

KOBELCO

OPERATOR'S MANUAL
HYDRAULIC EXCAVATOR
SK200
SK200LC

Applicable: SK200 YN06501~
SK200LC YQ01101~

S2YN1004E-01

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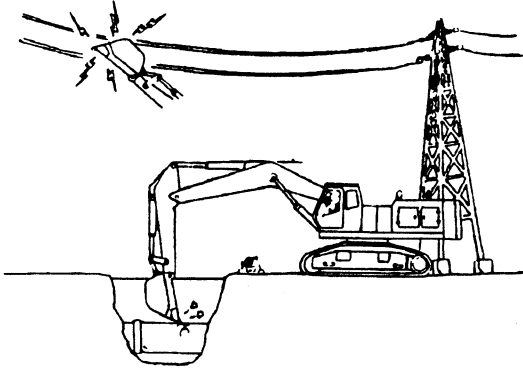
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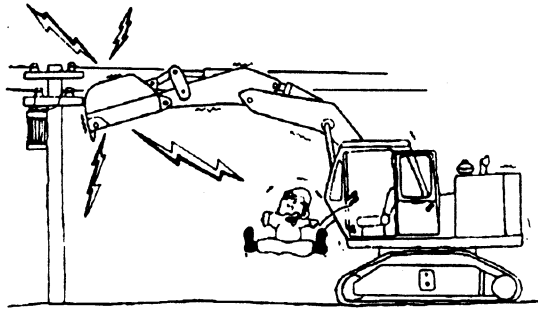
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15) Ascertain the exact location of buried gas pipes, water pipes and telephone lines before starting the job and appoint an experienced groundman in a good position to give signals. The operator should take instructions from this appointed groundman only.



16) In case the machine comes into contact with live power lines, the operator should remain in his seat until the power is cut off. If he must leave the machine, he should jump off, not climb down. Also, do not let anybody on the ground touch the machine, while any part of it is in contact with a live power line.

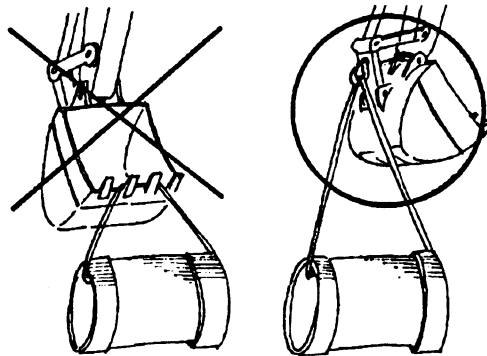


⚠ 1. Never operate any part of machine closer than 10 feet plus twice line insulator length of any electric power lines. (Check local power company codes and regulations, and conform to them if different from above.)

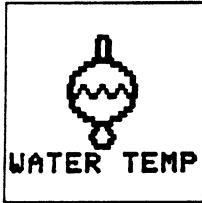
2. The design and construction of this machine does not incorporate any electrical insulating members in any part of the front attachment components, that would afford protection against electrical shock and/or possible electrocution from contact with live power lines, not to mention possible machine damage that could occur under these circumstances.

17) Since this machine is an excavator, please use extreme caution when handling heavy loads.

⚠ Do not exceed the machine's capacity charts. Use only approved slings and shackles (clevises).
Never lift a load from the bucket teeth.



6.Engine water temperature



It warns an abnormal rise in the temperature of the engine cooling water. Upon display, stop operation, bring the engine to idling and lower the water temperature.

7.Clogging of air cleaner filter



It indicates clogging of the air cleaner element. Upon display, clean or replace the element.

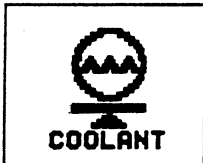
8.Clogging of engine oil filter



It alarms clogging of the engine oil filter. Upon display, replace the oil filter.

- Display of warnings (the buzzer does not blow.)

9.WATER LEVEL OF RADIATOR



It indicates fall in the radiator cooling water level. Upon display, check the cooling water level and refill water as necessary.

- ☞ ● It is indicated at low water level when the starter switch is on.
- It is not indicated when the alternator is working.

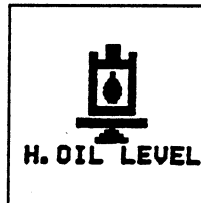
10.Engine oil level



It indicates the oil level in the engine oil pan. Upon display, check oil level and replenish oil as necessary.

