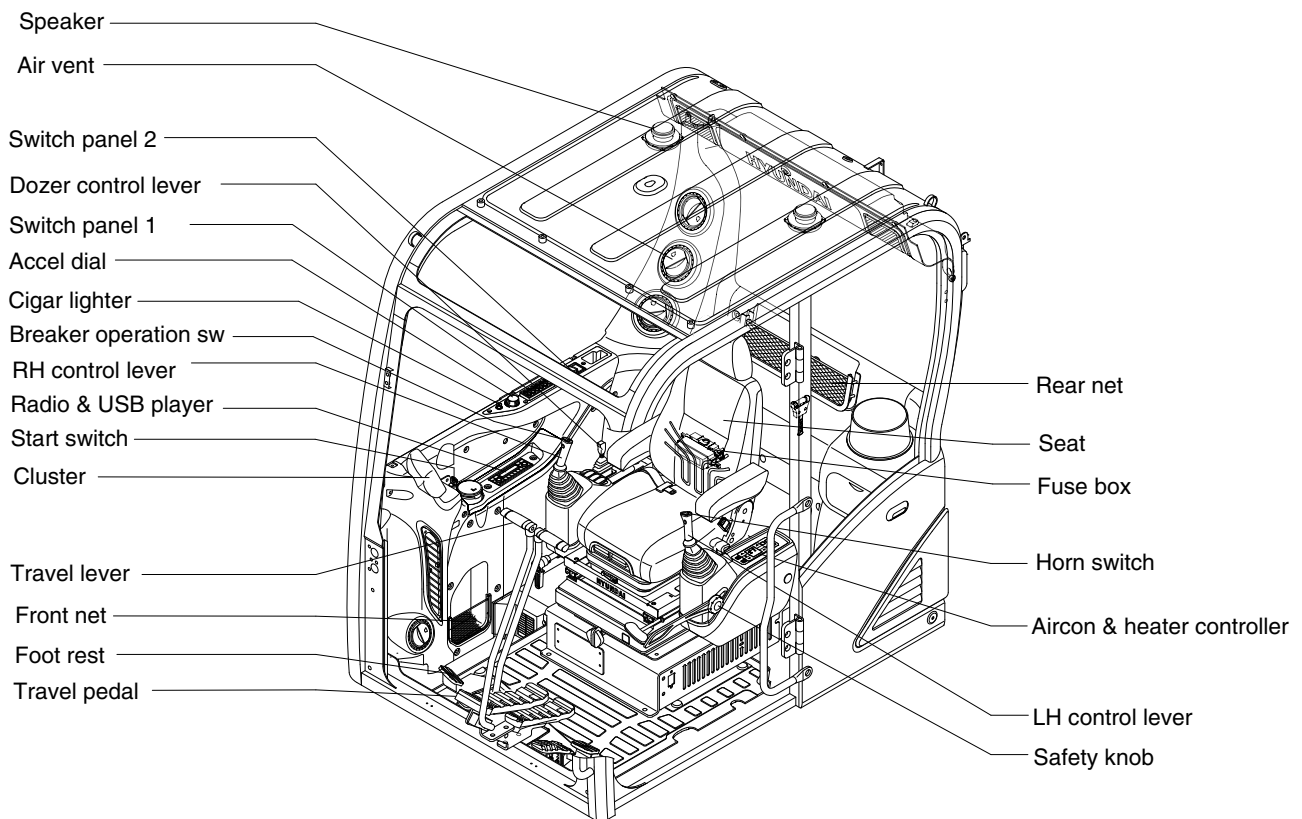


1. CAB DEVICES

- 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.



85A3CD04

2. CLUSTER (MACHINE SERIAL NO. : -#0490)

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.**



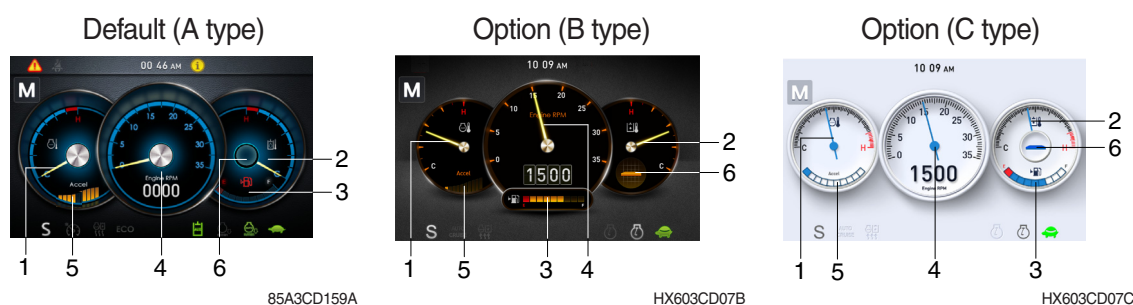
85A3CD100

- ※ **The warning lamp pops up, lights ON (on the left-top side) and the buzzer sounds when the machine has a problem.**
The warning lamp lights ON until the problem is cleared. Refer to page 3-5 for details.

2) GAUGE

(1) Operation screen

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



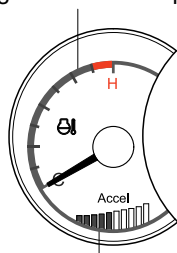
- | | | |
|-----------------------------|--------------------|--------------|
| 1 Engine coolant temp gauge | 3 Fuel level gauge | 5 Accel dial |
| 2 Hydraulic oil temp gauge | 4 Engine rpm | 6 Clinometer |

※ Operation screen type can be set by the screen type menu of the display.

Refer to page 3-20 for details.



(2) Engine coolant temperature gauge

Engine coolant temp gauge



Accel dial gauge

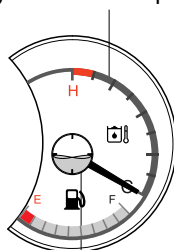
85A3CD101

- ① This gauge indicates the temperature of coolant.
 - Black range : 43°C (104°F) or more and below 110 °C (239 °F)
 - Red range : Above 110°C (239°F) or more
- ② If the indicator is in the red range or  lamp lights up in red, turn OFF the engine and check the engine cooling system.
- ※ If the gauge indicates the red range or  lamp lights up 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.
- ③ Accel dial gauge

Displays the levels (0~9) of the accel dial.



(3) Hydraulic oil temperature gauge

Hydraulic oil temp gauge



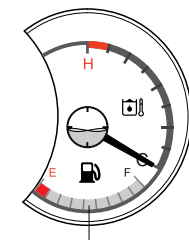
Clinometer

85A3CD102

- ① This gauge indicates the temperature of hydraulic oil.
 - Black 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 lights up in red, reduce the load on the system. If the gauge stays in the red range, stop the machine and check the cause of the problem.
- ※ If the gauge indicates the red range or  lamp lights up 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.
- ③ Clinometer



Displays the gradient information of the machine.

(4) Fuel level gauge

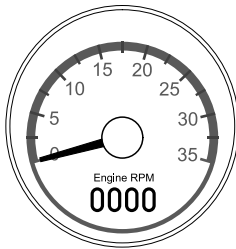


Fuel level gauge

85A3CD103

- ① This gauge indicates the amount of fuel in the fuel tank.
- ② Fill the fuel when the red range, or  lamp lights up in red.
- ※ If the gauge indicates the red range or  lamp lights up 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.

(5) Engine rpm display

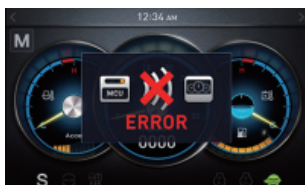


HX603CD35

- ① This displays the engine revolution per minute.

3) COMMUNICATION ERROR AND LOW VOLTAGE WARNING POP-UP

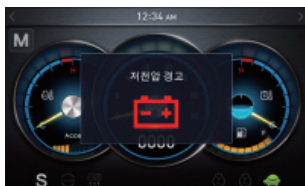
(1) Communication error pop-up



HX603CD30

- ① Cluster displays this communication error pop-up when it has communication error with MCU.
- ② Communication error pop-up displays at operation screen only. Just buzzer alarm at the other screen.
- ③ If communication with MCU become normal state, it will disappear automatically.

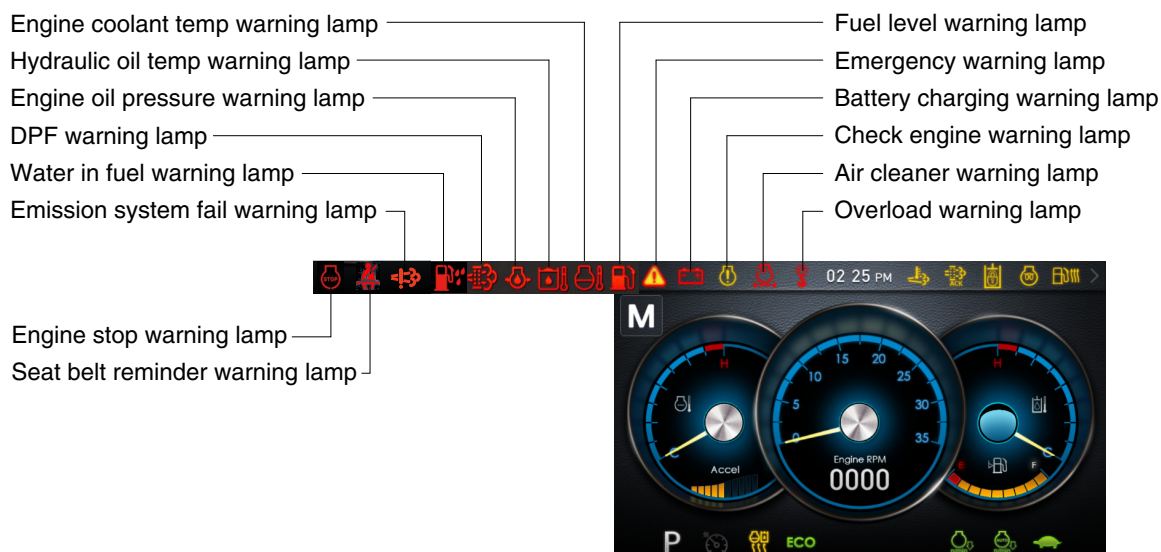
(2) Low voltage warning pop-up



HX603CD31

- ① Cluster displays this low voltage warning pop-up when the battery voltage is low.
- ② Low voltage warning pop-up displays at operation screen only. Just buzzer alarm at the other screen.
- ③ This pop-up will disappear with using touch screen or buzzer stop switch. While the battery voltage is low, buzzer sounds every minute.
- ④ When the battery voltage is higher than 11.5 V, the pop-up off.

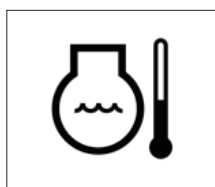
4) WARNING LAMPS






85A3CD104

- ※ Each warning lamp on the left-top of the LCD pops up on the center of LCD and the buzzer sounds when the each warning is happened. The pop-up warning lamp moves to the original position and lights ON when the buzzer stop switch is pushed or the pop-up is touched. And the buzzer stops. Refer to page 3-12 for the switch.
- ※ When the warning lamps light ON more than 6, you can check all lamps with next page button(◀ , ▶) near the warning lamps.

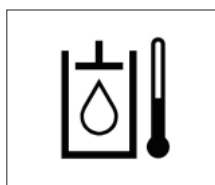
(1) Engine coolant temperature warning lamp






290F3CD61

- ① The  lamp pops up on the center of LCD and the buzzer sounds when the engine coolant temperature is over 110°C or more.
- ② The pop-up  lamp moves to the original position and lights up when the buzzer stop switch is pushed or pop-up is touched. Also, the buzzer stops and  lamp keeps ON.
- ③ Check the cooling system when the lamp keeps ON.

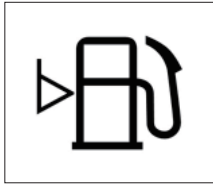
(2) Hydraulic oil temperature warning lamp



290F3CD62

- ① The  lamp pops up on the center of LCD and the buzzer sounds when the hydraulic oil temperature is over 105°C or more.
- ② The pop-up  lamp moves to the original position and lights up when the buzzer stop switch is pushed or pop-up is touched. Also, the buzzer stops and  lamp keeps ON.
- ③ Check the hydraulic oil level and hydraulic oil cooling system.

(3) Fuel level warning lamp



290F3CD63

- ① This warning lamp lights up and the buzzer sounds when the level of fuel is below 9%.
- ② Fill the fuel immediately when the lamp is ON.

