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11) SIDE KEEP CLEAR (item 13)

This warning label is positioned on the side of LH rear side cover.

⚠ To prevent serious personal injury or death keep clear of machine swing radius.

⚠ Do not deface or remove this label from the machine.



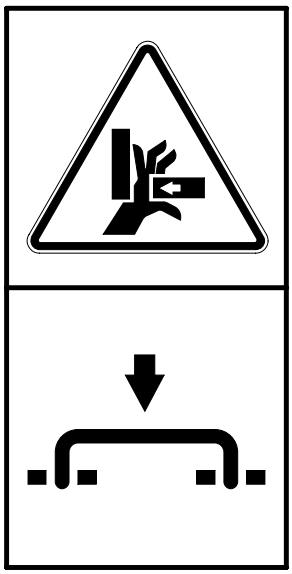
21070FW13

12) STAY FIX (item 14)

This warning label is positioned on the side cover.

⚠ Be sure to support the stay when the door needs to be opened.

⚠ Be careful that the opened door may be closed by the external or natural force like strong wind.



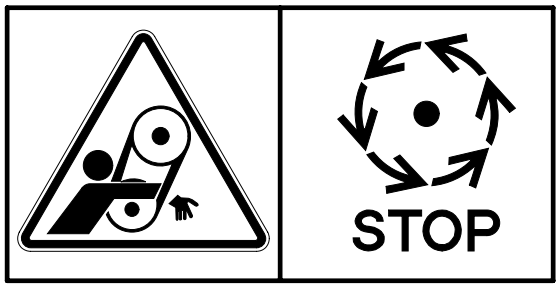
21070FW14

13) SHEARING-ENGINE HOOD (item 15)

This warning label is positioned on the engine hood.

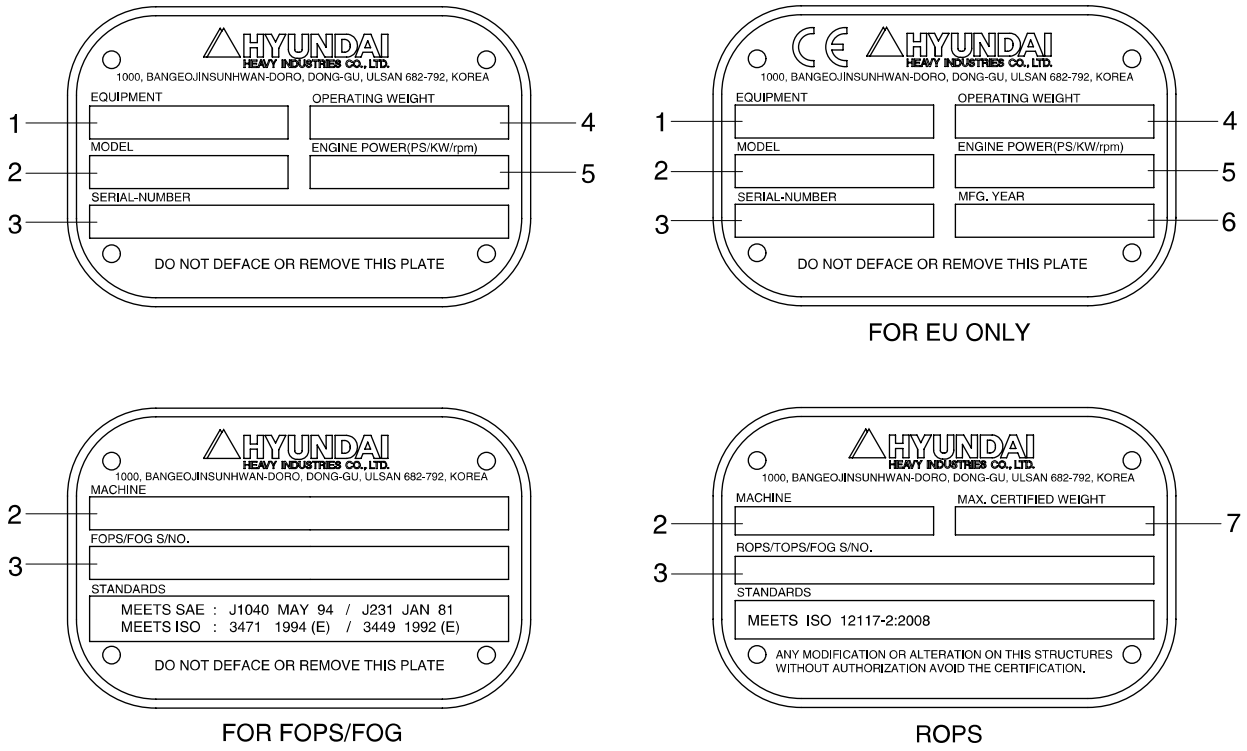
⚠ Don't open the engine hood during the engine's running.

⚠ Don't touch exhaust pipe or it may cause severe burn.



21070FW15

MACHINE DATA PLATE



1 Equipment 2 Model name 3 Serial number
4 Operating weight 5 Engine power 6 Manufacturing year
7 Maximum certified weight

※ The machine serial number assigned to this particular machine and should be used when requesting information or ordering service parts for this machine from your authorized HYUNDAI dealer. The machine serial number is also stamped on the frame.

Replace damaged battery cable (s) and replace any related parts. Eliminate any fouling, which may have caused insulation failure or related component damage or wear. Ensure that all components are reinstalled correctly.

An exposed wire on the battery cable may cause a short ground if the exposed area comes into contact with a grounded surface. A battery cable short produces heat from the battery current, which may be a fire hazard.

An exposed wire on the ground cable between the battery and the disconnect switch may cause the disconnect switch to be bypassed if the exposed area comes into contact with a grounded surface. This action may result in an unsafe condition for servicing the machine. Repair components or replace components before servicing the machine.

