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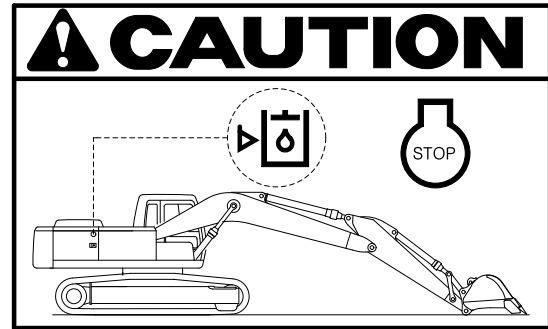
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### 7) HYDRAULIC OIL LEVEL (item 7)

This warning label is positioned on the pump screen.

- ▲ Place the bucket on the ground whenever servicing the hydraulic system.
- ※ Check oil level on the level gauge.
- ※ Refill the recommended hydraulic oil up to specified level if necessary.

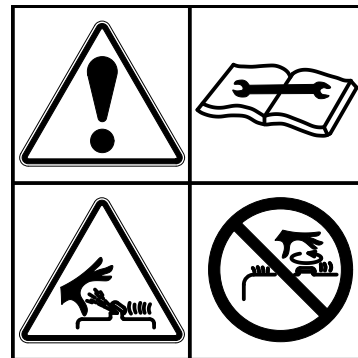


21070FW07

### 8) HYDRAULIC OIL LUBRICATION (item 8)

This warning label is positioned on the top of the hydraulic tank.

- ※ Do not mix with different brand oils.
- ▲ Never open the filler cap while high temperature.
- ▲ Loosen the cap slowly and release internal pressure completely.

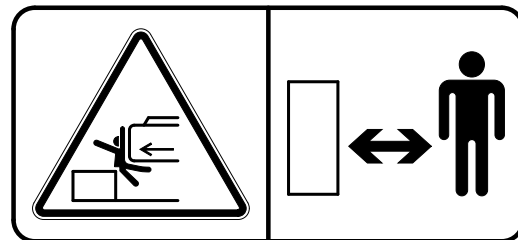


14070FW08

### 9) KEEP CLEAR-REAR (item 9)

This warning label is positioned on the rear of counterweight.

- ▲ To prevent serious personal injury or death keep clear of machine swing radius.
- ▲ Do not deface or remove this label from the machine.

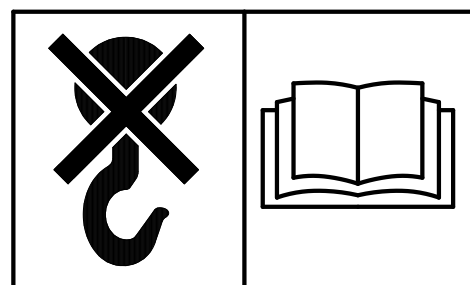


21090FW09

### 10) LIFTING EYE (item 10)

This warning label is positioned on the counterweight.

- ▲ Do not lift the machine by using lifting eyes on the counterweight or the lifting eyes may be subject to overload causing its breaking and possible personal injury.
- ※ See page 5-8 for proper lifting method of the machine.



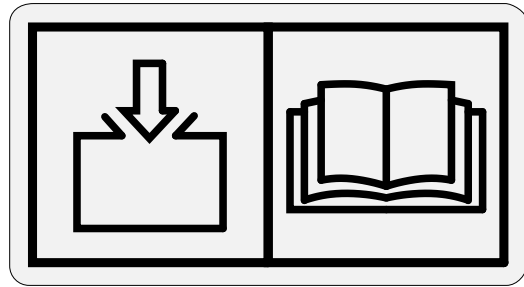
21070FW10

#### 40) SURGE TANK (item 54)

This warning label is positioned on the top of the surge tank.

This system must be filled slowly to prevent air locks.

- ※ Fill rate  $\leq 11$  lpm



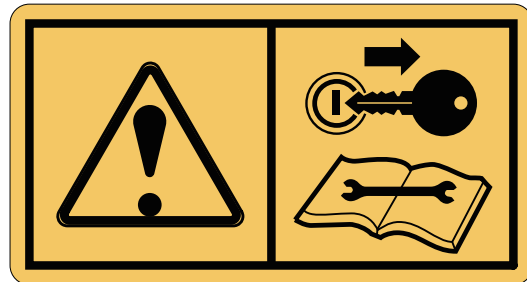
3009A0FW54

#### 41) KEY OFF CAUTION (item 55)

This warning label is positioned on the right side window of the cab.

- ※ Park on a flat place and stop the engine for inspecting and repairing. Properly TAG machine is not operational. (remove start key)

Extreme care shall be taken during maintenance work.



290F0FW05

#### 42) RCV LEVER (item 56)

This warning label is positioned on the right side window of the cab.

- ※ When you work by moving the seat to the front of cab, it is possible to take place interference between cluster and RCV lever at specific position.

To prevent this interference, handle below works.

- (1) Rotate cluster.
- (2) Adjust seat position for up-and-downward using seat height adjuster knob in suspension.
- (3) Lower the console box height using knob between RH console box and seat cushion.
- (4) Push back console and seat position using seat and console box adjust knob between LH console box and seat cushion.



290F0FW04

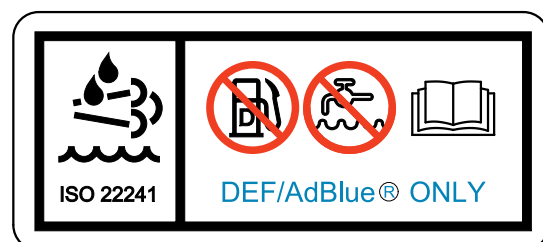
#### 43) DIESEL EXHAUST FLUID (item 57)

This warning label is positioned on the front of DEF/AdBlue® tank cover.

- ※ Fill only the DEF/AdBlue® (Diesel Exhaust Fluid, standardised as ISO 22241).

Aqueous urea solution made with 32.5% high-purity urea and 67.5% deionized water.

- ※ Do not fill the diesel fuel.



290F0SL04

## FIRE PREVENTION AND EXPLOSION PREVENTION

### Regeneration

The exhaust gas temperatures during regeneration will be elevated. Follow proper fire prevention instructions and use the disable regeneration function when appropriate.

### General

All fuels, most lubricants, and some coolant mixtures are flammable.

To minimize the risk of fire or explosion, the following actions are recommended.

Always perform a Walk-Around Inspection, which may help you identify a fire hazard.

Do not operate a machine when a fire hazard exists. Contact your dealer for service.



3001SH01

Understand the use of the primary exit and alternative exit on the machine.

Do not operate a machine with a fluid leak. Repair leaks and clean up fluids before resuming machine operation. Fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire. A fire may cause personal injury or death.

Do not weld on or drill holes in the engine cover. Flammable material such as leaves, twigs, papers, trash may accumulate in engine compartment.

Remove flammable material such as leaves, twigs, papers, trash and so on. These items may accumulate in the engine compartment or around other hot areas and hot parts on the machine.

Keep the access doors to major machine compartments closed and access doors in working condition in order to permit the use of fire suppression equipment, in case a fire should occur.

