

5. OPERATION MODE

1. PRE-OPERATION CHECK

It is a good practice to know the condition of your machine before you start it. You should do routine check before each use.

▲ Park the machine on level ground, stop the engine, and apply the parking brake before checking or repairing it.

Refer to "Daily check item" in Chapter "Maintenance" for fueling.

Be sure to read and understand the information titled as "DANGER", "WARNING", and "CAUTION" thoroughly for the safe operation.

1) CHECK ITEMS

- Walk around inspection.
- Engine oil level.
- Hydraulic oil level.
- Coolant level.
- Clean the front grill and radiator screen.
- Air cleaner element.
- All dash gauges and indicators.
- Head lights, tail lights, and working lights.
- Accessible wiring harness for any damage.
- Seat belt and cabin for damage.
- Fuel level.
- All "DANGER" and "WARNING" decals.
- Tire pressure and wheel bolt tightness condition.
- Bucket locking status (Safety)

For detailed information, refer to "Maintenance schedule chart" in chapter 7.

2) INITIAL OPERATION

Driving a new machine at a high speed or under heavy load can affect its durability.

Make sure to run the machine at the proper work load and speed for the initial operation of 10 to 100 hours.

(1) Tips for breaking-in

- ① Start the engine and idle the engine at a low speed for 3 to 4 minutes in advance.
- ② During the braking-in, do not use the machine excessively, but operate it in the following three steps.

Operation hours	Load
Up to 10 hours	60%
Up to 100 hours	80%
After 100 hours	100%

- ③ Increase the idling time in cold weather.
- ④ Do not drive the machine at the maximum speed on a road.
- ⑤ Never apply excessive load during work.
- ⑥ Idle the engine at a low speed for 2 to 3 minutes before stopping it.

2. OPERATING THE ENGINE

1) STARTING ENGINE

⚠ To avoid accidents:

- Be sure to read and understand the warning and caution decals on the machine thoroughly.
- Run the engine only in a well-ventilated area, or you can be suffocated by exhaust gas.
- Never start the engine unless you are on the driver's seat.

The machine can abruptly start off, resulting in an injury or accident.

⚠ Do not start the engine unless the seat bar is lowered. If the seat bar is not lowered, it may lead to an accident.

⚠ Do not start the engine if "No Operation" tag is attached on the key switch or control lever.

※ Using an additive so the engine will start more easily can damage the engine. And it will not be covered by warranty.

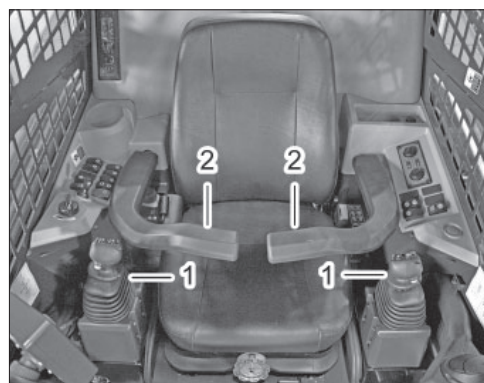
※ Never try to start the engine for over 10 seconds consecutively to protect the start motor and battery from damage.

1 Control lever

A Seat bar

(1) Make sure there is no obstacle around the machine.

(2) Check if the control lever and pedal are in neutral, then lower the seat bar.



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1 Parking switch

(3) Press the parking switch to put the machine into the parked state.



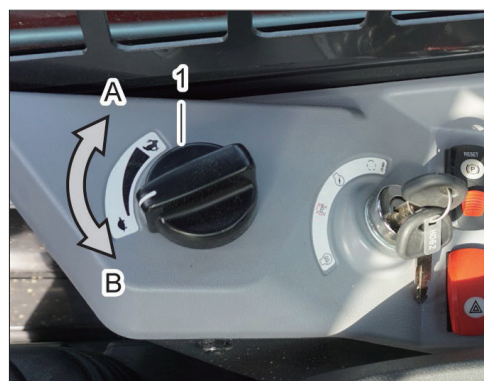
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1 Engine acceleration dial

A Acceleration

B Deceleration

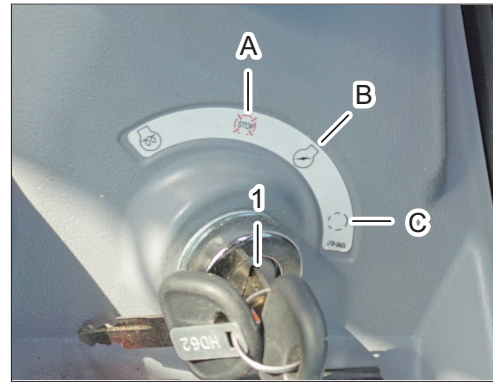
(4) Turn the engine acceleration dial to low speed, idling position.



