (3' 11"×3' 6"×3' 3")	1.19×1.07×1.10 (3' 11"×3' 6"×3' 7")	1.25×0.65×1.79 (4' 1"×2' 2"×5' 10")	1.01×0.79×1.80 (3' 4"×2' 7"×5' 11")
Weight kg (lbs)	380 (840)	400 (880)	290 (640)	550 (1,210)
Bucket capacity m ³ (cu·yd)	STD 0.50 (0.65)	0.57 (0.75)	0.46 (0.60)	0.52 (0.68)

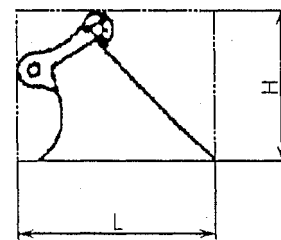
● Hoe bucket



● V-bucket



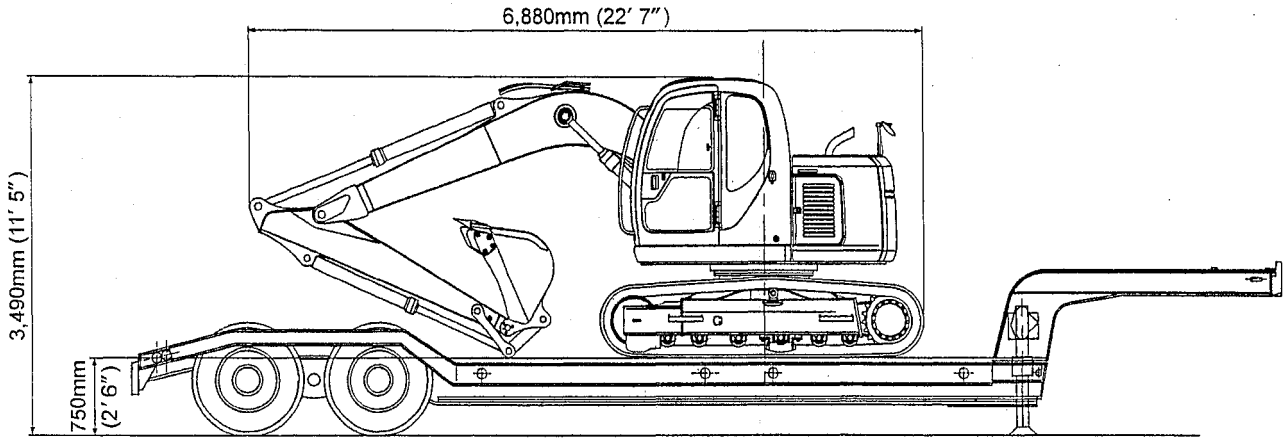
● Slope finishing bucket



SK115SR-1ES

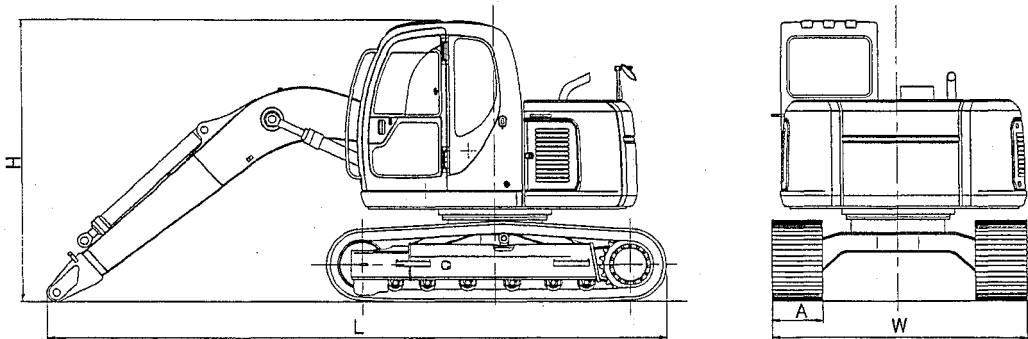
● **OVERALL DIMENSIONS OF A COMPLETE MACHINE ON A TRAILER**

Item	Type	4.26m (14ft) Boom+2.2m (7ft-3in) Arm+ 0.45m ³ (0.59cu·yd) Bucket+600mm (23.6in) Shoes
Width	mm(ft-in)	2,590 (8' 6")
Weight	kg(lbs)	11,900 (26,230)



