

## 5. TRANSPORTATION



## 5.1 TRANSPORTATION

When transporting the machine, observe the transportation related regulations and transport the machine dealer.

### 5.1.1 STRICTLY OBSERVE TRANSPORTATION RELATED LAWS AND REGULATIONS

When performing transportation, contact the nearest KOBELCO branch or sales office.

- When transporting this machine with a trailer, etc., consider the width, height, length and mass of the machine. The transportation mass and dimension vary depending on the type of shoe and the specifications of the attachment.
- Refer to masses and dimensions described in "TRANSPORT POSITION", "HOW TO EXPAND/RETRACT CRAWLER FRAME (EXPANSION AND RETRACTION TYPE LOWER FRAME)(OPTION)" in Chapter 5 and "OPTIONAL EQUIPMENT" in Chapter 8 in this manual to select the proper transportation method.
- Perform a previous inspection on the route such as limitations on width, height and mass (weight) of vehicles and traffic regulations, etc.

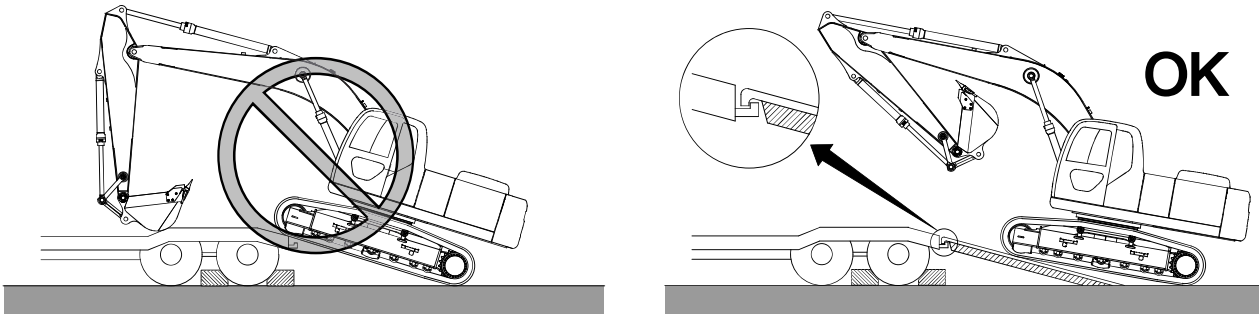


#### CONTROL PATTERNS OF THE CONTROL LEVERS

Before operation, be sure to pay attention to the surroundings and operate each control lever slowly and confirm that each motion is in accordance with the control pattern indicated on the label. When it is not matched, replace the label with the proper label matching with the actual motion.

In addition, see "PRECAUTIONS FOR OPERATIONS" in Chapter 1 for precautions regarding operations.

## 5.2 LOADING/UNLOADING THE MACHINE



### WARNING Loading/unloading the machine

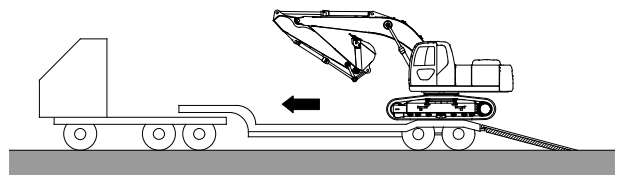
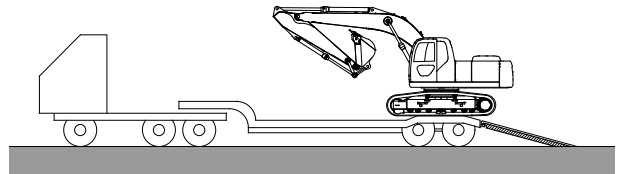
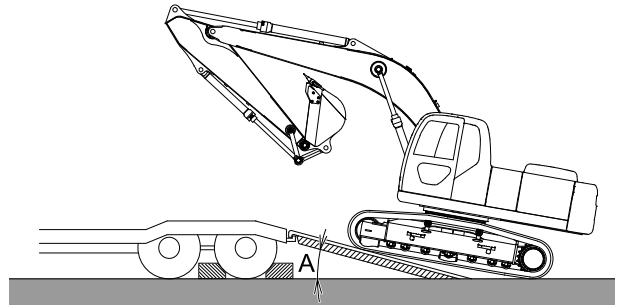
- Load/unload the machine on a level and hard ground.
  - Use ramps, platforms, and embankment with sufficient width, length, slope, rigidity, and strength.
  - Remove mud and dirt of the undercarriage to prevent the machine from skidding on the ramp. In addition, remove any deposit on the ramp including water, snow, ice, grease, and oil.
  - When loading or unloading the machine, set engine speed to LOW and travel speed select switch to LOW (1st) speed.
  - Do not use the attachment for loading and unloading the machine to avoid danger.
  - Use only the travel levers when the machine is on ramps.
  - When going over the ramp top to/from a trailer, the machine may lose balance due to an abrupt change in the center of gravity. Be sure to travel slowly.
  - Be sure to turn the auto acceleration switch to the "OFF" position. When the machine is operated with the auto acceleration turned to the "ON" position, the engine speed may change abruptly.
  - Do not make a turn on the ramp to avoid tipping. Make a turn after returning to the ground or the trailer bed.
  - When the machine is going down a slope or being loaded on or unloaded from the trailer, set the LOW (1st)/HIGH (2nd) travel speed select switch to LOW.
- Since the LOW (1st)/HIGH (2nd) automatic travel speed select switching system automatically changes the traveling speed, it may adversely affect machine control when the machine is going down a slope or being loaded on or unloaded from the trailer. This abrupt change of machine control may cause severe accidents.