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- 1 Key switch
- A OFF
- B ON
- C START

- (5) Insert the key to the key switch and turn it "ON". Once the engine preheating indicator is turned off, turn the key switch to the START position start the engine. (The engine can start only when (P) lamp on the instrument panel is turned on.)



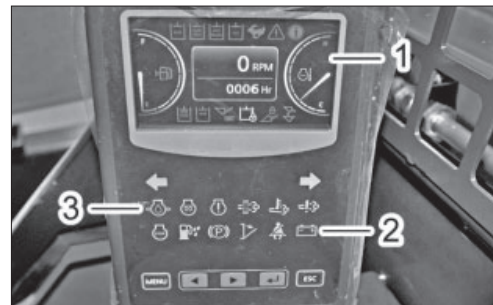
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- ▲ Never operate the start motor for more than 10 consecutive seconds as it consumes an excess of battery power. If the engine cannot be started within 10 seconds, wait for 30 seconds and try again.**

- (6) When the engine is started, release the key. Then, the key is automatically turned back to the "ON" position.
- (7) Warm up the engine for 3 to 4 minutes (10 minutes in winter) after the engine is started.

- 1 Instrument pane
- 2 Engine oil pressure warning lamp
- 3 Charge Warning Lamp

- (8) Check to see that all the warning lamps on the instrument cluster are turned "OFF." If any lamp remains on, immediately stop the engine and determine the cause.



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2) CHECKING WARNING LAMPS

- (1) If the oil pressure warning lamp (2) does not go off in 4 to 5 seconds after the engine is properly started, stop the engine immediately and check the engine oil level. If the engine oil level is proper, contact your local Dealer.

▲ The engine can be severely damaged if it is run with the oil pressure warning lamp ON.

- (2) If the charge warning lamp (3) does not go off in 4 to 5 seconds after the engine is properly started, it means that the battery is not being charged.

Have the charging system, such as the battery and alternator, inspected.

- (3) Refer to "Instrument panel" in chapter 4 for detailed information about other indicators and lamps.

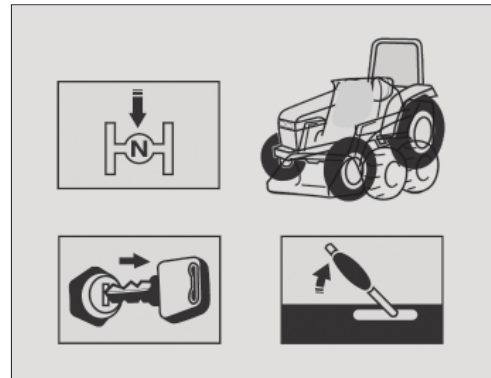
▲ If driving the machine for an extended period of time with the charge warning lamp ON, the battery can be discharged and the machine's electrical system can be damaged.

3) STOPPING ENGINE

- (1) Make sure to reduce the engine rpm before stopping the engine.
- (2) Place the boom and the bucket safely on even ground.
- (3) Run the engine at the idle speed for approx. 2 to 3 minutes, and then turn the key switch to the "OFF" position to stop the engine.
- (4) Remove the key.

▲ Never touch the muffler or hot covers until they have cooled down after running the engine or driving the machine.

※ Turn off all the electrical devices and remove the ignition key before leaving the machine.



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4) WARMING UP

The optimal temperature of the hydraulic oil is around 50°C . If the oil temperature is at 25°C or below, drastic operation of the machine may cause severe damage to the hydraulic system, etc. Before starting the work, warm up the engine so that the hydraulic oil temperature reaches 25°C or higher.

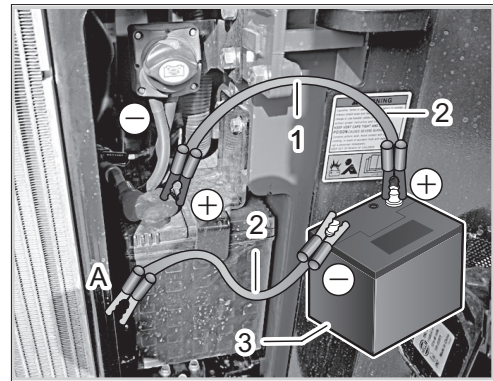
5) HOW TO WARM UP

- (1) Idle the engine at low speed for around 5 minutes.
- (2) Turn the engine acceleration dial to increase the RPM and run the engine at the mid speed.
- (3) Move the machine forward by pushing the driving lever forward by approx. 1/2.
- (4) Drive the machine with no load for one minute or until the driving system runs normally.