⚠ Fire on a machine can result in personal injury or death. Exposed battery cables that come into contact with a grounded connection can result in fires. Replace cables and related parts that show signs of wear or damage. Contact your Hyundai Heavy Industries dealer.

Wiring

Check electrical wires daily. If any of the following conditions exist, replace parts before you operate the machine.

- Fraying
- Signs of abrasion or wear
- Cracking
- Discoloration
- Cuts on insulation
- Other damage

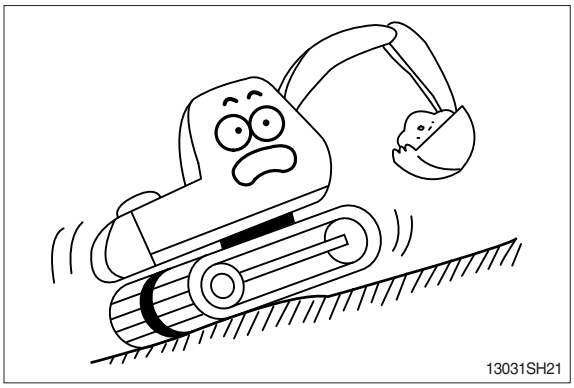
Make sure that all clamps, guards, clips, and straps are reinstalled correctly. This action will help to prevent vibration, rubbing against other parts, and excessive heat during machine operation.

Attaching electrical wiring to hoses and tubes that contain flammable fluids or combustible fluids should be avoided.

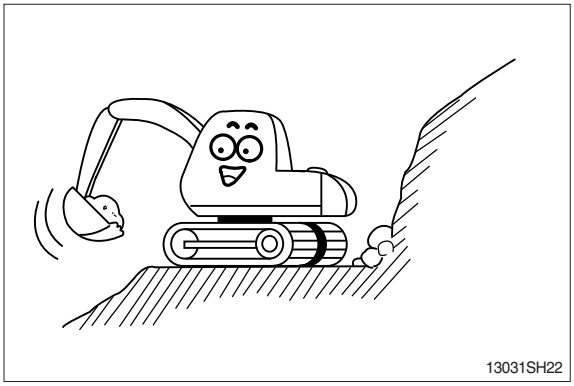
Consult your Hyundai Heavy Industries dealer for repair or for replacement parts.

Keep wiring and electrical connections free of debris.

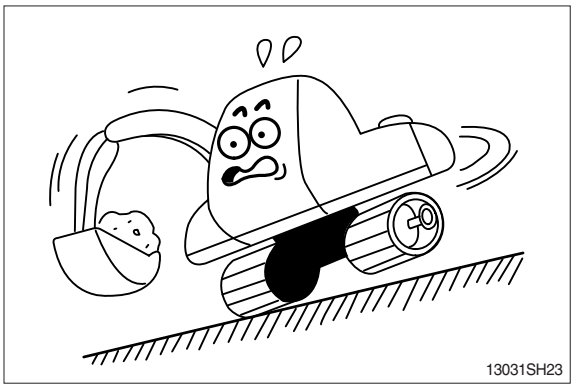
The operation on a slope is dangerous.
Avoid operating the machine on a slope of over 10 degree.



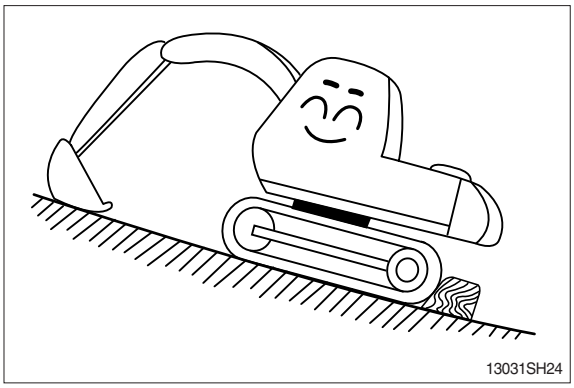
Operate the machine after making ground flat when operation is required on a slope.



The swing on the slope can be danger of rolling over.
Do not operate to swing the machine with the bucket loaded on a slope since the machine may lose its balance under such an instance.

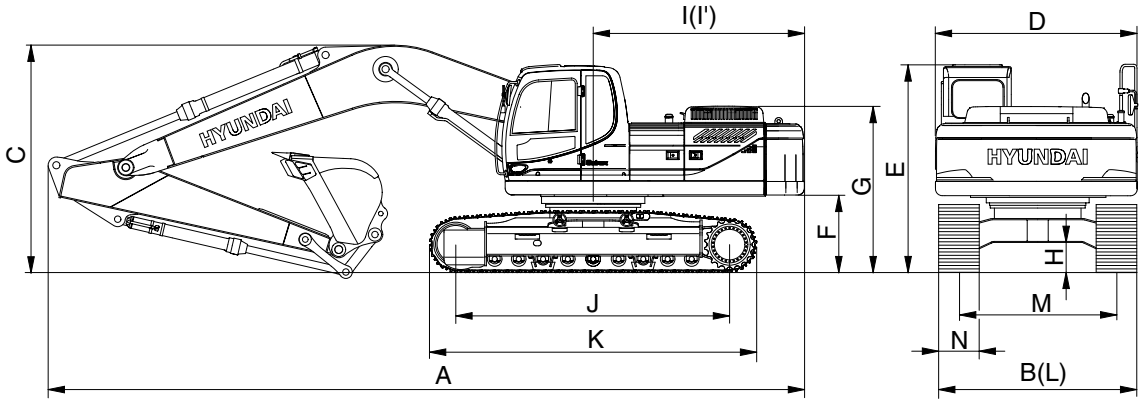


Avoid parking and stopping on a slope.
Lower the bucket to the ground and block the track when parking.



