

OPERATORS MANUAL

TB62
TAKEUCHI BACKHOE

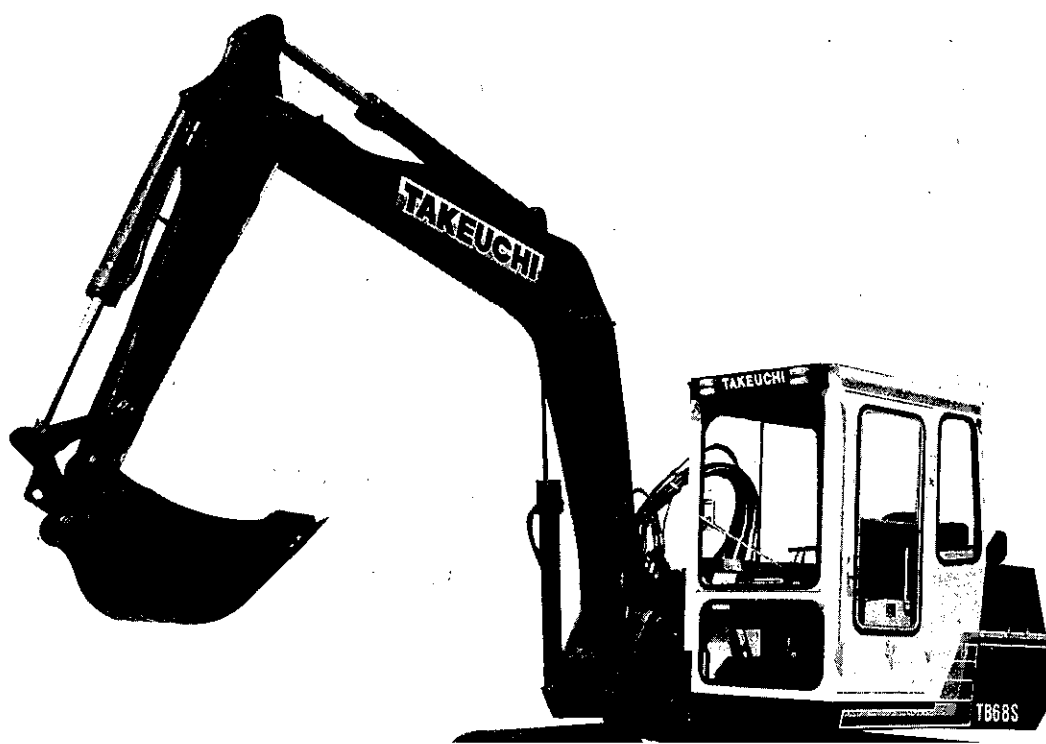
INTRODUCTION

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.

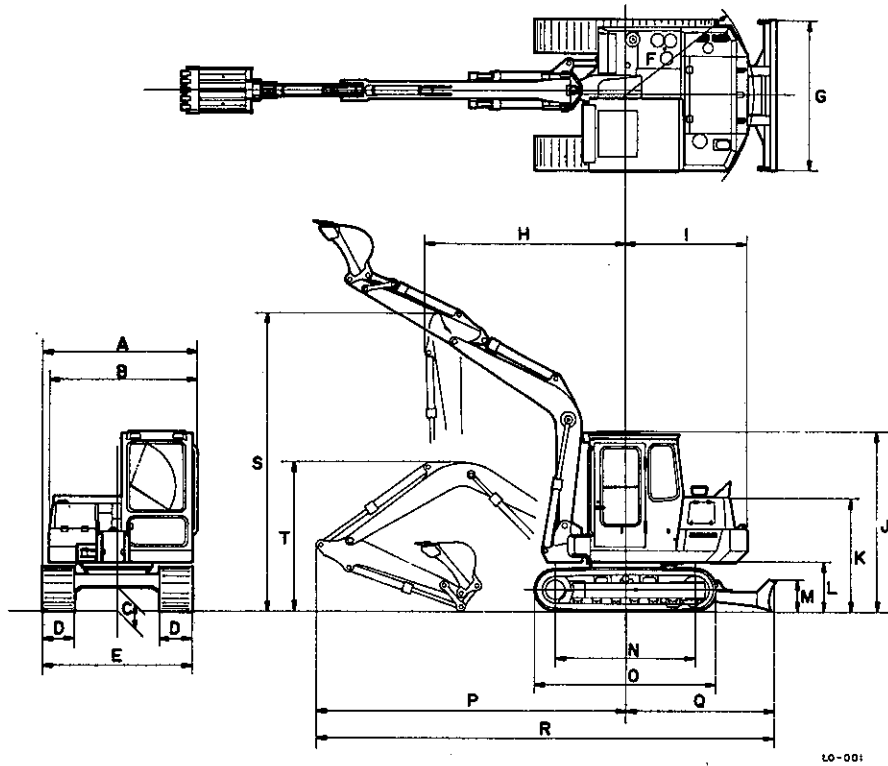


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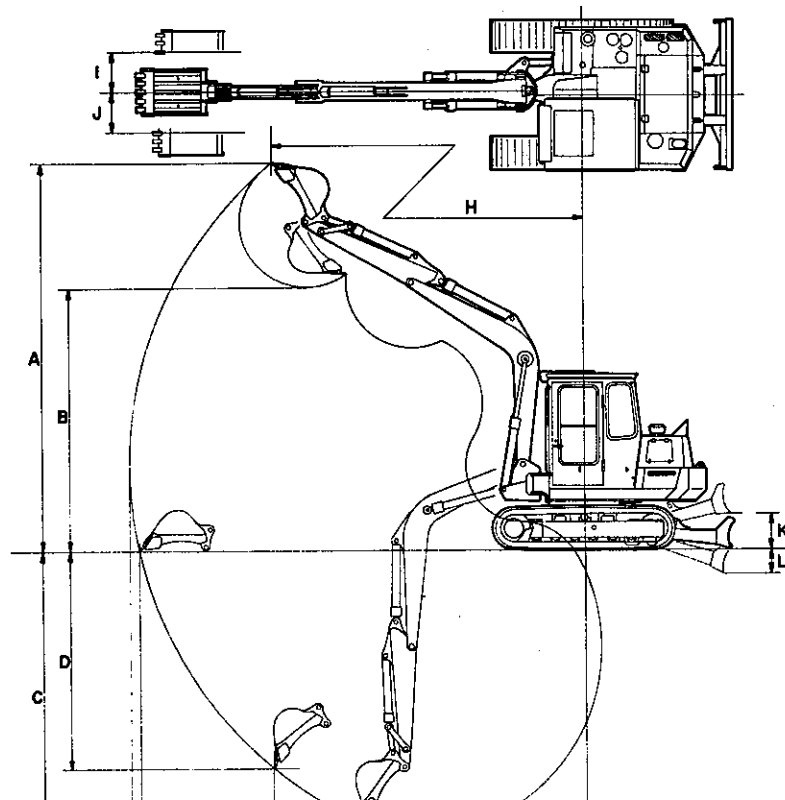
SPECIFICATIONS

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

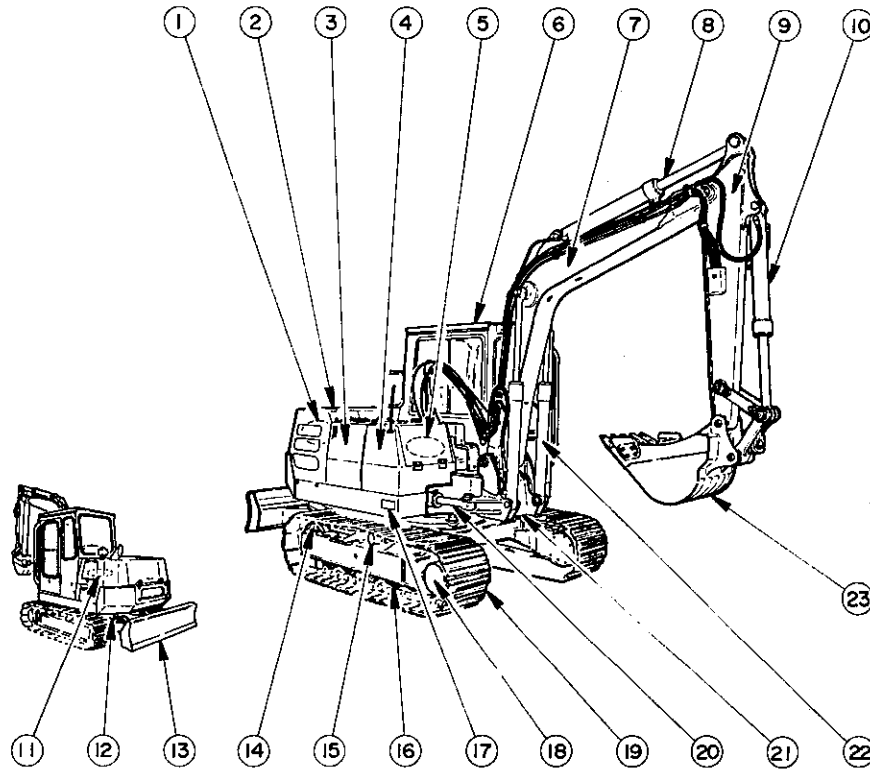
STD. shoe 0.37 kg/cm² (5.25 psi)
 Wide shoe 0.28 kg/cm² (3.98 psi)

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

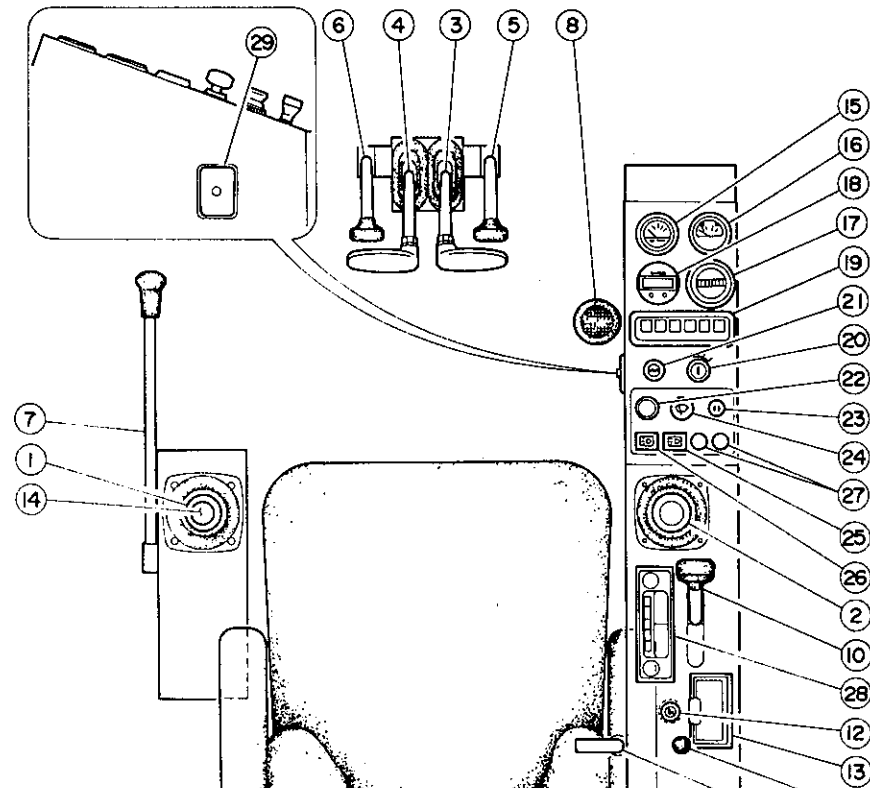
Description of Each Component



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)

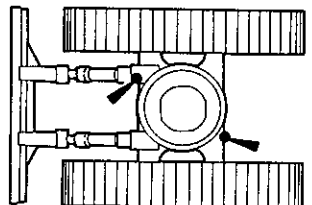
Throttle lever

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.

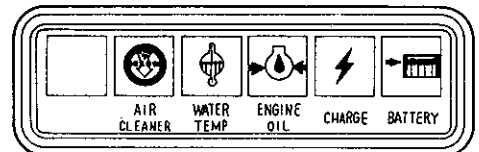
NOTE : AM/PM indication is provided.



