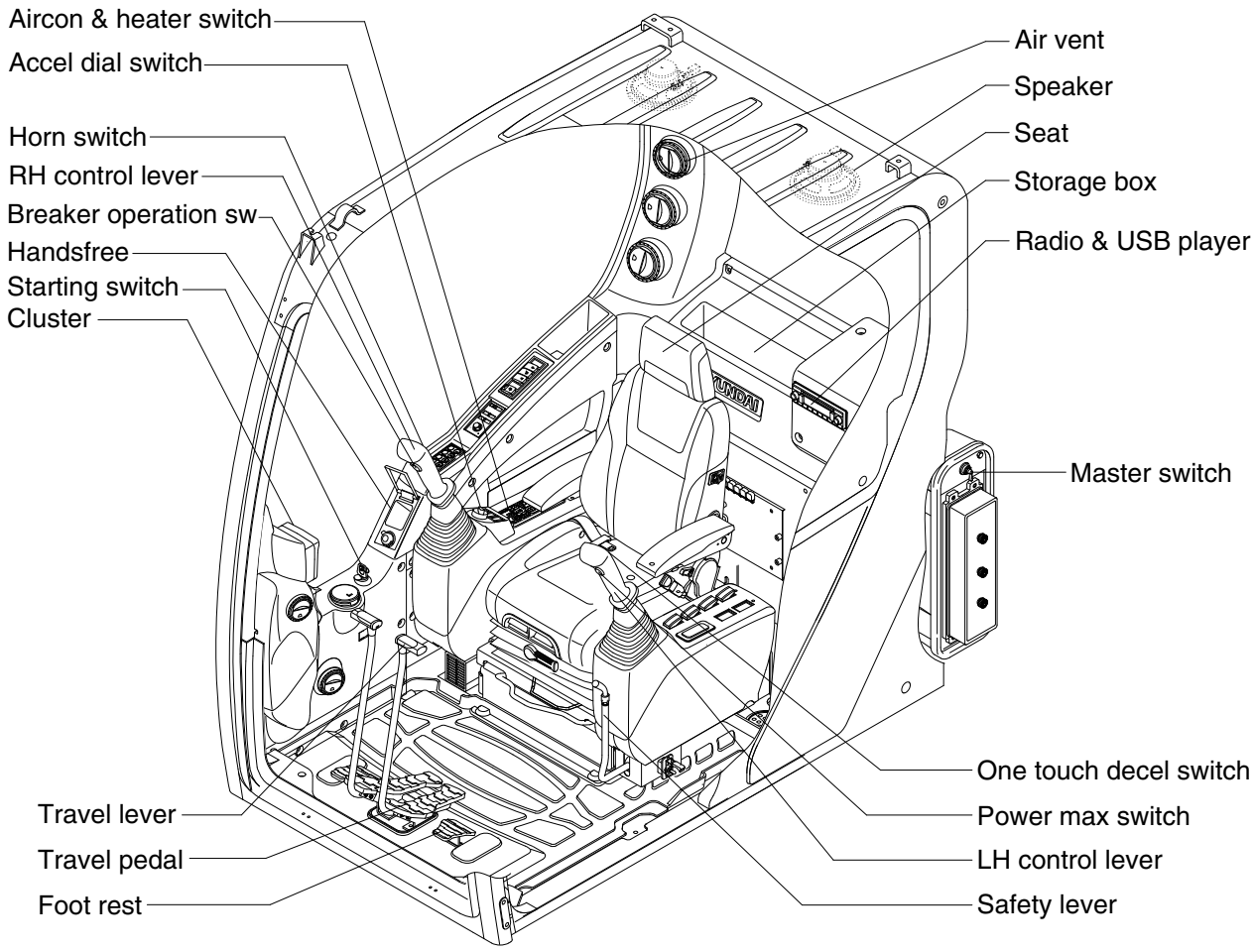
1. CAB DEVICES

1) The ergonomically designed console box and suspension type seat provide the operator with comfort.

2) ELECTRONIC MONITOR SYSTEM

(1) The centralized electronic monitor system allows the status and conditions of the machine to be monitored at a glance.

(2) It is equipped with a warning system for early detection of machine malfunction.



235F3CD01

2. CLUSTER

1) STRUCTURE

The cluster consists of LCD and switches as shown below. The LCD is to warn the operator in case of abnormal machine operation or conditions for the appropriate operation and inspection. The LCD is to set and display for modes, monitoring and utilities with the switches.

The switches or touch screen are to set the machine operation modes.

※ The cluster installed on this machine does not entirely guarantee the condition of the machine. Daily inspection should be performed according to chapter 6, Maintenance.

※ When the cluster provides a warning immediately check the problem, and perform the required action.

235A3CD20A

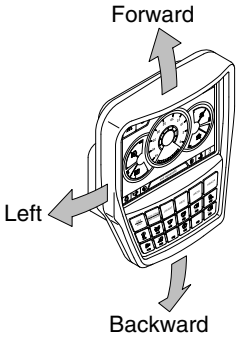
※ The warning lamp pops up and/or blinks and the buzzer sounds when the machine has a problem.

The warning lamp blinks until the problem is cleared. Refer to page 3-6 for details.

※ This cluster is adjustable.

· Vertical (forward/backward) : each 15°

· Horizontal (left only) : 8°



290F3CD47

2) GAUGE

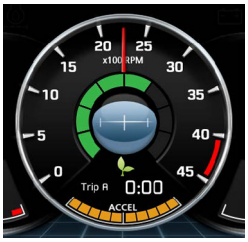
(1) Operation screen

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

235A3CD21A

1	RPM / Speed gauge	5	DEF/AdBlue® level gauge
2	Engine coolant temperature gauge	6	Tripmeter display
3	Hydraulic oil temperature gauge	7	Eco guage
4	Fuel level gauge	8	Accel dial gauge

(2) RPM / Speed gauge



300A3CD22

① This displays the engine speed.

(3) Engine coolant temperature gauge

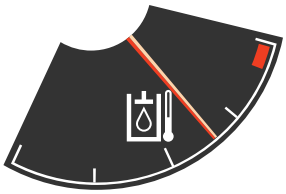
290F3CD53

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 pops up and the buzzer sounds, 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 in the normal condition range, check the electric device as this can be caused by poor connection of sensor.

(4) Hydraulic oil temperature gauge



290F3CD54

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 pops up and the buzzer sounds 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 in the normal condition range, check the electric device as this can be caused by poor connection of electricity or sensor.**

(5) Fuel level gauge

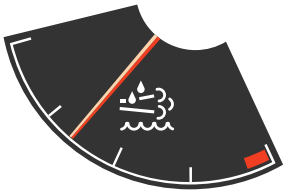
290F3CD55

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

② Fill the fuel when in the red range, or lamp pops up and the buzzer sounds.

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

(6) DEF/AdBlue® Level gauge



290F3CD57

① This gauge indicates the amount of liquid in the DEF/AdBlue® tank.

② Fill the DEF/AdBlue® when in the red range, or lamp pops up and the buzzer sounds.

③ Do not overfull DEF/AdBlue®.

※ **Refer to page 3-11.**

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

(7) Tripmeter display

290F3CD56

① This displays the engine the tripmeter.

※ **Refer to page 3-34 for details.**

(8) Eco gauge

290F3CD58

① This gauge indicates the fuel consumption rate and machine load status so that the operators can operate the machine efficient in regards to fuel consumption.

② Fuel consumption rate or machine load is higher if the number of segments are increased.

③ The color of Eco gauge indicates operation status.

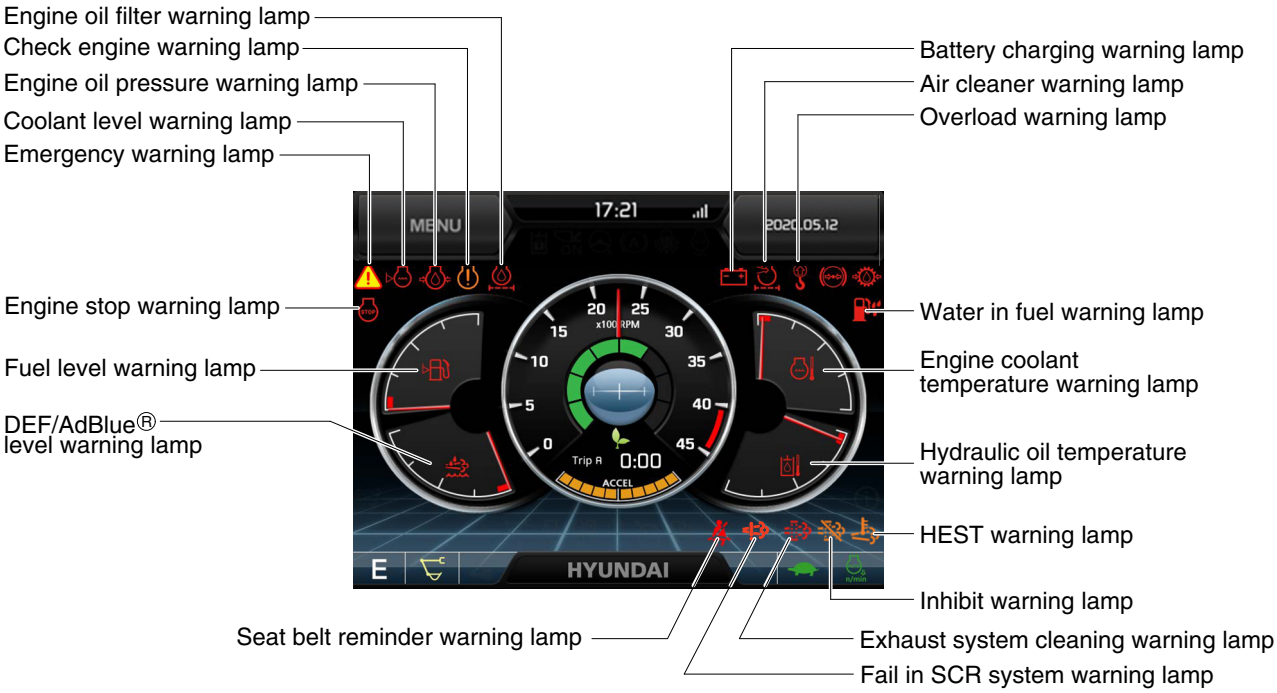
- White : Idle operation
- Green : Economy operation
- Yellow : Non-economy operation at a medium level.
- Red : Non-economy operation at a high level.

(9) Accel dial gauge

290F3CD59

① This gauge indicates the level of accel dial.

3) WARNING LAMPS



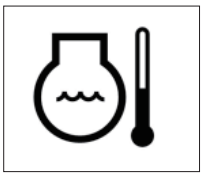
235A3CD23C

※ **Warning lamps and buzzer**

Warnings	When error happened	Lamps and buzzer
All warning lamps except below	Warning lamp pops up on the center of the LCD and the buzzer sounds	· The pop-up warning lamp moves to the original position, blinks and the buzzer stops when; - the buzzer stop switch AUTO IDLE Buzzer Stop is pushed - the lamp of the LCD is touched
	Warning lamp pops up on the center of the LCD and the buzzer sounds	· The pop-up warning lamp moves to the original position, light ON or blinks and the buzzer stops when; - the buzzer stop switch AUTO IDLE Buzzer Stop is pushed - the lamp of the LCD is touched **※ Refer to page 3-11 for details.**
	Warning lamp pops up on the center of the LCD and the buzzer sounds	· The pop-up warning lamp moves to the original position, lights up and the buzzer stops after 2 seconds elapses.
	Warning lamp pops up on the center of the LCD and the buzzer sounds	· The pop-up warning lamp moves to the original position, blinks and the buzzer stops after 2 seconds elapses.
	Warning lamp pops up on the center of the LCD and the buzzer sounds	· Cluster displays this pop-up when it has communication error with MCU. · If communication with MCU become normal state, it will disappear automatically.
	Warning lamp pops up on the center of the LCD and the buzzer sounds	**※ Refer to page 3-7 for details.**
	Warning lamp lights up and the buzzer sounds	**※ Refer to page 3-11 for details.**

※ **Refer to page 3-17 for the buzzer stop switch** AUTO IDLE Buzzer Stop

(1) Engine coolant temperature warning lamp



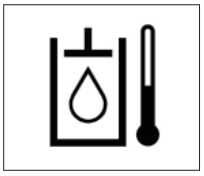
290F3CD61

① Engine coolant temperature warning is indicated in 2 steps.
- 103˚C over : The lamp pops up and the buzzer sounds.
- 107˚C over : The lamp pops up and the buzzer sounds.

② The pop-up , lamps move to the original position and blinks when the buzzer stop switch AUTO IDLE Buzzer Stop is pushed. The buzzer will stop and , lamps will blink.

③ Check the cooling system when the lamps keep blinking.

(2) Hydraulic oil temperature warning lamp



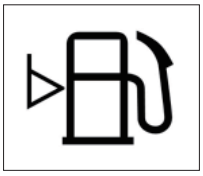
290F3CD62

① Hydraulic oil temperature warning is indicated in 2 steps.
- 100˚C over : The lamp pops up and the buzzer sounds.
- 105˚C over : The lamp pops up and the buzzer sounds.

② The pop-up , lamps move to the original position and blinks when the buzzer stop switch AUTO IDLE Buzzer Stop is pushed. The buzzer will stop and , lamps will blink.

③ Check the hydraulic oil level and hydraulic cooling system.

(3) Fuel level warning lamp



290F3CD63

① This warning lamp pops up and the buzzer sounds when the fuel level is below 54 ℓ (14.3 U.S. gal).

② Fill the fuel immediately after the lamp blinks.

(4) Emergency warning lamp

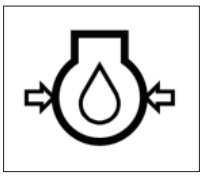
290F3CD64

① This warning lamp pops up and the buzzer sounds when each of the below warnings occurs.
- Engine coolant overheating (over 107˚C)
- Hydraulic oil overheating (over 105˚C)
- MCU input voltage abnormal
- Cluster communication data error
- Engine ECM communication data error

※ The pop-up warning lamp moves to the original position and blinks when the buzzer stop switch AUTO IDLE Buzzer Stop is pushed. The buzzer will stop.

② When this warning lamp blinks, machine must be checked and serviced immediately.

(5) Engine oil pressure warning lamp



290F3CD65

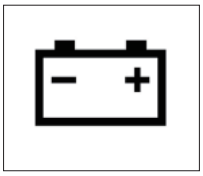
① This warning lamp pops up and the buzzer sounds when the engine oil pressure is low.
② If the lamp lights up, shut OFF the engine immediately. Check oil level.

(6) Check engine warning lamp

290F3CD66

① This warning lamp pops up and the buzzer sounds when the communication between MCU and engine ECM is abnormal, or if the cluster received specific fault code from the engine ECM.
② Check the communication line between the two.
If the communication line is OK, then check the fault codes on the cluster.

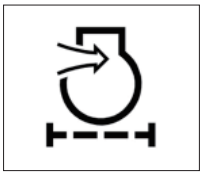
(7) Battery charging warning lamp



290F3CD67

① This warning lamp pops up and the buzzer sounds when the battery charging voltage is low.
② Check the battery charging circuit when this lamp blinks.

(8) Air cleaner warning lamp



290F3CD68

① This warning lamp pops up and the buzzer sounds when the air cleaner is clogged.
② Check, clean or replace filter.

(9) Overload warning lamp (opt)

290F3CD69

① When the machine is overloaded, the overload warning lamp pops up and the buzzer sounds when the overload switch is ON. (if equipped)
② Reduce the machine load.

(10) Engine stop warning lamp

290F3CD252

① This warning lamp pops up and the buzzer sounds after 30 minutes of run time elapses, when the DEF/AdBlue® tank has reached it's minimum level. Stop engine immediately and check actual DEF/AdBlue® level.

② Fill the DEF/AdBlue® immediately.

※ Refer to page 3-11.

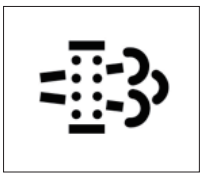
③ This lamp pops up and the buzzer sounds when the maual (stationary) exhuast system cleaning is not performed.

※ Refer to page 3-9.

※ Please contact your HD Hyundai Construction Equipment service center or local dealer.

※ "Engine shutdown" cluster message pops up when the exhaust gas temperature reaches above 800℃.

(11) Exhaust system cleaning warning lamp

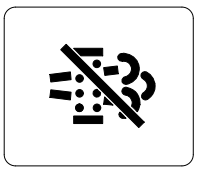


290F3CD70

① This warning lamp lights up or blinks when exhaust system cleaning is needed as seen in the table below.

Warning lamp			Description
Exhaust 	Check engine 	Stop engine 	
Off	Off	Off	· Automatic exhaust system cleaning
Blink	Off	Off	· The status of a manual (stationary) exhaust system cleaning when the exhaust system cleaning switch has been activated. **※ Refer to page 3-10.**
On	On	Off	· The aftertreatment exhaust system needs to be cleaned immediately. · Engine power will be reduced automatically if action is not taken. ※ The exhaust system cleaning can be accomplished by: - Changing to a more challenging duty cycle. - Performing a manual (stationary) exhaust system cleaning.
On	On	On	· These lamps will be ON when a manual (stationary) exhaust system cleaning is not performed. · Stop the engine immediately. · Please contact your HD Hyundai Construction Equipment service center or local dealer.

(12) Exhaust system cleaning inhibit warning lamp

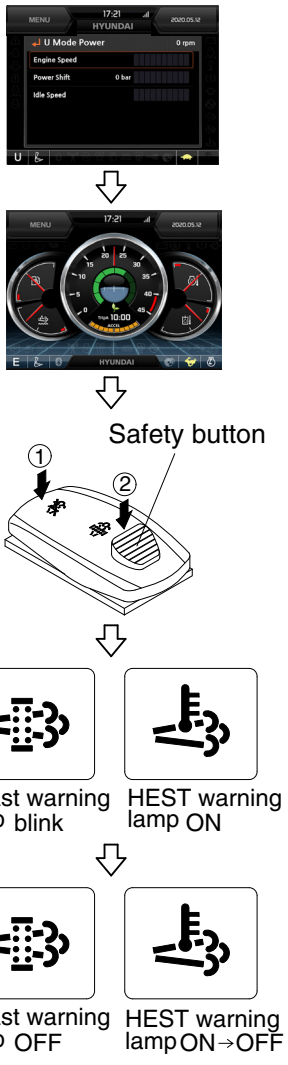


2609A3CD20

① This warning lamp indicates the exhaust system cleaning switch is pushed to the inhibit position, therefore automatic and manual exhaust system cleaning can not occur.

※ Refer to page 3-37 for the exhaust system cleaning switch.

※ Manual exhaust system cleaning



235A3CD173A

※ Manual exhaust system cleaning must be operated in a fireproof area.

※ To stop a manual exhaust system cleaning before it has completed, set to the exhaust system cleaning switch to the inhibit position or turn OFF the engine.

① Stop and park the machine.

② Pull the safety button and push the switch to position ② to initiate the manual exhaust system cleaning.

※ Refer to the page 3-37 for the exhaust system cleaning switch operation.

※ The engine speed may increase to 950~1050 rpm and exhaust system cleaning begins and it will take approximately 20~30 minutes.

③ The exhaust system cleaning warning lamp will blink and HEST warning lamp will light up during the exhaust system cleaning operation.

④ The exhaust system cleaning and/or HEST warning lamp light will go off when the exhaust system cleaning is completed.

(13) HEST (High exhaust system temperature) **warning lamp**

235A3CD24

① This warning lamp indicates, when illuminated, that exhaust temperatures are high due to exhaust system cleaning.

② The lamp will also illuminate during a manual exhaust system cleaning.

③ When this lamp is illuminated, be sure the exhaust pipe outlet is not directed at any surface or material that can melt, burn, or explode.

⚠ When this lamp is illuminated, the exhaust gas temperature could reach 800˚C [1500˚F], which is hot enough to ignite or melt common materials, and to burn people.

※ The lamp does not signify the need for any kind of equipment or engine service; It merely alerts the equipment operator to high exhaust temperatures. It is common for the lamp to illuminate on and off during normal equipment operation as the engine completes exhaust system cleaning cycles.

(14) DEF/AdBlue® level warning lamp

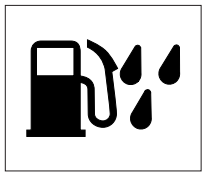
290F3CD257

① This warning lamp when ON or blinking, indicates that the DEF/AdBlue® level is low as per the table below.

※ **It is recommended that the DEF/AdBlue® tank be filled completely full of the DEF/AdBlue® in order to correct any fault conditions.**

Warning lamp				Description
Fail in SCR system	DEF/AdBlue® level	Check engine	Stop engine	
On	On	Off	Off	· The DEF/AdBlue® level has fallen below the initial warning level (10%).
On	On	On	Off	· The DEF/AdBlue® level has fallen below the initial derate level (2.5%). · The engine power will be limited automatically.
On	Blink	On	On	· This happens when 30 minutes has elapsed with empty conditions (0%) of the DEF/AdBlue® tank. · The engine will enter the final derate level which may include low idle lock or engine shutdown with restart limitations. · In order to remove the final derate, the DEF/AdBlue® tank must be filled to above 10% gauge reading.

(15) Water in fuel warning lamp



300A3CD24A

① This warning lamp lights up and the buzzer sounds when the water separator is full of water or malfunctioning.

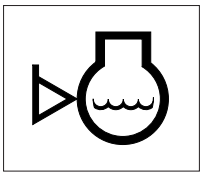
※ **When this lamp lights up, stop the machine and drain water from the separator.**

(16) Seat belt reminder warning lamp

300A3CD25

① When operator does not fasten the operator's seat belt, the seat belt reminder warning lamp pops up and the buzzer sounds.
② Fasten the seat belt.

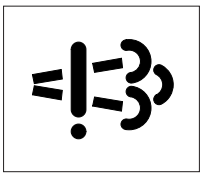
(17) Coolant level warning lamp



760F3CD58

① This warning lamp indicates lack of coolant.
② Check and refill coolant.

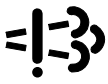
(18) Fail in SCR system warning lamp



300A3CD15

① This warning lamp indicates there are faults related to SCR system.
② The lamp lights up when each of the below warnings is happening.
   a. Low DEF/AdBlue® level
   b. Poor quality of DEF/AdBlue®
   c. Tempering or malfunction in the aftertreatment system
③ Once the lamp lights up, the engine will derate soon.

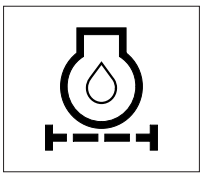
※ Please contact your HD Hyundai Construction Equipment service center or local dealer.

Warning lamp		Torque reduction
	Time	
On	Fault detected	-
On	After 2 h 30 min	· Torque is reduced to 75% of the highest torque.
Blink	After 3 h 45 min	· Torque is reduced to 50% of the highest torque.
Blink rapidly	After 4 hours	· Torque is reduced to 0% (low idling) of the hightest torque within 2~10 min.

※ If a new fault occurs within 40 hours of operation since the first fault, the warning lamp will come ON. After 3 hours of operation, the warning lamp will blink rapidly and torque will be reduced to 0% (low idling) within 2~10 min.

※ Once the fault has been remedied and the engine control unit has received an indication that it is working, torque returns to the normal level.

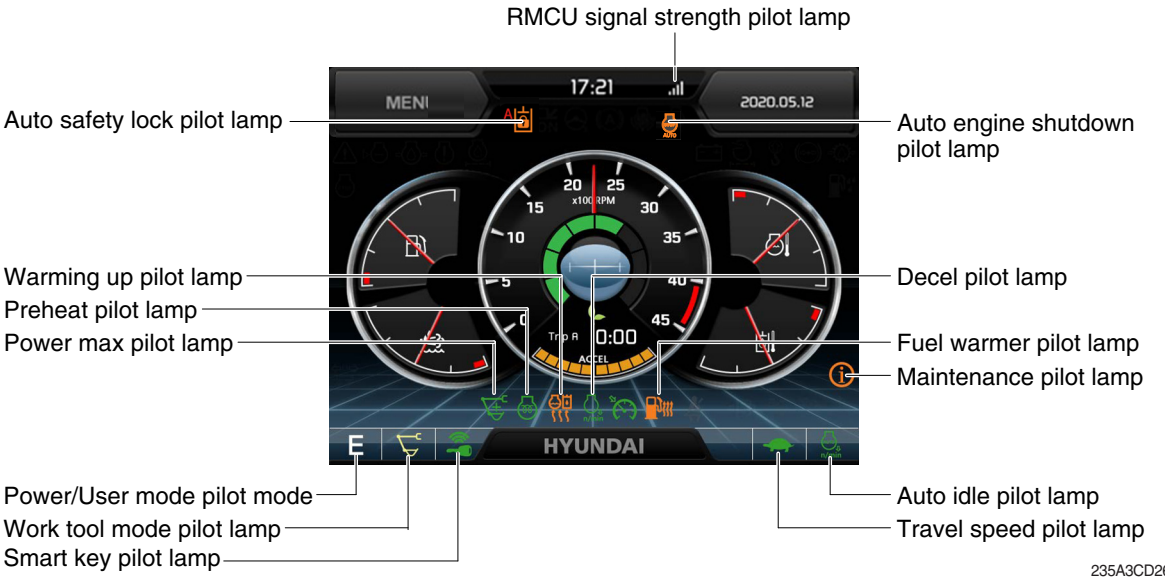
(19) Engine oil filter warning lamp



300A3CD306

① This warning lamp pops up and the buzzer sounds when the engine oil filter is clogged.
② Check, clean or replace filter.

4) PILOT LAMPS



235A3CD26A

(1) Mode pilot lamps

No	Mode	Pilot lamp	Selected mode
1	Power mode	P	Heavy duty power work mode
		S	Standard power mode
		E	Economy power mode
2	User mode	U	User preferable power mode
3	Work tool mode		General operation - IPC speed mode
			General operation - IPC balance mode
			General operation - IPC efficiency mode
			Breaker operation mode
			Crusher operation mode
			Lifting mode
4	Travel mode		Low speed traveling
			High speed traveling
5	Auto idle mode		Auto idle

(2) Power max pilot lamp

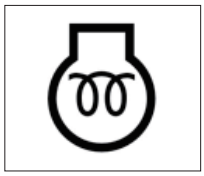
300A3CD32

① The lamp will be ON when pushing power max switch on the LH RCV lever.

② The power max function operates for a max period of 8 seconds.

※ **Refer to the page 3-39 for power max function.**

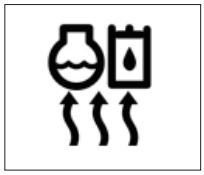
(3) Preheat pilot lamp



290F3CD79

① Turning the start key switch to the ON position starts preheating in cold weather.
② Start the engine after this lamp goes OFF.

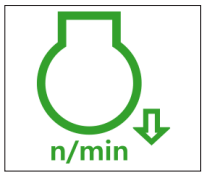
(4) Warming up pilot lamp



290F3CD80

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

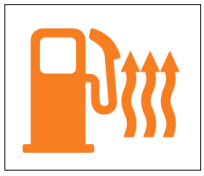
(5) Decel pilot lamp



300A3CD33

① Operating one touch decel switch on the RCV lever makes the lamp light up.
② Also, the lamp will light up and engine speed will be reduced automatically to save fuel when all levers and pedals are in the neutral position, and the auto idle function is selected.
※ **One touch decel is not available when the auto idle pilot lamp is turned ON.**
※ **Refer to page 3-39.**

(6) Fuel warmer pilot lamp



300A3CD34

① This lamp lights up when the coolant temperature is below 10℃ (50°F) or the hydraulic oil temperature is 20℃ (68°F).
② The automatic fuel warming is cancelled when the engine coolant temperature is above 60℃ (140°F), and the hydraulic oil temperature is above 45℃ (113°F) since the start switch was ON position.

(7) Maintenance pilot lamp

300A3CD35

① This lamp lights up when consumable parts are in need of replacement. It means that the change or replacement interval of parts is 30 hours from the required change interval.
② Check the message in maintenance information of main menu. Also, this lamp lights up for 3 minutes when the start switch is switched to the ON position.
※ **Refer to page 3-27.**

(8) RMCU signal strength pilot lamp (mobile only)

220A3CD200

① This lamp indicates RMCU signal strength as below.

: Searching

: Bad

: Normal

: Good

: Excellent

(9) Smart key pilot lamp (opt)

300A3CD36A

① This lamp lights up when the engine is started by the start button.

② This lamp is red when the a authentication fails, it will be green when it authentication is successful.

※ **Refer to the page 3-28.**

(10) Auto safety lock pilot lamp

300A3CD37A

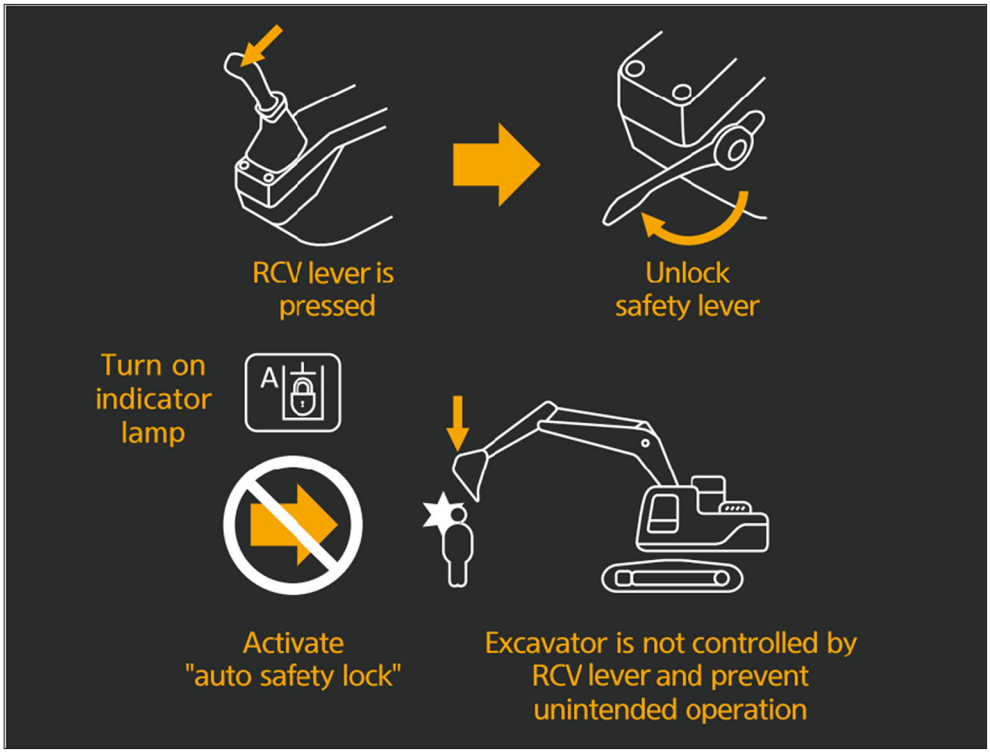
① Auto safety lock system prevents unintended operation of the machine in order to improve safety.

