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### 13) LIFT & TIE (item 18)

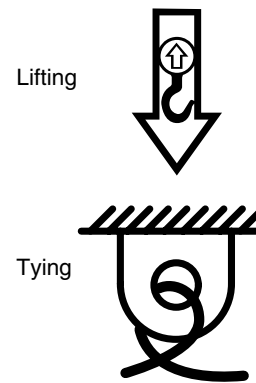
This label is positioned on the both side of the front and rear frame.

#### - Lifting point

In order to lift the machine, attach the lifting devices to the lifting points.

#### - Tying point

In order to tie down the machine, attach the tie-downs to the tying points.

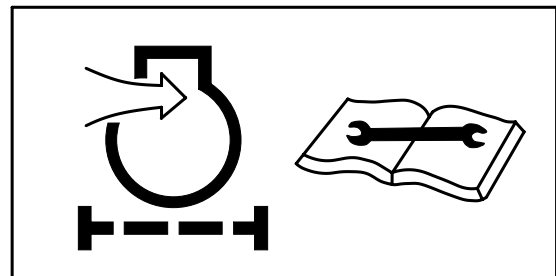


75790FW04

### 14) AIR CLEANER (item 19)

The warning label is positioned on the air cleaner.

- ▲ Periodic and proper inspection, cleaning and change of elements prolong engine life time and maintain the good performance of engine.



21070FW01

### 15) QUICK COUPLER (item 20)

This warning label is positioned on the middle of the boom.

- ※ Serious injury or death can result from dropping bucket.
- ※ Operating the machine with attachment switch unlocked or without safety pin of moving hook can cause the bucket to drop off.



757TM9A0FW30

## **PRECAUTIONS FOR ATTACHMENTS**

When installing and using an optional attachment, read the instruction manual for the attachment and the information related to attachments in this manual.

Do not use attachments that are not authorized by or your distributor. Use of unauthorized attachments could create a safety problem and adversely affect the proper operation and useful life of the machine.

Any injuries, accidents, product failures resulting from the use of unauthorized attachments will not be the responsibility of Hyundai.

## **SAFETY RULES**

Only trained and authorized personnel can operate and maintain the machine.

Follow all safety rules, precautions and instructions when operating or performing maintenance on the machine.

When working with another operator or a person on worksite traffic duty, be sure all personnel understand all hand signals that are to be used.

## **SAFETY FEATURES**

Be sure all guards and covers are in their proper position. Have guards and covers repaired if damaged.

Use safety features such as the safety lock lever and seat belts properly.

Never remove any safety features. Always keep them in good operating condition.

Improper use of safety features could result in serious bodily injury or death.

## **Guidelines for Reducing Vibration Levels on Earthmoving Equipment**

Properly adjust machines. Properly maintain machines. Operate machines smoothly. Maintain the conditions of the terrain. The following guidelines can help reduce the whole body vibration level :

1. Use the right type and size of machine, equipment, and attachments.
2. Maintain machines according to the manufacturer's recommendations.
  - a. Tire pressures
  - b. Brake and steering systems
  - c. Controls, hydraulic system and linkages
3. Keep the terrain in good condition.
  - a. Remove any large rocks or obstacles.
  - b. Fill any ditches and holes.
  - c. Provide machines and schedule time in order to maintain the conditions of the terrain.
4. Use a seat that meets "ISO 7096". Keep the seat maintained and adjusted.
  - a. Adjust the seat and suspension for the weight and the size of the operator.
  - b. Inspect and maintain the seat suspension and adjustment mechanisms.
5. Perform the following operations smoothly.
  - a. Steer
  - b. Brake
  - c. Accelerate
  - d. Shift the gears.
6. Move the attachments smoothly.
7. Adjust the machine speed and the route in order to minimize the vibration level.
  - a. Drive around obstacles and rough terrain.
  - b. Slow down when it is necessary to go over rough terrain.
8. Minimize vibrations for a long work cycle or a long travel distance.
  - a. Use machines that are equipped with suspension systems.
  - b. Use the ride control system on machines.
  - c. If no ride control system is available, reduce speed in order to prevent bounce.
  - d. Haul the machines between workplaces.
9. Less operator comfort may be caused by other risk factors. The following guidelines can be effective in order to provide better operator comfort:
  - a. Adjust the seat and adjust the controls in order to achieve good posture.
  - b. Adjust the mirrors in order to minimize twisted posture.
  - c. Provide breaks in order to reduce long periods of sitting.
  - d. Avoid jumping from the cab
  - e. Minimize repeated handling of loads and lifting of loads.
  - f. Minimize any shocks and impacts during sports and leisure activities.

## **Sources**

The vibration information and calculation procedure is based on "ISO/TR 25398 Mechanical Vibration-Guideline for whole body vibration exposure of operators of earthmoving equipment. The method is based on measured vibration emission under real working conditions for all machines.

You should check the original directive. This document summarizes part of the content of the applicable law. This document is not meant to substitute the original sources. Other parts of these documents are based on information from the United Kingdom Health and Safety Executive.

## MOUNTING AND DISMOUNTING

Never jump on or off the machine. Never get on or off a moving machine.

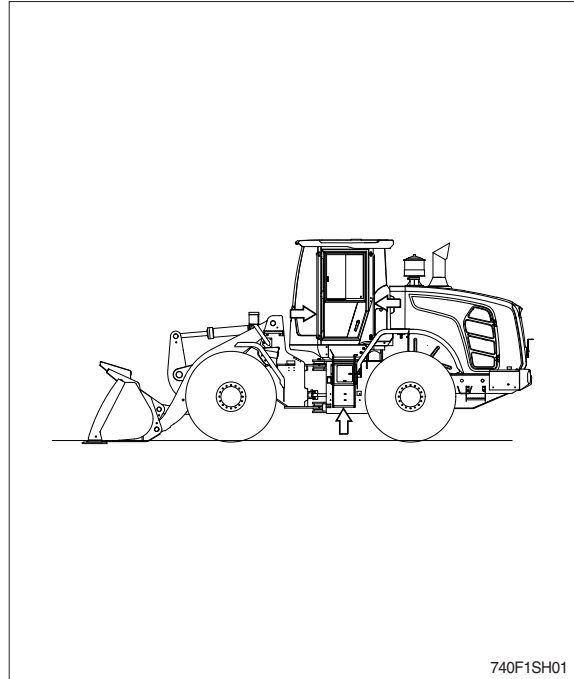
When getting on or off the machine, face the machine and use the handhold and steps.

Never hold any control levers when getting on or off the machine.

Always maintain three-point contact with the handholds and steps to ensure that you support yourself.

If there is any oil, grease, or mud on the handholds, steps or nonslip tapes, wipe it off immediately. Inspect, and as necessary, repair or replace the damaged parts and tighten any loose bolts.

When carrying out inspection and maintenance with the mud guarder opened, pay attention to avoid the injury or damage by the mud guarder.