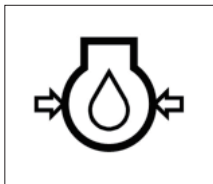
(4) Emergency warning lamp



290F3CD64

- ① This lamp pops up and the buzzer sounds when each of the below warnings occurs.
 - MCU input voltage abnormal
 - Accel dial circuit abnormal or open
- ※ **The pop-up warning lamp moves to the original position and lights up when the buzzer stop switch is pushed or pop-up is touched. The buzzer will stop.**
This is same as following warning lamps.
- ② When this warning lamp lights up, machine must be checked and serviced immediately.

(5) Engine oil pressure warning lamp



290F3CD65

- ① This lamp lights up when the engine oil pressure is low.
- ② If the lamp lights up, shut OFF the engine immediately. Check oil level.

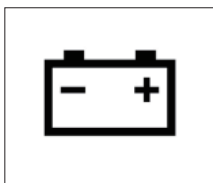
(6) Check engine warning lamp



290F3CD66

- ① This lamp lights up when the communication between MCU and engine ECM on the engine is abnormal, or if the cluster received any 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.
- ③ Also, this lamp pops up when the level of DPF soot is high.
- ※ Refer to the page 3-7 for the DPF warning lamp.

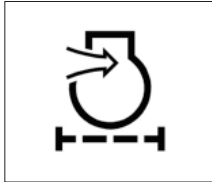
(7) Battery charging warning lamp



290F3CD67

- ① This lamp lights up when the battery charging voltage is low.
- ② Check the battery charging circuit when this lamp is up.

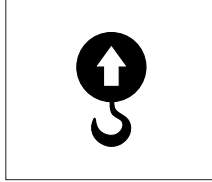
(8) Air cleaner warning lamp



290F3CD68

- ① This lamp lights up when the air cleaner is clogged.
- ② Check, clean or replace filter.

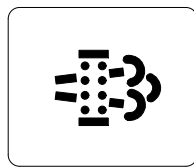
(9) Overload warning lamp (opt)



HX603CD80

- ① When the machine is overloaded, the overload warning lamp lights up when the overload switch is ON. (if equipped)
- ② Reduce the machine load.

(10) DPF (diesel particulate filter) warning lamp






2609A3CD19

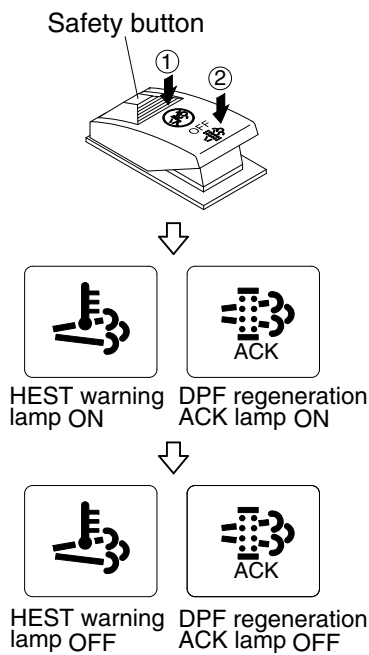
- ① This warning lamp lights up or go off when the regeneration is needed.
- ② This warning lamp lights up while DPF regeneration inhibit switch is in "Regeneration inhibited" state, when stationary regeneration is permitted.
- ③ This warning lamp lights up during reset regeneration standby or in back up mode.
- ④ This warning lamp blinks during reset regeneration standby DPF regeneration inhibit switch is in "Regeneration inhibited" state.

※ Consequences of delaying regeneration

- Poor performance caused by increasing exhaust gas pressure.
- Higher fuel consumption
- Shorter filter lifetime

Condition	Warning lamp			Remedy
	DPF 	Check engine  (pop up)	Stop engine  (pop up)	
Normal	Off	Off	Off	• Automatic regeneration
Soot low	On	Off	Off	• Push DPF switch to OFF position if DPF switch is in inhibit position. (see 3-39 page) • Engine power may be reduced automatically (soot medium)
Soot medium	Blink	Off	Off	
Soot high	On	On	Off	• Engine power and speed will be reduced automatically • Initiate a manual regeneration
Stop	On	Off	On	• Stop the engine immediately. • Please contact your HD Hyundai Construction Equipment service center or local dealer.

※ Manual regeneration method of DPF



559A3CD143

※ **Manual regeneration must be operated in a fireproof area.**

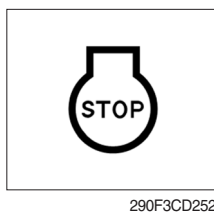
- ① Stop and park the machine.
- ② The accel dial to the lowest position and operate the engine in idling.
- ③ Pull the safety button and push the switch to position ② to initiate the manual regeneration of DPF.

※ **Refer to page 3-28 for the switch operation.**

※ **The engine speed may increase gradually to high idle rpm and DPF regeneration begins and it will take approximately 25~30 minutes.**

- ④ When the manual regeneration starts, the DPF warning lamp light go off and the regeneration acknowledge lamp and HEST warning lamp will light up while the regeneration function is operating.
- ⑤ The regeneration acknowledge lamp and HEST warning lamp will light OFF when the regeneration function is completed.

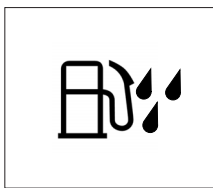
(11) Stop engine warning lamp



290F3CD252

- ① If the lamp lights up, stop the engine immediately and check the engine.
 - ② Check the fault codes on the monitor.
- ※ **Please contact your HD Hyundai Construction Equipment service center or local dealer.**

(12) Water in fuel warning lamp



HX60A3CD110

- ① This warning lamp lights up when water is in fuel.
- ② Check the water separator.

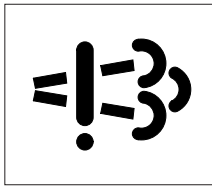
(13) Seat belt reminder warning lamp



290F3CD252

- 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.
- ③ The warning lamp lights up until fasten the seat belt and the buzzer sounds for 30 seconds.

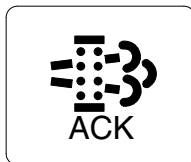
(14) Emission system fail warning lamp



300A3CD15

- ① This warning lamp indicates there are faults related to the emission system.
- ② The lamp lights up when each of the below warnings is happened.
 - a. The EGR valve malfunctions.
 - b. Electrical malfunction of the EGR control sensors. (disconnection, short)
 - c. Tampering with the EGR control sensors.
- ③ **This warning lamp can be shown together with DPF warning lamp or engine fail lamp or engine stop warning lamp when DPF system is diagnosed.**
- ※ **Please contact your HD Hyundai Construction Equipment service center or local dealer.**

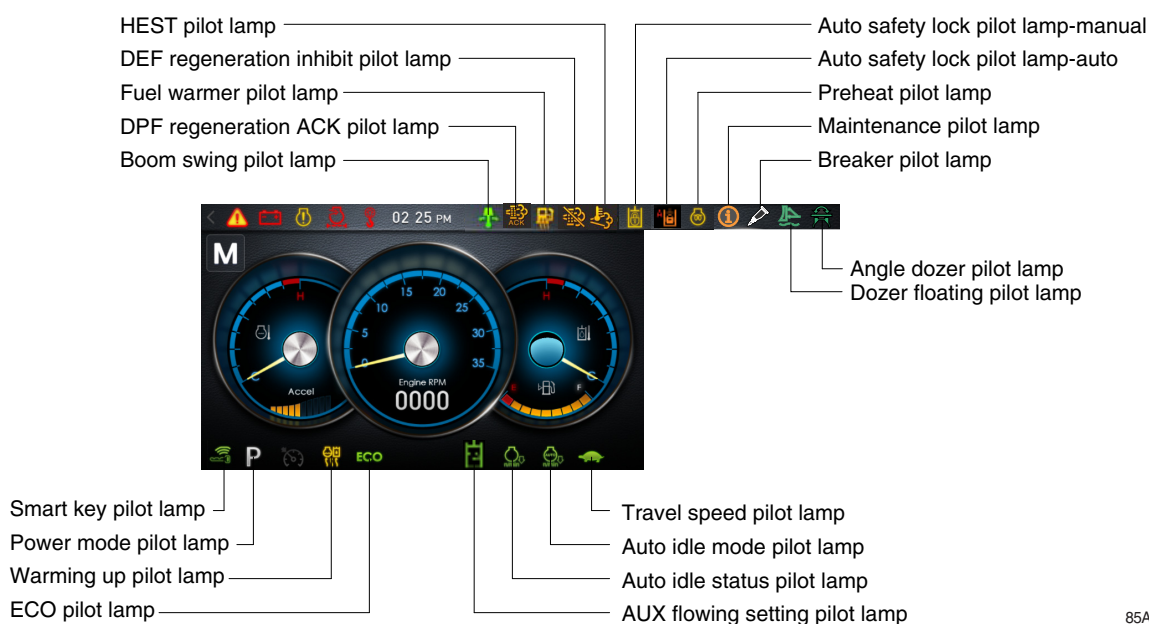
(15) DPF regeneration acknowledge warning lamp



559A3CD10

- ① This warning lamp lights up stationary regeneration is in process.
- ② This warning lamp lights up, when stationary regeneration is in process after DPF regeneration request switch is pressed and hold for more than 3 seconds.
- ③ This warning lamp blinks when stationary regeneration standby or regeneration interlock switch is in "regeneration permitted (interlock enabled) status.
- ④ This warning lamp blinks while stationary regeneration standby or back mode, when DPF regeneration inhibit switch in "Regeneration permitted" status and regeneration interlock switch is in regeneration permitted status.

5) PILOT LAMPS

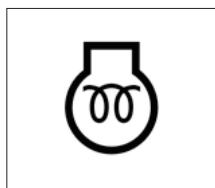


※ When the pilot lamps light up more than 3, you can check all lamps with next page button (◀, ▶).

(1) Mode pilot lamps

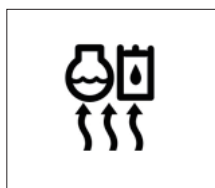
No	Mode	Pilot lamp	Selected mode
1	Power mode		Heavy duty power work mode
			Standard power mode
2	Travel mode		Low speed traveling
			High speed traveling
3	Auto idle mode		Auto idle mode
			Auto idle status

(2) Preheat pilot lamp



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

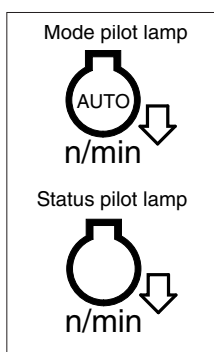
(3) Warming up pilot lamp



290F3CD80

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

(4) Auto idle status/mode pilot lamp



85A3CD106

- ① The auto idle mode pilot lamp will light up when the idle mode is selected.
- ② The auto idle status pilot lamp will light up when all levers and pedals are at neutral position and the auto idle mode is selected.
- ③ One of the lever or pedal is operated, the status lamp will go off and the engine speed returns to the previous conditions.

(5) Maintenance pilot lamp

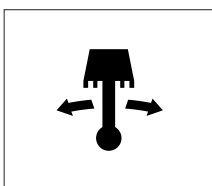


85A3CD110

- 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.

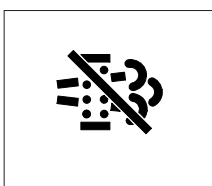
(6) Boom swing pilot lamp



HX603CD82

- ① This lamp lights up when the boom offset switch is pressed.
- ※ Refer to page 3-42-1.

(7) DPF regeneration inhibit warning lamp

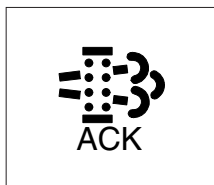


85A3CD107

- ① This warning lamp indicates, when illuminated, the DPF switch is pushed inhibit position, therefore automatic and manual regeneration can not occur.

※ Refer to page 3-39 for the DPF switch.

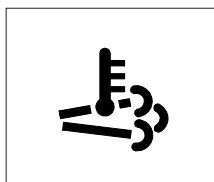
(8) DPF regeneration acknowledge warning lamp



85A3CD108

- ① This warning lamp will light up while the regeneration function is operating.
- ② Also, this lamp will go off when the regeneration function is completed.

(9) HEST (High exhaust system temperature) warning lamp



85A3CD109

- ① This warning lamp indicates, when illuminated, that exhaust temperatures are high due to regeneration of the DPF.
- ② The lamp will also illuminate during a manual regeneration.
- 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 600°C [1112°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 regeneration cycles.

(10) Smart key pilot lamp (opt)



300A3CD36

- ① This lamp will light up when the engine is started by the start button.
- ② This lamp is red when the authentication fails, it will be green when authentication is successful.

※ Refer to the page 3-21.

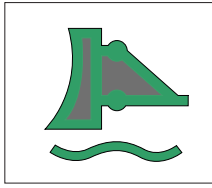
(11) ECO pilot lamp



85A3CD111

- ① This lamp will light up when the ECO switch is pressed.
- ② The machine will be operated in economy conditions.

