

Bobcat®

OPERATOR'S HANDBOOK

This Handbook is for **Bobcat** Skid Steer Loaders With The **Bobcat Interlock Control System (BICSTM)** Models **653, 751, 753, 763, 773, 853, 863, 873 & 963**

A WARNING

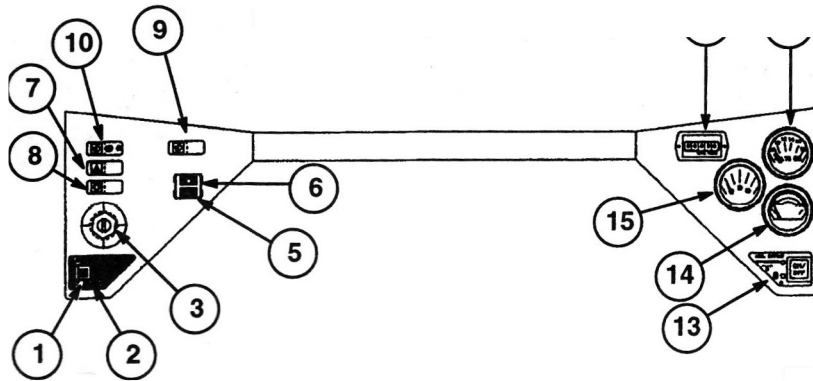
AVOID INJURY OR DEATH

- Never use the loader without instructions. Read loader signs (decals), Operation & Maintenance Manual, this Handbook and the EMI Safety Manual.
 - Always fasten seat belt and lower the seat bar before operating the loader. Keep feet on pedals.
 - Never use loader without operator cab which has ROPS & FOPS approval.
 - Always carry bucket or attachment as low as possible.
 - Do not travel or turn with lift arms up.
 - Load, unload and turn on flat, level ground.
 - Do not exceed rated operating capacity.
 - Before leaving the operator seat:
 - Lower lift arms.
 - Place attachment flat on ground.
- Stop the engine. Remove the key.
- Engage the parking brake.
Raise the seat bar and move pedals until both lock.
- Never modify the loader or add attachments not approved by Bobcat.
 - Never carry riders. Keep bystanders away from the work area.

Learn about the loader from this Handbook, Operation & Maintenance Manual and signs (decals). See Operation & Maintenance Manual for full detailed illustrations for each model of loader. Illustrations below are general for several models. Replace damaged or missing signs (decals) as shown in the Operation & Maintenance Manual.

Ask the dealer about equipment for each application. Refer to the Operation & Maintenance Manual and dealer regarding buckets and attachments for rated operating capacity of the loader. For special jobs, ask your dealer about necessary approved equipment; such as, enclosures, warning devices or special lights. The dealer is also a source for the Bobcat Skid Steer Loader Operator Training Course and other training materials for service and attachments.

INSTRUMENT PANEL STANDARD (Early Models)



1. Traction Lock Override Button
(*Seat Bar Raised*)

For backhoe use or for service.

2.*Press to Operate Button
(*Seat Bar Down*)

3. Key Switch

4. Turn/Hazard Indicators (Optional)

5. Transmission Warning Light

6. Engine Warning Light

7. High Flow Switch (Optional)

8. Bucket Level Switch (Optional)

9. Pre-Heat Switch

10. Light Switch (Optional)

11. Hazard Switch (Optional)

12. Beacon Switch (Optional)

13. Auxiliary Hydraulics Switch (Optional)

- Press once for momentary operation.

- Press second time for continuous
operation (Example: backhoe
attachment).

- Press third time to disengage.

14. Engine Temperature Gauge

15. Fuel Gauge

16. Hour meter

17. Voltmeter

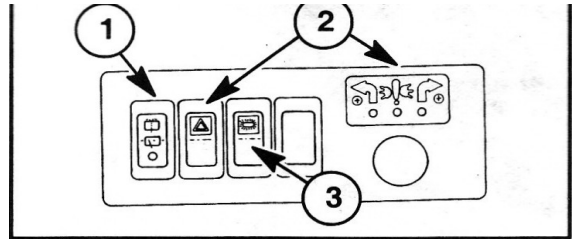
* Seat Sensor Override Button (*Seat Bar Down*) - Only on some loaders and early loaders which have had the **BICS**[™] Controller and Traction Lock Override Switch replaced.