Clean all accumulations of flammable materials such as fuel, oil, and debris from the machine.

Do not operate the machine near any flame.

Keep shields in place. Exhaust shields (if equipped) protect hot exhaust components from oil spray or fuel spray in a break in a line, in a hose, or in a seal. Exhaust shields must be installed correctly.

Do not weld or flame cut on tanks or lines that contain flammable fluids or flammable material. Empty and purge the lines and tanks. Then clean the lines and tanks with a nonflammable solvent prior to welding or flame cutting. Ensure that the components are properly grounded in order to avoid unwanted arcs.

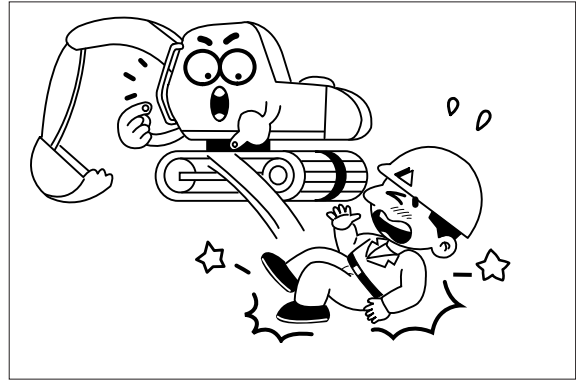
Dust that is generated from repairing nonmetallic hoods or fenders may be flammable and/or explosive. Repair such components in a ventilated area away from open flames or sparks. Use suitable Personal Protection Equipment (PPE).

Inspect all lines and hoses for wear or deterioration. Replace damaged lines and hoses. The lines and the hoses should have adequate support and secure clamps. Tighten all connections to the recommended torque. Damage to the protective cover or insulation may provide fuel for fires.

## 2. DURING OPERATING THE MACHINE

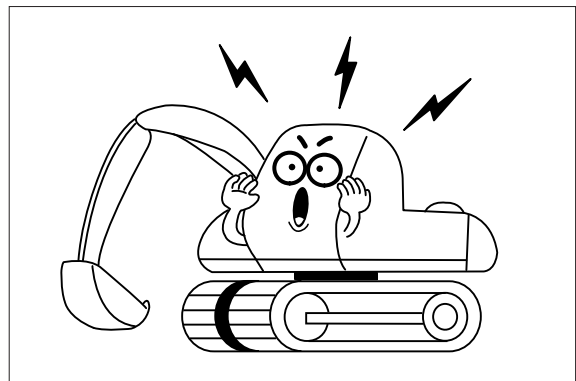
Use the handle and footstep when getting on or off the machine.

Do not jump on or off the machine.



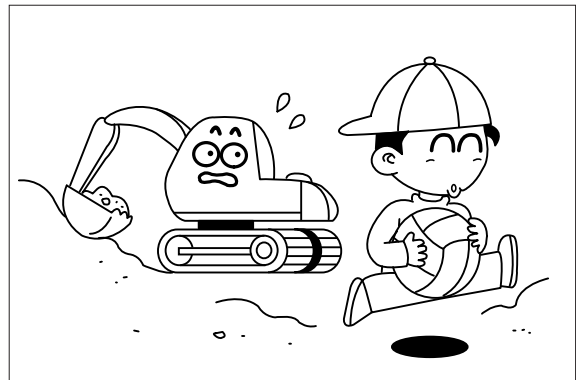
Sound the horn to warn nearby personnel before operating the machine.

Remove all the obstacles like frost on the window before operating the machine for the good visibility.

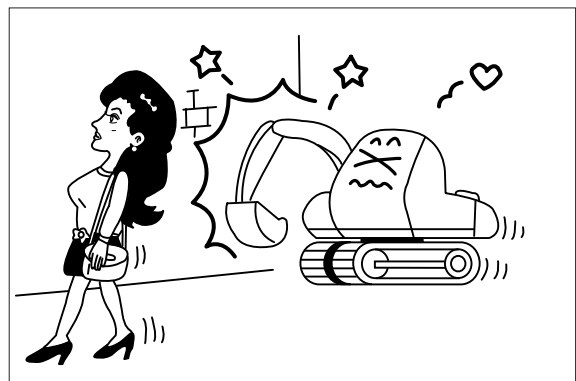


Operate carefully to make sure all personnel or obstacles are clear within the working range of the machine.

Place safety guards if necessary.

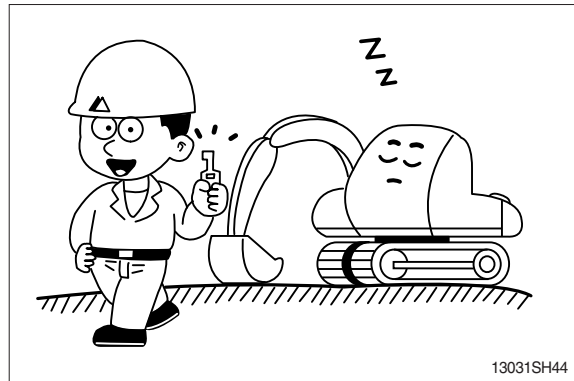


When using the work equipment, pay attention to job site.

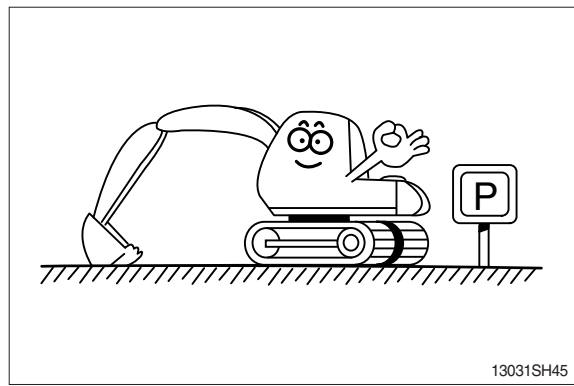


## 4. PARKING

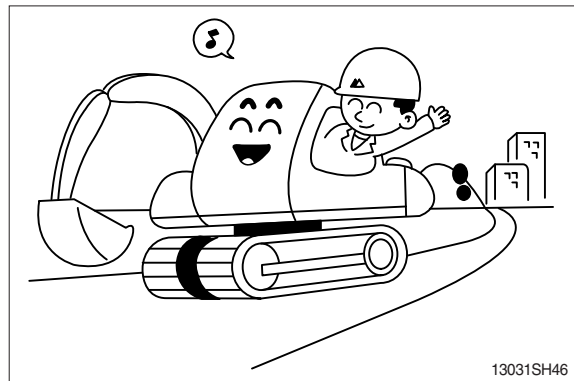
When leaving the machine after parking, lower the bucket to the ground completely and put the safety knob at the LOCK position then remove the key.  
Lock the cab door.



Park the machine in the flat and safe place.



Hope you can work easily and safely observing safety rules.  
For safe operation, observe all safety rules.