(12) Dozer floating pilot lamp

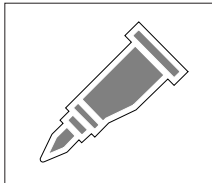


85A3CD112

- ① This lamp will be light up when the dozer floating lever is pressed.

※ Refer to page 3-42-1.

(13) Breaker pilot lamp



85A3CD116

- ① This lamp will be light up as conditions below.

- The breaker selection switch is pressed on the membrane switch.
- The AUX switch is pressed to OFF positions.

※ Refer to pages 3-37 and 3-39.

(14) Angle dozer pilot lamp (opt)

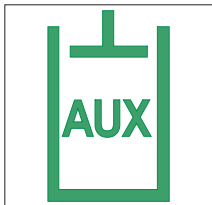


85A3CD113

- ① This lamp will be light up when the AUX switch is pressed to ANGLE DOZER positions.

※ Refer to page 3-39.

(15) AUX flowing setting pilot lamp



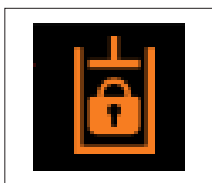
85A3CD114

- ① This lamp will be light up as conditions below.

- The AUX flow setting is selected Enables in the cluster.
- The AUX switch is pressed to AUX positions.

※ Refer to pages 3-32 and 3-39.

(16) Auto safety lock pilot lamp-manual



85A3CD114

- ① This lamp will be light up when the safety knob is in the lock positions.

※ Refer to page 3-42.

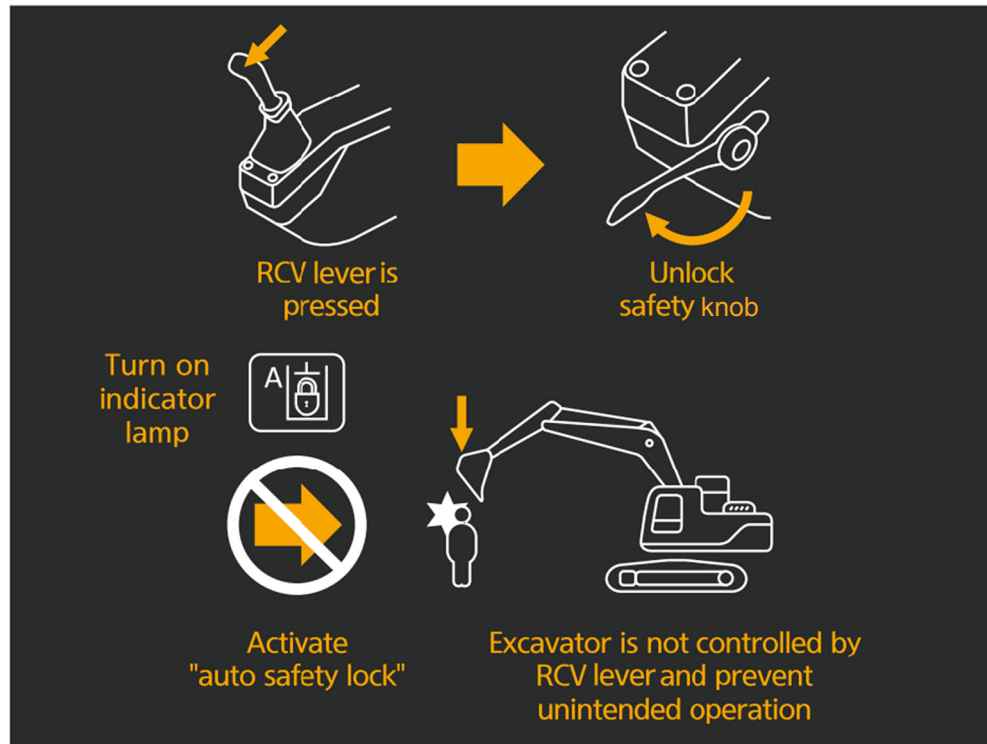
(17) Auto safety lock pilot lamp-auto



300A3CD37

- ① Auto safety lock system prevents unintended operation of the machine in order to improve safety.
- ② Engine will only start if safety knob is locked.
- ③ If operator unlock safety knob when RCV lever is pressed, machine is not controlled by RCV lever.

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



300A3CD38A

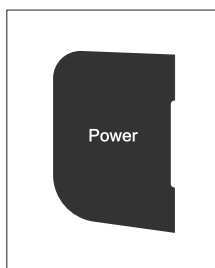
6) SWITCHES



85A3CD117

※ When the switches are selected, the pilot lamps are displayed on the LCD. Refer to the page 3-10 for details.

(1) Power mode switch



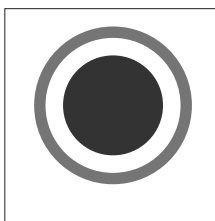
85A3CD117A

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

(2) Select switch



85A3CD117B

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

② Knob push

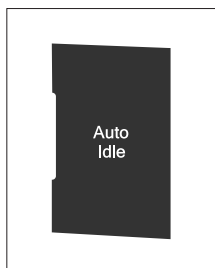
- Long (over 2 sec) : Return to the operation screen
- Medium (0.5~2 sec) : Return to the previous screen
- Short (below 0.5 sec) : Select menu

③ Knob rotation

This knob changes menu and input value.

- Right turning : Down direction / Increase input value
- Left turning : Up direction / Decreased input value

(3) Auto idle/ buzzer stop switch



85A3CD117C

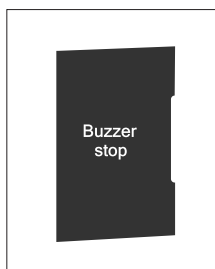
① This switch is used to activate or cancel the auto idle function.

※ **Refer to page 3-11 for details.**

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.

(4) Buzzer stop switch

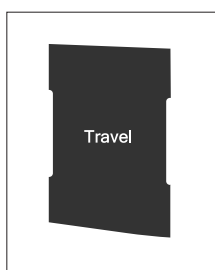


85A3CD117D

① 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.

(5) Travel speed control switch

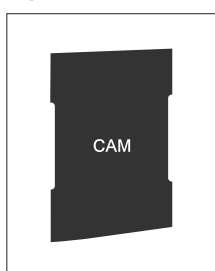


85A3CD117E

① This switch is used to select the travel speed alternatively.

-  : Low speed
-  : High speed

(6) Escape/ Camera switch

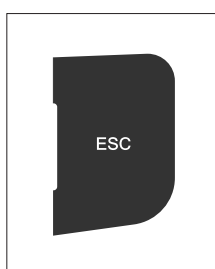


85A3CD117F

① In the operation screen, pushing this switch will display the view of the camera on the machine (if equipped).

※ **Please refer to page 3-32 for the camera.**

(7) Escape switch

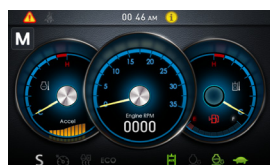


85A3CD117G

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

7) MAIN MENU

· Operation screen



85A3CD159



HX603CD32B



HX603CD32C

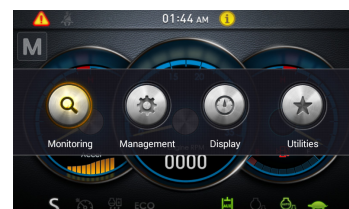
Tap
M or
Press
ESC/
CAM

Main menu screen

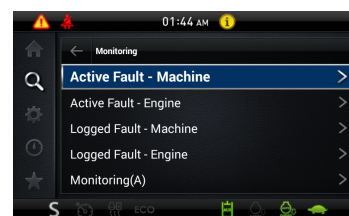


85A3CD118

Sub menu screen



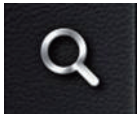



85A3CD119



85A3CD120

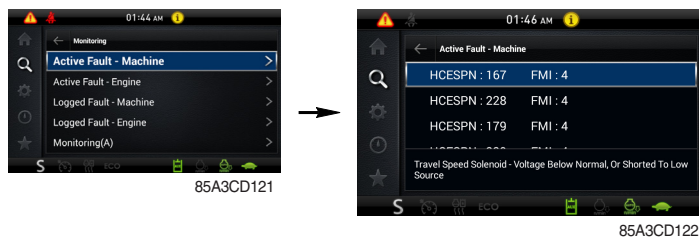
※ Please refer to select switch, page 3-15 for selection and change of menu and input value.

(1) Structure

No	Main menu	Sub menu	Description
1	 Monitoring 55I3CD51AK	Active fault - Machine Active fault - Engine Logged fault - Machine Logged fault - Engine Monitoring (Analog) Monitoring (Digital) - Input Monitoring (Digital) - Output	MCU ECU MCU ECU Machine information Switch status Output status
2	 Management 55I3CD51BK	ESL mode setting Automatic engine shutdown Change password AUX flow setting Option attach Maintenance information Machine Information A/S phone number Service menu	ESL mode setting, Smart key setting One time, Always, Disabled Password change 2 way, 4 way Setting option attachment Replacement, Change interval oils and filters Cluster, MCU, Engine, Machine A/S phone number, A/S phone number change Delete logged faults, Software download, Operating hour, power shift DPF filter replacement, AVCU setting
3	 Display 55I3CD51CK	Clock Screen type Brightness setting Unit setting Language Calibration	Clock A type, B type, C type Manual, Auto Temperature, Pressure 12 language Calibrating the touch screen
4	 Utilities 55I3CD51DK	Camera setting Mode Video	Number of active, Display order, Camera No. Operation mode select Play music and video file

(2) Monitoring

① Active fault - Machine



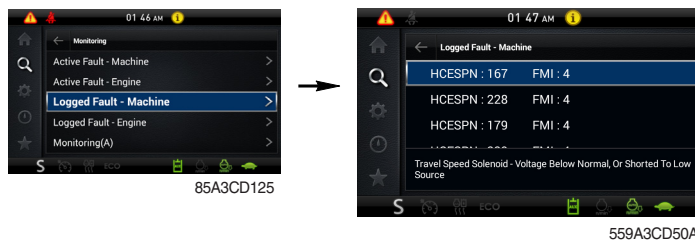
- The active faults of the MCU can be checked by this menu.

② Active fault - Engine



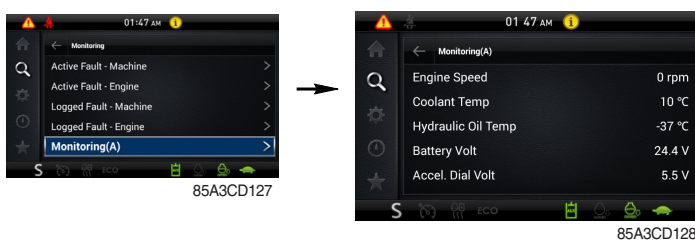
- The active faults of engine ECU can be checked by this menu.

③ Logged fault - Machine/Engine



- The logged faults of the MCU or engine ECU can be checked by this menu.
- Only for the service person.

④ Monitoring (Analog)



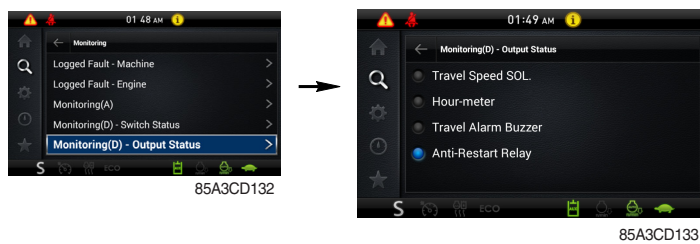
- The machine status such as the engine rpm, oil temperature, voltage and pressure etc. can be checked by this menu.

⑤ Monitoring (Digital) - Input



- The switch status can be confirmed by this menu.
- The activated switches are blue light up.

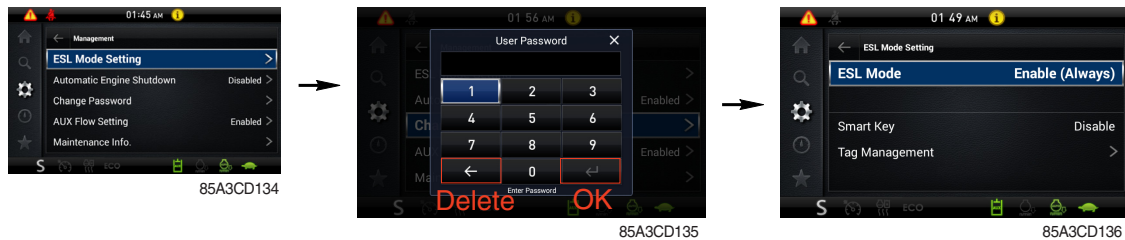
⑥ Monitoring (Digital) - Output



- The output status can be confirmed by this menu.
- The output pilot lamps are blue light up.