INSTRUMENT PANEL

1. Rear Wiper / Washer (Optional)
2. Hazard Switch / Hazard Indicators (Optional)
3. Rotating Beacon or Strobe Light Switch (Optional)

SIDE PANEL (Opt. Later Models)

(Standard & BOSS Option)



1. Traction
Lock Override
Button
8. Light Switch
(Seat)

Bar Raised)
backhoe use or for service.

2.*Press to Operate Button
(*Seat Bar Down*)

3. Key Switch

4. Turn/Hazard Indicators (Optional)

5. BOSS® Diagnostic Port

6. High Flow Switch (Optional)

7. Bucket Level Switch (Optional)

9. Hazard Switch (Optional) for
10. Beacon Switch (Optional)
11. Display Panel (Ref. 13 thru 26)
12. Auxiliary Hydraulic Switch (Optional.
-Press once for momentary operation.
-Press second time for continuous
Operation (Example: backhoe attachment).
- Press third time to disengage.

* Seat Sensor Override Button (*Seat Bar Down*) - Only on some loaders and early loaders which have had the B^{ICSTM} Controller and Traction Lock Override Switch replaced.

INSTRUMENT Panel

- | | |
|---------------------------------|--------------------------------------|
| 13. Fuel Level | 20. Hour meter & SERVICE CODE |
| 14. Battery Voltage | Display Area |
| 15. Engine Oil Pressure | 21. Charge Pressure & Filter |
| 16. Engine Coolant | Condition. |
| Temperature/Level (some models) | 22. Air Filter Condition |
| 17. Low Fuel Indicator | 23. Glow Plug (Diesel) |
| 18. Shut – Down Symbol | 24. Engine over Speed |
| 19. Warning Symbol | 25. Parking Brake (Non - Functional) |
| | 26. Hydraulic Fluid Temperature. |

NOTE:

The engine can be restarted for 30-second periods to move the loader after shut-down condition.

NOTE:

See Operation & Maintenance Manual for further descriptions and for SERVICE CODES.

SERVICE CODES

SUBJECT	DISPLAY READS	CONDITION
Engine Coolant Level	ECL-1	SHUTDOWN, No Coolant (Not 863, 873)
Engine Coolant Temp.	EC-1.1	SHUTDOWN, Engine Temperature
	EC-2.1	WARNING, Engine Temperature
	EC-3	Wiring Not Connected
	EC-4	Wiring Shorted
	EC-6	High Sensor Voltage
	EC-7	Sensor Out of Range
Engine Oil Pressure	EP-1	SHUTDOWN, Pressure
	EP-2	WARNING, Pressure
	EP-3	Wiring Not Connected
	EP-4	Wiring Shorted
	EP-5	High Sensor Voltage
	EP-7	Sensor Out Of Range
Engine Speed	ES-1	SHUTDOWN, Engine Speed Too High
	ES-2.1	WARNING, Engine Speed Slightly High
	ES-6	Sensor No Signal
	ES-7	Sensor Out Of Range
Fuel Level	FUEL.2	WARNING, Low Level
	FUEL.3	Wiring Not Connected
	FUEL.4	Wiring Shorted
	FUEL.5	High Sensor Voltage
	FUEL.7	Sensor Out Of Range
Hydrostatic Charge	HF1-2	WARNING, High Restriction
	HF1-6	Sensor No Signal
Return Filter Condition (853, 863, 873 Only)	HF2-2	WARNING, High Restriction
	HF2-6	Sensor No Signal
Hydrostatic Oil Temperature	HC-1	SHUTDOWN, Temperature
	HC-2	WARNING, Temperature
	HC-3	Wiring Not Connected
	HC-4	Wiring Shorted
	HC-5	High Sensor Voltage
	HC-7	Sensor Out Of Range