## 5.2.1 LOADING

Use the following procedure.

### WHEN USING A RAMP

1. Chock the trailer tires to prevent the trailer from moving.
2. Use a ramp with sufficient length, width, strength and gradient. Install the ramp so its angle (A) to the ground is 15 degrees or less.
3. Start the engine, and move down the control lock lever to the "UNLOCKED" position.
4. On the switch panel on the gauge cluster, press the travel speed select switch to set it to the LOW (1st) speed.
5. Make sure the machine position is aligned to the ramp before going up on the ramp, raise the dozer (if installed), and travel slowly.

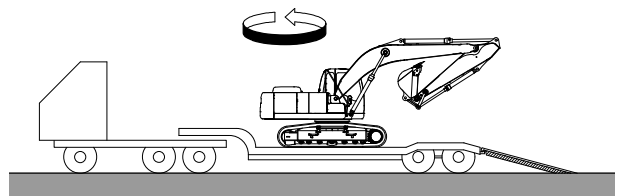


### **CAUTION**

When this machine is traveling up or down the ramp, fold the arm and attachment and raise the boom to avoid interference with the ramp or trailer bed, as shown in the figure.

When the clearance between the ramp or the trailer bed is insufficient, the machine may abruptly lean to one side when it goes over the ramp top, and strike its arm or bucket cylinder against the trailer bed, ramp, or ground, resulting in damage to the cylinder.

6. When the machine comes to the required position, slowly swing the upper structure 180 degrees.
7. Lower the attachment/equipment slowly.
8. Move the control lock lever to the "LOCKED" position.
9. Perform cool-down operation with the engine in the low idle position, and then stop the engine and remove the starter key.



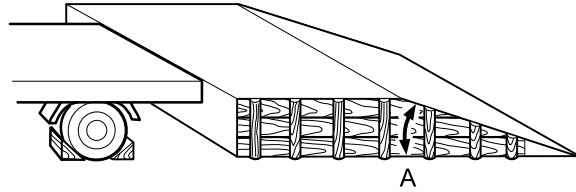
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10. Lock the lock devices such as guards and doors.

### WHEN USING PLATFORM OR EMBANKMENT

1. Make the embankment wide enough to the machine width. The angle (A) of the platform or embankment to the ground should be 15 degrees or less.
2. Check that the embankment is sufficiently sturdy to hold the machine weight.
3. The surface of the platform or embankment must be level to that of the trailer bed.
4. Park the trailer properly at the required position.



### LOADING A MACHINE WITHOUT ATTACHMENT/EQUIPMENT

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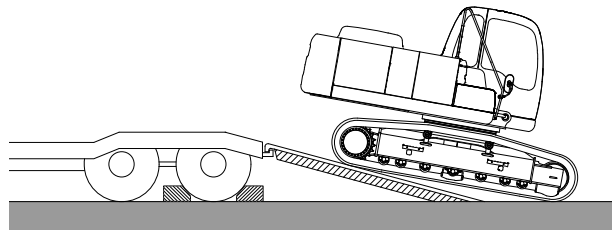


#### **WARNING** DO NOT SWING

Do not swing the machine during loading and unloading the machine.  
It may cause the machine to tip/roll over to the counterweight side.

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- When loading a machine without an attachment/equipment, adjust the travel direction so the counterweight comes to the top of the slope.



## 5.2.2 FIXING THE MACHINE

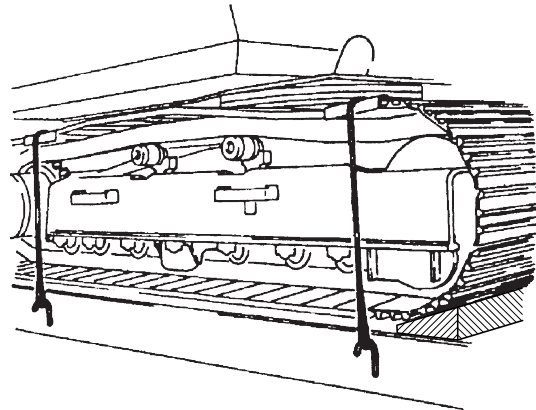
### Notice

- Retract the radio antenna in before transportation. In addition, remove the mirrors if required. Store the removed parts securely in the cab.
- Place a wood block under the bucket (attachment) link to avoid contacting the ground and protect the bucket cylinder from being damaged during transportation.

After loading the machine on the required position, fix the machine by the following procedures.