6) JUMP STARTING

- 1 Dead battery
- 2 Jump cable
- 3 Helper Battery
- A Ground (machine body)

If the battery is discharged and the engine cannot be started, it is possible to start the engine by connecting the discharged battery to a battery from another machine or other extra battery.



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- (1) Check that the rated voltage of the discharged battery is same as the voltage of the other machine or vehicle for jump start. (Specification for this machine: 12 V)
- (2) Check the length of the jump cable and position another machine near the machine with the discharged battery. Then, put all the shift levers in the neutral position, apply the parking brake, and stop the engine.
- (3) Wear protective glasses and gloves and open the rear door of both machines. Remove the battery terminal cover as necessary.
- (4) Connect the alligator clips on both ends of the red positive cable to the positive terminals of both batteries.
- (5) Connect one clip of the black negative cable to the negative terminal of the normal battery and the other clip to the machine body with the discharged battery. Make sure to connect the clip to the body part without paint.
- (6) Start the engine of the machine with the normal battery.
- (7) Start the engine of the machine with the discharged battery.
- (8) Disconnect the black cable from the negative battery terminals of the machine with the normal battery.
- (9) Disconnect the red cable.
- (10) Run the engine for at least 30 minutes to charge the discharged battery.
- (11) If the battery is discharged again, replace it or check the charging system, such as the alternator.

3. DRIVING AND OPERATION

1) OPERATION BEFORE DRIVING

1 Seat Adjustment Lever

A Pull

(1) Adjust the seat so that the pedal and the steering wheel can be easily accessed.

⚠ Check if the seat is securely locked after seat adjustment.

⚠ Do not adjust the seat while driving. The seat may move suddenly causing loss of control of the machine.



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1 Seat belt

(2) Wear the seat belt.

⚠ The seat belt should go around your pelvis or as low as possible, not your waist or abdomen.

Otherwise, the seat belt cannot protect you properly.



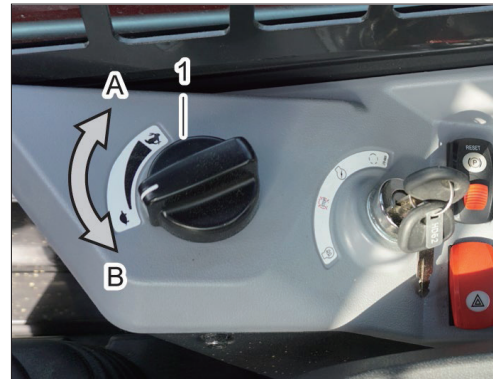
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1 Engine acceleration dial

A Acceleration

B Deceleration

(3) Increase the engine RPM slowly from idle speed to medium speed.

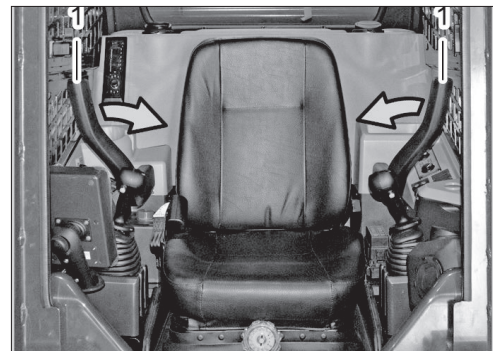


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1 Seat bar

2 Down

(4) Lower the seat bar.



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1 Reset switch

- (5) Press the top of the reset switch to unlock the machine.

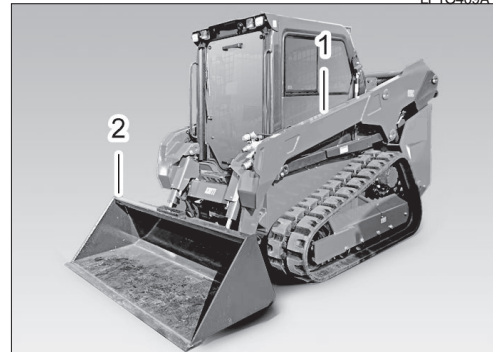


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1 Boom

2 Bucket

- (6) Operate the boom and the bucket so as to raise the bucket about 20-30 cm from the ground.