(3) Management

① ESL mode setting



· ESL mode setting

- ESL : Engine Starting Limit
- ESL mode is designed 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.
- **Disable** : ESL function is disabled and password is not required to start engine.
- **Enable (always)** : The password is required whenever the operator starts engine.
- **Enable (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 maximum 2 days.

※ **Default password** : 00000

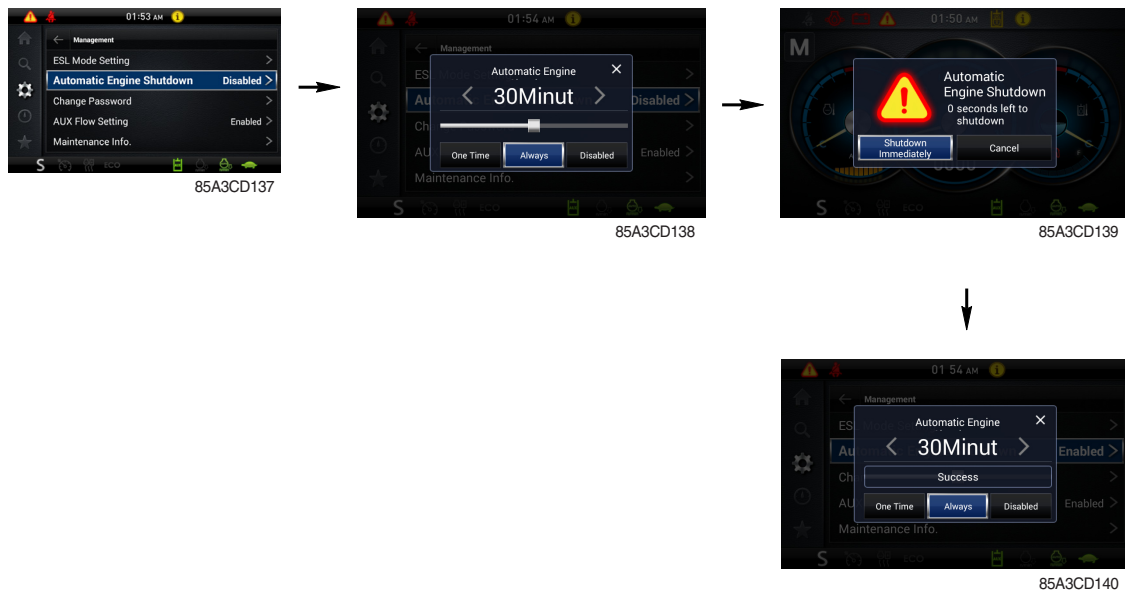
※ **Password length** : 5~10 digit

- **Smart key (option)** : 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.

※ **Engine Starting Condition**

Case	ESL Mode	Smart Key	Condition
1	Disable	Disable	- With registered tag : Engine can be started without password input. - Without registered tag : Engine can be started without password input.
2	Disable	Enable	If Smart Key is enabled, ESL Mode is automatically enabled. This Case 2 work the same as the Case 4.
3	Enable	Disable	- With registered tag : Engine can be started with password input. - Without registered tag : Engine can be started with password input.
4	Enable	Enable	- With registered tag : Engine can be started without password input. - Without registered tag : Engine can be started with password input.

② Automatic engine shutdown



The automatic engine shutdown function can be set by this menu.

a. Once (one time)

- Automatic shutdown function set Once when key-on or engine operation condition.
 - Key-off when the shutdown button clicks after pop-up the automatic stop icon.
 - Shift automatic shutdown function to Disable when the cancel button clicks after pop-up the automatic stop icon.
- Keep Disable for the automatic shutdown function when key-off after key-on again or start engine.

b. Always (continuous use)

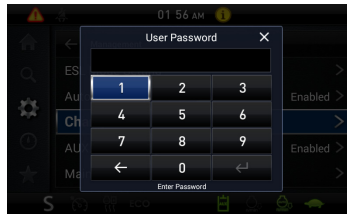
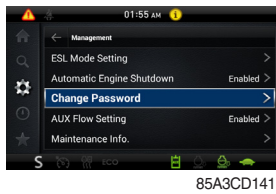
- Automatic shutdown function set Always when key-on or engine operation condition.
 - Key-off when the shutdown button clicks after pop-up the automatic stop icon.
 - Shift automatic shutdown function to Disable when when the cancel button clicks after pop-up the automatic stop icon.
- Keep Always for the automatic shutdown function when key-off after key-on again or start engine.

c. Disable

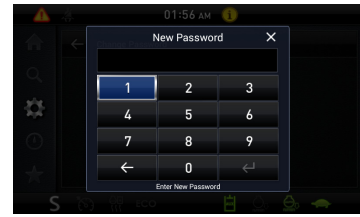
- Disable the engine automatic shutdown function.

③ Change password

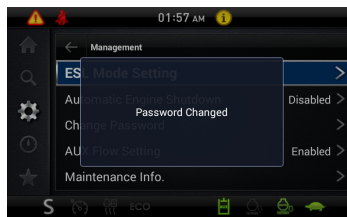
- The password is 5~10 digits.



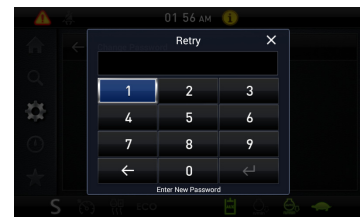
Enter the current password



Enter the new password



The new password is stored in the MCU.

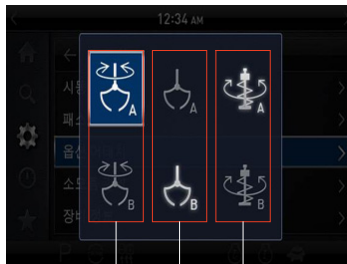
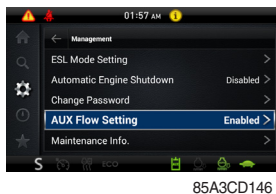


Enter the new password again

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

④ AUX flow setting

a. Option attach selection



(a)

(b)

(c)

R559A3CD420

- Three kinds of option attachment can be selected by this menu.

(a) Rotary Grapple (Equipped with 4 way option)

(b) Grapple (Equipped with 2 or 4 way option)

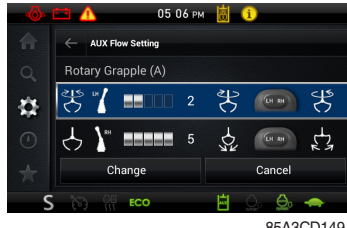
(c) Auger (Equipped with 2 or 4 way option)

※ There are two user modes (type A or B) in each option attach.

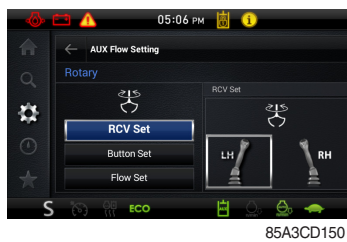
b. Proportional flow control setting

User can set preferable value of each option attachment by this menu.

a) Rotary setting



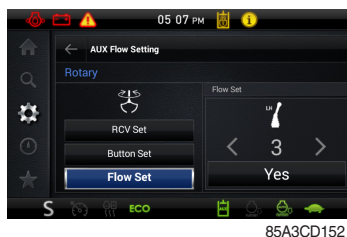
- Select Rotary RCV, button and flow can be set by this menu



- RCV setting
 - Enable set LH or RH RCV for rotary operation.
 - Example :
 - Select LH for rotary -> RH set for grapple automatically.

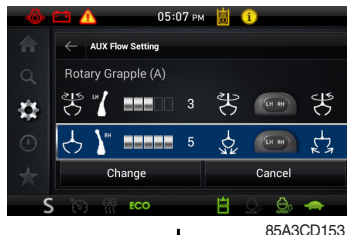


- Button setting (CW rotation)
 - Enable set LH or RH button for CW or CCW rotation.
 - Example :
 - Select LH for CW rotation -> RH set for CCW rotation automatically



- Flow setting
 - Enable set from level 1 to level 5.
 - Example :
 - Select level 3.
 - Press Yes after flow setting.

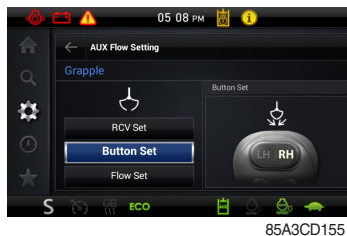
b) Grapple setting



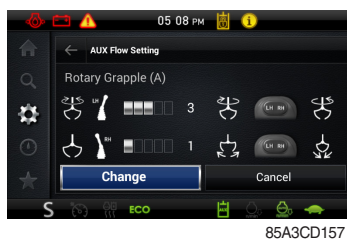
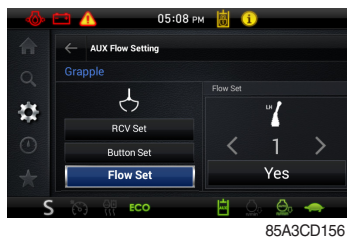
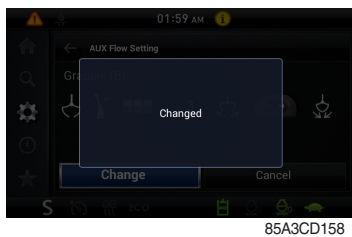
- Select grapple
RCV, button and flow
can be set by this menu



- RCV setting
 - Enable set LH or RH RCV for grapple operation.
 - Example :
Select RH for grapple ->
LH set for rotary automatically.



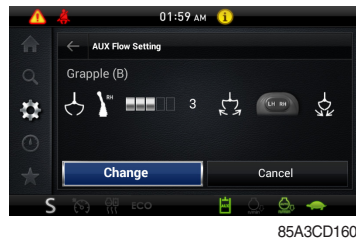
- Button setting (Close)
 - Enable set LH or RH button for close or open.
 - Example :
Select RH for Close ->
LH set for open automatically



- Flow setting
 - Enable set from level 1 to level 5.
 - Example :
Select level 1.
 - Press Yes after flow setting.
- Save setting value
 - Enable save setting value by pressing change (Change) button.

- Setting value saved once, it memorized in each icon and the last setting value is activated.
- Saved setting can be used by pressing Icon button only.
- There are two kinds (A and B) in each option attach setting and six kinds of option attach setting can be saved totally (2 of 4 way, 4 of 2 way).

c. Confirmation



Previous setting value can be checked by following procedure.


- Menu > Management > AUX flow setting

a) Rotary setting

- Rotary RCV : LH
- Rotary flow level : 3
- CW rotation : LH
- CCW rotation : RH

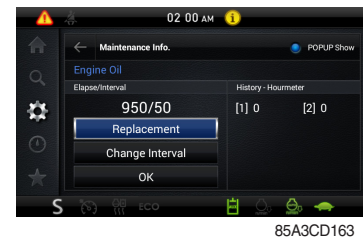
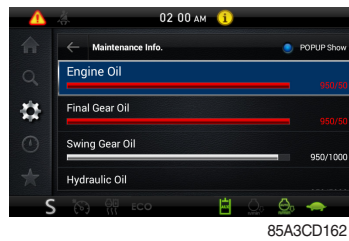
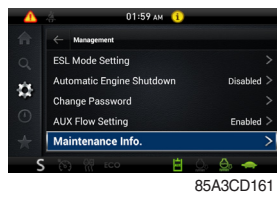
b) Grapple setting

- Grapple RCV : RH
- Grapple flow level : 3
- Open : LH
- Close : RH

AUX flowing setting pilot lamp () is activated on the lower side of the main screen as below conditions.

- The AUX switch is pressed to the AUX position and the AUX flow setting is selected Enabled.

⑤ Maintenance information

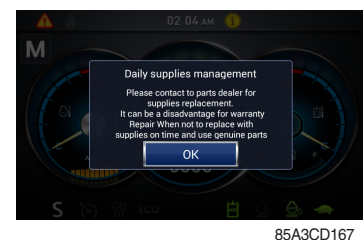


- Elapse : Maintenance elapsed time.
 - Interval : The change intervals can be changed in hour increments of 50.
 - History-Hour : Maintenance replacement history.
 - Replacement : The elapsed time will be reset to zero (0).
- ※ Refer to section, Maintenance chart for further information of maintenance interval.

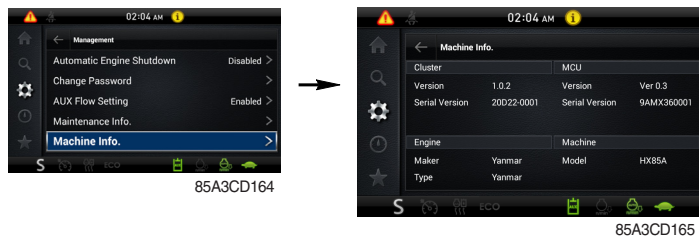
- User can be set to pop-up the replacement parts that residual time is less than 50 hours based on the replacement interval.
 - Pop-up the replacement parts list once when start switch is key-on.