Hydrostatic Fluid Pressure	HP-1	SHUTDOWN, Pressure
	HP-2	WARNING, Pressure
	HP-3	Wiring Not Connected
	HP-4	Wiring Shorted
	HP-5	High Sensor Voltage
	HP-7	Sensor Out Of Range
Air Filter	AF-2	WARNING, Restriction Too High
	AF-6	Sensor No Signal
Battery	b-2.1	WARNING, Bad Battery
	b-2.2	WARNING, Battery Voltage Low

BOBCAT INTERLOCK CONTROL SYSTEM (BICSTM)

Troubleshooting Chart

The following list shows the effects which can happen to the loader and the probable causes when the BICSTM System Controller lights are off or flashing. Have the service procedure performed ONLY QUALIFIED BOBCAT SERVICE PERSONNEL

Indicator Light	Light ON	Light OFF	Effect on Operation Of loader When Light Is	Flashing Indicator Means System Problem (See Your Bobcat Dealer for Service)	
				Number of	Cause

				Flashes	
SYSTEM ACTIVATED D	PRESS TO OPERATE button is activated	PRESS TO OPERATE button not activated	Lift, tilt and traction functions will not operate.	2	System Activated circuit shorted to battery voltage*.
				3	System Activated circuit shorted to Ground.

If Equipped (See Note 5)

SEAT	Operator in Seat	No Operator in Seat	Lift and tilt functions will not operate.	2	Seat sensor circuit shorted to battery voltage'.
				3	Seat sensor circuit shorted to ground.
SEAT RAR	Seat Bar Down	Seat Bar Up	Lift, tilt and traction functions will not operate.	2	Seat bar sensor circuit shorted to
				3	Seat bar sensor circuit shorted to
VALVE	Control Valve Can Be Used	Control Valve Cannot Be Used	Lift and tilt functions will not operate.	1	Valve output is open.
				2	Valve output circuit shorted to battery voltage'.
				3	Valve output circuit shorted to ground.
				3	Valve output circuit not
TRACTION	Loader can be moved forward & backward.	Loader cannot be moved forward and backward.	Loader cannot be moved forward and backward.	1	Traction lock hold coil circuit is open.
				2	Traction lock hold coil circuit
				3	Traction lock hold coil circuit
				4	Traction lock puli cot circuit is open.
				5	Traction lock pulicoii circuit is shorted to battery voltage*.
				6	Traction lock puli coi circuit is shorted to ground.
POWER	BICSTM System Controller is operating correctly.	BICS TM System Controller is not operating correctly.	Lift, tilt and traction functions will not operate.		

Normal BICS operating voltage is less than the electrical system voltage. If voltage is more, the circuit is shorted to system voltage.

NOTES:

- (1) If the **PRESS TO OPERATE** Button is pressed, and **SYSTEM ACTIVATED** light is not ON, check the system wiring for continuity.
 - (2) If the seat and/or seat bar sensor circuits are open, the corresponding lights will be OFF. If one of the lights stays OFF, check the circuit for continuity. Refer to Operation & Maintenance Manual for more instructions.
 - (3) If all five lights flash repeatedly, the voltage supply is greater than 16 volts or less than 9 volts.
 - (4) Flashing patterns will repeat every 3.25 seconds.
 - (5) If seat indicator light does not go on (early models only), check for debris, dirt or objects under or behind seat. The Seat Sensor Override♦ can be used if the seat sensor cannot be activated.
- ♦ Only on later loaders, and early loaders which have had BICS Controller and Traction Lock Override Switch replaced.
- NOTE: On some early models with BICS Controller S/N 200,000 & Above only, if the Seat Bar is lowered before the seat sensor is activated, a 10 second delay will occur before the valve and traction lights come on.

AVOID INJURY OR DEATH

The Bobcat Interlock Control System (BICSTM) must deactivate the lift, tilt and traction drive functions. If it does not, contact your dealer for service. **DO NOT MODIFY THE SYSTEM.**

Bobcat Interlock Control System (BICSTM) requires the operator to be seated in the operating position with the seat bar lowered before the loader can

be operated.