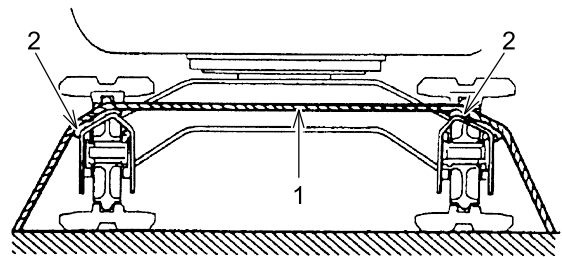
### CRAWLER

1. Check that all guards and doors are locked.
2. Chock the front and rear of the crawlers and fix the machine securely with wire ropes of appropriate strength to prevent the body from moving back and forth or rolling by vibration of the trailer. In addition, secure individual parts and removed parts securely on the trailer.



### RUBBER CRAWLER AND PAD SHOE

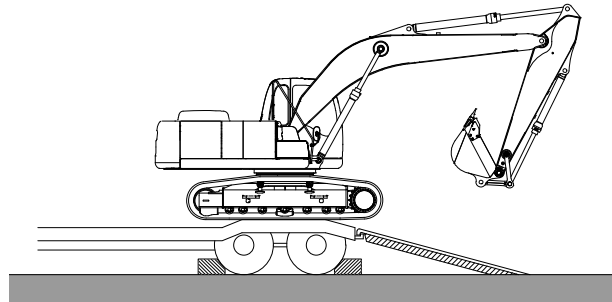
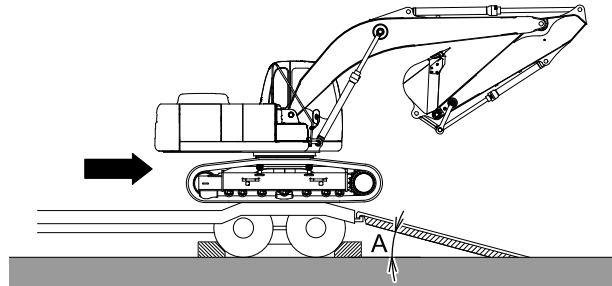
1. Check that all guards and doors are locked.
2. Chock the front and rear of the crawlers and fix the machine securely with wire ropes of appropriate strength to prevent the body from moving back and forth or rolling by the vibration of the trailer. In addition, secure individual parts and removed parts securely on the trailer.  
Do not directly apply the wire rope (1) on the rubber crawler or the pad shoe. Place pads (2) (such as soft cloth) at the left and right of the crawler frame to fix the rope securely on the loading platform of the truck.



### 5.2.3 UNLOADING

Use the following procedure.

1. Chock the trailer tires to prevent the trailer from moving.
2. Use ramps with sufficient length, width, strength and gradient. Attach the ramps so its angle (A) to the ground is 15 degrees or less.
3. Remove chains or wire ropes that have been fixing the machine.
4. Start the engine, and move down the pilot control shut-off lever to the "UNLOCKED" position.
5. On the switch panel on the gauge cluster, press the travel speed select switch to set it to the LOW (1st) speed.
6. Raise the boom slowly.
7. Raise the attachment. With the arm retracted under the boom, raise the dozer (if equipped) and travel slowly.
8. Level the machine at the rear end of the trailer and stop temporarily.
9. Make sure the machine position is aligned parallel to the ramps, and adjust the angle between the arm and boom to 80 to 100 degrees.

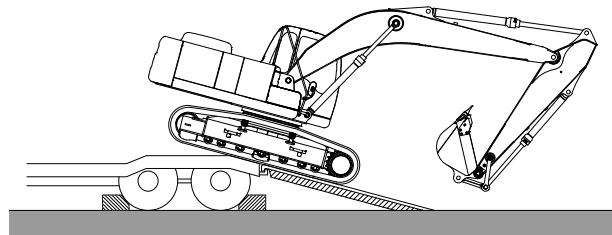


#### **CAUTION**

When this machine is traveling up or down the ramp, fold the arm and attachment and raise the boom to avoid interference with the ramp or trailer bed, as shown in the figure.

When the clearance between the ramp or the trailer bed is insufficient, the machine may abruptly lean to one side when it goes over the ramp top, and strike its arm or bucket cylinder against the trailer bed, ramp, or ground, resulting in damage to the cylinder.

10. Until the machine completely passes through the ramps, travel down the ramps slowly with moving the boom and the arm slowly to keep the bucket close to the ground so that it can be lowered to the ground in an emergency.
11. Slowly swing the upper structure 180 degrees to take the front traveling position (so the travel reduction unit comes to the rear).

