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OPERATORS MANUAL



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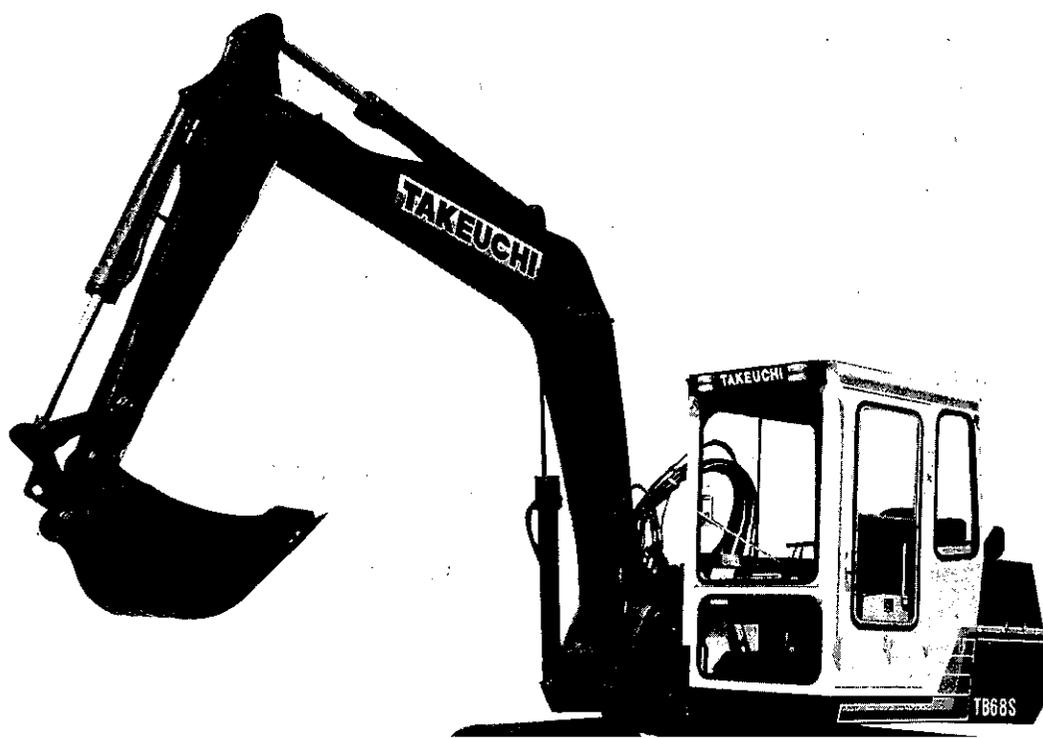
INTRODUCTION

Thank you very much for purchasing our Excavator Model TB68. This operators manual explains the correct operation, inspection, and maintenance, so that you will be able to use your TB68 for a long time, efficiently and economically. Before operation, carefully read this operators manual and acquaint yourself with the necessary information stated herein. All inspections and maintenance should be performed in accordance with this manual.

MACHINE SERIAL NUMBER

The machine serial number is inscribed on the identification plate at the right-hand side of the Upper Machine.

Whenever you need service, use this serial number to help us serve you better.

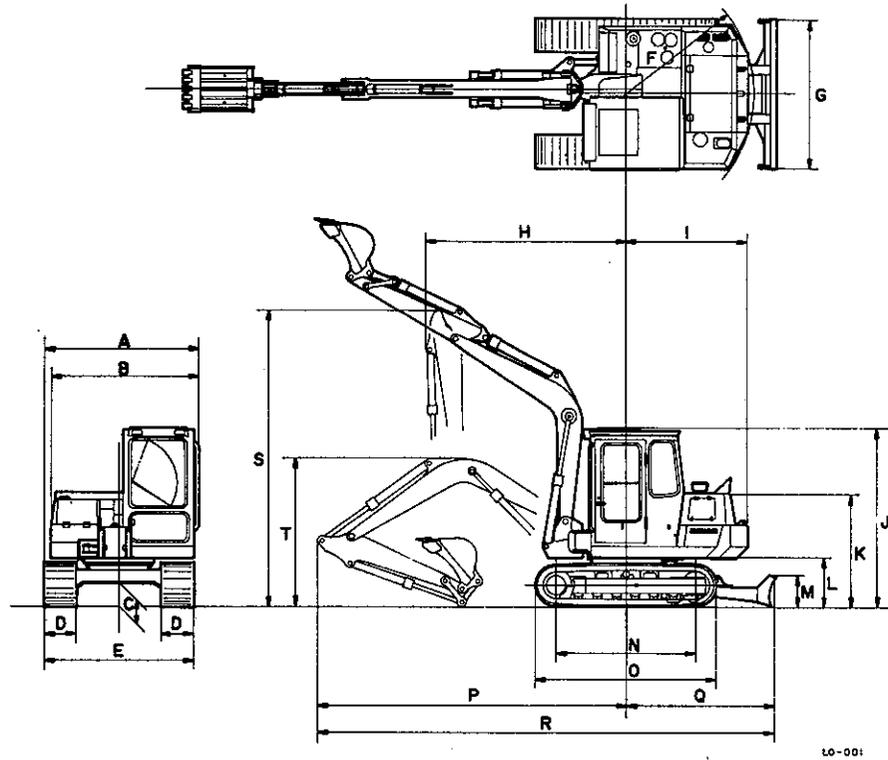


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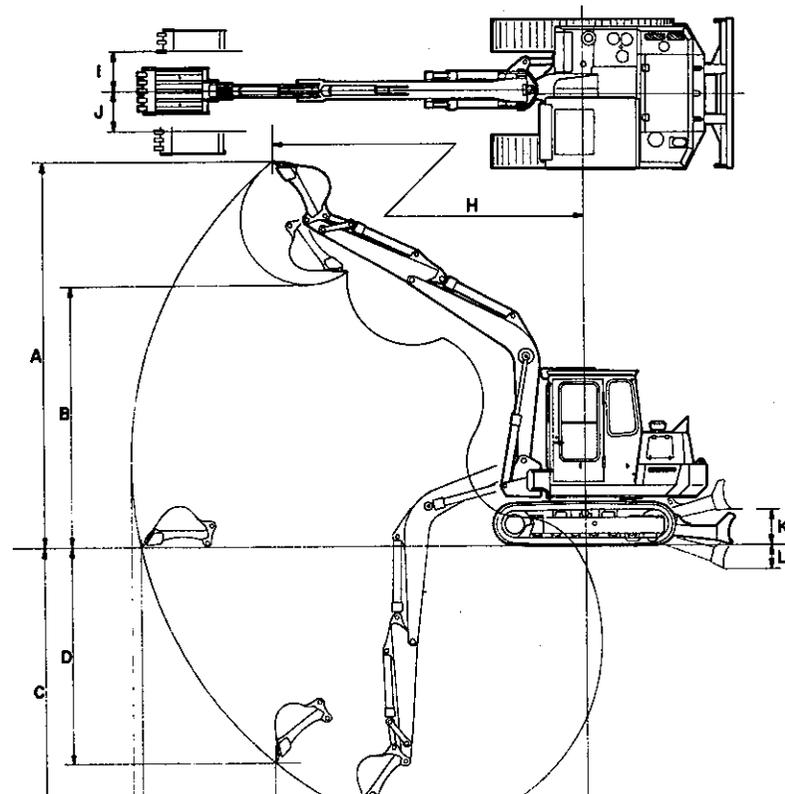
SPECIFICATIONS