- Please contact your local HD Hyundai Construction Equipment dealer for supplies replacement. It can be a disadvantage for warranty repair when not to replace with supplies on time and use genuine parts.



⑥ Machine Information



- This can confirm the identification of the cluster, MCU, engine and machine.

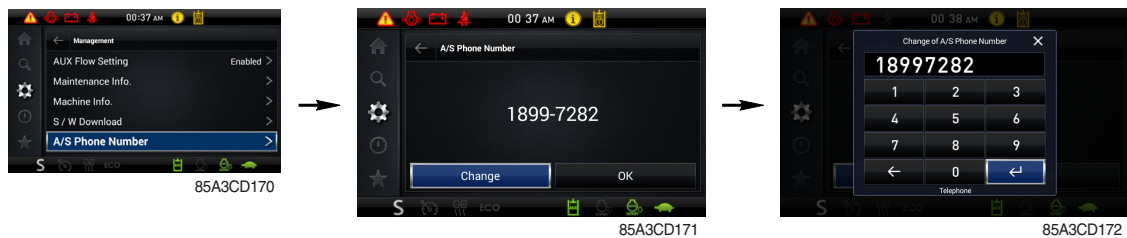
⑦ S/W download



- Display and update software version about operating system, application, image and font through this menu.

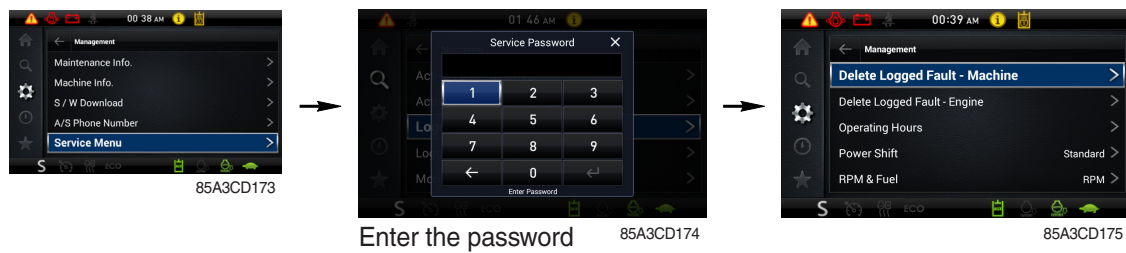
※ Do not turn off the start switch when update process is proceeding.

⑧ A/S phone number



- The A/S phone number can be checked and changed.

⑨ Service menu



- Delete logged fault : Logged faults of MCU or engine ECU can be deleted. (only when the engine is stopped)
- Operating hours : Operating hours since the machine line out can be checked.
- Power shift : Set power shift mode (standard/option)
- RPM & Fuel : The engine rpm or fuel gauge can be display on the center of the cluster operation screen.
- PRM number : The engine rpm number can be display or not on the center of the cluster operation screen.
- DPF filter replacement : Engine ECM parameter can be initialized when the DPF cleaning process is finished.
- AVCU setting : Selection of the 2 way, 4 way, angle dozer can be set when the machine line out.

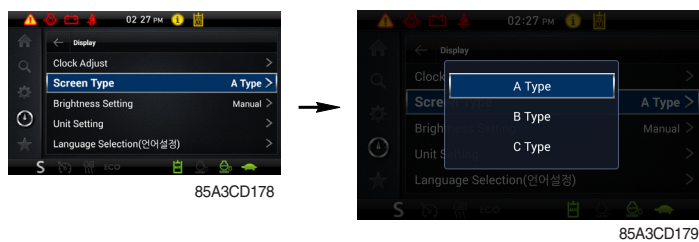
(4) Display

① Clock



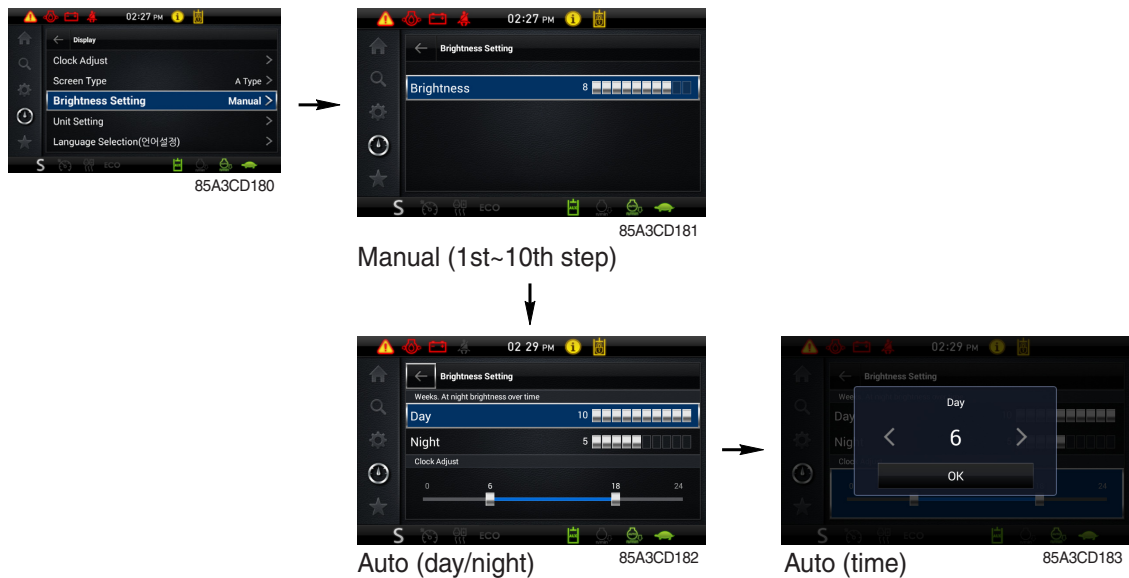
- The first row of boxes indicate Year/Month/Day.
- The second row shows the current time. (AM, PM/0:00~12:59)

② Screen type



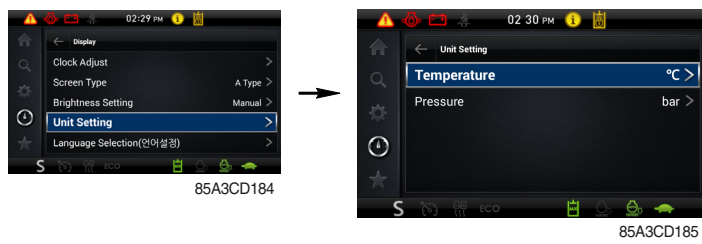
- The screen type (A,B,C) of the LCD can be selected by this menu.

③ Brightness setting calibration



- If "Auto" is chosen, brightness for day and night can be set accordingly. Also, users can define which an operation interval belongs to day and night.

④ Unit setting



- Temperature : °C ↔ °F
- Pressure : bar ↔ MPa ↔ kgf/cm² ↔ psi

⑤ Language



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

(5) Utilities

① Camera setting

- Three cameras can be installed on the machine and the display order can be set by this menu.
- If the camera was not equipped, this menu is not useful.



- In the operation screen, if the ESC/CAM switch is pushed, rear view camera display or stop.
- Turning the select switch in clockwise direction, the next ordered will be shown and in counter-clockwise direction, the previously ordered will be shown. Also, you can change camera channel using touch the screen.
- Push the select switch or touch the screen, the displayed screen will be enlargement.



② Mode



- When this cluster's buttons are not work, you can control using touch screen instead of these buttons.
- You can only control in this mode screen.

③ Video

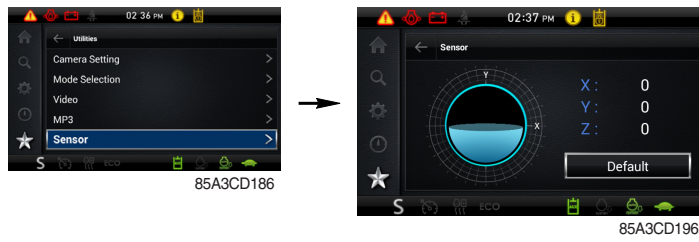
- Play MP4 or codec file of external hard disk through USB port.
- The USB port is located under the cluster.



- Over 1100 engine rpm, the screen turns into the operation screen with MP4 or codec file playing for the safety.

No.	Function	Control	No.	Function	Control
1	Display list	Touch	6	After 10 sec	Touch
2	Before 10 sec	Touch	7	Stop	ESC switch or touch
3	Previous track	Touch	8	Mute	Touch
4	Play/pause	Touch	9	Sound volume	Select switch or touch
5	Next track	Touch	10	Playing time	-

④ Clinometer



- When the machine is on the flatland, if you touch "initialization" on cluster, the values of X, Y will reset to "0".
- You can confirm tilt of machine in cluster's operating screen.

⑤ Manual



- You can read the manual of the cluster on the monitor.

2. CLUSTER (MAHCINE SERIAL NO. : #0491-)

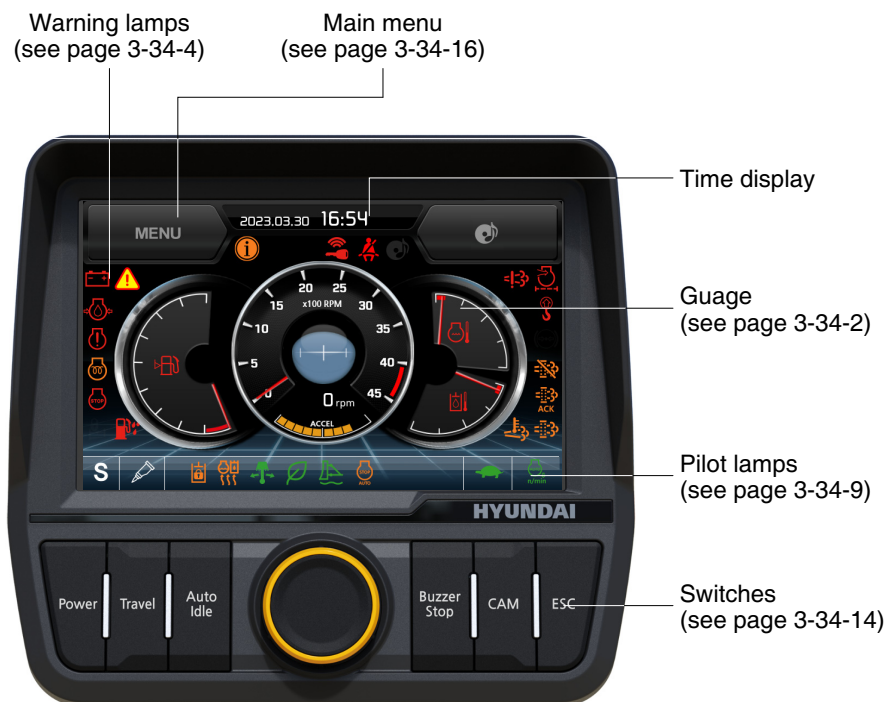
1) STRUCTURE

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.

Also, 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.



85A3CD216

- ※ The warning lamp pops up, lights ON (on the left-top side) and the buzzer sounds when the machine has a problem.
The warning lamp lights ON until the problem is cleared. Refer to page 3-34-4 for details.

2) GAUGE

(1) Operation screen

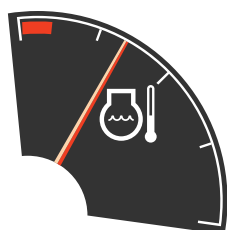
When you first turn starting switch ON, the operation screen will appear.





HX60A3CD101A

- | | | |
|-----------------------------|--------------------|--------------|
| 1 Engine coolant temp gauge | 3 Fuel level gauge | 5 Accel dial |
| 2 Hydraulic oil temp gauge | 4 Engine rpm gauge | 6 Clinometer |

(2) Engine coolant temperature gauge





290F3CD53

- ① This gauge indicates the temperature of coolant.
 - Black range : General state
 - Red range : Engine overheated state
- ② If the indicator is in the red range or  lamp lights ON in red, turn OFF the engine and check the engine cooling system.
- ※ If the gauge indicates the red range or  lamp lights ON even though the machine is in the normal condition range, check the electric device as this can be caused by poor connection of sensor or connector, and poor grounding of the instrument, etc.

(3) Hydraulic oil temperature gauge





290F3CD54

- ① This gauge indicates the temperature of hydraulic oil.
 - Black 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 lights ON in red, reduce the load on the system. If the gauge stays in the red range, stop the machine and check the cause of the problem.
- ※ If the gauge indicates the red range or  lamp lights ON 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.

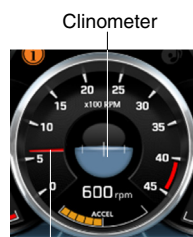
(4) Fuel level gauge



HX60A3CD55A

- ① This gauge indicates the amount of fuel in the fuel tank.
 - Black range : 11% or more
 - Red range : below 11%
- ② Fill the fuel when in the red range, or  lamp lights ON in red.
- ※ If the gauge indicates the red range or  lamp lights ON 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.

