1. SUGGESTION FOR NEW MACHINE

1) It takes about 100 operating hours to break in a new machine.

2) Operate according to the below levels and avoid excessive load levels for the initial 100 hours.

Service meter	Load
Until 10 hours	About 60%
Until 100 hours	About 80%
After 100 hours	100%

※ **Excessive operation may reduce the potential performance of the machine and shorten the units lifetime.**

3) During the initial 100 operating hours:

(1) Daily check the level and for leakage of coolant, engine oil, hydraulic oil and fuel.

(2) Daily grease all lubrication points.

(3) Tighten bolts according to included torque chart in this manual.

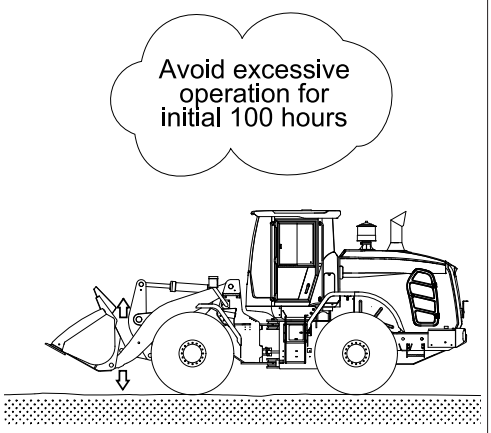
(4) Warm up the machine fully before operation.

(5) Check the gauges during operation.

(6) Check if the machine is operating normally during operation.

4) Replace followings after initial operation hours.

Checking items	Hours
Engine oil and filter	250
Fuel filter element	
Fuel pre-filter	
Transmission oil and filter	
Axle oil (front and rear)	
Hydraulic oil return filter	
Pilot line filter element	
Pressure filter element	



940A4OP01

2. CHECK BEFORE STARTING THE ENGINE

1) Make sure the steering frame lock bar is pinned in the locked position.

⚠ **The steering frame lock bar must be in place before inspecting the machine.**

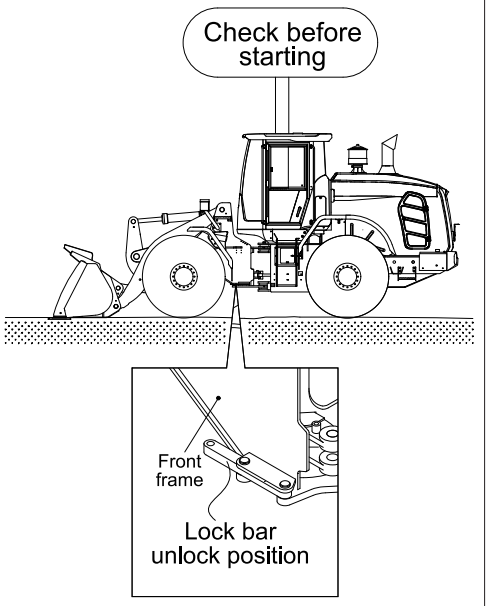
2) Look under and around the machine to check for loose nuts or bolts, collection(s) of dirt or leakages of oil, fuel or coolant. Check for loose wiring, visual abrasions to wiring or hoses and collections of dust or debris in high temperature areas.

※ **Check engine oil, coolant and hydraulic oil levels. Refer to the daily check list Chapter 6, Maintenance.**

3) Before entering the cab, remove the steering frame lock bar.
4) Close engine hood and ensure all covers are closed and locked.
5) Adjust the seat to fit the operator comfortably.
6) Ensure all lights are in proper working order and adequate for the job conditions.
7) Adjust the rear view mirror and fasten safety belt.
8) Before starting the engine, make sure there are no bystanders present. Before moving the machine check all mirrors and visually around the machine that no one is present in your operating area.

※ **Check that engine hood and all covers are to be closed and locked.**

⚠ **If a warning tag is attached to the starting switch or to the controls, do not start the engine. Also, do not move any controls.**



940A4OP02

3. STARTING AND STOPPING THE ENGINE

1) CHECK INDICATOR LIGHTS

(1) Check if the parking brake switch is ON.

(2) Check if the gear selector lever is in neutral position.

(3) Check if the pilot cut off switch is OFF.

(4) Turn the key to the ON position, and check followings.

· **Cluster**

① If all the lamps light ON after sounding buzzer for 3 seconds.

※ **If the lamps do not light or the buzzer does not sound, check master disconnect switch position.**

② Only below lamps will light ON and all other lamps will turn OFF after 3 seconds.

- Charging warning lamp (1)
- Engine oil pressure warning lamp (2)
- Brake fail warning lamp (3)

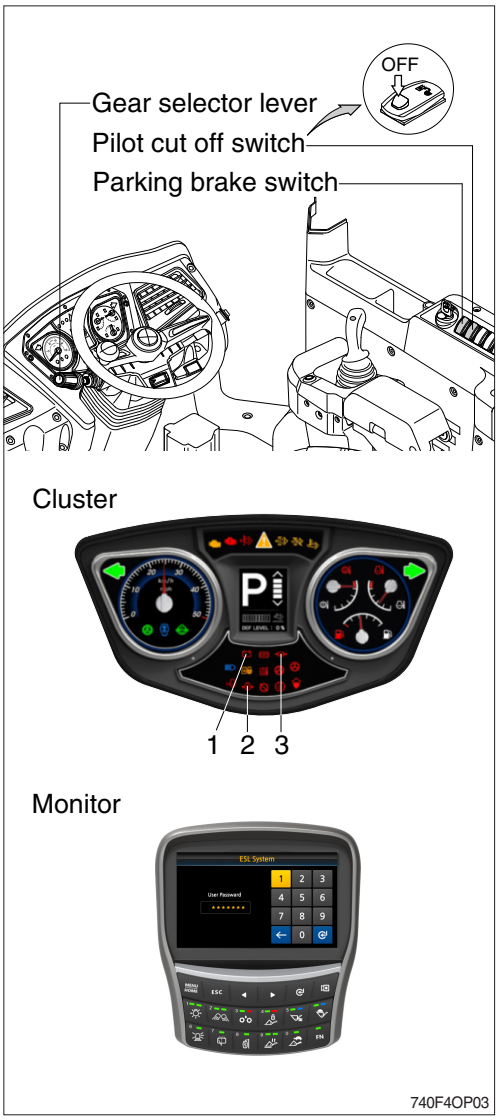
· **Monitor**

① The buzzer sounds for 3 seconds with HYUNDAI logo on monitor.

② If ESL mode is set to enable, enter the password to start the engine.

③ If the incorrect password is entered 5 times, please wait 30 minutes before reattempting to enter the password.

※ **Refer to page 3-30 for ESL system setting.**



2) STARTING ENGINE IN NORMAL TEMPERATURE

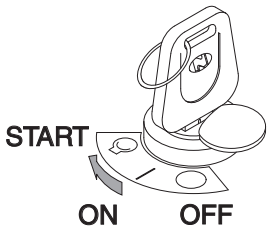
※ **Sound the horn to warn the surroundings after checking if personnel or obstacles are in the area.**

(1) Check if the parking brake is locked (with the parking switch ON).
(2) Check if the gear selector lever is in the neutral position.
(3) Check if the pilot cut off switch is locked (with the switch OFF)
(4) Turn the starting switch to START position to start the engine.

※ **Do not crank the engine for more than 20 seconds. If the engine does not start, allow the starter to cool for about 2 minutes before attempting to start the engine again.**

(5) Release the starting switch instantly after the engine starts to avoid possible damage to the starting motor.

※ **Refer to the START PROCEDURE on the page 0-13.**



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3) STARTING ENGINE IN A COLD WEATHER

※ Sound horn to warn surroundings after checking if there are obstacles in the area.

※ Replace the engine oil, coolant and fuel referring to recommended oils at page 6-9.

※ Fill the anti-freeze solution to the coolant as required.

※ If you turn ON the starting switch, the fuel warmer will automatically operate to heat the fuel based on coolant temperature.

(1) Check if the parking brake is locked (with the parking switch ON).

(2) Check if the gear selector lever is in the neutral position.

(3) Check if the pilot cut off switch is locked (with the switch OFF)

(4) Turn the starting switch to ON position, and wait 1~2 minutes. More time may take according to ambient temperature.