② Engine will only start if safety lever is locked.

③ If operator unlocks safety lever when RCV lever is pressed, machine is not controlled by RCV lever.

⚠ **If operator unlocks safety lever while any control/function is being operated, the machine will move violently. This could cause serious injury, death or damage to property.**

④ The function is released only by locating the safety lever to the UNLOCK position and the LOCK position again.



300A3CD38

(11) Auto engine shutdown pilot lamp

220A3CD202A

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

※ **Refer to page 3-23.**

(12) Engine rpm state

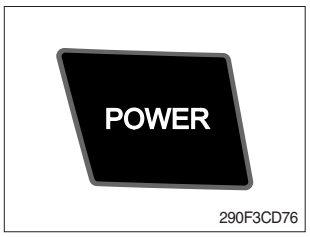
Function	Safety Lever	Auto Idle Mode 	One Touch Decel 	RPM State
State 1	Unlock	OFF	OFF	High rpm
State 2	Unlock	OFF	**ON**	Low rpm
State 3	Unlock	**ON**	OFF	Auto Idle rpm
State 4	Lock	**ON**	OFF	Low rpm
State 5	Lock	OFF	**ON**	Low rpm
State 6	Unlock	**ON**	**ON**	Low rpm
State 7	Lock → Unlock	**ON**	**ON**	Low → High → Low rpm (few seconds later)
State 8	Lock	**ON**	OFF	Low rpm
State 9	Lock	**ON**	**ON**	Low rpm

5) SWITCHES

235A3CD39A

※ **When some of the switches are selected, the pilot lamps are displayed on the LCD. Refer to the page 3-13 for details.**

(1) Power mode switch



290F3CD76

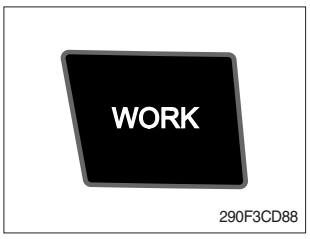
① This switch is to select the machine power mode and when pressed, the power mode pilot lamp will be displayed on the section of the monitor.

- P : Heavy duty power work.
- S : Standard power work.

② - E : Economy power work.

The pilot lamp changes E → S → P → E in this order.

(2) Work mode switch



290F3CD88

① This switch is to select the machine work mode, which shifts from general operation mode to optional attachment operation mode.

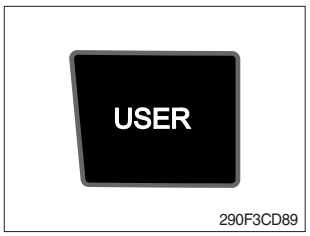
- : General operation mode
- : Breaker operation mode (if equipped)
- : Crusher operation mode (if equipped)
- : Lifting mode
- Not installed : Breaker or crusher is not installed.

※ **Refer to page 2-7 for details.**

300A3CD168

② If you press this switch for a time (1 second), quick pop-up will appear. When you select an attachment from the popup, the operation mode will immediately switch to selected attachment.

(3) User mode switch



① This switch is used to select the user mode.
② Refer to page 3-21 for another set of the user mode.

(4) Travel speed switch

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

※ Do not change the setting of the travel speed switch while machine is moving. Machine stability may be adversely affected.

⚠ Serious injury or death can result from sudden changes in machine stability.

(5) Auto idle/ buzzer stop switch

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.

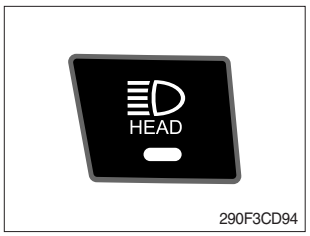
(6) Escape/Camera switch

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 3-34 for the camera.
③ If the camera is not installed, this switch is used only ESC function.

(7) Work light switch

① This switch is used to operate the work light.
② The pilot lamp lights up when this switch is pressed.

(8) Head light switch



① This switch is used to operate the head light.
② The pilot lamp lights up when this switch is pressed.

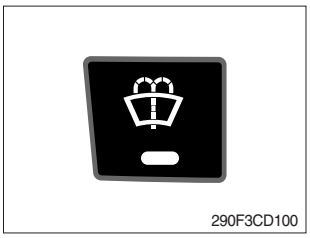
(9) Intermittent wiper switch

① When this switch is pressed, wipers operate intermittently.
② The pilot lamp lights up when this switch is pressed.

(10) Wiper switch

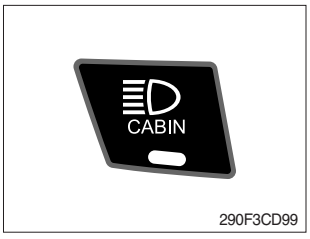
① This switch is used to operate the wiper.
② Note that the wiper will self-park when switched off.
③ The pilot lamp lights up when this switch is pressed.
△ **If the wiper does not operate with the switch in ON position, turn the switch OFF immediately. Check the cause. If the switch remains ON, motor failure can result.**

(11) Washer switch



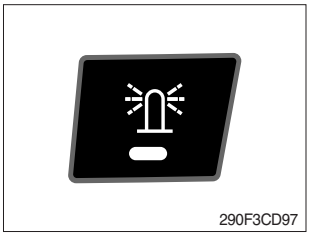
① Washer fluid is sprayed and the wiper is operated only when this switch is pressed.
② The pilot lamp lights up when this switch is pressed.

(12) Cab light switch



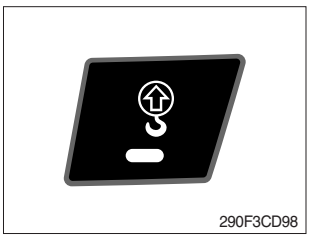
① This switch turns on the cab light.
② The pilot lamp lights up when this switch is pressed.

(13) Beacon switch (opt)



① This switch activates the rotary light on the cab.
② The pilot lamp lights up when this switch is pressed.

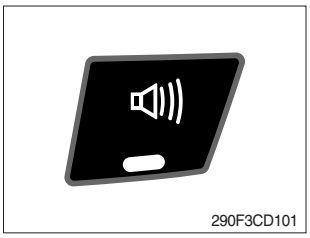
(14) Overload switch (opt)



① When this switch is activated, buzzer makes sound and overload warning lamp lights up in the event that the machine is or becomes in an overloaded situation.
② When the switch is inactivated, buzzer stops and warning lamp goes off.

⚠ Overloading the machine could impact the machines stability which could result in tipover hazard. A tipover hazard could result in serious injury or death. Always activate the overload warning device before you handle or lift objects.

(15) Travel alarm switch



① This switch is to activate travel alarm function surrounding when the machine travels.
- ON : The travel alarm function is activated.
- OFF : The travel alarm function is not activated.

(16) Main menu quick touch switch

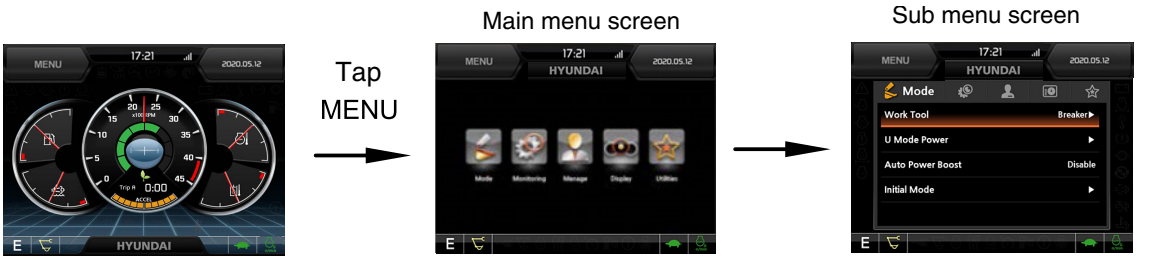
① This switch is to activate the main menu in the cluster.

※ Refer to the page 3-20.

6) MAIN MENU

※ You can select or set the menu by the touch screen.
On the operation screen, tap MENU to access the main menu screen.
On the sub menu screen, you can tap the menu bar to access functions or applications.

· Operation screen



235A3CD40A

(1) Structure

No	Main menu	Sub menu	Description
1	 Mode 290F3CD103	Work tool U mode power Combination speed setting Auto power boost IPC mode Auto engine shutdown Initial mode Emergency mode	Breaker, Crusher, Not installed User mode only Load sensitivity, Trucking balance, Boom/Arm balance, Arm speed Enable, Disable Speed mode, Balance mode, Efficiency mode One time, Always, Disable Key on initial mode / initial work mode, Accel initial mode / step Switch function
2	 Monitoring 290F3CD104	Active fault Logged fault Delete logged fault Monitoring	MCU, Engine ECM, AAVM (opt) MCU, Engine ECM, AAVM (opt) All logged fault delete, Initialization canceled Machine information, Switch status, Output status,
3	 Management 290F3CD105	Fuel rate information Maintenance information Machine security Machine information Contact Service menu Clinometer Update	General record, Hourly, Daily, Mode record Replacement, Change interval oils and filters ESL mode setting, Password change Model, MCU, Monitor, switch controller, RMCU, Relay drive unit, AAVM (opt) A/S phone number, A/S phone number change Power shift, Operating hour, Breaker mode pump acting, EPPR current level, Overload pressure, Optional piping pressure removal, Fine swing Clinometer setting Cluster, ETC device
4	 Display 290F3CD106	Display item Clock Brightness Unit setup Language selection Screen type	Engine speed, Tripmeter A, Tripmeter B, Tripmeter C Clock Manual, Auto Temperature, Pressure, Flow, Distance, Date format Korean, English, ETC A type, B type
5	 Utilities 290F3CD107	Tripmeter Camera Auto idle time setting	3 kinds (A, B, C) Camera setting, Auto mode (travel) Time setting

(2) Mode setup

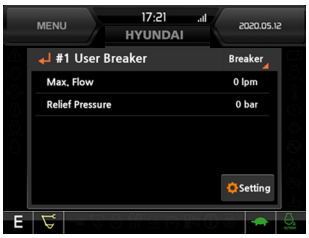
① Work tool (Machine Serial No. : -#0384)

235A3CD41A

A

235A3CD42A

B



235A3CD43A

· Select installed optional attachment
  - A : It can set the user's attachment.
    It is available in setting #1~#10.
  - B : Max flow - Set the maximum flow for the attachment.
    Relief pressure - Set the relief pressure.

(2) Mode setup

① Work tool (Machine Serial No. : #0385-)

235A3CD41A

A

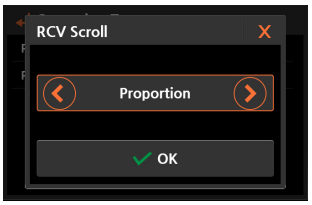
235A3CD42A

B

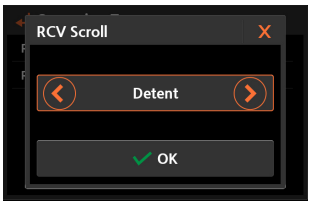
235A3CD43B

· Select installed optional attachment
  - A : It can set the user's attachment.
    It is available in setting #1~#10.
  - B : Max flow - Set the maximum flow for the attachment.
    Relief pressure - Set the relief pressure.
    Operation type - Set the operation type for attachment.

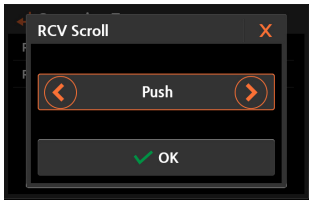
235A3CD651



140WA3CD652A



140WA3CD653A

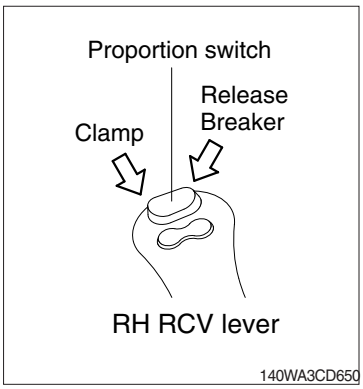


140WA3CD654A

■ Operation type

Operation type is used to set the operation of the proportion switch on the RCV lever if equipped proportional function.

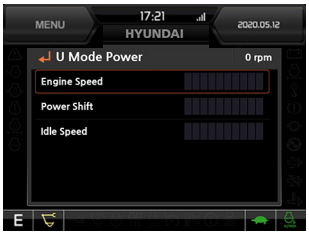
- Push : Switch actuation will be deactivated when the proportion switch is released.
- Detent : Switch actuation will remain even if the proportion switch is released.
  To deactivate, move the switch in the same direction again or to the opposite direction.
- Proportion : Switch actuation is proportional to the movement of the proportion switch.



140WA3CD650

② U mode power

235A3CD44A



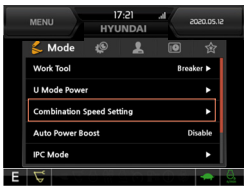
235A3CD45B

· Engine high idle rpm, auto idle rpm and pump torque (power shift) can be modulated and memorized separately in U-mode.
· U-mode can be activated by user mode switch.

Step (▮)	Engine speed (rpm)	Idle speed (rpm)	Power shift
1	1300	750	10%
2	1400	800	20%
3	1500	850	30%
4	1600	900	40%
5	1700	950	50%
6	1800	1000 (auto decel)	60%
7	1850	1050	70%
8	1900	1100	80%
9	1950	1150	85%
10	2000	1200	90%

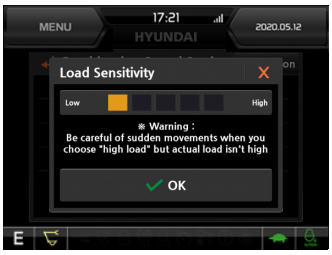
※One touch decel & low idle : 900 rpm

③ Combination speed setting



235A3CD300A

235A3CD301A



235A3CD302A

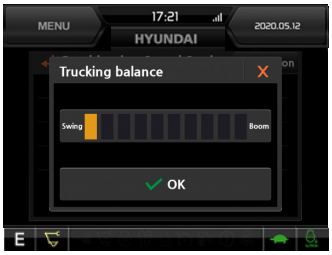
· **Load sensitivity**
- It changes fine control sensitivity. (boom up or arm out operation)
- When the segment is close to high, the fine operation speed is increased. (Load sensitivity is high.)
- It is reccomended to set high segment when lifting heavy duty equipment or load.

⚠ The fine control speed is able to be unexpectedly fast by high setting and load condition. Do use the function through fine control test considering the condition.

· **Trucking balance**

This is control the swing and boom up speed when the combined operation is activated.

- It adjusts the ratio of relative speed in the boom up and swing combination operation.
- The segment is close to swing, the swing speed has a priority.
- The segment of swing is recommended for use in work environments that require high swing speed and acceleration, some slow boom up, and more than 45 degrees.
- The segments are close to boom, the boom up speed has a priority.
- The segment of boom is mainly used in work environments that require high boom up work at a short swing angle of about 45 degrees.

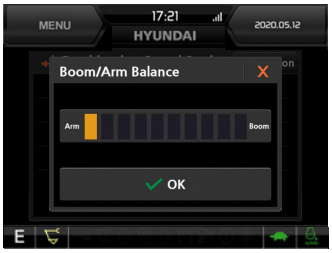


235A3CD303A

· **Boom / Arm balance**

This is control the boom up and arm in speed when the combined operation is activated. It is effective in work place mainly for leveling work.

- When the level is closer to arm, arm in operation speed has more priority than boom up operation.
- When the level is closer to boom, boom up operation speed has more priority than arm in operation.



235A3CD304A

· **Arm speed**

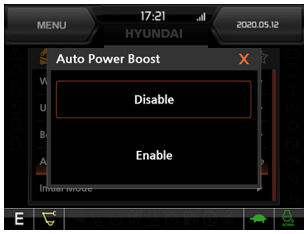
This provides ON and OFF of the regeneration function of the arm in operation.

- Enable means that regeneration is ON, and an energy can be used efficiently through automatic regeneration according to the load.
- Disable means that regeneration is always OFF, and it can be effective for heavy digging work.

235A3CD305A

④ Auto power boost

235A3CD49A



235A3CD50

· The power boost function can be activated or cancelled.
- Enable : The digging power is automatically increased as working conditions by the MCU. It is operated max 8 seconds.
- Disable : Not operated.

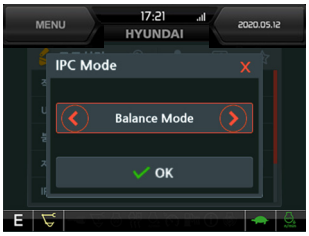
※ **The auto power boost function is activated in P mode. It does not work in S mode and E mode.**

⑤ IPC mode

235A3CD51

235A3CD52

235A3CD53A



235A3CD54

235A3CD55A

235A3CD56

235A3CD57A

· The operator can improve fuel consumption and working speed through IPC mode.
· IPC mode is working by using inertial energy in specific case.
· The IPC mode can be selected by this menu.
- Speed mode / Balance mode / Efficiency mode
· The effect of IPC mode is different at power mode. The fuel efficiency is about 5% in P mode and about 3% in E mode based on Balance mode against Speed mode.
· The manufacturer recommends using the balance mode in IPC mode.

※ **The effect is the result of the standard operation. Depending on the operator's working conditions and machine options, the results could be different.**

※ **Please update the cluster programs if this mode is not displayed in the mode setup menu. Refer to page 3-30.**

⑥ Automatic engine shutdown

235A3CD58A

235A3CD59A

235A3CD60A

· The automatic engine shutdown function can be set by this menu.
  - One time
  - Always
  - Disable
  - Wait time setting : Max 40 minutes, min 2 minutes

⑦ Initial mode

235A3CD61A

235A3CD62B

· **Key on initial mode**
  - Selected the power mode is activated when the engine is started.

· **Key on initial work mode**
  - Not installed
  - Last setting
  - Work mode

· **Accel initial mode**
  - Last setting value
  - User setting value

· **Accel initial step**
  - 0~9 step

⑧ Emergency mode

235A3CD63

235A3CD64A

· This mode can be used when the switches are abnormal on the cluster.
· The cluster switches can be selected by touching each icon.

(3) Monitoring

① Active fault

235A3CD65A

235A3CD66A

235A3CD67A

· The active faults of the MCU, ECM, AAVM (option) can be checked by this menu.

② Logged fault

235A3CD68A

235A3CD72A

235A3CD69A

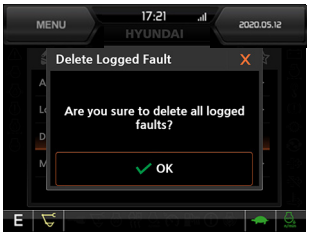
235A3CD70A

· The logged faults of the MCU, ECM, AAVM (option) can be checked by this menu.

③ Delete logged fault

235A3CD71A

235A3CD72A

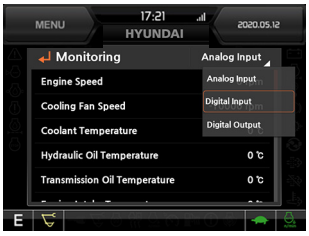


235A3CD73A

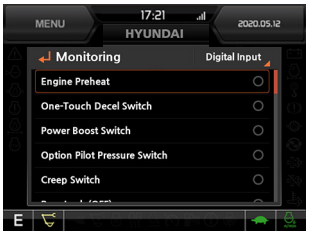
· The logged faults of the MCU, ECM, AAVM (option) can be deleted by this menu.

④ Monitoring

235A3CD74A



235A3CD75A



235A3CD76A

- The machine status such as the engine rpm, oil temperature, voltage and pressure etc. can be checked by this menu (Analog input).
- The switch status or output status can be confirmed by this menu (Digital input & Digital output).
- The activated switch or output pilot lamps ● will light up.

(4) Management

① ECO report

This reports the machine's inefficient operation status in order to improve operator's improper working habit.

235A3CD77A

High idle

235A3CD78A

Idle

- Shows a breakdown of high idle, idle and relief operation when monitor is on.
- Gives a daily usage breakdown record for a 7 day period and an overall accumulated record from the first operation.

235A3CD79A

Relief operation

235A3CD80A

② Fuel rate information

235A3CD81A

235A3CD82A

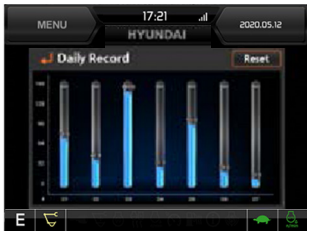
A

235A3CD83A

B

235A3CD84A

C



235A3CD85A

D

235A3CD86A

· **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).

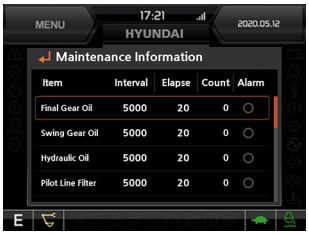
· **Hourly record (B)**
  - Hourly fuel rates for past 12 hours (service meter time).
  - No record during key-off time.
  - One step shift to the right for every one hour.
  - Automatic deletion of data from 12 hours and earlier.
  - "Reset" deletes all hourly records.

· **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.
  - Automatically deletes data from 7 days and earlier.
  - All daily records deletion by "Reset".

· **Mode record (D)**
  - Average fuel rate for each power mode/accel dial (at least 7) from "Reset" till present.
  - No record during idle.
  - All records can be deleted by "Reset".

③ Maintenance information

235A3CD87A



235A3CD88A

235A3CD89A

- Alarm lamp (●) is ON when oil or filter needs to be changed or replaced.
- Replacement : The elapsed time will be reset to zero (0).
- Change interval : The change intervals can be changed in hour increments of 50.

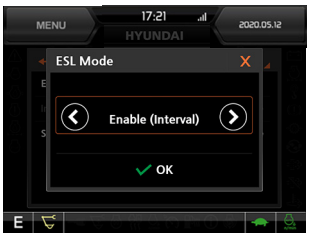
※ **Refer to section, Maintenance chart for further information of maintenance interval.**

④ Machine security

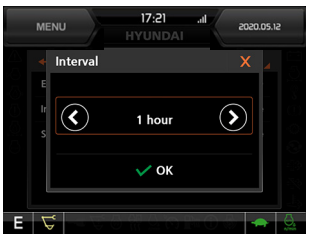
235A3CD90A

235A3CD91A

235A3CD92A



235A3CD93A



235A3CD94A

· **ESL mode setting**

- ESL : Engine Starting Limit
- ESL mode is desingned to be a theft deterrent or will prevent the unauthorized operation of the machine.
- When you Enable the ESL mode, the password will be required when the starting switch is turned to the on position.
- **Machine security**

  Disable : ESL function is disabled and password is not required to start engine.

  Enable (always) : The password is required whenever the operator starts engine.
- **Interval** : The password is required when the operator starts engine first. But the operator can restart the engine within the interval time without inputting the password. The interval time can be set to a maximum 4 hours.

  ※**Default password : 00000 +** ☑

  ※**Password length : (5~10 digits) +** ☑
- **Smart key** (option) : Refer to next page.

· **Password change**

- The password is 5~10 digits.

235A3CD95A

235A3CD96A

235A3CD97A

Enter the current password

235A3CD98A

Enter the new password again

235A3CD99A

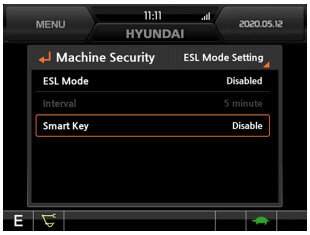
Enter the new password

※ **Before first use, please set user password and owner password in advance for machine security.**

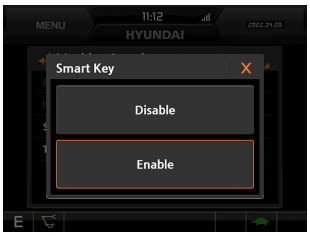
- Smart key

235A3CD90A

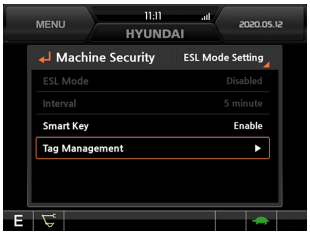
235A3CD91A



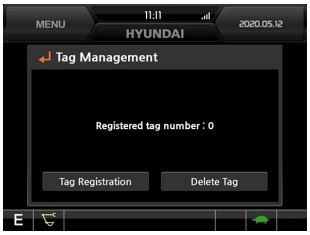
235A3CD001



235A3CD002

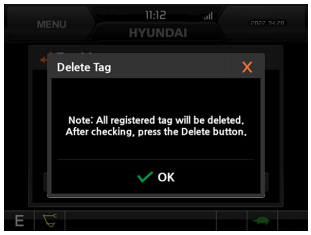


235A3CD003



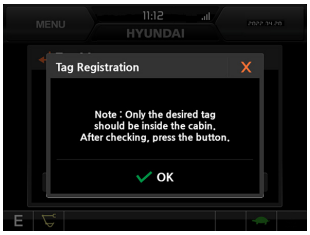
235A3CD004

Deleting



235A3CD006

Registering



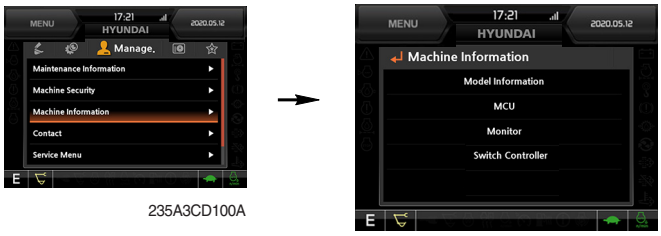
235A3CD005

- Smart key is registered when equipped with optional smart key. If smart key is not inside of the cabin, authentication process fails and the password is needed.
- Tag management menu is activated when the Smart key menu is Enabled.
  You can register and delete the tags.

- Tag management

- When registering a tag : Only the tag you want to register must be in the cabin.
- When deleting a tag : All registered tags are deleted.

⑤ Machine Information



235A3CD100A 235A3CD101A

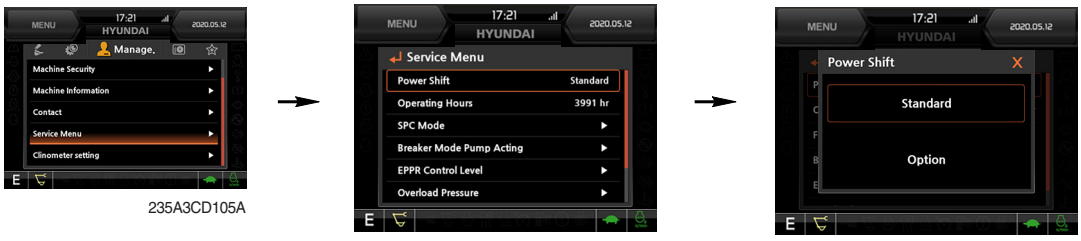
· This can confirm the identification of the model information (ECU), MCU, monitor, switch controller, RMCU, relay driver unit, AAVM (opt).

⑥ Contact (A/S phone number)

235A3CD102A 235A3CD103A 235A3CD104A

Enter the new A/S phone number

⑦ Service menu

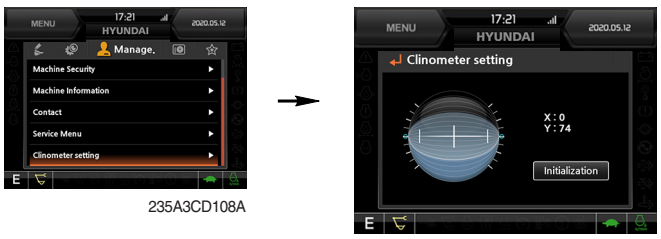


235A3CD105A 235A3CD106A 235A3CD107A

※ This menu can be used only HCE service man and can not be accessible by the owner and the operator.

· Power shift (standard / option) : Power shift pressure can be set by option menu.
· Operating hours : Operating hours since the machine line out can be checked by this menu.
· Breaker mode pump acting (1 pump / 2 pump)
· EPPR current level (attach flow EPPR 1 & 2, boom priority EPPR, attach relief pressure EPPR 1& 2)
· Overload pressure : 100 ~ 350 bar
· Opitonal piping pressure removal (Disable / Enable)
It is removing the residual pressure remaining in the option line when the quick coupler is operated.
· Fine swing (Disable / Enable)

⑧ Clinometer



235A3CD108A 235A3CD109A

· When the machine is on the flatland, if you touch "initialization" on cluster, the values of X, Y will reset to "O".
· You can confirm tilt of machine in cluster's operating screen.

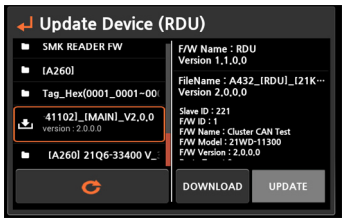
⑨ Update (cluster & ETC devices)

235A3CD110A

235A3CD111A

235A3CD112A

235A3CD114A



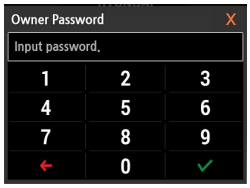
380F3CD06

- ETC devices and cluster can be updated through CAN 2 network.
- Insert USB memory stick which includes program files, start download.

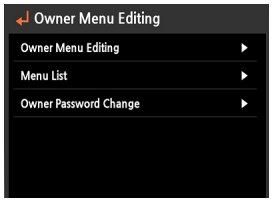
⑩ OME (owner menu editing)

The owner of machine can restrict operator access to set functions.

235A3CD115A



300A3CD115B



300A3CD115C

- **Owner can set the status of the function.**
  - Enable
  - Disable
- **In the menu, owner can set the list of functions in which they would like to lock or leave unlocked.**
- **Owner password (default password : 11111)**
  - Owner can manage and change the password.
  - Necessary to input the password to access function menu.

235A3CD116A

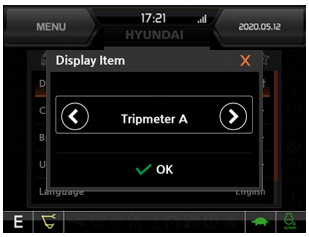
235A3CD117A

235A3CD118A

(5) Display

① Display item

235A3CD119A



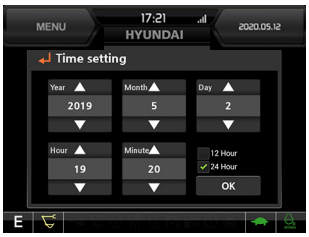
235A3CD120A

235A3CD121A

- The center display type of the LCD can be selected by this menu.
- The engine speed or the tripmeter menu (A,B,C) is displayed on the center display.