(5) Engine rpm gauge and clinometer



Engine rpm

HX60A3CD105K

- ① This displays the engine speed.
- ② This displays the tilt of machine.

(6) Accel dial gauge



290F3CD59

- ① This gauge indicates the level of accel dial from 0 to 10 step.

3) COMMUNICATION ERROR AND LOW VOLTAGE WARNING POP-UP

(1) Communication error pop-up



HX60A3CD107A

- ① Cluster displays this communication error pop-up when it has communication error with MCU.
- ② Communication error pop-up displays at operation screen only. Just buzzer alarm at the other screen.
- ③ If communication with MCU become normal state, it will disappear automatically.

(2) Low voltage warning pop-up



HX60A3CD108

- ① Cluster displays this low voltage warning pop-up when the battery voltage is low.
- ② Low voltage warning pop-up displays at operation screen only. Just buzzer alarm at the other screen.
- ③ This pop-up will disappear with using touch screen or buzzer stop switch. While the battery voltage is low, buzzer sounds every minute.
- ④ When the battery voltage is higher than 11.5 V, the pop-up off.

4) WARNING LAMPS






85A3CD218

※ Each warning lamp on the left-top of the LCD pops up on the center of LCD and the buzzer sounds when the each warning is happened. The pop-up warning lamp moves to the original position and lights up when the buzzer stop switch is pushed or the pop-up is touched. And the buzzer stops. Refer to page 3-34-15 for the switch.

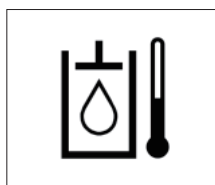
(1) Engine coolant temperature warning lamp





290F3CD61

- ① The  lamp pops up on the center of LCD and the buzzer sounds when the engine coolant temperature is over 110°C or more.
- ② The pop-up  lamp moves to the original position and lights up when the buzzer stop switch is pushed or pop-up is touched. Also, the buzzer stops and  lamp keeps ON.
- ③ Check the cooling system when the lamp keeps ON.

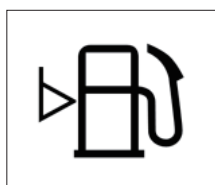
(2) Hydraulic oil temperature warning lamp



290F3CD62

- ① This warning lamp pops up on the center of LCD and the buzzer sounds when the hydraulic oil temperature is over 105°C.
- ② The pop-up  lamp moves to the original position and lights ON when the buzzer stop switch is pushed or pop-up is touched. Also, the buzzer stops and  lamp keeps ON.
- ③ Check the hydraulic oil level and hydraulic oil cooling system.

(3) Fuel level warning lamp



290F3CD63

- ① This warning lamp lights up and the buzzer sounds when the level of fuel is below 11%.
- ② Fill the fuel immediately when the lamp is ON.

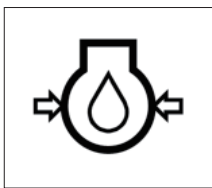
(4) Emergency warning lamp



290F3CD64

- ① This warning lamp pops up and the buzzer sounds when each of the below warnings occurs.
 - MCU input voltage abnormal
 - Accel dial circuit abnormal or open
- ※ **The pop-up warning lamp moves to the original position and lights ON when the buzzer stop switch is pushed or pop-up is touched. Also the buzzer will stop.**
- This is same as following warning lamps.**
- ② When this warning lamp lights up, machine must be checked and serviced immediately.

(5) Engine oil pressure warning lamp



290F3CD65

- ① This lamp lights up when the engine oil pressure is low.
- ② If the lamp lights up, shut OFF the engine immediately. Check oil level.

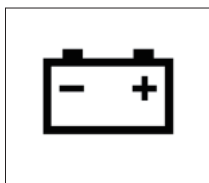
(6) Check engine warning lamp



290F3CD66

- ① Warning lamp is turned ON when the engine must be checked.
- ※ **When the warning lamp is turned ON, stop the machine and find the cause for repair.**

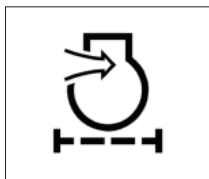
(7) Battery charging warning lamp



290F3CD67

- ① This warning lamp lights up when the battery charging voltage is low.
- ② Check the battery charging circuit when this lamp lights up.

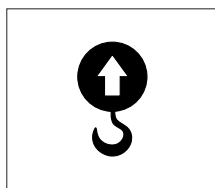
(8) Air cleaner warning lamp



290F3CD68

- ① This warning lamp lights up when the air cleaner is clogged.
- ② Check, clean or replace the filter.

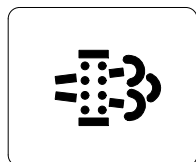
(9) Overload warning lamp (opt)



HX603CD80

- ① When the machine is overloaded, the overload warning lamp lights up when the overload switch is ON. (if equipped)
- ② Reduce the machine load.

(10) DPF (diesel particulate filter) warning lamp






2609A3CD19

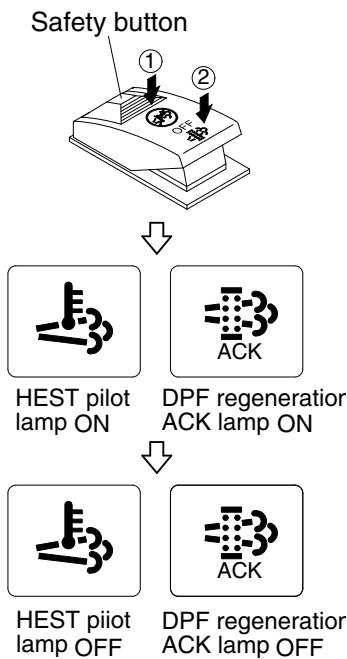
- ① This warning lamp lights up or go off when the regeneration is needed.
- ② This warning lamp lights up while DPF regeneration inhibit switch is in "Regeneration inhibited" state, when stationary regeneration is permitted.
- ③ This warning lamp lights up during reset regeneration standby or in back up mode.
- ④ This warning lamp blinks during reset regeneration standby DPF regeneration inhibit switch is in "Regeneration inhibited" state.

※ Consequences of delaying regeneration

- Poor performance caused by increasing exhaust gas pressure.
- Higher fuel consumption
- Shorter filter lifetime

Condition	Warning lamp			Remedy
	DPF 	Check engine  (pop up)	Stop engine  (pop up)	
Normal	Off	Off	Off	· Automatic regeneration
Soot low	On	Off	Off	· Push DPF switch to OFF position if DPF switch is in inhibit position. (see 3-39 page) · Engine power may be reduced automatically (soot medium)
Soot medium	Blink	Off	Off	
Soot high	On	On	Off	· Engine power and speed will be reduced automatically · Initiate a manual regeneration
Stop	On	Off	On	· Stop the engine immediately. · Please contact your HD Hyundai Construction Equipment service center or local dealer.

※ Manual regeneration method of DPF



85A3CD213

※ **Manual regeneration must be operated in a fireproof area.**

① Stop and park the machine.

② The accel dial to the lowerest position and operate the engine in idling.

③ Pull the safety button and push the switch to position ② to initiate the manual regeneration of DPF.

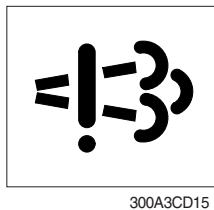
※ **Refer to page 3-39 for the switch operation.**

※ **The engine speed may increase gradually to high idle rpm and DPF regeneration begins and it will take approximately 25~30 minutes.**

④ When the manual regeneration starts, the DPF warning lamp light go off and the regeneration acknowledge lamp and HEST warning lamp will light up while the regeneration function is operating.

⑤ The regeneration acknowledge lamp and HEST warning lamp will light OFF when the regeneration function is completed.

(11) Emission system fail warning lamp



① This warning lamp indicates there are faults related to the emission system.

② The lamp lights up when each of the below warnings is happened.

a. The EGR valve malfunctions.

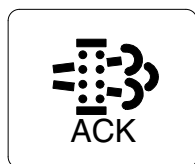
b. Electrical malfunction of the EGR control sensors.
(disconnection, short)

c. Tampering with the EGR control sensors.

③ **This warning lamp can be shown together with DPF warning lamp or engine fail lamp or engine stop warning lamp when DPF system is diagnosed.**

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

(12) DPF regeneration acknowledge warning lamp



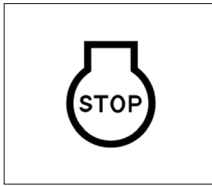
① This warning lamp lights up stationary regeneration is in process.

② This warning lamp lights up, when stationary regeneration is in process after DPF regeneration request switch is pressed and hold for more than 3 seconds.

③ This warning lamp blinks when stationary regeneration standby or regeneration interlock switch is in "regeneration permitted (interlock enabled) status.

④ This warning lamp blinks while stationary regeneration standby or back mode, when DPF regeneration inhibit switch in "Regeneration permitted" status and regeneration interlock switch is in regeneration permitted status.

(13) Stop engine warning lamp



290F3CD252

- ① If this warning lamp lights up, stop the engine immediately and check the engine.
 - ② Check the fault codes on the monitor.
- ※ **Please contact your HD Hyundai Construction Equipment service center or local dealer.**

(14) Water in fuel warning lamp



HX60A3CD110

- ① This warning lamp lights up when the water separator is full of water or malfunctioning.
- ② When this lamp lights up, stop the machine and drain water from the water separator.

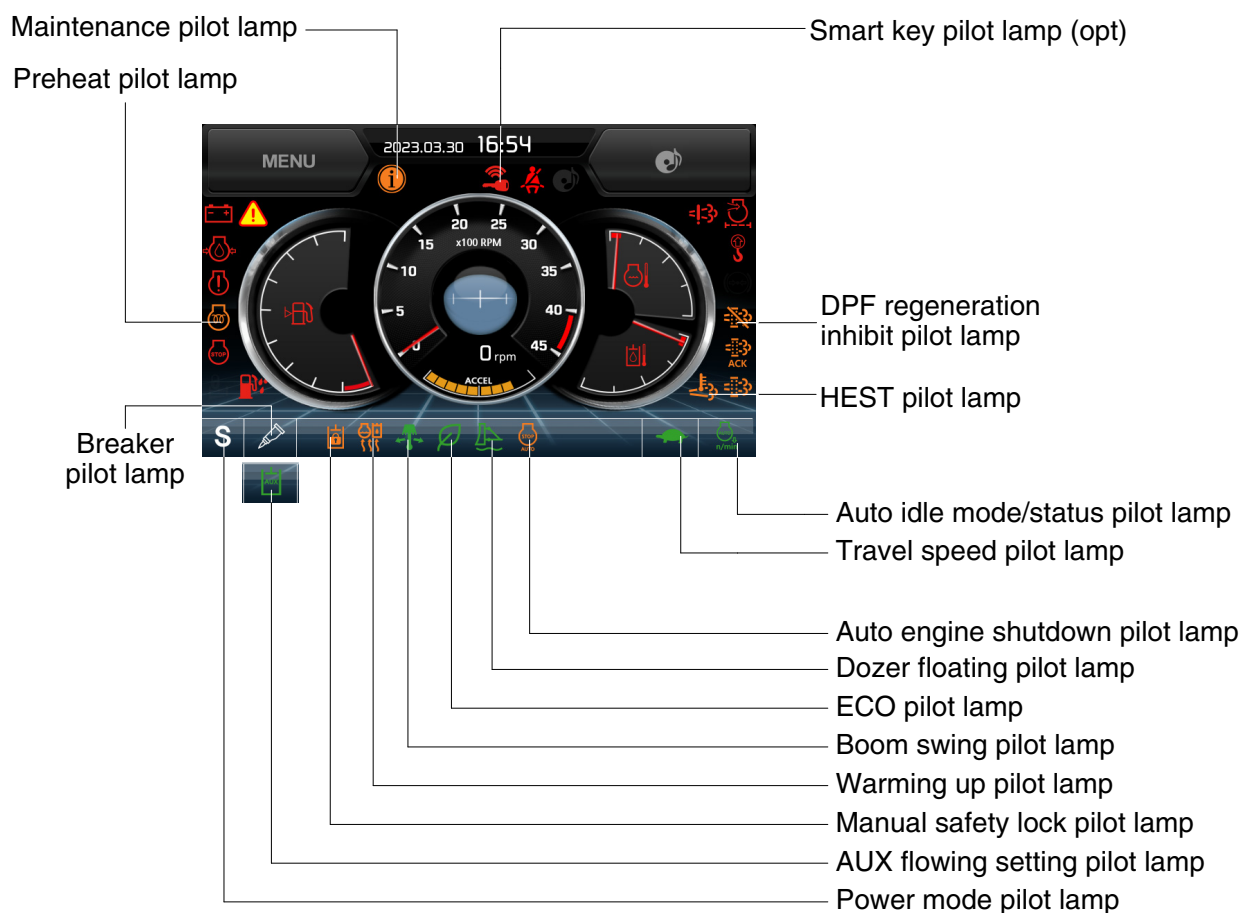
(15) Seat belt reminder warning lamp



300A3CD25

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

5) PILOT LAMPS



85A3CD217

(1) Mode pilot lamps

No	Mode	Pilot lamp	Selected mode
1	Power mode		Heavy duty power work mode
			Standard power mode
2	Travel mode		Low speed traveling
			High speed traveling
3	Auto idle mode		Auto idle mode
			Auto idle status

(2) 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.