Dimensions



	mm	in
A	2180	86
B	2030	80
C	330	13
D	450	18
E	2100	83
F	1800	71
G	2120	83.5
H	2800	110
I	1700	67
J	2550	100
K	1590	62.5
L	690	27
M	420	16.5
N	1990	78
O	2570	101
P	4330	173
Q	2090	82
R	6420	253
S	4190	165
T	2100	83

Working capacity



	mm	in
A	5470 (5600)	215 (220.5)
B	3700 (3825)	146 (150.5)
C	4000 (4250)	157.5 (167.5)
D	3060 (3290)	120.5 (129.5)
E	4370 (4480)	172 (176.5)
F	6250 (6480)	246 (255)
G	6350 (6600)	250 (260)
H	4370 (4550)	172 (179)
I	560	22
J	590	23
K	500	19.5
L	340	13

Travel speed 2.7 km/h (1.7 mph)
 Gradeability 30°

OFFSET DIGGING

Method Boom offset by hydraulic cylinder
 Offset angle 50° (Both left and right)

FUEL, LUBE OIL, AND COOLING WATER

Fuel tank 108 lit. (28.5 U.S. gal.)
 Hydraulic oil
 Tank 124 lit. (32.7 U.S. gal.)
 Total system 140 lit. (36.9 U.S. gal.)
 Engine oil
 High level 7.5 lit. (2 U.S. gal.)
 Low level 5.5 lit. (1.5 U.S. gal.)
 Cooling water 13 lit. (3.43 U.S. gal.)

ENGINE

Model NISSAN SD3304 diesel
 Type 4 cycle, water-cooled, overhead valve
 Rated output 53 ps (52 hp) @ 2,200 rpm
 Maximum torque 18.3 kg · m (132 ft.-lb.) @ 1,800 rpm

WEIGHT (in transport.) 6,950 kg (15,322 lb.)

GROUND PRESSURE

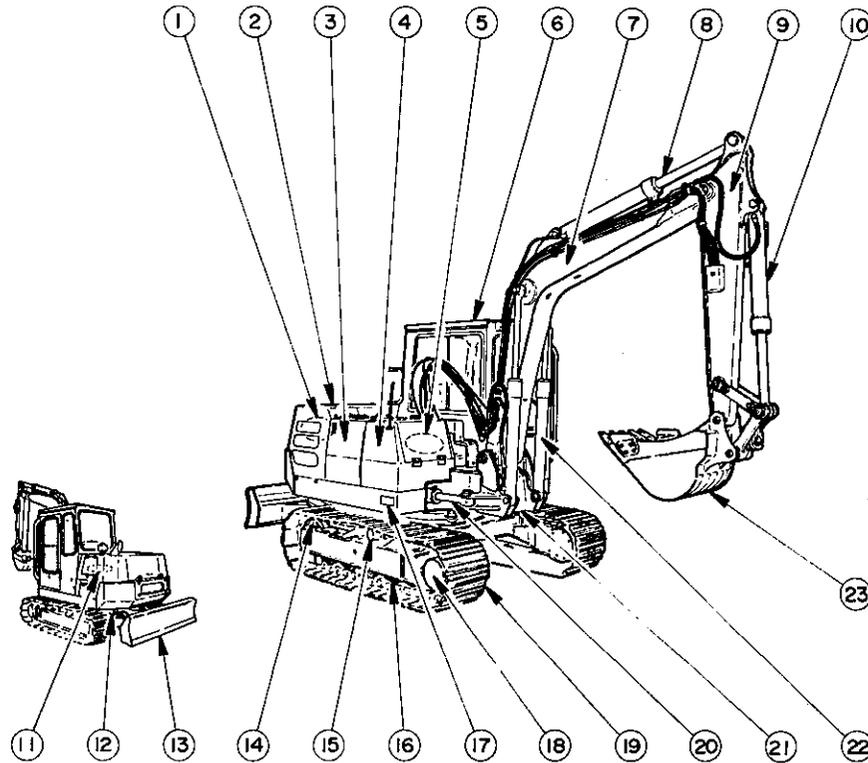
STD. shoe 0.37 kg/cm² (5.25 psi)
 Wide shoe 0.28 kg/cm² (3.98 psi)

BUCKET

Width	SAE Rated capacity	SAE Struck capacity	Weight
mm (in.)	m ³ (cu.yd.)	m ³ (cu.yd.)	kg (lb.)
700 (28) Std.	0.18 (0.24)	0.13 (0.17)	155 (341)
650 (26) Opt.	0.17 (0.22)	0.12 (0.17)	150 (331)
550 (22) Opt.	0.13 (0.17)	0.10 (0.13)	135 (297)
400 (16) Opt.	0.08 (0.10)	0.06 (0.08)	115 (253)

NAMES and FUNCTIONS

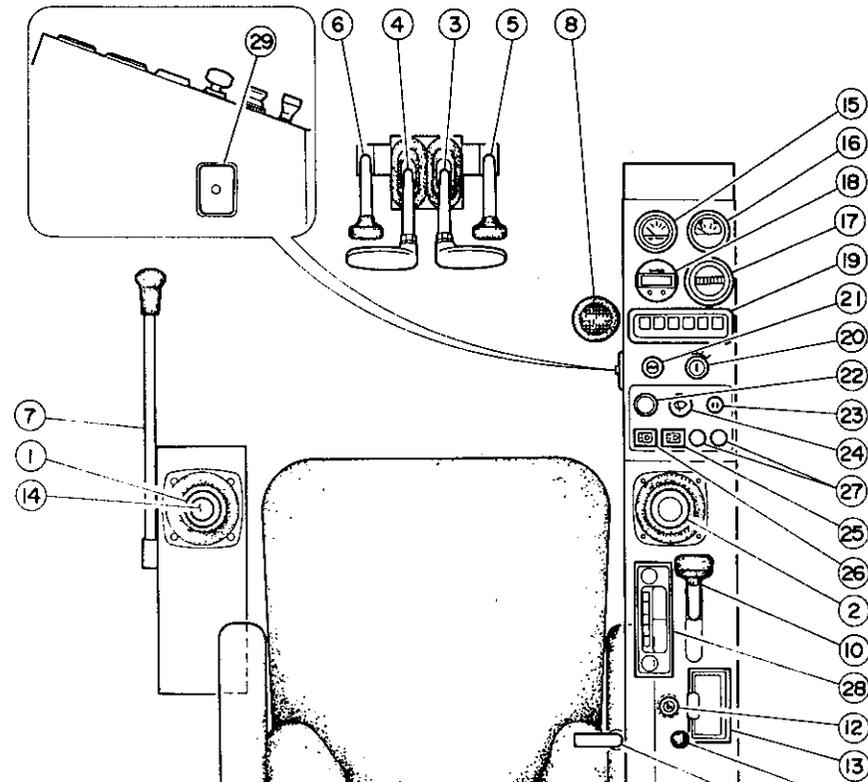
Description of Each Component



1. Engine
2. Engine cover
3. Hydraulic tank
4. Fuel tank
5. Battery
6. Cabin
7. Boom
8. Arm cylinder
9. Arm
10. Bucket cylinder
11. Tools
12. Blade cylinder
13. Dozer blade
14. Front idler
15. Carrier roller
16. Track roller
17. Identification plate
18. Traction motor
19. Track shoe
20. Swing cylinder
21. Boom bracket
22. Boom cylinder
23. Bucket