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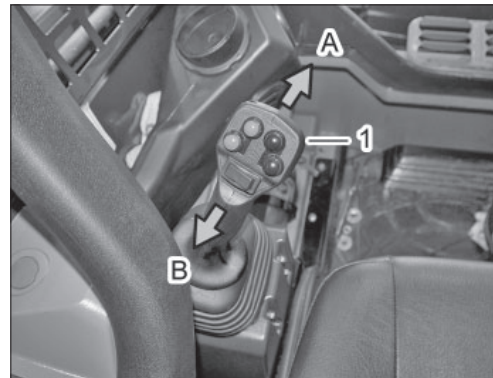
2) FORWARD AND REVERSE DRIVING

1 Driving lever

A Forward

B Reverse

- (1) Push the left control lever forward to move forward and pull it backward to reverse.
(2) As the lever moves away from the neutral location, the driving speed increases.



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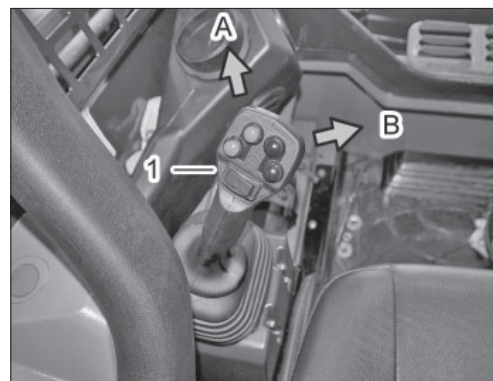
3) TURNING

1 Driving lever

A Left turn

B Right turn

- (1) When making a turn, lower the engine speed and turn slowly.
(2) To turn right, push the left control lever to the right side.
(3) To turn left, push the left control lever to the left side.



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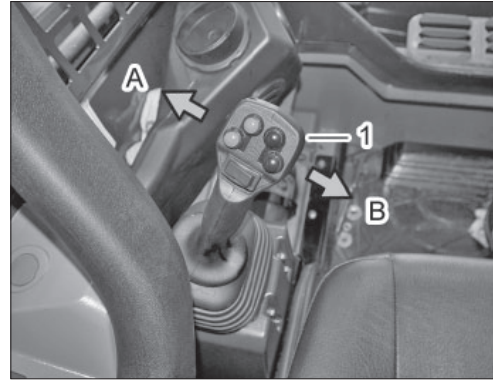
⚠ To prevent accidents due to loss of steering control:

- If you turn at high speed, the machine may turn over.
- Never use the differential lock system when turning at high and low speeds. A serious accident can occur.

4) SPINNING

- 1 Left control lever
- 2 Right control lever

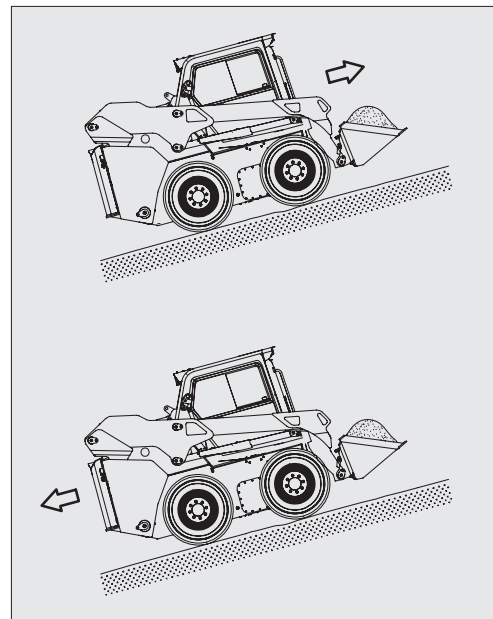
- (1) Spinning is to have the machine turn on the same spot.
- (2) Press the left control lever perpendicular to the left or right side to have the machine spin.



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5) DRIVING ON SLOPE

- (1) Please drive according to the conditions of the slope at safe speed so that the engine is not under heavy load if possible.
- (2) Make sure to shift to the lower gear in order to prevent the engine from stalling on an uphill.
- (3) Drive with the low speed gear on a downhill road to facilitate the engine brake.
- (4) While driving with load, have the bucket positioned upward.



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(5) While driving without load, have the bucket positioned downward.