BICSTM SYSTEM CONTROLLER

Five green lights on the ^{BICSTM} System Controller must all be "ON" to operate the loader.

1. ON when operator is seated or the Press to Operate Button is activated. (If equipped)
2. ON when seat bar is down.
3. ON when lift & tilt hydraulics can be used.
4. ON when loader can move forward and backward.
5. ON when Controller is operating correctly.

NOTE: Press the Press to Operate Button again if seat bar is raised and lowered or key is turned off.

AUXILIARY HYDRAULIC SYSTEM

When the operator is seated and raises the seat bar, the auxiliary hydraulic system will deactivate. Press the auxiliary hydraulic switch to re-select operating mode. (Only on some models).

LIFT ARM BYPASS CONTROL

Lift Arm Bypass Control is used to lower the lift arms when the lift arms cannot be lowered during normal operation. PA & hold the control knob up. Push down top of the lift pedal. On some models, turn and lift knob only. The lift arms will slowly lower.

BICSTM SYSTEM CONTROLLER

LIFT ARM BYPASS CONTROL

BICSTM SYSTEM CONTROLLER

A WARNING

AVOID INJURY OR DEATH

Before leaving the operator seat, lower the lift arms, stop the engine and engage the parking brake. Raise seat bar and move pedals until both are locked.

BOBCAT INTERLOCK CONTROL SYSTEM ^(BICSTM)

TRACTION LOCK OVERRIDE

((Only Functions When Seat Bar Is Raised

traction Lock Override button (Item 1) allows you to use the steering levers to move the loader when using the backhoe attachment or for service.

PRESS TO OPERATE (If Equipped)

(Only Functions When Seat Bar Is Down)

Press button (Item 2) to operate loader after seat bar is lowered.

NOTE: Press the Press to Operate Button again if seat bar is raised and lowered or

key is turned off.

SEAT SENSOR OVERRIDE (If Equipped)

(Only Functions When Seat Bar Is Down)

Seat Sensor Override button (Item 3) allows operator, when seated with the seat bar lowered, to use lift, tilt, and traction functions when the seat sensor cannot be activated.

KNOW ALL THE CONTROLS

- | | |
|---|--|
| 1. Steering Levers | 9. Continuous Flow Control for Auxiliary Hydraulics (Optional) |
| 2. Pedal Interlocks, lock control pedals when seat bar is raised. | 10. Auxiliary Hydraulic Control for Attachments valve (Optional) |
| 1. Lift Arm Bypass Control | 11. Water Kit Control (Optional) |
| 2. Lift Arm Pedal (With Float Position) | High Speed Switch (963 only) |
| 3. Tilt Pedal | |
| 4. Brake Pedal | 12. Auxiliary Hydraulic Control for rear attachments (optional) |
| 5. Engine Speed Control | 13. Turn Signal (Optional) |
| 3. Auxiliary Hydraulic Control for front attachments (Optional) | 14. Horn (optional) |

INSPECT THE BOBCAT LOADER EVERY DAY

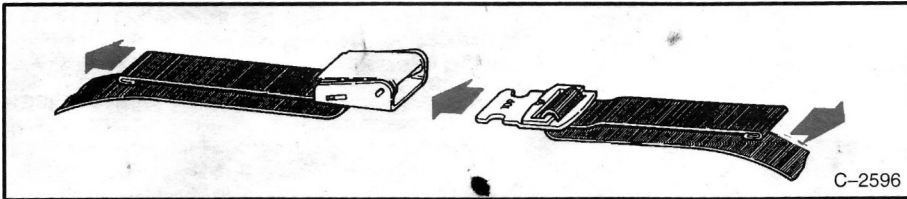
1. Check seat belt and replace if damaged.
2. Check Operator's Cab (ROPS & FOPS) and its fitters.
3. Check seat bar and interlocks. When bar is raised both pedals must be locked.
4. Check Bobcat Interlock Control System (BICSTM).
5. Repair broken and loose parts.
6. Clean engine of flammable material.