- ☞ ● It is indicated at low oil level when the starter switch is on.
- It is not indicated when the alternator is working.

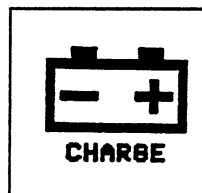
11.Operating oil level



When the operating oil level is indicated in the operating oil checking position, check oil level and refill oil as necessary.

- ☞ ● It is indicated at low oil level when the starter switch is on.
- It is not indicated when the alternator is working.

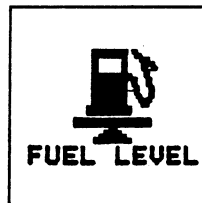
12.Battery charge



It indicates failure of the charging system when the engine is running. If it is indicated when the engine is running, check the electric circuits.

- ☞ It is indicated only when the engine oil pressure is built up.

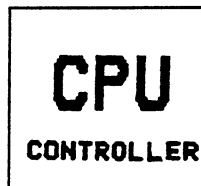
13.Residual quantity of fuel



It is indicated when fuel is deficient. Check fuel level and replenish fuel as necessary.

- ☞ ● Residual fuel quantity is indicated in 50 liters (13.2 gal).
- It is indicated on fuel deficiency when the starter switch is on.

14.CPU trouble

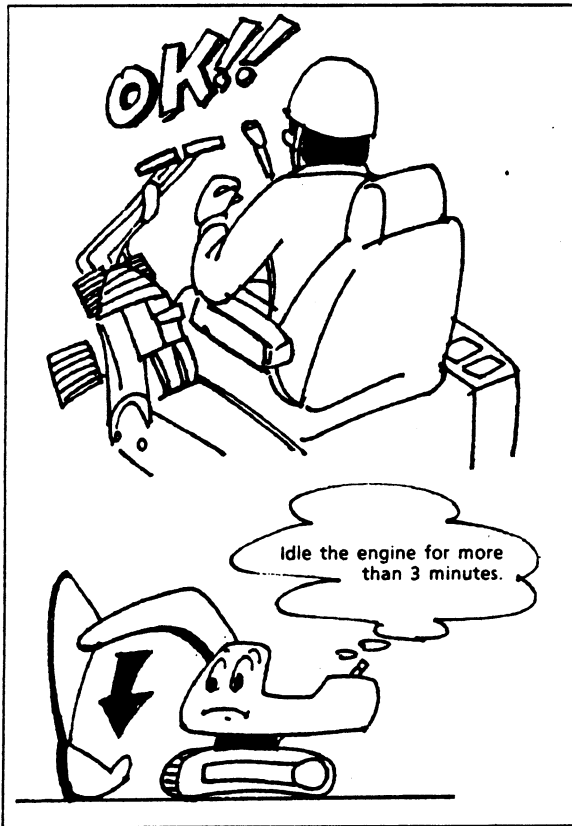


It indicates failure of I.T.C.S. (to be explained later).

Upon display, contact a nearby service shop immediately.

Continuous display...It indicates that the controller fuse is blown, etc.

- ☞ ● The display may come out the moment power is turned on and off. However, it is not a failure.
- Release the KPSS release switch (page 2-10) when the solenoid proportionate reducing valve is out of order.
- In case the accel ass'y fails, contact our service shop immediately.



8. Confirming the Cluster Gauge Lamps

If the engine is normal, selected LED lamps light and the fuel meter and the water temperature meter display the condition.

- ⚠ Avoid racing immediately after starting. Since this is an engine with a turbo-charger, never race the engine immediately after starting in any circumstances.

● Stop

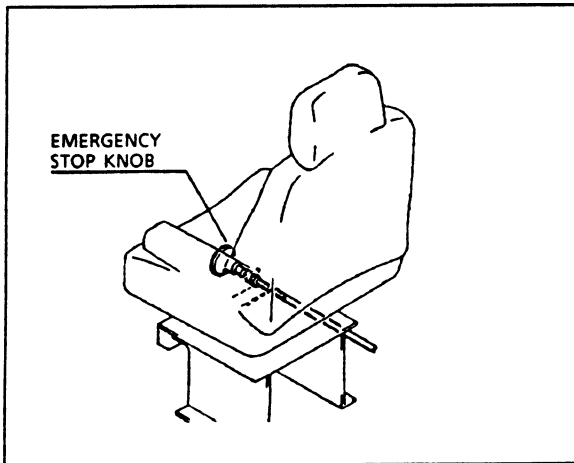
1. Bring the bucket down to ground.
2. Confirm that all operating levers are in neutral position.
3. Bring the throttle lever back ("Lo" position).
4. Idle for more than 3 minutes.
5. Turn the key "OFF" and stop the engine.
6. Draw out the key.