2) R330NLC-9A

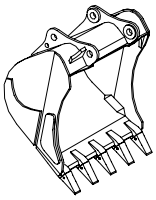
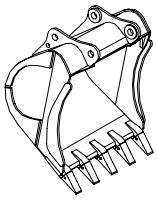
· 6.45 m (21' 2") BOOM and 3.20 m (10' 6") ARM



3309A2SP03

Description		Unit	Specification
Operating weight		kg (lb)	32800 (72310)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)	1.44 (1.88)
Overall length	A	mm (ft-in)	11220 (36' 10")
Overall width, with 600 mm shoe	B		2990 (9' 10")
Overall height	C		3380 (11' 1")
Superstructure width	D		2980 (9' 9")
Overall height of cab	E		3090 (10' 2")
Ground clearance of counterweight	F		1200 (3' 11")
Engine cover height	G		2755 (9' 0")
Minimum ground clearance	H		500 (1' 8")
Rear-end distance	I		3504 (11' 6")
Rear-end swing radius	I'		3560 (11' 8")
Distance between tumblers	J		4030 (13' 3")
Undercarriage length	K		4940 (16' 2")
Undercarriage width	L		2990 (9' 10")
Track gauge	M		2390 (7' 10")
Track shoe width, standard	N		600 (24")
Travel speed (low/high)		km/hr (mph)	3.3/5.5 (2.1/3.4)
Swing speed		rpm	9.2
Gradeability		Degree (%)	35 (70)
Ground pressure (600 mm shoe)		kgf/cm^2(psi)	0.63 (8.96)
Max traction force		kg (lb)	29500 (65040)

2) ROCK AND HEAVY DUTY BUCKET

	
◈1.44 m³ SAE heaped bucket	⊙1.44 m³ SAE ⊙1.73 m³ SAE heaped bucket

Capacity		Width		Weight	Recommendation				
					6.45 m (21' 2") boom				6.15 m (20' 2") boom
SAE heaped	CECE heaped	Without side cutter	With side cutter		2.2 m arm (7' 3")	2.5 m arm (8' 2")	3.2 m arm (10' 6")	4.05 m arm (13' 3")	2.2 m arm (7' 3")
◈1.44 m³ (1.88 yd³)	1.25 m³ (1.63 yd³)	1470 mm (57.9")	-	1380 kg (3040 lb)					
⊙1.44 m³ (1.88 yd³)	1.25 m³ (1.63 yd³)	1470 mm (57.9")	-	1470 kg (3240 lb)					
⊙1.73 m³ (2.26 yd³)	1.5 m³ (1.96 yd³)	1710 mm (67.3")	-	1610 kg (3550 lb)					

◈ : Heavy duty bucket

⊙ : Rock-Heavy duty bucket

Applicable for materials with density of 2000 kg/m³ (3370 lb/yd³) or less

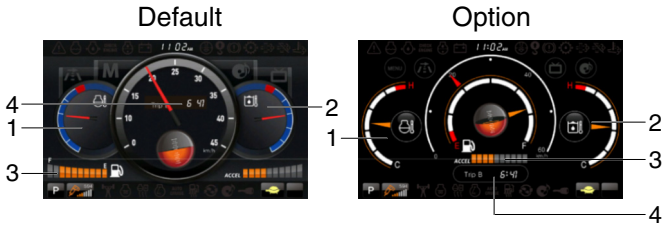
Applicable for materials with density of 1600 kg/m³ (2700 lb/yd³) or less

Applicable for materials with density of 1100 kg/m³ (1850 lb/yd³) or less

2) GAUGE

(1) Operation screen

When you first turn starting switch ON, the operation screen will appear.



2609A3CD13

※ **Operation screen type can be set by the screen type menu of the display.**
Refer to page 3-24 for details.

(2) Engine coolant temperature gauge



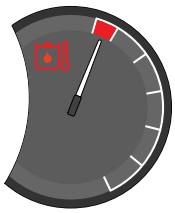
2609A3CD14

① This gauge indicates the temperature of coolant.
- White range : 40-107˚C (104-225˚F)
- Red range : Above 107˚C (225˚F)

② If the indicator is in the red range or lamp blinks in red, turn OFF the engine and check the engine cooling system.

※ **If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.**

(3) Hydraulic oil temperature gauge



2609A3CD15

① This gauge indicates the temperature of hydraulic oil.
- White range : 40-105˚C(104-221˚F)
- Red range : Above 105˚C(221˚F)

② If the indicator is in the red range or lamp blinks is red, reduce the load on the system. If the gauge stays in the red range, stop the machine and check the cause of the problem.

※ **If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.**

(4) Fuel level gauge



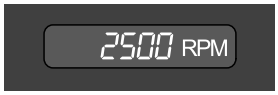
2609A3CD16

① This gauge indicates the amount of fuel in the fuel tank.

② Fill the fuel when the red range, or lamp blinks in red.

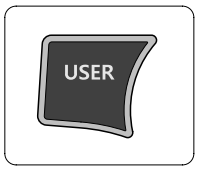
※ **If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.**

(5) RPM / Tripmeter display



This displays the engine speed or the tripmeter.
Refer to page 3-25 for details.

(3) User mode switch

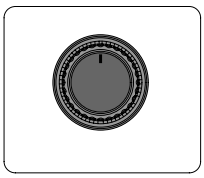


2609A3CD27

① This switch is used to memorize the current machine operating status in the MCU and activate the memorized user mode.
- Memory : Push more than 2 seconds.
- Action : Push within 2 seconds.
- Cancel : Push this switch once more within 2 seconds.

② Refer to the page 3-15 for another set of user mode.

(4) Select switch



21093CD45E

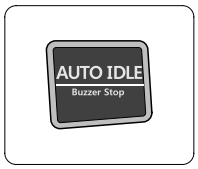
① This switch is used to select or change the menu and input value.