BEFORE OPERATING THE BOBCAT LOADER

7. Clean foot pedal areas.
8. Check engine oil level.
9. Check the hydraulic fluid level.
10. Check the tires and tire pressure.
11. Monitor the instrument panel for fuel level, coolant level & air cleaner condition.

1. Use steps, safety treads, and grab handles when entering loader.
2. Adjust the seat so controls are easy to reach.

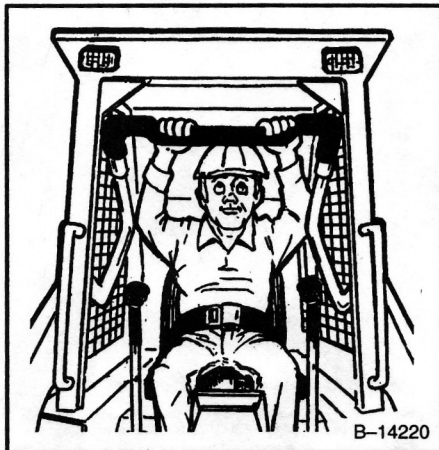
**Read the Service Schedule Decal in
The engine compartment for servicing
Instructions. See Operation &
Maintenance Manual for Maintenance
Procedures.**



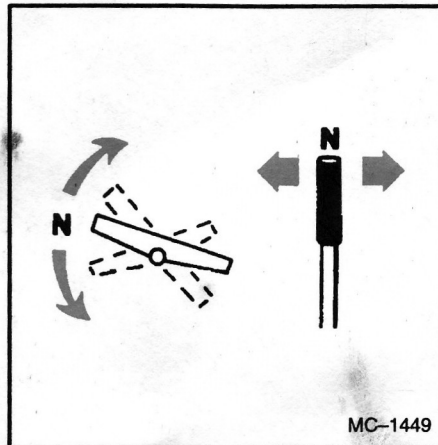
3. Connect the two halves of the seat belt together. Adjust the seat belt so that the belt fits snug around the lower part of your hips and the buckle is in the center.

BEFORE OPERATING THE BOBCAT LOADER (Cont'd)

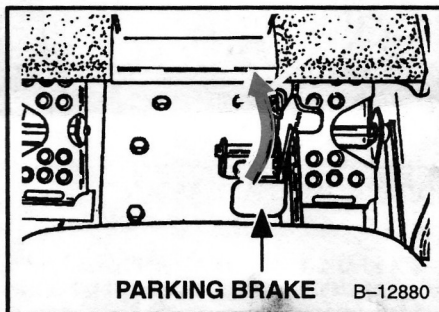
BEFORE OPERATING THE BOBCAT LOADER (Cont'd)



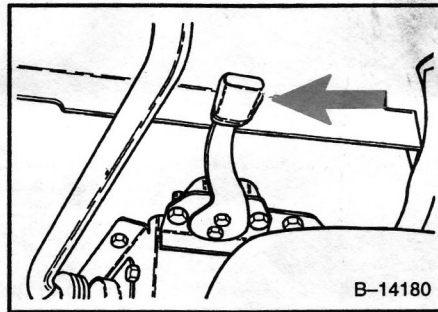
4. Lower the seat bar before operating the loader. Keep feet on the pedals.



5. Put steering levers and foot pedals in neutral (N).



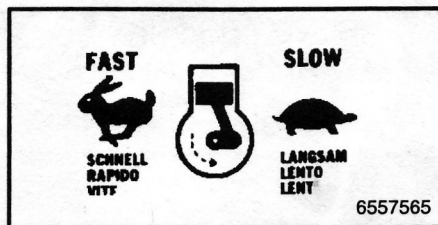
6. Brake should be engaged before starting the engine.



7. Start the engine, with engine speed control at the 1/2 position.



8. Press the Press to Operate Button on left instrument panel. (If Equipped)



9. Move the throttle lever forward for high engine speed.

PUTTING ON THE ATTACHMENT

WARNING

Push down on the Bob-Tach levers until they are in the locked position. Check to be sure wedges are fully engaged.