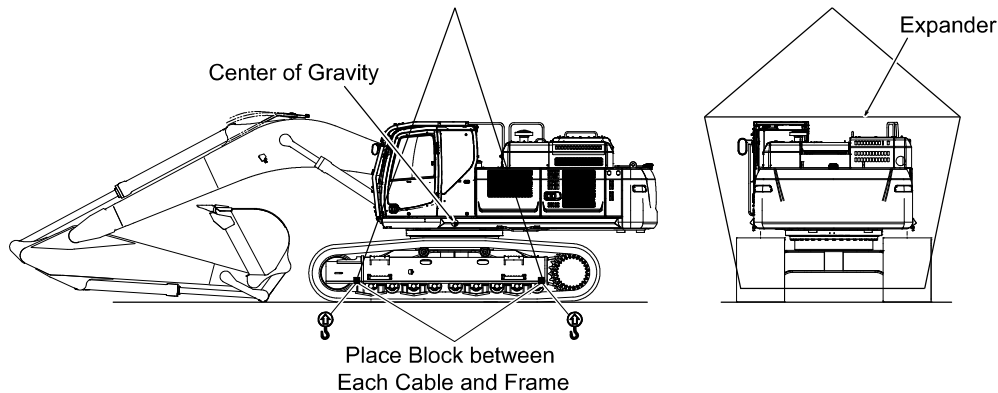


## 5.3 MACHINE LIFTING



### MACHINE LIFTING

- Wire ropes or other lifting tools used should have no damage nor deterioration, but have sufficient strength and length.
- With improper method of lifting and placing wire ropes, the lifted machine may move, causing personal injury or damage to the machine.
- Be careful not to apply a load suddenly to the wire ropes and the lifting tools.
- When lifting the machine, evacuate from the areas surrounding the machine. At the time of lifting, unexpected movement of the machine can occur.
- During the machine lifting operation, keep away from the area around and under the machine.
- When lifting the machine as a group work, surely send and receive signals to each other.
- Do not lift the machine with a worker on it.
- Keep the machine horizontal when lifting it.



### Notice

- This lifting procedures are applicable for machines in a standard specification.  
In the actual lifting operation, the weight and center of gravity of the machine as well as the strength of the wire ropes and sling jigs must be checked. For details, contact KOBELCO or your KOBELCO authorized dealer.
- Use wire ropes and sling jigs with a sufficient length to avoid contact with the machine during the lifting operation.
- When necessary, cover the wire ropes with a cloth or pad to protect the machine body from damage.

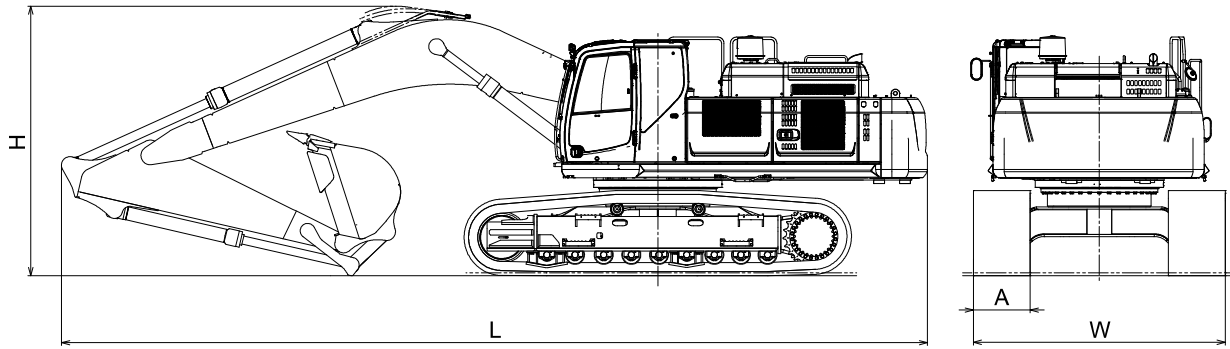
### 5.3.1 LIFTING PROCEDURES

1. Move the machine to a level place.
2. Fully extend the arm cylinder and the bucket cylinder of the attachment/equipment, and lower the boom to place the attachment/equipment on the ground.
3. Align the orientation of the cab and the crawlers in parallel.
4. Move the pilot control shut-off lever to the "LOCKED" position, stop the engine, and pull out the starter key.
5. Close the front window and the window glasses of the cab, the cab door, the left and right side doors, and the engine hood and then lock them.
6. Pass the wire ropes through the spaces between the first lower roller and the second lower roller at the front and rear sides of the machine.
7. Adjust the sling angle of the wire rope to 20 to 30 degrees and then lift the machine.
8. Lift the machine and after the machine leaves the ground, stop the movement, wait until the machine is stabilized, and then slowly lift up the machine.

## 5.4 TRANSPORT POSITION

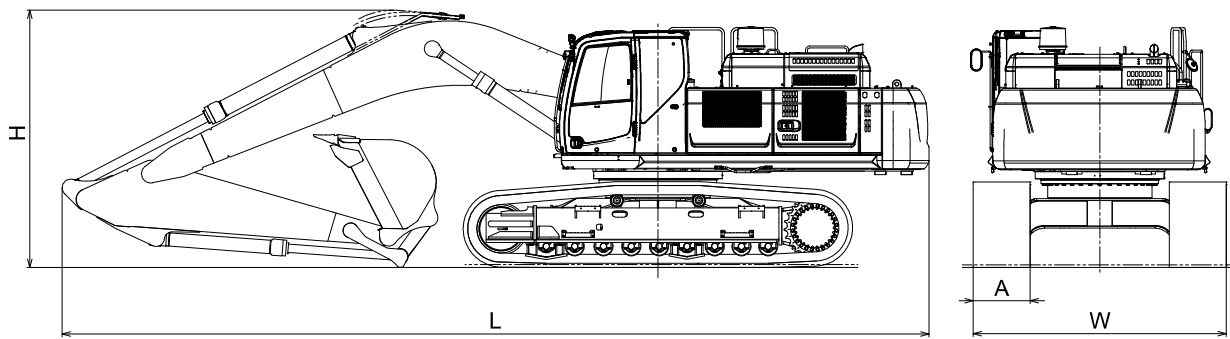
7.0m(23'0") Boom, 3.0m(9'10") Arm, 2.1m<sup>3</sup>(2.75 cu-yd) Bucket