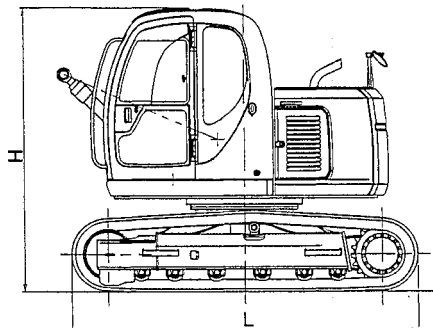
● **OVERALL DIMENSIONS OF WITHOUT ARM AND BUCKET**

Combination	Type	A : Shoe width mm (ft-in)	L : Length mm (ft-in)	H : Height mm (ft-in)	W : Width mm (ft-in)	Weight kg (lbs)
Without arm and bucket		600 (24")	6,030 (19' 9")	2,740 (9')	2,590 (8' 6")	11,070 (24,400)
		500 (20")	6,030 (19' 9")	2,740 (9')	2,490 (8' 2")	10,990 (24,200)



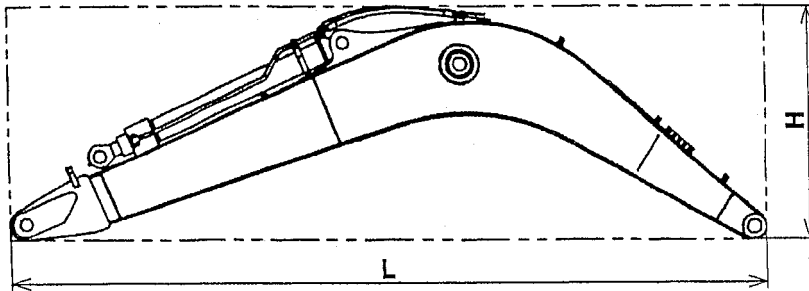
● **OVERALL DIMENSIONS OF WITHOUT BOOM, ARM AND BUCKET**

Combination	Type	A : Shoe width mm (ft-in)	L : Length mm (ft-in)	H : Height mm (ft-in)	W : Width mm (ft-in)	Weight kg (lbs)
Without boom, arm and bucket		600 (24")	3,320 (10' 11")	2,740 (9')	2,590 (8' 6")	10,220 (22,500)
		500 (20")	3,320 (10' 11")	2,740 (9')	2,490 (8' 2")	10,140 (22,400)



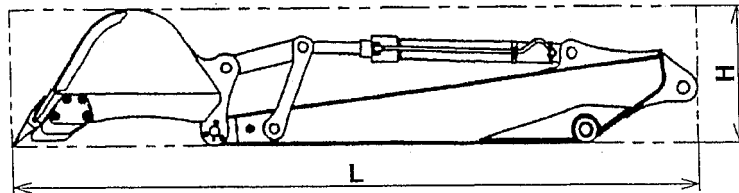
● OVERALL DIMENSIONS OF BOOM

Item	Type	4.26m (14ft) Boom
Length×Height×Width L×H×W	m(ft-in)	4.42×1.33×0.57 (14' 6"×4' 4"×1' 10")
Weight	kg (lbs)	790 (1,740)