- ⚠ If the engine is suddenly stopped with the turbo-charger overheated, it may cause seizure as the turbine bearing rotating hot at high speed is depleted of oil. Always idle at start.

■ EMERGENCY STOP OF ENGINE

In case the engine does not stop when the engine key is turned to "OFF" position, pull the cable at the front righthand side of the seat stand to the full. Then you can stop the engine at emergency.

- 👉 If the cable is pulled halfway, the fuel cut lever of the governor is pulled, and the engine may not be ignited occasionally. Even if the engine is fired, it may stop during operation in some cases. Therefore, do not forget to return the cable to its original position after use.

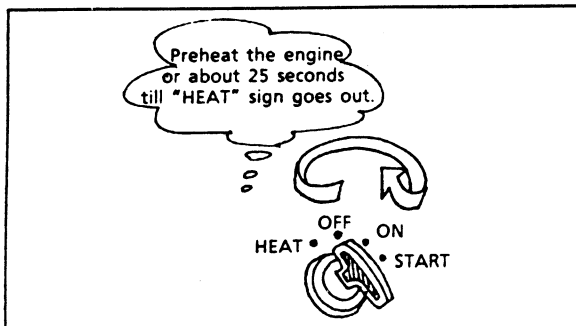


■ STARTING IN FRIGID CONDITION

1. Bring the throttle lever to intermediate position.
2. Confirm that operating levers are in neutral.
3. Insert the key.
4. Confirm that the cluster gauge is working.
5. Preheat the engine.

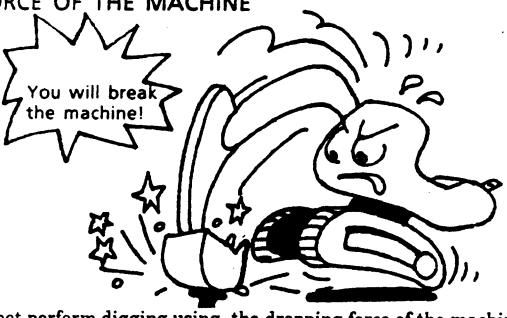
Turn the key to "HEAT" position.

The glow sign turns over in about 25 seconds, indicating that preheating is over.



■ PROHIBITIONS ON MACHINE OPERATION


PROHIBITED OPERATION UTILIZING DROPPING FORCE OF THE MACHINE



You will break the machine!


Do not perform digging using the dropping force of the machine and the attachment.

CRANE OPERATION IS AGAINST THE LAW.



Ahydraulic excavator is a digging and loading machine. It therefore has no safety device for crane operation. (excluding timbering)


OPERATION UTILIZING SWING FORCE PROHIBITED



Operation by swing force will lead to breakdown of the machine!


Do not flatten earth or destroy earth walls by swing force. Do not cut the bucket teeth into earth when swinging.

ROUGH OPERATION PROHIBITED



Do not start and stop the machine jerkily to an extent that exceeds the limits of stability of the machine and the allowable working load limits.


US CARE WHEN OPERATING THE HYDRAULIC CYLINDER TO ITS STROKE END.



Leave some allowance!

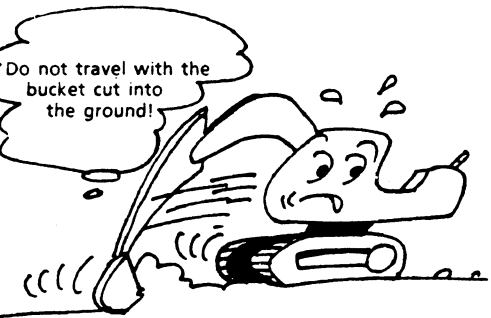
During operation, do not actuate the cylinder to its stroke end but leave some allowance to its stroke.

DIGGING HARD STONE BEDS



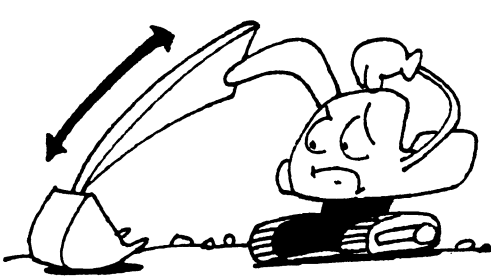
It is good and even economical for the machine to dig hard stone beds after being crushed into small pieces by some other means.