② Clock

235A3CD122A



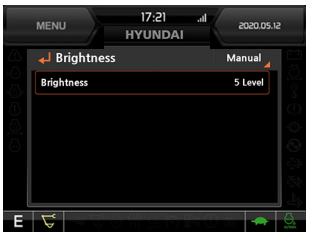
235A3CD123A

- The first row of boxes indicate Year/Month/Day.
- The second row shows the current time. (0:00~23:59)

③ Brightness

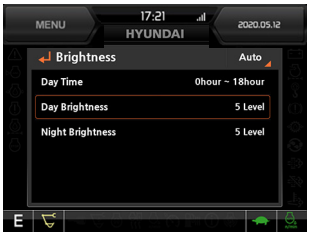
235A3CD124A

235A3CD125A

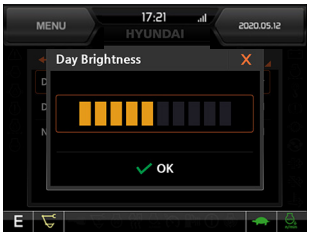


235A3CD126A

235A3CD127A



235A3CD128A

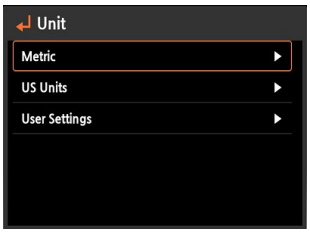


235A3CD129A

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

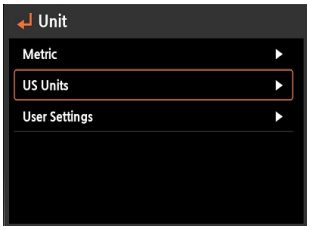
④ Unit

235A3CD130A



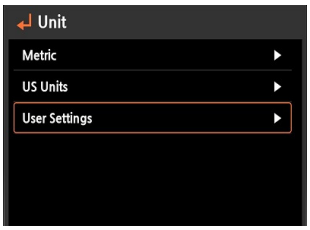
300A3CD130B

300A3CD130C

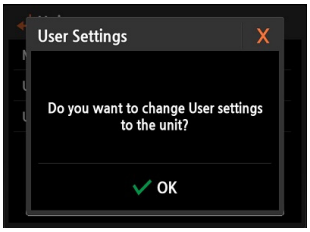


300A3CD130D

300A3CD130E

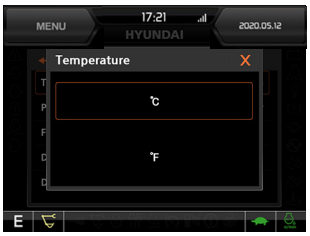


300A3CD130F



300A3CD130G

235A3CD131A



235A3CD132A

- Temperature : ˚C ↔ ˚F
- Pressure : bar ↔ MPa ↔ kgf/cm^2
- Volume : ℓ ↔ gal
- Flow : lpm ↔ gpm
- Distance : km ↔ mile
- Date format : yy/mm/dd ↔ mm/dd/yy ↔ dd-mm-yy

⑤ Language

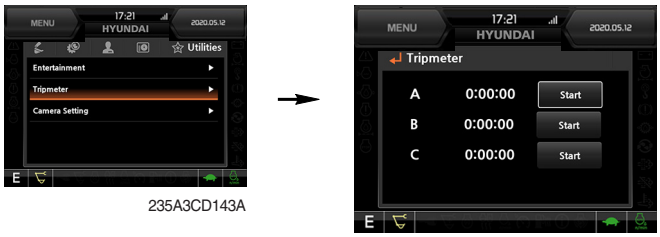
235A3CD133A

235A3CD134A

· User can select preferable language and all displays are changed to the selected language.

(6) Utilities

① Tripmeter



235A3CD143A

235A3CD144A

- A maximum of 3 types of tripmeters can be used at the same time.
- Each tripmeter can be turned on by choosing "Start". It can be turned off by choosing "Stop".
- If the tripmeter icon is activated in the operation screen, it can be controlled directly in this screen.

② Camera setting

- If the rear camera is not installed on the machine, set disable.
- If the rear camera is installed on the machine, set enable.

235A3CD145A

235A3CD146B

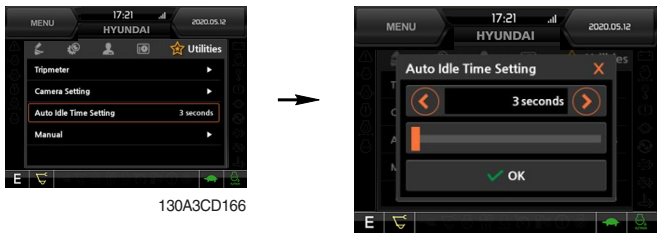
235A3CD147A

- Auto Mode (Travel) : Enable
  The cluster will automatically show camera view while machine is traveling.
- In the operation screen, rear camera screen shows up when ESC/CAM switch is pushed.

235A3CD97A

290F3CD221

③ Auto idle time setting



130A3CD166

130A3CD167

- The auto idle time is can be set by this menu.
- Time : 3~30 seconds

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

· The AAVM switchs of the cluster consist of ESC/CAM and AUTO IDLE/Buzzer stop.

235A3CD149A

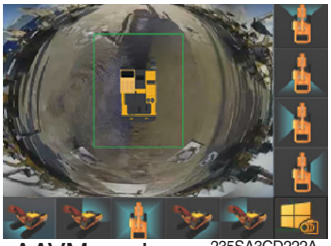
- **Escape switch**

· Activates AAVM mode from the beginning if AAVM is installed.

· While in the AAVM mode, select the ESC switch to return to the home screen.

235A3CD97A

Home screen

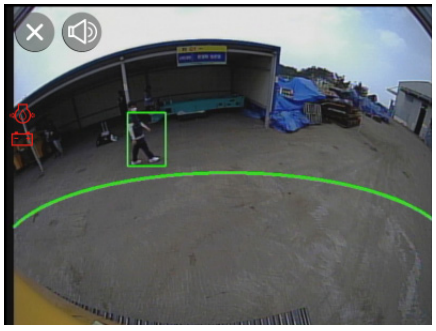


AAVM mode 235SA3CD222A

- **Buzzer stop switch**

· AAVM mode detects surrounding pedestrians or objects and the warning buzzer sounds.

· User can turn OFF the warning sound by pressing the buzzer stop switch.



220A3CD246

· When a worker/pedestrian reaches the green line, which is an external danger area equipped on the cluster, warning buzzer sounds and it displays a blue rectangular box recognizing the worker/pedestrian.
Stop work immediately. Stop the buzzer by pressing the buzzer stop switch. Then resume work after you confirm that the area is safe and clear of workers/objects.

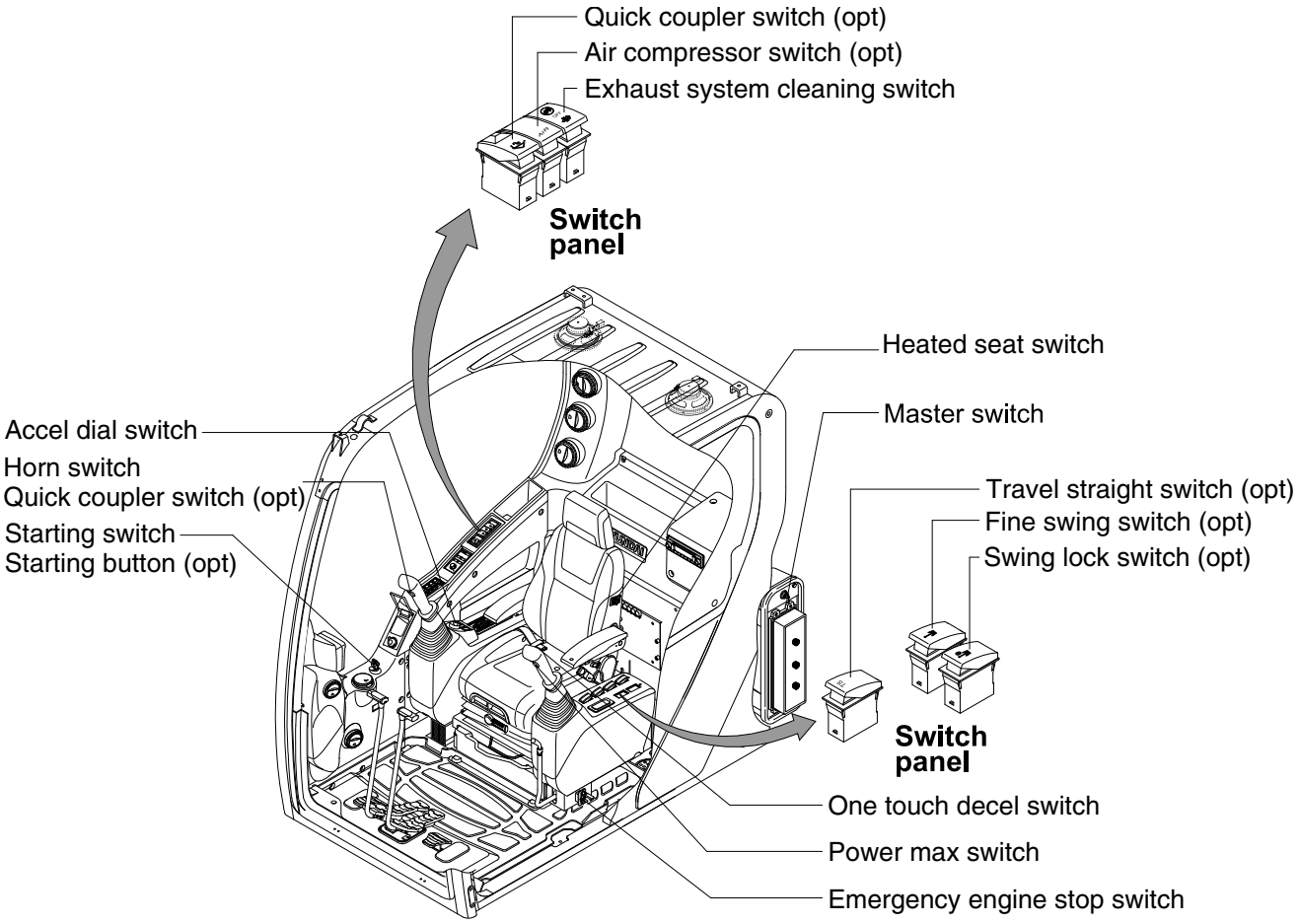
220A3CD247

· When a worker/pedestrian reaches the red line, which is an internal danger area equipped on the cluster, warning buzzer sounds and it displays a red rectangular box recognizing the worker/pedestrian.
Stop work immediately. Stop the buzzer by pressing the buzzer stop switch. Then resume work after you confirm that the area is safe and clear of workers/objects.

⚠ **Failure to comply may result in serious injury or death.**

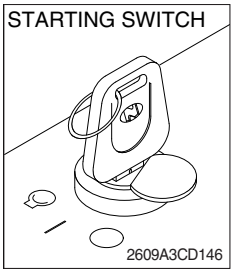
※ **In AAVM mode, a touch screen of the LCD is available only. The multimodal dial of the jog dial module is not available.**

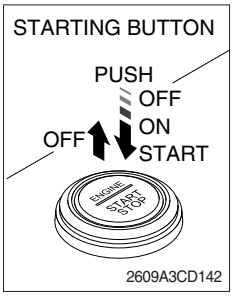
3. SWITCHES



235A3CD02B

1) STARTING SWITCH & STARTING BUTTON (OPT)





Starting button with smart key tag (opt)

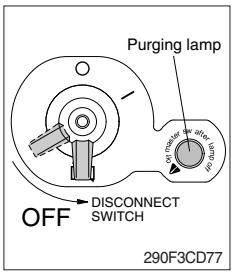
(1) There are three positions, OFF, ON and START.
- ◯ (OFF) : No of electrical circuits activate.
- | (ON) : All the systems of machine operate.
- ◯ (START) : Use when starting the engine.
  Release key immediately after starting.

※ If you turn ON the starting switch in cold weather, the fuel warmer is automatically operated to heat the fuel by sensing the coolant temperature. Start the engine in 1~2 minutes after turning ON the starting switch. More time may be required according to ambient temperature.

※ Starting switch contoller tries engine starting at least 3 seconds even if switch is released after driver's start trial (key switch : start position / starting button : long push) to prevent short-time cranking (which can not starting engine). If no-start conditions (unlock safety knob) are resolved (lock safety knob) during the 3 seconds of engine starting attempt, engine can be started.

※ Key must be in the ON position with engine running to maintain electrical and hydraulic function and prevent serious machine damage.

2) MASTER SWITCH



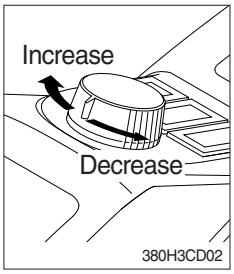
(1) This switch is used to shut off the entire electrical system.

(2) I : The battery remains connected to the electrical system.
O : The battery is disconnected from the electrical system.

※ Never turn the master switch to O (OFF) with the engine running. Engine and electrical system damage could result.

※ Turn OFF the master switch after purging lamp gose OFF.

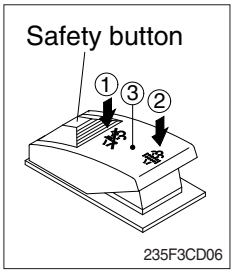
3) ACCEL DIAL SWITCH



(1) There are 10 dial settings.

(2) Setting 1 is low idle and setting 10 is high idle.
· By rotating the accel dial to right : Engine speed increases
· By rotating the accel dial to left : Engine speed decreases

4) EXHAUST SYSTEM CLEANING SWITCH



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

(2) Inhibit position (①)

① The inhibit position disallows any automatic or manual exhaust system cleaning.

② This may be used by operator to prevent exhaust system cleaning when the machine is operating in a hazardous environment and is concerned about high exhaust temperatures.

③ It is strongly recommended that this position is only activated when high temperatures may cause a hazardous condition.

(3) Auto position (③)

This position will initiate an automatic exhaust system cleaning.

(4) Manual position (②)

① This position will only initiate a manual exhaust system cleaning when the machine is in non-mission condition, engine must run at low idle speed and exhaust system levels are high enough to allow cleaning.

② HEST lamp will be illuminated during the entire exhaust system cleaning.

※ Refer to page 3-10 for ditails.

※ This switch can be moved to the manual position (②) only when the safety button is pulled backward.

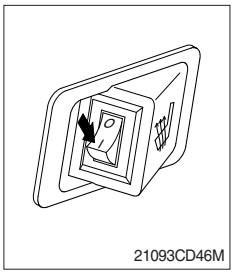
※ Also, this switch returns to the auto position when released form the manual position (②).

5) QUICK COUPLER SWITCH (option)

(1) This switch is used to engage or disengage the moving hook on quick coupler.

※ **Refer to page 8-6 for details.**

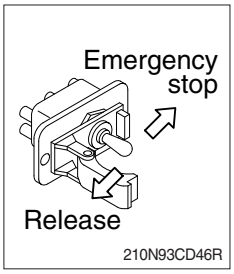
6) HEATED SEAT SWITCH (option)



(1) This switch is used to heat the seat.
- Heater ON : 10±3.5˚C
- Heater OFF : 20±3˚C

(2) When pressed, the indicator lamp will light up.

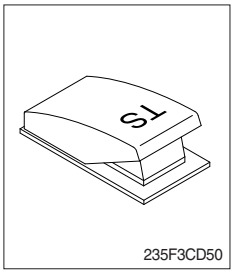
7) EMERGENCY ENGINE STOP SWITCH



(1) This switch is used to stop the engine in the event of an emergency.

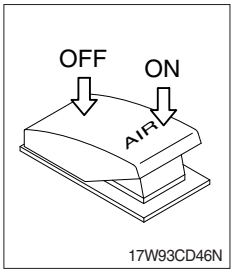
※ **Be sure to return the emergency switch to the release or run position before trying to restart the engine.**

8) TRAVEL STRAIGHT SWITCH (option)



(1) When the travel straight switch is in the ON position, the machine will travel straight by use of only the left pedal or the left lever.

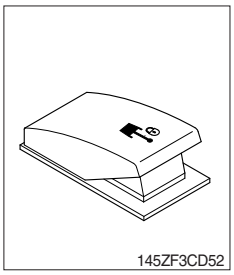
9) AIR COMPRESSOR SWITCH (option)



(1) This switch is used to activate the air compressor.

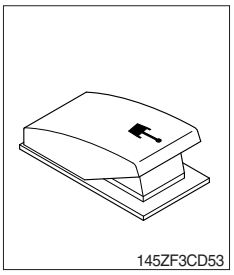
(2) The indicator lamp lights up when this switch is activated.

10) SWING LOCK SWITCH (option)



(1) This switch is used to lock the swing parking brake.
(2) Swing control is not available when this switch is activated.

11) FINE SWING SWITCH (option)

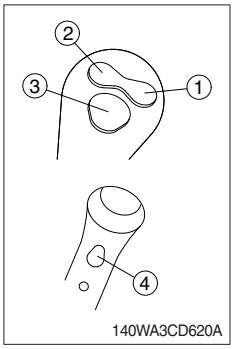


(1) When the switch is pressed to the ON position, fine swing valve is operated and swing parking brake is released with below condition.
① Swing lever operated
Enhanced soft swing is implement to allow smooth start and stop.
② Boom up lever operated
Further control is possible by allowing free spins in lifting operation for offset loads.
③ Travel lever operated
Reduces the shaking of an object that is lifted.

⚠ If the machine is operating on a slope with the switch in the ON position, swing motion may become uncontrollable which could result in property damage, serious injury or death. Do not select ON position when the machine is operating on a slope.

12) LH RCV LEVER SWITCH

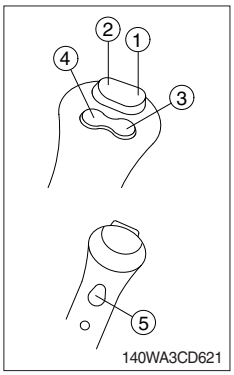
(1) Button type



The switches on the LH RCV lever is function as below.
① None
② None
③ One touch decel switch
a. This switch is used to actuate the deceleration function quickly.
b. The engine speed is increased to previous setting value by pressing the switch again or operating state (working/travel).
④ Power max switch
a. This switch activates power max function.
When this switch is pressed and held, hydraulic power of work equipment will be increased to approx 110 percent for a period of 8 seconds.
b. After 8 seconds, function is cancelled automatically even if the switch remains pressed.

※ Do not use for craning purposes.

(2) Proportional type (option)



The switches on the LH RCV lever is function as below.

① CW rotating switch

When this switch is pressed, the clockwise rotating will operate.

② CCW rotating switch

When this switch is pressed, the counterclockwise rotating will operate.

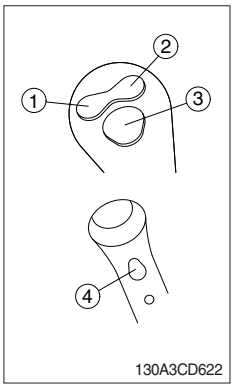
③ One touch decel switch : Refer to (1)-③ above.

④ None.

⑤ Power max switch : Refer to (1)-④ above.

13) RH RCV LEVER SWITCH

(1) Button type



The switches on the RH RCV lever is function as below.

① Quick coupler switch

This switch is used to engage or disengage the moving hook on quick coupler.

Refer to the page 8-6.

② None

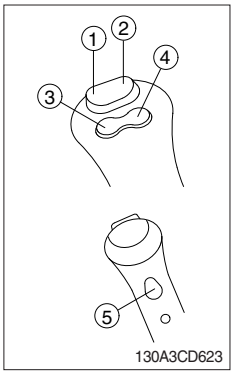
③ Horn switch

When this switch is pressed, the horn will sound.

④ Breaker switch

When this switch is pressed, the breaker will only operate when the breaker operation mode is selected.

(2) Proportional type (option)



The switches on the RH RCV lever is function as below.

① 2-way clamp switch

When this switch is pressed, the clamp will only operate when the crusher operation mode is selected.

② 2-way release switch

When this switch is pressed, the release or breaker will operate when the crusher operation mode or breaker operation mode is selected.

③ Quick coupler switch

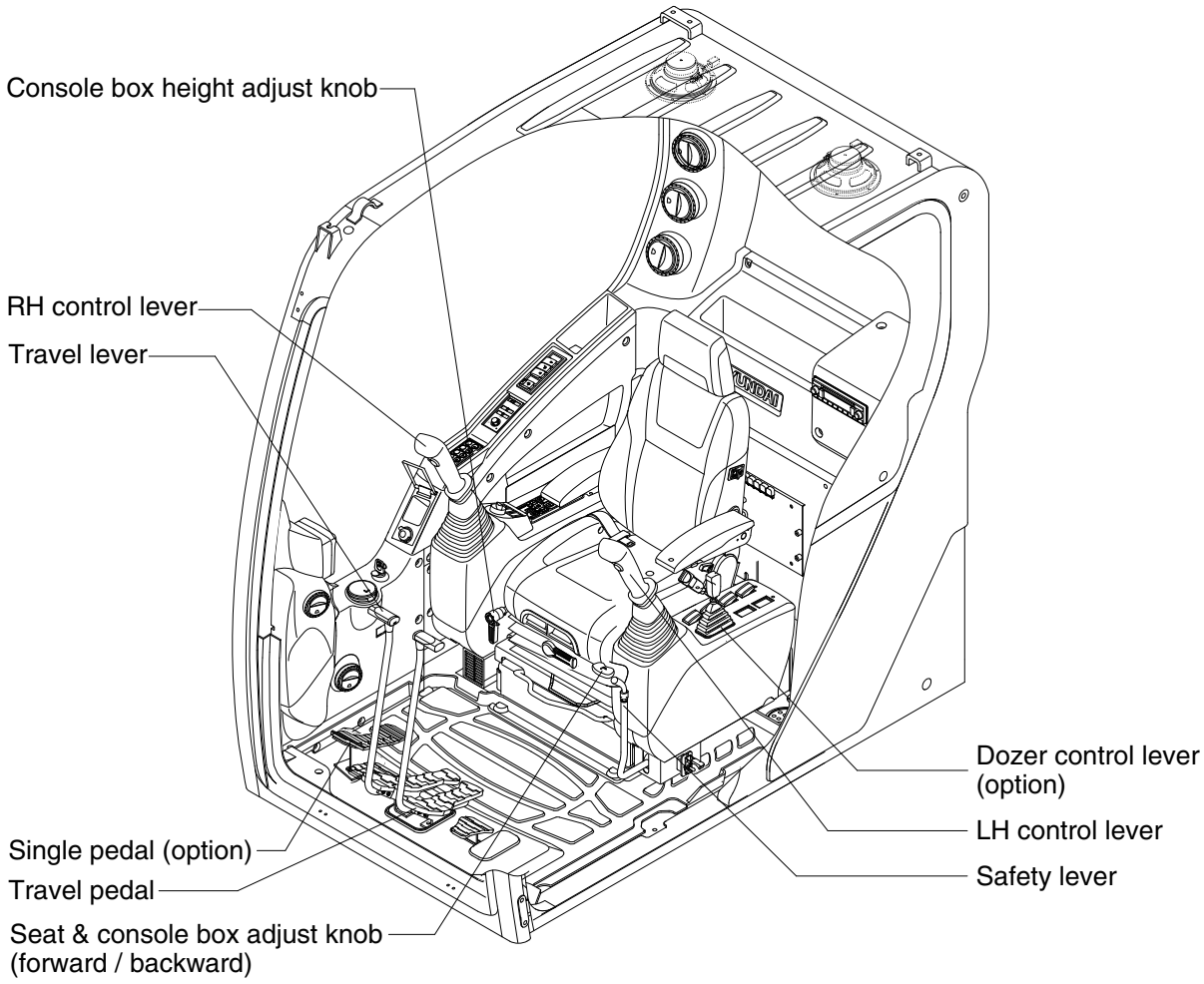
This switch is used to engage or disengage the moving hook on quick coupler.

Refer to the page 8-6.

④ Horn switch : Refer to (1)-③ previous page.

⑤ Breaker switch : Refer to (1)-④ previous page.

4. LEVERS AND PEDALS



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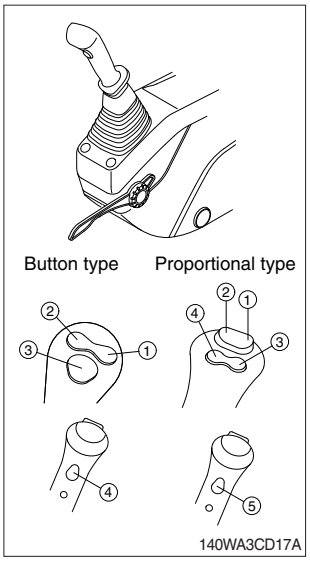
1) LH CONTROL LEVER



(1) This joystick is used to control the swing and the arm.

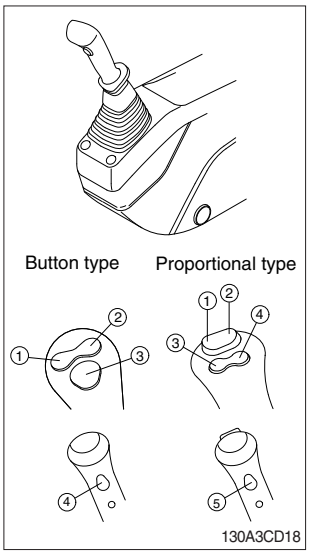
※ Refer to operation of working device in chapter 2 for details.

(2) The switch functions are as below.

No.	Button type	Proportional type (opt)
①	N.A	Rotating-CW
②	N.A	Rotating-CCW
③	One touch decel	One touch decel
④	Power max	N.A
⑤	-	Power max

※ Refer to page 3-39 for the details of the switch function.

2) RH CONTROL LEVER



(1) This joystick is used to control the boom and the bucket.

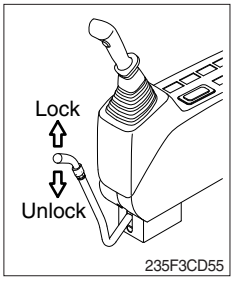
※ **Refer to operation of working device in chapter 2 for details.**

(2) The switch functions are as below.

No.	Button type	Proportional type (opt)
①	Quick coupler	2-way clamp
②	N.A	2-way release
③	Horn	Quick coupler
④	Breaker	Horn
⑤	-	Breaker

※ **Refer to page 3-40 for the details of the switch function.**

3) SAFETY LEVER



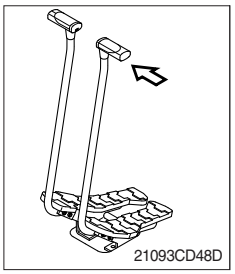
(1) All control levers and pedals are disabled from operation by locating the lever to the LOCK position as shown.

※ **Be sure to lower the safety lever to the LOCK position when entering or leaving the operators seat/cabin.**

(2) The machine is operational by pulling the safety lever to the UNLOCK position.

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

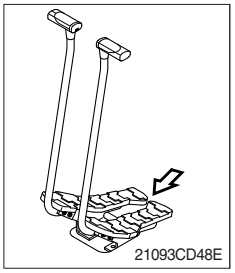
4) TRAVEL LEVER



(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 2 for details.

5) TRAVEL PEDAL

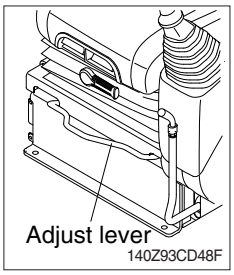


(1) This pedal is used to move the machine forward or backward.

(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 2 for details.

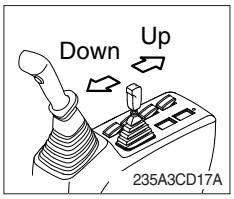
6) SEAT AND CONSOLE BOX ADJUST LEVER



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

(2) Pull the lever to adjust forward or backward over 170㎜ (6.7").

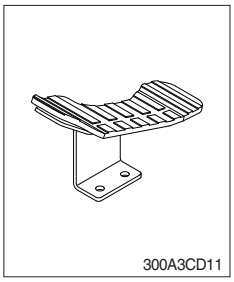
7) DOZER CONTROL LEVER (option)



(1) This lever is used to operate the dozer blade.

(2) If the lever is pushed forward, the dozer blade will be going down. And the lever is pulled back, the dozer blade will be going up.

8) SINGLE PEDAL (option)



(1) This pedal is used to operate the 2nd boom.

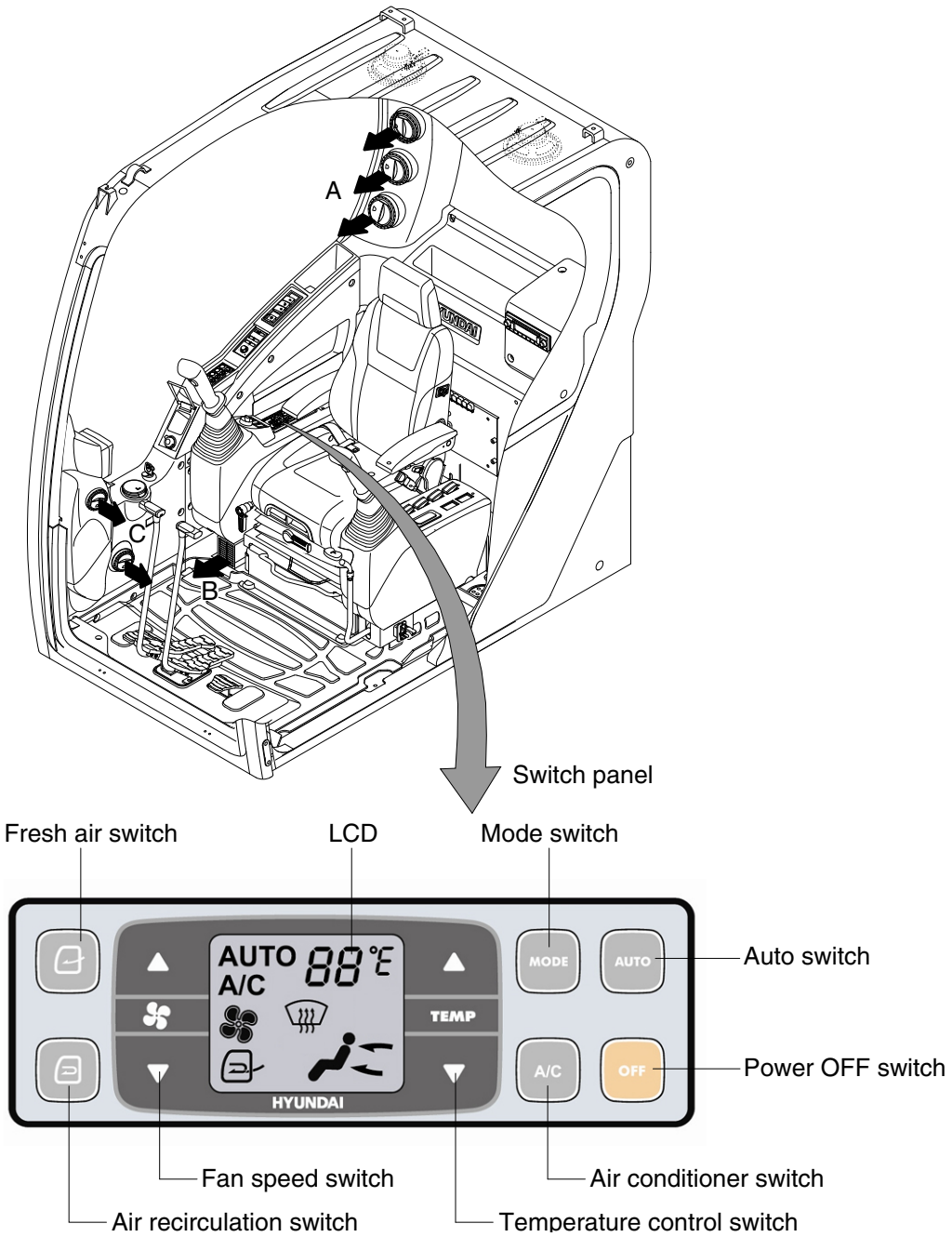
(2) If the pedal is pushed front, the 2nd boom will be going down. And the pedal is pushed rear, the 2nd boom will be going up.