(5) Start the engine by turning the starting switch to START position after the preheater pilot lamp and fuel warmer pilot lamp OFF.

※ If the engine does not start, allow the starter to cool for about 2 minutes before attempting to start the engine again.

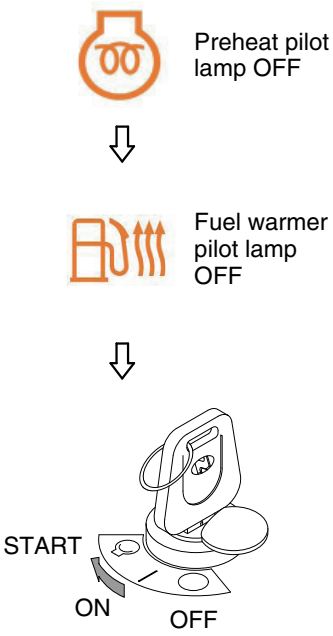
(6) Release starting switch immediately after starting engine. The starting switch will automatically return to the ON position.

※ After the engine starts the preheat function is actuated to reduce the white smoke.

※ Before the warming-up operation is completed, do not operate the equipment.

※ After warm-up operate the machine at less than normal loads and at low idle speed.

※ Run the engine for 10~15 minutes at low idle when the ambient temperature is below -15˚C.



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4) INSPECTION AFTER ENGINE START

Inspect and confirm the following after the engine starts.

(1) Does the hydraulic oil tank gauge display the proper level of hydraulic oil?

(2) Are there any oil or coolant leaks?

(3) Are all the warning lamps (1-19) OFF?

(4) Check the following after warming up operation.

① Is the coolant temperature gauge (13) in the operating range?

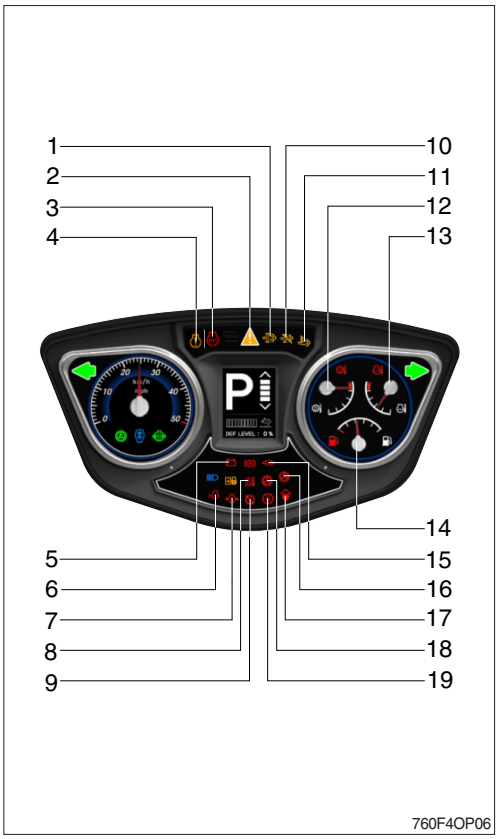
② Is the transmission oil temperature gauge (12) in the operating range?

③ Is the color of exhaust and engine sound normal?

④ Are there any abnormal sounds or vibrations?

※ **Do not increase engine speed quickly after starting, as engine or turbocharger damage could occur.**

※ **If there are problems displayed in the control panel, stop the engine immediately and contact your dealer.**



5) TRANSMISSION COLD STARTING

(1) If the transmission oil temperature is < -12˚C, the transmission must be warmed-up procedure.

(2) This must be carried out in neutral with an increased engine speed.

(3) Until this oil temperature is reached, the electronics remains in neutral, and the symbol of the cold start phase will be indicated on the display.

· Indication on the display : ✳✳

(4) After the oil temperature is met, the indicators on the display will fade and the transmission can be shifted from NEUTRAL.

※ **Transmission warning**

Symbol	Meaning	Remarks
LF, LR	Limp home gear	-
✳✳	Oil temperature too low, no gear available	Warm up engine/transmission
WS	Warning sump temperature	Alternate between WS and actual gear/direction while driving, in neutral only displayed WS if no fault is detected ※Cool down transmission
WT	Warning torque converter temperature	Alternate between WS and actual gear/direction while driving, in neutral only displayed WS if no fault is detected ※Cool down transmission

6) TO STOP THE ENGINE

※ **Stopping the engine without conducting a cool down procedure can greatly shorten the life of the engine.Consequently, do not abruptly stop the engine apart from an emergency.**

※ **If the engine has overheated, do not abruptly stop the engine.Run at a medium speed to allow the engine to cool gradually before shutting down.**

(1) Place the gear selector lever in neutral.

(2) Push the parking brake switch to the ON position.

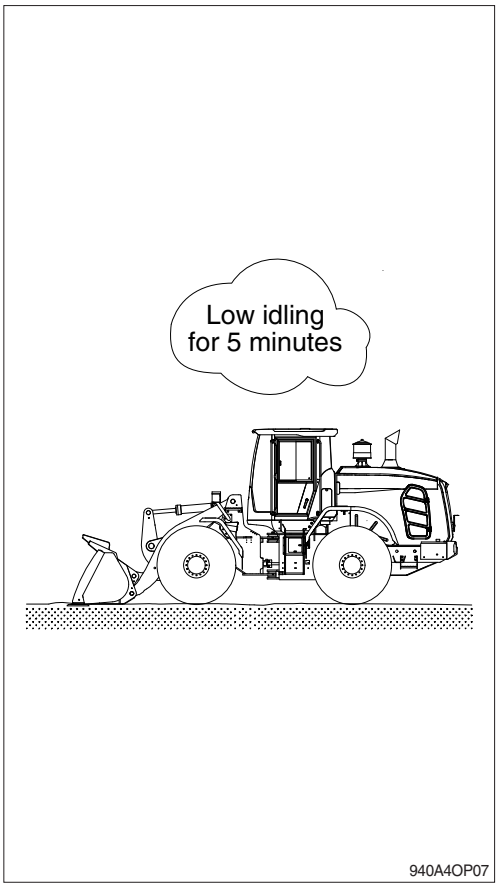
(3) Run the engine for five minutes at low idle with no load.

(4) Return the key of starting switch to the OFF position.

(5) Remove the key to prevent other people using the machine.

(6) Push the pilot cut off switch to the OFF position.

(7) Lock the cab door.



4. WARMING-UP OPERATION

※ **The most suitable temperature for the hydraulic oil is about 50˚C (112˚F). The temperature must be raised to at least 25˚C (77˚F) before starting work. Performance will be diminished by sudden operation when the hydraulic oil temperature is below 25˚C (77˚F).**

1) Run the engine at low idling for 5 minutes.

2) Speed up the idling and run the engine at mid-range speed.

3) Push the pilot cut off switch to the ON position.

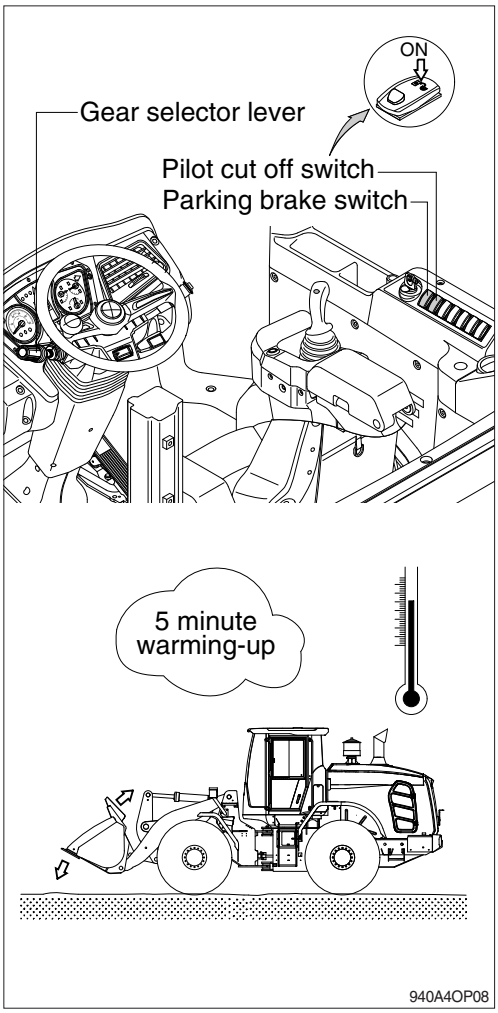
4) Lift the boom slightly and extend the bucket cylinder to the stroke end to relieve hydraulic pressure.