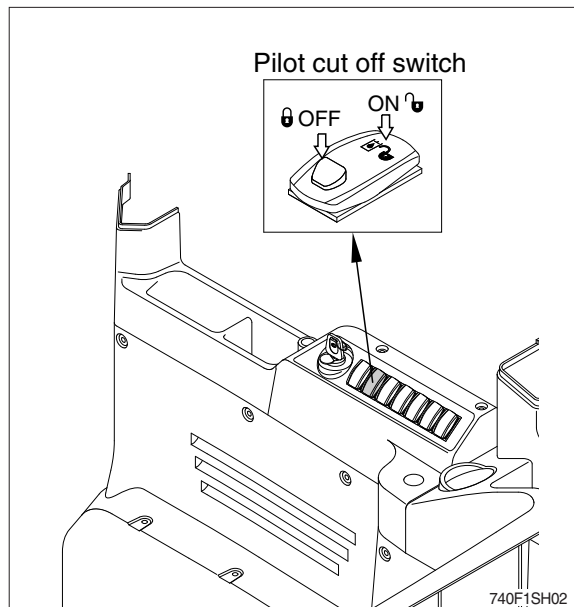


## ALWAYS APPLY LOCK WHEN LEAVING OPERATOR'S SEAT

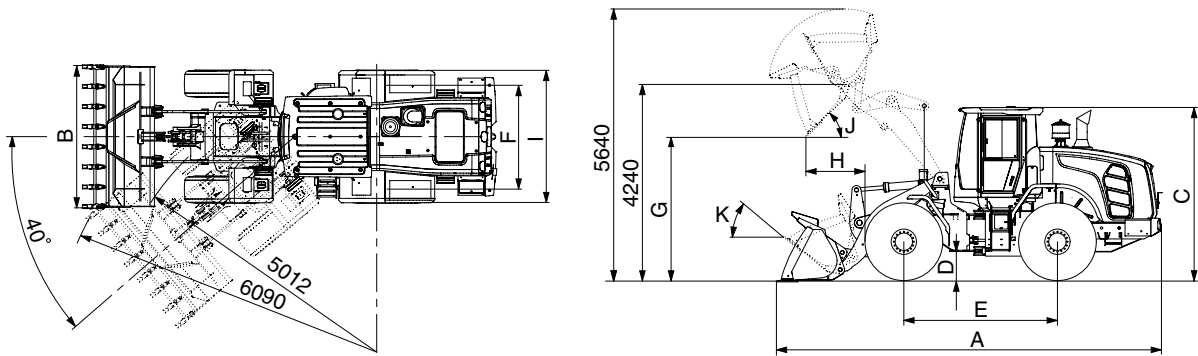
When standing up from the operator's seat, always place the pilot cut off switch to the **OFF** position. If you accidentally touch the RCV lever when they are not locked, the work equipment may suddenly move and cause serious injury or damage.

When leaving the machine, lower the work equipment to the ground, set the pilot cut off switch to the **OFF** position, then stop the engine and use the key to lock all the equipment. Always take the key with you.

※ Refer to the page 3-45 for details.



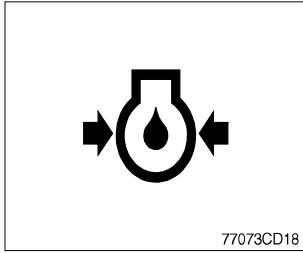
**WITH TOOTH TYPE BUCKET (HL935 XT)**




9352SE02-1

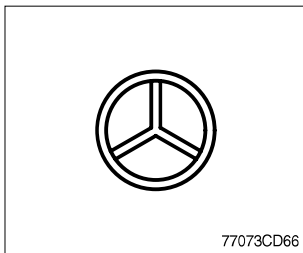
Description		Unit	Specification	
Operating weight		kg (lb)	12940 (28530)	
Bucket capacity	Struck	m <sup>3</sup> (yd <sup>3</sup> )	1.7 (2.2)	
	Heaped		2.0 (2.6)	
Overall length	A	mm (ft-in)	7955 (26' 1")	
Overall width	B		2600 (8' 6")	
Overall height	C		3300 (10' 9")	
Ground clearance	D		417 (1' 4")	
Wheelbase	E		2950 (9' 8")	
Tread	F		1900 (6' 3")	
Dump clearance at 45°	G		3150 (10' 4")	
Dump reach (full lift)	H		1070 (3' 6")	
Width over tires	I		2430 (8' 0")	
Dump angle	J		degree (°)	47
Roll back angle (carry position)	K			49
Cycle time	Lift (with load)	sec	5.6	
	Dump (with load)		1.5	
	Lower (empty)		2.9	
Maximum travel speed		km/hr (mph)	40.0 (24.9)	
Braking distance		m (ft-in)	13.3 (43' 7")	
Minimum turning radius (center of outside tire)			5.11 (16' 9")	
Gradeability		degree (°)	30	
Brakeout force		kg (lb)	10485 (23120)	
Travel speed	Forward	First gear	6.9 (4.3)	
		Second gear	12.7 (7.9)	
		Third gear	24.9 (15.5)	
		Fourth gear	40.0 (24.9)	
	Reverse	First gear	7.3 (4.5)	
		Second gear	13.4 (8.3)	
Third gear		26.1 (16.2)		
Tipping load	Straight	kg (lb)	8635 (19040)	
	Full-turn		7465 (16460)	

### (8) Engine oil pressure warning lamp




- ① This lamp is comes ON and the buzzer sounds after starting the engine because of the low engine oil pressure.
  - ② If the lamp comes ON and the buzzer sounds during engine operation, shut OFF engine immediately. Check engine oil level.
- ※ If you want to stop buzzer sound, just touch the  icon.

### (9) Steering warning lamp



#### ① Primary

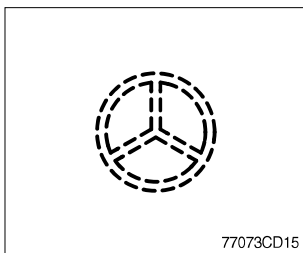
This lamp indicates that the primary steering has failed. When the indicator comes ON and the action alarm sounds, steer the machine immediately to a convenient location and stop the machine. Stop the engine and investigate the cause.

- ※ If you want to stop buzzer sound, just touch the  icon.
- ※ Do not operate the machine until the cause has been corrected.

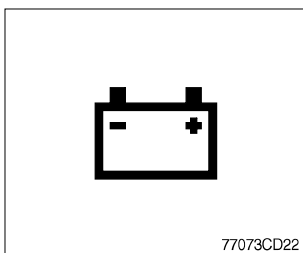
#### ② Emergency


This lamp indicates the emergency steering system is active.

- ※ Immediately pull the machine to a convenient stop and stop the engine.
- ※ The emergency steering system can be manually tested. Refer to page 3-45.