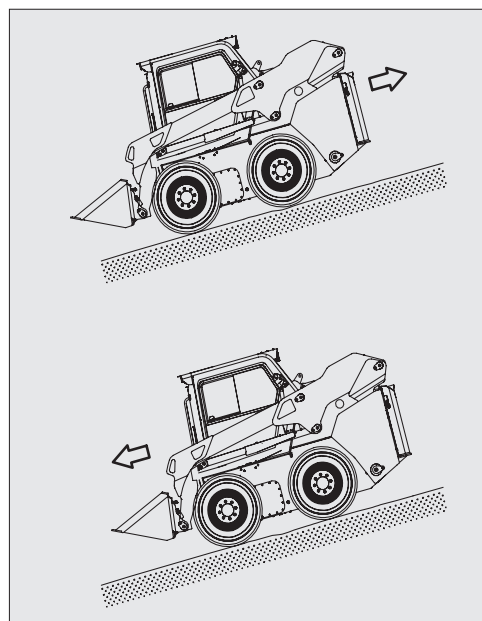
▲ The permitted angle limit for the operation of the engine is 20°, and therefore, under no circumstance should this angle be exceeded.

Do not disengage the clutch or put the shift lever in the neutral position on a steep slope.

Otherwise, the machine may become inoperable.

Before entering a steep slope, move the shift lever down to a proper gear and never try to move the shift lever on a slope.

A serious accident can occur.



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6) PRECAUTIONS WHILE DRIVING ON THE ROAD

1 Turn signal lamp (LH)

2 Turn signal lamp (RH)

Driving on road should only be done under emergency situations and at a short distance. If it is inevitable, make the following cautions.

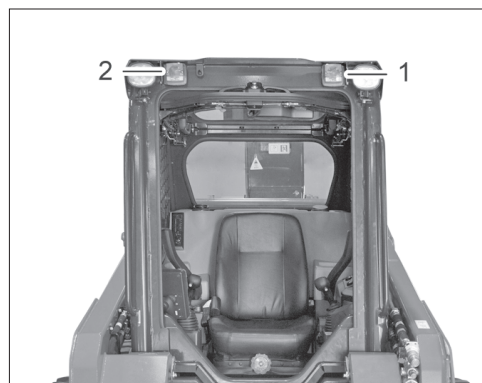
- (1) When you change the driving direction on a road, let other vehicles know your direction with the turn signal lights.
- (2) Check the tire inflation pressure and the driving speed limit before driving.
- (3) When driving for a long distance, make sure to stop the machine at every 12 km or every hour for 30 minutes to cool down the machine and check the fuel and coolant level.

A 20 - 30 cm

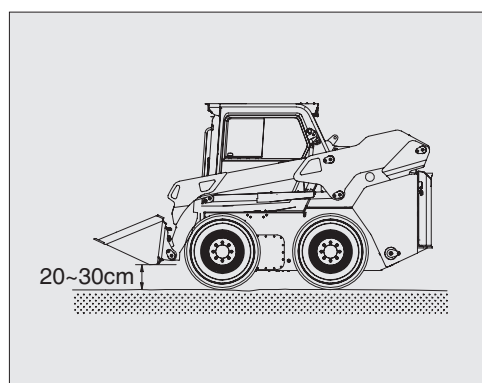
- (4) Drive with the bucket empty and raised from the ground for 20-30 cm.

▲ When driving on a road, observe all local traffic and safety regulations. Only the operator should ride on the machine.

If the machine is broken down during driving on a road, move it to a safe place with the flasher lights blinking. If not, it can cause a personal injury.



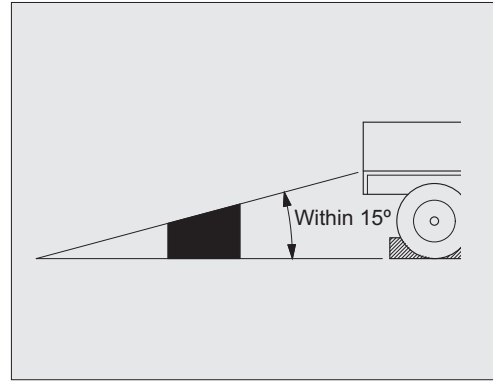
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7) LOADING AND UNLOADING THE MACHINE TO/FROM A TRUCK

- (1) When loading the machine on a truck, apply the parking brake and choke the wheels so that the machine does not move. And, place the ramps between the trailer and the machine side by side.
- (2) For safe loading and unloading of machine, the ramps should have sufficient width, length, and thickness.