※ **Do not leave hydraulic pressure relieved for more than 30 seconds.**

5) Shorten the bucket cylinder to the stroke end to relieve hydraulic pressure.

※ **Do not leave hydraulic pressure relieved for more than 30 seconds.**

6) Repeat the procedure 4) - 5) several times until warm-up operation is completed.



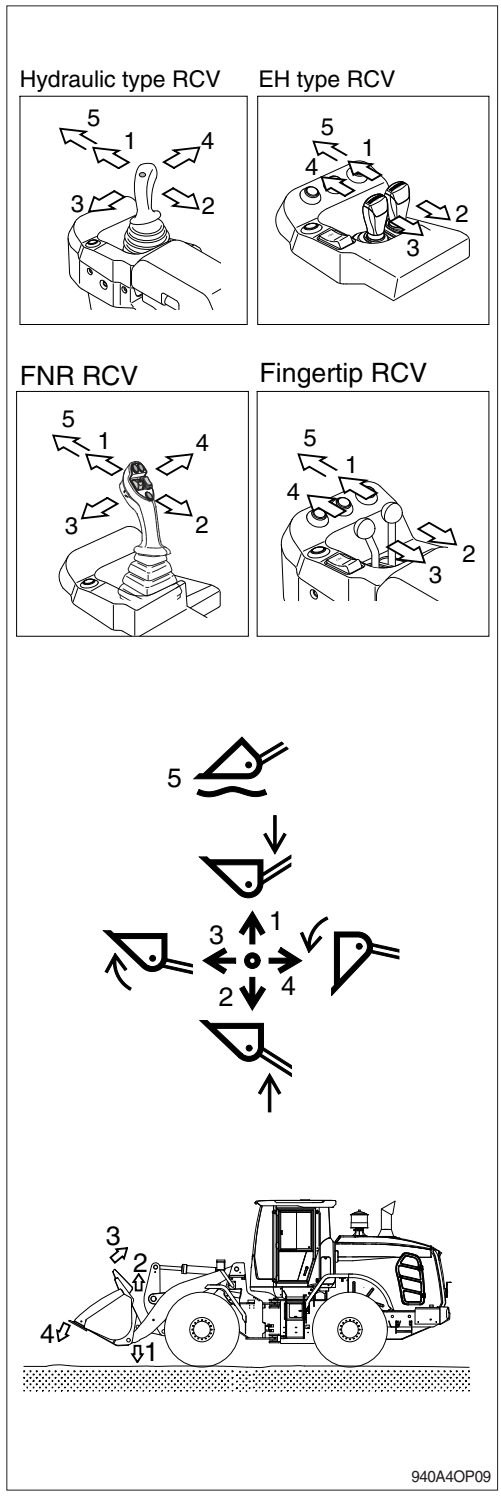
5. OPERATION OF THE WORKING DEVICE

※ Confirm the operation of control lever and working device.

1) Control lever operates the boom and the bucket.

2) When you release the control lever, it returns to the neutral position automatically.

3) When the control lever operates to detent positions for boom float, boom kick out and bucket leveler, the control lever will return to the neutral position once the function is completed.



※ Control lever

Boom lower (1)

Push the control lever forward in order to lower the boom.

Boom raise (2)

Pull the control lever backward in order to raise the boom.

Bucket roll back (3)

Move the control lever toward the left in order to tilt the bucket backward.

Bucket dump (4)

Move the control lever toward the right in order to dump a load from the bucket.

Boom float (5)

Push the control lever forward into the detent.

The boom will lower to the ground.

The boom will float along the contour of the ground.

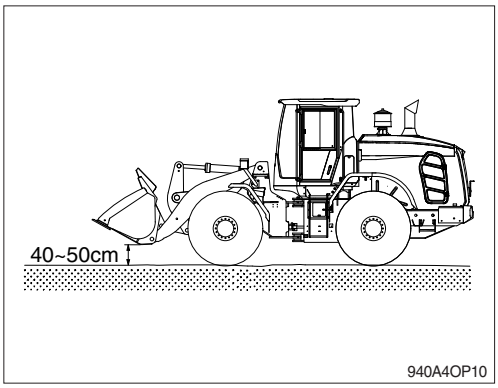
6. TRAVELING THE MACHINE

1) BASIC OPERATION

※ **Secure the engine hood in the fully closed position prior to traveling the machine.**

(1) Traveling posture

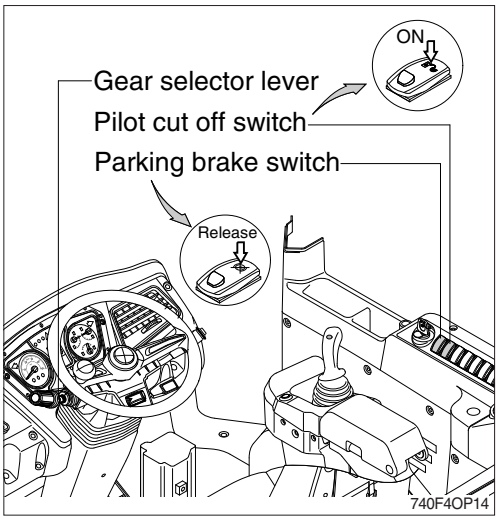
Lift the boom so that the bucket is placed 40-50㎝ above the ground.



(2) Traveling operation

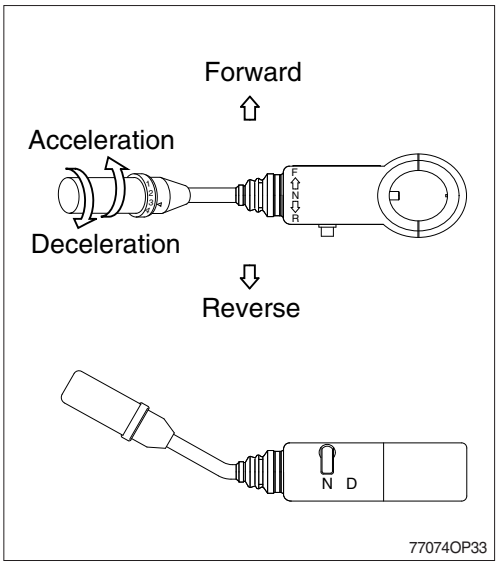
When warm-up operation is completed after the engine is started, move the machine according to the following procedure.

① Push the pilot cut off switch to the ON position.
② Depress the brake pedal.
③ Release the parking brake.
④ Put the gear selector in the the forward or reverse direction and gently press the accelerator pedal while releasing pressure on the service brake to move the machine.



(3) Changing direction and speed

① The gear selector is mounted on the left side of the steering column.
② The gears 1 - 4 are selected by rotary motion. The driving direction Forward (F), Neutral (N) and Reverse (R) by pushing or pulling the selector lever.
③ A neutral lock is installed as protection against inadvertent drive off.
· Position N - Gear selector lever locked in neutral position
· Position D - Driving



※ When traveling at high speed, do not abruptly decelerate by using the transmission lever. To slow down, press the brake pedal.

※ When changing direction, check beforehand there is no obstacle in the direction you will be headed.

※ Avoid changing direction at high speed.

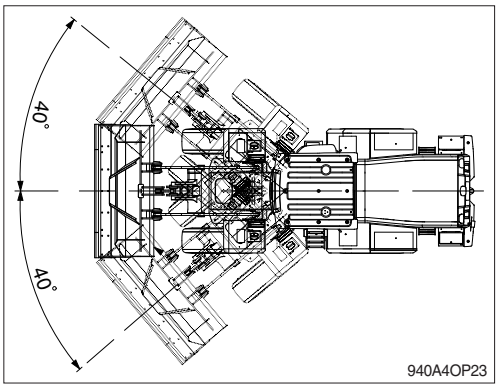
(4) Turning the machine

① Turn the machine by moving the steering wheel into the desired direction.