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



LO-019

Glow signal

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



LO-020

NAMES and FUNCTIONS

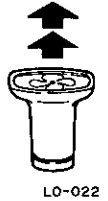
Windshield washer button

Push the button to actuate the washer.



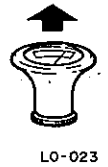
Heater switch

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



Windshield wiper switch

Pull this switch to operate the wiper.



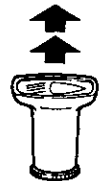
Boom light switch

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

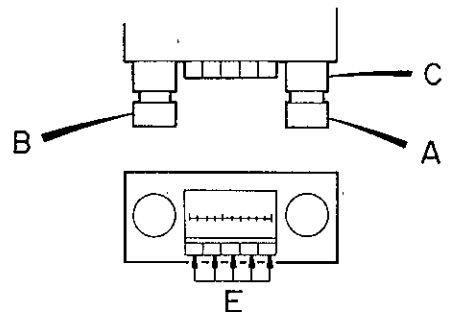
Enjoyable even if the starter key is OFF.

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.

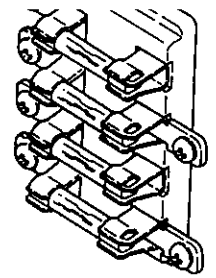
Push button selection of radio station

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



LO-027

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

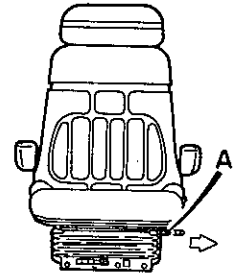


LO-098

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

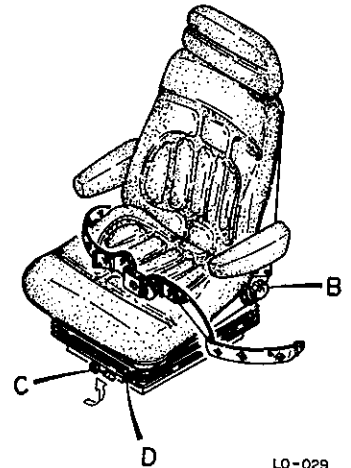
- ❖ After lever A is disengaged, the seat can be moved 150 mm (6 in.) in increments of 15 mm (0.6 in.).

Backrest angle adjustment

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

Weight adjustment

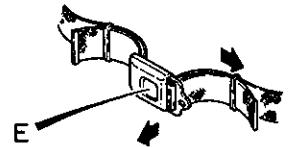
- ❖ With the seat unloaded the weight is set by turning the handle C : set weight can be easily read through a window D.



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

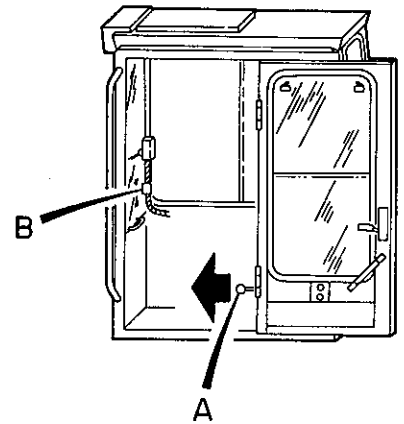
Fasten the belt tightly and make sure the buckle is completely engaged.

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.



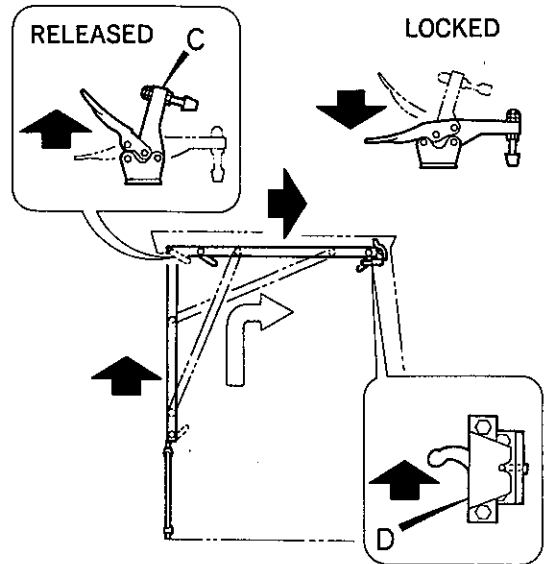
LO-031

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.

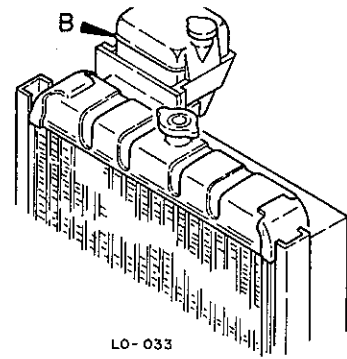


LO-032

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

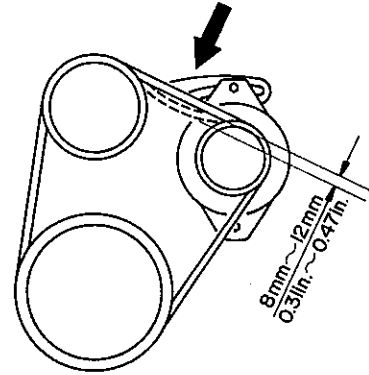
Check fan belt tension

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.



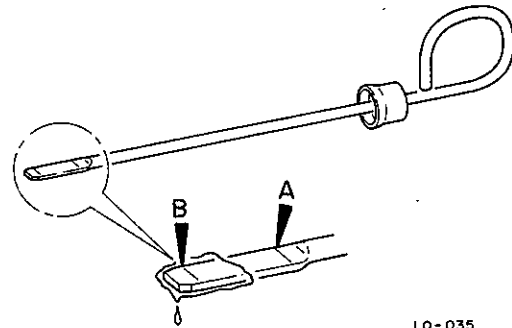
LO-034

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.

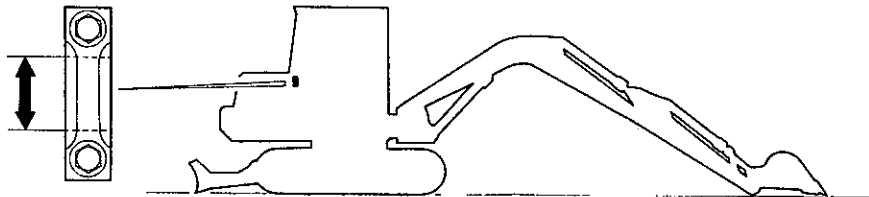


LO-035

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

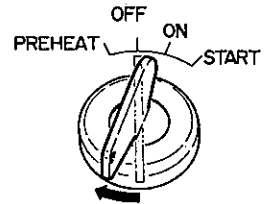
Starting Engine

Start the engine according to the following procedure.

1. Turn the starter key to ON.

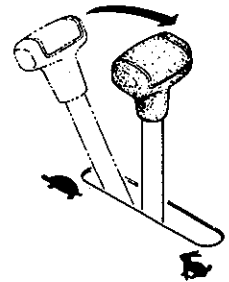
The monitor lamps will blink with beeping for three seconds.

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



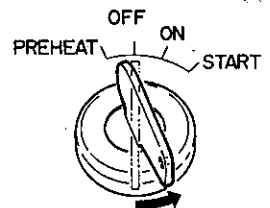
LO-037

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



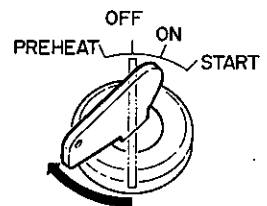
LO-041

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



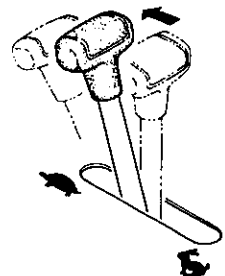
LO-038

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



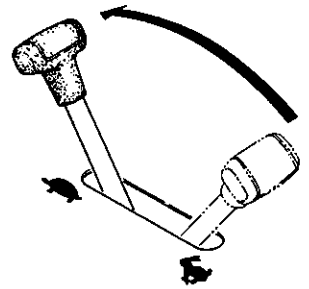
LO-039

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



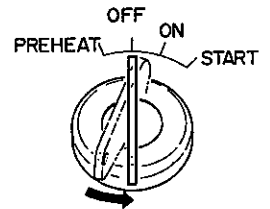
following procedure.

1. Push the throttle lever fully forward.



LO-043

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



LO-040

CAUTION

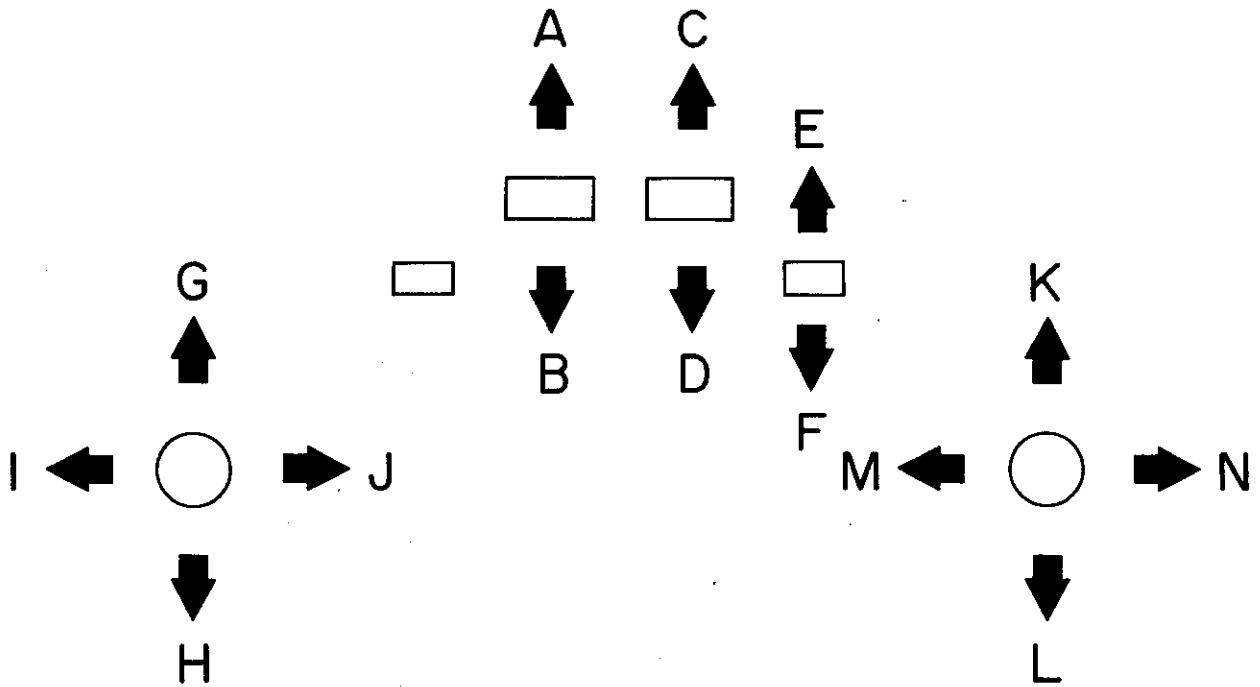
1. Do not operate the starting motor more than 10 seconds at one time.
2. Wait for 30 seconds before you engage the starting motor again.
3. Keep the starter key at ON during operation.