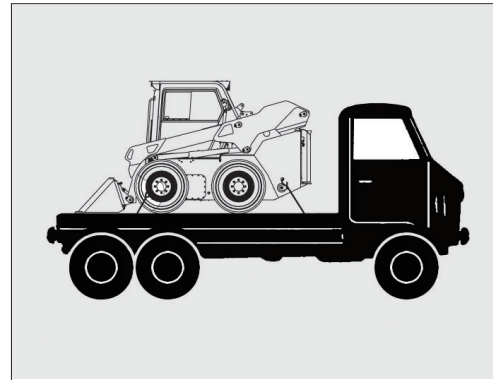
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- (3) When loading the machine onto a truck, load it in reverse and lower the boom.
- (4) If the engine stops abruptly during loading the machine, move down to the road slowly and restart the engine and move up.

▲ Remove dirt on the tires so as to prevent slippage on slopes.

▲ Never change the direction of the machine on ramps under no circumstances.

▲ When transporting the machine with a truck, fix the machine firmly onto the truck and be aware of the height of the loaded machine to avoid hitting the ceiling of a tunnel or the bottom of a bridge. Make sure to follow this instruction as such accidents frequently happen.

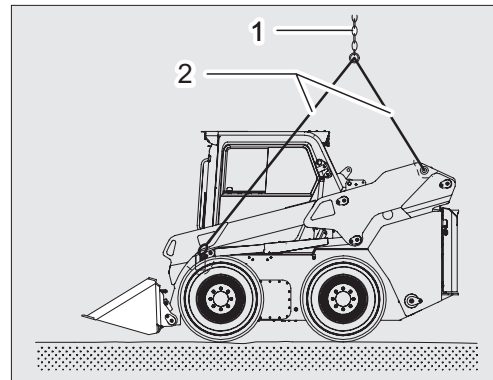


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8) TOWING

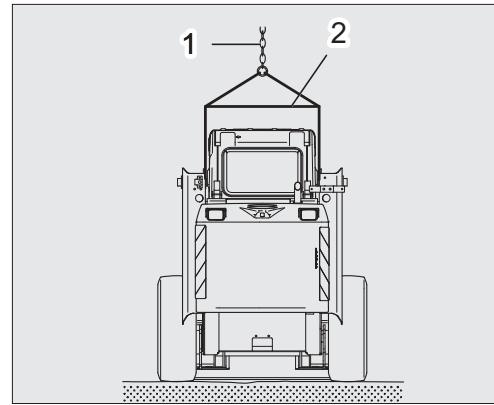
- 1 Wire rope
- 2 Support bar

- (1) To tow the machine, check the weight, overall length, overall width, and overall height of the machine by referring to the specs table in Chapter 3.
- (2) The wire rope and support bar should be long enough so as not to have them touch the machine during towing. If necessary, cover the wire rope with cloth so as to prevent any damage of the machine.
- (3) Place the crane on an appropriate spot.



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- 1 Wire rope
 - 2 Support bar
- (4) Use only the wire rope and other towing tools that do not have any damage, deterioration, and offer sufficient strength.
- (5) If the towing method or the roping is wrong, the machine may move during towing, causing injuries or damage to the machine.
- (6) Do not apply abrupt load to the towing wire rope and tools.
- (7) Prevent access to the underneath or surrounding of the machine being towed.

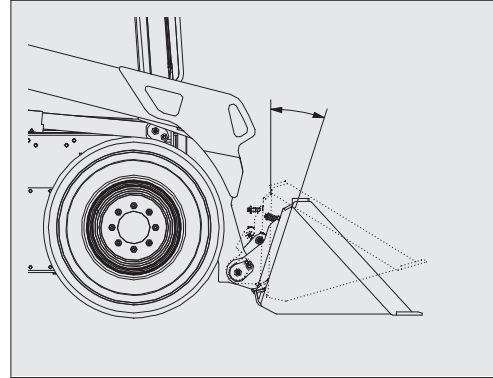


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4. OPERATION

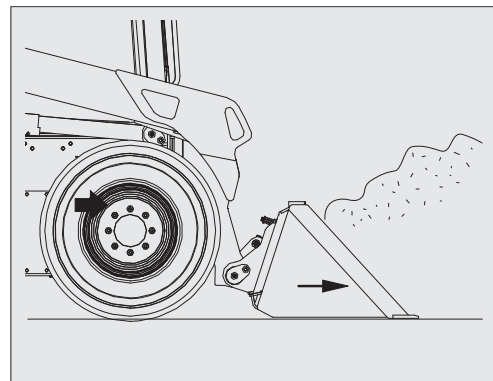
1) FILLING THE BUCKET

- (1) Place the bucket parallel to the ground surface, push the driving lever forward to move the machine forward slowly and once the bucket is fully filled, control the boom and bucket control levers at the same time to hold the objects in the bucket and reverse the machine.