② You can turn the machine to the left or right by 40 degree.

※ Do not turn the machine abruptly when traveling at high speeds and avoid turning on a slope.

⚠ Steering does not function with engine OFF.



(5) Precautions when driving

① If the monitor warning lamp lights up, depress the brake pedal, slow the machine, put the gear selector lever in the neutral position and engage the parking brake. Stop the engine after running it at low idle. Resolve any problems regarding operation of the machine.

② When operating the machine and the amount of material being moved is reduced, increased speed can occur. Be cautious.

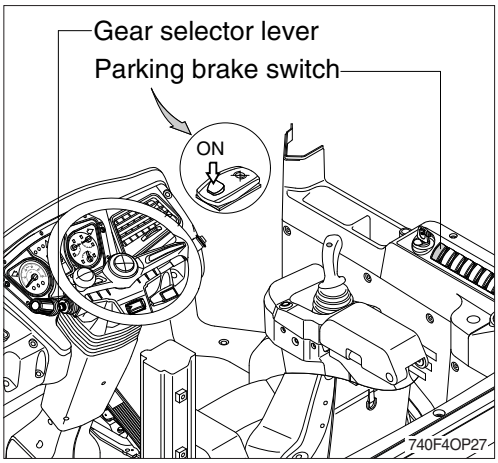
③ When traveling on uneven ground operate at a reduced speed.

(6) Stopping the machine

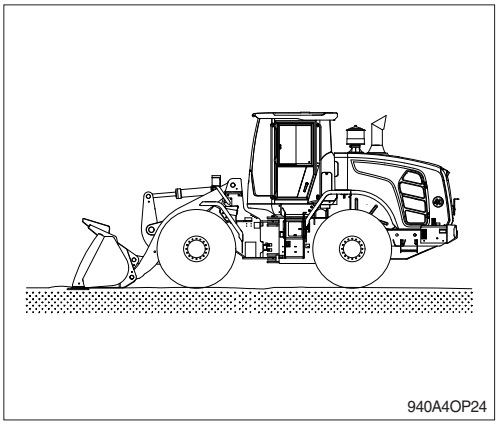
① Press the brake pedal to stop the machine.

② Put the gear selector lever in the neutral position.

③ Push the parking brake switch to the ON position.

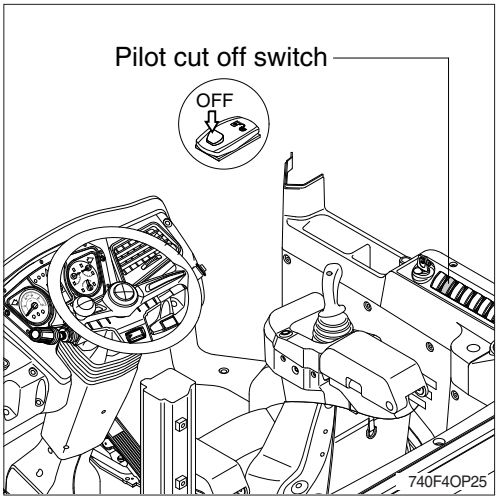


④ Lower the bucket to the ground.



⑤ Push the pilot cut off switch to the OFF position.

※ **When parking on a slope, chock the tires.**



(7) Stopping engine

※ Stopping the engine without conducting a cool down procedure can greatly shorten the life of the engine. Avoid sudden stops except in an emergency.

※ If the engine has overheated, do not abruptly stop the engine. Run at a medium speed to allow the engine to cool gradually before shutting down.

① Move the gear selector is in the neutral position.

② Move the parking brake switch to ON.

③ Move the pilot cut off switch to OFF.

④ Run the engine at low speed without operating the equipment for about 5 minutes to allow unit to cool down.

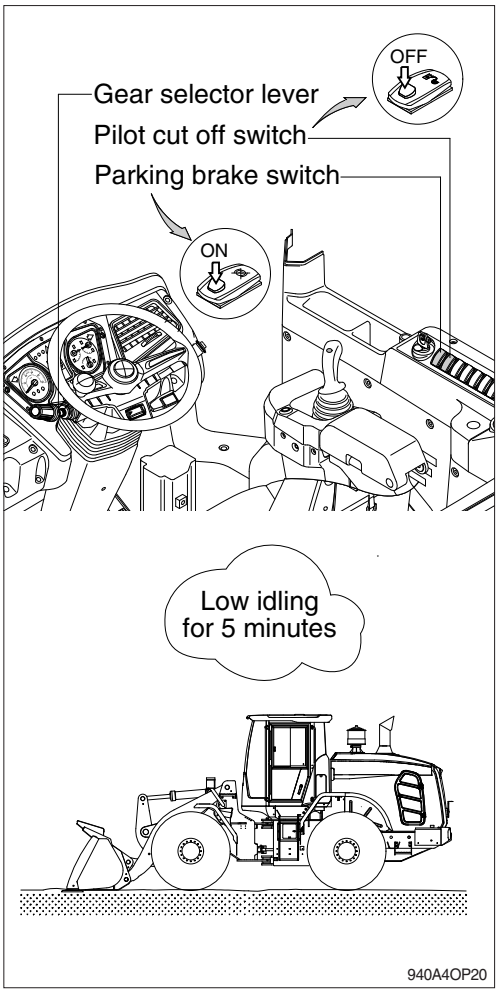
⑤ Turn the starting key to the OFF position and remove the key.

(8) Checks after the engine has stopped

① Visually check for oil or coolant leaks and a general inspection of the exterior of the machine.

② Refill the fuel tank.

③ Remove any debris inside of the engine room and attached to the machine.



2) TRAVELING ON A SLOPE

(1) Never travel down a slope in neutral.

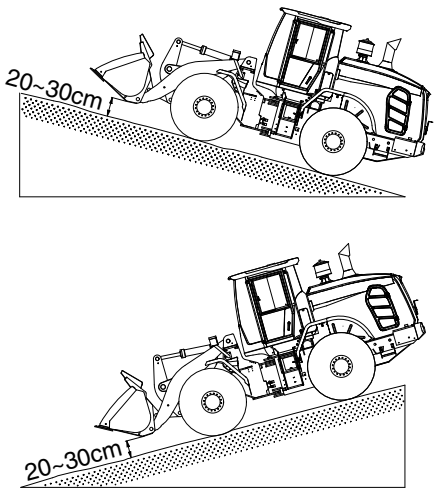
(2) Lower the bucket 20-30 ㎝ (1 ft) to the ground so that it can be used as a brake in an emergency.

(3) If the machine starts to slide or loses stability, lower the bucket immediately and brake the machine.

(4) When parking on a slope, use the bucket as a brake and place chocks behind the tires to prevent sliding.

※ The machine cannot travel effectively on a slope when the oil temperatures are low. Ensure the warm-up operation has been completed before operating the machine.

※ Be careful when working on slopes, as this terrain has an increased risk roll-over.



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7. EFFICIENT WORKING METHOD

1) GENERAL

(1) Lift the bucket about 40-50 ㎝ (2 ft) above the ground to ensure safety and to gain a good range of view.

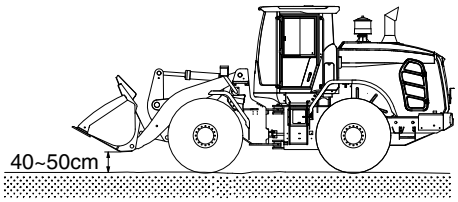
(2) Clear the jobsite and level the ground.

(3) Be careful that excessive force is not applied to the bucket.

(4) When handling hard materials, use bucket teeth or bolt on cutting edge.

(5) When doing dumping work, put the control lever in the DUMP position, then return it to a former state. Repeat this procedure until the work is finished.

(6) Check that the proper bucket is used for the material density being handled. An incorrect combination can cause undue stress and decrease the machine's service life.