LO-011

Lever and Panel



1. Operation lever (L.H.)
2. Operation lever (R.H.)
3. Traction lever (R.H.)
4. Traction lever (L.H.)
5. Blade lever
6. Service port lever
7. Safety lever
8. Breaker pedal
9. Switching lever
10. Throttle lever
11. Slew lock pin
12. Cigarette lighter
13. Ashtray
14. Horn switch
15. Water temperature gauge
16. Fuel gauge
17. Hourmeter
18. Digital clock
19. Monitor lamp
20. Starter switch
21. Glow signal
22. Windshield washer switch
23. Heater switch
24. Windshield wiper switch
25. Boom light switch

Operation lever (R.H.) (Refer to pages 15 to 18)

Traction lever (R.H.) (Refer to pages 15 to 18)

Traction lever (L.H.) (Refer to pages 15 to 18)

Dozer blade lever (Refer to pages 15 to 18)

Service port lever

When operating the machine with hydraulic attachments except a breaker hammer, use this lever.

Safety lever

When the lever is pulled up, both operation levers are locked.
Push the lever down to the horizontal position to release the operation lever lock.

NOTE : When the operator leaving the machine after operating, should always keep the lever pulled up.

Breaker pedal

Step on this pedal to operate the hydraulic breaker hammer.

Switching lever

Upper Machine Slew/Boom Swing switching lever. Switch this lever for each purpose. (See Page 18)

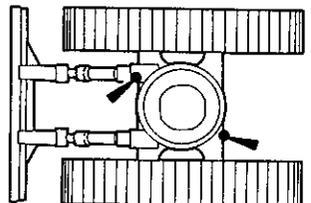
Throttle lever

Controls engine speed (forward for low speed, backward for high speed).

Slew lock pin

When the machine is transported by truck, this slew lock pin is used to stabilize the upper machine (see page 23). Slew lock can be made in parallel with the lower machine.

CAUTION . . . To avoid damage, do NOT attempt to lock the lock pin while slewing the upper machine.



L0-013

Cigarette lighter

- ❖ The lighter works even if the starter switch is off.
- ❖ Push the lighter and wait until it returns automatically.

NAMES and FUNCTIONS

Ashtray

Pull the ashtray upward to remove.

Horn switch

Push the button to sound the horn.

Water temperature gauge

Indicates cooling water temperature. The normal temperature is around 80°C (176°F) during operation. When around 100°C (212°F) reduce the engine speed to idling position to cool the engine.



LO-014

Fuel gauge

Indicates the amount of fuel in the fuel tank. Add fuel when the needle points to E.



LO-015

Hourmeter

Indicates machine work time (accumulated) during engine operation.



LO-016

Digital clock

How to set the time.

- ❖ Turn the starter key to ON.
- ❖ Increase minutes by pushing button A.
- ❖ Increase hours by pushing button B.

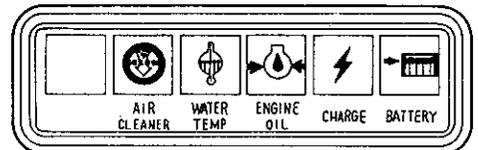
NOTE : AM/PM indication is provided.



LO-017

Monitor lamp

- ❖ Warning lamps blink with beeping for three seconds when the starter key is in the "ON" position.
- ❖ The ENGINE OIL and CHARGE lamps continue to blink until the engine starts.
- ❖ The other lamps go out after the engine is started.



LO-018

Warning lamps

AIR CLEANER

- ❖ When the air cleaner is clogged with dust, the lamp blinks with beeping for 10 seconds.
- ❖ Clean the element (see Page 27).

(see Page 13).

❖ Check the amount of cooling water or the fan belt tension after the engine has cooled (see Page 12).

❖ Engine overloads may cause a similar phenomenon.

ENGINE OIL

❖ When any failure occurs in the lubricating system, the lamp blinks with beeping for 10 seconds.

❖ Stop the engine and check the oil level (see Page 12).

❖ If the cause of trouble is not clear, contact the nearest dealer or service shop.

CAUTION : Continued engine operation regardless of the above will lead to seizure in the engine.

CHARGE

❖ The lamp blinks with beeping when any trouble occurs in the charging system.

❖ Contact the nearest dealer or service shop.

BATTERY

❖ When the electrolyte becomes low, the lamp blinks with beeping.

❖ Add distilled water to the battery (see Page 30).

Starter switch (See Page 13 and 14)

PREHEAT (Refer to GLOW SIGNAL.)

OFF All electric sources are off.

ON All electric sources are on.

START When starting the engine, turn the Starter Key to the "START" position.

NOTE : Following four types of keys are held in the Key Holder :

- ❖ Starter key 2
- ❖ Fuel cap key 2
- ❖ Cab door, engine cover key 2
- ❖ Tool box, battery box key 6

Glow signal

When it becomes red, it's time to start the engine in a cold place (see Page 13).



LO-019



LO-020

NAMES and FUNCTIONS

Windshield washer button

Push the button to actuate the washer.



Heater switch

Pull to start the two speed (low, high) heater fan.



Windshield wiper switch

Pull this switch to operate the wiper.



Boom light switch

Pull this switch to turn the boom light on.



Main light switch

Pull once for low beams, pull a second time for high beams.



Spare switch

Use for the optional electric attachment.



Radio

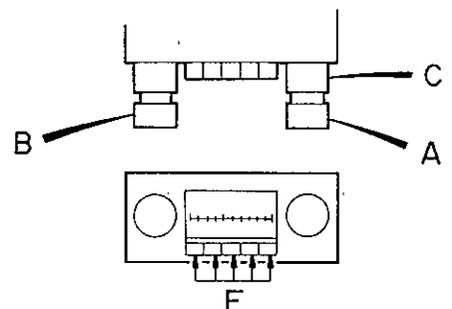
Enjoyable even if the starter key is OFF.