RELIEVING HYDRAULIC PRESSURE FOR CONNECTING HYDRAULIC QUICK COUPLERS

With engine running, turn the key switch quickly to the left (counterclockwise) past the OFF position. Hold key for at least 5 seconds after the engine comes to a complete stop. This relieves pressure that can be trapped in the auxiliary hydraulic circuits which can make it difficult to connect quick couplers together from an attachment.

STARTING THE BOBCAT LOADER (STANDARD)

N



1. Put the foot pedals & steering Levers in neutral (N) position.
2. Turn the key ON, to run position.
3. Hold diesel Pre-heat Button if required. (See decal in cab of loader.)
4. Turn the key to *START* position. Release the key when the engine starts and move the engine speed control backward to decrease Engine speed.
5. In cold weather, let the engine warm up for 5 minutes: ten release the parking brake before operating loader.
6. Press the Press to Operate Button on left instrument panel (if Equipped)

NOTE: See Operation & Maintenance Manual or decal for further descriptions and length of time to hold Pre-heat Button.

NOTE: If loader will not move with brake pedal released or when Traction Lock Override button is pushed, move steering levers either forward or backward a small amount to unlock the traction drive.

AWARNING

AVOID INJURY OR DEATH
Never carry riders. Keep
bystanders away from the
work area.

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- 1 Put the foot pedals & steering levers in neutral (N) position.
- 2 Turn the key ON, one beep will sound & the display symbols will be ON
- 3 If *GLO* is displayed, hold key in *ON* position until glow plug time counts down to zero.

4. Turn

5. In cold weather, let the engine

up for 5 minutes then release the parking brake before operating loader.

6. Press the Press to Operate Button on left instrument panel. (If Equipped).

NOTE: See Operation & Maintenance Manual for further descriptions and for service codes. Preheat need and time is controlled by BOSS, see Operation & Maintenance Manual for details.

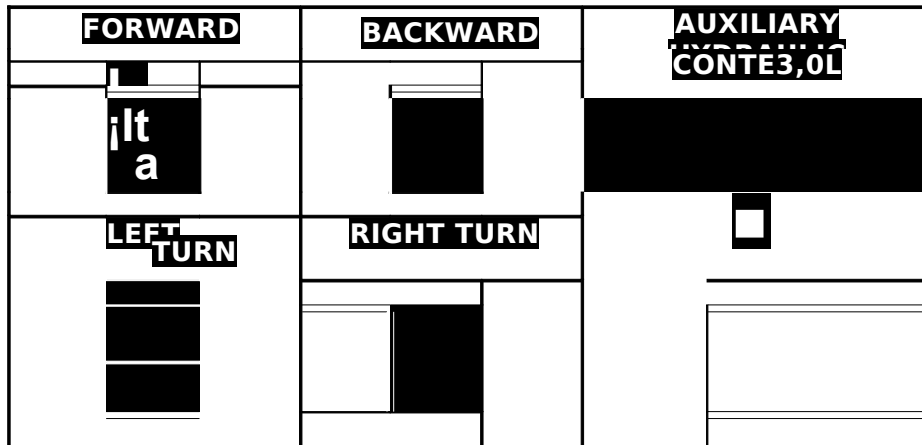
NOTE: If loader will not move with brake pedal released or when Traction Lock Override button is pushed, move steering levers backward a small amount to unlock the traction drive.

GETTING OFF THE BOBCAT LOADER GETTING OFF THE BOBCAT LOADER

1. Before getting out of the operator seat, lower the lift array, put attachment flat on the ground. Stop the engine, engage the parking brake, and remove the key.

2. Pull up on the outer part of the buckle to disconnect the seat belt.
3. Raise the seat bar. Move pedals until both pedals are locked.
4. Use the grab handles, safety treads and steps when getting off the loader.

OPERATING THE STEERING LEVERS



See Operation & Maintenance Manual for more instructions.

OPERATING THE LIFT ARMS, BUCKET, AND BRAKE

WARNING

AVOID INJURY OR DEATH
When operating the loader, always fasten seat belt snugly, lower seat bar and keep feet on pedals. Always carry bucket or attachment as low as possible.