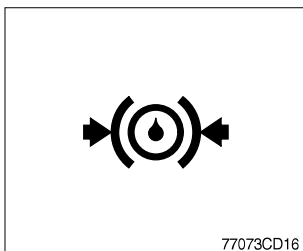



### (10) Battery charging warning lamp



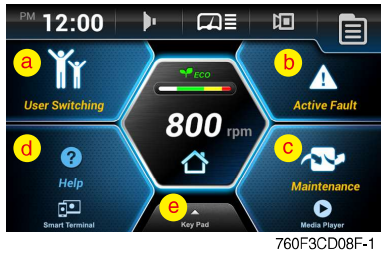
- ① This lamp is ON and the buzzer sounds when key ON, it is turned OFF after starting the engine.
  - ② Check the battery charging circuit when this lamp comes ON and the buzzer sounds, during engine operation.
- ※ If you want to stop buzzer sound, just touch the  icon.

### (11) Brake fail warning lamp




- ① The lamp lights ON and the buzzer sounds when the oil pressure of service brake drops below the normal range.
  - ② When the lamp is ON and the buzzer sounds, stop the engine and check for its cause.
- ※ If you want to stop buzzer sound, just touch the  icon.
- ※ Do not operate until any problems are corrected.

⑤ Quick menu



760F3CD08F-1

※ Move the quick menu screen by touching  .

① User switching

- When multiple users share a machine, it allows users to switch user settings of machine.
- User can apply or save the setting of monitor easily.

② Active fault

- Display the fault code of MCU/ECU/TCU.
- Refer to page 3-28.

③ Maintenance

- Elapsed time, change or replace cycle can be changed.
- Refer to page 3-31.

④ Help

- Read the monitor manual as a PDF file on the monitor.

※ Smart terminal

- The menu features a smartphone and operates the miracast.

① User switching



760F3CD08H-1

② Active fault



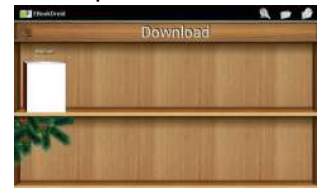
760F3CD16-1

③ Maintenance




760F3CD08J-1

④ Help

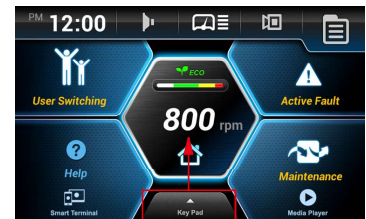


760F3CD08K

⑤ Virtual keypad

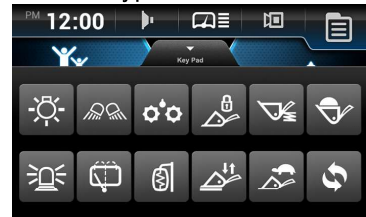
To display the virtual keypad, drag the button (  ) to top of the screen.

※ Refer to the page 3-39 for details.



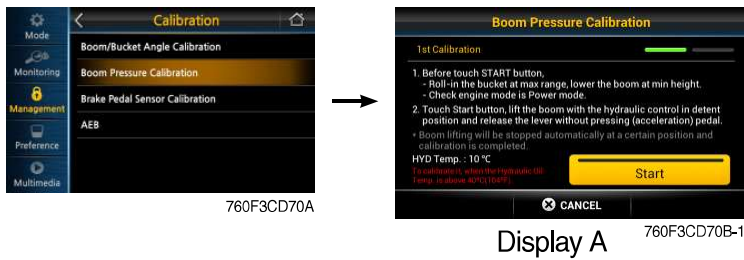
760F3CD68A-1

Virtual keypad



760F3CD68B-1

· Boom pressure calibration



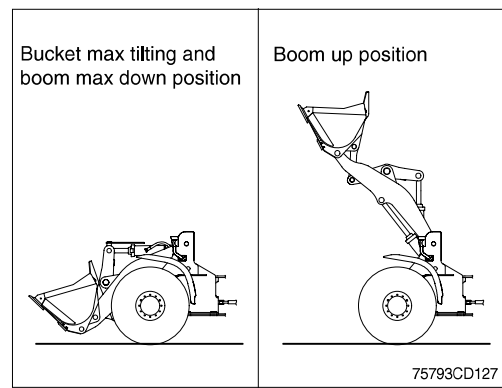
- Press START button after following the instruction.
- After a few minutes, "Calibration fail" or "Calibration success" message will be shown. Press complete button then process be ended.

※ Using button

- Using instead of NEXT, complete button.

· Boom pressure calibration

- It is used when bucket weight is changed or measured weight is inaccurate.
- The calibration must be carried out as follows :
  - ① Increase hydraulic temperature (about 40~60°C).
  - ② Select "Boom-pressure".
  - ③ Roll-in the bucket at maximum range and lower the boom at minimum height.
  - ④ Press START button.
  - ⑤ Raise boom to maximum position. Boom up must be finished before stepping advance in "display A".
  - ⑥ If it show "Calibration success" message in a moment, press complete button (or ).



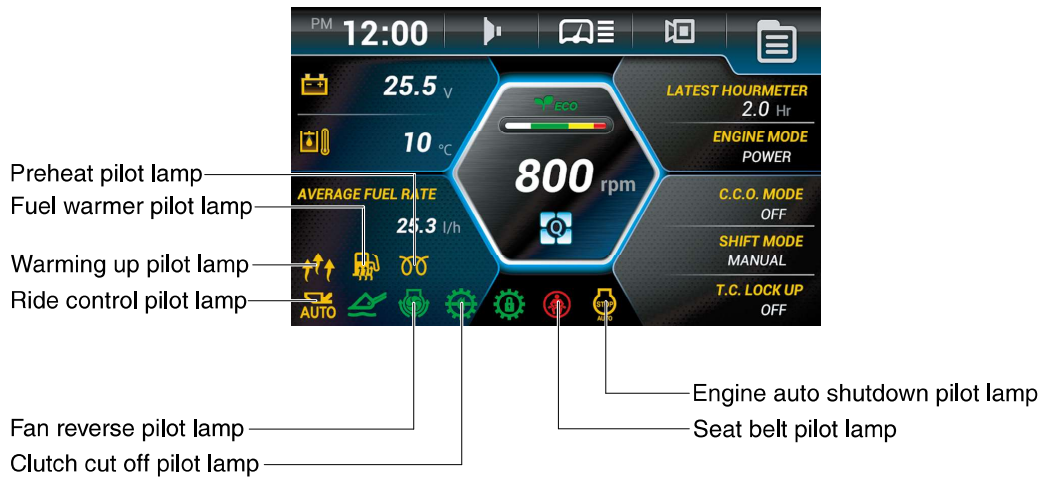
- ※ Raise hydraulic temperature enough when checking work load / boom pressure sensor calibration (recommendation : about 40 ~ 60°C).
- ※ Check if pressure sensor or angle sensor is in normal condition for accurate work load algorism or pressure sensor calibration [pressure sensors at boom cylinder head area and rod area, boom angle sensor (CD-80), bell crank angle sensor (CD-81)].
- ※ Sensor error message during pressure sensor calibration : sensor need to be checked.