※ **Refer to operation of working device in chapter 2 for details.**

5. AIR CONDITIONER AND HEATER

Full auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.

· **Location of air flow ducts**



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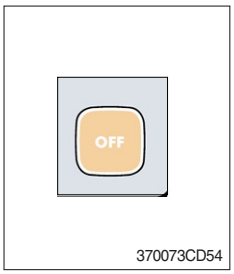
1) POWER OFF SWITCH

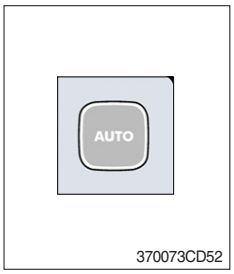


(1) This switch turns the system and the LED OFF.
Just before powering OFF, set values are stored.

(2) Default setting values

Function	Air conditioner	In/outlet	LCD	Temperature	Mode
Value	OFF	Inlet	OFF	Previous sw OFF	Previous sw OFF

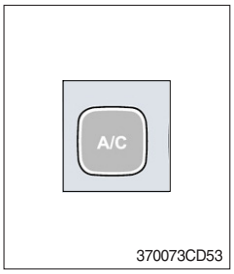
2) AUTO SWITCH



(1) Turn the starting switch to ON position, LCD lights up.
Auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.

(2) This switch can restart system after system goes OFF.

3) AIR CONDITIONER SWITCH (compressor switch)

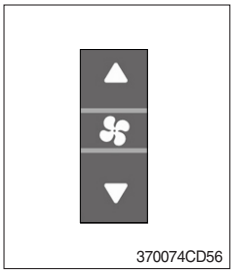


(1) This switch turns the compressor and the LCD ON.

(2) In accordance with the temperature sensed by duct (evaporator) sensor, compressor turns ON or OFF automatically.

※ Air conditioner operates to remove vapor and drains water through a drain hose. Water can be sprayed into the cab in case that the drain cock at the ending point of drain hose has a problem.
In this case, exchange the drain cock.

4) FAN SPEED SWITCH

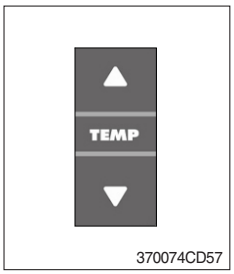


(1) Fan speed is controlled automatically by set temperature.

(2) This switch controls fan speed manually.
- There are 8 up/down steps to control fan speed.
- The maximum step or the minimum step beeps 5 times.

(3) This switch turns the system ON.

5) TEMPERATURE CONTROL SWITCH



(1) Setting temperature indication
① Type A : 17~32˚C, scale : 1˚C
② Type B : Lo, 18~31˚C, Hi, scale : 1˚C

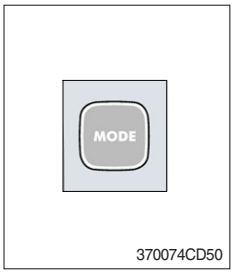
(2) Max cool and max warm beeps 5 times.

(3) The max cool or the max warm position operates per the following table.

Temperature	Compressor	Fan speed	In/Outlet	Mode
Max cool	ON	Max (Hi)	Recirculation	Vent
Max warm	OFF	Max (Hi)	Fresh	Foot

(4) Temperature unit can be changed between celsius (˚C) and fahrenheit (˚F)
① Default status (˚C)
② The temperature unit can be changed (℃ ↔ ℉) by pressing temperature switchs (Up/Down) simultaneously for more than 5 seconds.

6) MODE SWITCH

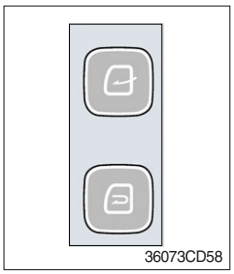


(1) Operating this switch, it beeps and displays symbol of each mode in the following order. (Vent → Vent/Foot → Def/Foot → Def/Vent → Def/Vent/Foot)

Mode switch		Vent	Vent/Foot	Def/Foot	Def/Vent	Def/Vent/Foot
						
Outlet	A	●	●		●	●
	B		●	●		●
	C			●	●	●

(2) When operating defroster, FRESH AIR/AIR RECIRCULATION switch turns to FRESH AIR mode and air conditioner switch turns ON.

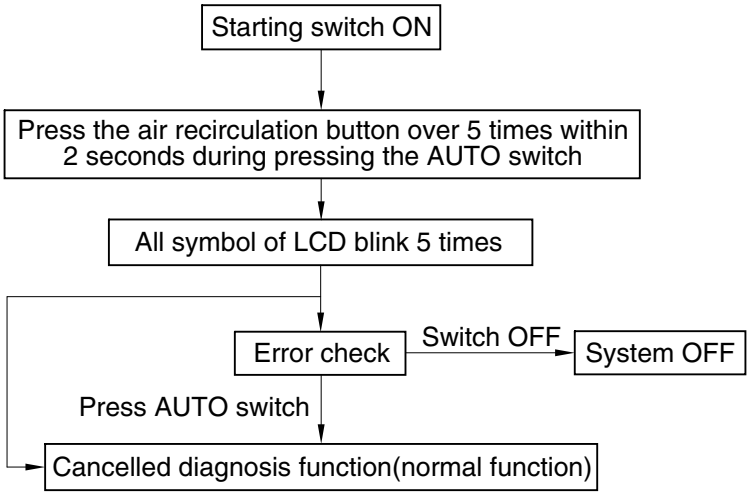
7) FRESH AIR/AIR RECIRCULATION SWITCH



(1) It is possible to change the air-inlet method.
① **Fresh air ( )**
Inhaling air from the outside.
※ **Check an outer filter periodically to keep a good efficiency.**
② **Air recirculation ( )**
It recycles the heated or cooled air to increase the energy efficiency.
※ **Change air occasionally when using recirculation for a long periods of time.**
※ **Check condition of an outer filter and an inner filter periodically to maintain good efficiency of the system.**

8) SELF DIAGNOSIS FUNCTION

(1) Procedure



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(2) Error check

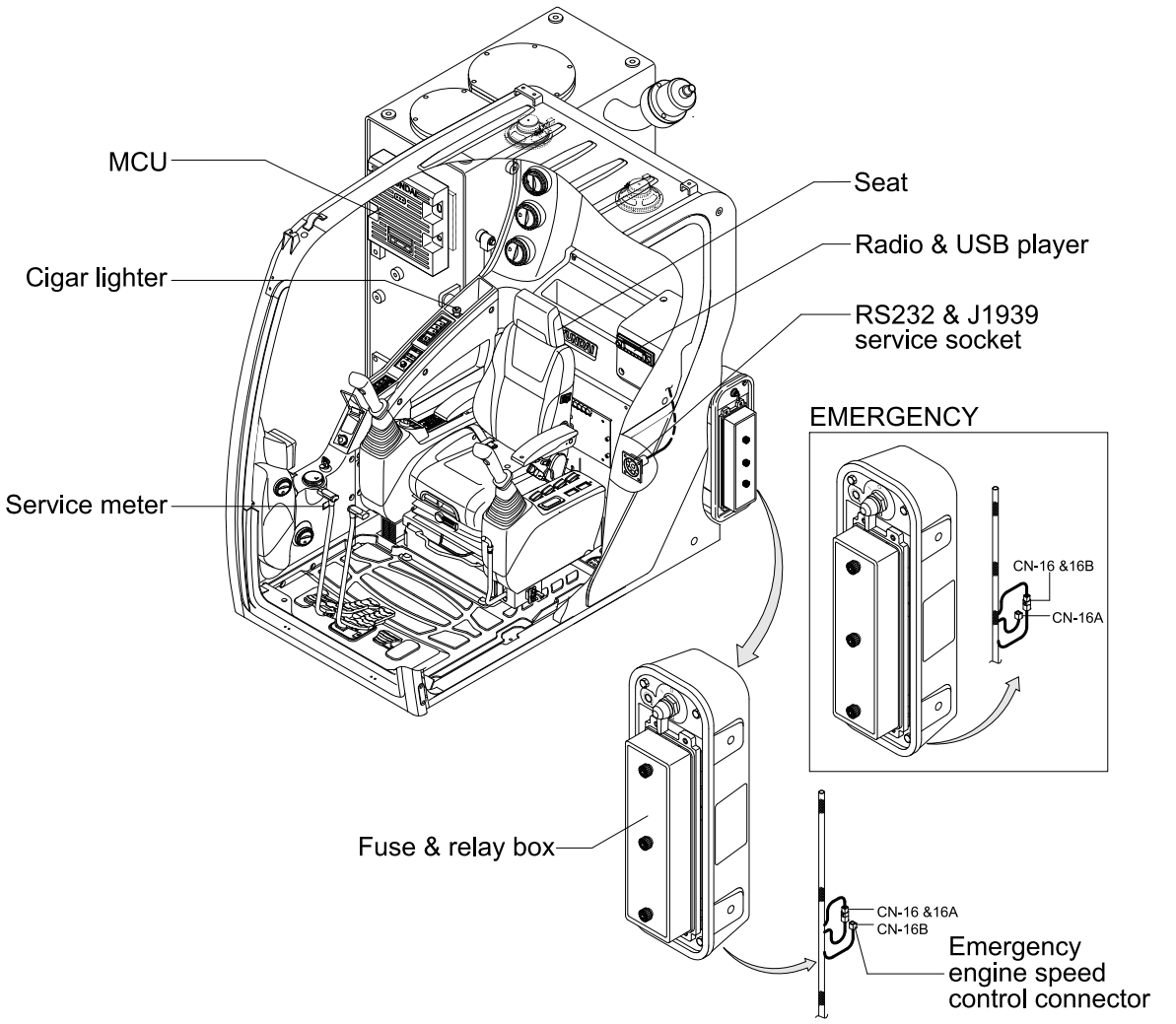
- The corresponding error code flickers on the setup temperature display panel, the other symbol will turn OFF.
- Error code flickers every 0.5 second.
- If error code is more than two, each code flickers 2 times in sequence.
- Error code

Error code	Description	Error code	Description
11	Cabin inside sensor	16	Mode actuator 1
12	Ambient sensor	17	Mode actuator 2
14	Duct (evaporator) sensor	18	Intake actuator
15	Temp actuator	-	-

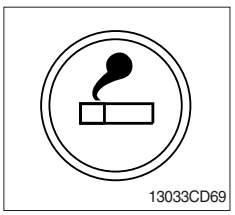
(3) Fail safe function

Error description	Fail safe function
Cabin inside sensor (11)	25˚C alternate value control
Ambient sensor (12)	20˚C alternate value control
Duct (evaporator) sensor (14)	1˚C alternate value control
Temp actuator (15)	If opening amount is 0 %, the alternate value is 0 %
	If not, the alternate value is 100 %
Mode actuator 1, 2 (16, 17)	The alternate value is vent

6. OTHERS



1) CIGAR LIGHTER



(1) This can be used when the engine starting switch is ON.

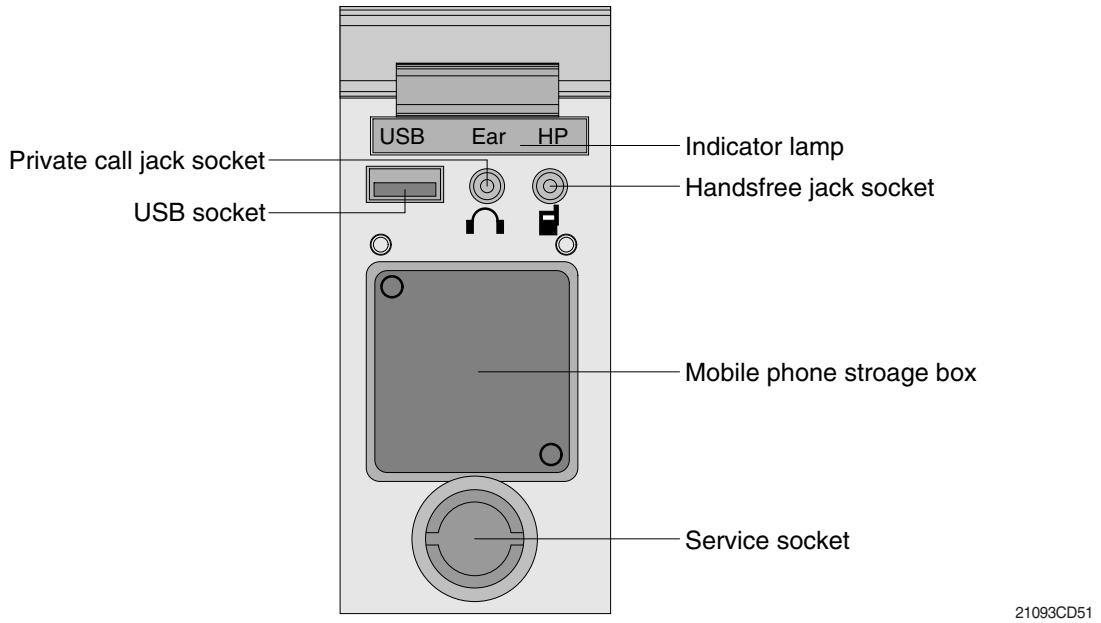
(2) The lighter can be used when it springs out in a short while after being pressed down.

※ **Service socket**

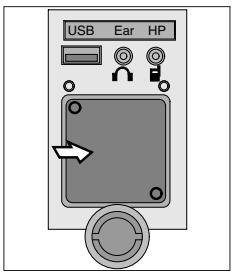
Use cigar lighter socket when you need emergency power.
Do not use the lighter exceeding 24 V, 100 W.

2) HANDSFREE

Allow you to dial a call or to have a conversation without holding your handset. Use the remote controller when making and answering a calls or ring off.

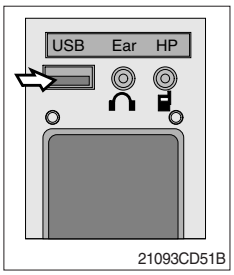


(1) Mobile phone storage box



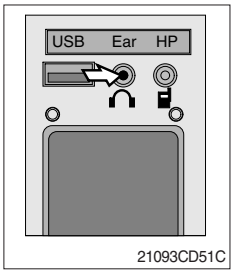
① Mobile phone can be stored when call by handsfree.

(2) USB socket



① This socket is used to charging the mobile phone.

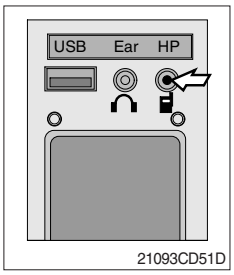
(3) Private call jack socket



① This can be used protect you privacy calling by using ear phone.

② The mobile phone must be connected handsfree jack socket.

(4) Handsfree jack socket

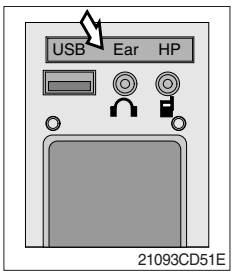


① Connect the jack cable when call by handsfree.

② Use the special adapter when jack cable is not interchangeable.

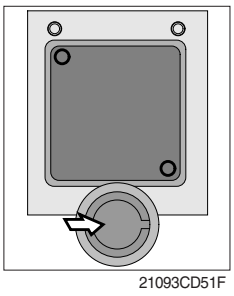
③ Check the jack type of mobile phone before use.

(5) Indicator lamp



① This lamp is turned ON when the handsfree mode selected.

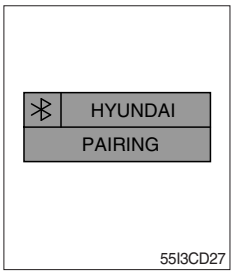
(6) Service socket



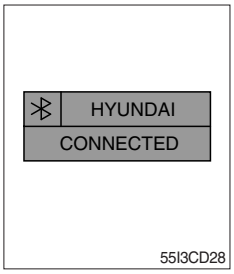
① Utilize the power of 12 V as your need and do not exceed power of 12 V, 30 W.

(7) Wireless handsfree

① Select the handsfree mode by pressing bluetooth button on the mobile phone.
Press the CALL button for more than 6 seconds for pairing (connection process of the mobile phone and handsfree), you can hear beep sounds three times.



② The mobile phone finds bluetooth named " HYUNDAI".
Select "HYUNDAI" and set "connect with Bluetooth on the mobile phone".
· Default password : 0000

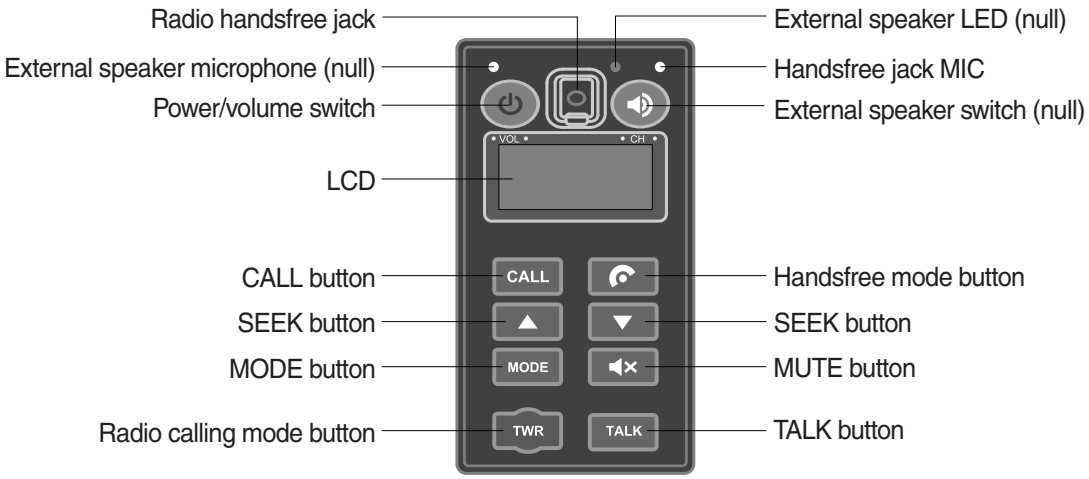


③ The Bluetooth pairing is made, the LCD screen shows "CONNECTED".

④ Once the Bluetooth pairing is made, they will be automatically connected after 20 seconds when start key ON.

⑤ When you want to deactivate the pairing, press and hold the CALL button for more than 3 seconds then you can hear beep sounds twice and the function will be deactivated.

3) REMOTE CONTROLLER (MACHINE SERIAL NO.: -#0248)



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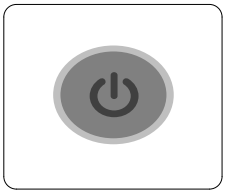
(1) Power and volume switch



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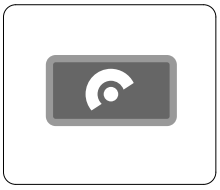
① This switch is used to turn the audio or handsfree ON or OFF.
② This switch is turned to right, the handsfree volume is increased over 7 steps.
③ If it is turned to left, volume will be decreased.
※ **This switch adjust the audio volume when selected audio mode.**

(2) Mode change button



55I3CD31B

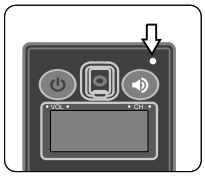
① This button is to select the handsfree mode or audio mode.
· Lamp ON : Handsfree mode ("TEL MUTE" displayed ON audio LCD)
· Lamp OFF : Audio mode

(3) Call button

55I3CD31C

① This button is used answer a call, last number radial, ring off.
② For calling, press the button 0.5~1.5 seconds until the beep sounds.
※ **This can be used when the starting switch is ON.**

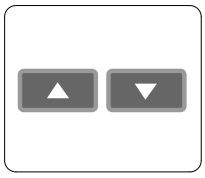
(4) Handsfree MIC



55I3CD31D

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

(5) Seek button



55I3CD31E

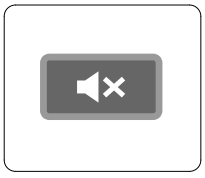
① If this button pressed, the radio automatically stops at the next frequency of broadcasting for your listening.

② This button enable to select the song of the MP3 from USB.

: Turn a station of higher frequency and the next song of the MP3.

: Turn a station of lower frequency and the previous song of the MP3.

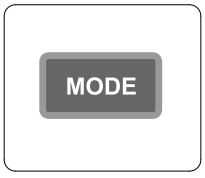
(6) Mute button



55I3CD31F

① Short press this button to mute or cancel the mute (silence) while broadcasting.

(7) Mode button



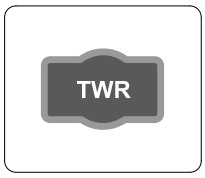
55I3CD31G

① Press the mode button to select the desired mode.

② Radio → MP3 → AUX

※ The LCD displayed each mode.

(8) Radio calling mode button



55I3CD31H

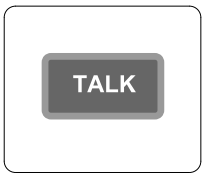
① Press this button, activated or deactivated the radio handsfree function.

② As long as you do not press this button, you can hear the other party.

③ The LED is turned ON when this button is activated.
The LED turned OFF when the audio mode or the mobile phone handsfree calling mode is activated.

※ **Radio handsfree**
You can make a call to external worker without holding the radio by hand. (The radio is not installed to the machine).

(9) Talk button

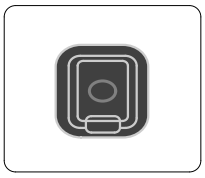


55I3CD31J

① The call is connected while pressing this button (when TALK button is activated).

※ **Unlike mobile phones, when you want to talk through the radio, you need to press the button (Push-to-talk method).**
While one is talking through the radio, the other party can only listen to him/her.

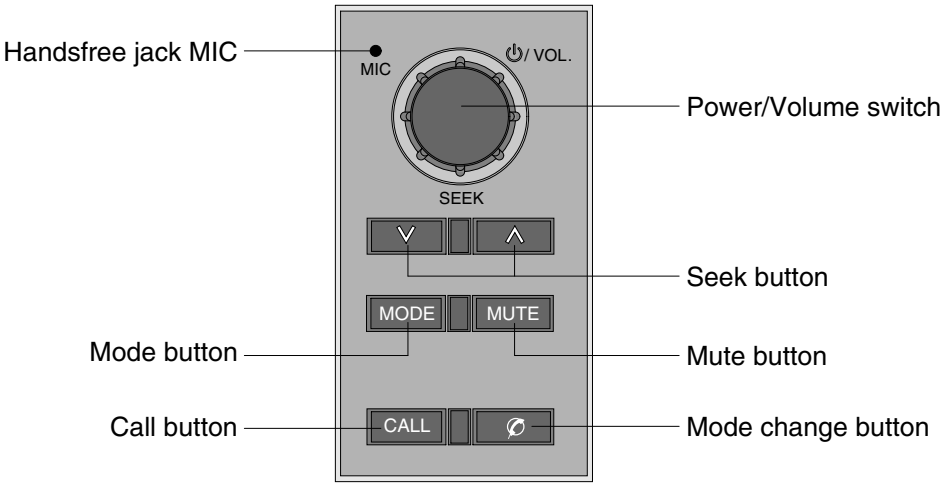
(10) Handsfree jack



55I3CD31K

① Connect the jack cable when call by radio handsfree.

REMOTE CONTROLLER (MACHINE SERIAL NO.: #0249-)



21093CD52

(1) Power and volume switch

21093CD52A

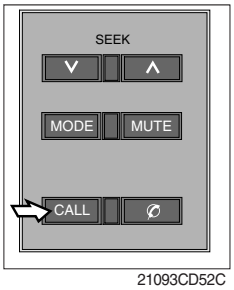
① This switch is used to turn the audio or handsfree ON or OFF.
② This switch is turned to right, the handsfree volume is increased over 7 steps.
③ If it is turned to left, volume will be decreased.
※ **This switch adjust the audio volume when selected audio mode.**

(2) Mode change button

21093CD52B

① This button is to select the handsfree mode or audio mode.
· Lamp ON : Handsfree mode ("TEL MUTE" displayed ON audio LCD)
· Lamp OFF : Audio mode

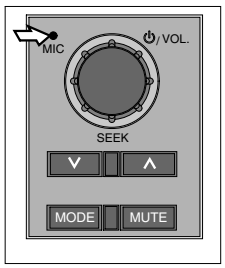
(3) Call button



21093CD52C

① This button is used answer a call, last number redial, ring off.
② For calling, press the button over 0.5sec within 3 seconds until the beep sounds.
※ **This can be used when the starting switch is ON.**

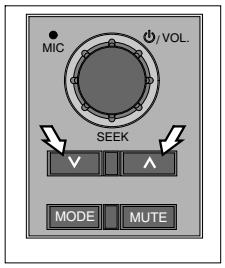
(4) Handsfree MIC



21093CD52D

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

(5) Seek button

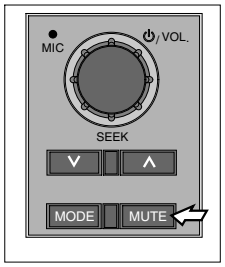


21093CD52E

① If this button pressed, the radio automatically stops at the next frequency of broadcasting for your listening.

② Press ^ to turn a station of a higher frequency or v to a lower frequency.

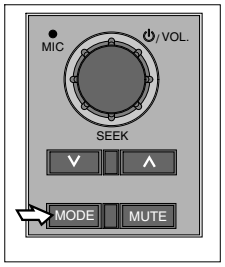
(6) Mute button



21093CD52G

① Short press this button to mute or cancel the mute (silence) while broadcasting.

(7) Mode button



21093CD52F

① Press the mode button to select the desired mode.

② FM1 → FM2 → AM → CD → MP3 → FM1

※ The LCD displayed each mode.

4) RADIO AND USB PLAYER (WITH BLUETOOTH)

9403CD100

■FRONT PANEL PRESENTATION

1 ····· Power ON/OFF, Volume UP/DOWN button

2 ····· Manual UP/DOWN Tuning, File search, SEL button

3 ····· Mode button, Audio mute button

4 ····· Call & Pair button

5 ····· Call end button

6 ····· Station preset 1
DIS ····· Display button

7 ····· Station preset 2

8 ····· Station preset 3
RPT ····· Repeat play button

9 ····· Station preset 4
RDM ····· Random play button

10 ····· Station preset 5
DIR- ····· Directory down button

11 ····· Station preset 6
DIR+ ····· Directory up button

12 ····· Scan play button (SCAN)
Best station memory (BSM) button

13 ····· Auto tune up, Seek up button

14 ····· Auto tune down, Track down button

15 ····· USB connector

16 ····· AUX IN Jack

17 ····· MIC hole

RADIO AND USB PLAYER (WITHOUT BLUETOOTH)

9403CD101

■FRONT PANEL PRESENTATION

1 ····· Power ON/OFF, Volume UP/DOWN button

2 ····· Manual UP/DOWN Tuning, File search, SEL button

3 ····· Mode button, Audio mute button

4 ····· Radio seek up button

5 ····· Radio seek down button

6 ····· Station preset 1
DIS ····· Display button

7 ····· Station preset 2

8 ····· Station preset 3
RPT ····· Repeat play button

9 ····· Station preset 4
RDM ····· Random play button

10 ····· Station preset 5
DIR- ····· Directory down button

11 ····· Station preset 6
DIR+ ····· Directory up button

12 ····· Scan play button (SCAN)
Best station memory (BSM) button

13 ····· Track up button

14 ····· Track down button

15 ····· USB connector

16 ····· AUX IN Jack

■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 it is 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 slight 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.

(2) Menu Selection

① This button can adjust the effect of the sound and other things.
Each time you press this button (2), LCD displays as follows :

BAS → TREB → BAL L=R → FAD F=R → EQ → LOUD ON → BEEP 2ND

On each setting, the level can be controlled by turning TUNE knob (2). When the last adjustment is made, after 5 seconds, the display will automatically return to the previous display mode.

② Bass control

To adjust the bass tone level, first select the bass mode by pressing SEL button (2) repeatedly until BASS appears on the display panel. Then turn knob (2) right or left within 5 seconds to adjust the bass level as desired. The bass level will be shown on the display panel from a minimum of BASS-7 to a maximum of BASS+7.

③ Treble control

To adjust the treble tone level, first select the treble mode by pressing SEL button (2) repeatedly until TREB appears on the display panel. Then turn knob (2) right or left within 5 seconds to adjust the treble level as desired. The treble level will be shown on the display panel from a minimum of TREB -7 to a maximum of TREB +7.

④ Balance control

To adjust the left-right speaker balance, first select the balance mode by pressing SEL button (2) repeatedly until BAL indication appears on the display panel. Then turn knob (2) right or left within 5 seconds to adjust the balance as desired. The balance position will be shown by the bars on the display panel from BAL 10R (full right) to BAL 10L (full left).

⑤ Fader control

To adjust the front-rear speaker balance, first select the fader mode by pressing SEL button (2) repeatedly until FADER indication appears on the display panel. Then turn knob (2) right or left within 5 seconds to adjust the front-rear speaker level as desired. The fader position will be shown by the bars on the display panel from FAD 10F (full front) to FAD 10R (full rear).

⑥ EQ control

You can select an equalizer curve for 4 music types (CLASSIC, POP, ROCK, JAZZ). Press button (2) until EQ is displayed, then turn knob (2) right or left to select the desired equalizer curve. Each time you turn the knob, LCD displays as follows :

EQ OFF → CLASSIC → POP → ROCK → JAZZ

※ When the EQ mode is activated, the BASS and TREBLE modes are not displayed.

⑦ **Loud control**

When listening to music at low volume levels, this feature will boost the bass and treble response. This action will compensate for the reduction in bass and treble performance experienced at low volume.

To select the loudness feature, press button (2) until LOUD is displayed, then turn knob (2) right or left to activate or deactivate loudness.

⑧ **Beep control**

To adjust the BEEP mode, first select the BEEP mode by pressing button (2) repeatedly until BEEP indication appears on the display panel. Then turn knob (2) left or right within 5 seconds to select BEEP 2ND, BEEP OFF or BEEP ON.