② Knob push
- Long (over 2 sec) : Return to the operation screen
- Medium (0.5~2 sec) : Return to the previous screen
- Short (below 0.5 sec) : Select menu

③ Knob rotation

This knob changes menu and input value.
- Right turning : Down direction / Increase input value
- Left turning : Up direction / Decreased input value

(5) Auto idle/ buzzer stop switch

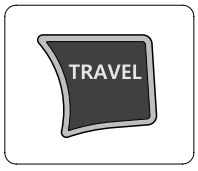


2609A3CD28

① This switch is used to activate or cancel the auto idle function.
- Pilot lamp ON : Auto idle function is activated.
- Pilot lamp OFF : Auto idle function is cancelled.

② The buzzer sounds when the machine has a problem.
In this case, push this switch and buzzer stops, but the warning lamp blinks until the problem is cleared.

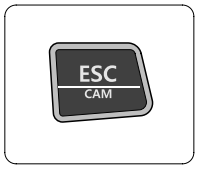
(6) Travel speed control switch



2609A3CD29

① This switch is used to select the travel speed alternatively.
- : Low speed
- : High speed

(7) Escape/Camera switch



2609A3CD30

① This switch is used to return to the previous menu or parent menu.

② In the operation screen, pushing this switch will display the view of the camera on the machine (if equipped).
Please refer to page 3-25 for the camera.

③ If the camera is not installed, this switch is used only ESC function.

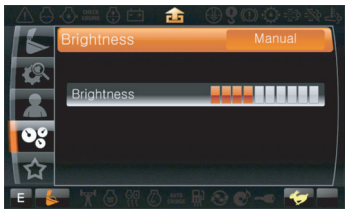
③ Brightness and touch calibration



2609A3CD98A



2609A3CD160



2609A3CD100

Manual (1st~10th step)



2609A3CD161



2609A3CD102

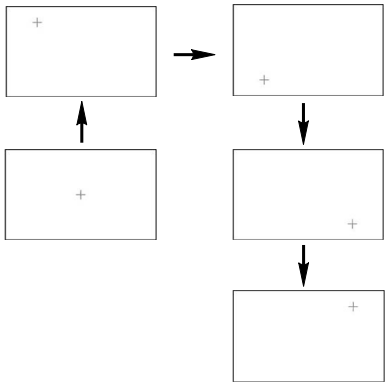
Auto (day/night)

· If "Auto" is chosen, brightness for day and night can be differently set up. Also by using the bar in lower side, users can define which time interval belongs to day and night.
(in bar figure, white area represents night time while orange shows day time)

· **Touch calibration -** When touch awareness goes wrong, this function use.
Fall in the next step if touches the middle point of cross with fingernail.
If touches total five points as follows, the setting is completed.

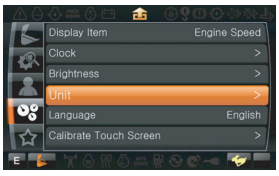


2609A3CD148

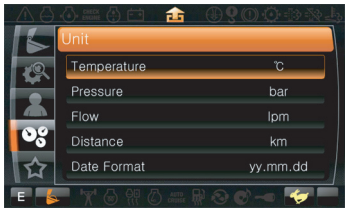


2609A3CD149-153

④ Unit



2609A3CD103



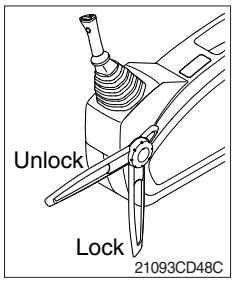
2609A3CD104



2609A3CD124

· Temperature : ˚C ↔ ˚F
· Pressure : bar ↔ MPa ↔ kgf/cm²
· Flow : lpm ↔ gpm
· Date format : yy/mm/dd ↔ mm/dd/yy ↔ dd-Mar-yy

3) SAFETY LEVER



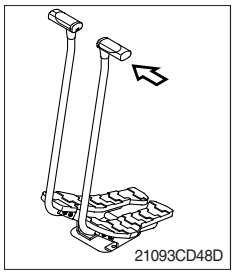
(1) All control levers and pedals are disabled from operation by locating the lever to lock position as shown.

※ **Be sure to lower the lever to LOCK position when leaving from operator's seat.**

(2) By pull lever to UNLOCK position, the machine is operational.

※ **Do not use the safety lever for handle when getting on or off the machine.**

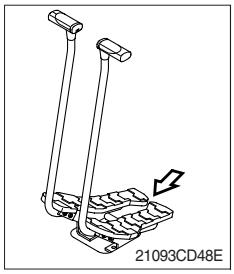
4) TRAVEL LEVER



(1) This lever is mounted on travel pedal and used for traveling by hand. The operation principle is same as the travel pedal.

(2) Refer to traveling of the machine in chapter 4 for details.

5) TRAVEL PEDAL

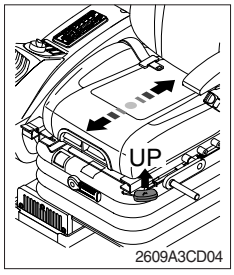


(1) This pedal is used to move the machine forward or backward.

(2) If left side pedal is pressed, left track will move.
If right side pedal is pressed, right track will move.

(3) Refer to traveling of machine in chapter 4 for details.

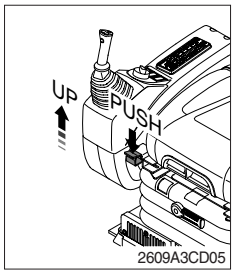
6) SEAT AND CONSOLE BOX ADJUST KNOB



(1) This knob is used to move the seat and console box to fit the contours of the operator's body.

(2) Pull the knob to adjust forward or backward over 150 mm (5.9").

7) CONSOLE BOX HEIGHT ADJUST KNOB



(1) This knob is used to move the LH and RH control lever to fit the contours of the operator's body.

(2) The control lever can be moved upward and downward over 60 mm (2.4").