· Brake pedal sensor calibration



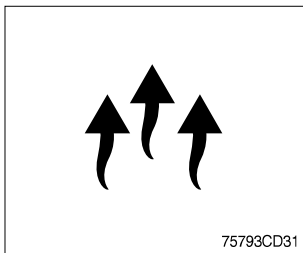
- Turn the engine OFF and turn the starting switch ON position.
- Press OK button, then calibration will be started.
- When display "IP " on main display, press slowly the brake pedal completely.
- Release the brake pedal when display "IP " on main display.
- For cancel, press MENU/HOME switch.
- ※ When the brake pedal or sensor is replaced, **brake pedal sensor calibration must be performed.**

### 3) PILOT LAMPS



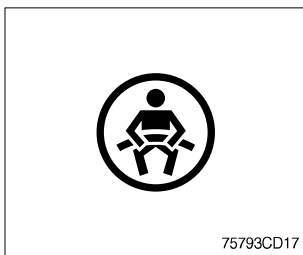
740F3CD90-1

#### (1) Warming up pilot lamp



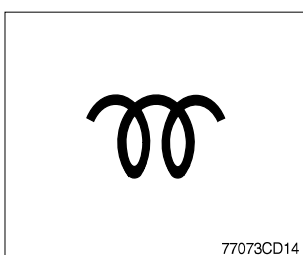
- ① This lamp lights ON when the coolant temperature is below 30°C (86°F).
- ② The automatic warming up is cancelled when the engine coolant temperature is above 30°C, or when 10 minutes have passed since starting the engine.

#### (2) Seat belt pilot lamp



- ① This lamp lights ON for the first five seconds after starting the engine.

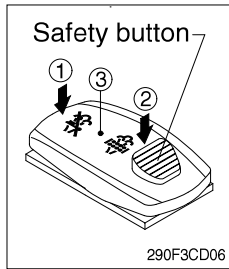
#### (3) Preheat pilot lamp



- ① This lamp lights ON when start switch is turned clockwise to the ON position. Light will turn off after approximately 5~45 seconds, depending on engine temperature, indicating that preheating is completed.
- ② When the lamp goes out the operator should start cranking the engine.

※ Refer to page 4-5.

## 5) SCR (selective catalytic reduction) SYSTEM CLEANING SWITCH



(1) This switch is used to select the SCR system cleaning.

### (2) Inhibit position (①)

- ① The inhibit position disallows any automatic or manual SCR system cleaning.
- ② This may be used by operator to prevent SCR system cleaning when the machine is operating in a hazardous environment is concerned about high temperature.
- ③ It is strongly recommended that this position is only activated when high temperatures may cause a hazardous condition.

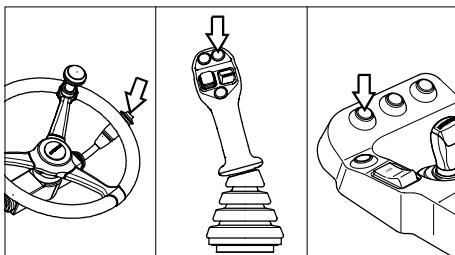
### (3) Automatic SCR system cleaning position (③)

This position will initiate a automatic SCR system cleaning.

### (4) Manual SCR system cleaning position (②)

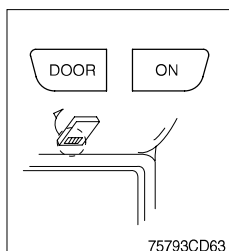
- ① This position will only initiate a manual SCR system cleaning when the machine is in non-mission condition, engine must run at low idle speed and SCR system levels are high enough to allow cleaning.
  - ② HEST lamp will be illuminated during the entire SCR system cleaning.
- ※ Refer to the page 3-9 for details.
- ※ This switch can be move to the SCR system cleaning position (②) only when the safety button is pulled to backward.
- ※ Also, this switch return to the OFF position when released the manual SCR system cleaning position (②).

## 6) HORN BUTTON



(1) If you press the button, the horn will sound.

## 7) CAB LAMP SWITCH



(1) This switch turns ON the cab room lamp.

### ① DOOR

The lamp comes ON when the door is opened.  
When the door is closed the lamp is OFF.

### ② ON

This switch is used to turn the lamp ON or OFF.

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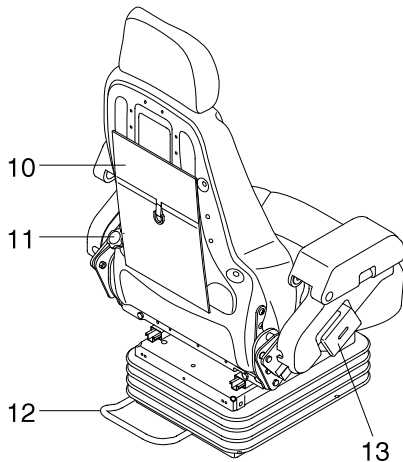
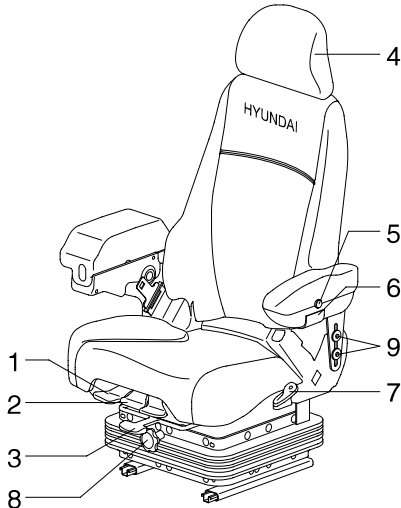


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## 2) SEAT

The seat is adjustable to fit the contours of the operator's body. It will reduce operator fatigue due to long work hours and enhance work efficiency.



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**▲ Always check the condition of the seat belt and mounting hardware before operating the machine.**

**▲ Fail to wear a seat belt during the machine operation may result in serious injury or death in the event of an accident or machine overturn.**

### (1) Cushion thigh extension

- ① Extends seat cushion fore and aft.
- ② Pull up & hold to adjust cushion +/- 30 mm.
- ③ Release to stop cushion.

### (2) Cushion thigh tilt

- ① Tilts Seat cushion up and down.
- ② Pull up on knob & hold cushion to adjust + 4 degrees.
- ③ Pull up on knob & push down on cushion to adjust - 4 degrees.
- ④ Release knob to stop cushion.

### (3) Slide release lever

- ① Moves the seat top fore/aft.
- ② Pull, hold & slide forward or rearward maximum 100 mm (10 mm increments).
- ③ Release to stop slide.

### (4) Headrest

- ① Adjusts height & tilt for head.
- ② Hold & pull up for higher adjustment.
- ③ Hold & push down for lower adjustment.
- ④ Hold and rotate down 10 degrees (1st position).
- ⑤ Hold and rotate down 20 degrees (2nd position).
- ⑥ Hold and rotate down 30 degrees (3rd position).
- ⑦ Hold and rotate down to return head rest to 0 degree position.

### (5) Heater switch (option)

- ① Turns ON/OFF cushion heaters.
- ② Push switch upward to turn on.
- ③ Push switch downward to turn off.

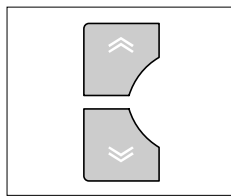
### (6) Armrest tilt knob

- ① Tilts armrests.
- ② Roll towards operator to tilt down maximum 15 degrees.
- ③ Roll away from operator to tilt up maximum 15 degrees.