## 4. WEIGHT

Item	HX180 L		HX180 L (with dozer)		HX180 NL	
	kg	lb	kg	lb	kg	lb
Upper structure assembly						
· Main frame weld assembly	1440	3170	←		←	
· Engine assembly	589	1300	←		←	
· Fan clutch assembly	45	100	←		←	
· Main pump assembly	89	200	←		←	
· Main control valve assembly	140	310	←		←	
· Swing motor assembly	250	550	←		←	
· Hydraulic oil tank assembly	150	330	←		←	
· Fuel tank assembly	130	290	←		←	
· Counterweight	2900	6390	←		←	
· Cab assembly	500	1100	←		←	
Lower chassis assembly						
· Track frame weld assembly	2130	4700	2370	5230	1980	4370
· Swing bearing	260	570	←		←	
· Travel motor assembly	300	660	←		←	
· Turning joint	60	130	←		←	
· Track recoil spring	132	290	←		←	
· Idler	151	330	←		←	
· Sprocket	54.4	120	←		←	
· Carrier roller	20	45	←		←	
· Track roller	40	90	←		←	
· Track-chain assembly (600 mm standard triple grouser shoe)	1230	2710	←		←	
Front attachment assembly						
· 5.1 m boom assembly	1060	2340	←		←	
· 2.6 m arm assembly	540	1190	←		←	
· 0.76 m <sup>3</sup> SAE heaped bucket	620	1370	←		←	
· Boom cylinder assembly	155	340	←		←	
· Arm cylinder assembly	180	400	←		←	
· Bucket cylinder assembly	125	260	←		←	
· Bucket control link assembly	120	265	←		←	
· Dozer blade assembly	-	-	715	1575	-	-
· Dozer blade cylinder assembly	-	-	66	146	-	-

※ This information is different with operating and transportation weight because it is not including harness, pipe, oil, fuel so on.

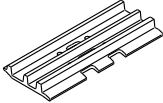
※ Refer to Transportation for actual weight information and Specifications for operating weight.

## 7. UNDERCARRIAGE

### 1) TRACKS

X-leg type center frame is integrally welded with reinforced box-section track frames. The design includes dry tracks, lubricated rollers, idlers, sprockets, hydraulic track adjusters with shock absorbing springs and assembled track-type tractor shoes with triple grousers.

### 2) TYPES OF SHOES

Model	Shapes		Triple grouser			
						
HX180 L	Shoe width	mm (in)	500 (20)	600 (24)	700 (28)	800 (32)
	Operating weight	kg (lb)	18545 (40880)	18800 (41450)	18795 (41480)	19050 (42000)
	Ground pressure	kgf/cm <sup>2</sup> (psi)	0.51 (7.25)	0.43 (6.11)	0.37 (5.26)	0.33 (4.69)
	Overall width	mm (ft-in)	2750 (9' 0")	2850 (9' 4")	2950 (9' 8")	3050 (10' 0")
HX180 L (with dozer)	Shoe width	mm (in)	500 (20)	600 (24)	700 (28)	800 (32)
	Operating weight	kg (lb)	19445 (42870)	19700 (43430)	19950 (43980)	20205 (44540)
	Ground pressure	kgf/cm <sup>2</sup> (psi)	0.54 (7.68)	0.45 (6.40)	0.39 (5.55)	0.35 (4.98)
	Overall width	mm (ft-in)	2750 (9' 0")	2850 (9' 4")	2950 (9' 8")	3050 (10' 0")

### 3) NUMBER OF ROLLERS AND SHOES ON EACH SIDE

Item	Quantity
Carrier rollers	2 EA
Track rollers	7 EA
Track shoes	51 EA

### (8) Eco gauge



290F3CD58

- ① This gauge indicates the fuel consumption rate and machine load status. So that operators can be careful with fuel economy.
- ② The fuel consumption rate or machine load is higher, the number of segment is increased.
- ③ The color of Eco gauge indicates operation status.
  - White : Idle operation
  - Green : Economy operation
  - Yellow : Non-economy operation at a medium level.
  - Red : Non-economy operation at a high level.

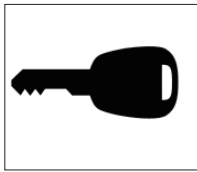
### (9) Accel dial gauge



290F3CD59

- ① This gauge indicates the level of accel dial.

(8) Smart key pilot lamp



Refer to the page 3-24.

(9) Auto engine shutdown pilot lamp (opt)



220A3CD202A

① This lamp is turned ON when the auto engine shutdown is activated

※ Refer to the page 3-21-1.

#### (4) Management

##### ① Fuel rate information



210WF3CD15A

A



C



D



210WF3CD16

- **General record (A)**
  - Average fuel rate (left) (from "Reset" to now)  
Fuel consumption divided by engine run time (service meter time).
  - A days fuel used (right)  
Fuel consumption from 24:00 (or "Reset" time) to now (MCU real time).
- **Hourly record (B)**
  - Hourly fuel rates for past 12 hours (service meter time).
  - No record during key-off time.
  - One step shift to the right for every one hour.
  - Automatic deletion for 12 hours earlier data.
  - All hourly records deletion by "Reset".
- **Daily record (C)**
  - Daily fuel consumption for past seven days (MCU real time).
  - No record during key-off time.
  - One step shift to the right at 24:00 for every day.
  - Automatic deletion for 7 days earlier data.
  - All daily records deletion by "Reset".
- **Mode record (D)**
  - Average fuel rate for each power mode/accel dial (at least 7) from "Reset" to now.
  - No record during idle.
  - All mode records deletion by "Reset".

④ **AAVM** (All Around View Monitoring, option)

- The AAVM buttons of the cluster consist of ESC/CAM and AUTO IDLE/Buzzer stop.



290F3CD244A

- **Escape button**

- It will enter into the AAVM mode from the beginning screen if the AAVM is installed.
- While in the AAVM mode, select the ESC button to return to the beginning screen.



290F3CD156C

The beginning screen



AAVM mode

290F3CD222

- **Buzzer stop button**

- In AAVM mode, it detects surrounding pedestrians or objects and the warning buzzer sounds.
- User can turn OFF the warning sound by pressing buzzer stop button.



290F3CD246A

- When the worker or pedestrian go to the green line (radius 5 m), an external danger area of equipping on the cluster screen, the warning buzzer sounds and it displays the blue rectangular box for the recognition of the worker and pedestrian. At this time, the operator should stop work immediately, and stop the buzzer by pressing the buzzer stop button. And then, please work after you check whether the danger factors are solved.