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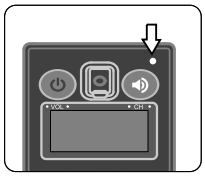
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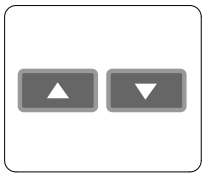
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(4) Handsfree MIC



① This MIC transfers user voice to receiver of the call when making a call by handsfree.

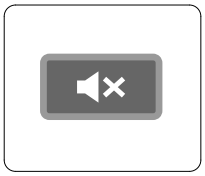
(5) Seek button



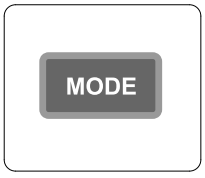




(6) Mute button

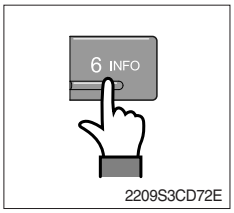


(7) Mode button



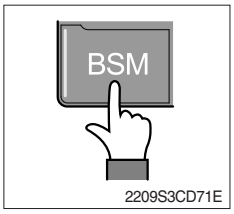
The LCD displayed each mode.

(8) View music info (INFO) button



① Each time the INFO button is pressed, the info on the currently playing song will be displayed in the following order.
FILE NAME → TITLE → ARTIST → ALBUM → DIR

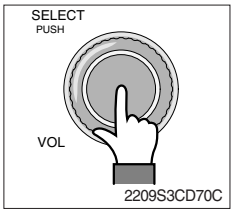
(9) Scan button (BSM)



① While music is playing, shortly press the BSM button to scan each song within the USB for 10 seconds in sequential order. (SCN)

② Press and hold the BSM button to scan each song within the current folder for 10 seconds in sequential order. (FOLDER SCN, however, music files in the USB must be saved in folder format.)

(10) Finding and playing file (SELECT) button

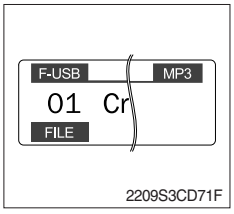


① While USB is playing, press and hold the SELECT button for over 3 seconds to enter FILE BROWER mode and search for desired files.

② After entering FILE BROWSER mode, turn the SELECT button left/right to find the desired folder. After finding the folder, press the SELECT button to select the folder. Turn the SELECT button left/right to find the desired song and press the SELECT button to play.

③ If there are no adjustments for 3 seconds after pressing the SELECT button, the function will be turned off and the USB play screen will be displayed.

(11) LCD display



① Displays the info of the currently playing song.

- F-USB : Displays USB is connected to the Audio Front
- R-USB : Displays USB is connected to the handfree
- RPT : Displays that repeat function is turned on
- RPT : Displays that folder repeat function is turned on
- RDM : Displays that random play is turned on
- RDM : Displays that folder random play is turned on
- SCR : Displays that SCROLL is turned on

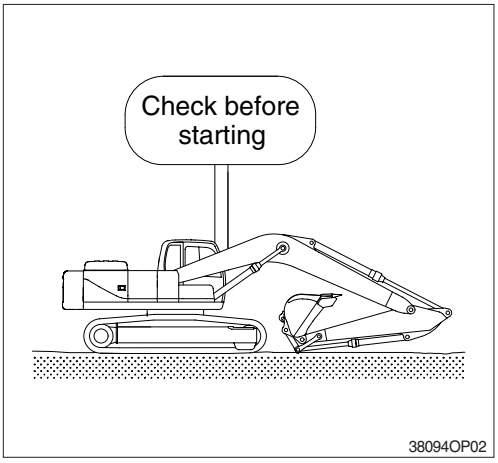
2. CHECK BEFORE STARTING THE ENGINE

1) Look around the machine and under the machine to check for loosen nut or bolts, collection of dirt, or leakage of oil, fuel or coolant and check the condition of the work equipment and hydraulic system. Check also loosen wiring, and collection of dust at places which reach high temperature.

※ **Refer to the daily check on the chapter 6, maintenance.**

2) Adjust seat to fit the contours of the operator's body for the pleasant operation.

3) Adjust the rear view mirror.



38094OP02

5. OPERATION OF THE WORKING DEVICE

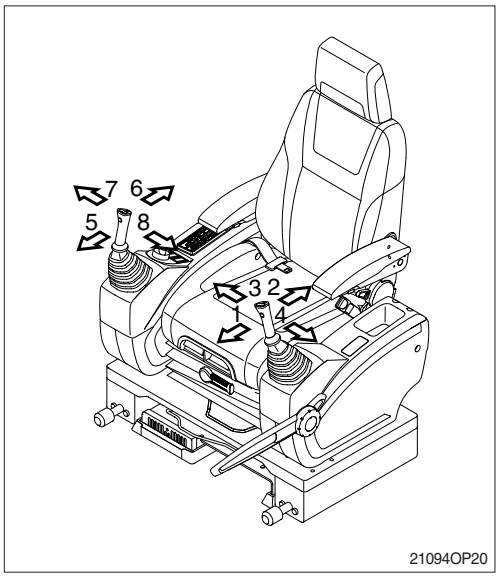
※ **Confirm the operation of control lever and working device.**

1) Left control lever controls arm and swing.

2) Right control lever controls boom and bucket.