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



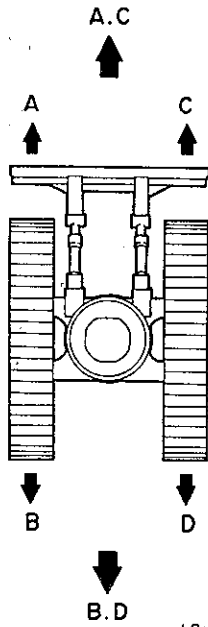
LO-044

- | | | | |
|---|---|---|---|
| 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 |

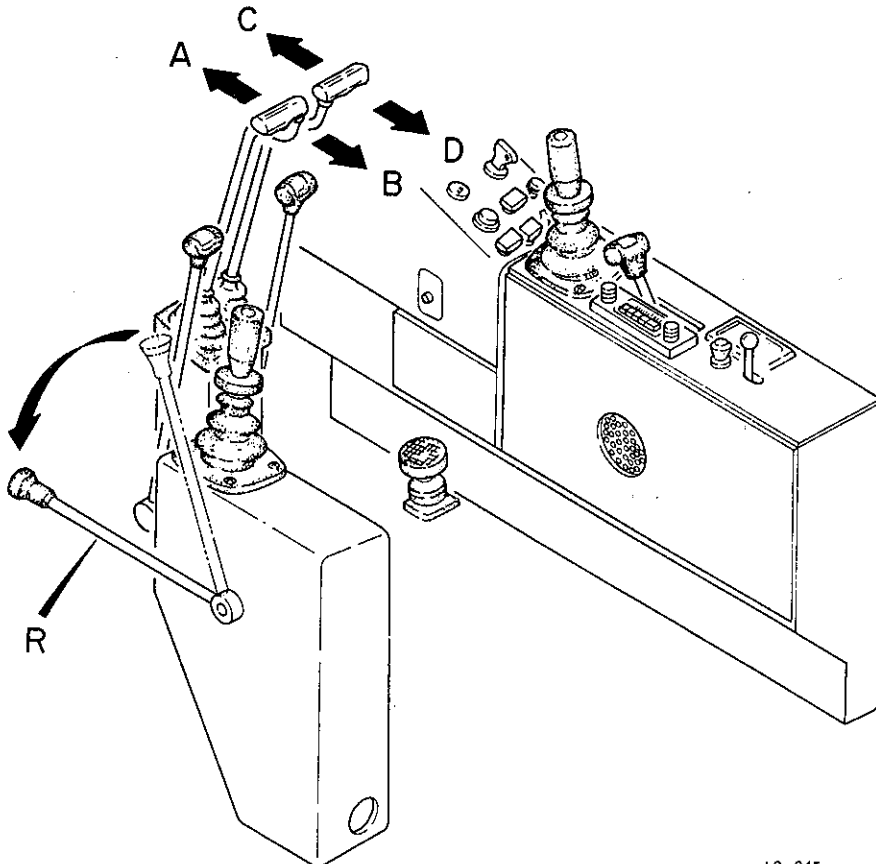
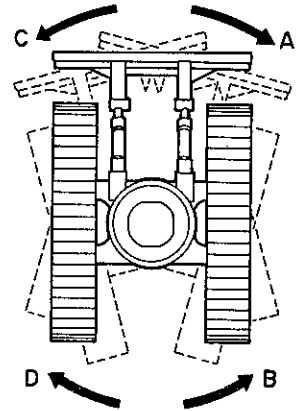
❖ Push safety lever R down to release the operation levers from lock.

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

Traction





Turning

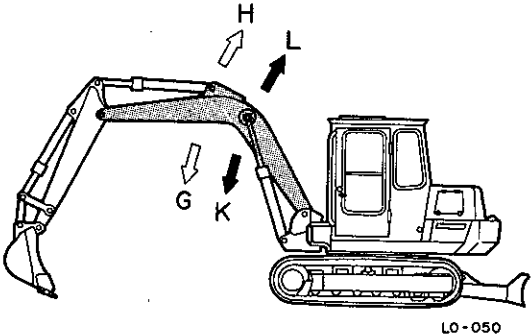


OPERATION

Machine Operation (Attachments)



Boom

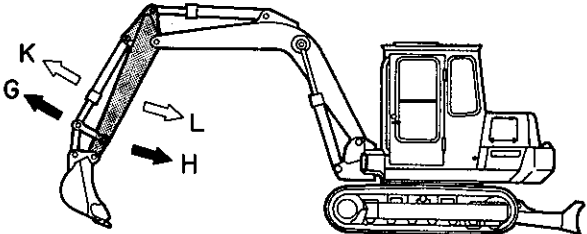
- A-Type 
- G-Type 



LO-050

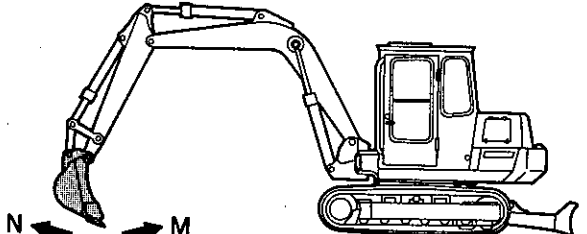
Arm

- A-Type 
- G-Type 

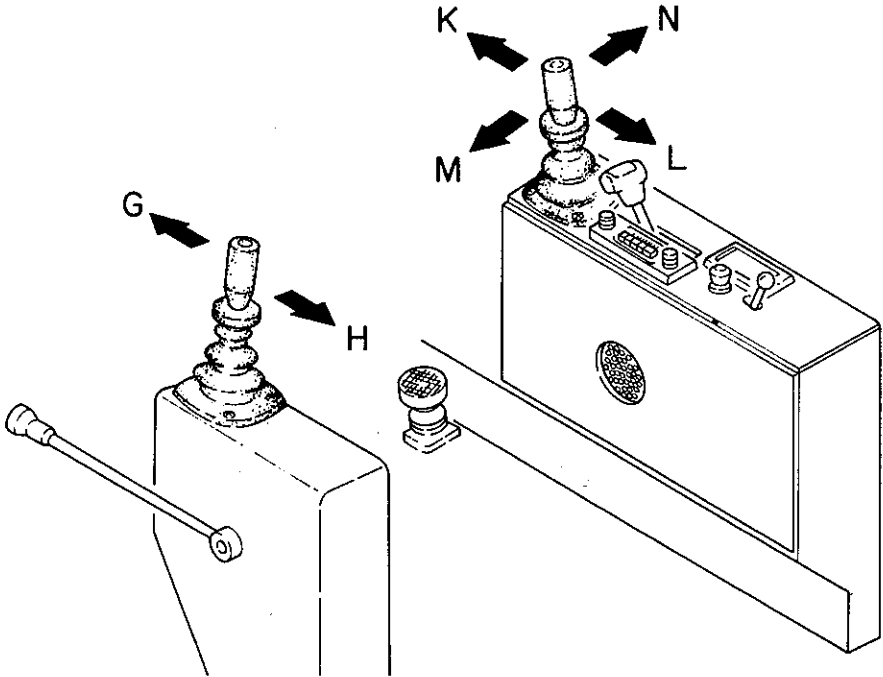


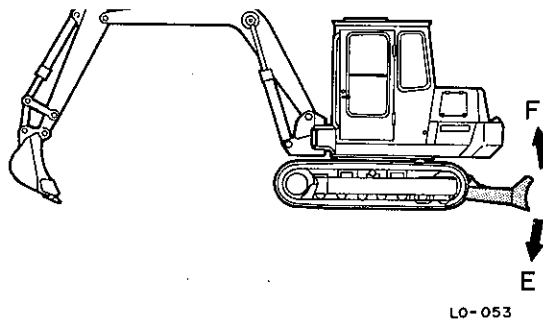
LO-051

Bucket



LO-052



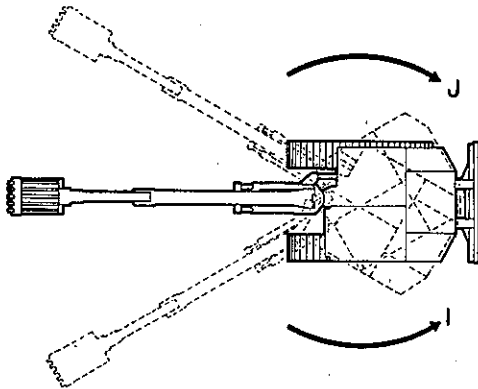


LO-053

Slew and swing

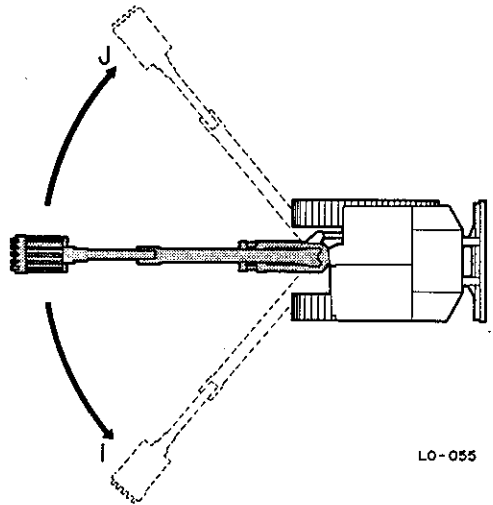
Operate the operation lever (L.H.) after selecting either slew "P" or swing "Q" by switching lever.

Slewing

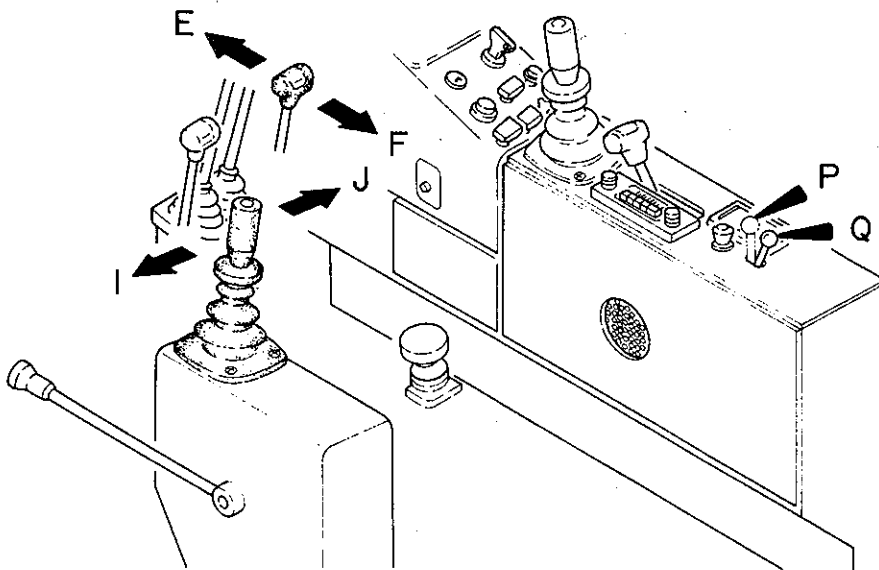


LO-054

Boom swing



LO-055

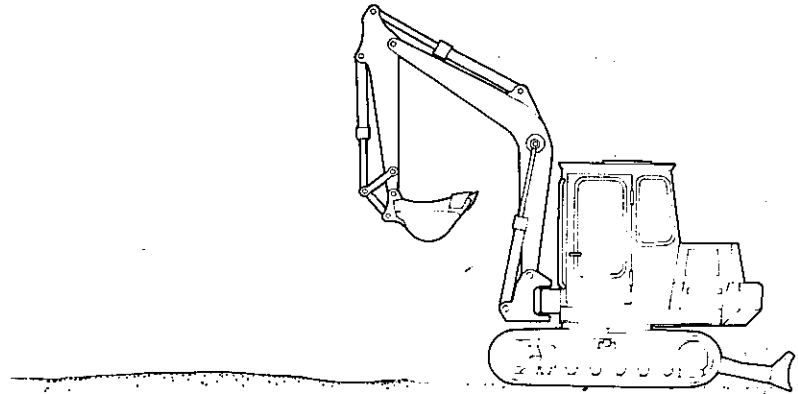


LO-047

OPERATION

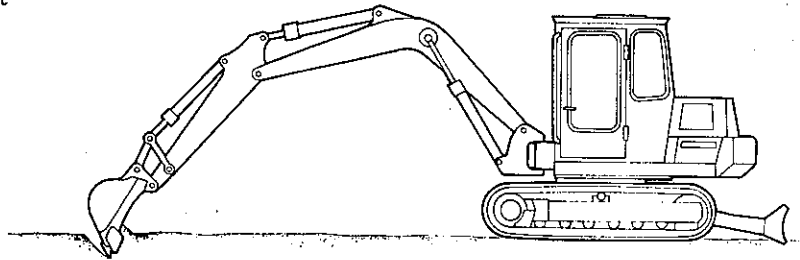
Machine Operation (Digging)

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



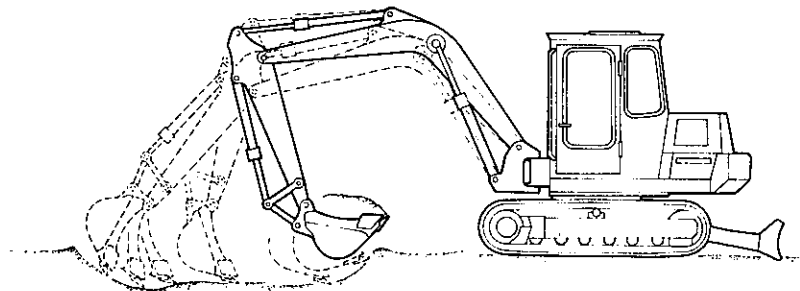
LO-058

Do not extend the hoe attachment fully when digging.