Model	Item	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	A: Shoe width mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
SK500XDL-10 (SHD Spec.)		12,210 (40'1")	3,780 (12'5")	600 (23.6")	3,580 (11'9")	52,200 (115,100)



7.0m(23'0") Boom, 3.45m(11'4") Arm, 1.9m<sup>3</sup>(2.49 cu-yd) Bucket

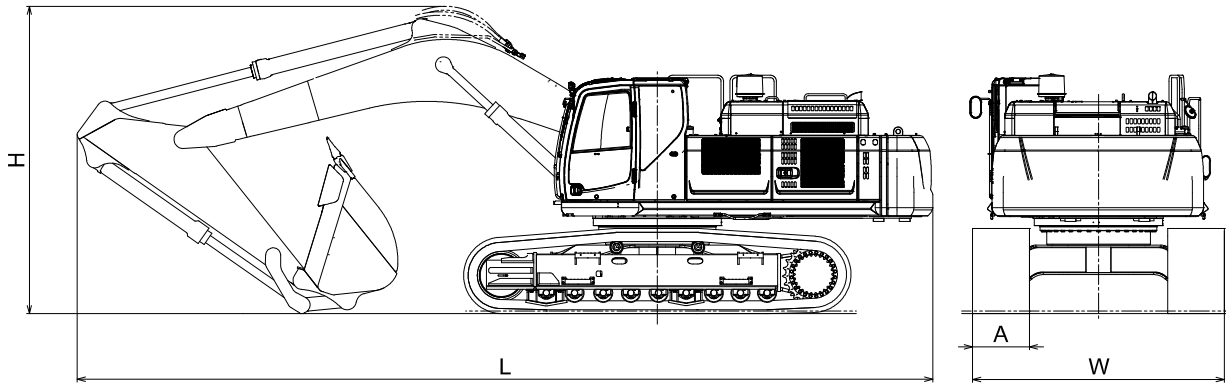
Model	Item	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	A: Shoe width mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
SK500XDL-10 (SHD Spec.)		12,230 (40'1")	3,790 (12'5")	600 (23.6")	3,580 (11'9")	52,100 (114,900)



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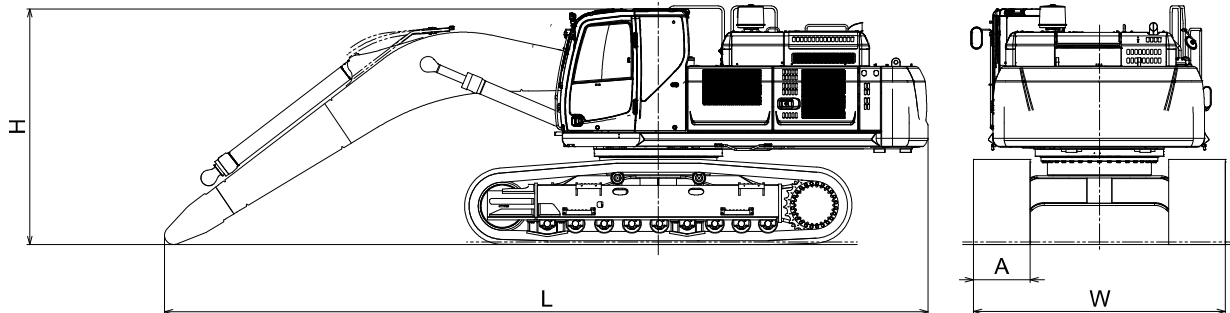
### 6.5m(21'4") Boom, 2.6m(8'6") Arm, 3.4m<sup>3</sup>(4.44 cu·yd) Bucket

Item Model	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	A: Shoe width mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
SK520XDLC-10 (ME Spec.)	12,060 (39'7")	4,330 (14'2")	600 (23.6")	3,580 (11'9")	53,700 (118,400)

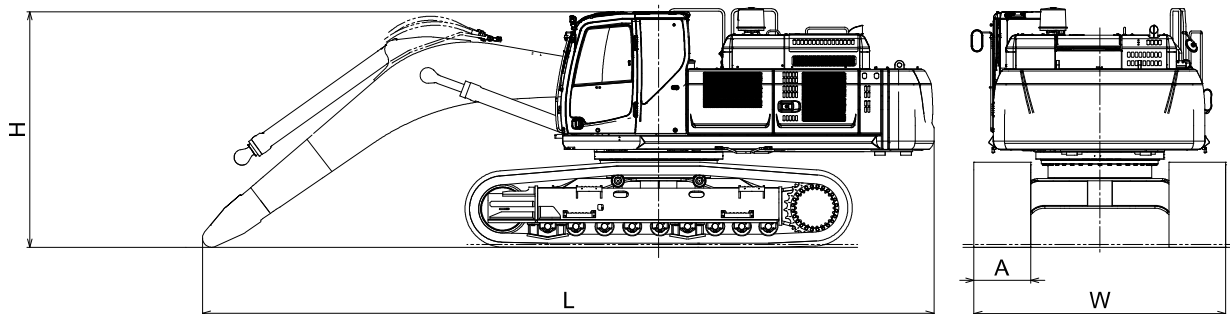


**Without arm and bucket**

Model	Item	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	A: Shoe width mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
SK500XDLC-10 (SHD Spec.)		10,760 (35'4")	3,380 (11'1")	600 (23.6")	3,580 (11'9")	46,800 (103,200)