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

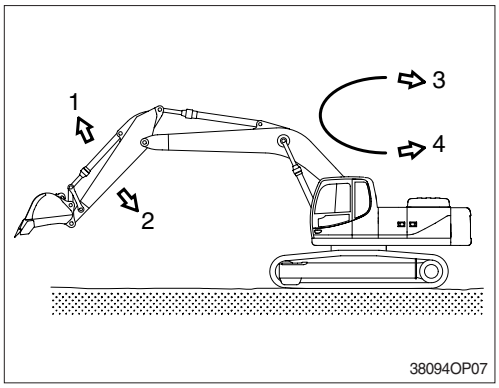
※ **When operating swing, consider the swing distance by inertia.**



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※ **Left control lever**

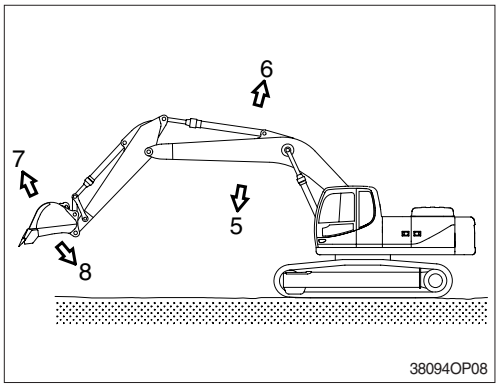
1 Arm roll-out
2 Arm roll-in
3 Swing right
4 Swing left



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※ **Right control lever**

5 Boom lower
6 Boom raise
7 Bucket roll-out
8 Bucket roll-in

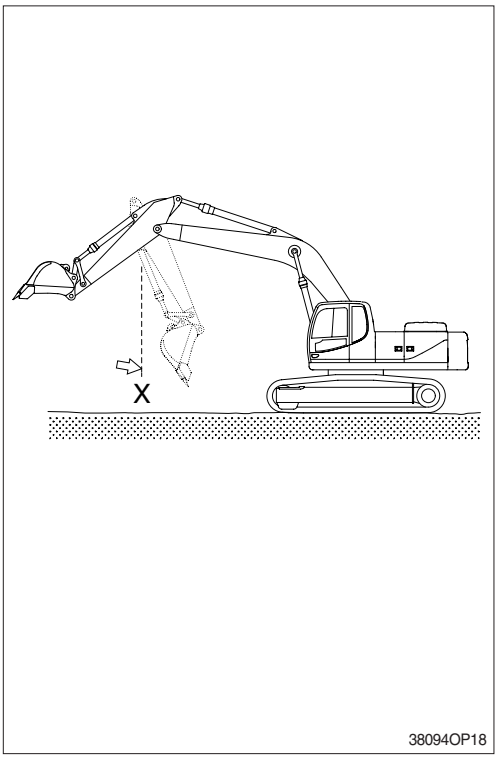


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9. NORMAL OPERATION OF EXCAVATOR

Followings may occur during operation due to the nature of a hydraulic excavator.

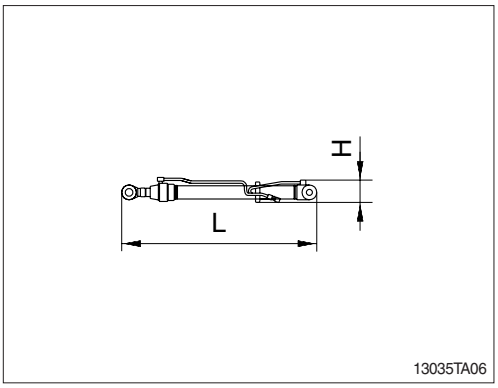
1) When rolling in the arm, the roll-in movement stop momentary at point X in the picture shown, then recovers speed again after passing point X.
   The reason for this phenomenon is that movement by the arm weight is faster than the speed of oil flow into the cylinder.
2) When lowering the boom, one may hear continuous sound.
   This is caused by oil flow in the valve.
3) Overloaded movement will produce sound caused by the relief valves, which are for the protection of the hydraulic systems.
4) When the machine is started swing or stopped, a noise near the swing motor may be heard. The noise is generated when the brake valve relieves.



(5) Boom cylinder

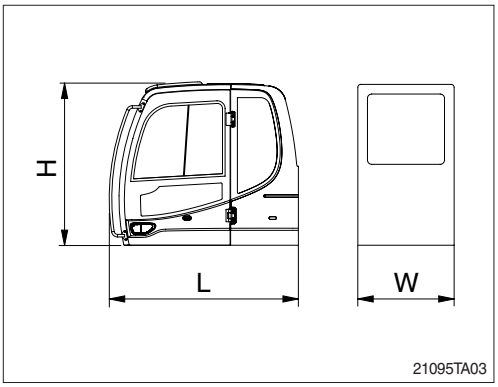
Mark	Description	Unit	Specification
L	Length	mm (ft-in)	2305 (7' 7")
H	Height	mm (ft-in)	276 (0' 11")
W	Width	mm (ft-in)	420 (1' 5")
Wt	Weight	kg (lb)	560 (1235)

※ Included piping.



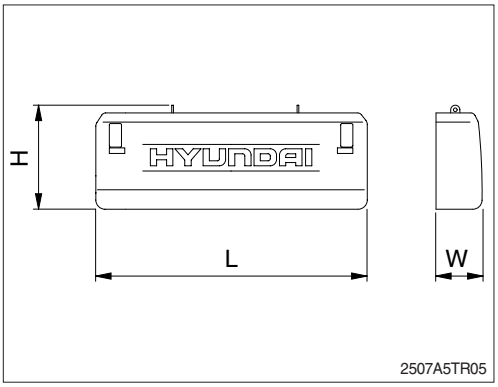
(6) Cab assembly

Mark	Description	Unit	Specification
L	Length	mm (ft-in)	1962 (6' 4")
H	Height	mm (ft-in)	1686 (5' 6")
W	Width	mm (ft-in)	1000 (3' 3")
Wt	Weight	kg (lb)	490 (1080)



(7) Counterweight

Mark	Description	Unit	Specification
L	Length	mm (ft-in)	2980 (9' 9")
H	Height	mm (ft-in)	1045 (3' 9")
W	Width	mm (ft-in)	590 (1' 11")
Wt	Weight	kg (lb)	6000 (13230)



6) PERIODICAL REPLACEMENT OF SAFETY PARTS

(1) It is desirable to do periodic maintenance the machine for using the machine safely for a long time.
However, recommend to replace regularly the parts related safety not only safety but maintain satisfied performance.