LO-056

Dig with shallow, long strokes.

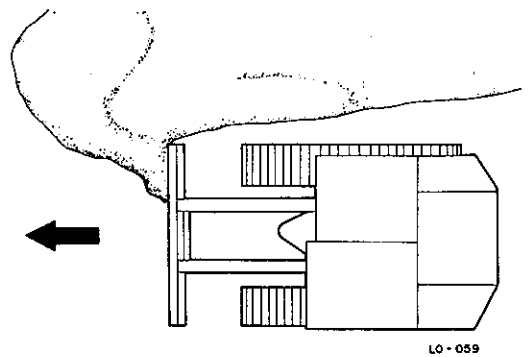


LO-057

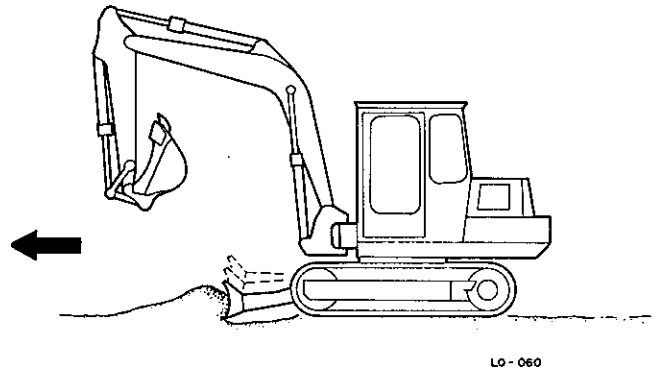
attachment, start ground leveling work.

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

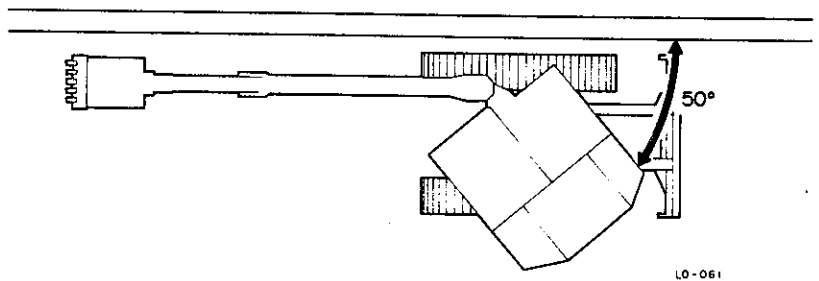
Cut soil with dozing from the side of the soil.



Cut soil with dozing from the top of the soil.



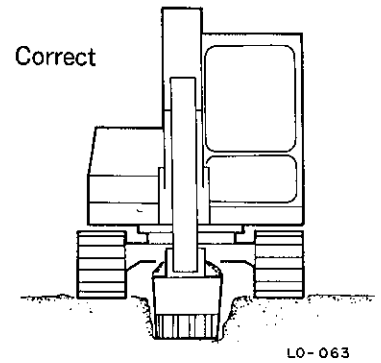
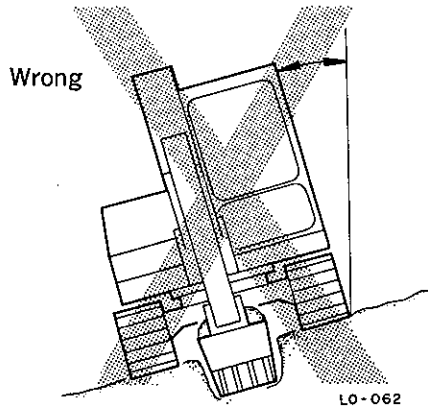
Boom swings 50° to the right and left. This function makes offset digging possible as illustrated.



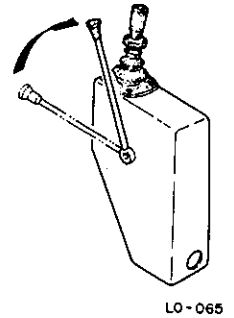
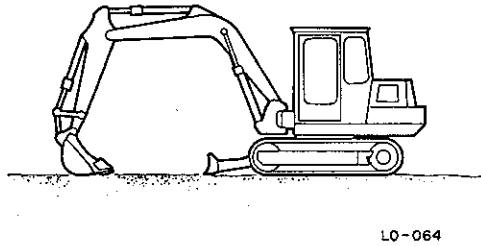
OPERATION

Precautions

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



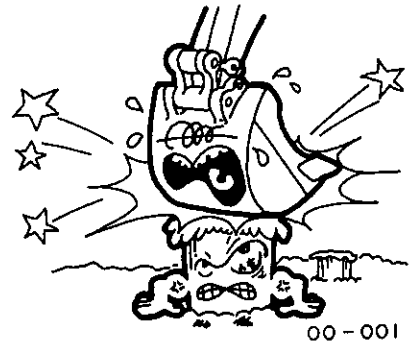
After finishing the work or when the operator is away from the machine temporarily, always lower all attachments to the ground. Do not forget to pull the safety lever up.



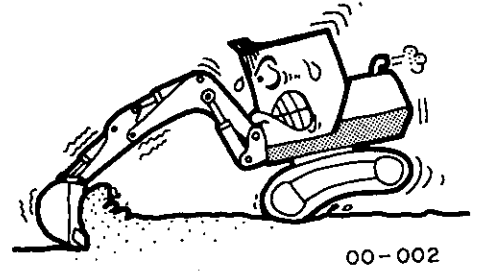
Whenever parking the machine on a slope, lock the rear side of the crawlers with blocks. Move the machine long distances by forward travelling to protect the track shoes (link bushings) from abrasion.

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

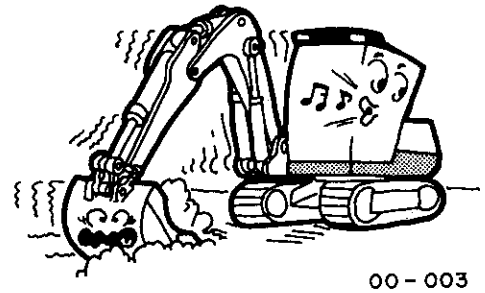
1. Do NOT hit piles, rocks, concrete walls or structures with the bucket using its falling gravity.



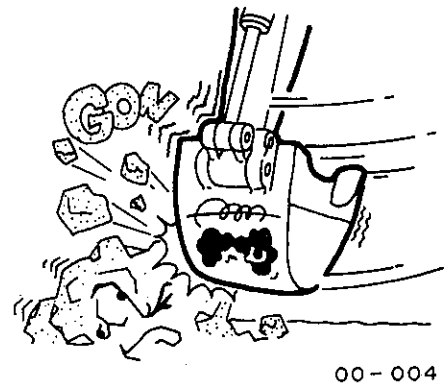
2. Do NOT dig the ground by using the machine's weight itself.



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.



Transportation

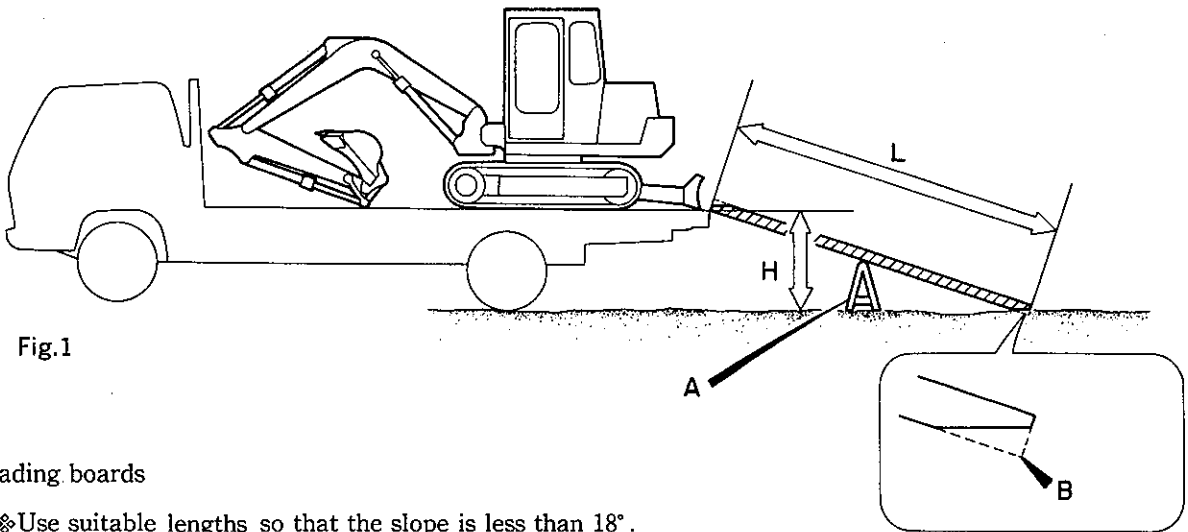


Fig.1

Loading boards

- ❖ Use suitable lengths so that the slope is less than 18°.
- ❖ Width should be at least 1.2 times that of the crawler.
- ❖ Cut bias at the end as illustrated in B.
- ❖ Fix firmly (with fixing metal tools) to prevent detachment.
- ❖ Set a support A in the middle of the board for safety.

LO-066

Relation between height of track deck and length of loading board.

H	L
1300 mm (4 ft. 3 in.)	4300 mm (14 ft. 1 in.), more
1110 mm (3 ft. 8 in.)	3700 mm (12 ft. 2 in.), more
930 mm (3 ft. 1 in.)	3100 mm (10 ft. 2 in.), more
750 mm (2 ft. 6 in.)	2500 mm (8 ft. 2 in.), more

CAUTION : Load or unload on level, firm ground.

While working, set the truck parking brake firmly and block each wheel.

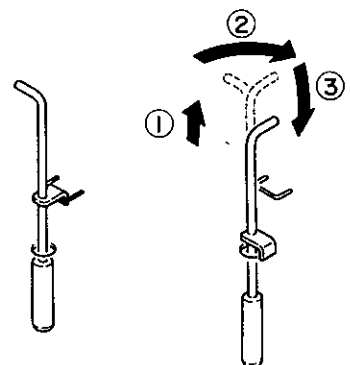
Transport position

- ❖ Bucket and dozer blade should be set in the opposite position (see Fig. 1).
- ❖ Lock the slew lock and the cabin door.
- ❖ Fix the lower frame firmly to the truck with wire. Put blocks to the crawler.

Upper machine slew lock pin

Fig. 2 Slew lock pin released.

Fig. 3 Slew lock pin locked.



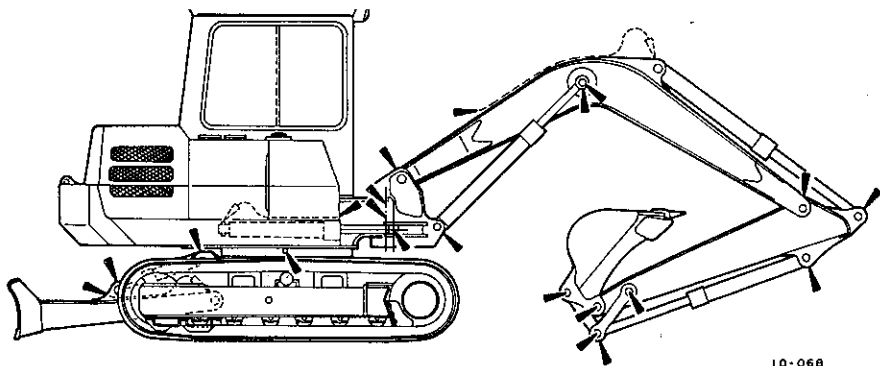
LO-067

Fig.2

Fig.3

[◀] every 50 hours.