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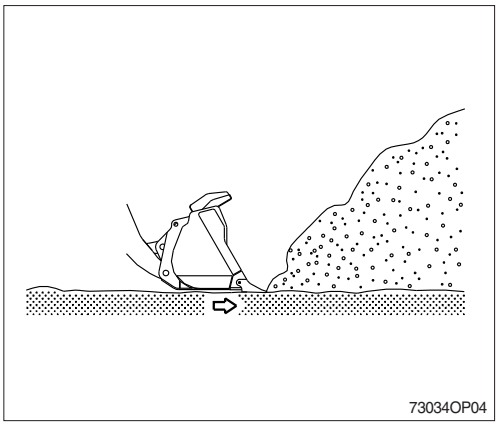
2) EXCAVATION WORK

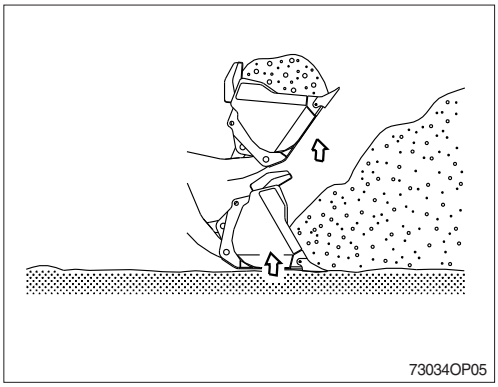
(1) Shovel work

As the machine loads the bucket while traveling, tire slippage can occur due to material loading resistance. Slightly lift the bucket to transfer working load to the axle for increased traction.

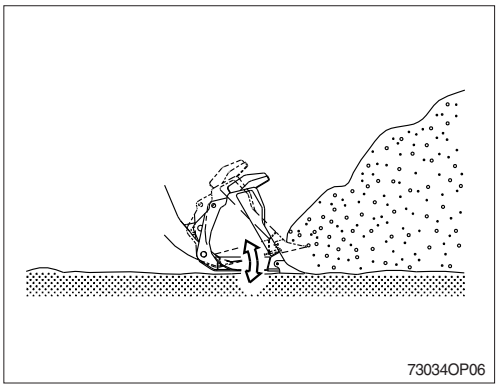
① Keep the bucket shovel parallel to the ground. If the bucket is used in a non-horizontal position the cutting edge or teeth cannot correctly engage the material to dig deeply in the heap.



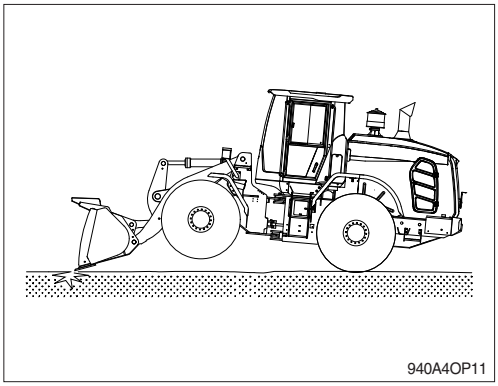
② When the bucket is sufficiently deep into the pile, advance the machine while raising the boom and moving the control lever to the bucket roll-back position to fill the bucket.



③ If material is dense, move the bucket control lever left and right to move the bucket teeth up and down to loosen the pile.



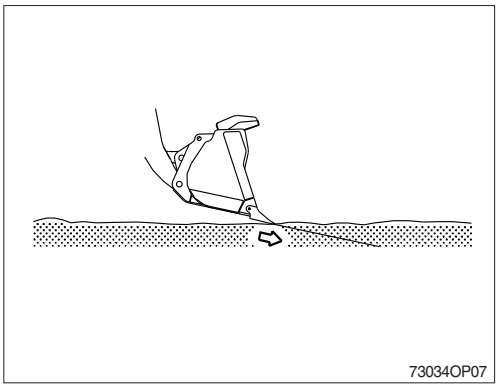
※ If the machine operates with the front tires lifted, tractive effort will be reduced significantly and excessive force will be applied to the rear tires. Avoid operating in this manner.



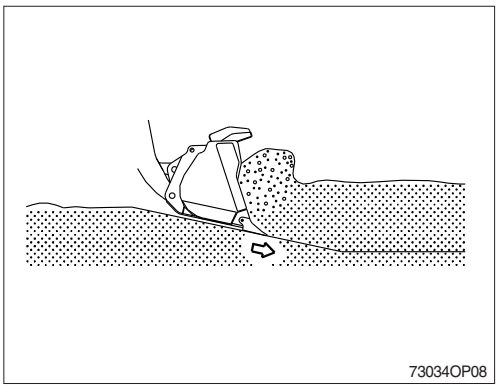
(2) Excavation on level ground

Advance the machine with the bucket lowered slightly and make sure that the bucket is evenly loaded on both sides.

① Lower the bucket edge slightly.



② Advance the machine and lift the bucket using the bucket control lever to dig out the soil.

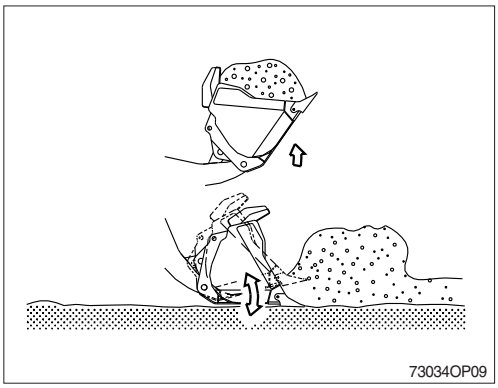


③ Advance the machine while controlling the depth of digging with the control lever.

※ Do not press the bucket heavily into the ground. This will significantly reduce tractive effort.

※ Use the bucket suitable to the working condition.

※ When excavating, prevent forces from being applied to only one side of the bucket.



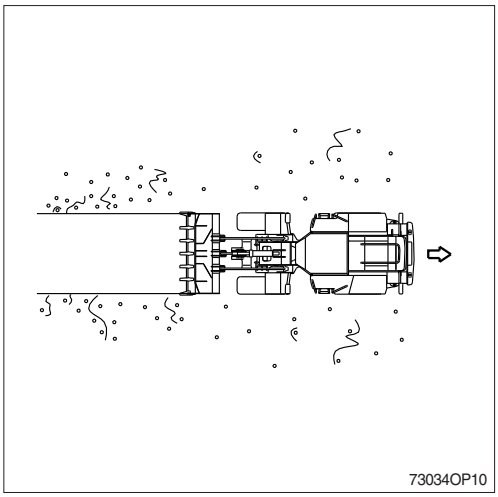
3) LEVELING

(1) Load the bucket with material and gradually dump the material while driving backward.

(2) After dumping the material, move backward with the bucket lowered to the ground to level the material.

(3) Load the bucket with material and place the bucket a horizontal position. Then move the control lever to the BOOM FLOAT position and move backward.

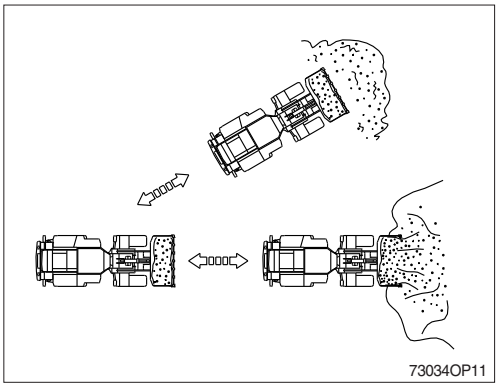
※ Make sure that the machine moves always backward when doing leveling work.



4) TRANSPORTATION

※ Make sure that the traveling path is always cleared.

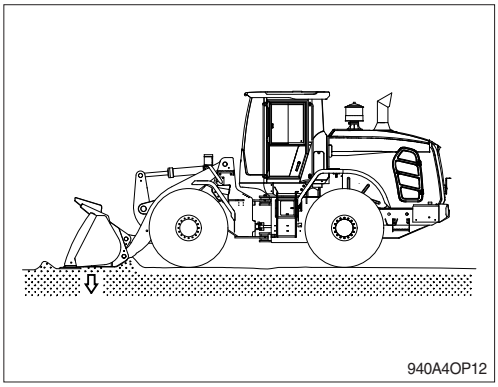
※ When transporting material, lift the bucket 40-50 cm above the ground in the fully curled position to reduce spillage.