OPERATION UTILIZING TRAVEL FORCE PROHIBITED



Do not travel with the bucket cut into the ground!

USE OF ATTACHMENT BOOST PRESSURE FUNCTION PROHIBITED



The attachment boost pressure function is prohibited when an arm length exceeding a standard arm is attached to the machine!

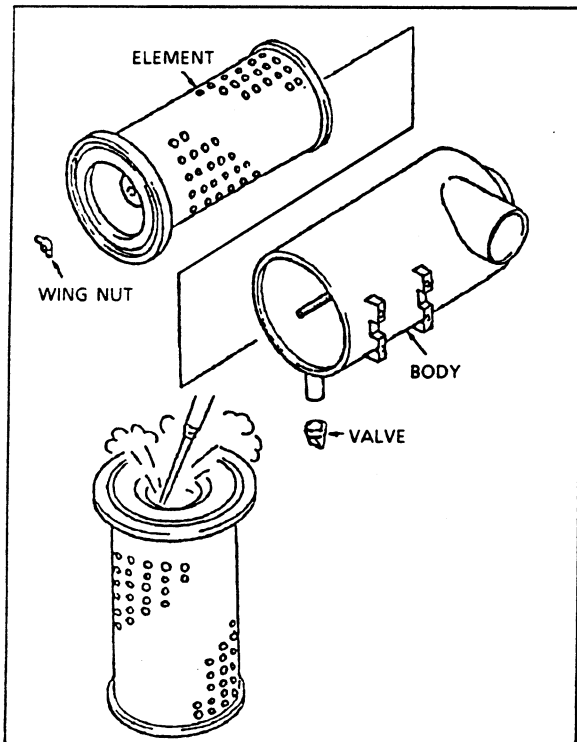
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■ CHECKING AND CLEANING THE AIR CLEANING ELEMENT

● Cleaning the Air Cleaner

- 1) Remove the wing nut and the element.
- 2) Clean the inside of the body.
- 3) Blow jet air ($7\text{kg}/\text{cm}^2$ (100psi) or below) along the pleats of the element from its inside.

⚠ Wear safety goggles when using jet air.

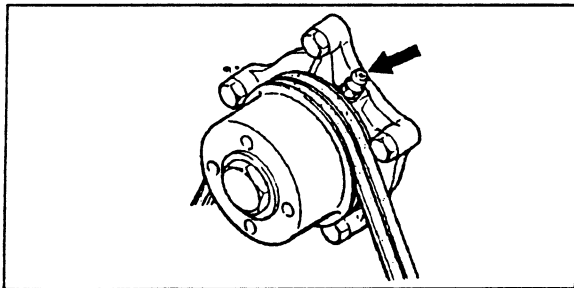
- 4) Do not reuse an element of which pleats and gaskets are damaged.

🔧 Replace the element that has been cleaned six times or has been used for one year.

ATTACHING AN AIR CLEANER

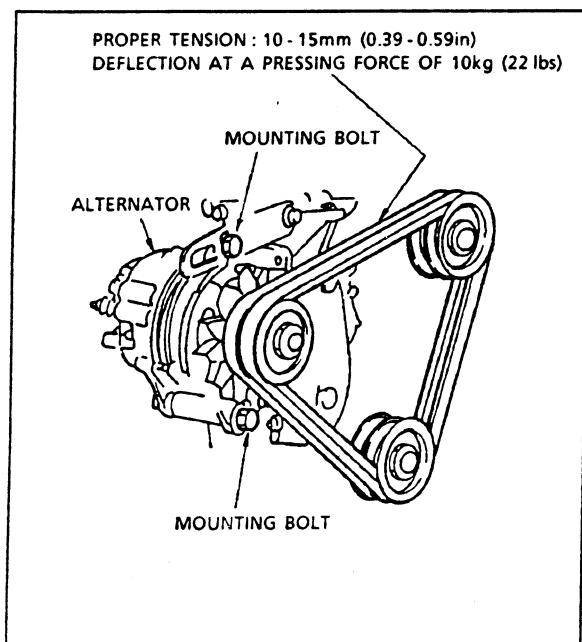
- 1) Fix the element with a wing nut.