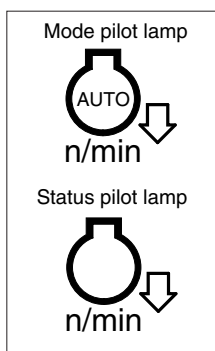
(3) Warming up pilot lamp



290F3CD80

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

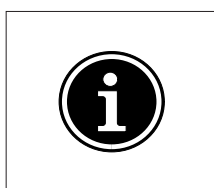
(4) Auto idle mode/status pilot lamp



85A3CD106

- ① The auto idle mode pilot lamp will light up when the idle mode is selected.
- ② The auto idle status pilot lamp will be ON when all levers and pedals are in the neutral position, and the auto idle mode is selected.
- ③ One of the lever or pedal is operated, the status lamp will go OFF and the engine speed returns to the previous conditions.

(5) Maintenance pilot lamp

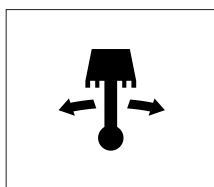


HX60A3CD116

- 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 3-34-20.

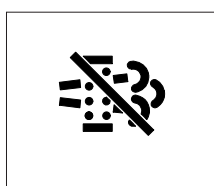
(6) Boom swing pilot lamp



HX603CD82

- ① This lamp lights up when the boom offset switch is pressed.

(7) DPF regeneration inhibit pilot lamp

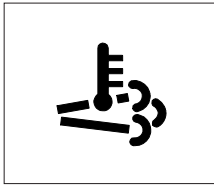


85A3CD107

- ① This pilot lamp indicates, the DPF switch is pushed to the inhibit position, therefore automatic and manual regeneration can not occur.

※ Refer to page 3-39 for the DPF switch.

(8) HEST (High exhaust system temperature) pilot lamp



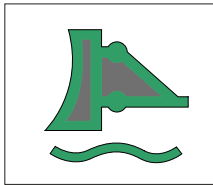
85A3CD109

- ① This pilot lamp indicates, when illuminated, that exhaust temperatures are high due to regeneration of the DPF.
- ② The lamp will also illuminate during a manual regeneration.
- 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 600°C [1112°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 regeneration cycles.

(9) Dozer floating pilot lamp

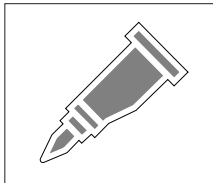


85A3CD112

- ① This lamp will be light up when the dozer floating lever is pressed.

※ Refer to page 3-42-1.

(10) Breaker pilot lamp

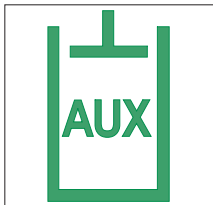


85A3CD116

- ① This lamp will be light up as conditions below.
 - The breaker selection switch is pressed on the membrane switch.
 - The AUX switch is pressed to OFF positions.

※ Refer to page 3-37 and 3-38.

(11) AUX flowing setting pilot lamp



85A3CD114

- ① This lamp will be light up as conditions below.
 - The AUX flow setting is selected Enables in the cluster.
 - The AUX switch is pressed to AUX positions.

※ Refer to page 3-34-20 and 3-39.

(12) ECO pilot lamp



85A3CD111A

- ① This lamp will light up when the ECO switch is pressed.
- ② The machine will be operated in economy conditions.

(13) Manual safety lock pilot lamp



140WA3CD37

- ① This lamp lights up when the safety knob is set to the LOCK position.

※ Refer to page 3-42 for the safety knob.

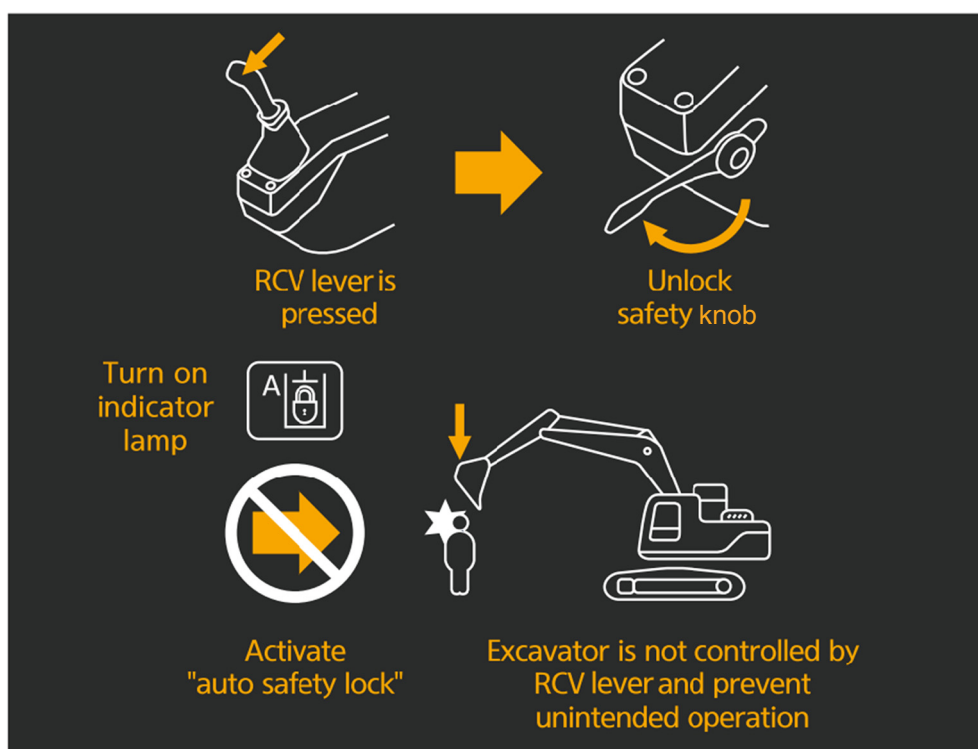
(14) Auto safety lock pilot lamp



300A3CD37

- ① Auto safety lock system prevents unintended operation of the machine in order to improve safety.
② Engine will only start if safety knob is locked.
③ If operator unlock safety knob when RCV lever is pressed, machine is not controlled by RCV lever.

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



300A3CD38A

(15) Auto engine shutdown pilot lamp



220A3CD202A

- ① This lamp lights up when the auto engine shutdown is activated.

※ Refer to page 3-34-25.

(16) Smart key pilot lamp (opt)

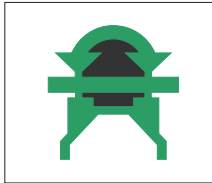


300A3CD36A

- ① This lamp lights up when the engine is started by the start button.
- ② This lamp is red when the authentication fails, it will be green when authentication is successful.

※ Refer to page 3-34-24.

(17) Angle dozer pilot lamp (opt)



85A3CD113

- ① This lamp will be light up when the AUX switch is pressed to ANGLE DOZER positions.

※ Refer to page 3-39.

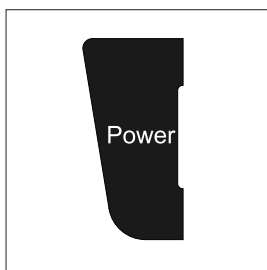
6) SWITCHES



85A3CD219

※ When the switches are selected, the pilot lamps are displayed on the LCD. Refer to page 3-34-9 for details.

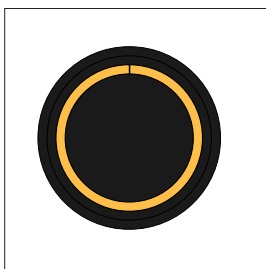
(1) Power mode switch



HX60A3CD118

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

(2) Select switch



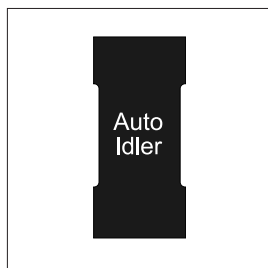
HX60A3CD119

- ① This switch is used to select or change the menu or input value.
- ② Knob push
 - Short (below 0.5 sec) : Select menu
- ③ Knob rotation

This knob changes menu and input value.

 - Right turning : Down direction / Increase input value
 - Left turning : Up direction / Decreased input value

(3) Auto idle switch



HX60A3CD120

① This switch is used to activate or cancel the auto idle function.

※ Refer to page 3-34-10 for details.

(4) Buzzer stop switch

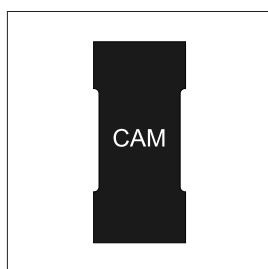


HX60A3CD121

① The buzzer sounds when the machine has a problem.

In this case, push this switch and buzzer stops, but the warning lamp lights up until the problem is cleared.

(5) Camera switch

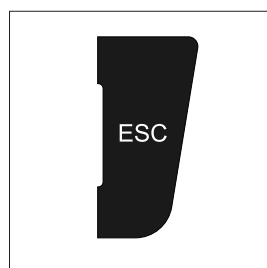


HX60A3CD122

① In the operation screen, pushing this switch will display the view of the camera on the machine (if equipped).

※ Please refer to page 3-34-32 for the camera.

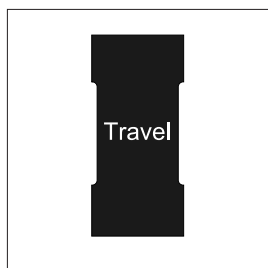
(6) Escape switch



HX60A3CD123



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

(7) Travel speed control switch



HX60A3CD104

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.

7) MAIN MENU

Main menu screen



HX60A3CD124A



Sub menu screen







HW60AH3CD125A

※ Please refer to the select switch, page 3-34-14 for selection and change of menus and input values.

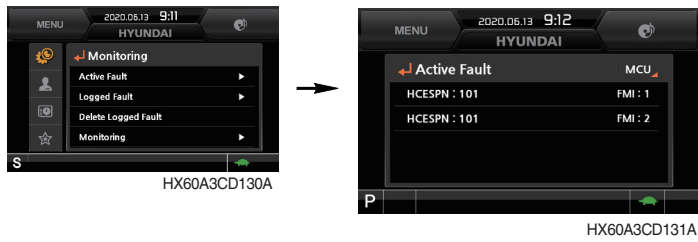
※ In the operation screen, tap MENU or press the select switch to access the sub-menu screen.

(1) Structure

No	Main menu	Sub menu	Description
1	 Monitoring	Active fault - Machine Active fault - Engine Logged fault - Machine/engine Delete logged fault Monitoring - Machine Monitoring - Switch Monitoring - Output	MCU ECU MCU, ECU MCU, ECU Engine rpm, oil temp, voltage and pressure etc. Digital switch status Digital output status
2	 Management	Maintenance information Breaker flow level AUX flow setting ESL mode setting Auto engine shutdown Change password Machine information A/S phone number Cluster update CAN update Service menu	Elapsed time, Change interval, Replacement etc. Breaker flow level setting Option atch selection, Proportional flow control setting, Confirmation ESL mode setting One time, Always, Disable Password change Cluster, MCU, Engine, Machine A/S phone number, A/S phone number change Application, System Program download, Update Power shift, Operating hour, Gauge type, Rpm, AVCU set, Language update etc
3	 Display	Clock Brightness Unit Language	Current time set Manual, Auto Temperature, Pressure, Flow, Distance, Volumn 22 kinds
4	 Utilities	Entertainment Camera setting Clinometer setting Manual Emergency mode	Video/music file playing Setup of number of active cameras, display sequences, and camera numbers Initializing slope sensor Display cluster manual Back-up switch for failed cluster switch and accel dial

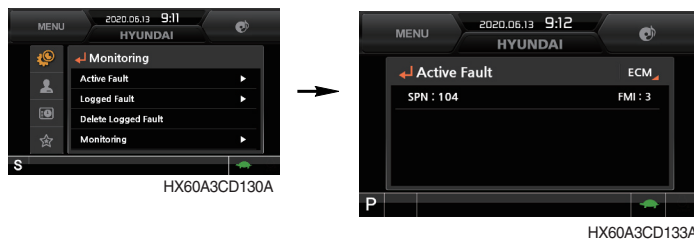
(2) Monitoring

① Active fault - Machine



- The active faults of the machine MCU can be checked by this menu.