5) COMPACTION

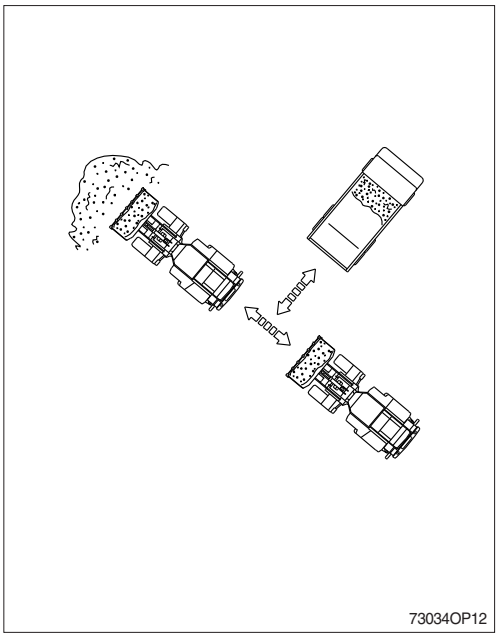
When operating, keep the bottom of the bucket horizontal to the ground.

※ Do not work with the bucket set in the DUMP position.



6) LOADING

Maximum efficiency can be attained by carrying out work in such a way that the turning angle and the traveling distance are kept as small and short as possible in accordance with the terrain.


73034OP12

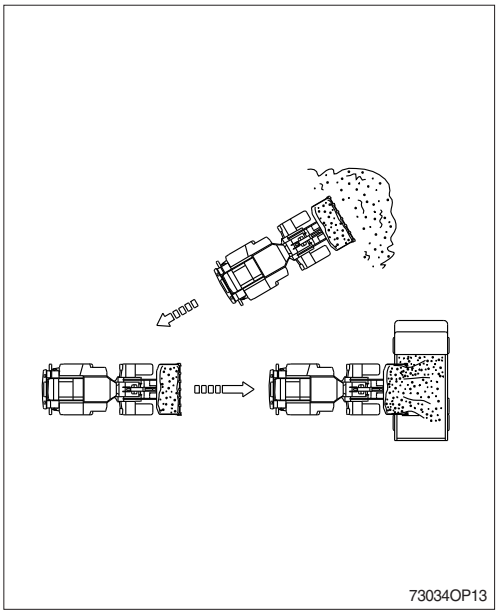
(1) I method

① After digging out the soil, move backward and position the dump truck between the heap of soil and the machine to load the soil into the truck.

② This is the fastest and most efficient way to load material.

※ The ground of the jobsite should be always level and do not swing or step on a brake pedal abruptly with the boom raised.

(2) V method


73034OP13

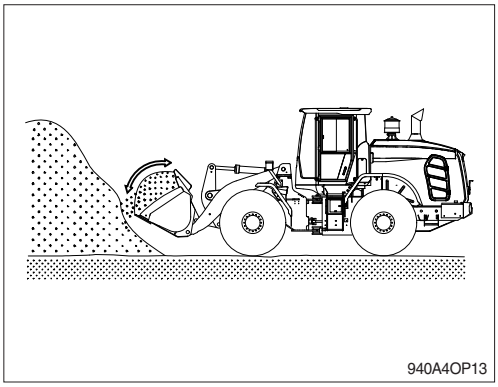
① Park the truck at an angle of 60 degrees toward the machine. After digging out, drive backward and position the machine at a right angle with the truck and load the truck with the soil.

② Position the machine so that the soil can be dumped in the center of the truck.
If the length of the truck is more than double the width of the bucket, perform the dumping work from forward to backward.

③ Move the control lever to the right and dump the bucket.

④ Shake the bucket to throw off the soil stuck inside. Move the bucket control lever to the left and right and attach the bucket to the stopper.

⑤ Shake the bucket before setting it to the DUMP position so that loaded materials are evenly distributed inside the bucket. This will prevent materials from slipping back when the bucket is placed in the DUMP position.

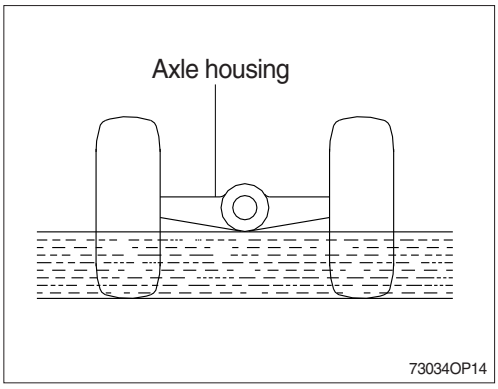

940A4OP13

7) PRECAUTIONS DURING OPERATION

(1) Permissible water level

① Do not work in water or damp ground deeper than the permissible depth (Up to lower part of the axle housing).

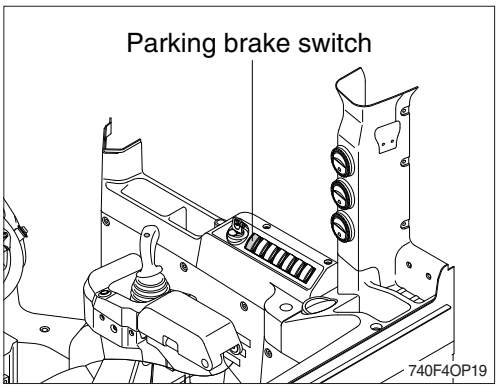
② After the work is completed, grease parts which has been immersed in water.



(2) When the brake does not operate

① If the machine does not stop even though the brake pedal is applied, use the parking brake.

※ After using the parking brake as an emergency brake, contact your local HD Hyundai Construction Equipment dealer to inspect the complete braking system.



(3) Precautions when driving on a slope

① When turning on a slope, lower the work equipment to lower the machine's center of gravity. Avoid turns on slopes when possible.

② **When traveling down a slope**

a. If the main brake is used too often when traveling down a slope, it may overheat and incur damage. Put the transmission lever in the low speed position and use the engine as a brake.

b. If there is a mismatch of speed, torque converter oil temperature may be overheated. Set the speed in the 1st speed position to allow the temperature to drop.

c. When the transmission temperature gauge does not move into the green range in 1st speed, stop the machine and put it in neutral. Run the engine at a mid range engine speed until the gauge moves into the green range.

③ **When the engine stops**

If the engine stops on a slope, press the parking brake switch immediately and lower the work equipment to stop the machine.

(4) Precautions when traveling

Do not travel a long distance at high speed. It may overheat tires and cause premature damage. If it is necessary to travel a long distance at high speed, observe the following.

① Comply with the regulations concerning this machine to ensure safety.

② Do the pre-inspection before starting off.

③ As the optimum air pressure of tires and optimum driving speeds are different according to the kinds of tires and road conditions, consult your local HD Hyundai Construction Equipment dealer or tire distributor for proper inflation recommendations.

④ Check tire pressures before driving.

⑤ After 1 hour of driving, stop for 30 minutes to check for any abnormalities of tires or other parts and the oil and coolant levels.

⑥ Travel with the bucket empty.

8. ADJUSTMENT OF THE WORK EQUIPMENT

The bucket can be adjusted to a height desired by using the boom kick-out device.

⚠ **Park the machine on level ground and chock the tires to prevent sudden movement of the machine.**

⚠ **Press the parking brake switch.**

⚠ **Fix the front and rear frames by using the safety lock bar.**

⚠ **Do not work underneath the work equipment.**

1) ADJUSTMENT OF THE BOOM KICKOUT AND BUCKET LEVELER

(1) Lift kickout position

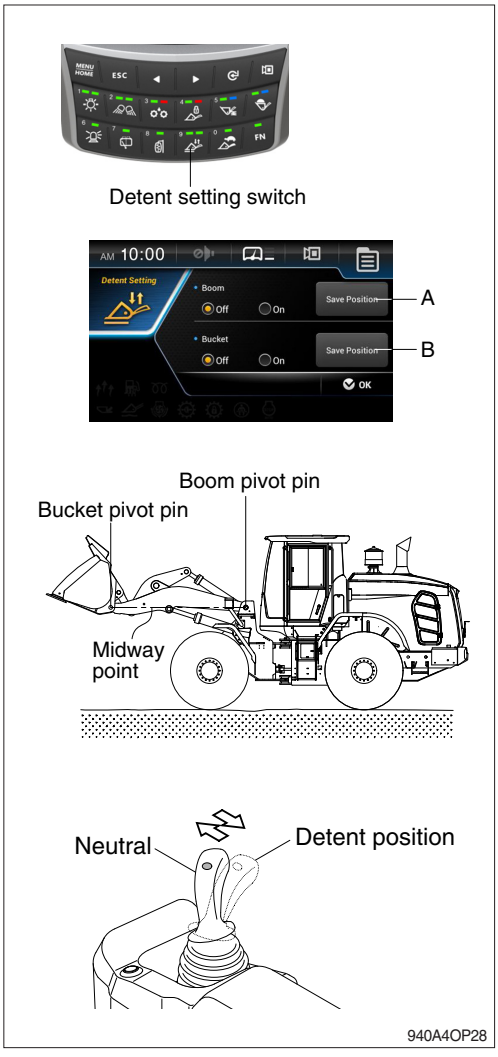
To set the lift kickout, raise the boom to the desired position above the midway point. Then push icon (Save Position , A) for 2~3 seconds until you hear an audible alarm. The boom will return to the programmed position when the raise detent is activated and the boom is below the kickout position.