**Without arm and bucket**

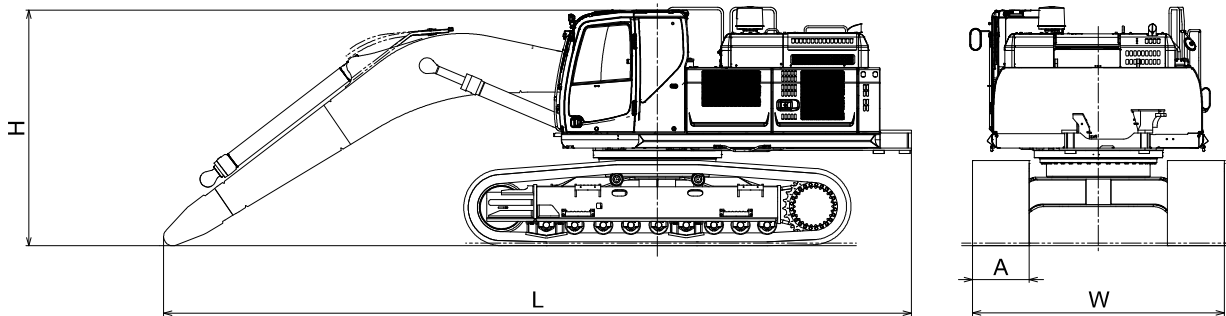
Model	Item	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	A: Shoe width mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
SK520XDLC-10 (ME Spec.)		10,310 (33'10")	3,380 (11'1")	600 (23.6")	3,580 (11'9")	48,200 (106,300)



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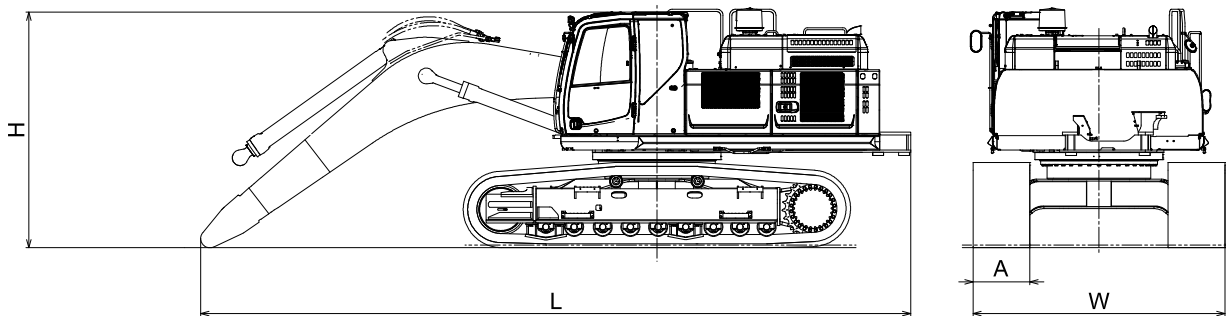
### Without arm, bucket and counterweight

Model	Item	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	A: Shoe width mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
SK500XDLC-10 (SHD Spec.)		10,540 (34'7")	3,380 (11'1")	600 (23.6")	3,580 (11'9")	37,000 (81,600)



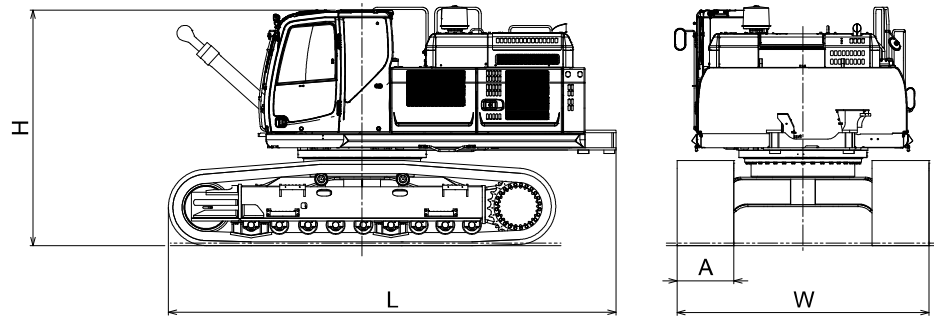
### Without arm, bucket and counterweight

Model	Item	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	A: Shoe width mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
SK520XDLC-10 (ME Spec.)		10,010 (32'10")	3,380 (11'1")	600 (23.6")	3,580 (11'9")	36,900 (81,400)