- BEEP 2ND : You will only hear the beep sound when the buttons are held down for more than 2 seconds.
- BEEP OFF : You can not hear the sound beep when you press the buttons.
- BEEP ON : You can hear the beep sound each time you press the buttons.

(3) Mute control

① Press and hold MUTE button (3) for over 2 seconds to mute sound output and MUTE ON will blink on the LCD. Press the button again to cancel MUTE function and resume to normal playing mode.

(4) Mode selection

① Repeat press MODE button (3) to switch between FM1, FM2, AM, USB, AUX, BT MUSIC.

※ If there is no USB, AUX, Bluetooth Phone connected, it would not display USB, AUX, BT when you press button (3).

■RADIO

(1) Mode button

① Repeat press MODE button to select FM1, FM2 or AM.

(2) Manual tuning button

① To manually tune to a radio station, simply turn encoder TUNE (2) left or right to increase or decrease the radio frequency.

(3) Auto tuning button

① To automatically select a radio station, simply press Seek up or Track down button.

(4) Station preset button

① In radio mode, pressing buttons (6) to (11) will recall the radio stations that are memorized. To store desired stations into any of the 6 preset memories, in either the AM or FM bands, use the following procedure :

a. Select the desired station.
b. Press and hold one of the preset buttons for more than 2 seconds to store the current station into preset memory. Six stations can be memorized on each of FM1, FM2, and AM.

(5) Preset scan (PS) / Best station memory (BSM) button

① Press BSM button (12) momentarily to scan the 6 preset stations stored in the selected band. When you hear your desired station, press it again to listen to it.
Press BSM button (12) for longer than 2 seconds to activate the Best Station Memory feature which will automatically scan and enter each station into memory.

※ If you have already set the preset memories to your favorite stations, activating the BSM tuning feature will erase those stations and enter into the new ones. This BSM feature is most useful when travelling in a new area where you are not familiar with the local stations.

■USB PLAYER

(1) USB playback


9403CD110

① The unit was equipped with a front USB jack and also a rear USB Jack.
With a USB device plugged in the front USB jack, it will be detected as front USB mode. And with a USB device plugged in the rear USB jack, it will be detected as rear USB. To get to a USB mode, press MODE (3) button momentarily or insert the USB device in front or rear USB jack.

※ If there are no mp3 or wma files in USB device, it will revert to the previous mode after displaying NO FILE.

(2) Track Up / Down button

9403CD106

① Press SEEK up (13) or TRACK down (14) to select the next or previous track. Press and hold the buttons to advance the track rapidly in the forward or backward direction.

9403CD107

(3) MP3 directory / File searching

9403CD111

① Button (2) is used to select a particular directory and file in the device. Turn button (2) right or left to display the available directories. Press button (2) momentarily when the desired directory is displayed, then turn button (2) right or left again to display the tracks in that directory. Press button (2) to begin playback when the desired file is displayed.

(4) Directory Up / Down button

9403CD112

① During MP3/WMA playback, simply press DIR- button (10) to select the previous directory (if available in the device); simply press DIR+ button (11) to select the next directory (if available in the device).

※ If the USB device does not contain directories, it would play MP3/WMA tracks at 10- file when you press DIR- button (10), and play MP3/WMA tracks at 10+ file when you press DIR+ (11) button.

(5) Track Scan Play (SCAN) button

- SCAN playback : Simply press SCAN (12) button to play the first 10 seconds of each track.
- SCAN folder : Press and hold SCAN button for longer than 2 seconds to scan play the tracks in current folder.
- SCAN off : Simply press it again to cancel SCAN feature.

(6) Track Repeat Play (RPT) button

- REPEAT playback : Simply press RPT (8) button to play current track repeatedly.
- REPEAT folder : Press and hold RPT for longer than 2 seconds to repeat play the tracks in current folder.
- REPEAT off : Simply press it again to cancel REPEAT feature.

(7) Track Random Play (RDM) button

- RANDOM playback : Simply press RDM (9) button to play the tracks in the device in a random sequence.
- RANDOM folder : Press and hold RDM button for longer than 2 seconds to randomly play the tracks in the current folder.
- RANDOM off : Simply press it again to cancel RANDOM feature.

(8) ID3 v2 (DISP)

① While a MP3 file is playing, press DISP button (6) to display ID3 information. Repeat push DISP button (6) to show directory name / file name and album name / performer / title.

※ If the MP3 disc does not have any ID3 information, it will show NO ID3.

* USB Information and Notice

a. Playback FILE SYSTEM and condition allowance.
   - FAT, FAT12, FAT16 and FAT32 in the file system.
   - V1.1, V2.2 and V2.3 in the TAG (ID3) version.

b. Display up to 32 characters in the LCD display.

c. No support any of MULTI-CARD Reader.

d. No high speed playback but only playing with normal full speed.

※ DRM files in the USB may cause malfunction to playback in the radio unit.

※ In temperatures below -10℃ (14℉), the audio unit with USB hook up may be affected and not play well.

■AUX OPERATION

It is possible to connect your portable media player to the audio system for playback of the audio tracks via the cab speakers.

To get the best results when connecting the portable media to the audio system, follow these steps :

- Use a 3.5 mm stereo plug cable to connect the media player headphone socket at each end as follows.
- Adjust the portable media player to approximately 3/4 volume and start playback.
- Press the MODE button (3) on the audio unit to change into AUX mode.
- The volume and tone can now be adjusted on the audio unit to the desired level.

※ The audio quality of your media player and the audio tracks on it may not be of the same sound quality as the audio system is CD Player.

※ If the sound of the media player is too low compared with the radio or CD, increase the volume of the player.

※ If the sound of the media player is too loud and/or distorted, decrease the volume of the player.

※ When in AUX mode, only the Volume, Bass, Treble, EQ and Mode functions of the audio unit can be used.

■BLUETOOTH (if equipped)

(1) Using a bluetooth wireless connection

① Your audio unit supports bluetooth wireless technology. You can set up a wireless link with bluetooth cellular phone.

② Continue to pair the cellular phone with the audio unit. Within a few moments the two should be able to connect.

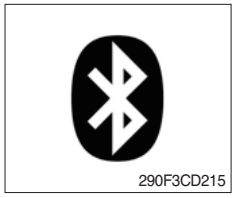
※ Since this audio unit is on standby to connect with your cellular phone via bluetooth wireless technology, using this audio unit without running the engine can result in battery drainage.

※ This audio units phone call reception is on standby when ignition switch is set to ACC OFF or ON.

※ The line-of-sight distance between this audio unit and your cellular phone must be 10 meters or less for sending and receiving voice and data via bluetooth wireless technology. However the transmission distance may become shorter than the estimated distance depending on the environment where it is being used.

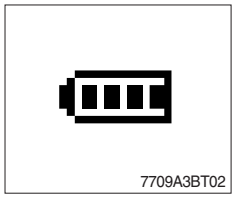
※ Digital Noise & Echo suppression system provides the best sound clarity with little or no distortion (Echo & side tone will happen depending on cellular phone or service network).

※ To ensure the quality of calling, you should select a proper bluetooth VR level. This audio unit is already equipped with the best bluetooth VR level.



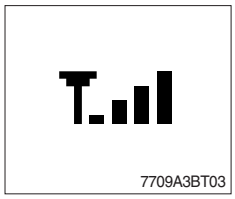
① Bluetooth icon

It will blink while establishing the bluetooth pairing.
It will light up after a bluetooth device connected.



② Battery icon

It indicates the battery status of the connected bluetooth device.



③ Single strength icon

It indicates the signal strength of the connected bluetooth device.

2) Pairing in hands free modes

(1) Press and hold CALL button (4) for 2 seconds until you hear beep sound, then PAIR STR will appear 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 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 phone and this audio unit, both units will be automatically recognized on its paring like when you turn on the key in your car even though the 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 you want.

4) Bluetooth connection and disconnection

① When established bluetooth connection is made 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 is connected.


9403CD118

② To disconnect bluetooth link
Press and hold CALL END button (5) for 2 seconds, it shows DIS CON and bluetooth Icon disappears on the display.


9403CD117

③ To connect bluetooth link
Press CALL button (4) briefly, it blinks bluetooth Icon on the display while bluetooth is being connected. If the connection is completed, bluetooth Icon displays 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.


9403CD117/8

② To accept call
Press CALL button (4), ANSWER CALL followed by TALKING will show in the display.

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

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

6) Audio transfer between the audio unit and phone

The audio transfer function is for switching the call from the audio unit to the cellular phone for private conversation.

① Press CALL button (4) briefly during conversation, it appears CALL TRANS on the display. To switch back to the audio unit, press button (4) briefly during private conversation, then it appears CALL TRANS on the display again.

※ This function will be a cause of disconnection of bluetooth link in some nokia phones, but do not worry, just press button (4) during private conversation, then switch back to the audio unit automatically.

※ The quality of calling between cellular phone and audio unit is better than calling between one audio unit and another one.

7) Last call number dialing

① Press CALL button (4) briefly, it appears CALL TO on the display, then simply press CALL button once again, it would make the last call with phone number displayed on LCD.
If Reject call is activated in your phone, then your cellular phone does not support Reject Call function.

※ If you are using SAMSUNG phone, then you may need to press send button once more. With the first press of button it should show contact list in your phone, then if you press again you should be ready to make the last call.

(8) To make a call by cellular phone

The audio transfer function is for switching the call from the audio unit to the cellular phone for private conversation.

① The audio unit will be activated automatically when you make a call with cellular phone.
② When you make a call processing by cellular phone, it shows CALLING on the display.
③ When you receive a call, the phone number ******** appears on the display.

9) Using the audio unit as bluetooth music

The audio unit supports A2DP (Audio Advanced Distribution Profile) and AVRCP (Audio Video Remote Control Profile), and both profiles are available to listen music at the audio unit via cellular phone which is supporting the two profiles above.

(1) To play music, search the menu on your cellular phone as below :
i.e : Menu → File manager → Music → Option → Play via bluetooth.
It appears BT MP3 on the display.

(2) During BT MP3 playing, you could select the previous or next track by pressing SEEK up or TRACK down button on audio unit or operate via your cellular phone.

(3) To stop music, press button (5) briefly and it will automatically switch into the previous mode.

(4) To resume music playing, press the play button on your cellular phone.

※ This function may be different depending on cellular phone. Please follow the cellular phone menu. Some types of phones need to pair once more for bluetooth MP3 connection.

※ This function will be caused to disconnect A2DP, AVRCP depends on cellular phone.

※ Information about songs (e.g.: the elapsed playing time, song title, song index, etc.) cannot be displayed on this audio unit.

■RESET AND PRECAUTIONS

(1) Reset function

Interfering noise or abnormal compressed files in the MP3 disc or USB instrument may cause intermittent operation (or unit frozen/locking up). It is strongly recommended to use appropriate USB storage to not cause any malfunction to the audio unit. In the unlikely event that the player fails to operate correctly, try to reset unit by any of following two methods.

① press and hold 

simultaneously for about 5 seconds. (without Bluetooth)

② Press and hold 

simultaneously for about 5 seconds. (with Bluetooth)

※ Take out the fuse for the audio system in the vehicle once and then plug it back in.

※ It will be necessary to re-enter the radio preset memories as these will have been erased when the microprocessor was reset.
After resetting the player, ensure all functions are operating correctly.

(2) Precautions

When the inside of the cab is very cold and the player is used shortly after switching on the heater, moisture may form on the disc or the optical parts of the player and proper playback may not be possible.

If moisture forms on the optical parts of the player, do not use the player for about one hour. The condensation will disappear naturally allowing normal operation.

(1) Operation voltage : 9~32 volts DC, negative

(2) Output power : 40 watts maximum (20 watts x 2 channels)

(3) Tuning range

Area	Band	Frequency range	Step
USA	FM	87.5~107.9 MHZ	200K
	AM	530~1710 KHZ	10K
EUROPE	FM	87.5~108.0 MHZ	50K
	AM	522~1620 KHZ	9K
ASIA	FM	87.5~108.0 MHZ	100K
	AM	531~1602 KHZ	9K
LATIN	FM	87.5~107.9 MHZ	100K
	AM	530~1710 KHZ	10K

● AREA Selection :
- To select an area, press and hold related buttons at FM1 band for about 3 seconds.
- USA Area: Press and hold mode + 1DIS buttons for 3 seconds
- EUROPE Area: Press and hold mode + 2 buttons for 3 seconds
- ASIA Area: Press and hold mode + 3RPT buttons for 3 seconds
- LATIN Area: Press and hold mode + 4RDM buttons for 3 seconds.

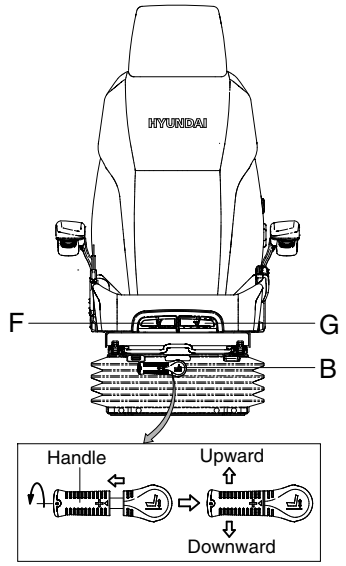
(4) USB version : USB 1.1

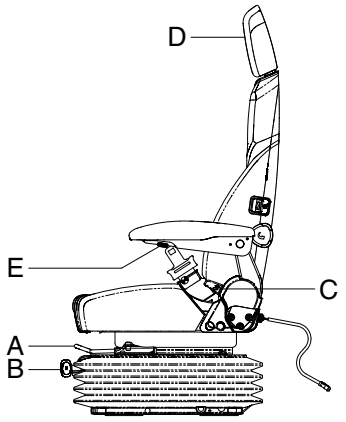
(5) Bluetooth version : V2.1

(6) Bluetooth supported profile :
- A2DP : Advanced Audio Distribution Profile
- AVRCP : Audio/Video Remote Control Profile
- HFP : Hands-Free Profile

5) 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.





21093CD55

(1) Forward/Backward adjustment (A)

① Pull lever A to adjust seat forward or backward.

② The seat can be moved forward and backward over 140 mm (5.5") in 13 steps.

(2) Height/weight adjustment (B)

① Turn the handle to adjust seat upward or downward

· Turn to clockwise, the seat is moved to upward and the weight is increased.
If it is turned to counterclockwise, the seat is moved to downward and the weight is decreased.

② **Method of changing direction** (up/down)

· First, pull the handle to outside.

· Second, rotate 180˚ and release the handle.

(3) Reclining adjustment (C)

Pull lever C to adjust seat back rest.

(4) Arm rest adjustment (E)

This can be adjusted by pushing the button E to right and left.

(5) Head rest adjustment (D)

This is adjustable vertically to fit operator's requirements over 60 mm (2.4").

(6) Seat cushion tilt adjustment (F)

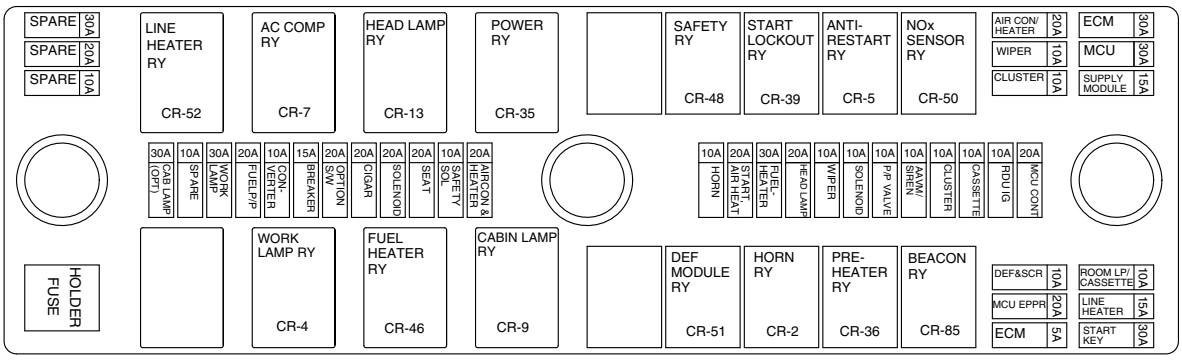
Pull lever F to adjust seat cushion tilting angle.

(7) Seat cushion length adjustment (G)

⚠ Pull lever G to adjust seat cushion forward or backward.

⚠ Always check the condition of the seat belt and mounting hardware before operating the machine. Replace the seat belt at least once every three years, regardless of appearance.

6) FUSE & RELAY BOX



235A3CD290

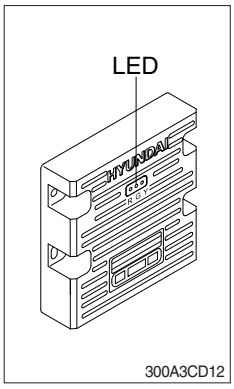
(1) The fuses protect the electrical parts and wiring from burning out.

(2) The fuse box cover indicates the capacity of each fuse and which circuit it protects.

※ **When replacing a fuse or relay, always use one of the same capacity.**

⚠ **Before replacing a fuse or relay, be sure to turn OFF the starting switch.**

7) MCU



300A3CD12

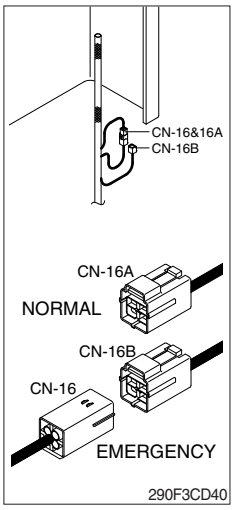
(1) To match the pump absorption torque with the engine torque, MCU varies EPPR valve output pressure, which controls pump discharge volume whenever engine speed drops and provides feedback, under the reference rpm of each mode set.

(2) Three LED lamps on the MCU display as below.

LED lamp	Trouble	Service
G is turned ON	Normal	-
G and R are turned ON	Trouble on MCU	· Change the MCU
G and Y are turned ON	Trouble on serial communication line	· Check if serial communication lines between controller and cluster are disconnected
Three LED's turned OFF	Trouble on MCU power	· Check if the input power wire (24 V, GND) of controller is disconnected · Check the fuse

G : green, R : red, Y : yellow

8) EMERGENCY ENGINE SPEED CONTROL CONNECTOR

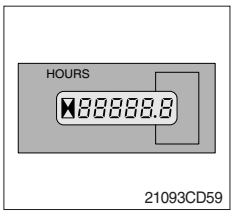


(1) When the CAN communication between the ECM and the MCU is abnormal due to malfunction, change CN-16 connection from CN-16A to CN-16B and then control the engine speed by rotating accel dial switch.

※ **Never connect connector CN-16 with CN-16B when MCU is in normal operation.**

※ **Make repair as soon as possible.**

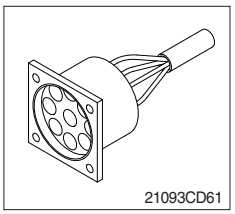
9) SERVICE METER



(1) This meter shows the total operation hours of the machine.

(2) Always ensure the operating condition of the meter during the machine operation. Inspect and service the machine based on hours as indicated in chapter 6, maintenance.

10) RS232 & J1939 SERVICE SOCKET



(1) MCU communicates the machine data with Laptop computer through RS232 service socket.

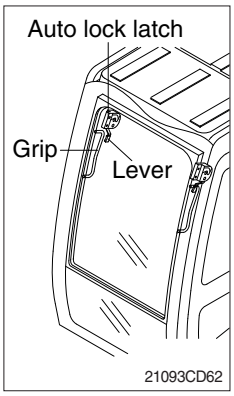
(2) ECM communicates the engine data with cummins INSITE adapter through J1939 service socket.

① ECM fault code check

② ECM program change

③ Engine data monitoring & test

11) UPPER WINDSHIELD

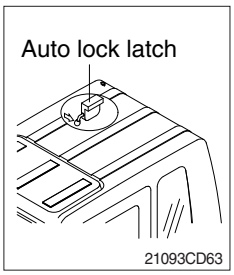


(1) Perform the following procedure in order to open the upper windshield.

① Pull both levers with hold both grips that are located at the top of the windshield frame and push the windshield upward.

② Hold both grips and pull back into the lock position until auto lock latch is engaged, then release the grips.

⚠ **When working, without having locked the windshield by the auto lock (by pushing the windshield to the rear untill it's completely fixed), please be careful as it can cause personal injury if the windshield is not fixed or falls off.**



(2) Perform the following procedure in order to close the upper windshield.

① Pull the lever of the auto lock latch in order to release the auto lock latch.

② Steps in the reverse order to close the upper windshield.

7. 2DMG+ SYSTEM

1) OUTLINE

This system displays the distance information between the bucket tip and the target surface of the machine on the cluster to use the levelling work or the slopping work etc.

※ 2DMG+ : 2 Dimension Machine Guidance Plus

(1) System layout

The system consists of the angle sensor, laser catcher, integrated controller and cluster.

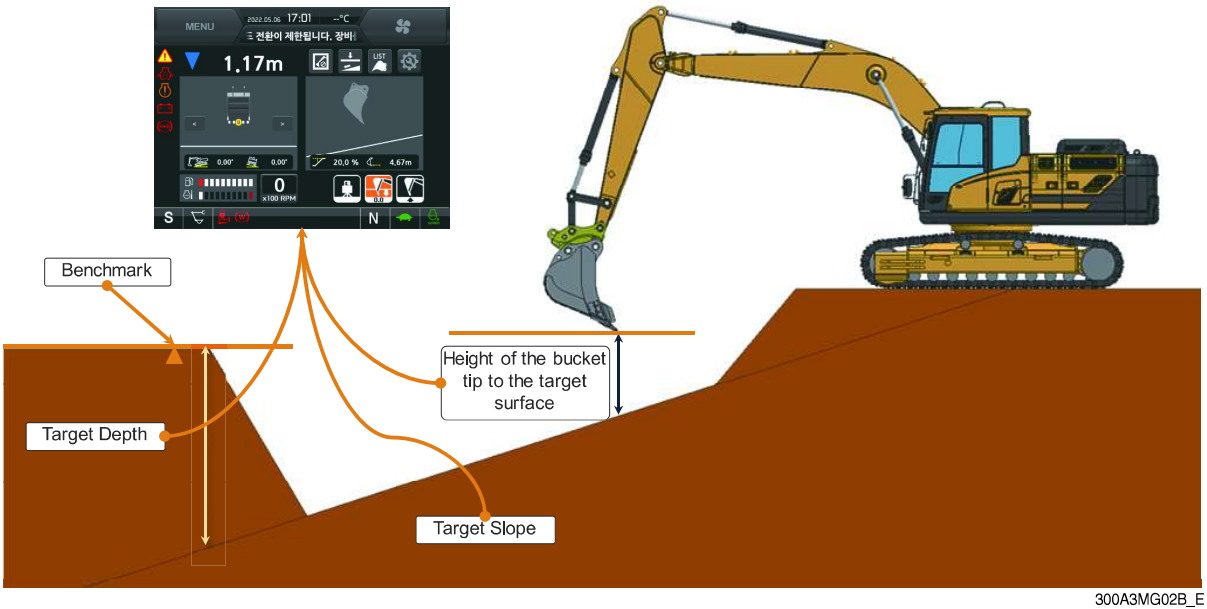
300A3MG01B_E

(2) Major function

HD Hyundai Construction Equipment 2DMG+ is an automated surveying function providing positional information of the bucket tips in the form of visual indicators and audible alarms.

300A3MG03_E

- 2DMG+ is an automated surveying function providing positional information of the bucket tips in the form of visual indicators and audible alarms.

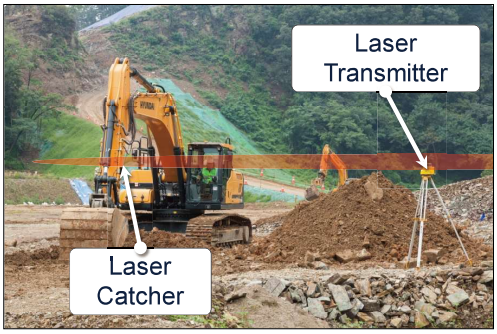


300A3MG02B_E

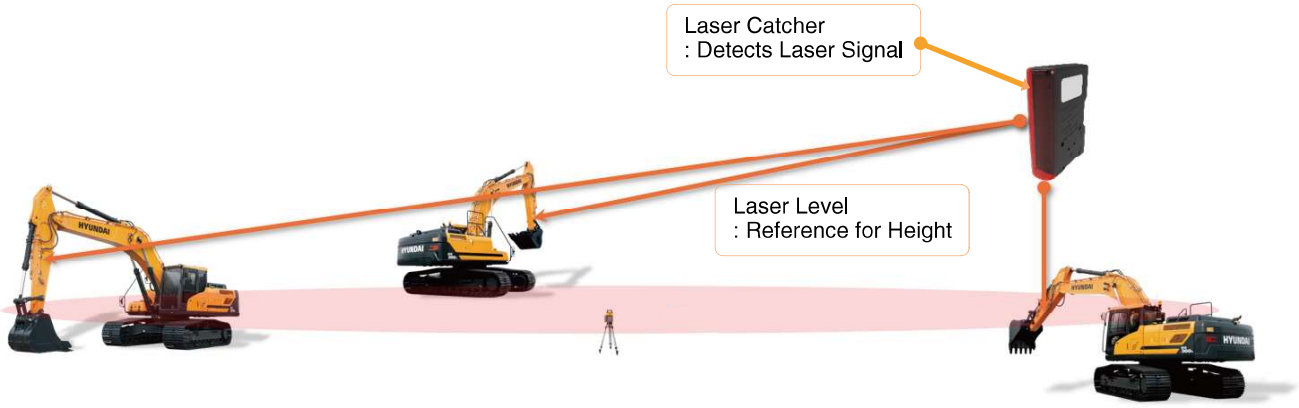
(3) Laser catcher

① This is additional function to set the bucket tip height easily when using the HD Hyundai Construction Equipment 2DMG+.

② This is useful to a wide area levelling work, long distance slopping work and cooperation work with other machines.



300A3MG04_E



300A3MG05A_E

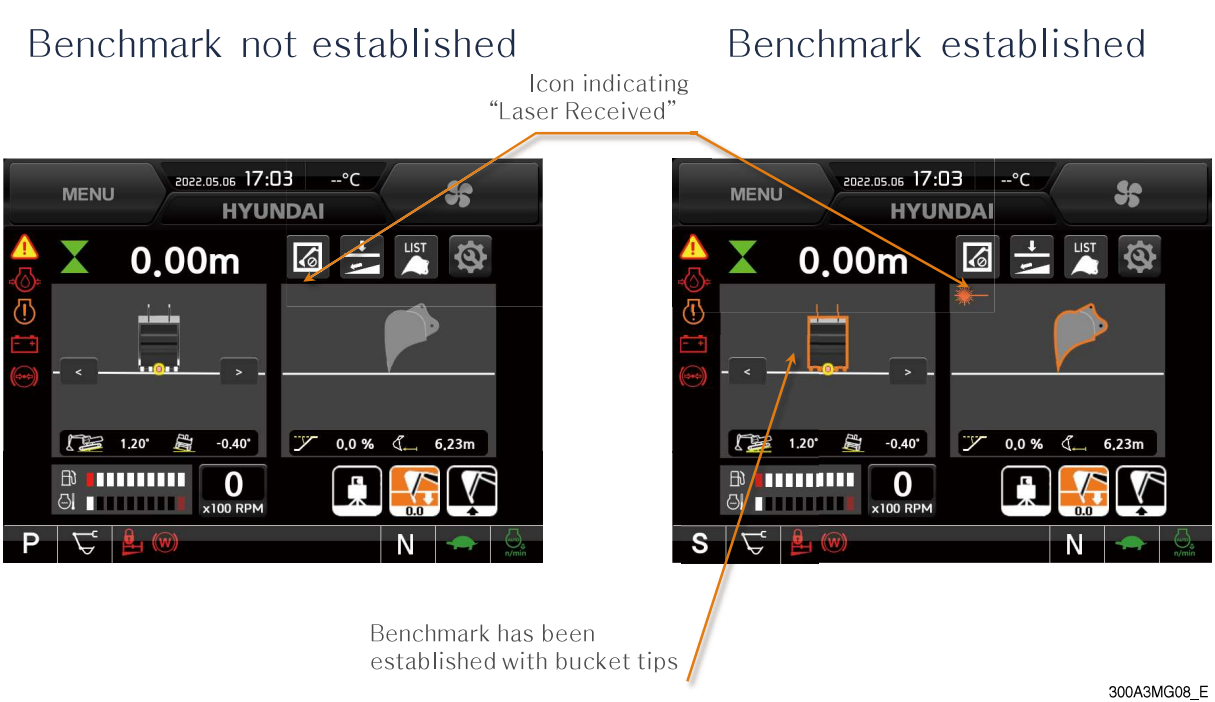
(4) Default main screen

300A3MG06A_E

(5) Laser catch screen

300A3MG07_E

(6) Screen after laser caught



300A3MG08_E

2) BENCHMARK SETTING

(1) Reference position utilization

Set the benchmark as below procedures.

① Set the reference position that knowing the height by the measuring.
In the site, use the measured reference position that marked by stake.

② Move the machine to a location that the attachment reach to the reference position.

③ Put the bucket tip on the reference position and press the benchmark button of the cluster or RCV lever. (Please refer to the benchmark setting or unsetting)

④ Make sure not to move the reference position height when placing the bucket on the reference position.

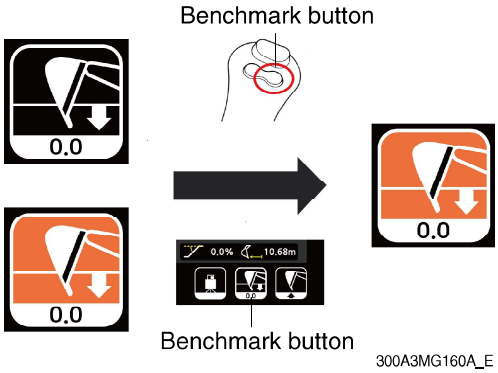
⑤ The benchmark setting is completed when the benchmark button is changed right figure.

300A3MG09_E

300A3MG10A

※ **Benchmark setting**

Press the benchmark button of cluster or the right button on the LH RCV lever shortly.
Pop the lower left figure up and set is completed (lower right figure).



300A3MG160A_E

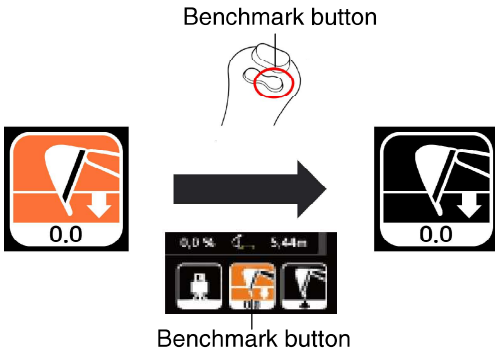
300A3MG161_E

300A3MG10A

※ **Benchmark releasing**

Press the benchmark button of cluster or the right button on the LH RCV lever long (about 1.5 sec).