⚠ When a fault sign is indicated on the multi-display of the cluster gauge and the buzzer blows, clean and check the air cleaner element.



■ LUBRICATION THE WATER PUMP

After wiping away any dust or mud from the grease nipple (indicated by an arrow), fill it with the specified grease.

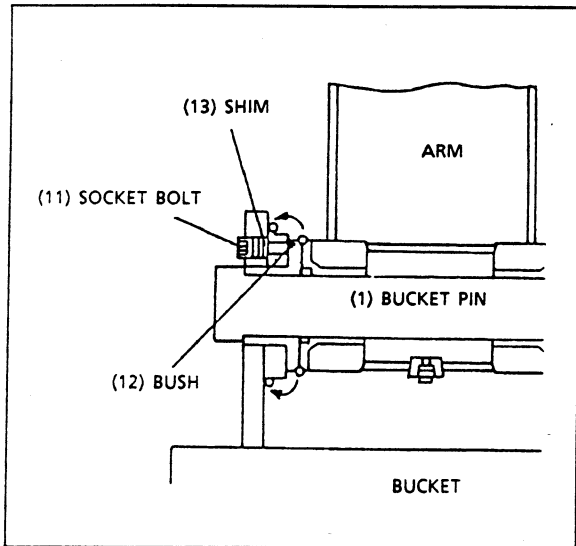


■ FAN BELT

● Checking the V-belt

Tension is normal if deflection is about 10-15mm (0.39-0.59in) when you depress the center of the v-belt by your thumb. If the V-belt is slack, adjust it by loosening the mounting bolts at the top and the bottom of the alternator.

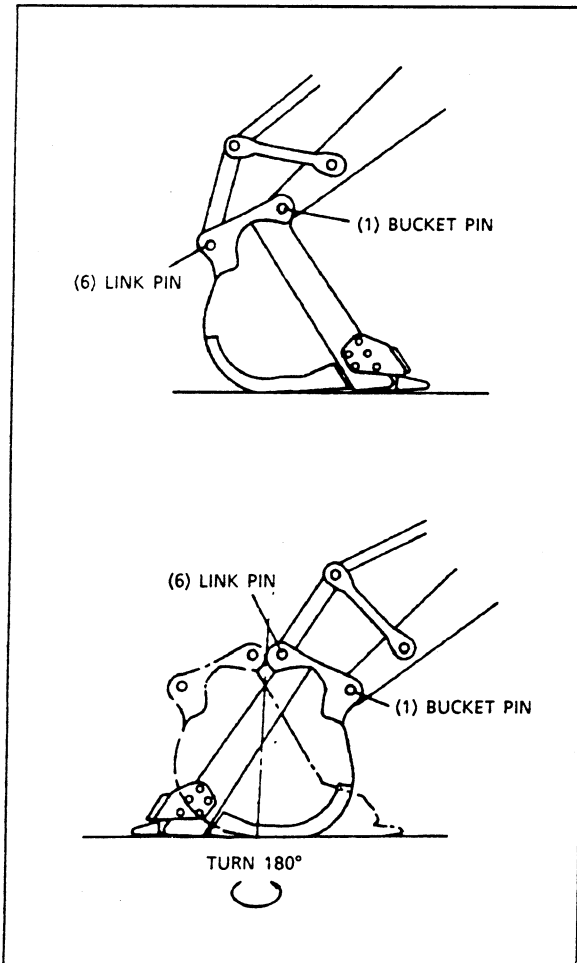
- 🔧 ● After tension adjustment, tighten the bolt and the nut securely. Overtightening will damage the belt and the bearing.
- Exercise care so oil and grease do not adhere to the belt. Otherwise the belt slips which will shorten the service life.
- Replace the belt if it is elongated too much to do tension adjustment or shows a cut mark or a crack.
- When double belts are used, always replace two at the same time.



(2) Inserting the Bucket Pin and Adjusting Gap on the Bucket

- 1) Match the bucket pin holes by operating the boom, the arm and the bucket link. Then insert bucket pin (1) the same way as the pin above.
- 2) When the gap between the bucket boss and the arm is large, loosen three socket head capscrews (11), remove shims (13) equaling the gap, refasten socket head capscrews (11) and extrude bush (12).