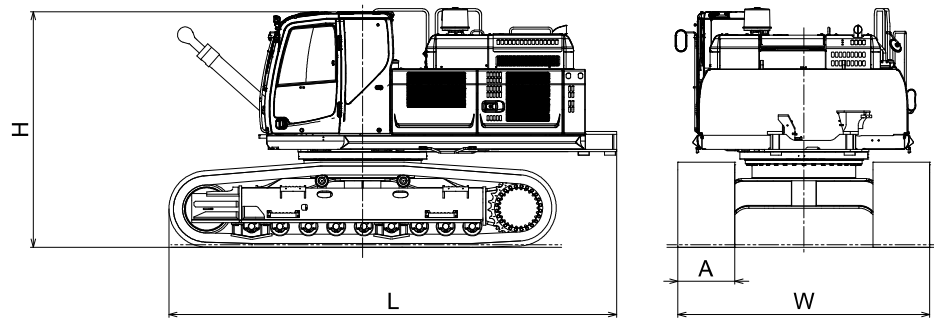


**Without boom, arm, bucket and counterweight**

Item Model	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	A: Shoe width mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
SK500XDL-10 (SHD Spec.)	6,310 (20'8")	3,380 (11'1")	600 (23.6")	3,580 (11'9")	31,600 (69,700)

**Without boom, arm, bucket and counterweight**

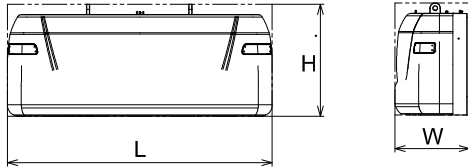
Item Model	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	A: Shoe width mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
SK520XDL-10 (ME Spec.)	6,310 (20'8")	3,380 (11'1")	600 (23.6")	3,580 (11'9")	31,900 (70,300)



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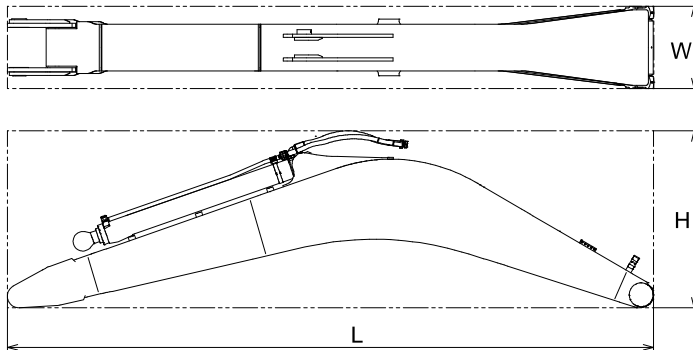
### Counterweight

Item Name of parts	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
Counterweight	2,980 (9'9")	1,260 (4'2")	838 (33")	9,830 (21,700)
Counterweight (Heavy)	2,980 (9'9")	1,260 (4'2")	918 (36.1")	11,200 (24,700)



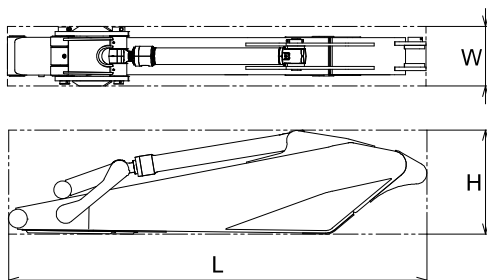
### Boom

Item Name of parts	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
7.0m (22'12") Boom	7,270 (23'10")	1,990 (6'3")	926 (36.4")	4,710 (10,400)
6.5m (21'4") Boom	6,770 (22'3")	2,088 (6'10")	926 (36.4")	4,650 (10,300)



### Arm

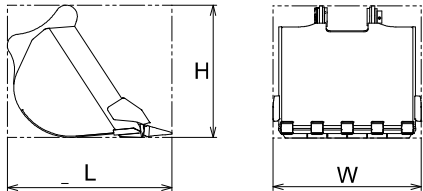
Item Name of parts	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
3.0m (9'10") Arm	4,198 (13'9")	1,256 (4'1")	654 (25.7")	2,790 (6,150 )
3.45m (11'4") Arm	4,709 (15'5")	1,172 (3'10")	654 (25.7")	2,820 (6,220 )
2.6m (8'6") Arm	3,865 (12'8")	1,446 (4'9")	654 (25.7")	3,110 (6,860 )