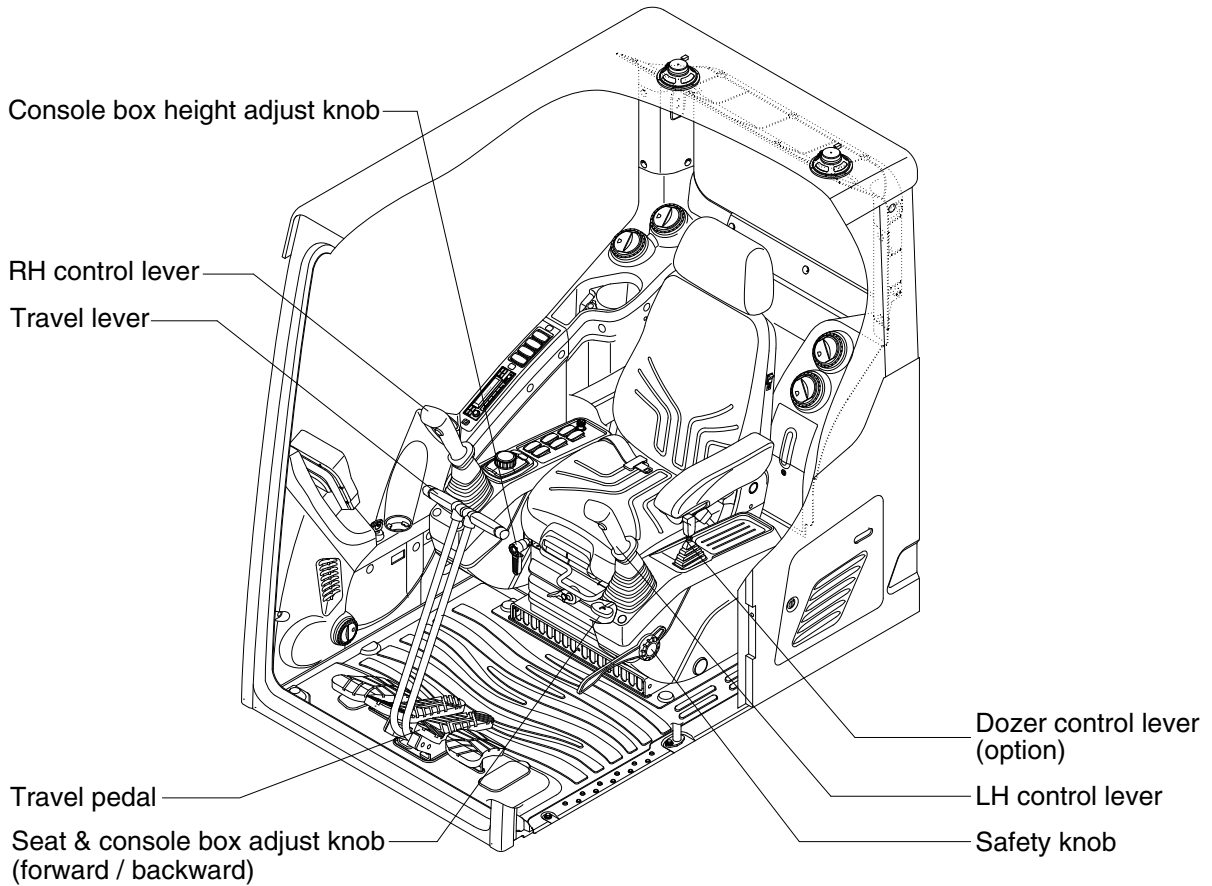


290F3CD247A

- When the worker or pedestrian go inside of red line (radius 3 m), an internal danger area of equipping on the cluster screen, the warning buzzer sounds and it displays the red rectangular box for the recognition of the worker and pedestrian. At this time, the operator should stop work immediately, and stop the buzzer by pressing the buzzer stop button. And then, please work after you check whether the danger factors are solved.

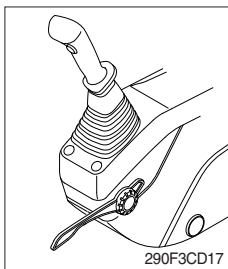
※ In AAVM mode, a touch screen of the LCD is available only. The multimodal dial of the haptic controller is not available.

## 4. LEVERS AND PEDALS



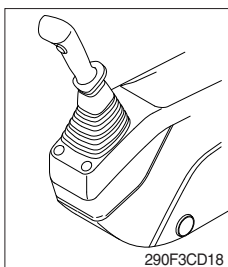
140F3CD16

### 1) LH CONTROL LEVER



- (1) This joystick is used to control the swing and the arm.
- (2) Refer to operation of working device in chapter 4 for details.

### 2) RH CONTROL LEVER



- (1) This joystick is used to control the boom and the bucket.
- (2) Refer to operation of working device in chapter 4 for details.

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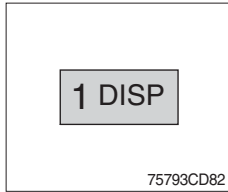
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### (5) ID3 v2 display



- ① Disp button is used to change the display information. While playing an MP3 file, you can change the file information shown on the LCD display. Each time you press DISP (display), the display changes to show the following.
- ※ If the MP3 disc does not have any ID3 information, the display will show NO ID3 on LCD display.

Directory name / file name (normal mode)



Album name / performer / title

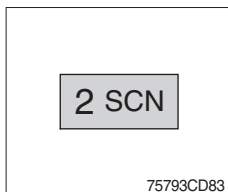


File number / elapsed time



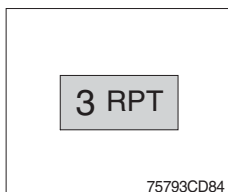
Directory name / file name (normal mode)

### (6) File scan (SCN)



- ① During USB play, press SCN button to play the first 10 seconds of each file on the whole file on the USB (SCN mark will appear on the LCD display). When a desired file is reached, press the SCN button again to cancel the function. The unit will then play the selected file.
- ※ In case of playing MP3 file, when the SCN (scan) button is pressed and held for longer than 2 seconds, the SCN mark will blink on the LCD display and all files in the selected directory will be introduced until the file scan mode is cancelled by pressing the SCN button again or by activating the random or repeat functions.

### (7) Repeat play selector (RPT)



- ① During USB play, press RPT button to play the selected file repeatedly (RPT will appear on the LCD display). Play of the file will continue to repeat until this button is pressed again and the RPT disappears from the LCD display.
- ※ In case of playing MP3 file, when the RPT button is pressed and held longer than 2 seconds, the RPT mark will blink on the LCD display and play all files in the selected directory and will be repeated until the directory repeat mode is cancelled by pressing the repeat button again or by activating the scan or random functions (RPT mark will disappear from LCD display).

## ■ GENERAL

### (1) Power and volume button



#### ① Power ON / OFF button

Press power button (1) to turn the unit on or off.

#### ② Volume UP/DOWN control knob

Turn VOL knob (1) right to increase the volume level.

Turn VOL knob (1) left to decrease the volume.

After 5 seconds the display will return to the previous display mode.

#### ③ Initial volume level set up

I-VOL is the volume level the unit will play at when next turned on. To adjust the I-VOL level, press and hold VOL button (1) for longer than 2 seconds. The current volume level displays on the display panel.

Then turn button (1) right or left to set the volume level as the I-VOL level.

#### ④ Clock ON/OFF control

The CLOCK was default at off status. To turn CLOCK ON, press and hold VOL button (1) for longer than 2 seconds to display I-VOL, then short press VOL again, turn VOL knob while CLOCK OFF display, then the CLOCK ON will be displayed.

※ Due to time tolerance, the clock display on the Audio unit might have little difference.

#### ⑤ Clock adjustment

With CLOCK ON selected, press VOL knob again after CLOCK ON display, the hour will blink, turn VOL knob right or left to adjust hour. Simply press VOL again, the minute will blink, turn VOL knob to adjust minute. Then press VOL again to confirm the clock once finished.