(2) Lower kickout position

To set the lower kickout, lower the boom to the desired position below the midway point. Then push icon (Save Position , A) for 2~3 seconds until you hear an audible alarm. The boom will return to the programmed position when the float detent is activated and the boom is at least a foot above the kickout position.

(3) Bucket leveler position

To set the bucket leveler, roll back the bucket to the desired position. Then push icon (Save Position , B) for 2~3 seconds until you hear an audible alarm. The bucket will return to the programmed position when the roll back detent is activated and the bucket is below the leveler position.



9. OPERATION IN SPECIAL WORK SITES

1) COLD WEATHER MACHINE OPERATION

(1) Use proper engine oil and fuel for the weather.

(2) Fill the required amount of antifreeze in the coolant.

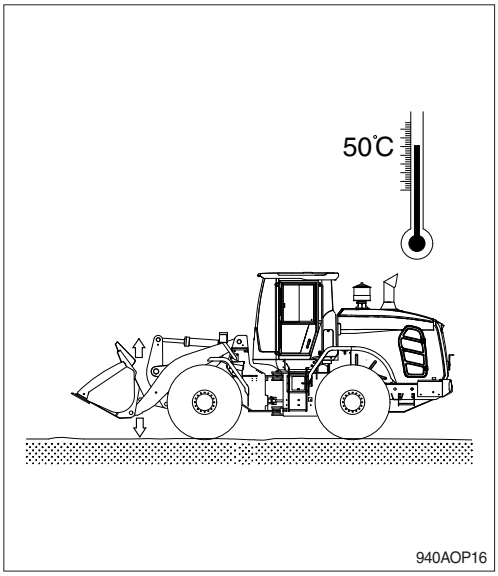
(3) Refer to starting engine in cold weather. Start the engine and extend the warming-up operation.

(4) Be sure to open the heater cock when using the heater.

(5) Always keep the battery completely charged.

※ **Discharged batteries will freeze more easily than fully charged.**

(6) Clean the machine and park on the wood plates.



2) OPERATION IN SANDY OR DUSTY WORK SITES

(1) Inspect air cleaner element frequently. Clean or replace the element more frequently, if warning lamp comes ON and buzzer sounds simultaneously, regardless of inspection period.

(2) Inspect radiator frequently and keep cooling fins clean.

(3) Prevent sand or dust from getting into the fuel tank and hydraulic tank during refilling.

(4) Prevent sand or dust from penetrating into hydraulic circuit by tightly closing the hydraulic oil tank breather cap. Replace hydraulic oil filter frequently.

(5) Keep all lubricated parts such as pins and bushings clean at all times. Shorten greasing intervals to flush contaminants from pins and bushings.

(6) Increase the cleaning and replacement of cabin filters to prevent heating or cooling capacity from dropping.

3) SEA SHORE OPERATION

(1) Prevent ingress of salt by securely tightening plugs, cocks and bolts of each part.

(2) Wash machine after operation to remove salt residue.
Pay special attention to electrical parts and hydraulic cylinders to prevent corrosion.

(3) Inspection and lubrication must be carried out more frequently.
Supply sufficient grease to replace all old grease in bearings which have been submerged.

10. STORAGE

When storing the machine for longer than 1 month, take care of the following to prevent deterioration.

1) CLEANING THE MACHINE

Clean the machine.

Grease each lubrication part.

2) LUBRICATION POSITION OF EACH PART

Change all oil.

※ Be particularly careful when you reuse the machine.

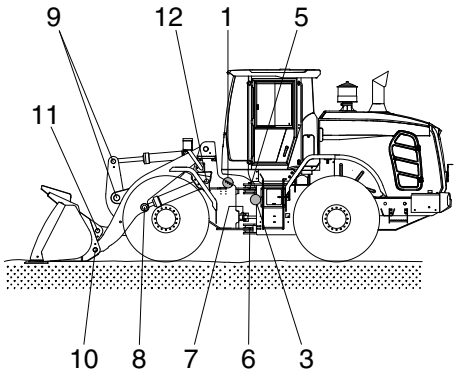
As oil can be diluted during storage.

Apply anti-corrosive lubricant on the exposed part of the cylinder rod and in places where the machine rusts easily.

3) MASTER SWITCH

Turn OFF the master switch and store the machine.

4) Verify the protection level of antifreeze in the cooling system.



940A4OP17

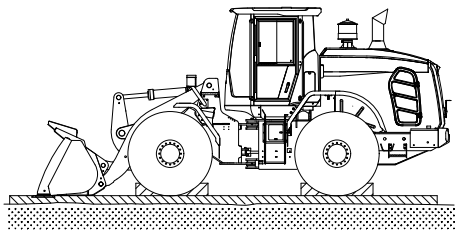
1 Lubricating manifold (left, 4EA)
3 Lubricating manifold (left, 4EA)
5 Center pivot pin (upper, 1EA)
6 Center pivot pin (lower, 1EA)
7 Steering cylinder rod (2EA)
8 Boom cylinder pin (rod side, 2EA)
9 Bellcrank (6EA)
10 Boom and bucket connecting pin (2EA)
11 Bucket link connecting pin (2EA)
12 Boom cylinder pin (frame side, 2EA)

5) PREVENTION OF DUST AND MOISTURE

Keep machine dry. Store the machine setting wood on the ground.

※ Cover exposed part of piston rod of cylinder.

※ Lower the bucket to the ground and set a support under tires.



940A4OP18

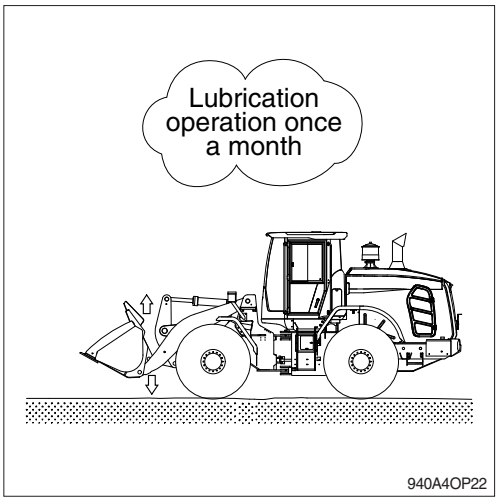
6) DURING STORAGE

Start engine and move the machine and working equipment once a month and apply lubrication to each part.

※ Check the level of engine oil and coolant and fill if required before starting the engine.

※ Clean the anticorrosive from the cylinder rod.

※ Operate the machine such as traveling, turning, and work equipment operation to make sure enough lubrication of all functional components.



※ BATTERY

① Once a month, start the engine for 15 minutes (or use a charger) to charge the battery.

② Every 2 months, check the battery voltage and keep battery voltage over 25.08V.

③ If the machine storage period is over 6 months, disconnect the battery negative (-) terminal.

11. EXHAUST SYSTEM CLEANING

※ Exhaust system cleaning events for the catalyst system will happen automatically under normal engine conditions and are controlled by the ECM as long as the exhaust system cleaning Inhibit switch is not engaged. During automatic exhaust system cleaning, any warning lamps or fault codes will not occur so the operator can not notice the cleaning is being performed.