**Bucket**

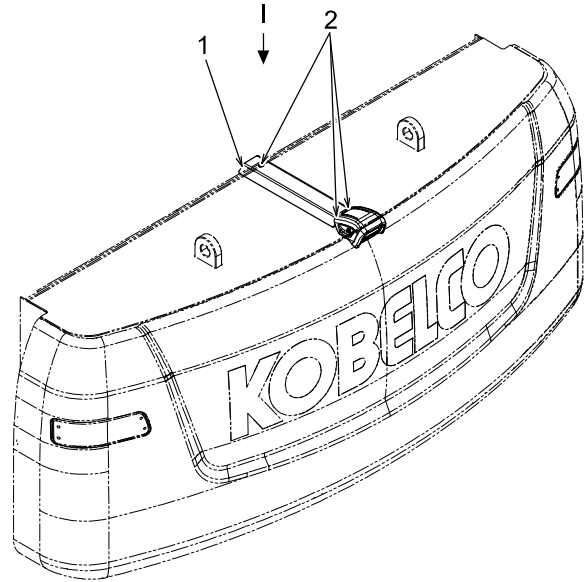
Item Name of parts	L: Overall length mm (ft-in)	H: Overall height mm (ft-in)	W: Overall width mm (ft-in)	Weight kg (lbs)
1.9 m <sup>3</sup> (2.49 cu·yd) HD Bucket	1,950 (6'5")	1,510 (4'11")	1,580 (5'2")	2,370 (5,230 )
2.1 m <sup>3</sup> (2.75 cu·yd) HD Bucket	1,950 (6'5")	1,510 (4'11")	1,680 (5'6")	2,470 (5,450 )
3.4 m <sup>3</sup> (4.45 cu·yd) Bucket	2,200 (7'3")	1,620 (5'4")	1,990 (6'6")	2,710 (5,980 )



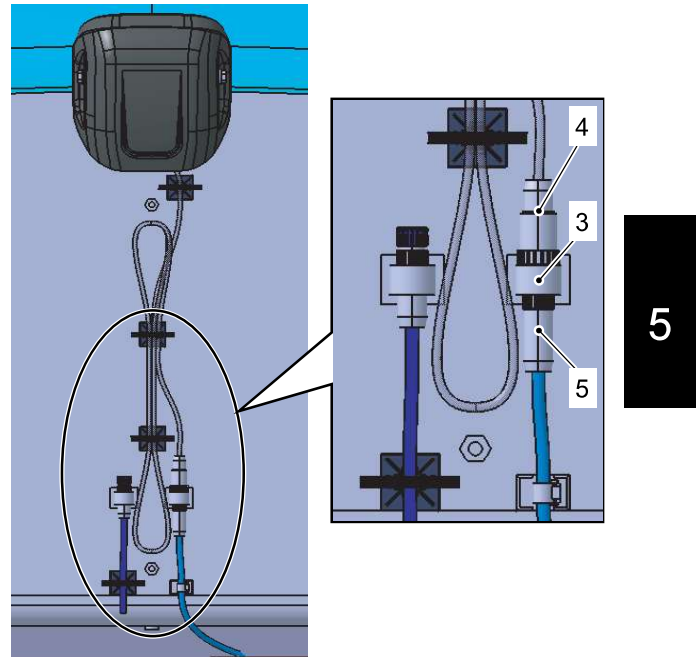
## 5.5 WATER PROOF PROCEDURES FOR THE CAMERA CABLE WHEN THE COUNTERWEIGHT IS REMOVED OR INSTALLED

When the counterweight is removed, the cable of rearward visibility monitoring camera and the cable of machine shall be disconnected. After disconnecting them, waterproof procedure shall be done on the connector of disconnected cable to prevent water intrusion.

1. Remove 3 bolts (2) and then remove the cable protection cover (1).



2. Remove the connector fix clip (3).
3. Disconnect the cable of rearward visibility monitoring camera (4) and the cable of machine (5).

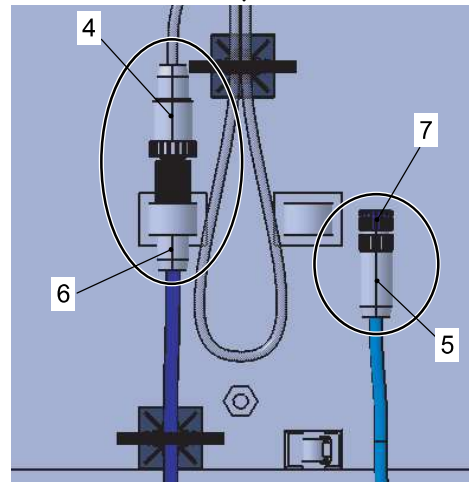
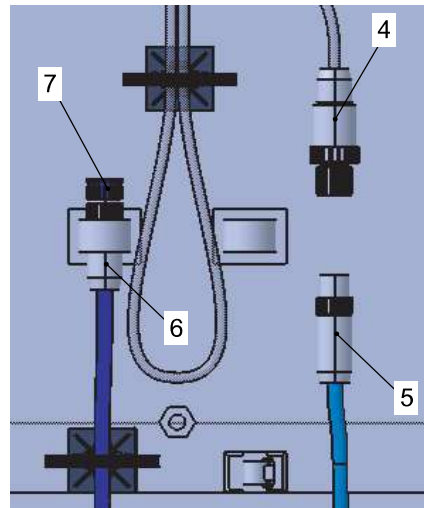


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4. Remove the waterproof cap (7) from the attached cable (6) and put it on the connector of the cable of machine (5).
5. Connect the cable of rearward visibility monitoring camera (4) and the attached cable (6).



## 5.6 INSTALLING AND REMOVING MIRROR

When the machine is shipped from a factory, the mirrors are not installed.

When removing and installing the mirrors, see “ADJUSTMENT OF MIRRORS” in Chapter 3.