#### 4) Bluetooth connection and disconnection

- (1) When established bluetooth connection between this audio unit and the cellular phone, bluetooth icon on the display appears and then the display shows HF/AV CONN when handsfree & AV profile connected.



- (2) To disconnect bluetooth link  
Press and hold CALL END button (4) for 2 seconds, it shows DIS CON and disappears bluetooth icon on the display.

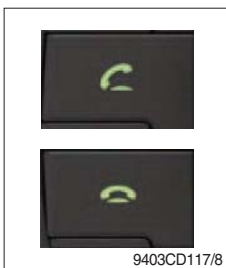


- (3) To disconnect bluetooth link  
Press CALL button (3) briefly, it blinks bluetooth icon on the display while bluetooth is being connected. If the connection is completed, it appears bluetooth icon on the display.

- ※ When your cellular phone battery is at low charge, the bluetooth connection may occasionally be lost. To maintain good connectivity ensure that your phone battery is adequately charged.
- ※ In case of failure of bluetooth pairing :
  - Delete item in paired list on your phone.
  - Reset both phone by power off/on and the audio unit by ACC off/on.
- ※ Connecting priority of handsfree profile is higher than headset profile.
- ※ The headset mode does not support caller ID, reject call and call Transfer.

#### 5) Using the audio unit as a handsfree device

- (1) When the audio unit is ringing, it shows CALL and follows with the phone number \*\*\*\*\* on the display.

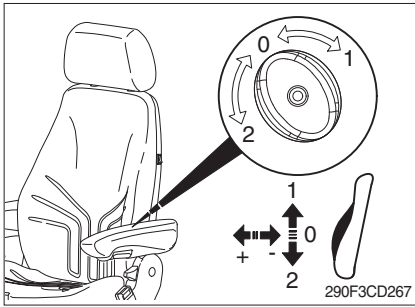


- (2) To accept call  
Press CALL button (4), it appears ANSWER CALL and follows TALKING on the display.

- (3) To end call  
To end call, press CALL END button (5), it appears REJECT on the display.

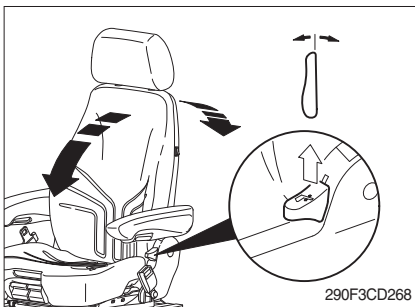
- ※ If reject call is activated in your phone, then your cellular phone does not support reject call function.

### (10) Lumbar support



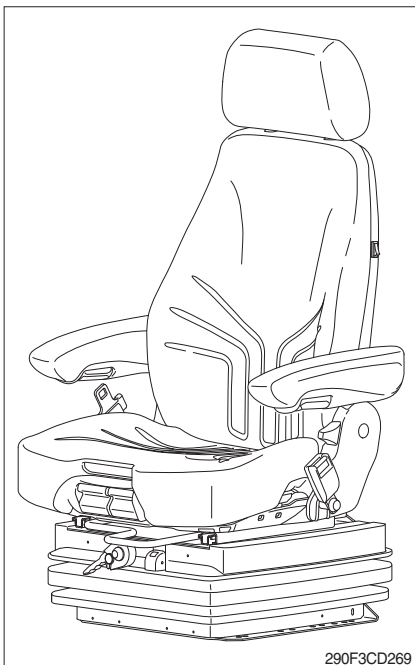
- ① By turning the adjustment knob to the left (2) or right (1), both the height and curvature of the backrest cushion can be individually adjusted.
- ② This increases both the seating comfort and the performance of the operator.

### (11) Backrest adjustment



- ① Pull up the locking lever to release the backrest catch. When releasing the backrest, do not load the backrest by pressing against it.
  - ② By exerting pressure on or off the front or rear part of the seat pan it can be moved to the desired position. Release the locking lever to lock the backrest.
- ※ **It should not be possible to move the backrest into another position after it has been locked.**

### (12) Maintenance



Dirt can impair the function of the seat, so make sure you keep your seat clean.

Upholstery does not need to be removed from the seat frame for cleaning.

**▲ Take care with the backrest - it may jerk forward and cause injury.**

**When cleaning the backrest cushion, the backrest must be held in place when operating the backrest lever.**

※ **Do not clean the seat with a pressure washer.**

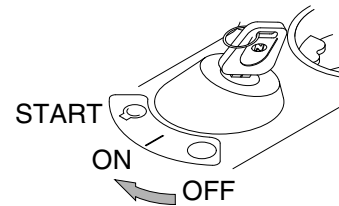
During cleaning, the upholstery must not be soaked through.

Use standard commercially available upholstery or plastics cleaning agent. Test first for compatibility on a small, concealed area.

### 3. STARTING AND STOP THE ENGINE

#### 1) CHECK INDICATOR LIGHTS

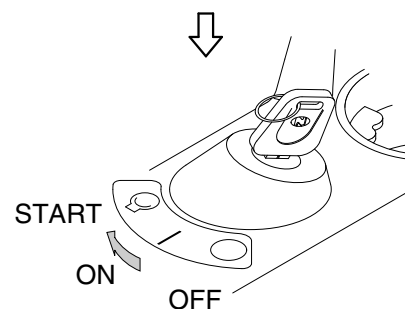
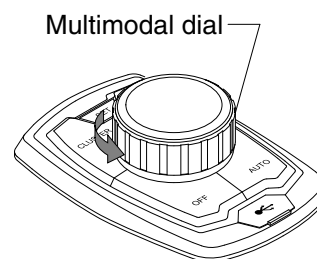
- (1) Check if all the operating levers are in the neutral position.
- (2) Turn the starting switch to the ON position.  
Buzzer sounding for 4 seconds with HYUNDAI logo on cluster.
  - ※ If the ESL mode is set to the enable, enter the password to start engine.
  - ※ If the password has failed 5 times, please wait 30 minutes before re-attempting to enter the password.
  - ※ Refer to page 3-24 for ESL mode.
- (3) After initialization of cluster, the operating screen is displayed on LCD (1).  
Also, self-diagnostic function is carried out.



290F4OP29A

#### 2) STARTING ENGINE IN NORMAL TEMPERATURE

- ※ Sound the horn to warn the surroundings after checking if personnel or obstacles are in the area.
- (1) Turn the multimodal dial to low idle position.
  - (2) Turn the starting switch to START position to start the engine.
    - ※ Do not hold the starting switch in the START position for longer than 20 seconds.  
The start system may be seriously damaged.
    - ※ If the engine does not start, allow the stator to cool for about 2 minutes before re-attempting to start the engine again.
  - (3) Release the starting switch instantly after the engine starts to avoid possible damage to the starting motor.