If you operate the machine in severe conditions, grease the machine more frequently.



Adjusting Track Tension

- ❖ Check every 50 hours.
- ❖ Lift the machine by lowering the boom and the dozer blade.
- ❖ Check that the distance between the bottom face of the crawler frame and the top face of the shoe plate is within the allowance of tension.
- ❖ Adjust the allowance to 167 mm to 187 mm (6.6 in. to 7.4 in.).

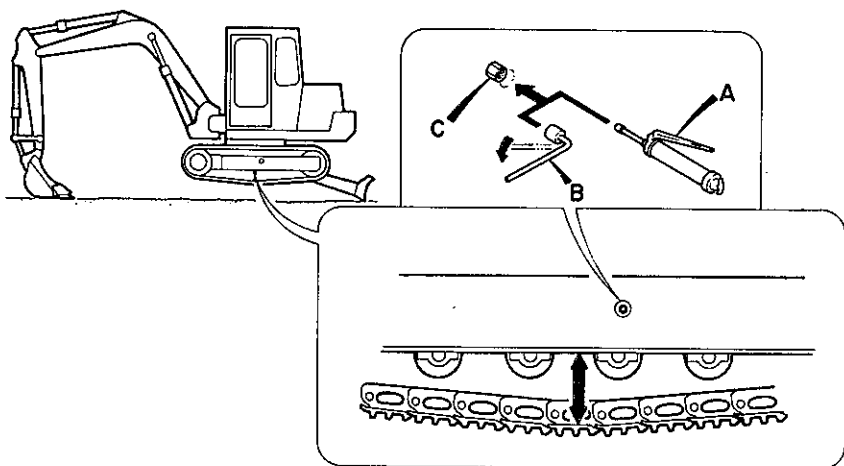
A. Adjusting tension.....

Grease check valve C.

B. Loosening tension.....

Discharge the grease by loosening check valve C gradually.

CAUTION : Do NOT loosen the grease nipple.

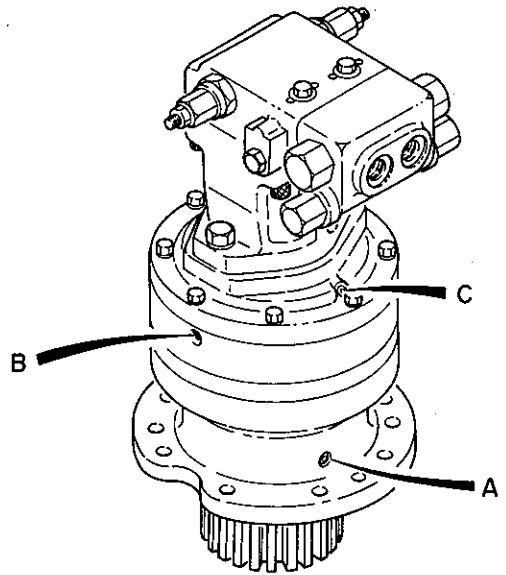


CHECK and MAINTENANCE

Replacing Gear oil

Slew gearbox

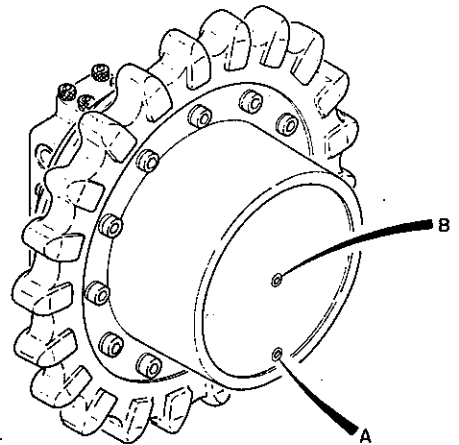
- ❖ Every 1,000 hrs.
- ❖ Discharge oil at drain port A.
- ❖ Add oil through feed port C until the oil flows out from check port B.
- ❖ Gear oil.....SAE #90 API GL-4
- ❖ Capacity.....1.1 lit. (2.3 U.S. pt.)



LO-070

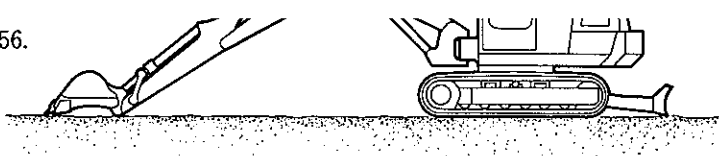
Track gearbox

- ❖ Every 1,000 hrs.
- ❖ Discharge oil at drain port A.
- ❖ Add oil through check port B until it flow out from the check port.
- ❖ Gear oil..... SAE #90 API GL-4
- ❖ Capacity.....1.2 lit. (2.5 U.S. pt.)



LO-071

- ❖ Type : Abrasion resistance hydraulic oil VG56.
- ❖ Total System : 140 liters (36.9 U.S. gal.)
- ❖ Tank Capacity : 124 liters (32.7 U.S. gal.)

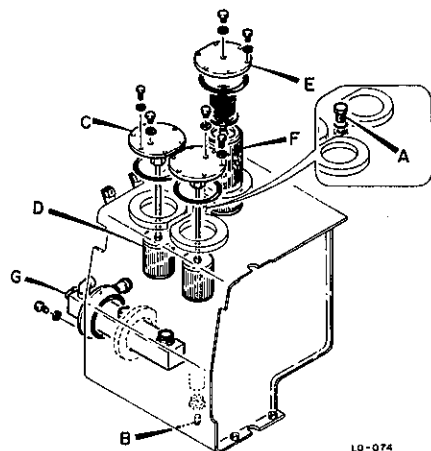


LO-072

Fig. 1

How to change (See Fig.1 and 2)

- ❖ Extend the Hoe Attachment to the maximum length.
- ❖ Lower the Dozer Blade to the ground.
- ❖ Loosen Plug A.
- ❖ Loosen Plug B.
- ❖ Remove suction strainers D after removing covers C.
- ❖ Replace the return filter F.
- ❖ Remove any other parts and clean the inside of the tank.
- ❖ Remove Suction Flange G and drain the oil.
- ❖ Drain the oil from pipings and the cylinders.



LO-074

Fig. 2

Adding hydraulic oil (See Fig.2 and 3)

- ❖ Add oil through plug A after reassembling each component.
- ❖ Start the engine, and operate the machine lightly.
- ❖ Retract all hydraulic cylinders (See Fig.1).

.....Basic Position

- ❖ Add the oil
- ❖ Extend all the hydraulic Cylinders (see Fig. 2).

.....Pressure On.

- ❖ Reinstall plug A.....Finish

CAUTION : If the tank is not pressured, the hydraulic pumps will be damaged. Follow the above procedure precisely.

Replacing return filter (See Fig.2)

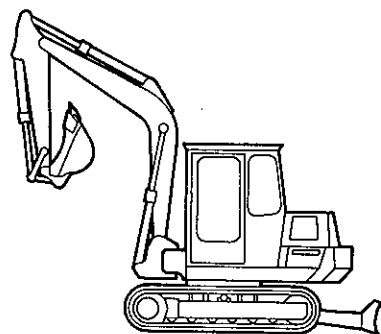
- ❖ Every 250 hrs.

How to replace.

- ❖ Remove cover E and filter F.

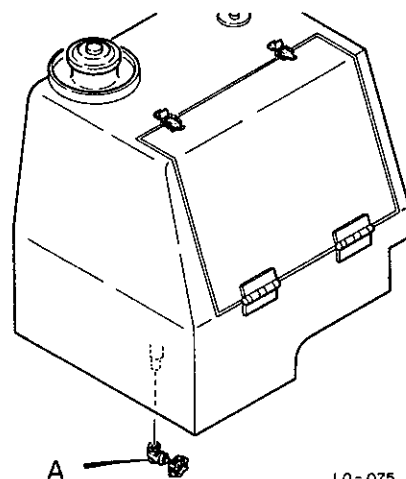
Draining Fuel Tank

- ❖ Every 50 hrs.
- ❖ Drain water and sediment from drain cock port A at the bottom of the tank.



LO-073

Fig. 3



LO-075

CHECK and MAINTENANCE

Cleaning and Replacing Air Cleaner

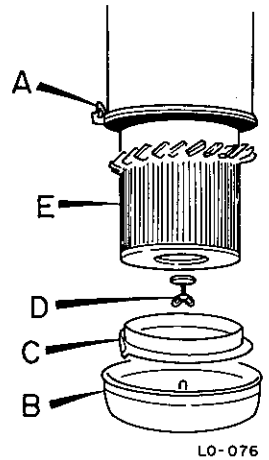
- ❖Cleaning.....Every 200 hrs.
- ❖Replacing.....Every 1,200 hrs.

Disassemble the air cleaner as follows :

1. Loosen clamp A and remove dust cap B.
2. Remove baffle C and empty the dust cap.
3. Remove wing nut D and take out element E.

NOTE : ❖Empty the dust cap once a day. When the dust accumulates more rapidly, empty it more frequently.

❖If the rubber seal of the element is scratched or deformed, replace the whole element with a new one.

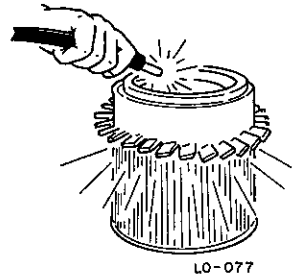


Cleaning with compressed air

Remove the dust in the element with compressed air, use no more than 7 kg/cm² (99 psi).

Directly blow inside the element while moving the nozzle up and down along the pleat.

NOTE : The air cleaner on our machine differs from the one mentioned in the Engine Operation Manual.



Cleaning and Replacing filters

Fuel filter

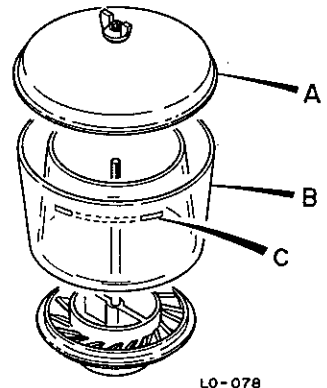
- ❖CleanEvery 300 hrs.
- ❖ReplaceEvery 600 hrs.
- ❖Refer to the Engine Operation Manual for details.

Oil filter

- ❖ReplaceEvery 200 hrs.
- ❖Refer to the Engine operation Manual for details.

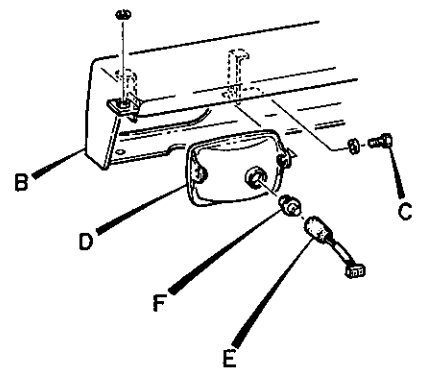
Pre-cleaner

When dust collected in receptacle B reaches level C remove cover A and clean receptacle.



- ❖ Remove bolt A (5 pcs) and detach cover B from the cab body.
- ❖ Remove bolt C (2 pcs) and take out bulb F.
- ❖ Remove light harness E and replace bulb F. To remove light harness E, first roll back the rubber cover then push in the socket and turn counterclockwise.

NOTE : Correctly install the bulb and light harness to fit. Be sure to position assembly for smooth connection.

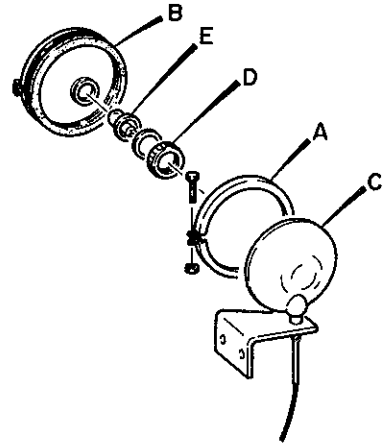


LO-079

Boom light

- ❖ Remove clamp A and take out body "C" from light assembly B.
- ❖ Remove clamp D from light assembly and take out bulb E.