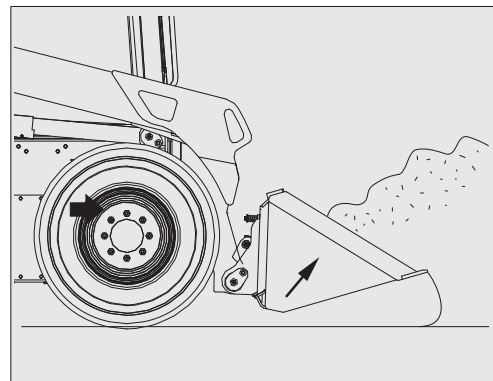
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- (2) When entering into the work site, place the bottom of the bucket parallel to the ground surface and make sure that no excessive load is applied to the machine body.

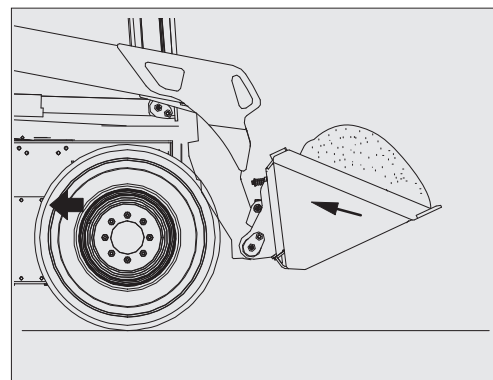


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- (3) Never engage in a work that exceeds the specified load of the loader. Otherwise, it may lead to accidents.



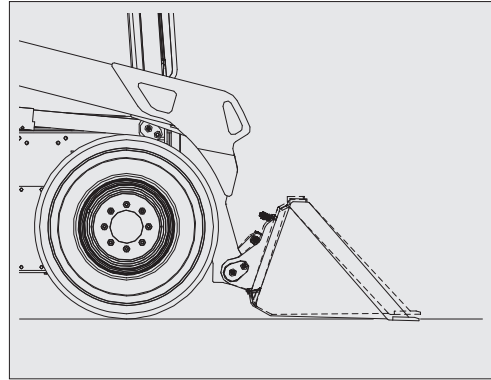
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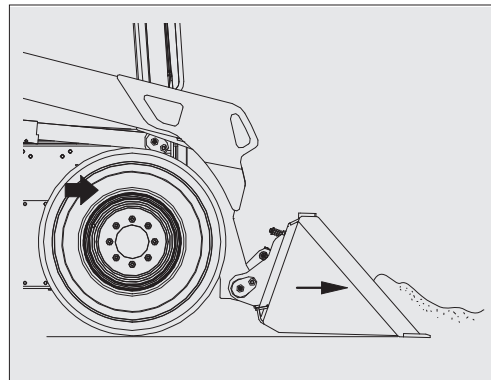
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2) DIGGING

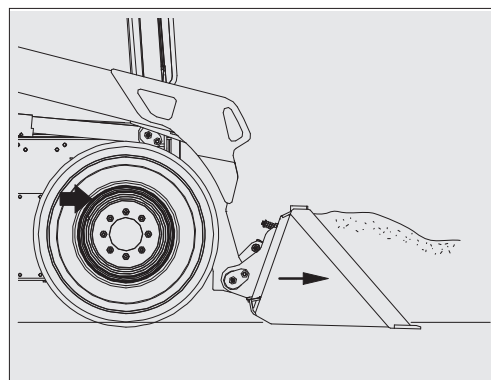
- (1) Maintain the angle so that the end of the bucket is placed to the ground surface, causing no excessive load.
- (2) Move the machine forward slowly, and once the bucket is fully filled, reverse the bucket while lifting the boom.