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## 6. TRAVELING OF THE MACHINE

### 1) BASIC OPERATION

#### (1) Traveling position

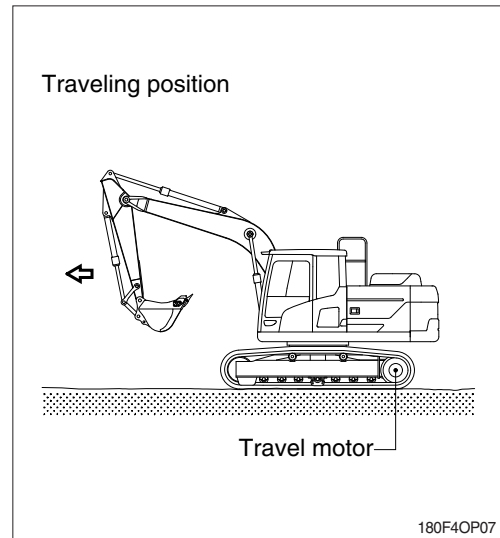
It is the position which the traveling motor is in the rear and the working device is forward.

- ▲ **Be careful as the traveling direction will be reversed when the whole machine is swung 180 degree.**

#### (2) Traveling operation

It is possible to travel by either travel lever or pedal.

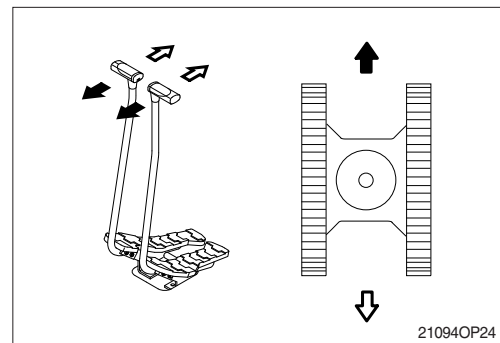
- ※ **Do not travel continuously for a long time.**
- ※ **Reduce the engine speed and travel at a low speed when traveling on uneven ground.**



#### (3) Forward and backward traveling

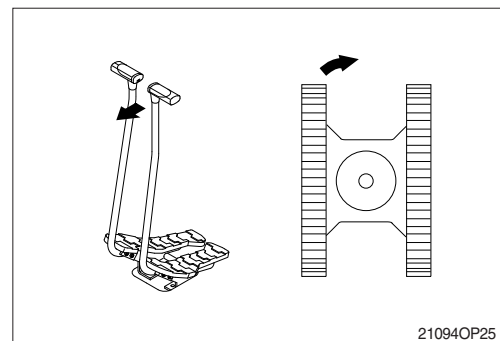
When the left and right travel lever or pedal are pushed at the same time, the machine will travel forward or backward.

- ※ **The speed can be controlled by the operation stroke of lever or pedal and change of direction will be controlled by difference of the left and right stroke.**



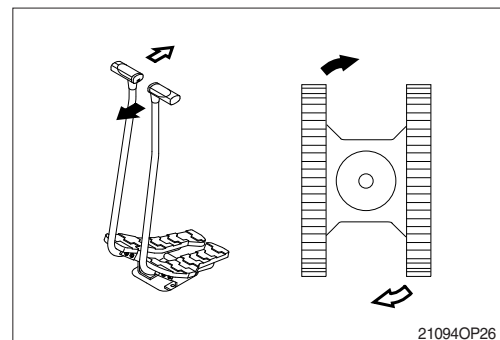
#### (4) Pivot turning

Operating only one side of lever or pedal make the change of direction possible by moving only one track.



#### (5) Counter rotation

It is to change the direction at the original place by moving the right and left track. Both side of lever or pedal are operated to the other way at the same time.



## 10. ATTACHMENT LOWERING (when engine is stopped)

1) On machines equipped with an accumulator, for a short time (within 1 minute) after the engine is stopped, the attachment will lower under its own weight when the attachment control lever is shifted to LOWER. This happens only when the starting switch is ON and the safety knob is in the UNLOCK position. After the engine is stopped, set the safety knob to the LOCK position.

**▲ Be sure no one is under or near the attachment before lowering the boom.**

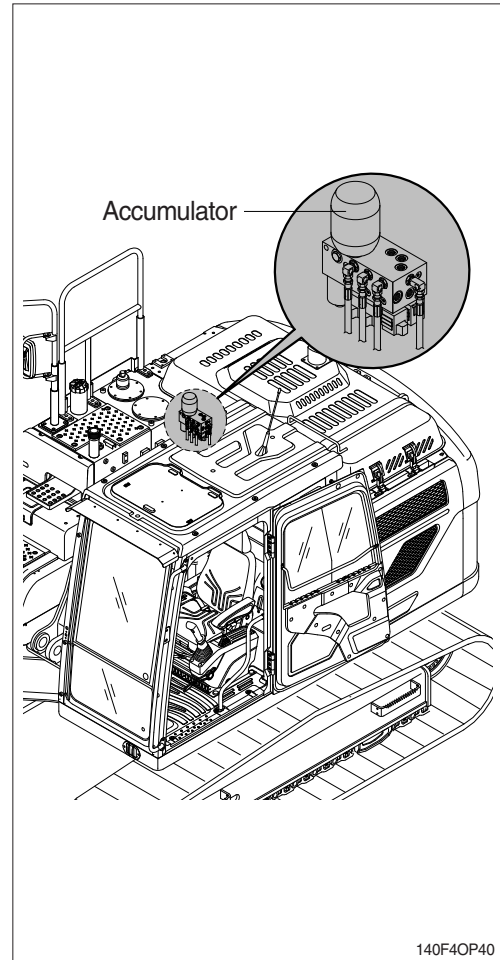
2) The accumulator is filled with high-pressure nitrogen gas, and it is extremely dangerous if it is handled in the wrong way. Always observe the following precautions.

**▲ Never make any hole in the accumulator expose it to flame or fire.**

**▲ Do not weld anything to the accumulator.**

※ When carrying out disassembly or maintenance of the accumulator, or when disposing of the accumulator, it is necessary to release the gas from the accumulator.

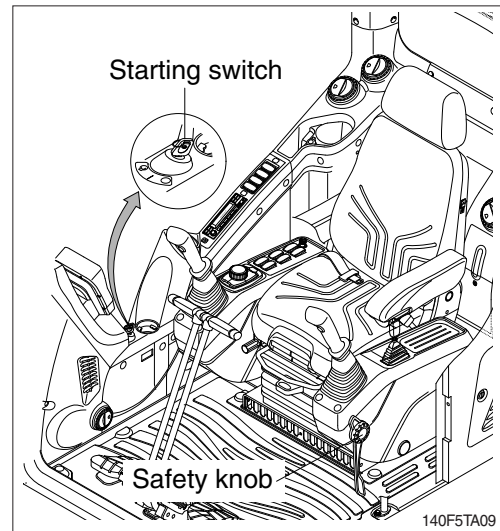
A special air bleed valve is necessary for this operation, so please contact your HD Hyundai Construction Equipment distributor.