A WARNING

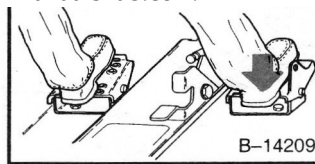
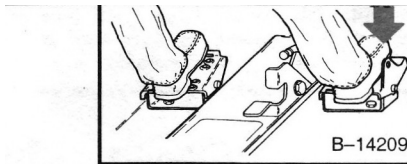
Do not use the loader in an atmosphere, - with explosiva dust or gases or wherw, exhaust can contact flamm material. Explosion or fire can r i m

A WARNING

AVOID INJURY OR DEATH

- Do not exceed loader rated operating capacity.
- Do not use attachments not approved by Bobcat
- Load, unload and turn on flat levej ground only.

FILLING THE BUCKET

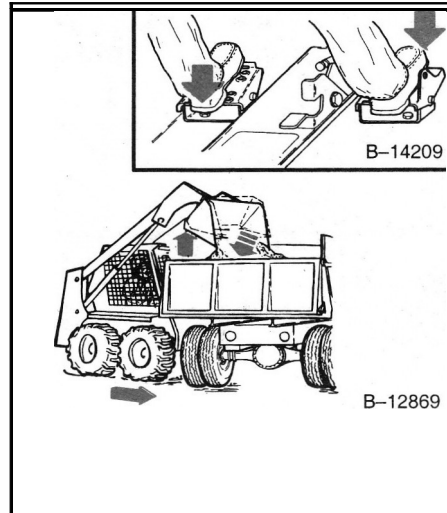


1. Tilt the bucket forward until it makes contact with the ground.

2. Move the loader into the material and tilt the bucket backward. Drive backward away from the material when bucket is full.

EMPTYING THE BUCKET

1. Keep the bucket low when moving to the area where you want to empty the bucket.
1. Push the bottom (heel) of the left pedal to lift the bucket. Keep the bucket level while lifting by pushing the top (toe) of the tilt pedal (Models without bucket positioning).
2. Move the loader forward at a slow rate until the bucket is over the dumping area.
3. Push the top (toe) of the tilt pedal to empty the bucket.



DIGGING A HOLE

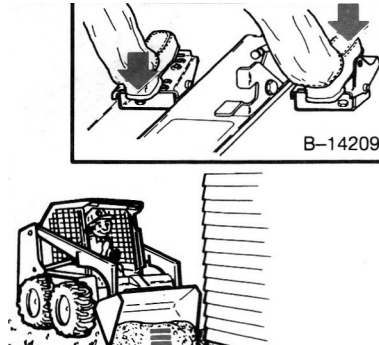
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1. Push the top of the tilt pedal until the bucket makes contact with the ground.
2. **Drive forward at a slow rate while tilting the bucket downward to go into the ground.**
3. Tilt the bucket backward a small amount while it is filling with material.
4. When the bucket is full, tilt the bucket all the way back.

USING THE BUCKET FOR LEVELING

FILLING THE HOLE



1. Raise the lift arms and tilt the bucket forward.
1. **Push down on the top (toe) of the lift pedal until the pedal is in the locked position (Float Position). The bucket will follow the ground as the loader moves backward.**
2. Drive the loader forward to the hole with the bucket as low as possible.
3. Raise the lift arms and tilt the bucket down.

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,A WARNING

AVOID INJURY OR DEATH

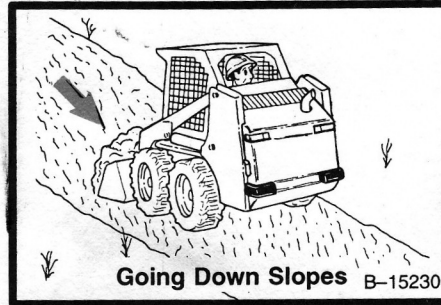
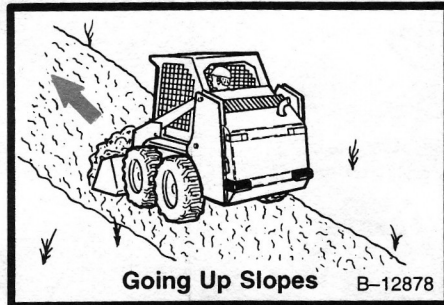
- Keep heavy end of loader uphill.
- Go directly up or down a slope or incline.
- Do not drive across slopes.