※ If automatic exhaust system cleaning does not occur, the exhaust system cleaning lamp will illuminate, indicating to the operator that they will need to perform a manual exhaust system cleaning.

※ The HEST Lamp will be illuminated during the entire exhaust system cleaning.

※ While the exhaust system cleaning occurs, fuel consumption will be increased 20~30% more than usual due to post fuel injection to the exhaust system to reach enough exhaust temperature for regeneration.

※ The operator can check logs of exhaust system cleaning events on an engine diagnostic tool (INSITE).

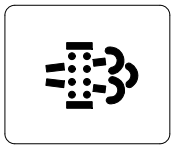
⚠ Tampering, modifying, or removing any component of the exhaust system is strictly prohibited in law.

⚠ Exhaust system cleaning generates hot exhaust and causes hot exhaust system components.

⚠ Exhaust system components get very hot and can cause severe burns. Risk for fire.

⚠ Do not perform exhaust system cleaning in a flammable environment.

(1) Exhaust system cleaning warning lamp



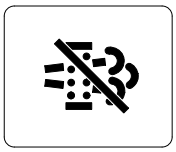
2609A3CD19

This warning lamp will light ON or blink when the exhaust system cleaning is needed or activated.

※ Refer to page 3-8 for details.

※ The machine must be in a fireproof area during the entire exhaust system cleaning process.

(2) Exhaust system cleaning inhibit warning lamp

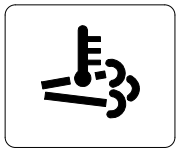


2609A3CD20

This warning lamp will light ON when the exhaust system cleaning switch is pushed inhibit position.

※ Refer to page 3-8 for details.

(3) HEST (high exhaust system temperature) warning lamp



2609A3CD21

This warning lamp will light ON when the exhaust temperatures are high due to exhaust system cleaning.

※ Refer to page 3-9 for details.

(4) Exhaust system cleaning switch

2609A4OP16

This switch is used to select the exhaust system cleaning.

※ If system conditions are not met, the exhaust system cleaning will not start.

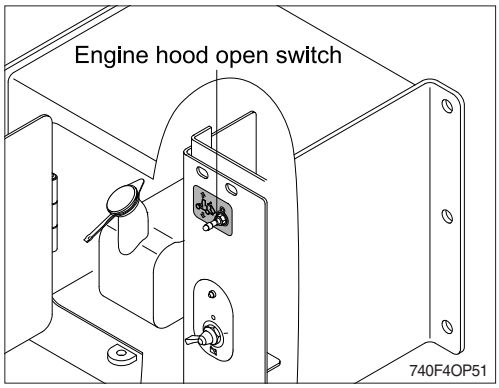
※ Refer to page 3-46 for details.

※ Manual exhaust system cleaning : refer to page 3-9 for details.

12. OPEN THE ENGINE HOOD

1) The engine hood open toggle switch controls the engine hood. It is located in a compartment with the master disconnect switch near the cab entry steps.

2) Open the access door.

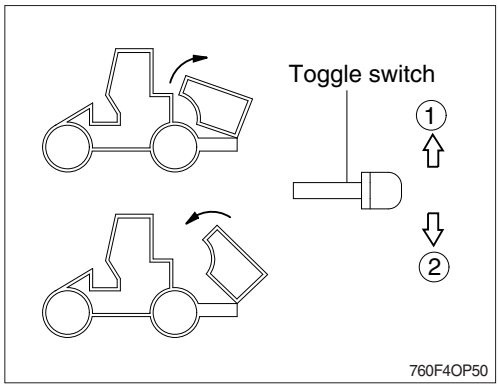


※ **The engine hood may not be operated when the machine's engine is running. Risk of machine damage.**

3) Move the toggle switch pull and up (①) in order to open the engine hood.

4) Move the toggle switch pull and down (②) in order to close the engine hood.

5) Hold the toggle switch until the engine hood is fully opened or closed. Release the switch. The switch will return to the middle position.



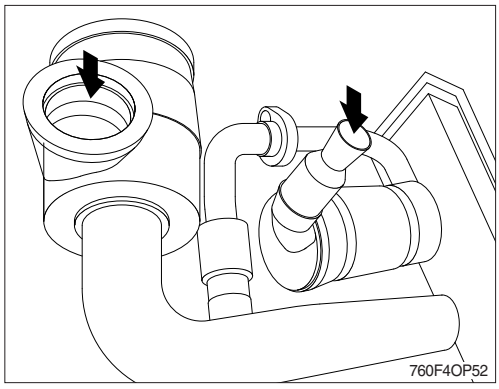
※ **When opening the engine hood, the counter-weight shelf must be clear of dirt, debris or objects. The rear of the engine hood can be damaged if the engine hood is opened with objects on the shelf.**

※ **Ensure that there are no personnel or equip-ment around the hood during operation.**

※ **Secure the engine hood in the fully raised position before performing any maintenance work in the engine room.**

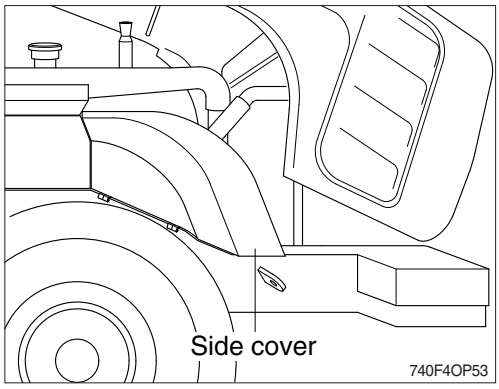
※ **If the rear engine door is open, ensure the swing out coolers are in the closed position when raising or lowering the hood.**

6) When hood is opened, cover the air intake and the aftertreatment device outlet to prevent any water entry.



※ **Secure the hood in the fully close position or the fully open position prior to starting the engine. Operating the machine with the hood partially open can cause the exhaust to dam-age hood components. Do not allow water to enter the aftertreatment device.**
Water will damage the aftertreatment device.

7) If further access in needed, either side cover can be opened. The levers are positioned on both sides of the engine room. Hold the side cover in place while unlatching the safety cable attached to the side cover. Lower the side cover to rest on the tire. The side cover can remain in the open position resting on the tire. For better access the side cover can be removed. Push the side cover forward along the hinge to remove the side cover fully.



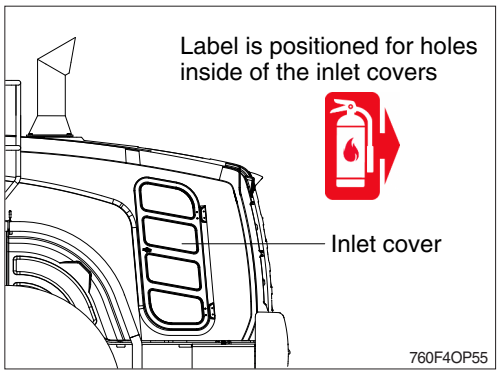
⚠ **Avoid contact with hot surfaces. Exhaust piping and engine components become hot during engine operation and cool slowly after engine shut down. Any contact with hot surfaces can cause severe burns.**

8) EMERGENCY FIRE HOLES

If the engine hood cannot be opened in case of fire, it is possible to fight the fire manually through two holes on the screen.

Holes for manual fire fighting can be accessed by opening the inlet covers on the right and left side.

Fire fighting can take place using the holes on the screen, which provide access to the engine compartment with a handheld fire extinguisher nozzle.



⚠ **The extinguishing agent contains glycol which may cause injuries in case of contact. Avoid contact. In case of contact with the eyes, rinse with water. In case of skin contact, wash with soap and rinse with water. Always contact a doctor after contact with the extinguishing agent.**

9) MANUAL OPERATION OF ENGINE HOOD

The engine hood can be operated manually.

(1) Open the RH vent cover.

(2) Remove the socket (Keep the socket to reuse) and turn the hand crank (6mm hexgon wrench) to open engine hood.

※ **When the actuator is operated as a hand crank, it must be operated by hand or carefully by tool otherwise there is a risk of overloading and damage of actuator.**

※ **The master switch has to be in the OFF position during manual operation.**