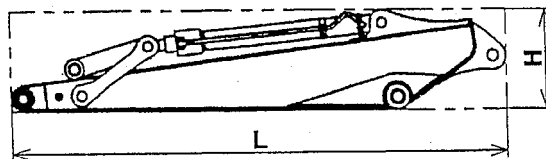
● OVERALL DIMENSIONS OF ARM+BUCKET

Item	Type	2.2m (7ft-3in) Arm+0.45m ³ (0.59cu·yd) Bucket
Length×Height×Width L×H×W	m(ft-in)	4.07×0.79×0.95 (13' 4"×2' 7"×3' 1")
Weight	kg (lbs)	820(1,810)



● OVERALL DIMENSIONS OF ARM

Item	Type	2.2m (7ft-3in) Arm
Length×Height×Width L×H×W	m(ft-in)	2.93×0.59×0.35 (9' 7"×1' 11"×1' 2")
Weight	kg (lbs)	480(1,060)





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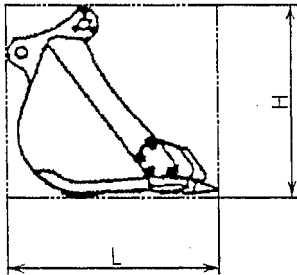
Thank you so much for reading

● OVERALL DIMENSIONS OF BUCKET

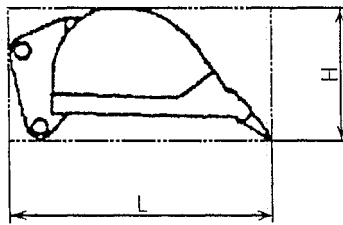
Type	Hoe bucket			
Length× Height×Width L×H×W m (ft-in)	1.35×0.60×0.46 (4' 5"×2' ×1' 6")	1.19×1.03×0.60 (3' 11"×3' 5"×2')	1.19×1.03×0.70 (3' 11"×3' 5"×2' 4")	1.19×1.03×0.80 (3' 11"×3' 5"×2' 7")
Weight kg (lbs)	210 (460)	260 (570)	280(620)	320 (705)
Bucket capacity m ³ (cu·yd)	0.17 (0.22)	0.23 (0.30)	0.30 (0.39)	0.37 (0.48)

Type	Hoe bucket		V-bucket	Slope finishing bucket
Length× Height×Width L×H×W m (ft-in)	1.19×1.03×0.95 (4' 5"×2' ×3' 1")	1.19×1.03×1.00 (4' 5"×2' ×3' 3")	1.29×0.64×1.81 (4' 3"×2' 1"×5' 11")	0.99×0.73×1.60 (3' 3"×2' 5"×5' 3")
Weight kg (lbs)	350 (770)	370 (820)	280(620)	480(1,060)
Bucket capacity m ³ (cu·yd)	STD 0.45(0.59)	0.51(0.67)	0.46(0.60)	0.40 (0.52)