How to enjoy it

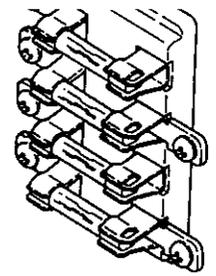
- ❖ Push switch A.
- ❖ Turn switch A to adjust volume.
- ❖ Turn knob B to select station.
- ❖ Turn knob C to adjust tone.

Push button selection of radio station

1. Pull out button E which you want to select.
2. Turn knob C to select a favorite station.
3. Push the button E back in.



20A	Windshield washer, Spare switch, Windshield wiper Main light, Boom light, Horn
10A	Fuel gauge, Monitor lamp, Hour meter, Water temp. gauge
10A	Heater
20A	Digital clock, Radio, Cigarette lighter, Room lamp

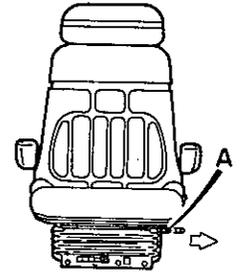


LO-098

Seat and Seat Belt

Height adjustment

- ❖ Seat height is adjustable in three levels. (Max. 60 mm/2.4 in.)
 - ❖ Lift the seat top to automatically engage the next highest position.
- To lower the seat : lift the seat above the highest position up to the stopping point, it then falls by itself to the lowest position.



LO-028

Fore and aft adjustment

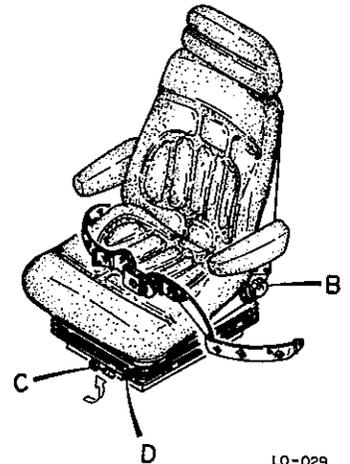
- ❖ After lever A is disengaged, the seat can be moved 150 mm (6 in.) in increments of 15 mm (0.6 in.).

Backrest angle adjustment

- ❖ Infinitely variable up to 30° by turning knob B.

Weight adjustment

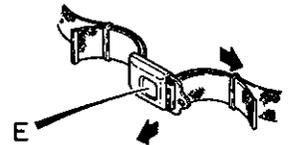
- ❖ With the seat unloaded the weight is set by turning the handle C : set weight can be easily read through a window D.



LO-029

Seat belt adjustment

- ❖ Adjust the seat belt by pulling the belt when the belt and stopper are at a right angle.



LO-030

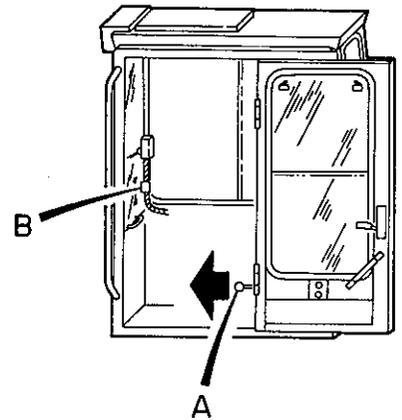
Fasten the belt tightly and make sure the buckle is completely engaged.

Disengage the belt by pushing button E.

NAMES and FUNCTIONS

Cabin

Cab Door can be locked in its full open condition. Pull knob A forward to release the door.



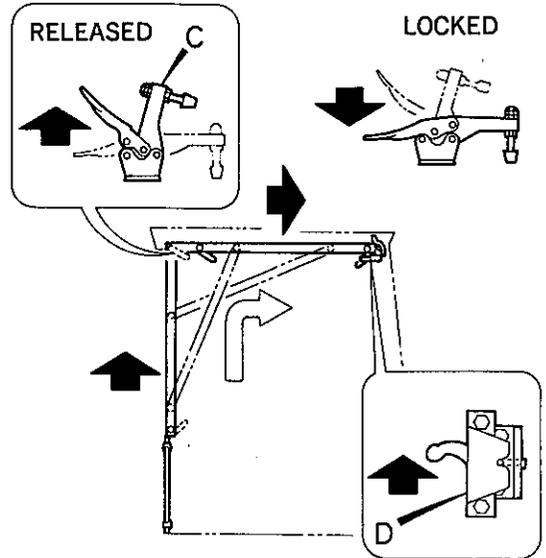
LO-031

Opening the front sash window

- ❖ Disconnect the electrical wire to the wiper at the connector B.
- ❖ Release the clamps C on the front sash.
- ❖ Grab the handrails, lift up the front sash and slide it rearward.
- ❖ Lock the sash firmly with clamps C.

Shutting the front sash

- ❖ Release clamps C from the locking.
- ❖ Move lock lever D in the direction of the arrow to release.
- ❖ Slide the sash towards the front.
- ❖ Lock it with clamps C.
- ❖ Connect connector B of electrical wire to the wiper.

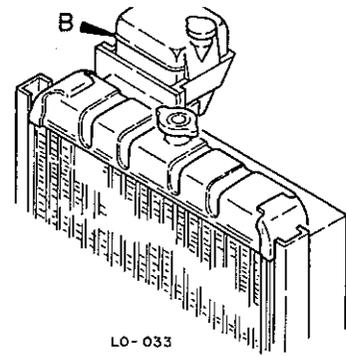


LO-032

Check the cooling water level of reserve tank A.

B is the upper level of cooling water.

When water is low, always add water to the reserve tank A.



LO-033

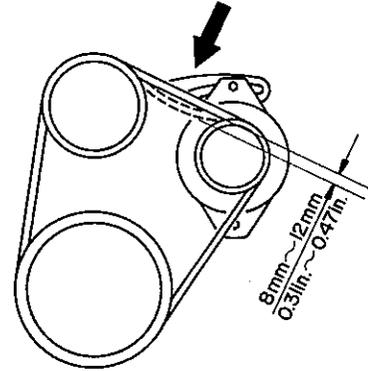
Check fan belt tension

Push the middle of the fan belt with your finger to check proper tension.

Pushing load : about 10 kg (22 lb.)

Proper deflection : 8~12 mm (0.3~0.47 in.)

Refer to the Engine Operation Manual for details.



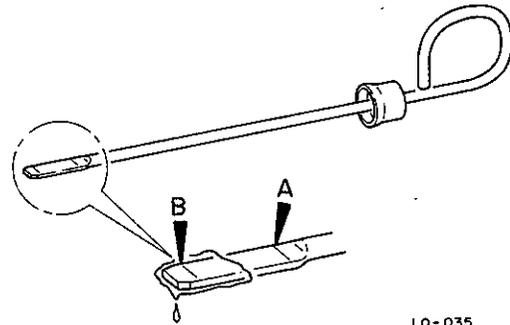
LO-034

Check engine oil

Check the engine oil with the oil level gauge.

A : Upper Limit B : Lower Limit

Refer to the Engine Operation Manual for details.