### (7) Recliner knob

- ① Angles back rest cushion.
- ② Pull up & hold to adjust angle of back rest.
- ③ Release to stop recline of back rest.
- ④ Maximum recline : 20 degrees.

### (3) File selection & cue / review button



290F3CD43

#### ① File selection function

This button is used to select file up / down.

Each time the forward file select  $\blacktriangleright$  is pressed, file number is increased.

Each time the backward file select  $\blacktriangleleft$  is pressed, file number is decreased.

#### ② Cue / review functions

High-speed audible search of file on a USB can be made by this button (the cue and review functions).

Press and hold the cue button  $\blacktriangleright$  to advance rapidly in the forward direction or the review button  $\blacktriangleleft$  to advance rapidly in the backward direction.

### (4) MP3 directory / file searching

① The D-, D+ button is used to select a particular directory and file.

Press and hold for more than 3 seconds while playing MP3 file.

Turn right / left the selection knob to search the directory. Press the button when you find the wanted directory.

For example, the directory search generally changes in two methods depending on the order of writing as follows.

·Method 1 : ROOT → Dir01 → Dir02 → Dir03 → Dir04 → Dir05 → Dir06 → Dir07 → ROOT

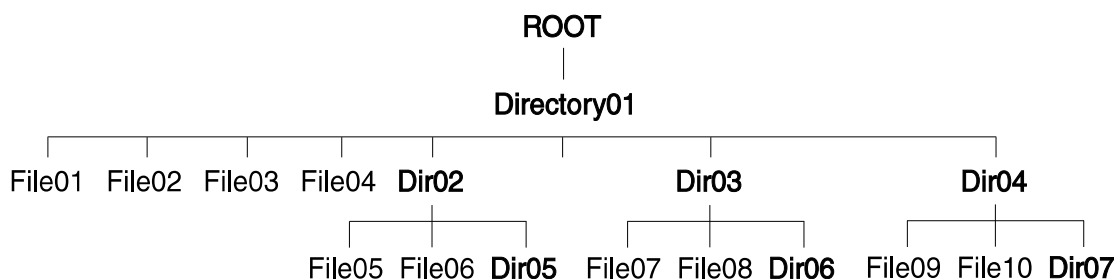
·Method 2 : ROOT → Dir01 → Dir02 → Dir05 → Dir03 → Dir06 → Dir04 → Dir07 → ROOT

If you want to search the file in the located directory, turn right / left the selection knob consecutively. Press the button when you find the wanted file. The unit will then play the selected file.

For instance, the file search changes in Dir01 as follows.

File01 → File02 → File03 → File04 → File01

※ MP3 directory / file configuration



















**RADIO AND USB PLAYER (WITHOUT BLUETOOTH) : MACHINE SERIAL NO.: #0005~**



9403CD101

**FRONT PANEL PRESENTATION**

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1  ..... Power ON/OFF,<br/>Volume UP/DOWN button</p> <p>2  ..... Manual UP/DOWN Tuning,<br/>File search, SEL button</p> <p>3  ..... Mode button,<br/>Audio mute button</p> <p>4  ..... Radio seek up button</p> <p>5  ..... Radio seek down button</p> <p>6  ..... Station preset 1<br/>DIS ..... Display button</p> <p>7  ..... Station preset 2</p> <p>8  ..... Station preset 3<br/>RPT ..... Repeat play button</p> <p>9  ..... Station preset 4<br/>RDM ..... Random play button</p> | <p>10  ..... Station preset 5<br/>DIR- ..... Directory down button</p> <p>11  ..... Station preset 6<br/>DIR+ ..... Directory up button</p> <p>12  ..... Scan play button (SCAN)<br/>Best station memory (BSM) button</p> <p>13  ..... Track up button</p> <p>14  ..... Track down button</p> <p>15  ..... USB connector</p> <p>16  ..... AUX IN Jack</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 2) Pairing in hands free modes



- (1) Press and hold CALL button (4) for 2 seconds until you hear beep sound, then appears PAIR STR on the display.
- (2) For the next procedure, go to cellular phone pairing mode.
- (3) If it is in pairing status with audio unit and cellular phone, PAIRING will show on the display.
- (4) If you want to exit pairing mode, press CALL END button (5) briefly while pairing, then it will show PAIR CLR on the display.
- (5) Bluetooth Icon and PAIR OK appear on the display when pairing is successful.

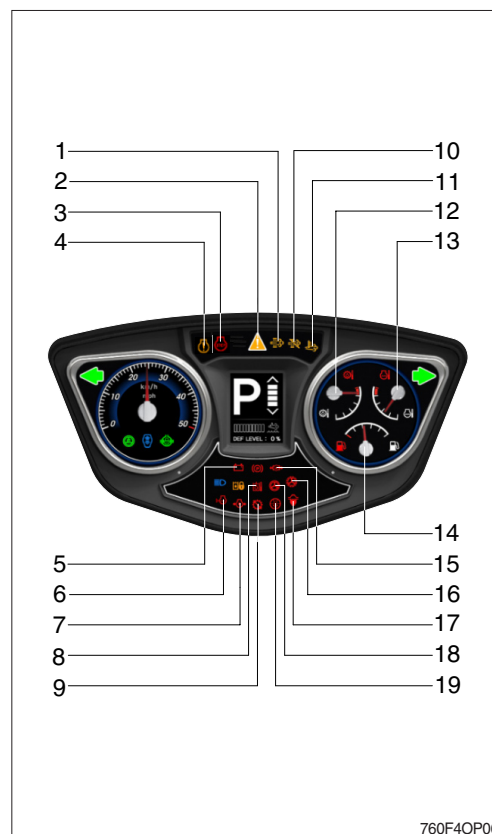
## 3) Cellular phone pairing mode

- (1) Browse your cellular phone menu and find the connectivity or bluetooth connection section.
  - (2) Select search for a new handsfree device function and allow the phone to find the mobile.
  - (3) HYUNDAI should appear on your cellular phone screen.
  - (4) Press connect menu among the handsfree option on your cellular phone.
  - (5) The cellular phone should prompt for a pin code. Insert the pin code 1234.
  - (6) The cellular phone should confirm that it has established a new paired connection.
  - (7) Close the menu. The pairing is now completed. It appears PAIR FAIL on the display for 3 seconds.
- ※ Each cellular phone type has distinct phone menu so you may need to refer to your manufactures instruction for the correct procedure on how to connect a new bluetooth device.
  - ※ Please retry to the pairing instruction if HYUNDAI does not appear on the cellular phone screen.
  - ※ Please select authorized, if there is authorized menu in the menu of bluetooth connection in your cellular phone.
  - ※ Once the bluetooth pairing is completed between your cellular pone and this audio unit, the both units will be automatically recognized on its paring and when you turn on the key in your car even though this audio unit is turned off.
  - ※ This audio unit can store up to 6 phones pairings. If the memory is full, the first stored paired phone will be deleted.
  - ※ The connecting priority will be given to the last connected cellular phone.
  - ※ If you want to change the connecting priority, try to connect this audio unit from the cellular phone.