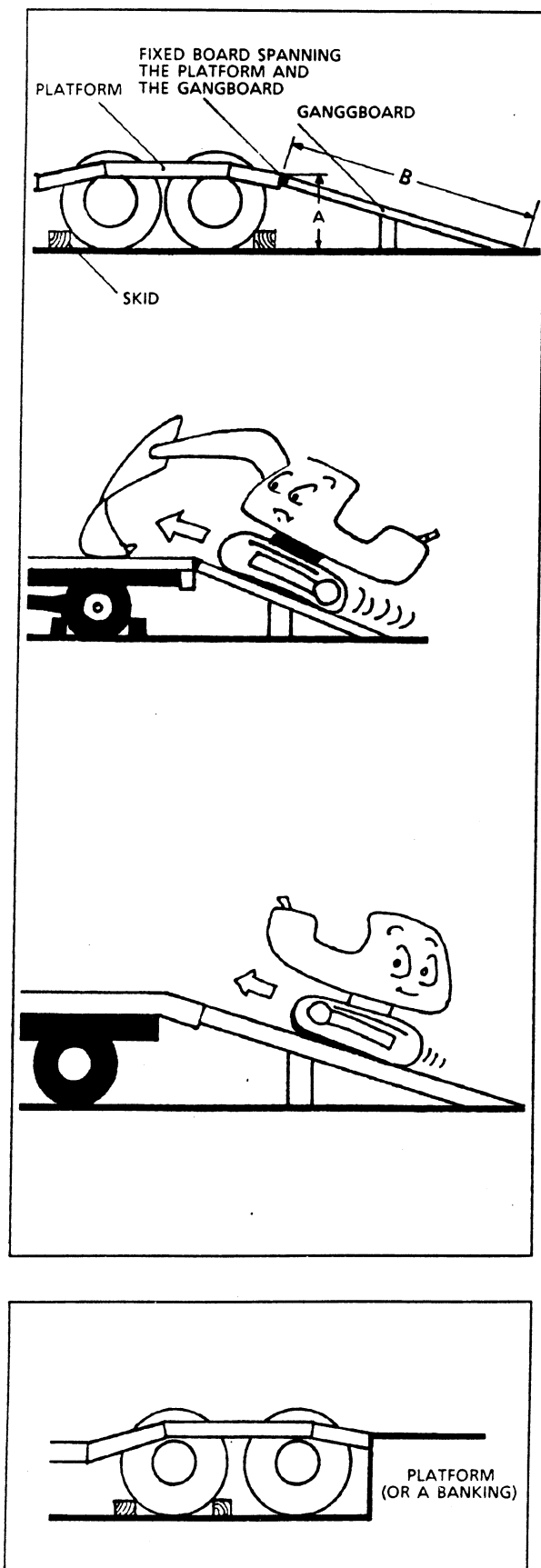
⚠ When matching the pin holes, do not put your finger in the holes in any occasion. Match the holes by looking at them.



■ TURNING OVER THE BUCKET

- 1) Lower the bucket to a flat ground and stabilize it.
- 2) Pull out bucket pin (1) and link pin (6) by referring to "Attaching and Detaching the Bucket" mentioned above.
- 3) Raise the arm a little and turn over the bucket through 180° in that position.
- 4) Match the hole in the bucket link to the hole in the bucket and insert link pin (6).
- 5) Lower the arm, match the hole at the tip of the arm to the hole in the bucket and insert bucket pin (1).

🔧 After the above-mentioned operation, the machine can serve as an excavator, except that only the operating direction (for embracing and dumping) is the opposite to that for the backhoe.



- Prepare a gangboard of suitable width that is strong enough to withstand the weight of the machine. The machine can ascend and descend the gangboard easily if its grade is 15°-16°. Determine the grade according to the relationship between the height of the platform of the truck and the length of the gangboard.

Unit: m (ft-in)

A meter	B meter
1.0 (3'3")	3.65 ~ 3.85 (12'0"~12'8")
1.05 (3'5")	3.8 ~ 4.05 (12'6"~13'3")
1.1 (3'7")	4.0 ~ 4.25 (13'1"~14'0")
1.15 (3'9")	4.2 ~ 4.4 (13'9"~14'5")
1.2 (3'11")	4.35 ~ 4.6 (14'3"~15'1")
1.25 (4'1")	4.55 ~ 4.8 (14'11"~15'9")
1.3 (4'3")	4.75 ~ 5.0 (15'7"~16'5")
1.35 (4'5")	4.9 ~ 5.2 (16'1"~17'1")
1.4 (4'7")	5.1 ~ 5.4 (16'9"~17'9")
1.5 (4'11")	5.5 ~ 5.75 (18'1"~18'10")

<Relation between Height of Truck Deck and Walking Plate>

- Advance the machine to a position a little before the uppermost point of the gangboard. Lower the bucket to a point near the platform of the trailer. Then advance the machine slowly and move it forward onto the platform of the trailer, raising the boom slowly.
- When loading and unloading, direct the attachment in the direction of traveling. Move the machine slowly over the gangboard with care.