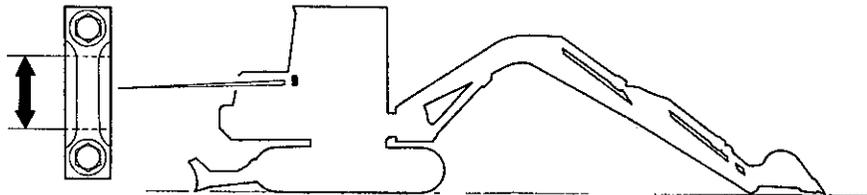


LO-035

Inspecting hydraulic oil

Park the machine on level ground and position it as illustrated.

Make sure that the indication is within the indicated range (see Page 26).



LO-036

Others

Check for leaking oil or grease and loose or missing parts.

Make sure that all the checks and inspections are performed according to the above procedures.

Whenever you need additional checks or inspections, follow this manual.

Adjust the seat to the proper position for the operator and fasten the seat belt for safety (see Page 10).

OPERATION

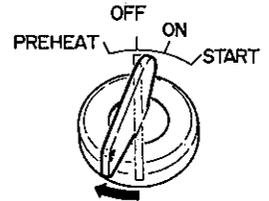
Starting Engine

Start the engine according to the following procedure.

1. Turn the starter key to ON.

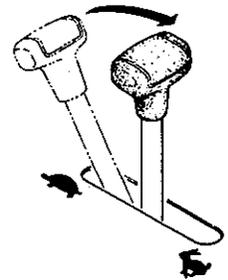
The monitor lamps will blink with beeping for three seconds.

Engine oil and charge lamps will keep blinking. After the engine has started, they will go out.



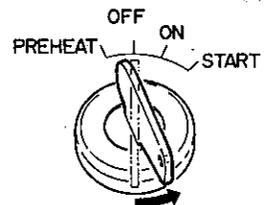
LO-037

2. Pull the throttle lever to the middle position (1/2 Rearward).



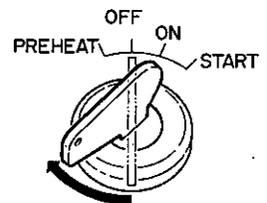
LO-041

3. Turn the starter key to PREHEAT and keep it until the glow signal turns red in 15 to 40 seconds.



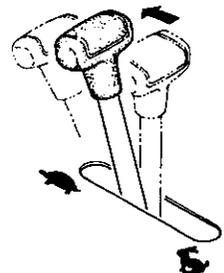
LO-038

4. Turn the starter key to START. The starter key returns automatically to ON.



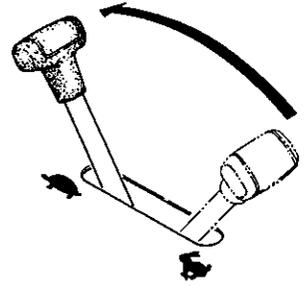
LO-039

5. Push the throttle lever forward to the idling position and warm the engine for 5 minutes.



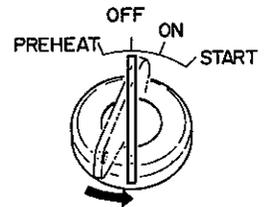
following procedure.

1. Push the throttle lever fully forward.



LO-043

2. Turn the starter key to OFF to stop the engine.



LO-040

CAUTION

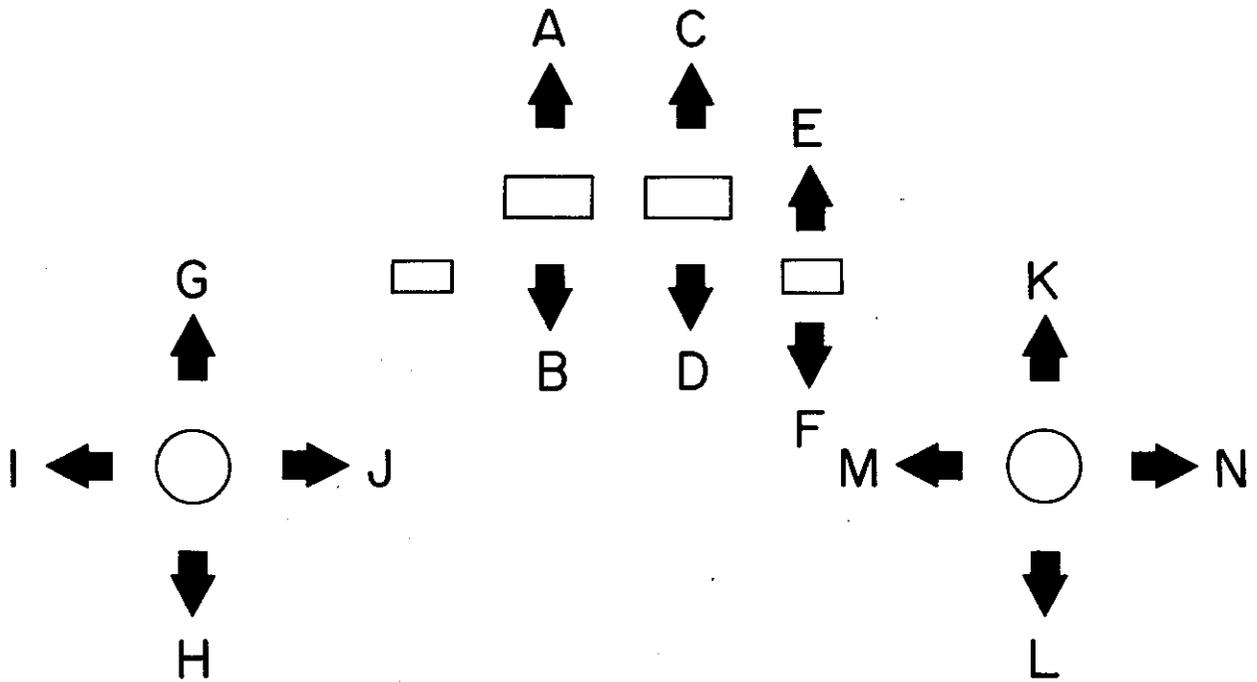
1. Do not operate the starting motor more than 10 seconds at one time.
2. Wait for 30 seconds before you engage the starting motor again.
3. Keep the starter key at ON during operation.

If the key is not in the ON position, all electric systems do not actuate correctly and such operations cause troubles.

4. Always make sure there are no signs of trouble by checking the monitor lamp (see Page 7. 8.).

OPERATION

Lever Operations



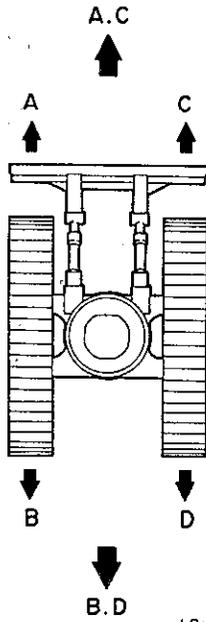
LO-044

- | | | | |
|---|---|---|---|
| A | Left Crawler Forward | H | Arm In (A-Type)
Boom Raise (G-Type) |
| B | Left Crawler Backward | I | Swing Left (Slew Left) |
| C | Right Crawler Forward | J | Swing Right (Slew Right) |
| D | Right Crawler Backward | K | Boom Lower (A-Type)
Arm Out (G-Type) |
| E | Dozer Blade Lower | L | Boom Raise (A-Type)
Arm In (G-Type) |
| F | Dozer Blade Raise | M | Bucket Load |
| G | Arm Out (A-Type)
Boom Lower (G-Type) | N | Bucket Dump |

❖ Push safety lever R down to release the operation levers from lock.