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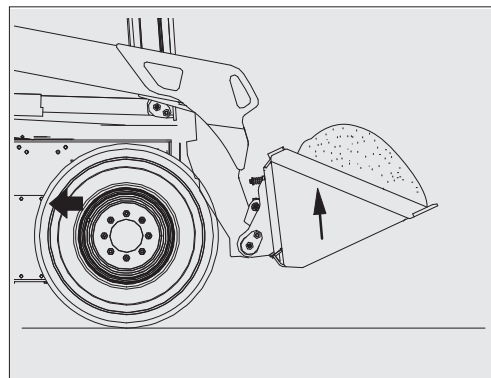


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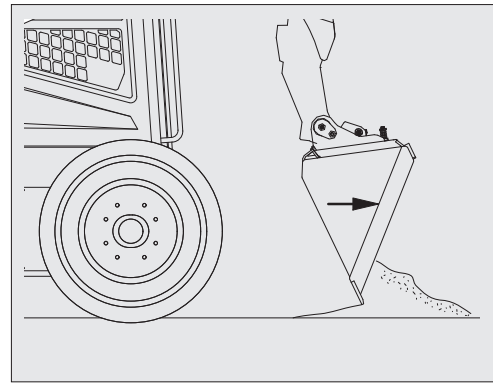
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- (3) Do not apply an excessive angle between the bucket and the ground.

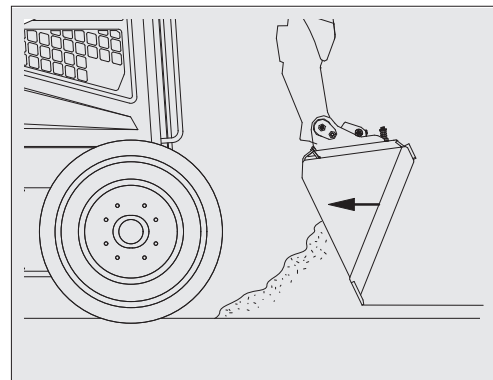


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3) FLATTENING

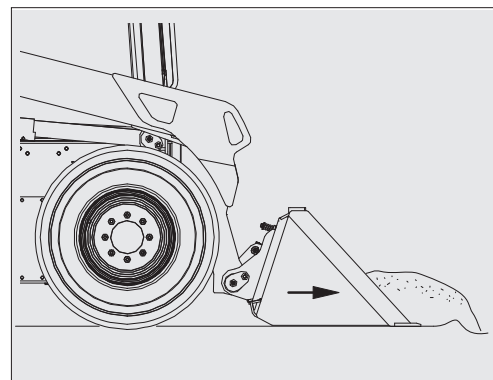


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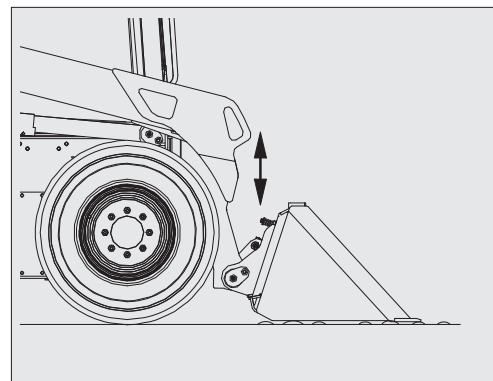
- (1) Move the bucket forward at a suitable angle against the ground surface, and move the machine forward or backward to flatten the ground surface.



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4) DIGGING

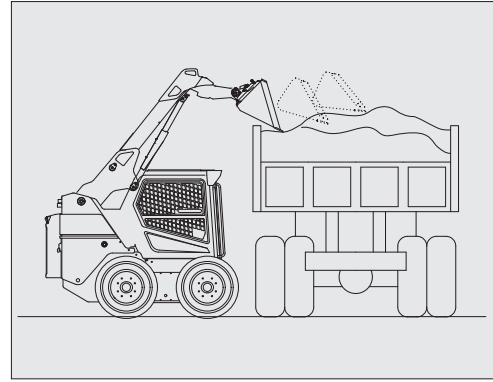
- (1) Depending on the work site's conditions, flattening the ground is possible while the boom is floated. In this case, the bottom of the bucket should be in parallel to the ground surface as much as possible.



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5) DUMPING

- (1) When lifting the boom, adjust the angle of the bucket so as not to spill the content out. Once the boom is sufficiently raised, move the bucket forward to pour the content.
 - (2) The machine has a function to maintain the parallel state between the bucket and the ground surface automatically, depending on the boom's lifting angle. (The self-levelling system: optional)
- ⚠ When unloaded from a truck, etc., make sure not to have the bucket or the body of the machine collide with any objects.**



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