(2) These parts can cause the disaster of life and material as the quality changes by passing time and it is worn, diluted, and gets fatigued by using repeatedly.
These are the parts which the operator can not judge the remained lifetime of them by visual inspection.

(3) Repair or replace if an abnormality of these parts is found even before the recommended replacement interval.

<table>
<tr><th colspan="3">Periodical replacement of safety parts</th><th>Interval</th></tr>
<tr><td colspan="2" rowspan="2">Engine</td><td>Fuel hose (tank-engine)</td><td rowspan="2">Every
2 years</td></tr>
<tr><td>Heater hose
(heater-engine)</td></tr>
<tr><td rowspan="6">Hydraulic system</td><td rowspan="3">Main circuit</td><td>Pump suction hose</td><td rowspan="3">Every
2 years</td></tr>
<tr><td>Pump delivery hose</td></tr>
<tr><td>Swing hose</td></tr>
<tr><td rowspan="3">Working device</td><td>Boom cylinder line hose</td><td rowspan="3">Every
2 years</td></tr>
<tr><td>Arm cylinder line hose</td></tr>
<tr><td>Bucket cylinder line hose</td></tr>
</table>

※ 1. Replace O-ring and gasket at the same time when replacing the hose.

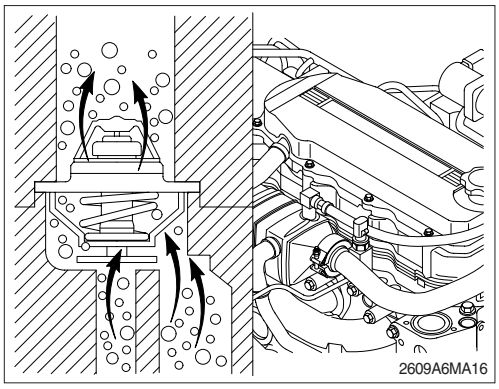
2. Replace clamp at the same time if the hose clamp is cracked when checking and replacing the hose.

12) WHEN REQUIRED

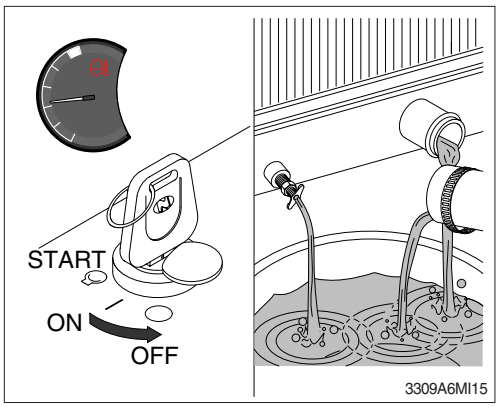
Whenever you have trouble in the machine, you must perform the service of related items, system by system.

Check items	Service	Page
Fuel system		
· Fuel tank	Drain or Clean	6-29
· Prefilter	Clean or Replace	6-31
· Fuel filter element	Replace	6-29
Engine lubrication system		
· Engine oil	Change	6-18, 19
· Engine oil filter	Replace	6-18, 19
Engine cooling system		
· Coolant	Add or Change	6-21, 22, 23, 24
· Radiator	Clean or Flush	6-21, 22, 23, 24
· Charge air cooler	Check	6-25
· Coolant filter (corrosion resistor)	Replace	6-20
Engine air system		
· Air cleaner element	Replace	6-28
Hydraulic system		
· Hydraulic oil	Add or Change	6-34
· Return filter	Replace	6-35
· Drain line filter	Replace	6-36
· Pilot line filter	Replace	6-36
· Element of breather	Replace	6-36
· Suction strainer	Clean	6-35
Undercarriage		
· Track tension	Check, Adjust	6-39
Bucket		
· Tooth	Replace	6-41
· Side cutter	Replace	6-41
· Linkage	Adjust	6-42
· Bucket assy	Replace	6-40
Air conditioner and heater		
· Fresh air filter	Clean, Replace	6-47
· Recirculation filter	Clean	6-48

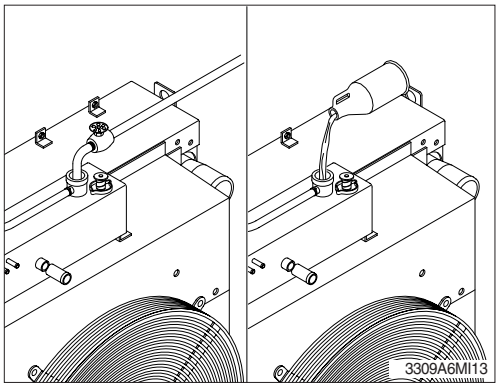
※ **During filling, air must be vented from the engine coolant passages.**
The system must be filled slowly to prevent air locks or serious engine damage can result. Wait 2 to 3 minutes to allow air to be vented, then add mixture to bring the level to the top.



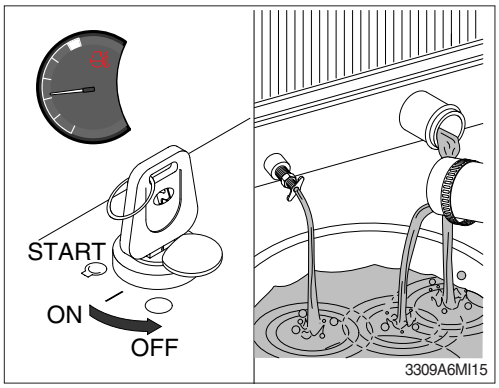
② Operate the engine for 5 minutes with the coolant temperature above 80 ˚C (176 ˚F) .
Shut the engine off, and drain the cooling system.