#### 4) INSPECTION AFTER ENGINE START

Inspect and confirm the following after engine starts.

- (1) Is the level gauge of hydraulic oil tank in the normal level?
  - (2) Are there leakages of oil or water?
  - (3) Are all the warning lamps (1-19) OFF?
  - (4) Check the following after warming up operation.
    - ① Is the indicator of water temperature gauge (14) in the operating range?
    - ② Is the indicator of transmission oil temperature gauge (13) in the operating range?
    - ③ Is the engine sound and the color of exhaust gas normal?
    - ④ Are the sound and vibration normal?
- ※ **Do not increase engine speed quickly after starting, it can make damage engine or turbocharger.**
- ※ **If there are problems in the control panel, stop the engine immediately and correct problem as required.**



760F4OP06

#### 5) TRANSMISSION COLD STARTING

- (1) At an oil temperature in the shifting circuit <math>< -12^{\circ}\text{C}</math>, the transmission must be warmed-up for some minutes.
- (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 indication on the display is extinguished, the full driving program can be utilized out of NEUTRAL.

#### ※ Transmission warning



760F4OP15

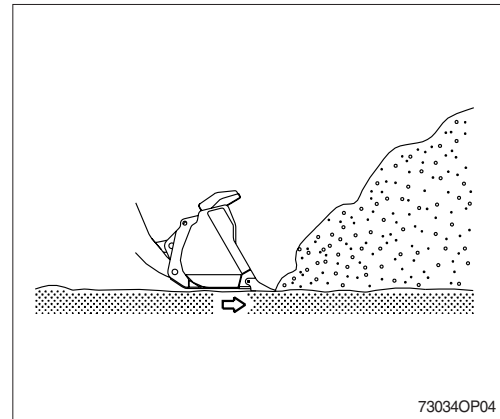
Symbol	Meaning	Remarks
LF, LR	Limp home gear	-
* *	Oil temperature too low, no gear available	Warm up engine/transmission
WS	Warning sump temperature	Alternate between WS and actual gear / direction while driving, in neutral only displayed WS if no fault is detected ※ Cool down transmission
WT	Warning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

## 2) EXCAVATION WORK

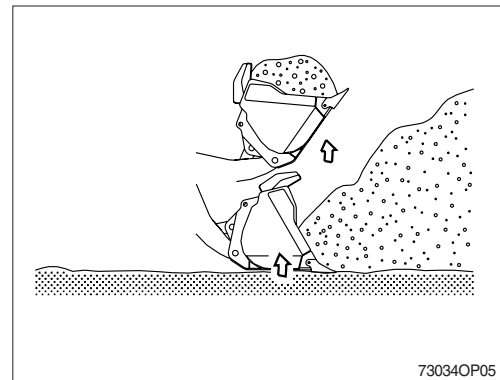
### (1) Shovel work

As the machine loads on the bucket with traveling, tires may start to slip because of heavy load. Then lift the bucket slightly to reduce load.

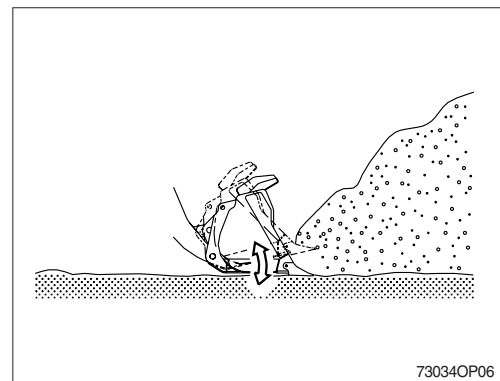
- ① Keep the bucket shovel parallel to the ground (If the bucket is pushed in a non-horizontal position, power may be reduced, and the bucket cannot dig deeply into the heap of soil).



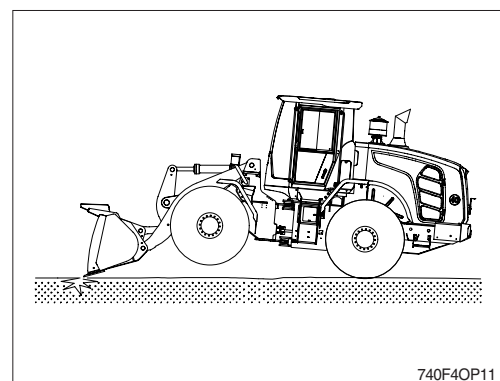
- ② When the bucket is sufficiently deep into the pile, advance the machine with the control lever pulled down. And by placing the control lever in the bucket roll-back position, fill the bucket with soil.



- ③ When it is difficult to dig into the soil, move the bucket control lever forward and backward to move the bucket teeth up and down.



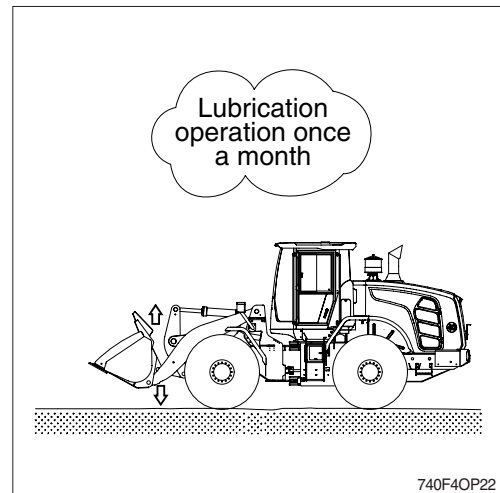
- ※ If the machine operates with its front tires lifted, its driving force will deteriorate and excessive force will be applied to the rear tires. Avoid operating in that posture.



## 6) DURING STORAGE

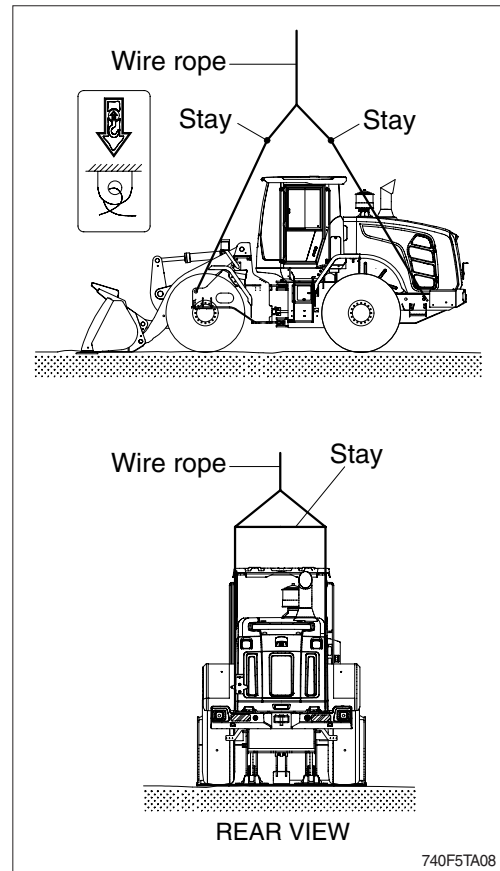
Start engine and move the machine and working equipment once a month and apply lubrication to each part.