Pop the lower left figure up and setting is cancelled (lower right figure)

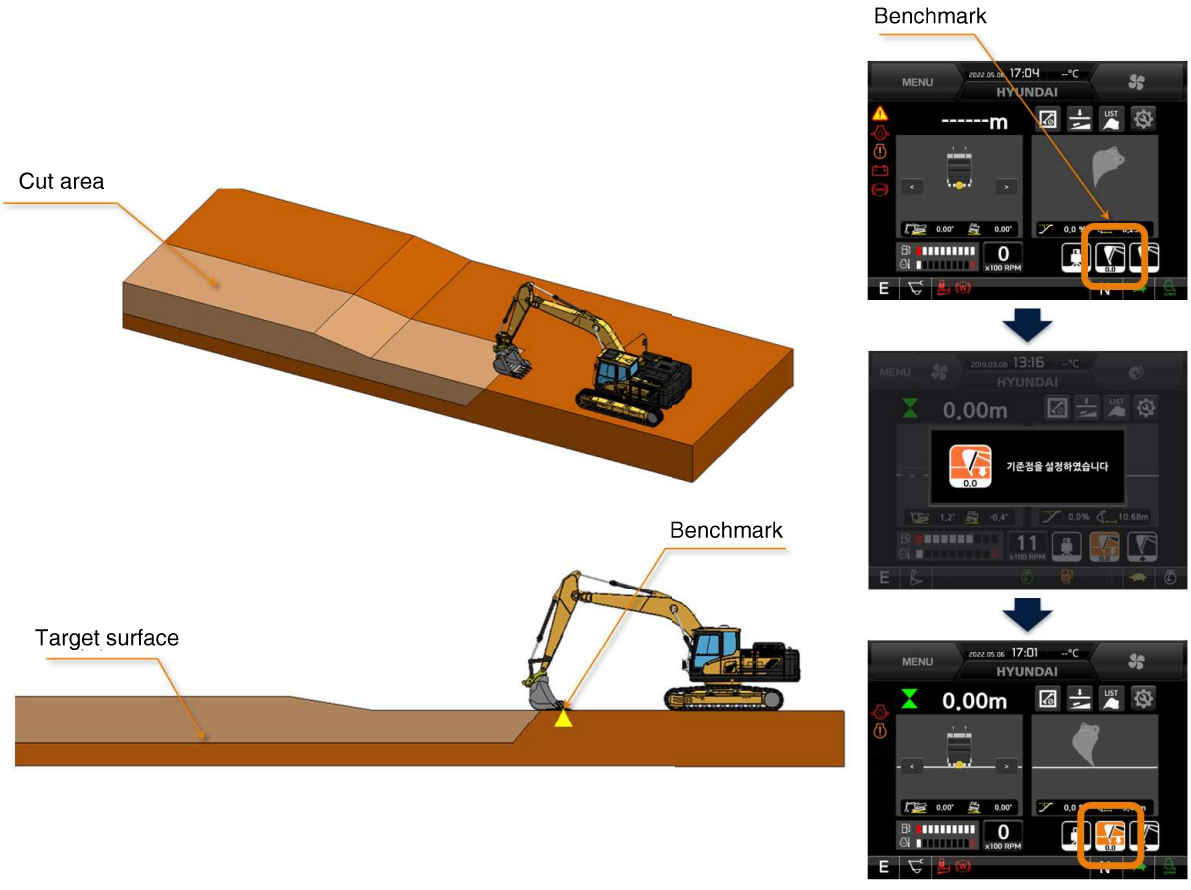


300A3MG163A_E

300A3MG164_E

300A3MG165

⑥ Benchmark setting details



300A3MG11A_E

(2) Laser transmitter utilization 1

① This is to set the benchmark by using laser without bucket reference position when the bucket reference position setting method is not useful because the digging depth or slope is set by the laser.

300A3MG12_E

② First, go into the laser scanning mode by operating the cluster to catch the laser.

300A3MG12_E

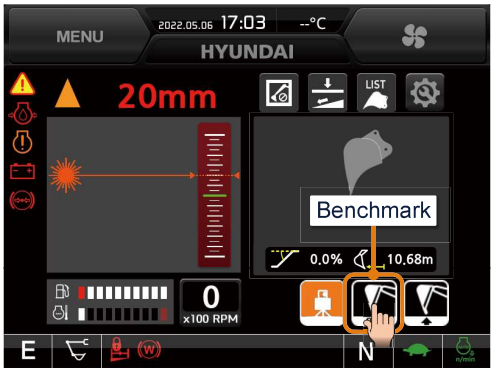
③ Operate the boom and arm appropriately while checking the laser signal indicator to catch the laser signal.

※ **Move the boom up and down until the signal is detected when the 'no signal' is displayed.**

300A3MG14_E

④ Press the benchmark button when the laser signal go into the scanning zone (▲ 60 mm ~ ▼ 60 mm) of the laser catcher.

※ **At this moment, take some time to stabilize the laser signal**

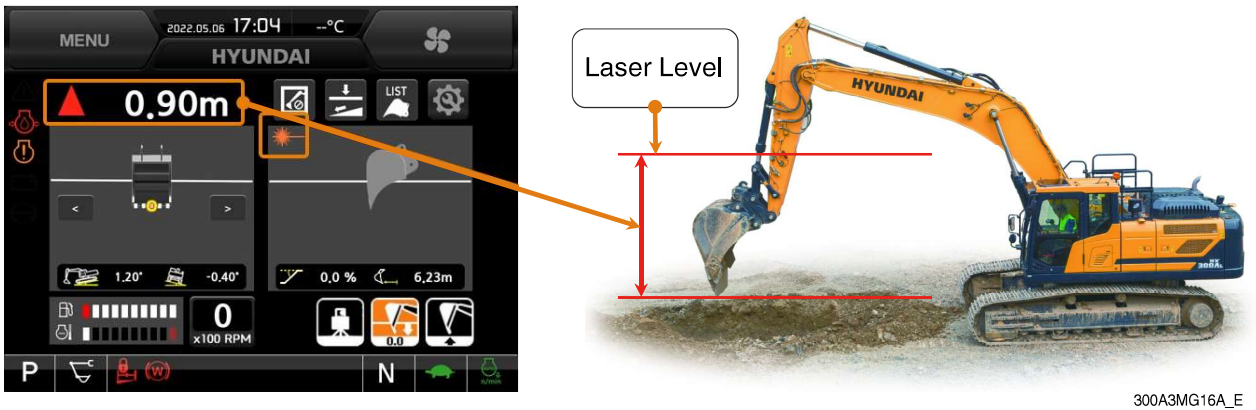


300A3MG15_E

⑤ The laser benchmark setting is completed when the benchmark button ( ) is activated and the laser icon ( ) is displayed at the left top side of the bucket side view.

※ **The numerical value of the height indicator means the height different between the laser lever and the bucket tip height.**

※ **In case of the laser line, be aware that the benchmark changing selection (bucket outline emphasis of the bucket front view and side view) is not activated.**



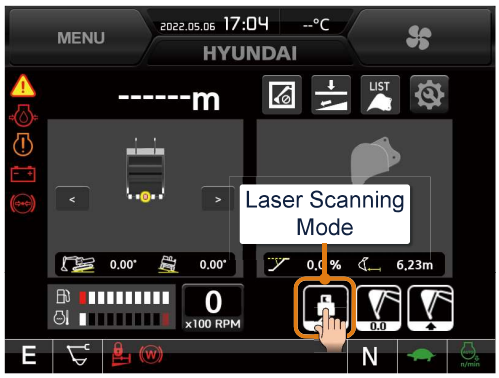
300A3MG16A_E

(3) Laser transmitter utilization 2

① This is to keep the benchmark uniformly while the machine is moving by using the laser transmitter with the bucket reference position when the digging work with the HD Hyundai Construction Equipment 2DMG+.

300A3MG17_E

② First, go into the laser scanning mode by operating the cluster to catch the laser.



300A3MG18_E

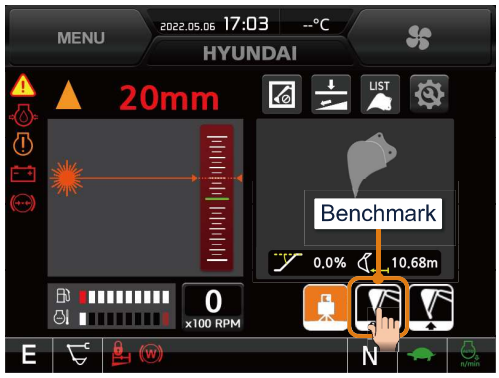
③ Operate the boom and arm appropriately while checking the laser signal indicator to catch the laser signal.

※ **Move the boom up and down until the signal is detected when the 'no signal' is displayed.**

300A3MG19_E

④ Press the benchmark button when the laser signal go into the scanning zone (▲ 60 mm ~ ▼ 60 mm) of the laser catcher.

※ **At this moment, take some time to stabilize the laser signal**



300A3MG15_E

⑤ Confirm the laser icon is displayed at the left top side of bucket side view.
Then place the bucket tip on the reference position of the ground and press the bucket figure of the bucket front view.

300A3MG21_E

⑥ Confirm that the bucket figure outline of the bucket front view and side view is emphasized on the main screen. At this time, the height indicator is changed from the laser base to the benchmark base and then the benchmark setting is completed.

300A3MG22_E

3) BENCHMARK MOVEMENT SETTING

(1) Touch point utilization

① The benchmark resetting work is needed because the offset is occurred in case of moving the machine from one place to other place.

300A3MG23_E

② The benchmark resetting work is needed because the offset is occurred in case of moving the machine from one place to other place.

300A3MG25_E

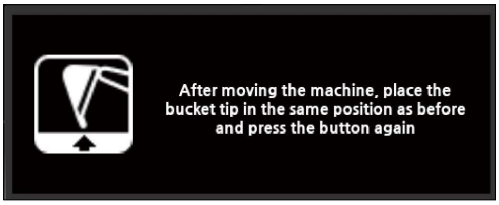
③ Press the touch point button ( ).

※ **The touch point must be set in advance.**

300A3MG24_E

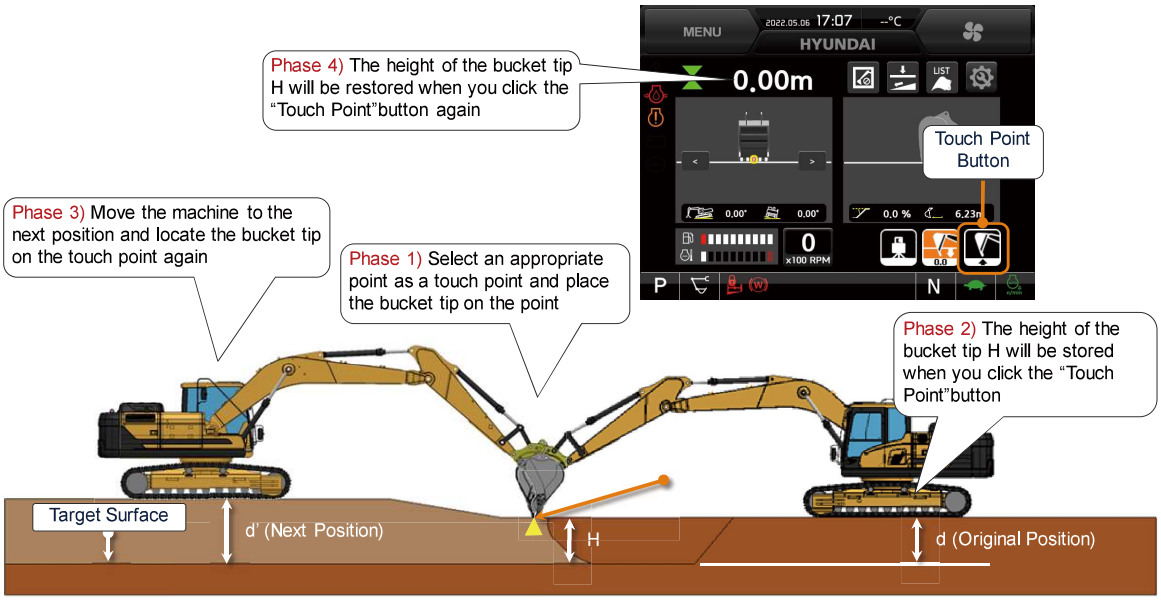
④ Display the message to move the touch point on the screen as right figure and the button icon ( ) is activated.

⑤ After moving the machine, replace the bucket tip in the same position as before and press the touch point button again.



300A3MG26_E

⑤ Summary of the benchmark movement setting (touch point utilization)



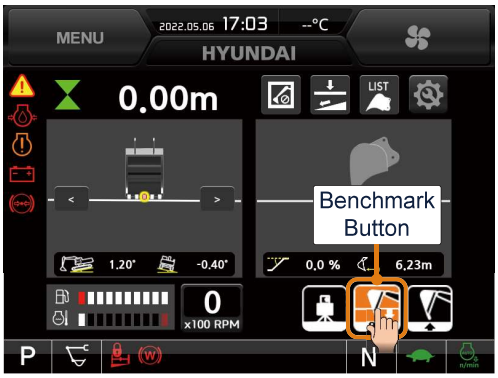
300A3MG27_E

(2) Reference height utilization

① Mark the 0 m level position on the working ground at present.

300A3MG28_E

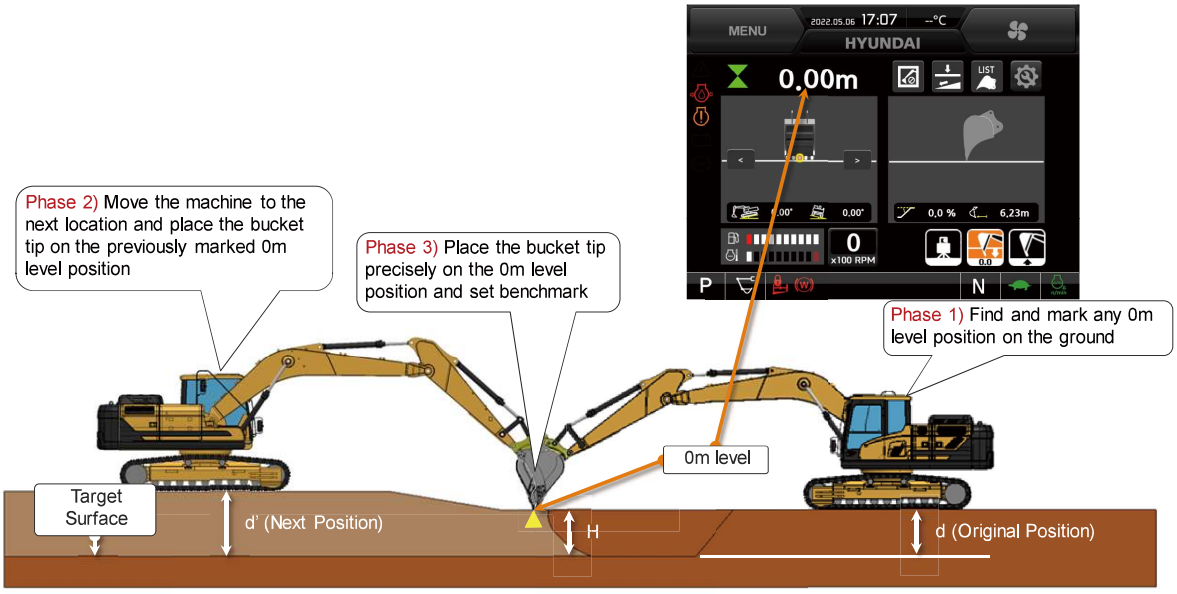
② After moving the machine, place the bucket tip on the 0 m level position as marked previous step and resetting the benchmark.



300A3MG29_E

300A3MG31_E

③ Summary of the benchmark movement setting (reference height utilization)



300A3MG32_E

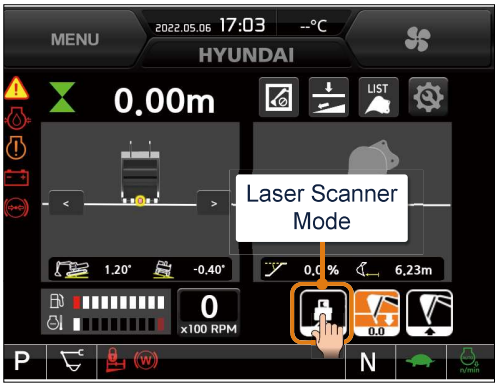
(3) Laser transmitter utilization

① Before moving the machine, check the location of the laser transmitter and swing the upper structure of the machine appropriately to catch signal with the laser transmitter.

※ **Before using the laser transmitter, be sure to check the is on and not inclined.**

300A3MG33_E

② Before moving the area, catch the laser signal. Press the laser scanning button and go into the laser scanning mode.



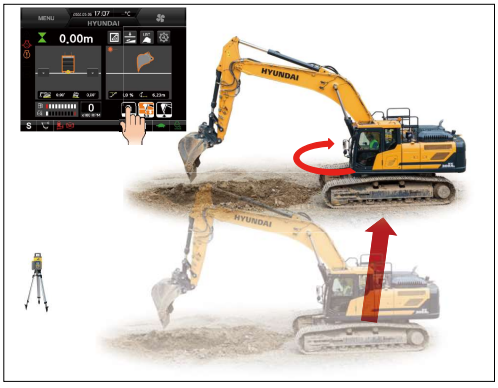
300A3MG34_E

③ After adjusting boom and arm appropriately while checking the laser signal indicator to catch the laser signal and complete the scanning laser signal by pressing the benchmark button.

※ **Move the boom up and down until the signal is detected when the 'no signal' is displayed.**

300A3MG35_E

④ After moving the machine to the next working area, the laser catcher face toward the laser transmitter by swinging the machine upper structure to catch the laser signal. After the machine pose is set appropriately, go into the laser scanning mode by pressing the laser scanning button.



300A3MG36_E

⑤ After adjusting boom and arm appropriately while checking the laser signal indicator to catch the laser signal and complete the scanning laser signal by pressing the benchmark button.

※ **Move the boom up and down until the signal is detected when the 'no signal' is displayed.**

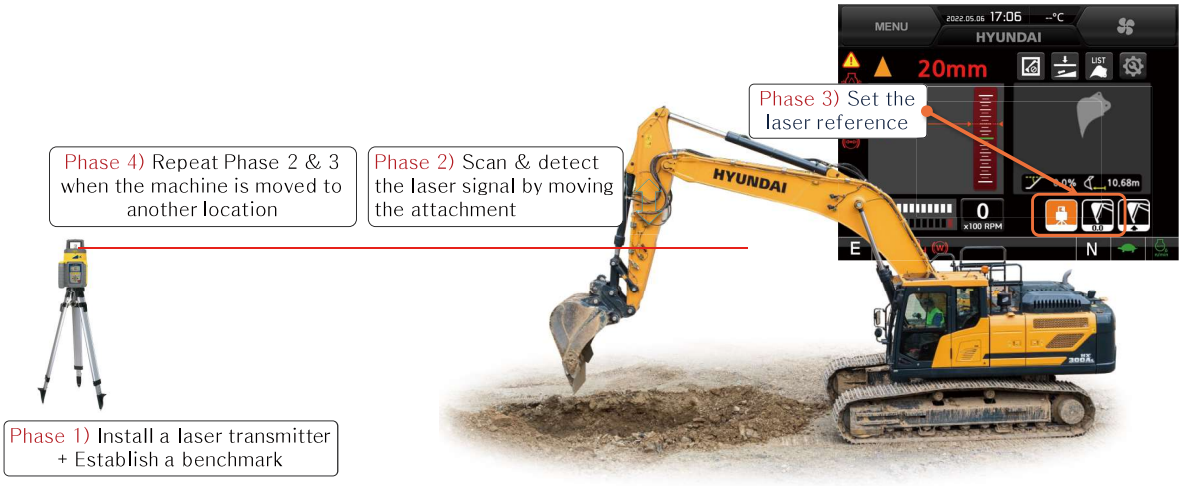
300A3MG37_E

⑥ After moving the touch point, go to the next procedure.

300A3MG38_E

⑦ Benchmark movement setting summary (laser transmitter utilization)

a. Check the operation of the laser transmitter that is set to the working site.
b. After working the machine at present position, detect the laser signal by going into the laser scanning mode and moving the attachment.
c. The laser signal is detected, complete the laser rscanning by pressing the benchmark button of the cluster.
d. After moving the machine to the next work location, repeat b and c steps.



300A3MG39_E

(4) Precautions when the benchmark movement setting

① If the benchmark movement setting is completed, you can keep the original benchmark height even if the machine is moved.

② In case the benchmark movement is proceeded while the slope working, the benchmark movement is valid only when there is no swing operation.

③ The benchmark movement setting can enable in spite of the swing operation of the machine when the the depth setting only.

300L3MG16_E

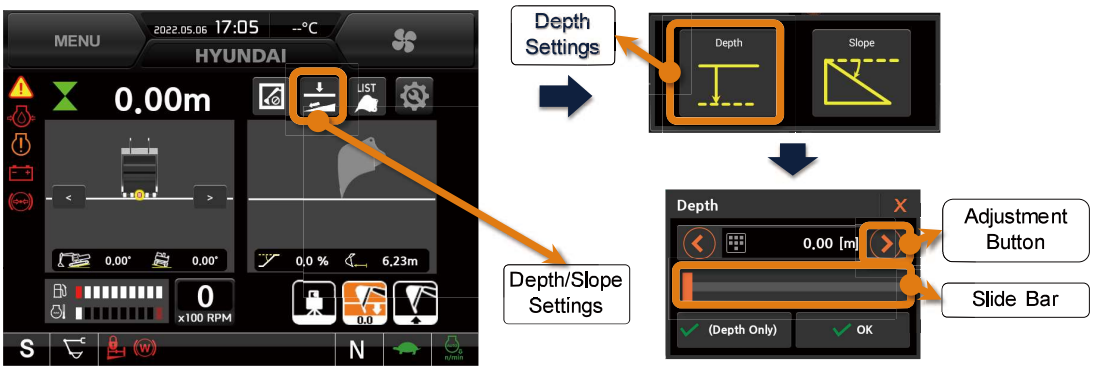
④ In case, the working is proceeded by using the slope laser, the transmitter is installed to face toward the front side of the machine after the digging target slope setting. The attachment face toward the front side unless swinging when the laser signal is caught.

300L3MG17_E

4) TARGET DEPTH AND SLOPE SETTING

(1) Target surface depth setting (slide bar input)

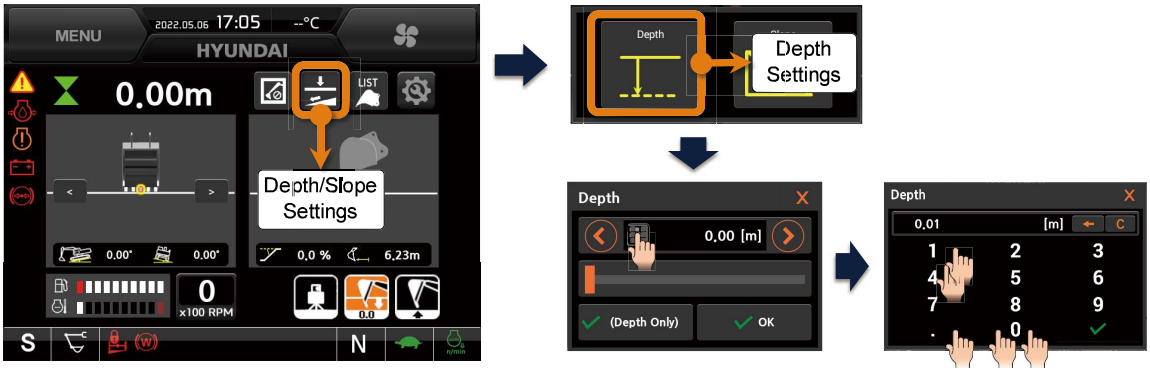
① Press the 'depth/slope' setting button ( ) to set-up the target surface depth to digging work.
② Press the 'depth' setting button ( ) when the 'depth' and 'slope' button are pop-up.
③ Enter the decided depth value when the window is pop-up to set-up of the target digging depth setting.
④ Set-up the depth roughly by using slide bar and enter the exact value by pressing the detail setting button.
⑤ The length value can be input maximum 20 m by 0.01 m unit.



300A3MG40_E

(2) Target surface depth setting (keypad input)

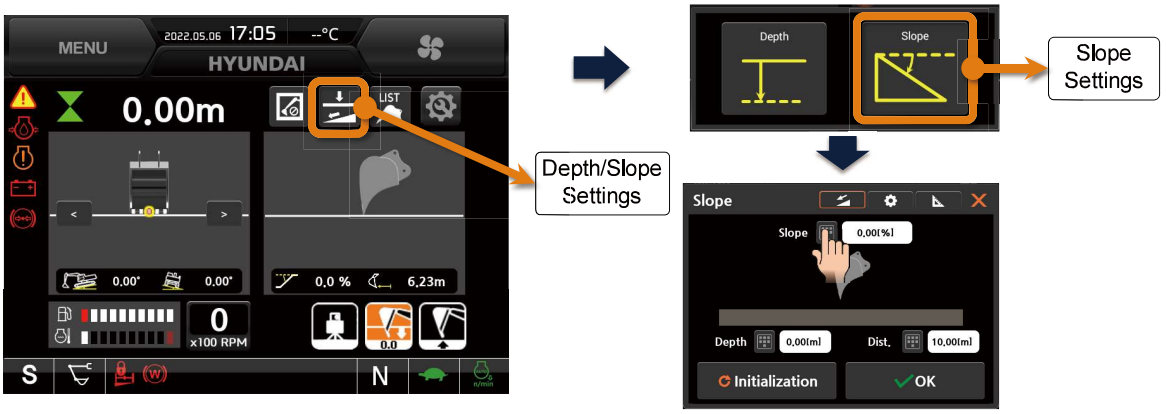
① Refer to the above clause, go into the depth setting menu.
② Press the button of the depth display window and go into keypad input window.
③ Enter the decided depth value by the keypad and press ✓ button.
④ Complete the depth setting as below.
- Levelling work : Press the OK (depth only) button
- Slopping work : Press the OK button



300A3MG41_E

(3) Target surface slope setting (% unit input)

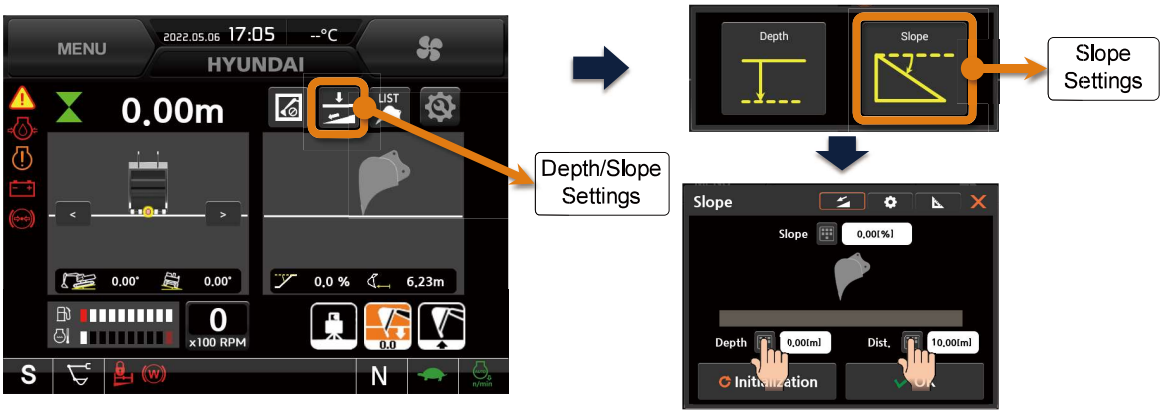
① Press the 'depth/slope' button ( ) to set-up the target surface depth and slope setting.
② Press the 'slope' button ( ) when the 'depth' and 'slope' button are pop-up.
③ Press the 'slope' button ( ) and enter the decided slope value (%) when the window is pop-up to set-up of the target slope setting.
④ Complete the slope setting by pressing the OK button.
⑤ The slope value can be input from minimum -100 % to maximum 100 % by 0.01% unit.



300A3MG42_E

(4) Target surface slope setting (length and height value input)

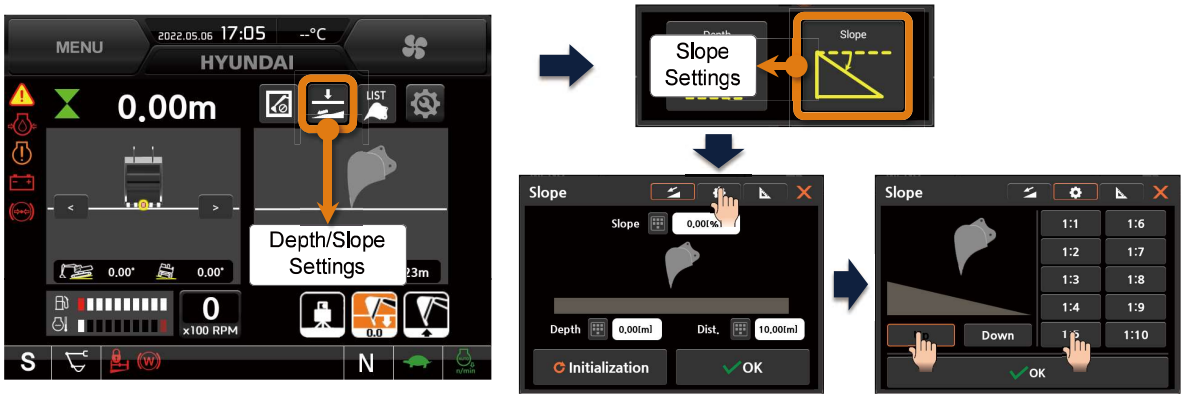
① Press the 'depth/slope' button ( ) to set-up the target surface depth and slope setting.
② Press the 'slope' button ( ) when the 'depth' and 'slope' button are pop-up.
③ Press the depth button ( ) and length button ( ) and enter the decided values when the window is pop-up to set-up of the target slope setting.
④ Enter the height value as the slope from the operator to bucket side.
- Descend slope : + value
- Ascend slope : - value
⑤ Complete the slope setting by pressing the OK button.