A WARNING

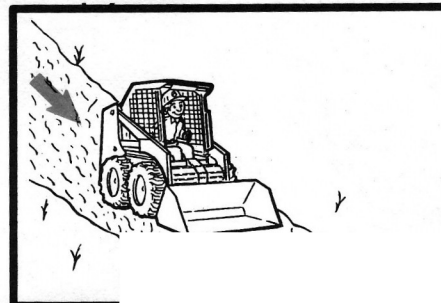
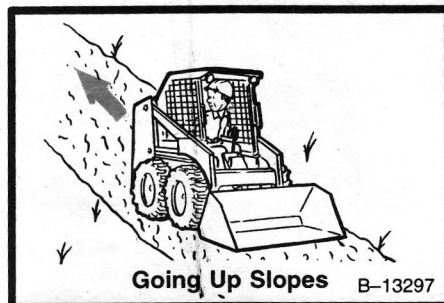
AVOID INJURY OR DEATH

- Keep lift arms as low as possible.
- Do not travel or turn with lift arms up.
- Do not leave loader with engine running, lift arms up or parking brake not

With Bucket Full



With



TRANSPORTING THE LOADER

A loader with an empty bucket or no attachment must be loaded backward onto transport vehicle.

Lower bucket or attachment to floor. Stop engine. Engage parking brake. Install chains at front & rear of loader to transport vehicle. Be sure transport and towing vehicles are of adequate size and capacity.

SERVICE INSTRUCTIONS

An approved lift arm support device must be used when lift arms are up for service.

See instructions on loader or read Operation & Maintenance Manual to engage and disengage lift arm support device.
Replace if damaged.

See Operation & Maintenance Manual or Service Manual for instructions to:

- (1) Lift and lower the cab.**
- (2) Block up loader.**

A WARNING

AVOID INJURY OR DEATH

- Stop and cool the engine before adding fuel. NO SMOKING!
- **Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a pari failure can cause lift arms to drop. Do not go under lift arms when raised unless supported by an approved lift arm support device. Replace if damaged.**
 - Never go under or reach under lift arms or lift cylinder without an approved lift arm, support device installed. Replace if damaged.
 - Service the seat bar system if both pedals do not lock when seat bar is sisadand pedals are moved.
- ⁹ Contact your dealer if the Bobcat Interlock Control System (BICSTM) does not deactivate the lift, tilt and traction drive functions.
- **Do not lift or lower operator cab (ROPS) without instructions from the Operation & Maintenance Manual or Service Manual. Install jackstands or blocks under rear corners of loader.**
 - Never use ether or starting fluid on diesel engine with glow plugs. Use only starting aids as approved by engine manufacturen.
- Keep the rear door closed except for service.
- Keep the engine ares clean of flammable material.
- Do not wear loose clothing, long uncovered hair or jeweiry near machina.
 - Wear eye protection when servicing, and hand hat or other protective equipment as needed.
- When connecting the booster battery for "jump" start aiways make last connection (negative cable) to engine, nevar at battery. When removing the
 - "jump" start cables, aiways remove the negative cable (-) from engine first. Never changa or jump start a frozen battery.**
- Lead-acid batteries produce flammable and explosiva gases. Keep aros, sparks, flamas and lighted tobacco away from battery.
- Battery acid causes severa burns. In case of acid contact, wash immediately with water for severaj minutos and get medica) attention in case of eye contact.
- Use a place of cardboard to check for leaks. Leaking fluids under pressure can enter the skin and cause serious injury. Medica) attention is required.

This Handbook is available from your dealer in an English edition or one of many other languages. See your Bobcat dealer for more information on translated versions.