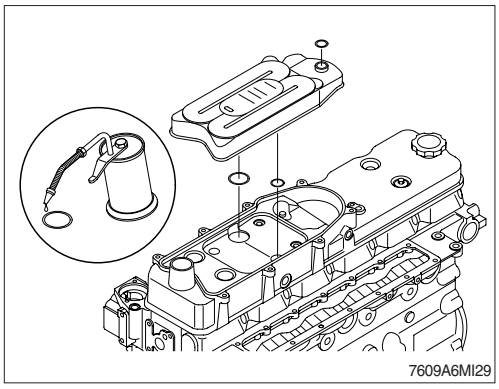
③ Fill the cooling system with clean water.
※ **Be sure to vent the engine and aftercooler for complete filling.**
※ **Do not install the surge tank cap or the new coolant filter.**



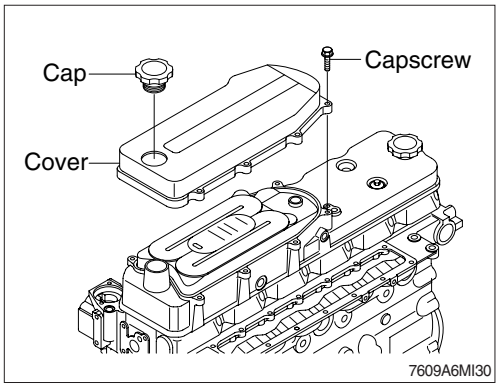
④ Operate the engine for 5 minutes with the coolant temperature above 80˚C (176˚F) .
Shut the engine off, and drain the cooling system.
※ **If the water being drained is still dirty, the system must be flushed again until the water is clean.**



(9) Lubricate the breather filter O-ring seal with clean lubricating oil.

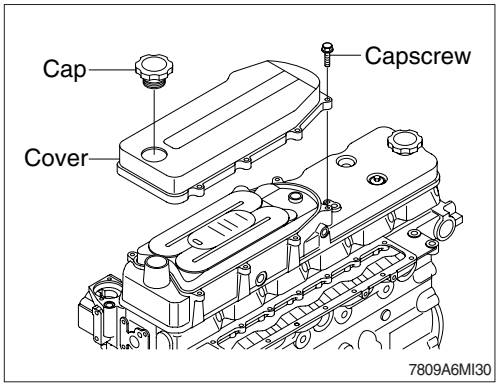

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(10) Install the new breather filter onto the breather base.
(11) Install the crankcase breather cover.
(12) Install the crankcase breather filter cover capscrews.



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(13) Tighten the capscrews in the sequence shown.
· Tightening torque : 0.51 kgt · m (3.69 lbf · ft)



7809A6MI30

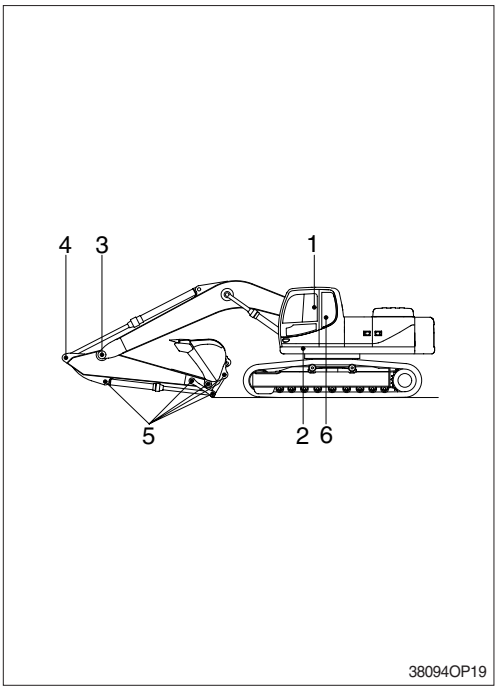
39) LUBRICATE PIN AND BUSHING

(1) Lubricate to each pin of working device

Lubricate the grease to the grease nipple according to the lubricating interval.

No.	Description	Qty
1	Lubrication manifold at boom	5
2	Boom cylinder pin	2
3	Boom and arm connection pin	1
4	Arm cylinder pin (rod side)	1
5	Bucket cylinder pin (head, rod)	2
	Bucket link (control rod)	3
	Arm and control link connection pin	1
	Arm and bucket connection pin	1
6	Boom rear bearing center	1

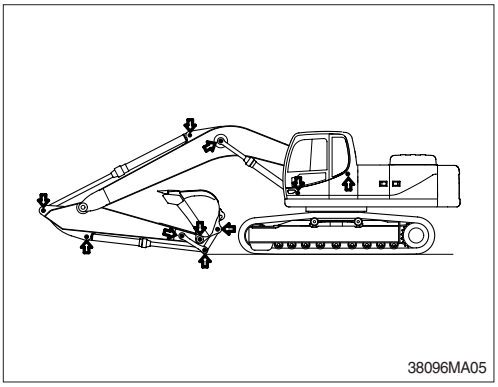
※ **Shorten lubricating interval when working in the water or dusty place.**



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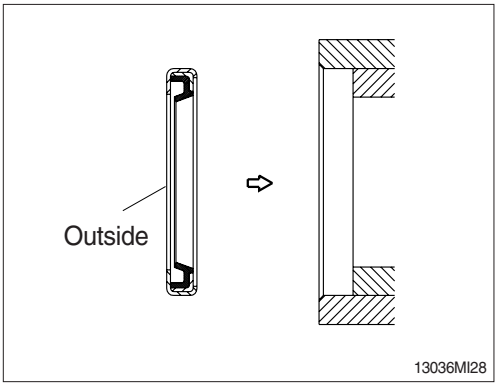
(2) Dust seals are mounted on the rotating part of working device to extend the lubricating interval.

※ **Mount the lip to be faced outside when replace the dust seal.**


38096MA05

※ **If it is assembled in wrong direction, it will cause fast wear of pin and bushing, and create noise and vibration during operation.**

※ **Assemble the seal same direction with picture and use with plastic hammer when replace.**



13036MI28

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