300A3MG43_E

(5) Target surface slope setting (selection for slope preset values)

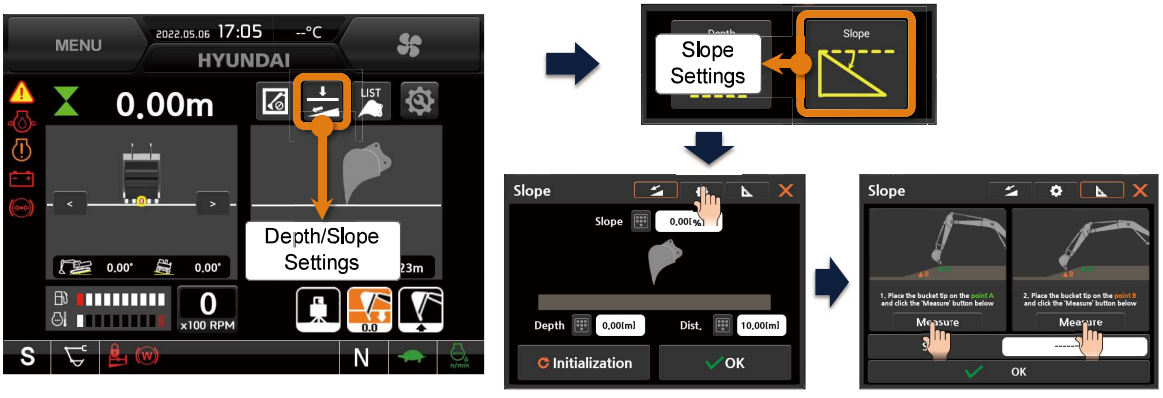
① Press the 'depth/slope' button ( ).
② Press the 'slope' setting button ( ) of the pop-up window.
③ Press the slope default value menu button ( ) on the top side of the slope setting window.
④ Enter the decided slope value and direction and press the OK button.
※ **1:X means the slope of 1 meter height at x meter distance.**



300A3MG44_E

(6) Target surface slope setting (slope measurement)

① Refer to the above clause, go into the slope setting window.
② Press the slope measurement menu button ( ) on the top side of the slope setting window.
③ Press the 'Measurement' button on the left window after place the bucket tip on the start point of the slope.
④ Press the 'Measurement' button on the right window after place the bucket tip on the another point of the slope.
⑤ Confirm the result of the slope measurement.
※ **To acquire the accuracy of the slope measurement, place a long distance between the start point and another point of the slope as possible.**

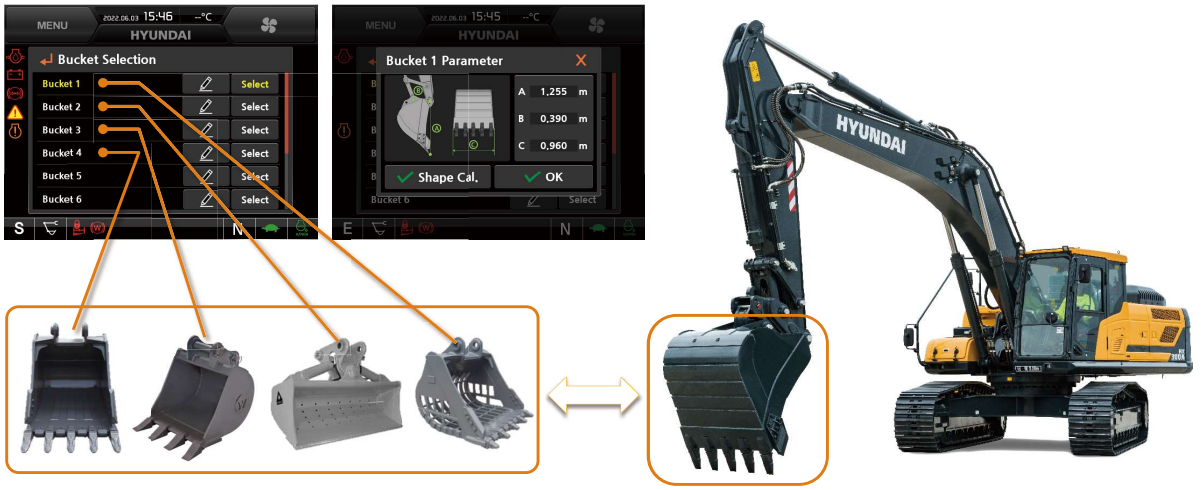


300A3MG45_E

5) BUCKET SETTING FUNCTION

(1) Bucket selection

① You can use a bucket to change other bucket when you have many kinds of buckets.
② The dimensions and name of each bucket need to be entered beforehand.
③ If the dimensions of the bucket is incorrect, the measurement accuracy is unable to guarantee. Be careful when you input the data.



300A3MG46_E

(2) Bucket selection menu details

① Bucket selection menu details

300A3MG47_E

② Press the 'bucket selection' menu button.

300A3MG48_E

③ The 'bucket selection' menu will be displayed.

300A3MG49_E

(3) Bucket change installation

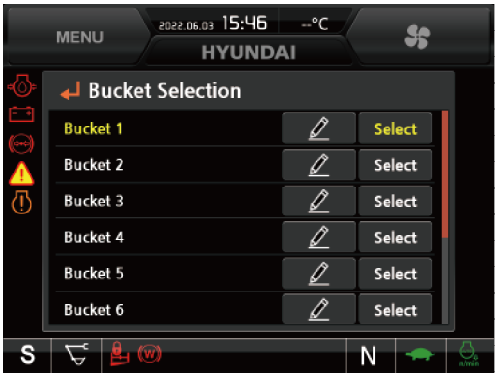
You have to designate the bucket information to match with the bucket dimension information in case of changing to a different bucket.

① Replace the current bucket to a different bucket (No.1 bucket → No.2 bucket)

※ **The dimensions of each bucket need to be stored beforehand.**

300A3MG50

② Go into the 'bucket selection' menu.

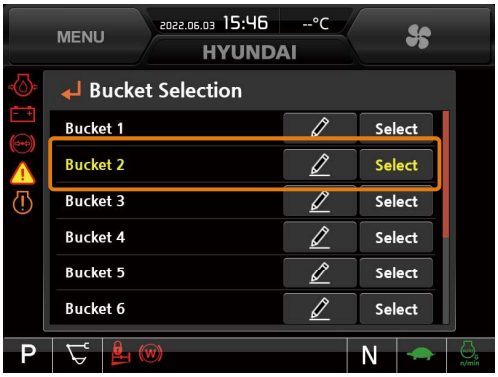


300A3MG51_E

③ Press the 'selection' button of the No.2 bucket.

300A3MG52_E

④ Confirm the No.2 bucket display is changed to orange color.

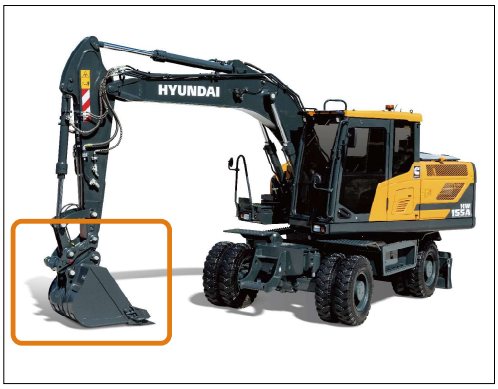


300A3MG53_E

(4) Bucket dimension input

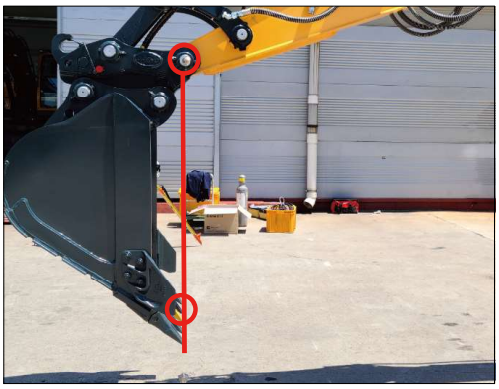
To ensure the measurement accuracy, please follow the correct dimension input procedure.

① Replace your bucket to measure dimensions.



300A3MG54

② Adjust the position of the bucket pin and bucket tip to vertical with ground by using a plumb-bob etc.



300A3MG55

③ Refer to the next page, measure the required dimension to input data.

300A3MG56

④ Go into the 'bucket selection' menu.

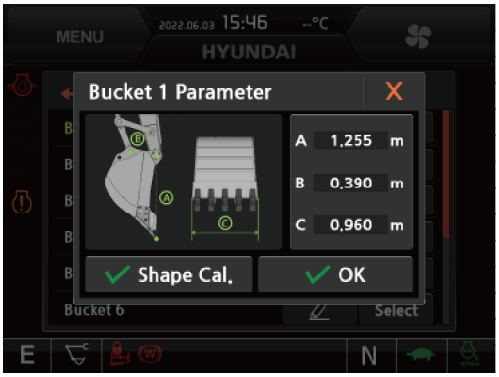
300A3MG51_E

⑤ Press the name of the object bucket to input.

300A3MG57_E

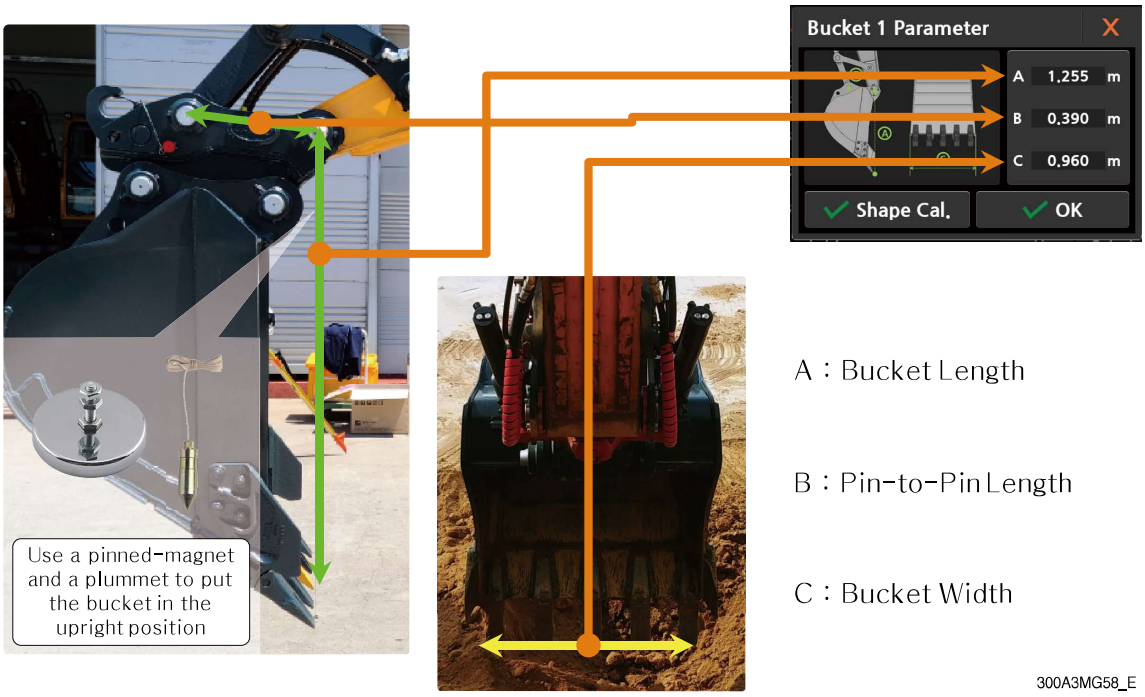
⑥ Input the value by pressing the figure of A, B, C.

※ **Keep the bucket pin and bucket tip in a vertical position and then input the value.**



300A3MG58_E

⑦ Bucket dimension measurement position details



A : Bucket Length

B : Pin-to-Pin Length

C : Bucket Width

300A3MG58_E

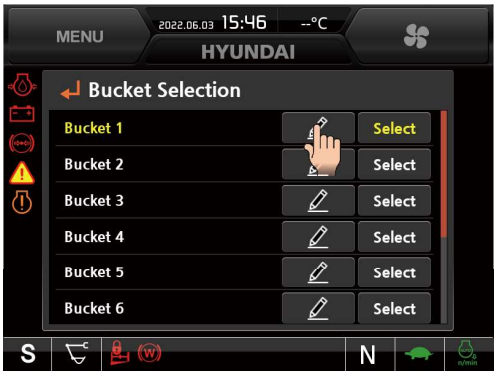
(5) Bucket name change

You can rename the buckets to identify them easily.

① Go into the 'bucket selection' menu.

300A3MG51_E

② Press the name change button.



300A3MG60_E

③ Input the bucket name.
Example : 1234

300A3MG61_E

④ Confirm the changed name.

300A3MG62_E

(6) Bucket shape calibration

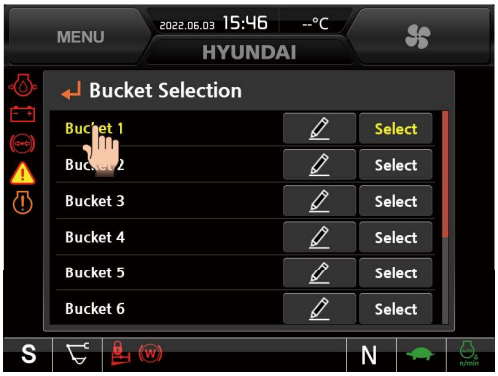
Bucket shape calibration is an additional procedure to ensure the performance of working area violation alarm function(E-Bound).

① Go into the 'bucket selection' menu.

300A3MG51_E

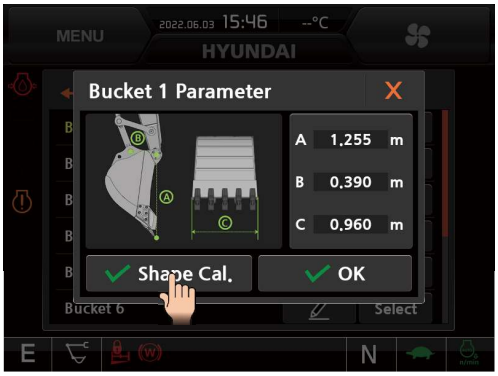
② Press the object bucket to input shape calibration.

※ **The shape calibration is proceeded the bucket only that is completed the figure input.**



300A3MG57_E

③ Press the 'shape cal.' button when the bucket figure input window is displayed.

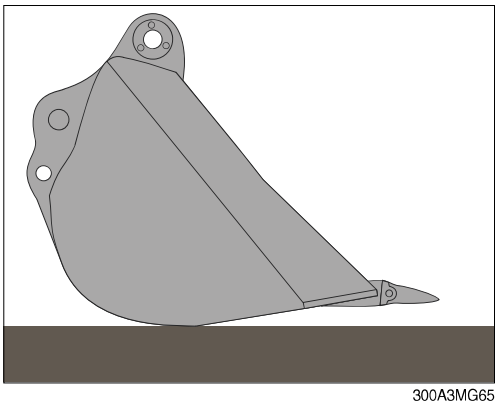


300A3MG63_E

④ Check menu and figure of the 'shape cal. phase 1' and instruction of the right side.

300A3MG64_E

⑤ Refer to the instruction and adjust the posture of the bucket relating with the flat ground.

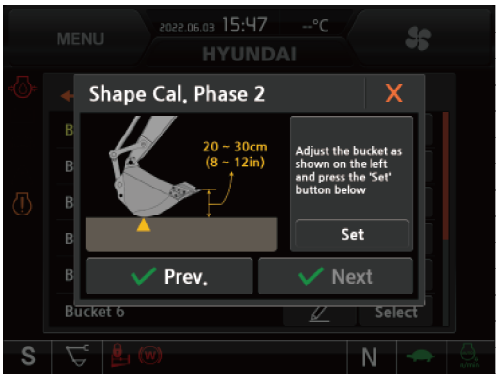


300A3MG65

⑥ Press and activate the 'set' button of the 'shape cal. phase 1' menu and press the 'next' button.

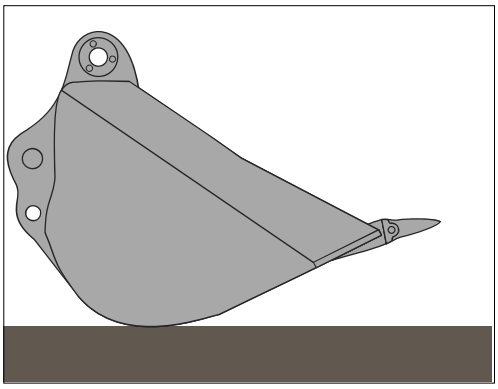
300A3MG66_E

⑦ Check menu and figure of the 'shape cal. phase 2' and instruction of the right side.



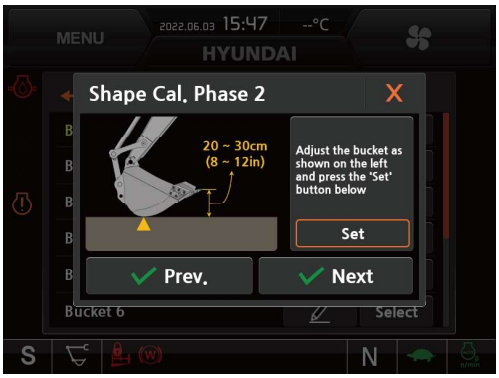
300A3MG67_E

⑧ Refer to the instruction and adjust the posture of the bucket relating with the flat ground.



300A3MG68

⑨ Press and activate the 'set' button of the 'shape cal. phase 2' menu and press the 'next' button.

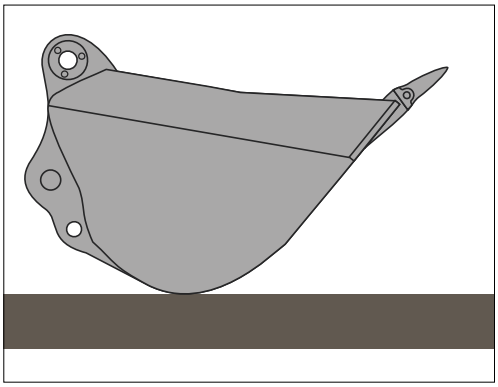


300A3MG69_E

⑩ Check menu and figure of the 'shape cal. phase 3' and instruction of the right side.

300A3MG70_E

⑪ Refer to the instruction and adjust the posture of the bucket relating with the flat ground.



300A3MG71

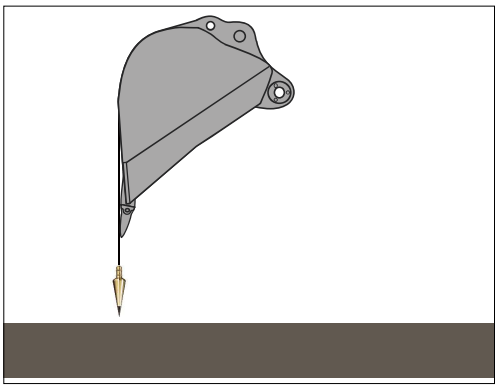
⑫ Press and activate the 'set' button of the 'shape cal. phase 3' menu and press the 'next' button.

300A3MG72_E

⑬ Check menu and figure of the 'shape cal. phase 4' and instruction of the right side.

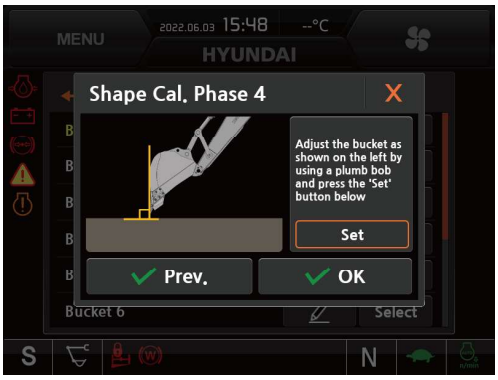
300A3MG73_E

⑭ Adjust the bottom surface of the bucket to vertical with ground by using a plumb-bob etc.



300A3MG74

⑮ Press and activate the 'set' button of the 'shape cal. phase 4' menu and press the 'next' button.



300A3MG75_E

⑯ Check the display of the shape calculation icon.

※ The shape calibration procedure is valid only when the shape of the bucket bottom side is composed of a single radius surface.

※ Please keep in mind to position the bottom side of the bucket at the same spot on the ground from phase 1 to phase 3.

300A3MG76_E

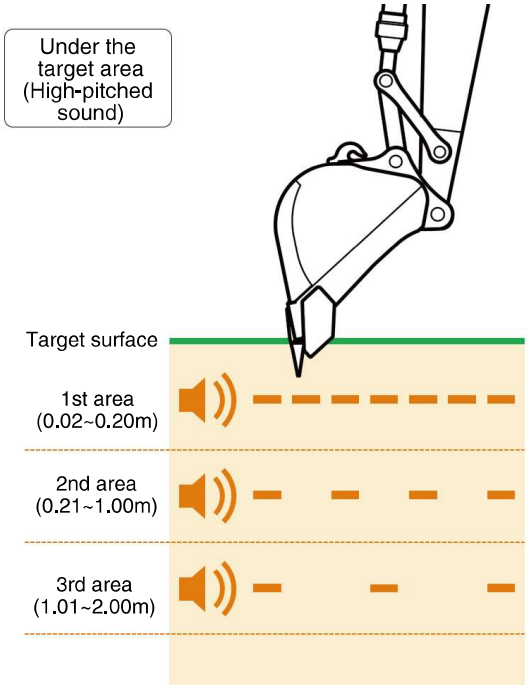
6) ALARM SOUND SETTING

(1) The monitor generates various alarm sounds according to the distance level between the target surface and the bucket tips.

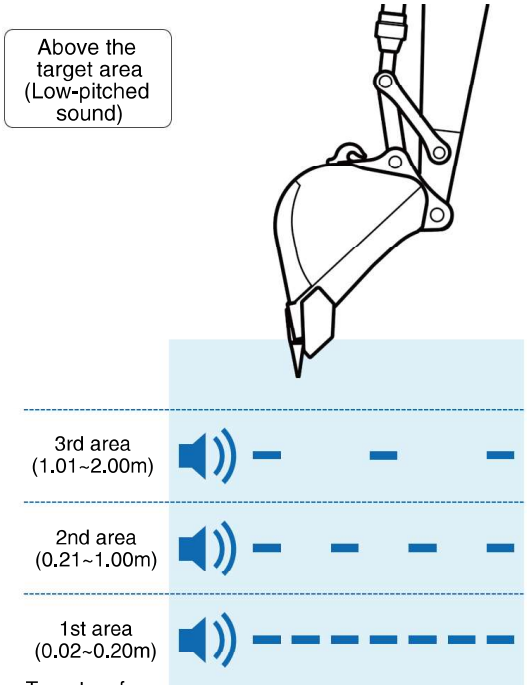
(2) The alarm sound can be set to enable or disable.

(3) The depth margin of the 1st warning zone can be set from 0 m~2 m range.

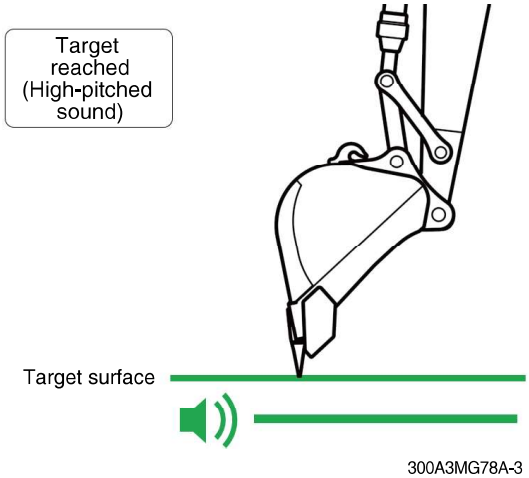
300A3MG77_E



300A3MG78A-1E



300A3MG78A-2E



300A3MG78A-3

(4) Alarm sound setting details

300A3MG79_E

300A3MG80_E

300A3MG81A_E

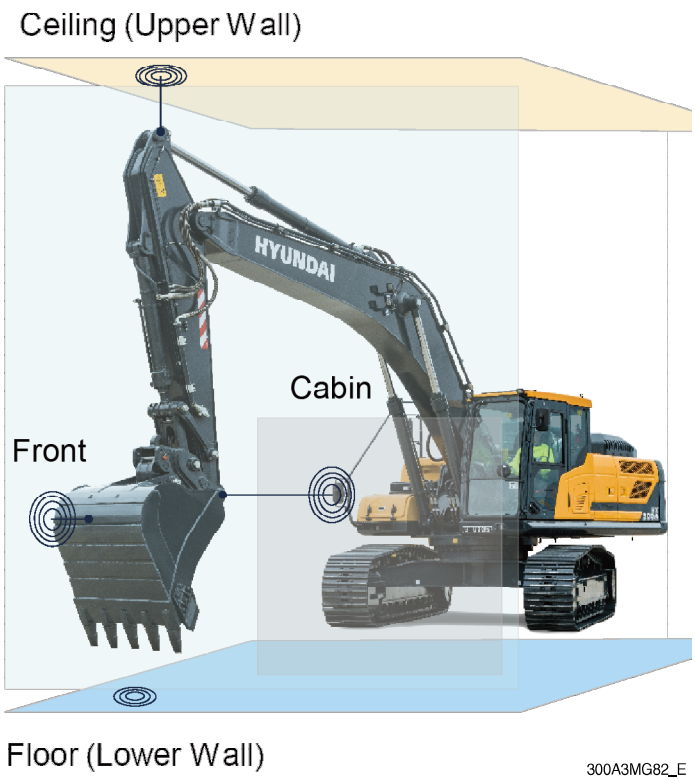
7) ALARM SETTING OF WORKING ZONE VIOLATION (E-Bound Alarm)

(1) Outline

① Audible and visual warning functions for imaginary work zone around the attachment of an excavator.

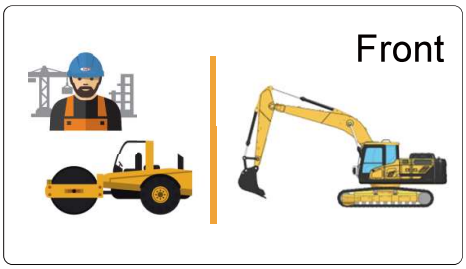
- Zone : Ceiling side, Floor side, Front side, Cabin side

② This is useful to keep the working environment safely and prevent the machine damage.

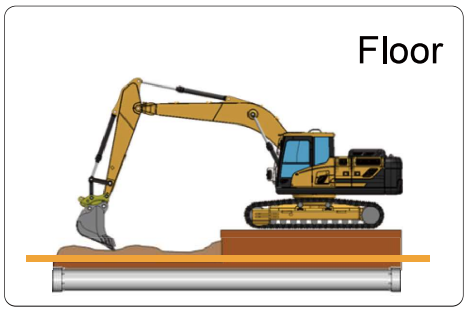


300A3MG82_E

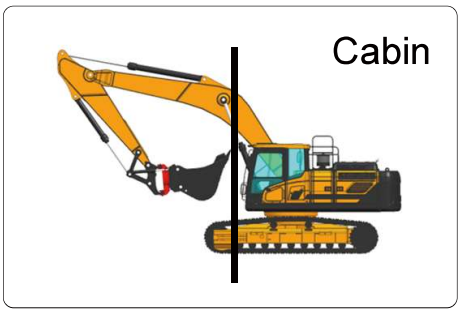
300A3MG85_E



300A3MG83_E

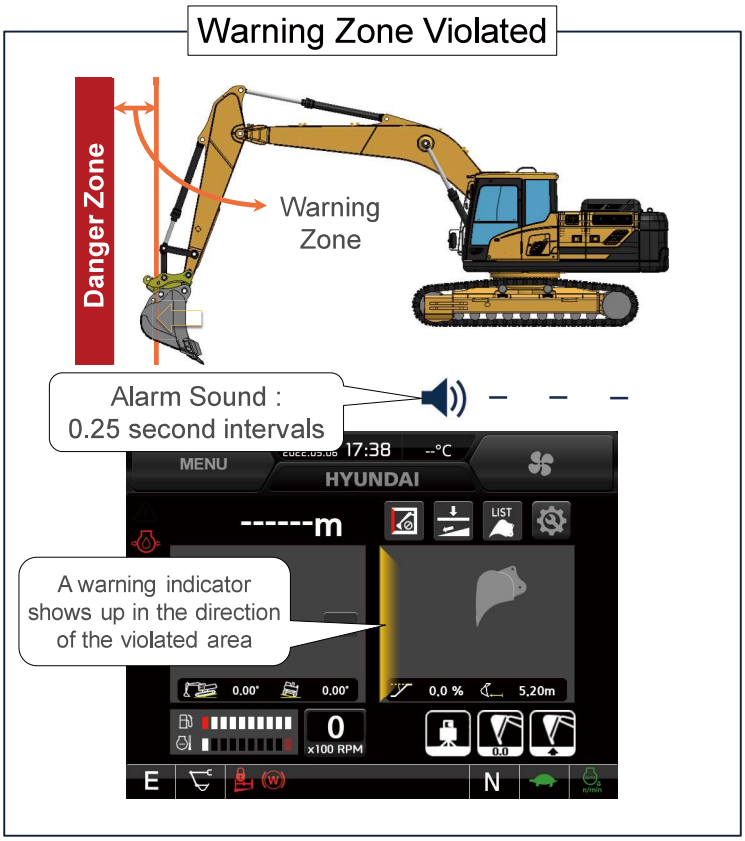


300A3MG84_E

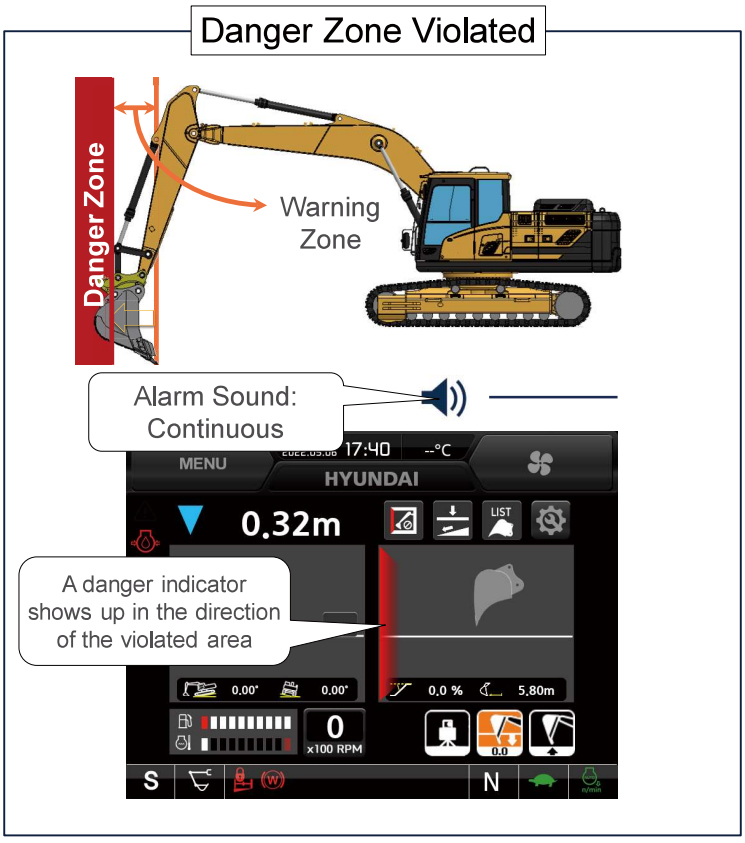


300A3MG86_E

③ Alarm will ring when the attachment approaches the danger zone or violates the danger zone.