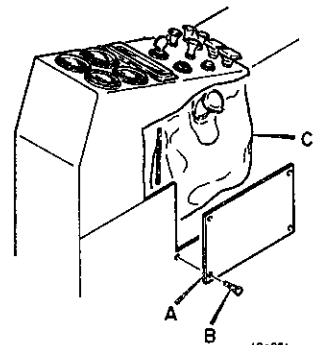
NOTE : Correctly install light assembly B on body C to fit. Be sure to position the assembly for tight connection.



LO-080

Windshield Washer Resupply

- ❖ Pull out four latches B to remove cover A below the control box.
- ❖ Add windshield washer liquid to case C.



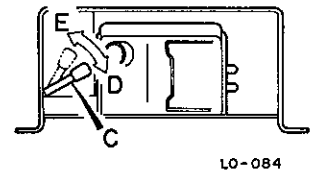
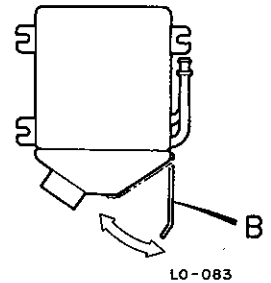
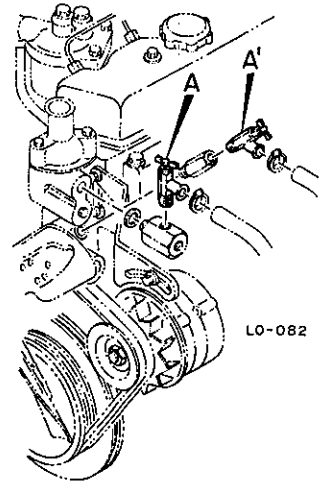
LO-081

CHECK and MAINTENANCE

Handling Heater

- ❖ Open the cocks of the valve A and A' on the engine.
- ❖ Pull out the heater switch knob to actuate the fan (see Page 11).
- ❖ Warm air blows out when cover B is fully open. For cleaning or defrosting, shut cover B.
- ❖ Turn lever C to admit or shut off air from outside.
 - At position D.....Allow the fresh air in.
 - At position E.....Shut the fresh air out.

CAUTION : Even if the switch is OFF, heated cooling water still circulates in the heater. When it is a warm day, shut off valves A and A' to stop the circulation.



Other Inspections and Maintenance

Cooling water

- ❖ Check the reserve tank cooling water level.
 - Add cooling water to the reserve tank if necessary.
- ❖ Refer to the Engine Operation Manual for details.

CAUTION : Do NOT remove the radiator cap while the engine is still hot.

Adjusting fan belt tension

- ❖ Push the middle of the fan belt, applying a force of approximately 10 kg (22 lb.) to check the proper tension.
- ❖ Specified belt deflection.....8~12 mm (0.3~0.5 in.)
- ❖ Refer to the Engine Operation Manual for details.

Add distilled water, if necessary.

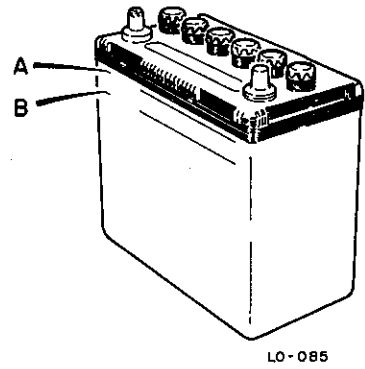
CAUTION

❖ Note that explosive gas is produced in the battery.

1. Keep sparks, flame, and cigarettes away.
2. Ventilate when charging or using in an enclosed space.

❖ If the electrolyte contacts the skin or eyes, wash them immediately with much clean water and consult a doctor.

Refer to the attached Engine Operation Manual for engine inspection and maintenance.



CHECK and MAINTENANCE

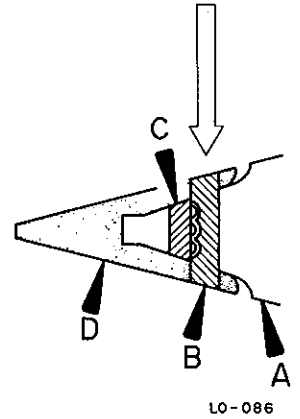
Replacing Bucket Tooth

Removal

- ❖ Drive out lock pin B with a hammer and punch to remove point D.
- ❖ Pull out rubber lock pin C and check whether it can still be used or not.

Installation

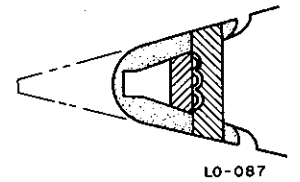
- ❖ Put rubber lock pin C into welding adaptor A.
- ❖ Install point D on welding adaptor A.
- ❖ Drive in lock pin B.



Remarks

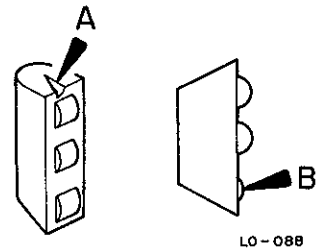
Replacement interval of the tooth point.

- ❖ Do NOT continue to use any more beyond the condition as illustrated.
- ❖ When any small hole appears in the point, replace it immediately.

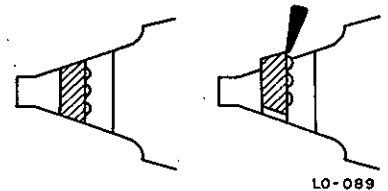


Replace rubber lock pin if :

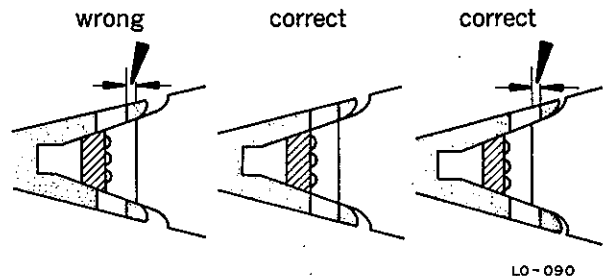
- AOwing to cracks on the rubber, the roller is about to come off.
- BRoller is indented easily by pushing a finger.



Do NOT place the rubber lock pin over the welding adaptor.

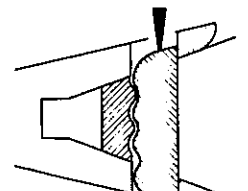


Put the tooth point on to fit with the welding adaptor hole, or put it on deeper than the hole.



Select a look pin so that the bottom can be level with the back-surface of the tooth point.

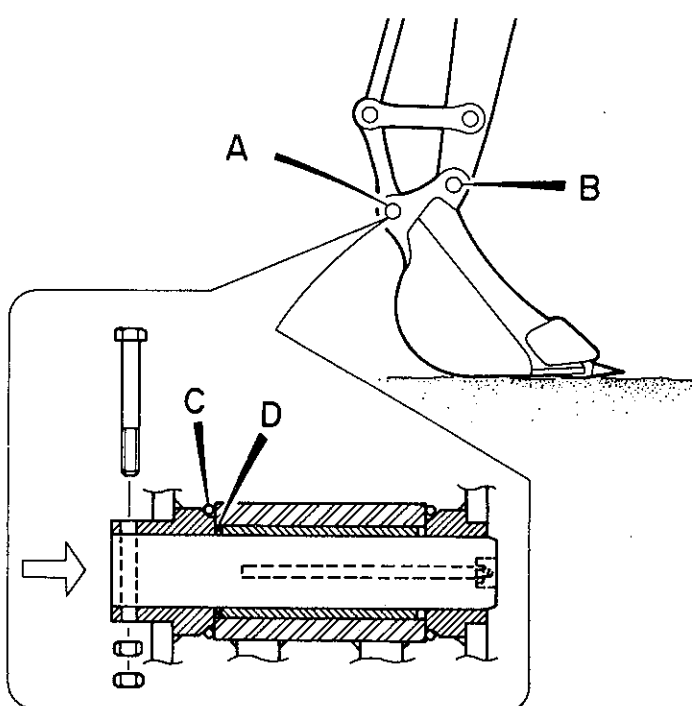
Do NOT use a defaced lock pin.



level ground (or floor) in a wide area.

Removing bucket

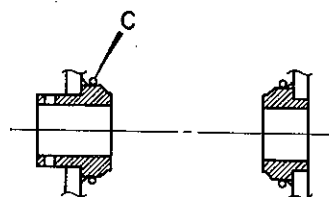
- ❖ Clean around the bucket pins.
- ❖ Lower the bucket to the ground as illustrated.
- ❖ Pull out Pin A after removing a bolt and nuts.
- ❖ Lifting the bucket a little bit makes the work easier.
- ❖ Clean the pin and pin hole.



LO-092

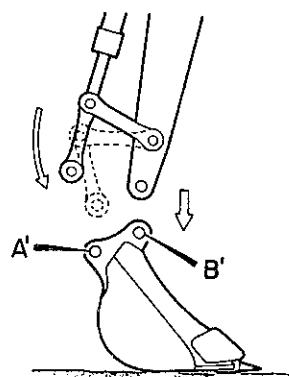
Installing the bucket

- ❖ Install O-ring C as illustrated.



LO-093

- ❖ First fix point B'.
- ❖ Move the bucket cylinder to match the hole of both sides to insert bucket pin.
- Fix the bucket at point A'.

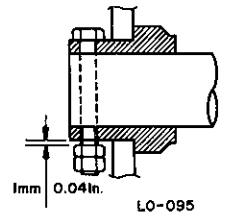


LO-094

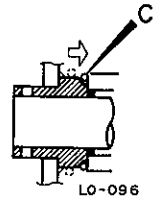
CHECK and MAINTENANCE

❖ Match the stopper hole and fix it with a bolt and nuts.

REMARKS : Allow a clearance (1mm/0.04 in.) between the nut and the bucket bushing to prevent loosening by vibration.



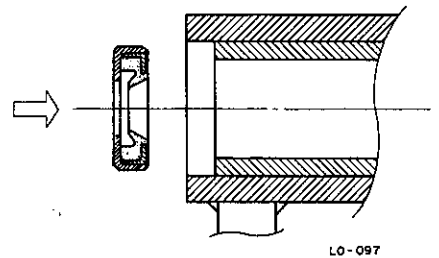
❖ Slide O-ring along the pin and install it as C in the illustration.



CAUTION

- ❖ To prevent damage to pin seal D, make sure the bucket pin fits into the pin hole.
- ❖ Replace O-ring if it cracks or it becomes less elastic.
- ❖ Replace pin seal when it is deformed or scratched.
- ❖ Replacing the pin seal :

Set the direction of pin seal as illustrated, gradually strike it with a wooden hammer, paying attention to prevent deformation or scratches.



❖ Check the electrolyte level and specific gravity more frequently and charge early.

CAUTION : To prevent freezing, do not add battery water after work. Add it on the next day before work.

To check specific gravity and charging, bring the battery to the dealer shop.

Cooling water

❖ When the temperature goes below 0°C (32 °F), add antifreeze to the cooling water to prevent freezing.

❖ Mixing Ratio

Minimum Temp. °C (°F)	- 5 (+23)	-10 (+15)	-15 (+ 5)	-20 (- 4)	-25 (-13)	-30 (-22)	-35 (-31)	-40 (-40)
Antifreeze lit. (U.S.qt.)	1.95 (2.06)	3.25 (3.44)	3.90 (4.13)	4.55 (4.81)	5.20 (5.50)	5.85 (6.19)	6.50 (6.87)	7.15 (7.56)
Water lit. (U.S.qt.)	11.05 (11.68)	9.75 (10.30)	9.10 (9.61)	8.45 (8.93)	7.80 (8.24)	7.15 (7.55)	6.50 (6.87)	5.85 (6.18)

CAUTION.....Follow manufacture's recommendation for antifreeze mixing ratio.

After work

Clean the machine and park it on a concrete or hard, dry place (if unavailable, on wooden boards). Cover the machine with a sheet. Wipe away water on the hydraulic cylinder rod as ice together with dirt may damage seals.