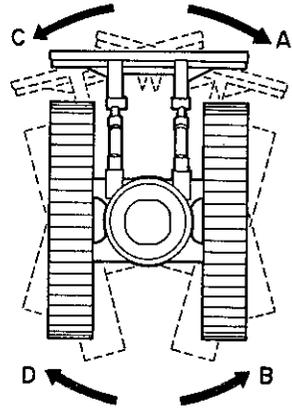
After finishing the work, pull the safety lever up to lock the operation levers.

Traction

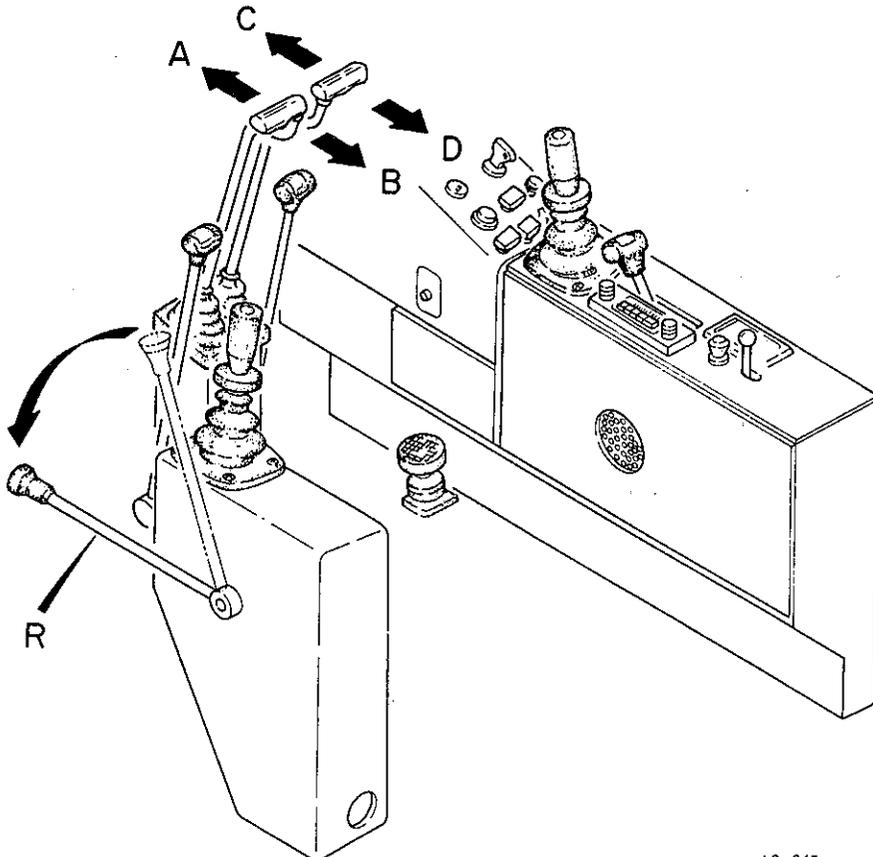


LO-048

Turning



LO-049



LO-045

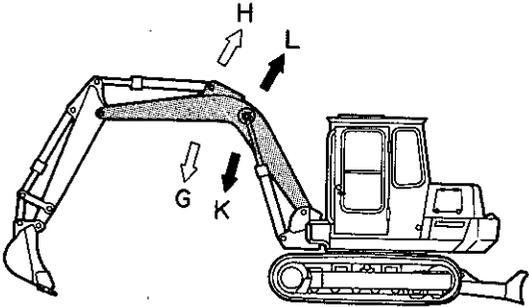
Machine Operation (Attachments)