- ※ Check the level of engine oil and coolant and fill if required when starting engine.
- ※ Clean the anticorrosive on the piston rod of cylinder.
- ※ Operate the machine such as traveling, turning, and work equipment operation to make sure enough lubrication of all functional components.



## 5. LOADING AND UNLOADING BY CRANE

- 1) Check the weight, length, width and height of the machine referring to chapter 2, Specification when you are going to hoist the machine.
  - 2) Use long wire rope and stay to keep the distance with the machine as it should avoid to touch with the machine.
  - 3) Put a rubber plate contact with wire rope and machine to prevent damage.
  - 4) Place crane on the proper place.
  - 5) Install the wire rope and stay like the illustration.
- ▲ Make sure wire rope is proper size.
  - ▲ Place the safety lock bar and pilot cut off switch to the OFF position to prevent the machine moving when hoisting the machine.
  - ▲ The wrong hoisting method or installation of wire rope can cause damage to the machine.
  - ▲ Do not load abruptly.
  - ▲ Keep area clear of personnel.
  - ▲ Attach two wire ropes to the rear of the machine. Attach two wire ropes to the front of the machine. Connect the four wire ropes.

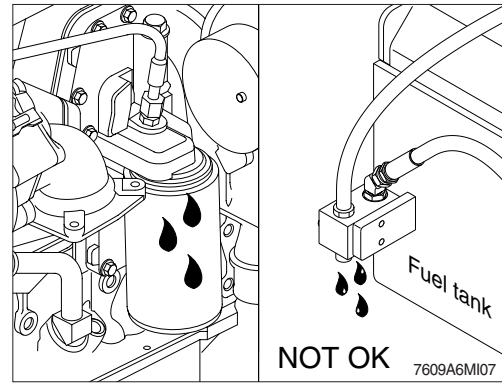


## 5) TIGHTENING TORQUE OF MAJOR COMPONENT

No.	Descriptions	Bolt size	Torque		
			kgf · m	lbf · ft	
1	Engine	Engine mounting bolt, nut (rubber, 2EA)	M20×2.5	57.9 ± 11.6	419 ± 83.9
2		Engine mounting bolt (bracket, 8EA)	M12×1.75	11.7 ± 1.7	84.6 ± 12.3
3		Engine mounting bolt (T/C plate-adapter, 4EA)	M10×1.5	6.9 ± 1.0	49.9 ± 7.2
4		Engine mounting stud bolt, nut (flywheel, 20EA)	M10×1.5	5.5±0.8 (1st nut)	39.8 ± 5.8
				6.8±1.0 (2nd nut)	49.2 ± 7.2
5		Engine mounting stud bolt (flywheel, 4EA)	M10×1.5	6.9 ± 1.0	49.9 ± 7.2
6		Fan motor mounting bolt	M12×1.75	12.8 ± 3.0	92.6 ± 21.7
7		Radiator mounting bolt	M16×2.0	29.7 ± 5.9	215 ± 42.7
8		Fuel tank mounting bolt	M16×2.0	29.7 ± 4.5	215 ± 32.5
9	Fuel tank mounting bolt (2EA)	M24×3.0	100 ± 15	723 ± 108	
10	Hydraulic system	Main pump housing mounting bolt	M16×2.0	29.7 ± 4.5	215 ± 32.5
11		Fan & brake pump housing mounting bolt	M10×1.5	6.9 ± 1.4	50 ± 10.1
13		Main control valve mounting bolt	M10×1.5	6.9 ± 1.4	50 ± 10.1
14		Steering unit mounting bolt	M10×1.5	6.9 ± 1.4	50 ± 10.1
15		Brake valve mounting bolt	M8×1.25	2.5 ± 0.5	18.1 ± 3.6
16		Cut-off valve mounting bolt	M8×1.25	2.5 ± 0.5	18.1 ± 3.6
17		Remote control lever mounting bolt	M6×1.0	1.1 ± 0.2	8.0 ± 1.4
18		Safety valve	M10×1.5	6.9 ± 1.4	50 ± 10.1
19		Hydraulic oil tank mounting bolt	M16×2.0	29.7 ± 4.5	215 ± 32.5
20	Power train system	Transmission mounting bolt, nut (rubber, 2EA)	M24×3.0	100 ± 15	723 ± 108
21		Transmission mounting bolt (bracket, 6EA)	M20×2.5	57.9 ± 11.1	419 ± 80.1
22		Front axle mounting bolt, nut	M27×2.0	135 ± 20.0	976 ± 146
23		Rear axle support mounting bolt, nut	M27×2.0	135 ± 15.0	976 ± 108
			M16×2.0	31.3 ± 4.7	226 ± 34.0
24		Tire mounting nut	M22×1.5	79 ± 11.9	571 ± 86.1
25	Drive shaft joint mounting bolt	3/8-24UNF	6.0 ± 0.8	43.4 ± 5.8	
26	Others	Counterweight mounting bolt (4EA)	M30×3.5	199 ± 30	1439 ± 216
27		Operator's seat mounting bolt	M8×1.25	3.4 ± 0.8	24.6 ± 5.0
29		ROPS Cab mounting bolt (4EA)	M20×2.5	57.9± 8.7	419 ± 63
		ROPS Cab mounting nut (4EA)	M16×2.0	20.5 ± 4.7	148± 34

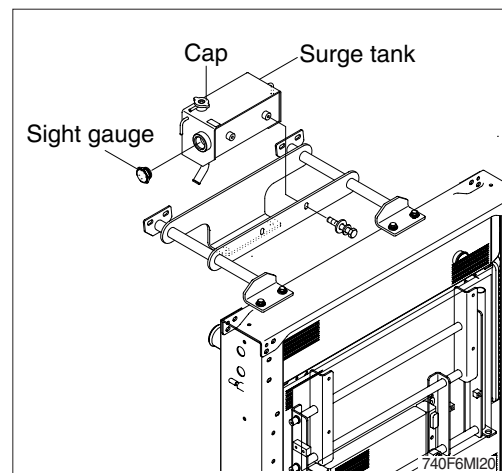
- (10) Operate the engine at low idle and inspect for leaks at the filter and the drain plug.  
Shut the engine off and check oil level with dipstick. Allow 15 minutes for oil to drain down before checking.

※ **Do not overfill the engine with oil.**



### 3) CHECK COOLANT LEVEL

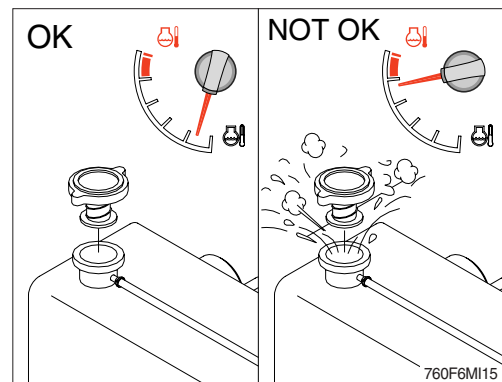
- (1) Check the engine fault code on the monitor.
- (2) If you following fault codes exist, check the coolant level.
- SPN : 111, FMI : 18  
- Coolant level is low.
  - SPN : 111, FMI : 1  
- Coolant level is the most severely low.
- (3) Add the mixture of antifreeze and water after removing the cap of the surge tank if coolant is not sufficient.