⚠ It is extremely dangerous to change directions or swing the machine halfway on the gangboard. If direction must be changed a lot of the machine must be swung, return straight to the original level place, change directions or swing the machine and climb up the gangboard once again.

⚠ If you travel on the gangboard with the front attachment dismantled, climb the slope with the counterweight located at the top of the slope.

- When using a platform or a banking!
- Bring the rear end of the track or the trailer as close to the platform or a banking as possible before loading and unloading.

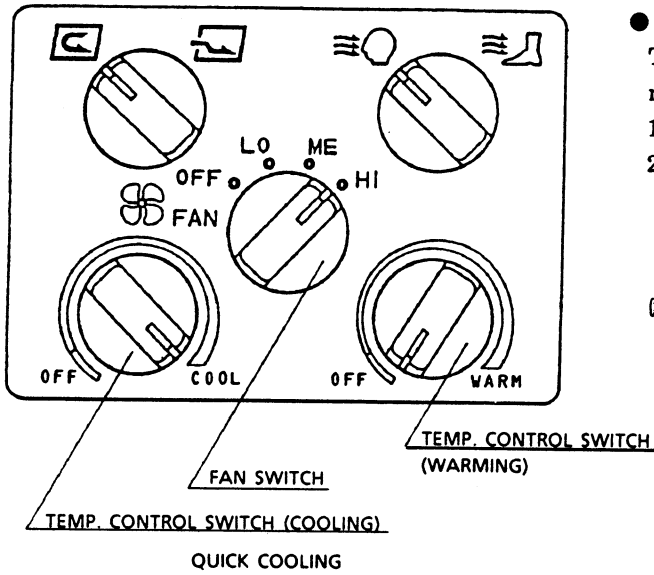
■ COMBINATIONS OF ATTACHMENTS

Type	Bucket			Applicable arm				
	JIS heaped capacity m ³ (cu yd)	SAE heaped capacity m ³ (cu yd)	JIS-SAE struck capacity m ³ (cu yd)	2.4m (7ft10in) arm	2.94m (9ft8in) arm	3.3m (10ft10in) arm	2.4m (7ft10in) arm + 1.5 m (4ft11in) extension arm	2.94m (9ft8in) arm + 1.5 m (4ft11in) extension arm
Hoe bucket	1.1 (1.44)	1.24 (1.62)	0.87 (1.14)	△	×	×	×	×
	0.9 (1.18)	1.05 (1.37)	0.75 (0.98)	△	×	×	×	×
	0.8 (1.05)	0.93 (1.22)	0.67 (0.88)	⊙	△	×	×	×
	0.7 (for heavy digging) (0.92)	0.8 (1.05)	0.59 (0.77)	○	○	×	×	×
	0.7 (0.92)	0.8 (1.05)	0.59 (0.77)	○	⊙	×	×	×
	0.6 (0.78)	0.69 (0.9)	0.51 (0.67)	○	○	⊙	△	×
	0.45 (0.59)	0.51 (0.67)	0.39 (0.51)	○	○	○	⊙	⊙
Clamshell bucket	0.5 (0.65)	—	—	○	○	×	×	×
Slope finishing bucket	Width x depth 2.2m x 1.1m (7ft3in x 3ft7in)	—	—	△	△	△	×	×
Ripper	—	—	—	○	○	×	×	×
V-bucket	0.46 (0.60)	0.49 (0.64)	0.43 (0.56)	△	△	△	△	△
Scraper bucket	0.75 (0.98)	0.9 (1.18)	0.6 (0.78)	△	△	△	△	△
Ripper bucket	0.45 (0.59)	0.5 (0.65)	0.38 (0.5)	○	○	×	×	×

☞ ⊙ Standard combinations

- General operation : Digging and loading of sand, gravels and clay-mixed soil
- △ Light operation : Operations mainly consisting of loading of loose sand and soil
(for instance, operations in paddy fields and loading of sand and gravels)
- ×
- × Not usable : Do not operate in such combinations as guarantee does not cover them.