Maintenance for Long Term Storage

Preparing for storage

❖ Wash and clean each part of the machine completely. Bring the machine to a dry indoor place. Do not leave the machine outdoors. If it must be stored outside, park the machine on a flat place with wooden boards and cover it completely with a sheet.

❖ Grease each point, change all the hydraulic oil.

❖ Coat exposed parts of the piston rod of hydraulic cylinder with antirust oil.

❖ Charge the battery then remove the terminals. Remove the battery from the machine body or cover it with a cloth.

❖ When the temperature is less than 0°C (32 °F), add antifreeze to the radiator or drain all cooling water from it.

Starting after long term storage

❖ Wipe off antirust oil from the cylinder rods.

❖ Start the engine and operate the machine without load to spread hydraulic oil.

CAUTION : Move the machine once a month in the mentioned procedure when it is stored more than a month.

LUBRICANTS CHART

Item	Hydraulic oil	Pump spline	Track gearbox Slew gearbox	Grease fittings
Capacities	Total system 140 lit.(36.9 U.S.gal.) Tank 124 lit.(32.7 U.S.gal.)	As required	1.2 lit. (2.5 U.S. pt.) 1.1 lit. (2.3 U.S. pt.)	As required
Interval	Every 1,500 hrs.		(First 500 hrs.) Every 1,000 hrs.	Every 50 hrs.
Application	—	—	—	—
	Abrasion resistance hydraulic oil	Molybdenum disulfide annexed grease	API GL-4 or GL-5 SAE 90	EP-2 Lithium grease
ESSO	Nuto H46		Gear oil GP 90	Beacon EP 2
MOBIL	DTE 25		Mobilube GX 90	Mobiluxe EP 2
GULF	Harmony 46 AW			Gulfcrown No.2 EP
TEXACO	Regal R&O 46		Thuban Universal 90	Multifak EP 2
SHELL	Tellus oil 46	Retinax AM	Spilax EP 90	Alvania EP 2

Traction motor mounting bolts	24.6kg · m
Drive sprocket mounting bolts	16.1kg · m
Carrier roller mounting bolts	10.8kg · m
Track roller mounting bolts	10.8kg · m
Rear counterweight mounting bolts	48.5kg · m
Slew bearing mounting bolts	26.1kg · m
Bucket pin stopper nuts	10.8kg · m
Bucket side cutter fixing bolts	26.1kg · m

Retighten all the above after the first 50 hrs. and every 250 hrs after.

CAUTION : Do NOT retighten the engine mounting bolts because these bolts are tightened by a particular method.

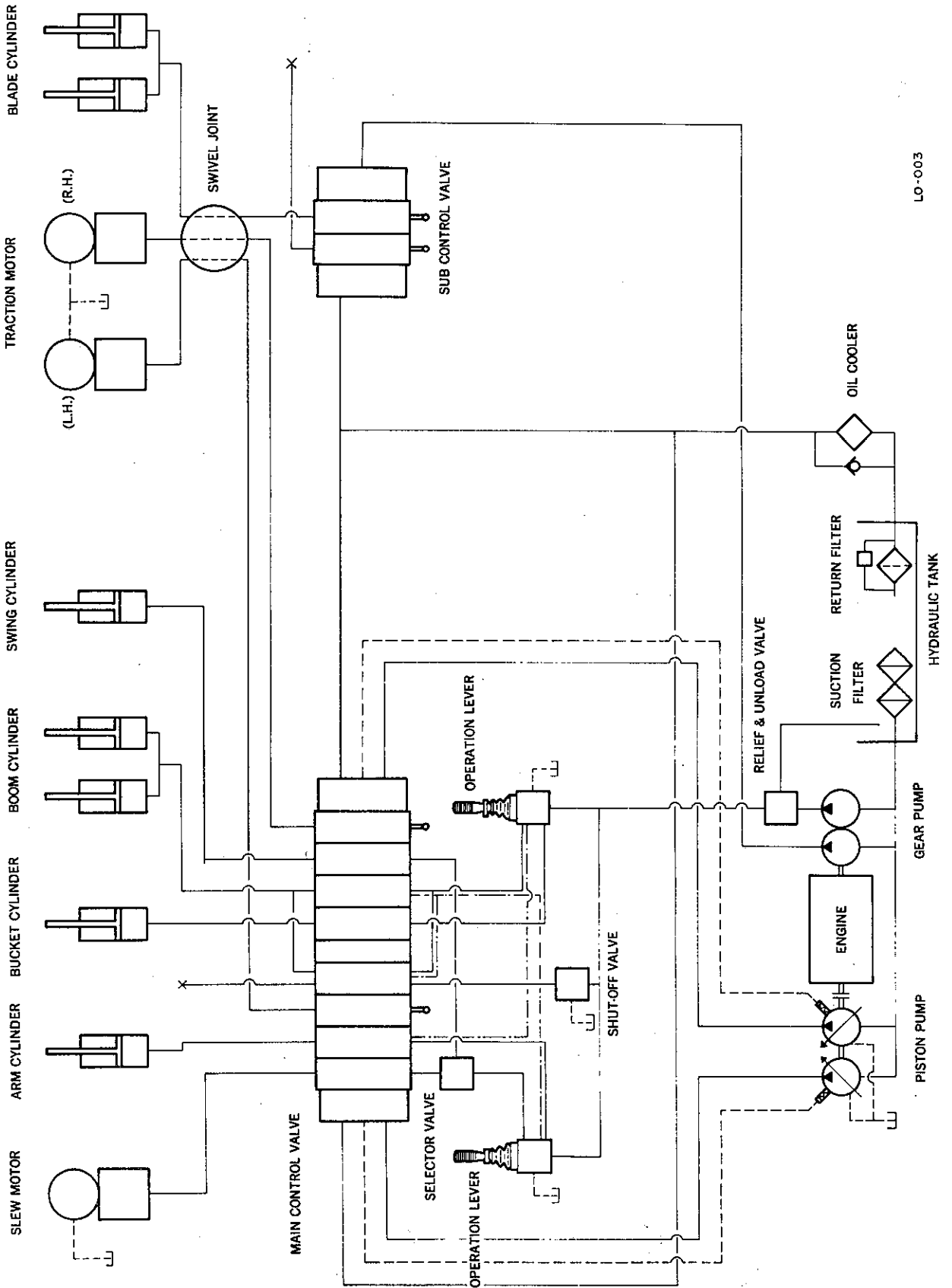
CHECK POINT and MAINTENANCE

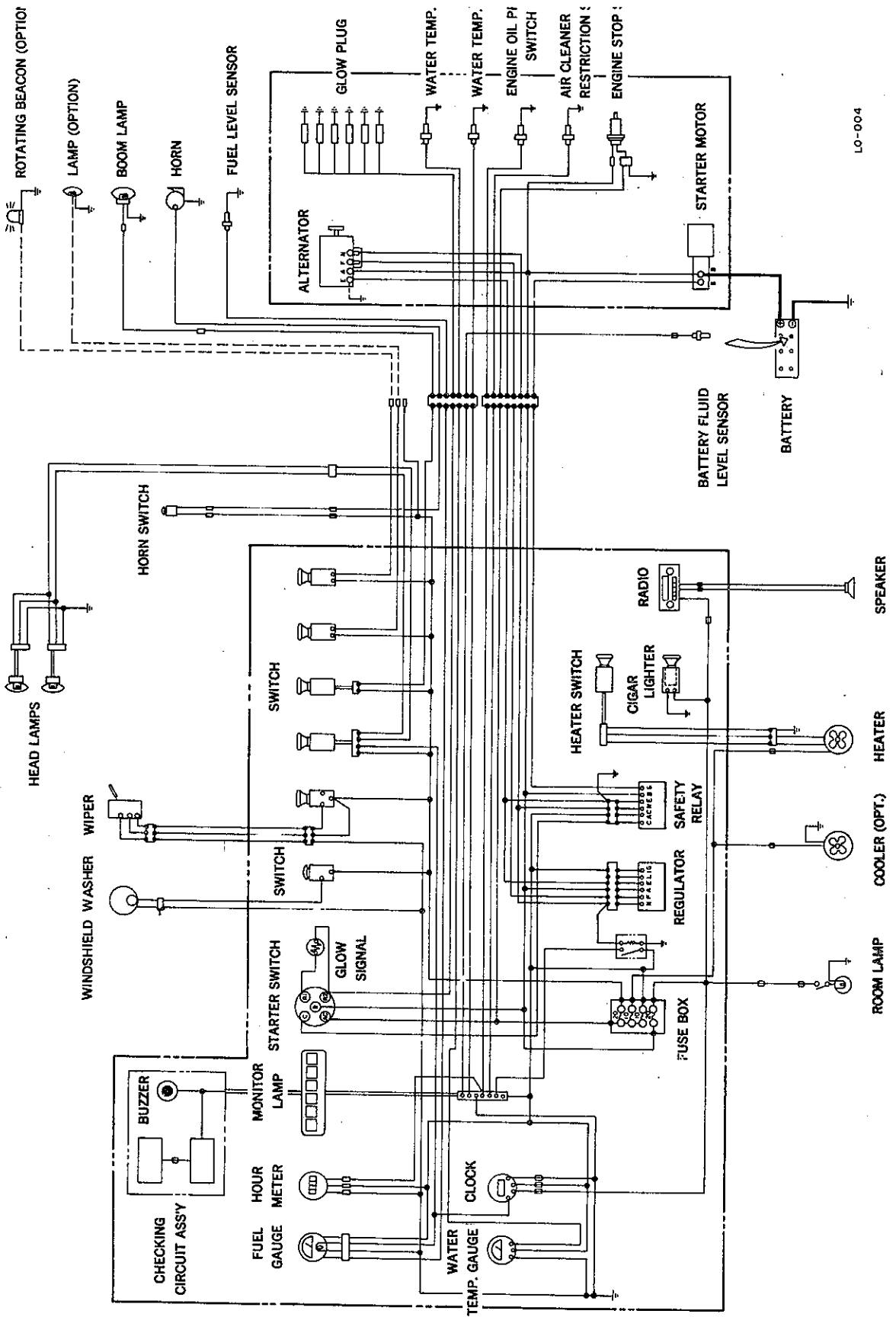
Check items	Every day	Every 50hrs.	Every 100hrs.	Every 150hrs.	Every 250hrs.	Every 1000hrs.
Greasing Track shoe tension	Ch	Rs Ch				
Track gearbox oil Slew gearbox oil						Rp Rp
Hydraulic oil Return filter Suction strainer					Rp Cl	Rp 1500hr.
Unsteady operation levers Unsteady traction levers	Ch Ch					
Fuel filter element Oil filter Air cleaner element Cooling water Fan belt Engine oil Drain fuel tank					Ch 300hr. Rp 200hr. Cl 200hr.	Rp 600hr. Rp
Head lamp, boom lamp Hourmeter Charg lamp, oil lamp, Pilot lamp Monitor lamp Battery liquid	Ch Ch Ch Ch					
Retighten screws					Ch	