Boom

A-Type



G-Type



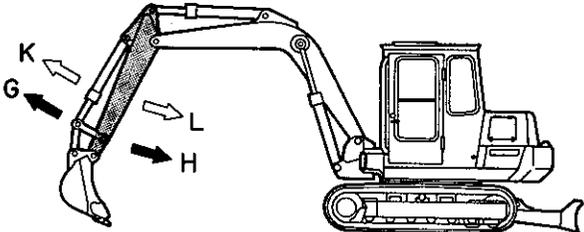
LO-050

Arm

A-Type

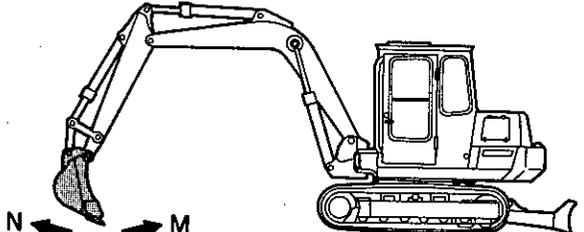


G-Type

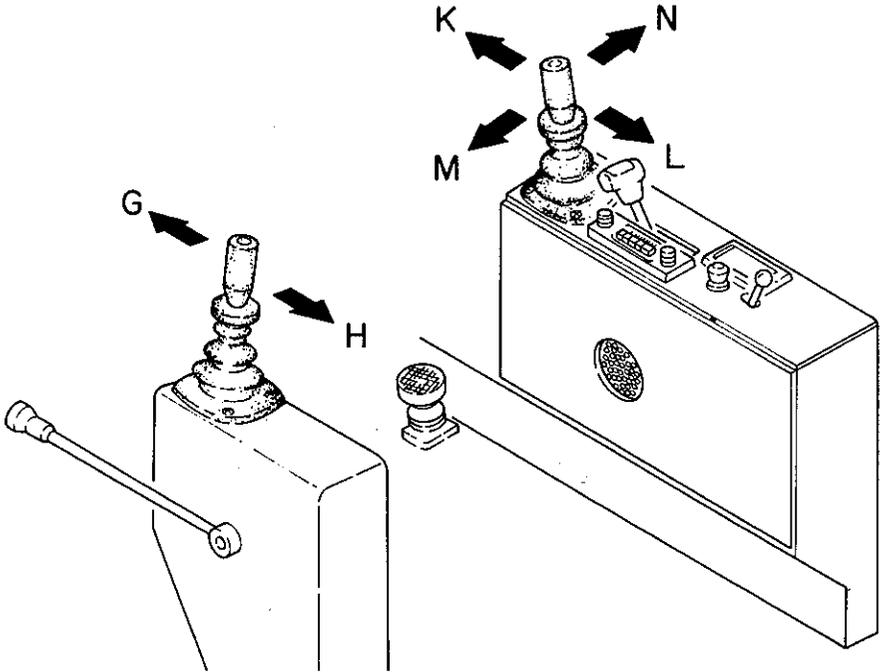


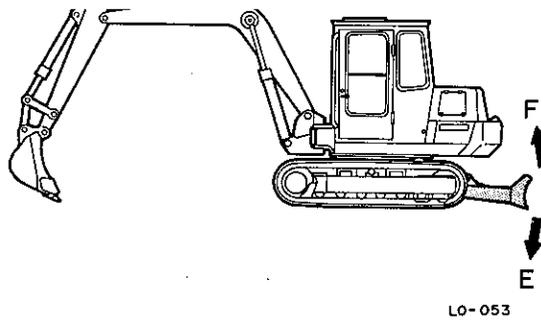
LO-051

Bucket



LO-052



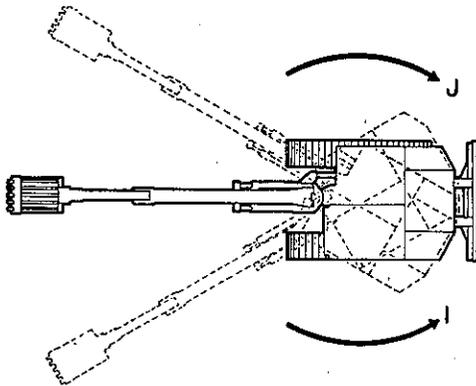


LO-053

Slew and swing

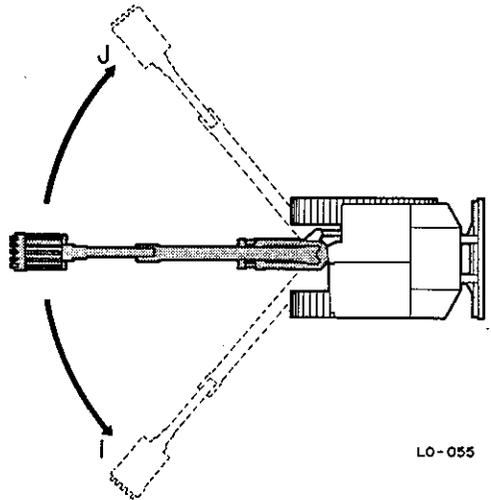
Operate the operation lever (L.H.) after selecting either slew "P" or swing "Q" by switching lever.

Slewing

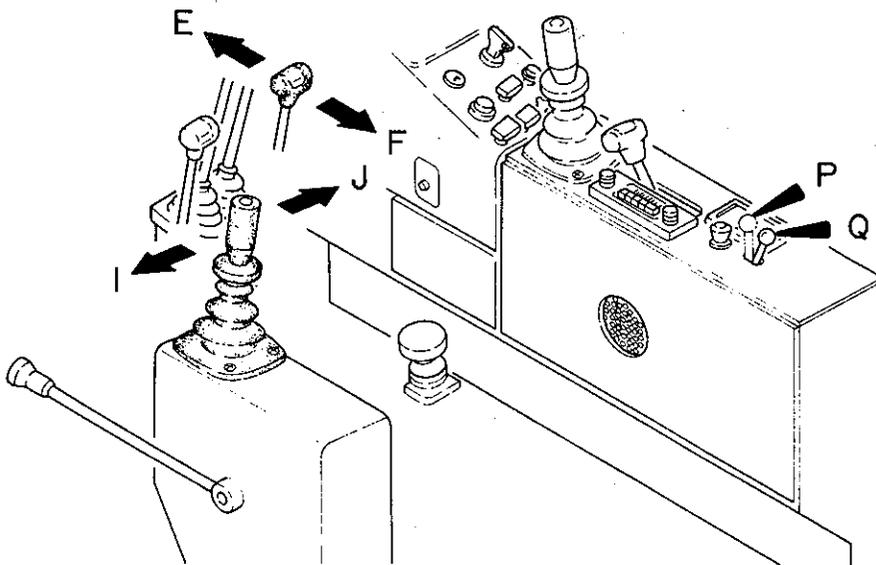


LO-054

Boom swing



LO-055

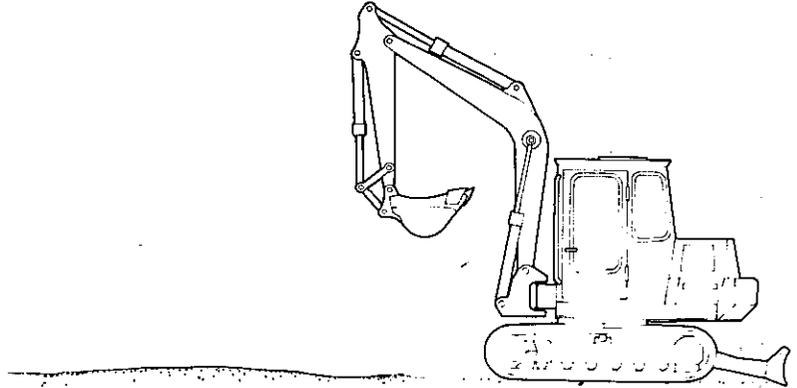


LO-047

OPERATION

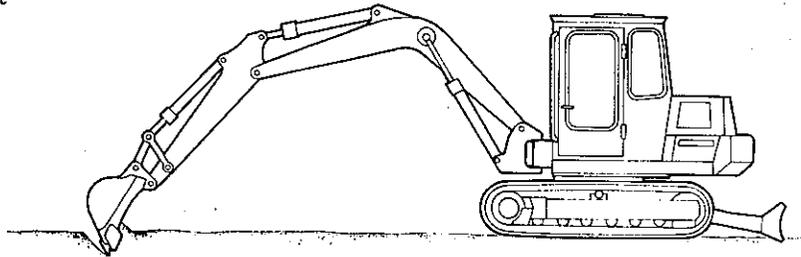
Machine Operation (Digging)

Position the dozer blade to the opposite side of the digging position and let it bite lightly into the ground.



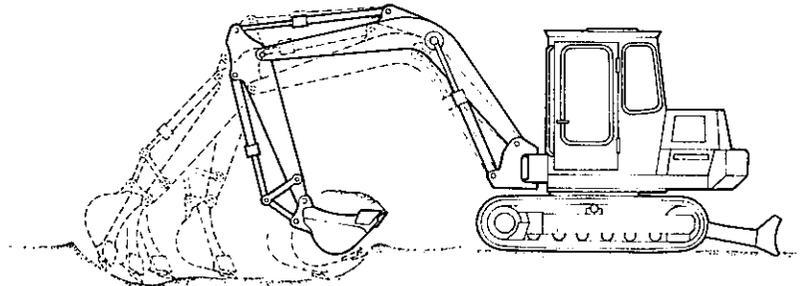
LO-058

Do not extend the hoe attachment fully when digging.



LO-056

Dig with shallow, long strokes.