300A3MG87_E



300A3MG88_E

(2) Warning function activation when the working zone is violated

① Danger indicator show up when the each danger zone is violated : Cluster screen warning+alarm sound

- Ceiling side

300A3MG89_E

- Floor side

300A3MG90_E

- Front side

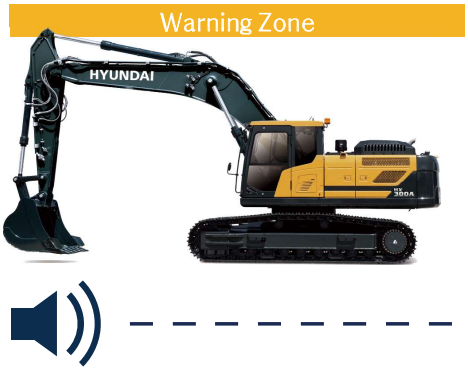
300A3MG91_E

- Cabin side

300A3MG92_E

② Warning alarm is enabled when the attachment approaches each danger zone : Cluster screen warning+alarm sound

- **Ceiling side**



300A3MG93_E

- **Floor side**

300A3MG94_E

- **Front side**

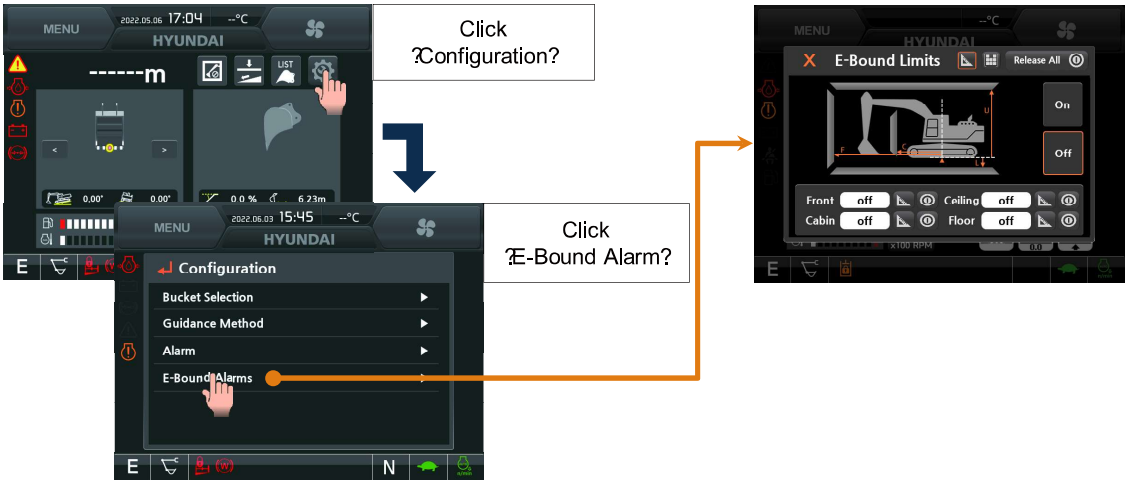
300A3MG95_E

- **Cabin side**

300A3MG96_E

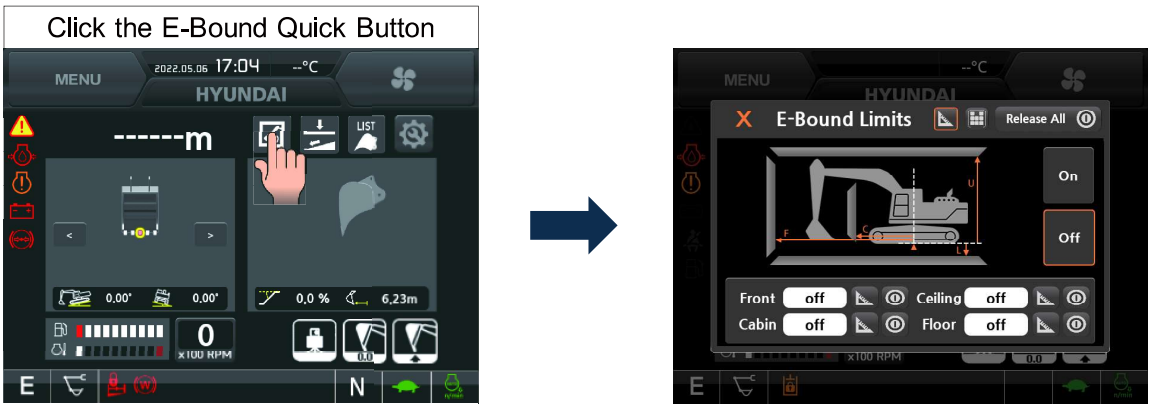
(3) Configuration of menus for working zone violation warnings

① Moving route 1 of the working zone violation warning menu



300A3MG97A_E

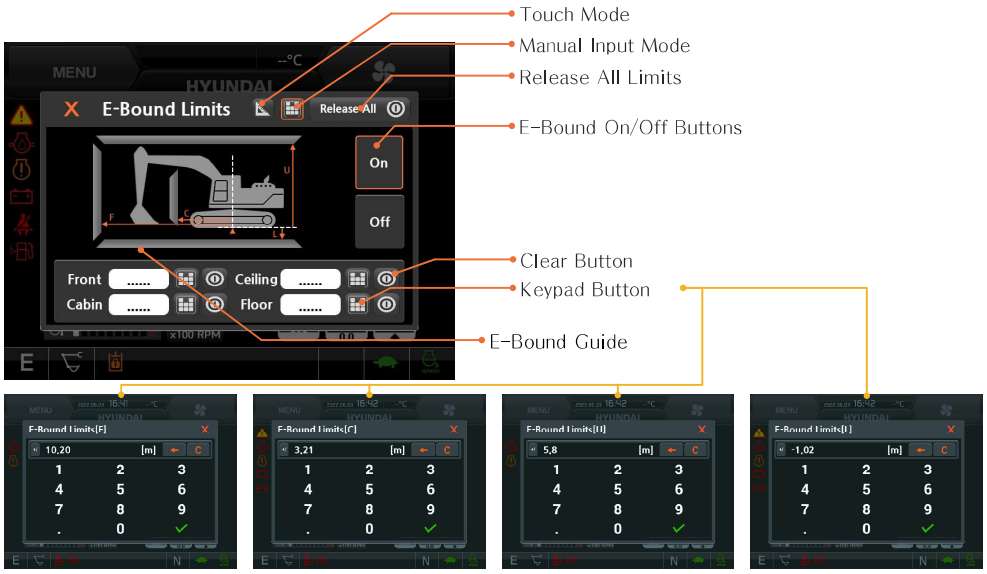
② Moving route 2 of the working zone violation warning menu



300A3MG98A_E

(4) Working zone setting

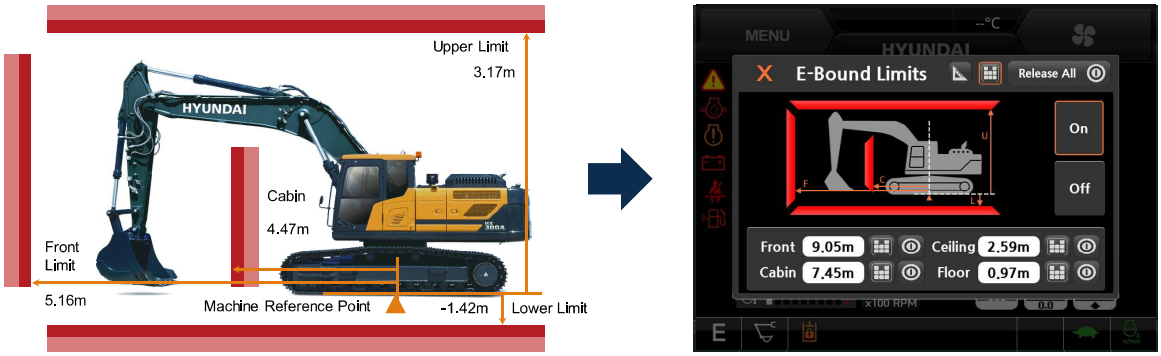
① Consists of the working zone setting screen



300A3MG99A_E

② Working zone setting-direct input

a. Measure the distance from the machine reference point to the working zone as below figure.
b. Go into the 'E-bound limits' menu and confirm the 'On' button is activated on the right side of the menu.
c. Press the 'manual input mode' button ( ) on the top side of the menu.
d. Input the figure by using the keypad after pressing the keypad button ( ) of the working zone item to set.
e. Confirm the figure of the working zone and display of the working zone indicator on the 'E-bound guide' window.

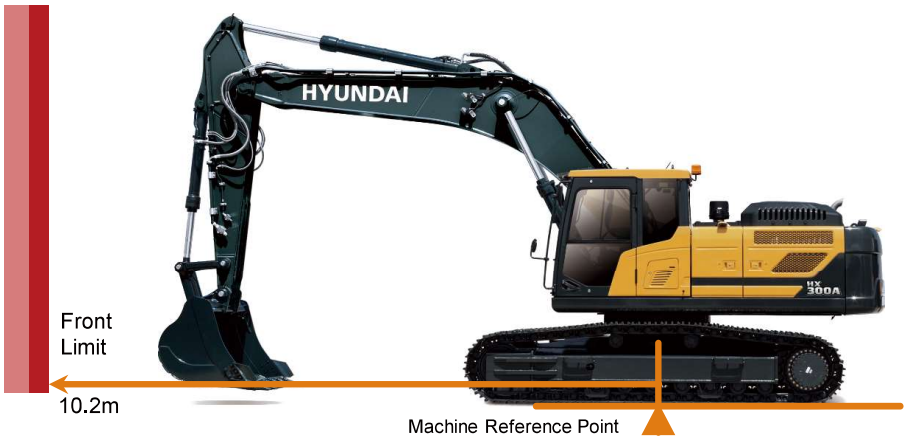


300A3MG100A_E

③ Working zone setting-direct input example

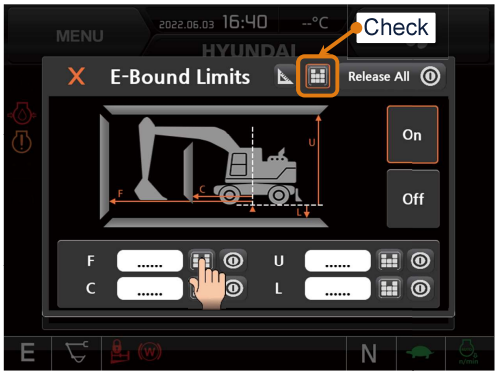
a. Front side working zone input

– Measure the distance from the machine reference point to the front side working zone.



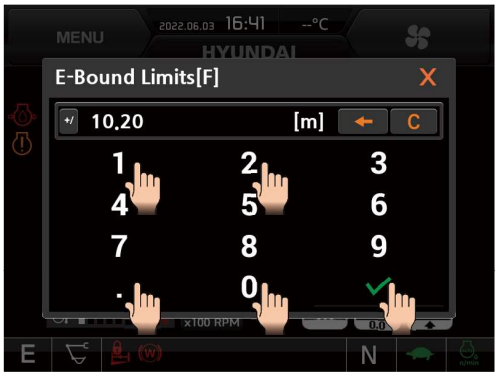
300A3MG101_E

– Press the keypad button ( ) of the item F in the 'E-bound limits' setting menu.



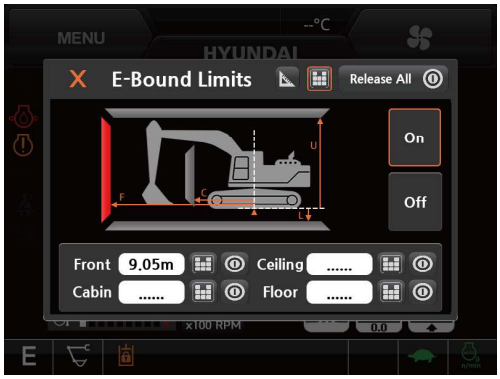
300A3MG102A_E

– Input the measured figure.



300A3MG103_E

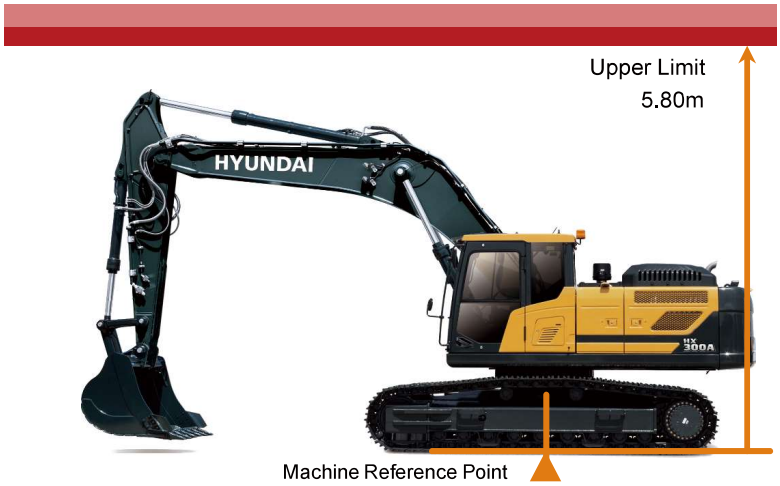
– Confirm the indicator for front side is activated and the value for the distance to the front side on the E-Bound Limits window.



300A3MG104A_E

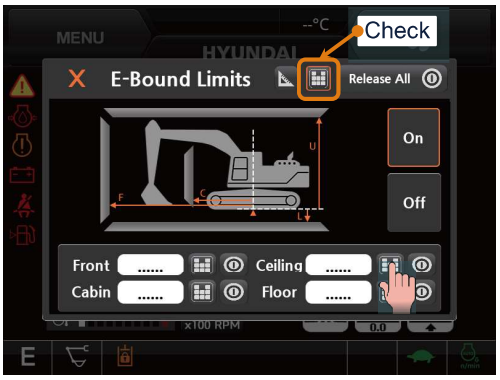
b. **Ceiling side working zone input**

– Measure the distance from the machine reference point to the ceiling side working zone.



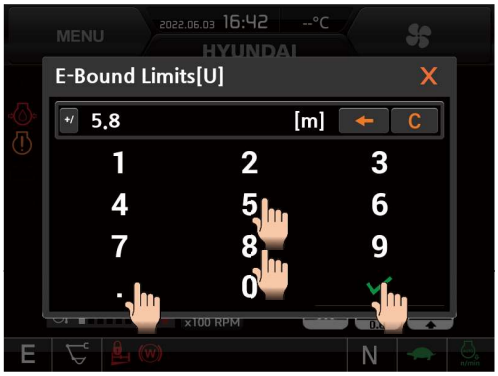
300A3MG105_E

– Press the keypad button ( ) of the item U in the 'E-bound limits' setting menu.



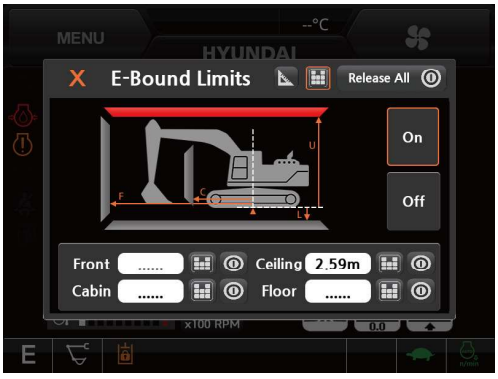
300A3MG106A_E

– Input the measured figure.



300A3MG107_E

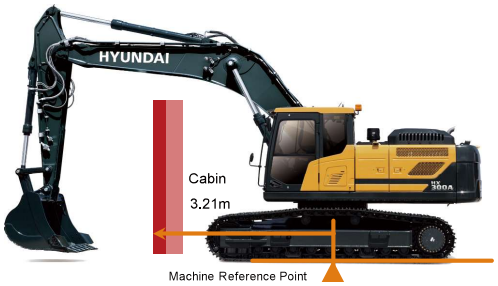
– Confirm the indicator for ceiling side is activated and the value for the distance to the ceiling side on the E-Bound Limits window.



300A3MG108A_E

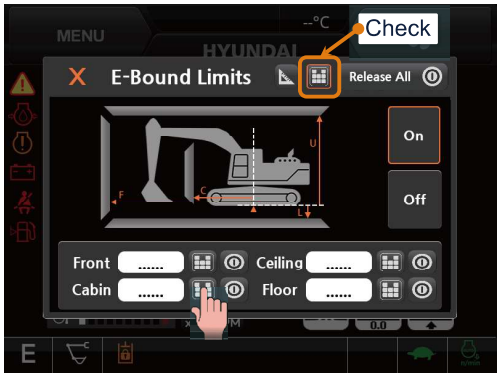
c. **Cabin side working zone input**

– Measure the distance from the machine reference point to the cabin side working zone.



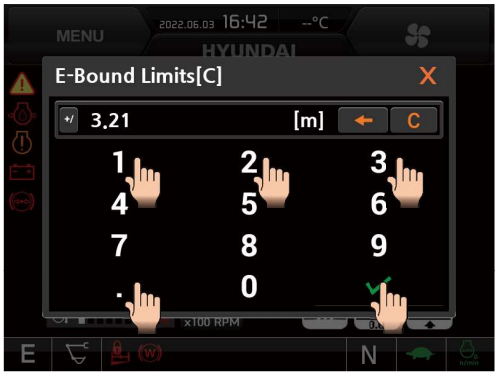
300A3MG109_E

– Press the keypad button ( ) of the item C in the 'E-bound limits' setting menu.



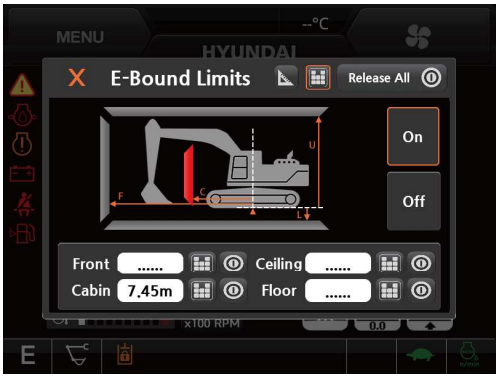
300A3MG110A_E

– Input the measured figure.



300A3MG111_E

– Confirm the indicator for cabin side is activated and the value for the distance to the cabin side on the E-Bound Limits window.



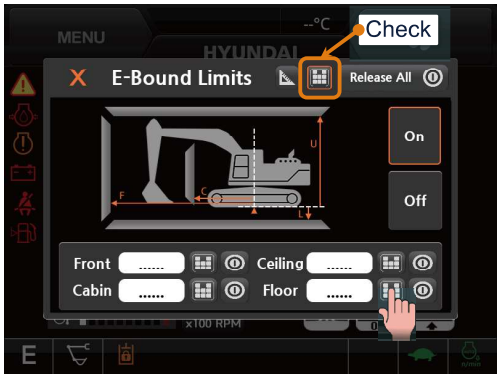
300A3MG112A_E

d. **Floor side working zone input**

– Measure the distance from the machine reference point to the floor side working zone.

300A3MG113_E

– Press the keypad button ( ) of the item L in the 'E-bound limits' setting menu.

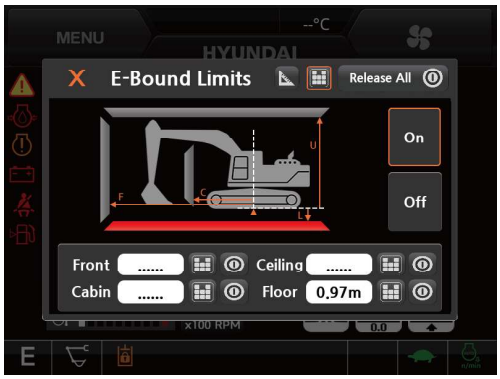


300A3MG114A_E

– Input the measured figure.

300A3MG115_E

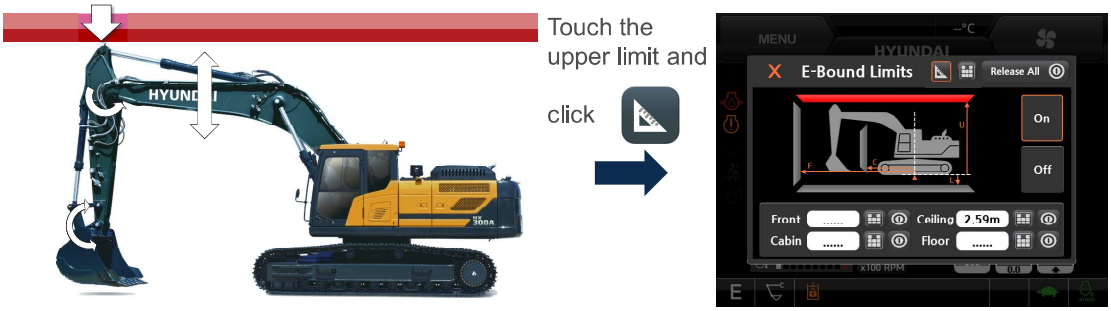
– Confirm the indicator for floor side is activated and the value for the distance to the floor side on the E-Bound Limits window.



300A3MG116A_E

④ Working zone setting-touch input

a. Adjust the some point of the attachment touches or locates near the working zone by operating the attachment.
b. Go into the 'E-bound limits' menu and confirm the 'On' button is activated on the right side of the menu.
c. Press the 'touch input mode' button ( ) on the top side of the menu.
d. Press the keypad button ( ) of the working zone item to set.
e. Confirm the figure of the working zone and display of the working zone indicator on the 'E-bound guide' window.



300A3MG117A_E

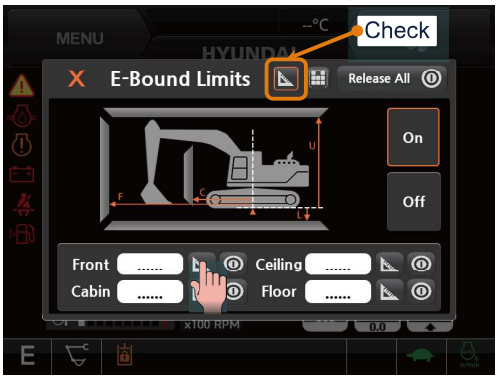
⑤ Working zone setting-touch input example

a. **Front side working zone input**

– Adjust the attachment location near the front side working zone to set

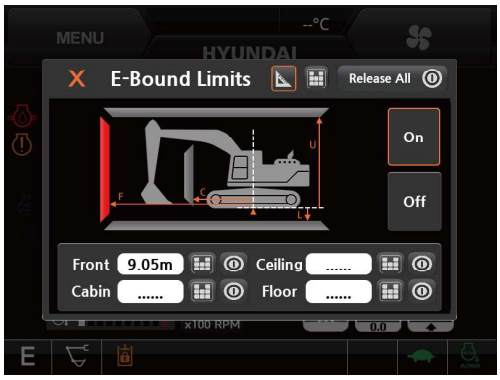
300A3MG118_E

– Press the keypad button ( ) of the item F in the 'E-bound limits' setting menu.



300A3MG119A_E

– Confirm the indicator for front side is activated and the value for the distance to the front side on the E-Bound Limits window.



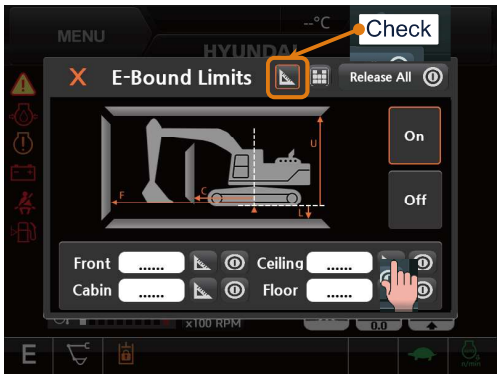
300A3MG120A_E

b. **Ceiling side working zone input**

– Adjust the attachment location near the ceiling side working zone to set

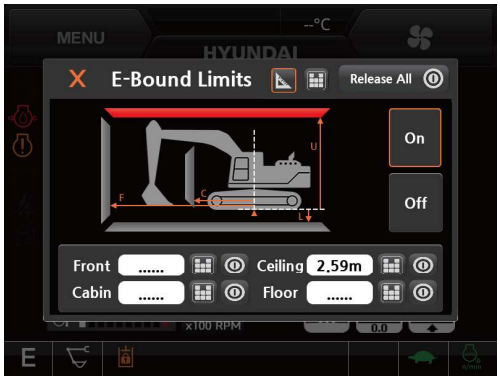
300A3MG121_E

– Press the keypad button ( ) of the item U in the 'E-bound limits' setting menu.



300A3MG122A_E

– Confirm the indicator for ceiling side is activated and the value for the distance to the ceiling side on the E-Bound Limits window.



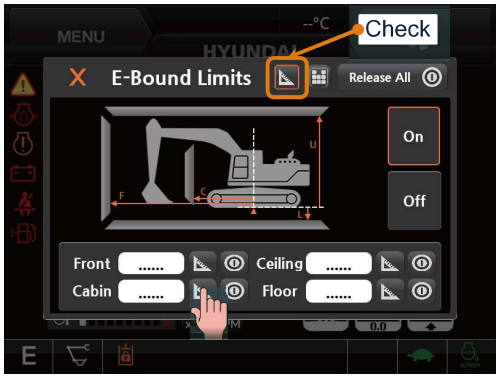
300A3MG123A_E

c. **Cabin side working zone input**

– Adjust the attachment location near the cabin side working zone to set

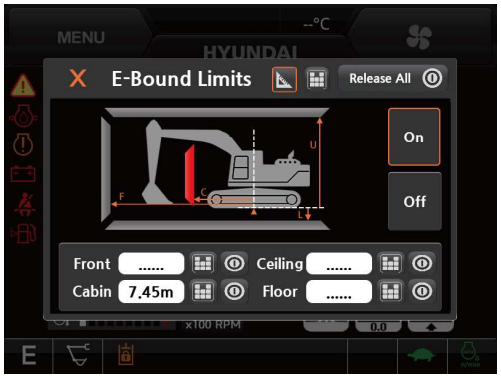
300A3MG124_E

– Press the keypad button ( ) of the item C in the 'E-bound limits' setting menu.



300A3MG125A_E

– Confirm the indicator for cabin side is activated and the value for the distance to the cabin side on the E-Bound Limits window.



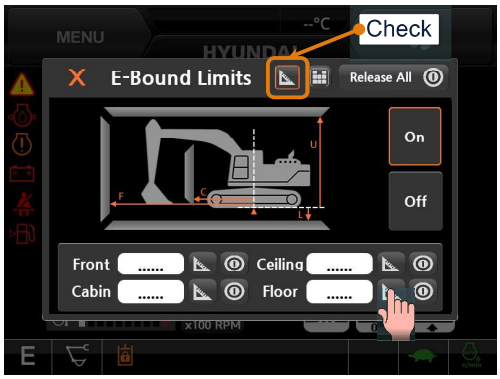
300A3MG126A_E

d. **Floor side working zone input**

– Adjust the attachment location near the floor side working zone to set

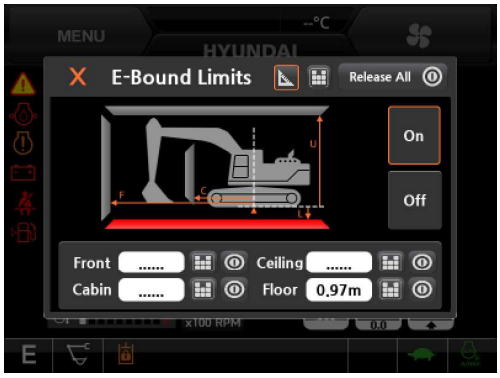
300A3MG127

– Press the keypad button ( ) of the item L in the 'E-bound limits' setting menu.



300A3MG128A_E

– Confirm the indicator for floor side is activated and the value for the distance to the floor side on the E-Bound Limits window.



300A3MG129A_E

(5) Working zone violation alarm setting

① Working zone violation alarm function ON/Off

a. **E-bound alarm on**

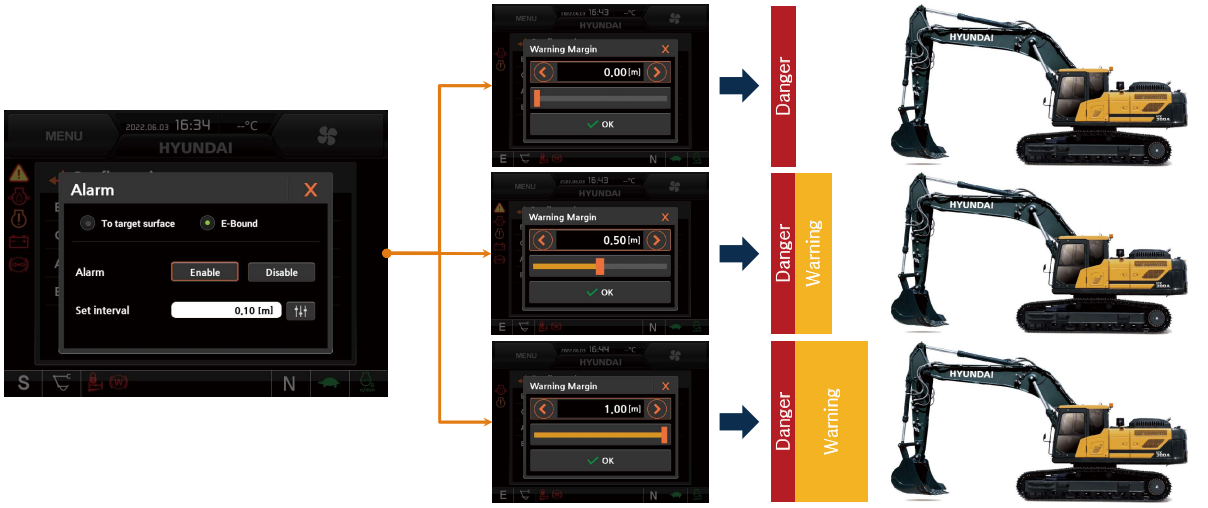
300A3MG130_E

b. **E-bound alarm off**

300A3MG131_E

② Warning zone distance setting

a. This set-up the warning zone to activate the warning previously before the working zone is violated.
b. Adjust the warning zone distance by using the keypad.
c. The warning zone distance can be set from 0 m (none warning zone) to 2 m.
We recommend to set 30 cm more.



300A3MG132_E

③ Precaution when the working zone violation warning function is used

a. The working zone of the ceiling side, floor side and cabin side can be keep when the machine moves working area forward or backward without swing.
b. The working zone can be keep as table below according to moving method of the machine location.

Working type	Moving method	Front side	Cabin side	Ceiling side	Floor side
Depth working	Touch point utilization	○	○	○	○
	Zero point re-setting	–	○	○	○
	laser scanning	–	○	○	○
Slope working	Touch point utilization	○	○	○	○
	Zero point re-setting	–	○	○	○
	laser scanning	–	○	–	–