Ch.....Check, Rs.....Resupply, Cl.....Cleaning, Rp.....Replacement

Levers	<ul style="list-style-type: none"> ❖Lack of grease around the lever moving point. ❖Damaged Control Valve 	<ul style="list-style-type: none"> ❖Grease ❖Ask agent for repair.
Hyd. moving parts lack power or speed	<ul style="list-style-type: none"> ❖Lack of hydraulic oil ❖Hydraulic oil has not warmed up yet. ❖Engine output decrease. ❖Damaged pumps or coupling ❖Viscosity of hydraulic oil is not proper. ❖Decline setting pressure of relief valve. ❖Damaged control valve 	<ul style="list-style-type: none"> ❖Add hydraulic oil. ❖Warm up sufficiently. ❖Clean air cleaner and check fuel systems. ❖Ask agent for repair. ❖Use recommended hydraulic oil. ❖Ask agent for repair. ❖Ask agent for repair.
No travelling	<ul style="list-style-type: none"> ❖Foreign objects are stuck. ❖Damaged hydraulic pump. ❖Damaged control valve. ❖Damaged traction motor and reduction motor. ❖Damaged brake valve. 	<ul style="list-style-type: none"> ❖Remove them. ❖Ask agent for repair. ❖Ask agent for repair. ❖Ask agent for repair. ❖Ask agent for repair.
Machine does not travel straight.	<ul style="list-style-type: none"> ❖Foreign objects are stuck. ❖Tracks need adjustment. ❖Damaged hydraulic pump. ❖Damaged motor or brake valve. ❖Damaged control valve. 	<ul style="list-style-type: none"> ❖Remove them. ❖Readjust to proper tension. ❖Ask agent for repair. ❖Ask agent for repair. ❖Ask agent for repair.
Upper Machine will not slew or does not slew smoothly	<ul style="list-style-type: none"> ❖Forgot to remove the lock pin. ❖Lack of grease at slew bearing. ❖Damaged slew motor or reduction gear. ❖Brake valve defective. 	<ul style="list-style-type: none"> ❖Remove the lock pin. ❖Grease ❖Ask agent for repair. ❖Ask agent for repair.
Lack of Digging Power	<ul style="list-style-type: none"> ❖Lack of hydraulic oil. ❖Hydraulic oil has not warmed up yet. ❖Hydraulic oil is not applied. ❖Decreased engine output. ❖Defective hydraulic pump. ❖Decline setting pressure of relief valve. ❖Damaged hydraulic pump. ❖Damaged control valve. 	<ul style="list-style-type: none"> ❖Resupply hydraulic. ❖Warm up sufficiently. ❖Use recommended hydraulic oil. ❖Clean air filter, check fuel supply system. ❖Ask agent for repair. ❖Ask agent for repair. ❖Ask agent for repair. ❖Ask agent for repair.
Hoe attachment swinging (slewing) will not move.	<ul style="list-style-type: none"> ❖Forgot to position the safety lever horizontally. 	<ul style="list-style-type: none"> ❖Position the safety lever horizontally.

HYDRAULIC CIRCUIT DIAGRAM



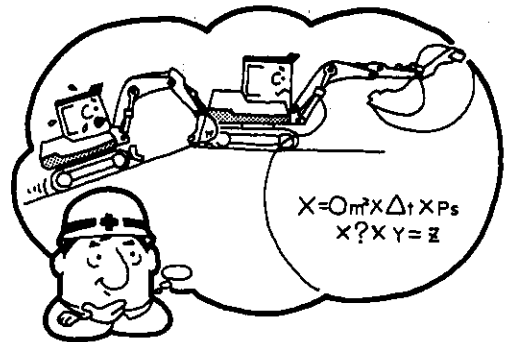


LO-004

PRECAUTIONS

Know about the machine.

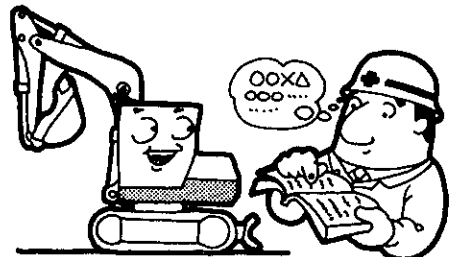
- ❖ Understand the machine's function, performance, work capacity, size, and weight.



00-005

Read and understand the operators manual.

- ❖ Correct handling of the machine is fundamental for safe operation.
- ❖ Perform the required maintenance and safety checks before you start each day.



00-006

Wear proper working clothing.

- ❖ Wear a safety cap (a hard hat), safety shoes, working clothes that are not too loose, etc.



00-007

Make all necessary repairs or adjustments before operation.

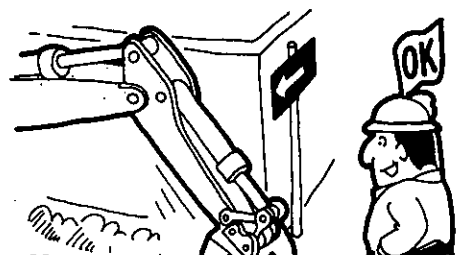
- ❖ Put a "Do Not Operate" tag on the machine which must be adjusted or repaired.
- ❖ Check the faulty sections found again before using machine. Adjust and repair the faulty sections before use.



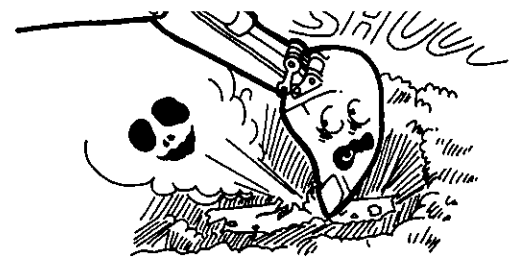
00-008

Where the operator's vision is impaired, assign someone to conduct moving of the machine.

- ❖ Arrange the hand signs and signals in advance.



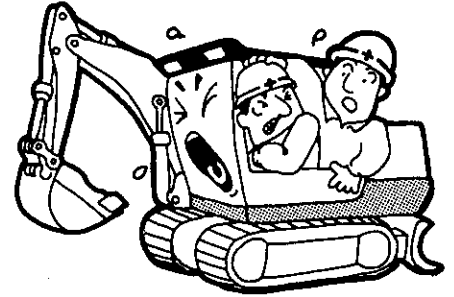
gas pipes, electrical cables, etc.



00-010

No passengers on the machine !

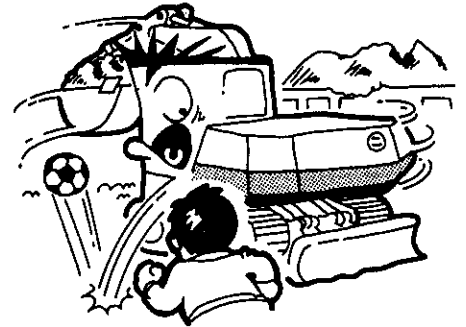
❖DO NOT allow riders on the machine.



00-011

Keep out of the swing area !

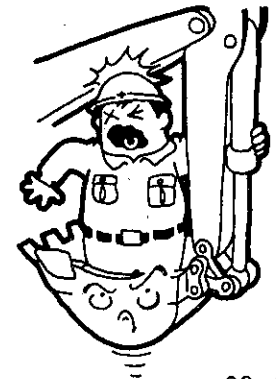
❖DO NOT allow anybody except a conductor to enter the working area.



00-012

DO NOT use the machine for wrong purpose !

❖DO NOT lift a worker with the bucket !



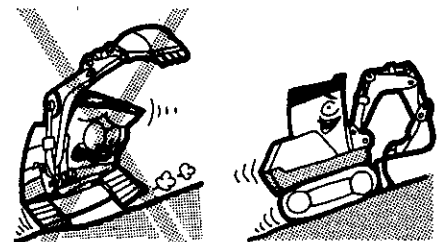
00-013

DO NOT drive, operate, and turn the machine on slopes.

❖Maximum side inclination angle.....25°

危険

安全

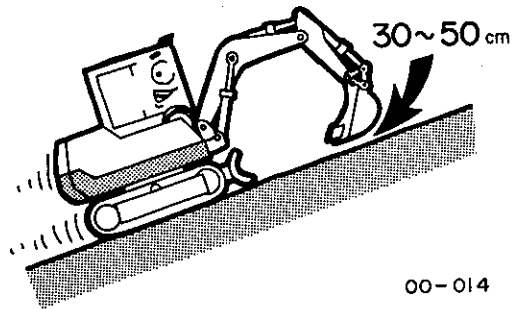


00-022

PRECAUTIONS

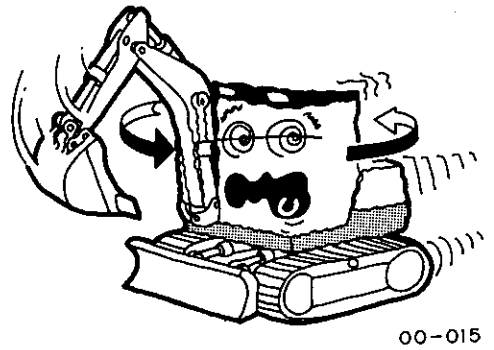
When ascending or descending slopes, keep the bucket position at 30–50cm (12–20in.) from the ground.

- ❖ This position lowers the center gravity of the machine, and the bucket can be a support in emergencies.



DO NOT operate the arm, boom, bucket, or slew while the machine is travelling.

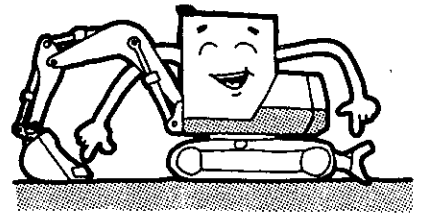
- ❖ If the operation levers are operated while the machine is traveling, the machine wobbles, and the operator's attention is distracted.



Confirm the following items.

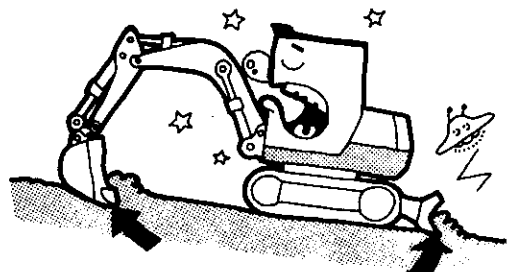
- ❖ To park on a level ground.

- Stop the engine.
- Lower the bucket to the ground.
- Lower the dozer blade to the ground.

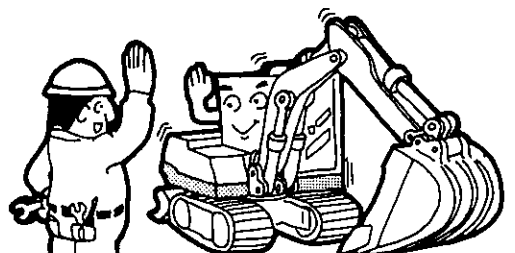


- ❖ To park on a slope.

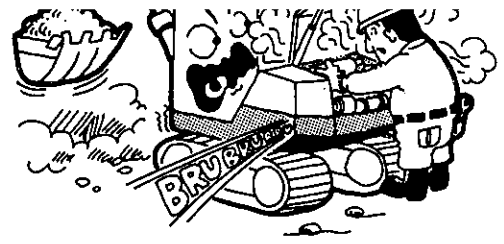
- Stop the engine.
- Let the bucket teeth bite into the ground.
- Let the dozer blade bite into the ground.



Confirm the signs and signals for checks and adjustment !



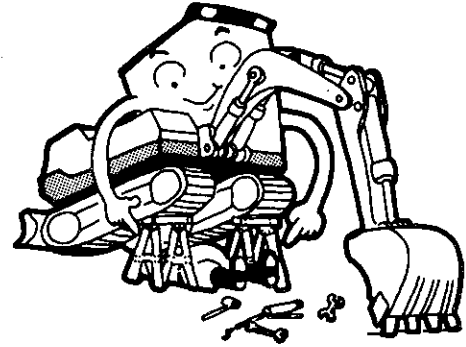
and the neighboring area.



00-019

Provide safety blocks under the machine !

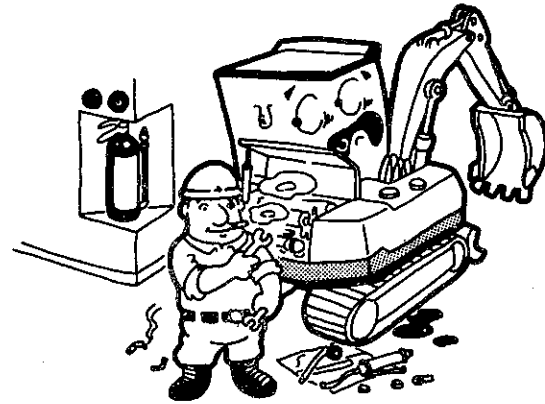
- ❖ Before checking under the machine, be sure to provide safety blocks.



00-020

NO fire !

- ❖ To be ready for an emergency, confirm where the fire extinguisher is and how to use it.
- ❖ Do not smoke while checking and adjusting the machine.



00-021

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OPERATORS MANUAL

TB68 TAKEUCHI Backhoe

Edited and issued by **TAKEUCHI MFG. CO., LTD.**