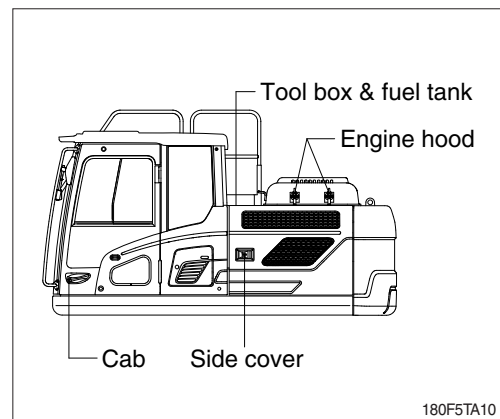
140F40P40

## 4. FIXING THE MACHINE

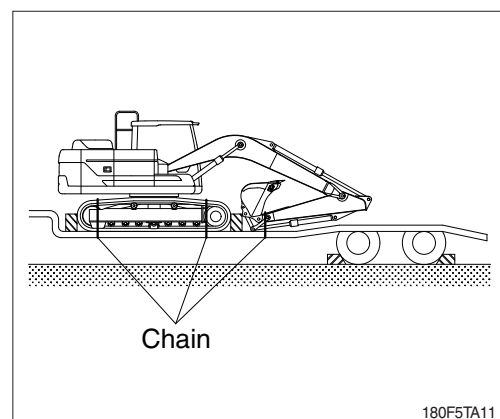
- 1) Lower down the working device on the loading plate of trailer.
- 2) Keep the safety knob on the LOCK position.
- 3) Turn OFF all the switches and remove the key.



- 4) Secure all locks.



- 5) Place timber underneath of the track and fix firmly with wire rope to prevent the machine from moving forward, backward, right or left.



### 3. FUEL, COOLANT AND LUBRICANTS

#### 1) NEW MACHINE

New machine used and filled with following lubricants.

Description	Specification
Engine oil (API CJ-4, ACEA-E9)	SAE 10W-30, ★SAE 5W-40
DEF/AdBlue®	ISO 22241 (32.5% high-purity urea and 67.5% deionized water)
Hydraulic oil	HD Hyundai Construction Equipment genuine long life (ISO VG 32, VG 46, VG 68) Conventional hydraulic oil (ISO VG 15★) HD Hyundai Construction Equipment Bio Hydraulic Oil (HBHO, ISO VG 46)
Swing and travel reduction gear	SAE 85W-90 (GL-4/GL-5)
Grease	Lithium base grease NLGI No. 2
Fuel	ASTM D975-No. 2, Ultra low sulfur diesel
Coolant	Mixture of 50% ethylene glycol base antifreeze and 50% water. Mixture of 60% ethylene glycol base antifreeze and 40% water.★

**SAE** : Society of Automotive Engineers

**API** : American Petroleum Institute

**ISO** : International Organization for Standardization

**NLGI** : National Lubricating Grease Institute

**ASTM** : American Society of Testing and Material

**DEF** : Diesel Exhaust Fluid

DEF compatible with AdBlue®

**Ultra low sulfur diesel**

- sulfur content ≤ 15 ppm

★Cold region

Russia, CIS, Mongolia

(4) Apply a light film of lubricating oil to the gasket sealing surface before installing the filters.

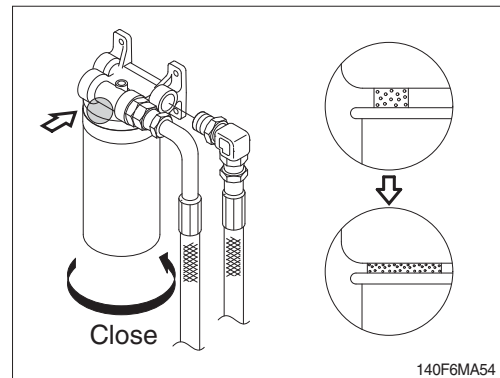
※ **Do not fill the oil filter with oil before installing them. This oil would not be filtered and could be contaminated. Contaminated oil can cause accelerated wear to engine components.**



(5) Install the new oil filter. Spin on the oil filter until the O-ring contacts the sealing surface. Then rotate the oil filter 3/4 of a full turn.

※ **Mechanical over-tightening may distort the threads or damage the filter element seal.**

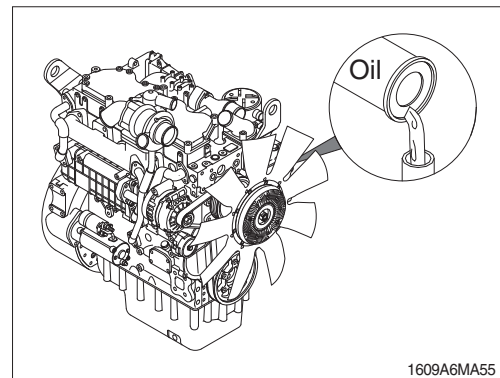
· Install the filter as specified by the filter manufacturer.



(6) Fill the engine with clean oil to the proper level.

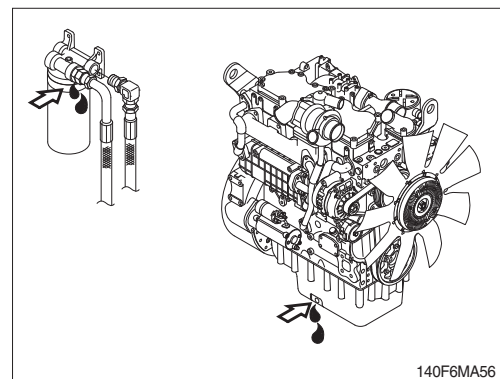
· Quantity : 10.5 l (2.8 U.S.gallons)

※ **Turn the drain valve to the close position.**



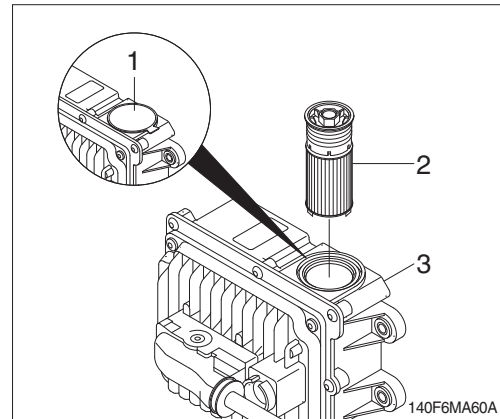
(7) Operate the engine at low idle and inspect for leaks at the filters and the drain plug.

Shut the engine off and check the oil level with the dipstick. Allow 15 minutes for oil to drain down before checking.