- (4) Replace gasket of surge tank cap when it is damaged.

▲ **Do not remove the surge tank cap from a hot engine. Wait until the coolant temperature is below 50°C (120°F) before removing the cap. Heated coolant spray or steam can cause personal injury.**

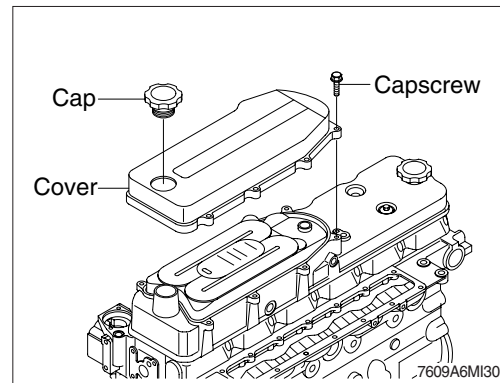
※ **Do not add cold coolant to a hot engine ; engine castings can be damaged. Allow the engine to cool to below 50°C (120°F) before adding coolant.**



## 15) CRANKCASE VENTILATION FILTER

※ Do not use pneumatic tools to remove the breather cover capscrews. Damage to the rocker cover can result.

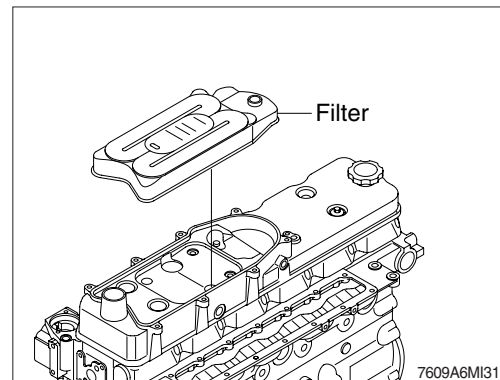
- (1) Remove the oil fill cap.
- (2) Remove the crankcase ventilation filter cover capscrews.
- (3) Remove the filter cover.



- (4) Remove the crankcase ventilation filter from the rocker lever cover.

※ Do not disturb the crankcase ventilation filter gasket located on the rocker lever cover.

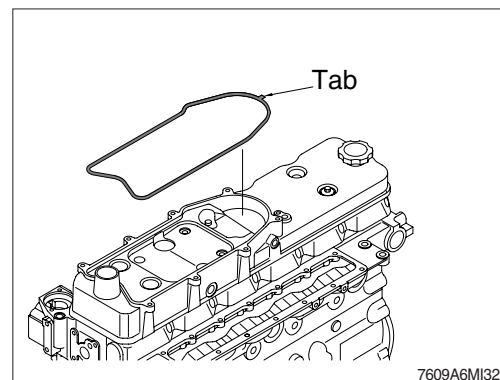
※ Exposure to oil can cause the gasket to swell, which can make it difficult to install the gasket back into groove. If the gasket comes out of the groove, do not attempt to install the gasket. Replace it with a new gasket.



- (5) If the gasket is damaged, remove the gasket by grasping the tab on the gasket and pulling up.

- (6) Clean the crankcase ventilation filter mounting surface and O-ring sealing surfaces on the rocker lever cover.

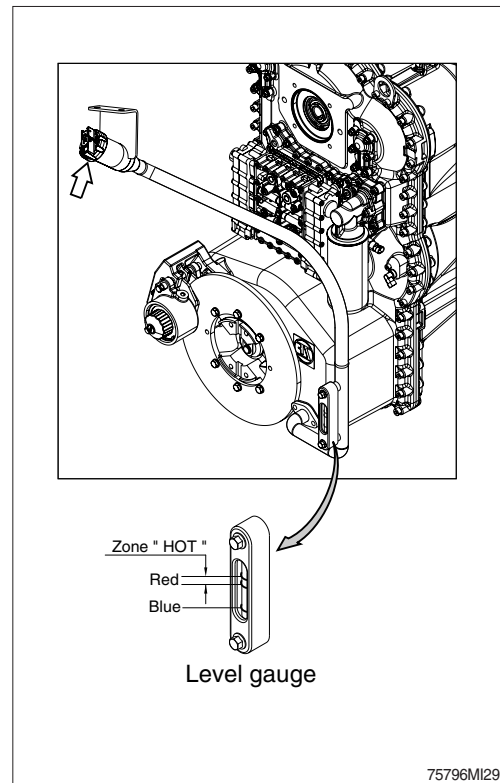
- (7) Clean the crankcase ventilation filter cover with warm soapy water.  
Inspect the cover for cracks.  
Replace the cover if damage is found.



## 29) CHECK TRANSMISSION OIL LEVEL

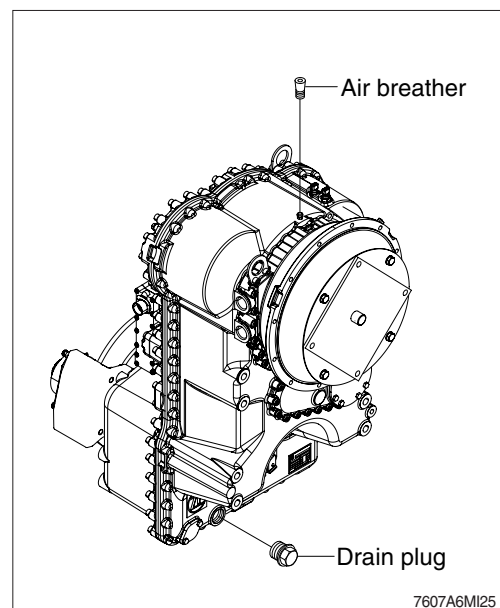
- (1) The oil level check must be carried out as follows; oil level check (weekly).
- (2) Before the oil level check, transmission must have been running to warm up enough.
- (3) When the oil level is checked, machine must be on flat ground and engine must be at idling speed, transmission must be in neutral position.
- (4) Check the oil level on level (sight) gauge.
- (5) Oil level
  - Operating temperature (about 80~90°C)  
:The Oil level must be lying in zone HOT (between two red lines).
  - Cold phase (about 40°C)  
:The Oil level must be lying near cold mark (blue line).

**▲ When checking, press the parking brake switch and fix the front and rear frames with the safety lock bar.**



## 30) REPLACEMENT OF TRANSMISSION OIL AND FILTER ELEMENT

- (1) Operate the machine for a few minutes in order to warm the transmission oil.
- (2) Move the machine to flat ground. Lower the bucket to the ground and slightly apply downward force.
- (3) Press the parking brake switch and stop the engine.
- (4) Open transmission air breather to relieve internal air pressure.
- (5) Remove the transmission drain plug. Allow the transmission oil to drain into a suitable container.



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