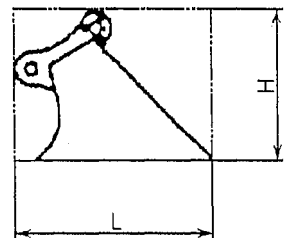
● Hoe bucket



● V-bucket

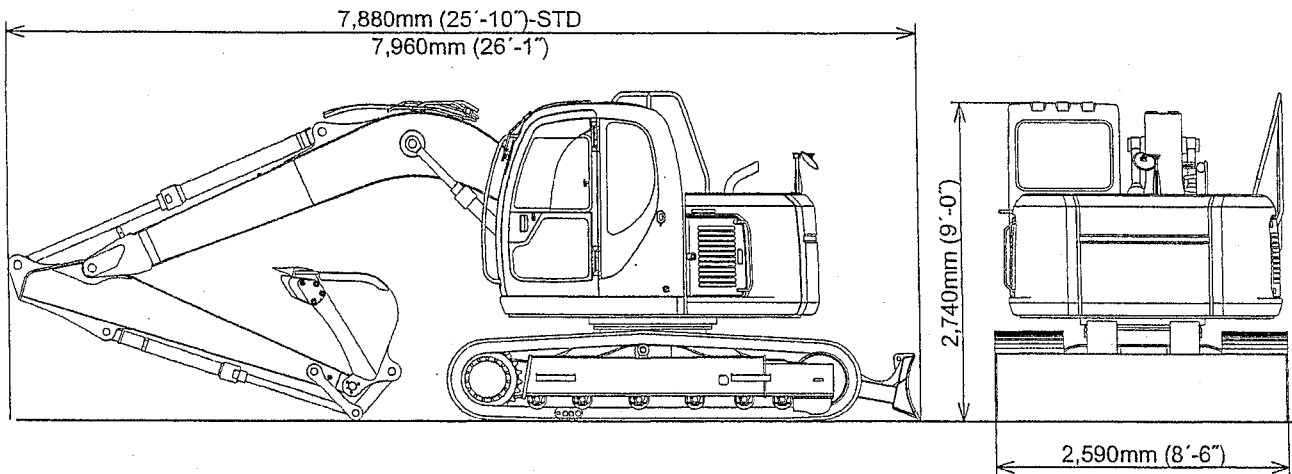


● Slope finishing bucket

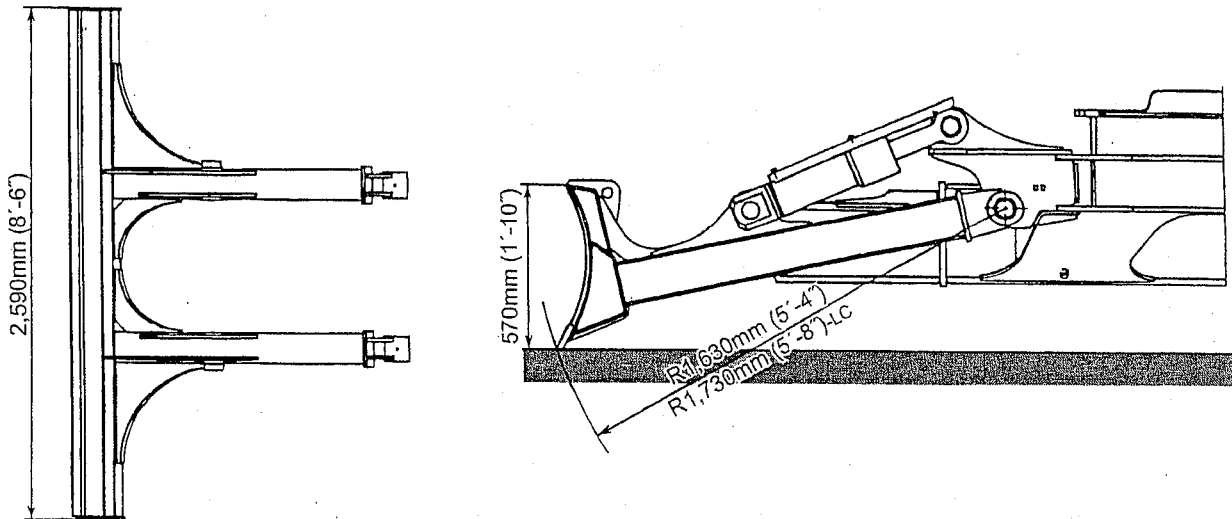


SK135SR-1ES DOZER

● OVERALL DIMENSIONS OF A COMPLETE MACHINE



● DOZER SPECIFICATIONS



ITEM	SK135SR-1ES	SK135SR-1ES LC
Length (From the center of the arm fixing pin to the tip of the blade)	R1,630mm (5'4")	R1,730mm (5'8")
Width [600mm (23.6") shoe only]	2,590mm (8'6")	2,590mm (8'6")
Height	570mm (1'10")	570mm (1'10")
Weight	470kg (1,040 lb)	480kg (1,060 lb)
Set Pressure of Main Relief Valve	210kgf/cm ² (2,990psi)	210kgf/cm ² (2,990psi)
Set pressure of Overload Relief Valve	280kgf/cm ² (3,980psi)	280kgf/cm ² (3,980psi)

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