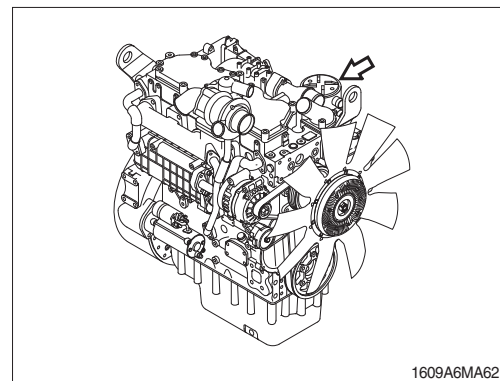
## 16) DEF/AdBlue® SUPPLY MODULE FILTER

- (1) Ensure that the area around the DEF/AdBlue® supply module filter is clean and free from dirt. The DEF/AdBlue® threaded cap and the filter element are a combined assembly.
  - (2) Remove the protective cover (1). Remove DEF/AdBlue® supply module filter assembly (2) and discard the filter assembly.
  - (3) Install a new DEF/AdBlue® supply module filter assembly into DEF/AdBlue® pump housing (3).
  - (4) Tighten filter assembly and install the protective cover.
    - Tightening torque : 1.4 kgf-m (10.1 lbf-ft)
- ※ **Turning ON the start switch will automatically prime the DEF/AdBlue®.**



## 17) CRANKCASE BREATHER FILTER

- ※ **Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.**
- (1) The crankcase breather is a very important component in order to keep your engine emissions compliant.
    - The filter element within the crankcase breather must be serviced at the prescribed service interval.
    - The correct filter element must be installed before the engine is operated.
    - The installation of the filter element is very important.
    - The quality of the filter element that is installed is very important.
    - The filter element protects the engine from excessive quantities of oil from entering the induction system. The filter element also protects the engine aftertreatment system.
- ※ **Excessive quantities of oil that enter the induction system of the engine can rapidly increase the engine speed without control.**



### 37) REPLACEMENT OF BUCKET

⚠ When knocking the pin in with a hammer, metal particles may fly and cause serious injury, particularly if they get into your eyes. When carrying out this operation, always wear goggles, helmet, gloves, and other protective equipment.

※ When the bucket is removed, place it in a stable condition.

※ When performing joint work, make sure signals to each other and work carefully for safety's sake.

(1) Lower the bucket on the ground as the picture shown in the right.

(2) Lock the safety knob to the LOCK position and stop the engine.

(3) Remove the stopper bolts (1) and nuts (2), then remove pins (3, 4) and remove the bucket.

※ When removing the pins, place the bucket so that it is in light contact with the ground.

※ If the bucket is lowered strongly to the ground, the resistance will be increased and it will be difficult to remove the pins.

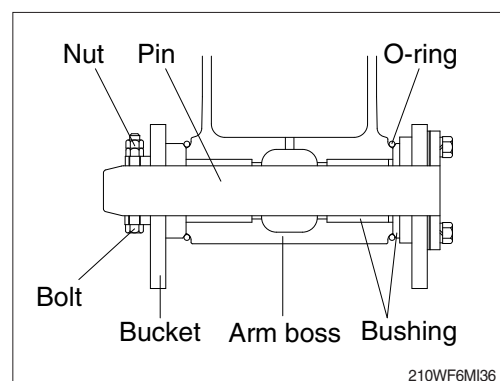
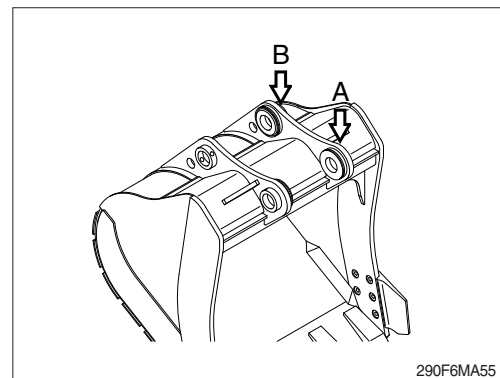
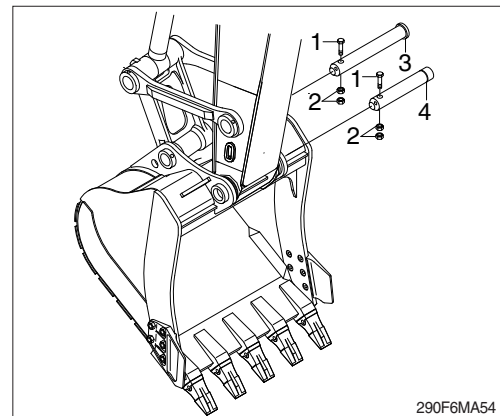
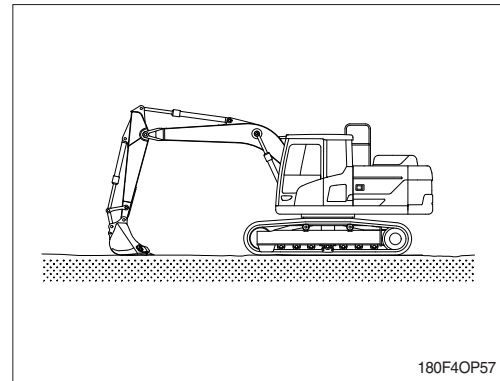
※ After remove the pins, make sure that they do not become contaminated with sand or mud and that the seals of bushing on both sides do not become damaged.

(4) Align the arm with holes (A) and the link with holes (B), then coat with grease and install pins(3, 4)

※ When installing the bucket, the O-rings are easily damaged, so fit the O-rings on the boss of the bucket as shown in the picture.

After knocking the pin, move the O-ring down to the regular groove.

(5) Install the stopper bolt (1) and nuts (2) for each pin, then grease the pin.



# TROUBLESHOOTING GUIDE

## 1. ENGINE

※ This guide is not intended to cover every conditions, however many of the more common possibilities are listed.

Trouble	Service	Remark
The engine oil pressure lamp lights ON when engine speed is raised after completion of warm up.	<ul style="list-style-type: none"> <li>• Add the oil to the specified level.</li> <li>• Replace the oil filter cartridge.</li> <li>• Check oil leakage from the pipe or the joint.</li> <li>• Replace the monitor.</li> </ul>	
Steam is emitted from the top part of the radiator (the pressure valve). Coolant level warning lamp lights ON.	<ul style="list-style-type: none"> <li>• Supply the coolant and check leakage.</li> <li>• Adjust fan belt tension.</li> <li>• Wash out inside of cooling system.</li> <li>• Clean or repair the radiator fin.</li> <li>• Check the thermostat.</li> <li>• Tighten the radiator cap firmly or replace the packing of it.</li> <li>• Replace the monitor.</li> </ul>	
The engine does not start when the starting motor is turned over.	<ul style="list-style-type: none"> <li>• Add fuel.</li> <li>• Repair where air is leaking into fuel system.</li> <li>• Check the injection pump or the nozzle.</li> <li>• Check the valve clearance.</li> <li>• Check engine compression pressure.</li> <li>• In cold weather, check if fuel warmer system is working normal.</li> </ul>	
Exhaust gas is white or blue.	<ul style="list-style-type: none"> <li>• Adjust to specified oil quantity.</li> <li>• Replace with specified fuel.</li> </ul>	
Exhaust gas occasionally turns black.	<ul style="list-style-type: none"> <li>• Clean or replace the air cleaner element.</li> <li>• Check the nozzle.</li> <li>• Check engine compression pressure.</li> <li>• Clean or replace the turbocharger.</li> </ul>	
Combustion noise occasionally changes to breathing sound.	<ul style="list-style-type: none"> <li>• Check the nozzle.</li> </ul>	
Unusual combustion noise or mechanical noise.	<ul style="list-style-type: none"> <li>• Check with specified fuel.</li> <li>• Check over-heating</li> <li>• Replace the muffler.</li> <li>• Adjust valve clearance.</li> </ul>	

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