- ⚠ ● If a bucket other than hoe buckets is used to execute turnover operation, it will cause damage to the arm and the bucket.
- When the machine is fitted with a 3.3m (10ft10in) arm (long arm) or an extension arm, do not use the attachment hydraulic circuit for the boost pressure attachment circuit.
- The combinations other than those mentioned in the above table can not be used in principle. For details, contact us.



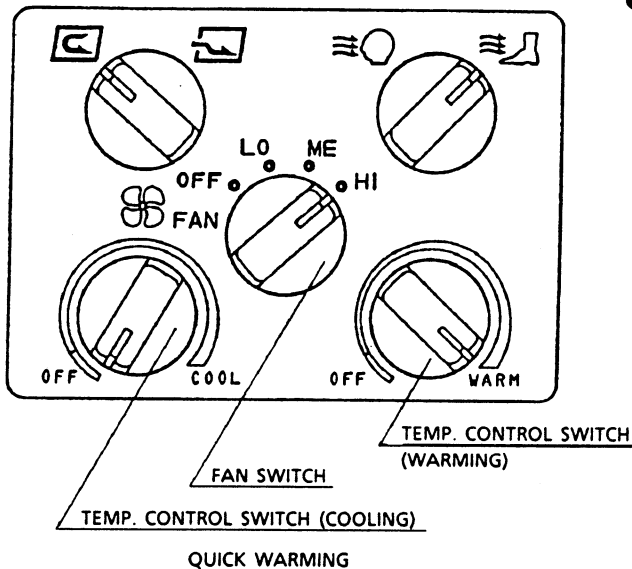
● **Maximum (quick) cooling**

This mode performs quick cooling by removing moisture, circulating the inner air.

- 1) Bring the fan switch to the HI position.
- 2) Set the temp. control switch (cooling) to COOL position and bring the temp. control switch (warming) to OFF position.

☞ ● When using it for a long time, let the outer air  in for ventilation.


● If the machine is under sunshine and the cab interior is very hot, open the door and after thorough ventilation, cool it.

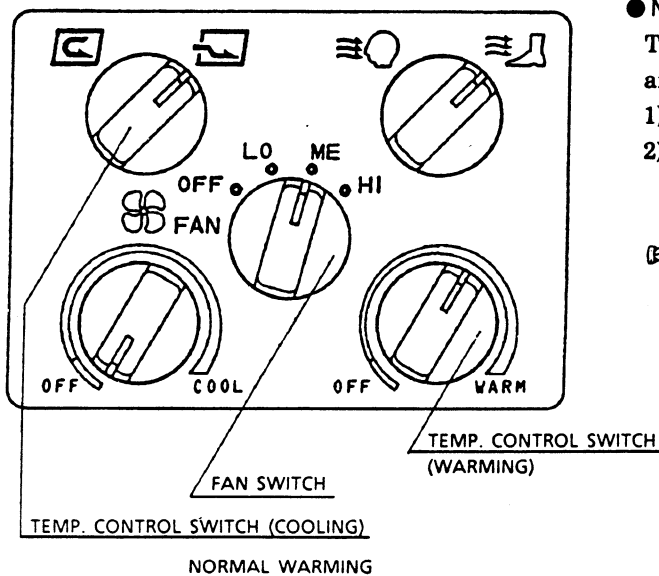


● **Maximum (quick) warming**

This mode performs quick warming, circulating the inner air.

- 1) Bring the fan switch to the HI position.
- 2) Set the temp. control switch (cooling) to OFF position and set the temp. control switch (warming) to WARM position.

☞ ● When using it for a long time, let the outer air  in occasionally for ventilation.

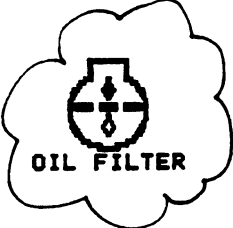


● **Normal warming**

This mode performs warming, exchanging the air with dust-removed outer air.

- 1) Bring the fan switch to a desired position.
- 2) Set the temp. control switch (warming) to a desired position.

☞ This mode is used for normal warming.

Device	Trouble	Cause or check point	Adequate action
Warning device	Buzzer sound and indication on multi display 	<ul style="list-style-type: none"> ● Is not the engine oil filter clogged? ● Is the oil viscosity proper? 	<ul style="list-style-type: none"> Replace element. Replace an oil of proper viscosity.

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