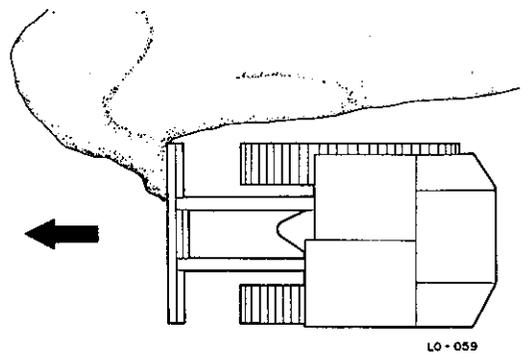


LO-057

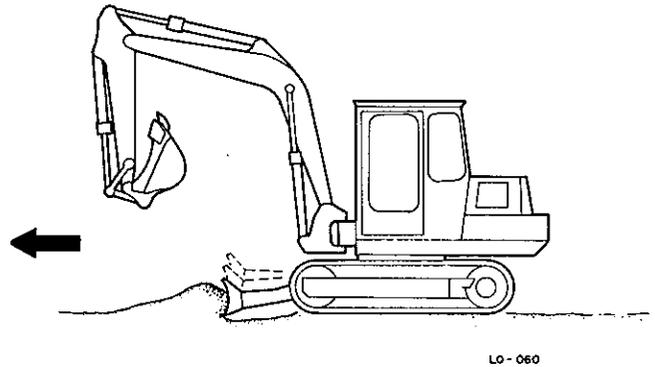
attachment, start ground leveling work.

When overloaded, lift the blade a little to ground level.

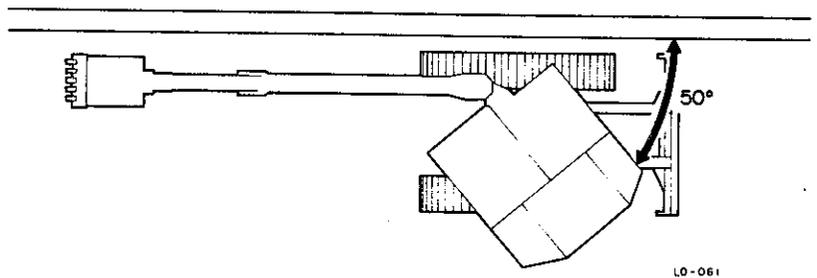
Cut soil with dozing from the side of the soil.



Cut soil with dozing from the top of the soil.



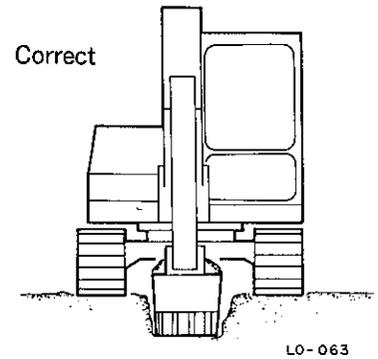
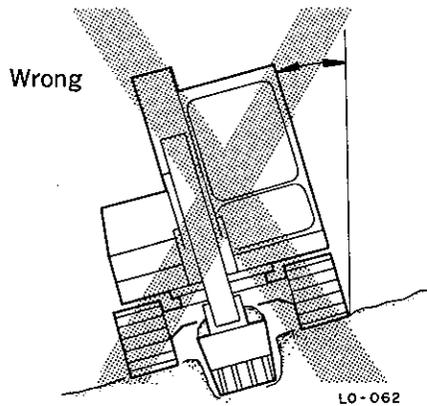
Boom swings 50° to the right and left. This function makes offset digging possible as illustrated.



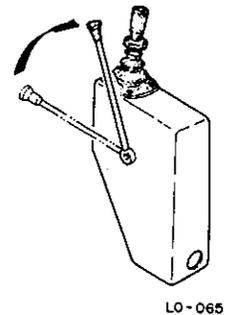
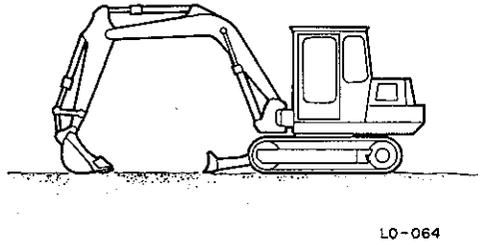
OPERATION

Precautions

Operate the machine on flat ground. When ground slopes, level the ground in advance by using the dozer blade and then proceed.



After finishing the work or when the operator is away from the machine temporarily, always lower all attachments to the ground. Do not forget to pull the safety lever up.



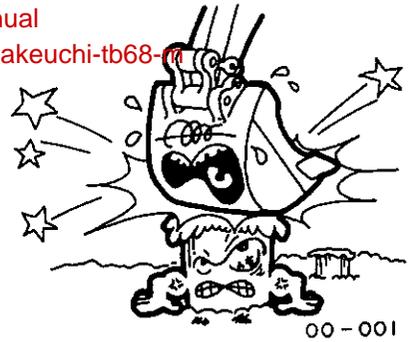
Whenever parking the machine on a slope, lock the rear side of the crawlers with blocks. Move the machine long distances by forward travelling to protect the track shoes (link bushings) from abrasion.

NOTE : When the safety lever is in the "LOCK" position, the hoe attachment and swing (slew) do not function (see Page 6).

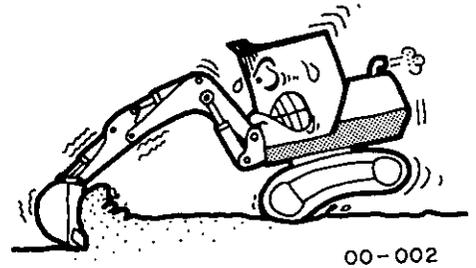
1. Do NOT hit piles, rocks, concrete walls or structures with the

bucket using its falling gravity.

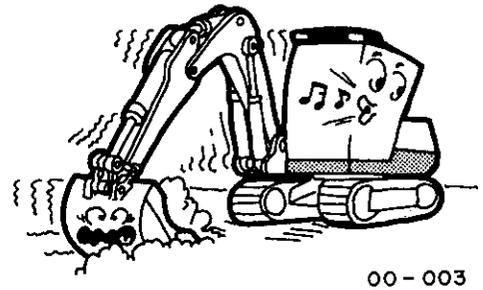
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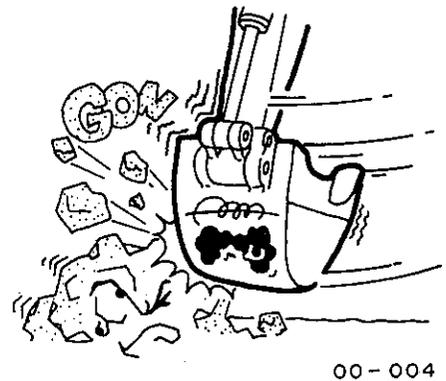
2. Do NOT dig the ground by using the machine's weight itself.



3. Do NOT drive the machine with the bucket stuck in the ground.



4. Do NOT use machine slew or swingpower for backfilling or for demolishing building walls.



Sample of manual. Download All 48 pages at:

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