② Active fault - Engine



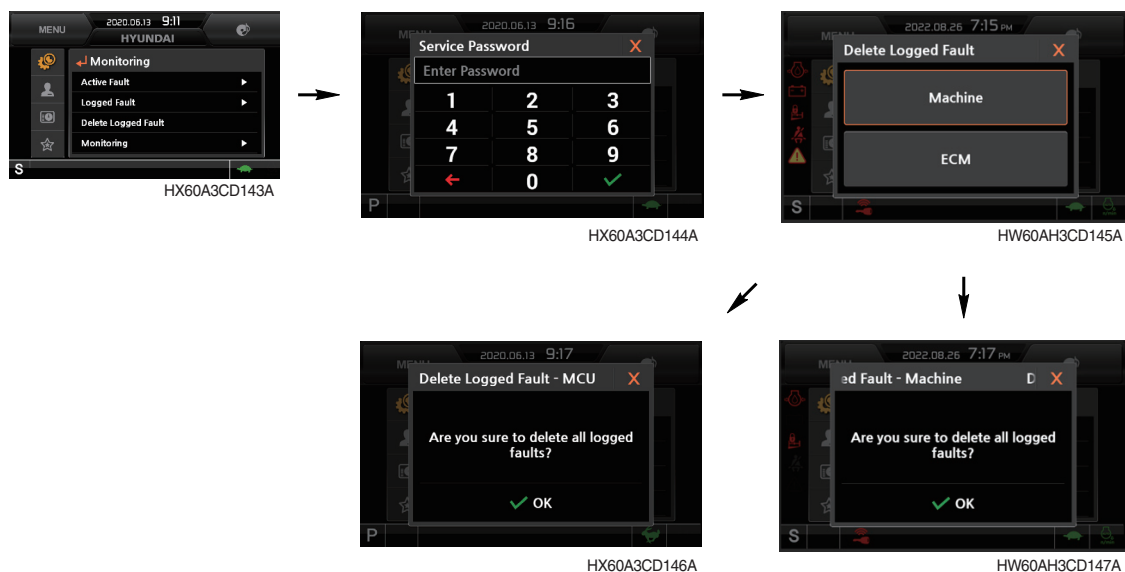
- The active faults of the engine ECU can be checked by this menu.

③ Logged fault - Machine/ Engine



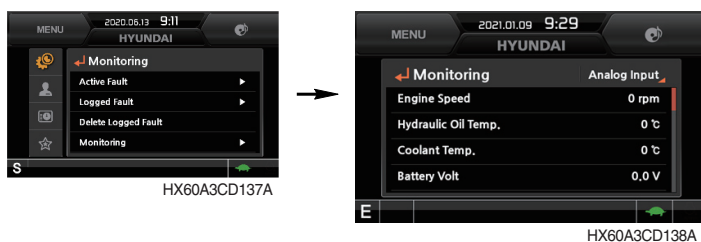
- The logged faults of the machine MCU or engine ECU can be checked by this menu.
- This menu can be used only HCE service man.

④ Delete logged fault



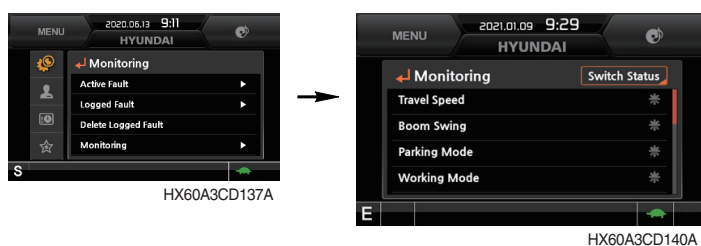
- The logged faults of the MCU, engine ECU can be deleted by this menu.
(It is possible under the engine stop conditions)

⑤ Monitoring (machine status)



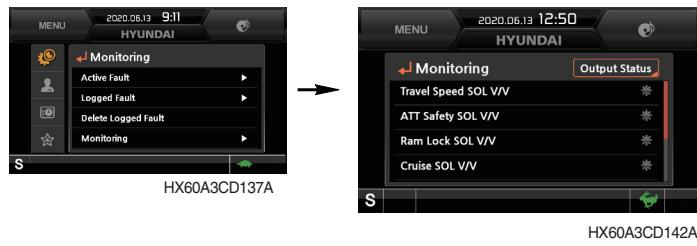
- The machine status such as the engine rpm, oil temperature, voltage and pressure etc. can be checked by this menu.

⑥ Monitoring (switch status)



- The digital switch status of the machine can be checked by this menu.
- The activated switch will display in blue color.

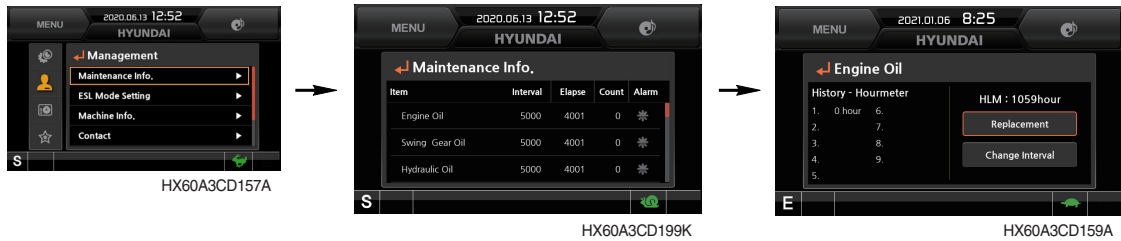
⑦ Monitoring (output status)



- The digital output status of the machine can be checked by this menu.
- The digital output status will display in blue color.

(3) Management

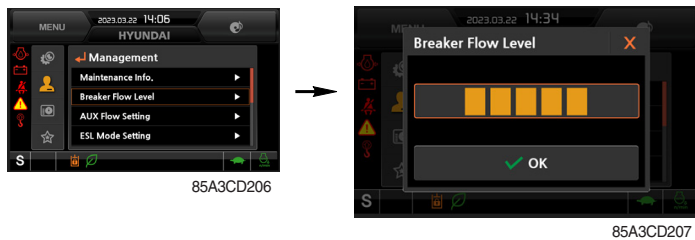
① Maintenance information



- Elapsed time : Display the elapsed time after the maintenance.
- Change interval : The change intervals can be changed in hour increments of 50.
- Change history : Display the change history for the maintenance.
- Replacement : The elapsed time will be reset to zero (0).
- Change or replace interval

※ Refer to the page 6-16.

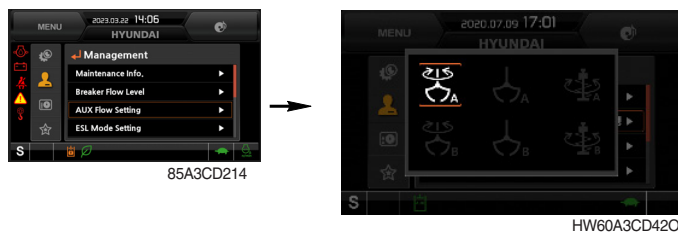
② Breaker flow level



- The breaker flow level can be modulated in 1~5 steps.

③ AUX flow setting

a. Option attach selection



- Three kinds of option attachment can be selected by this menu.

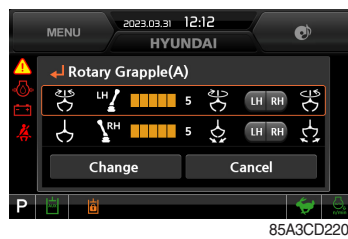
- Rotary grapple (4-way)
- Grapple (2-way)
- Auger (2-way)

※ There are two user modes (type A or B) in each option attachment.

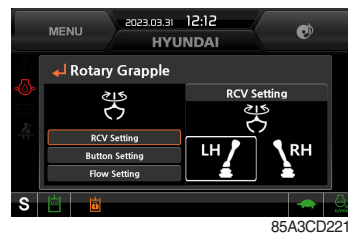
b. Proportional flow control setting

The preferable value of each option attachment can be set by this menu.

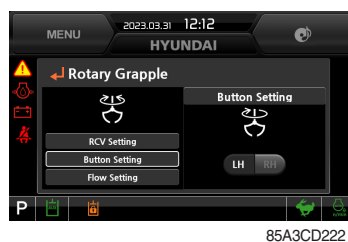
a) Rotary setting



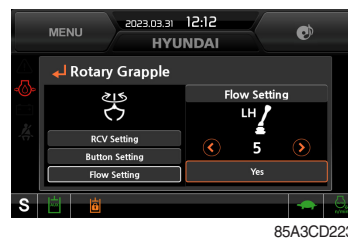
- Select rotary RCV, button and flow can be set by this menu



- RCV setting
 - Enable set LH or RH RCV for rotary operation.
 - Select LH for rotary → RH set for grapple automatically

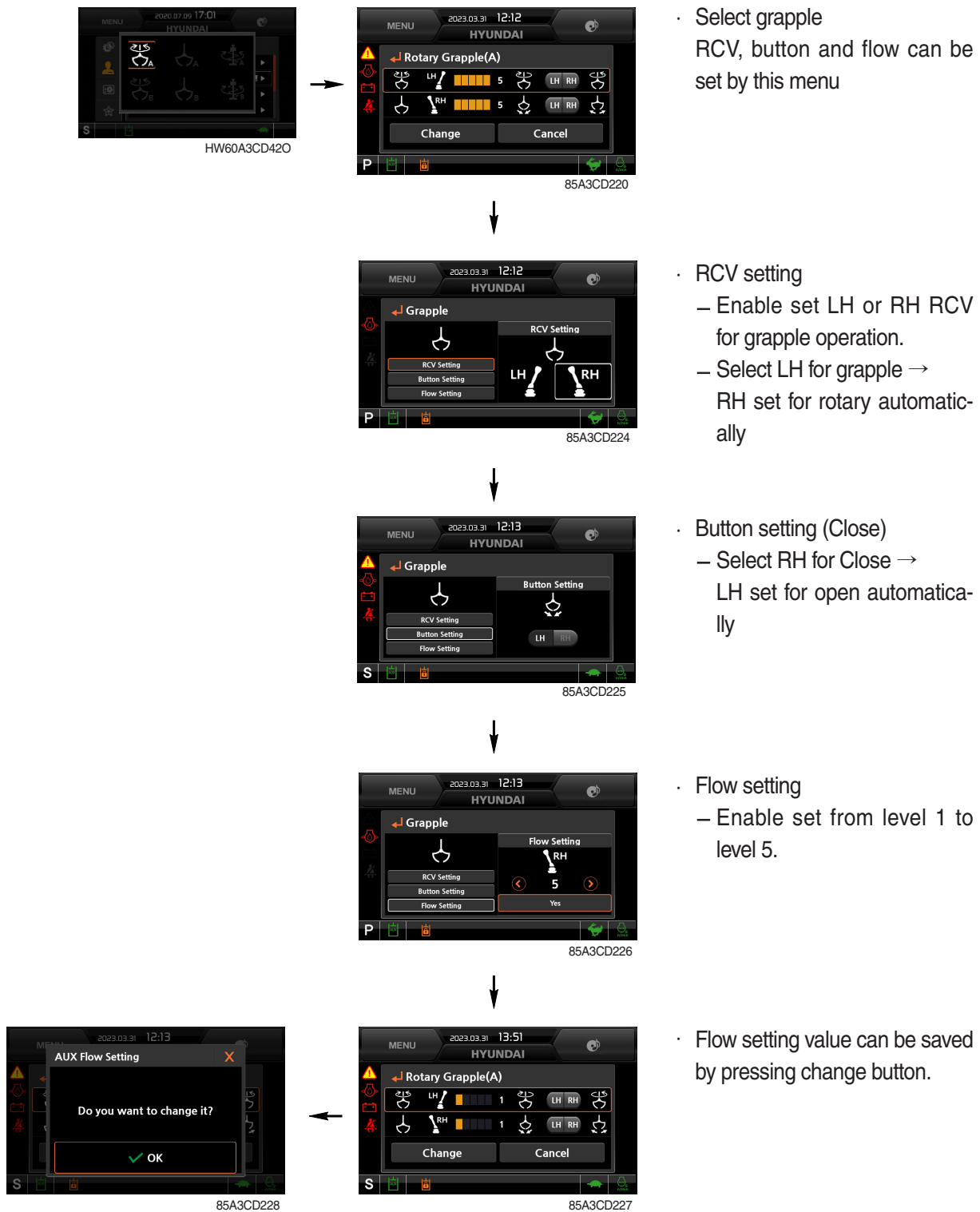


- Button setting (CW rotation)
 - Select LH for CW rotation → RH set for CCW rotation automatically



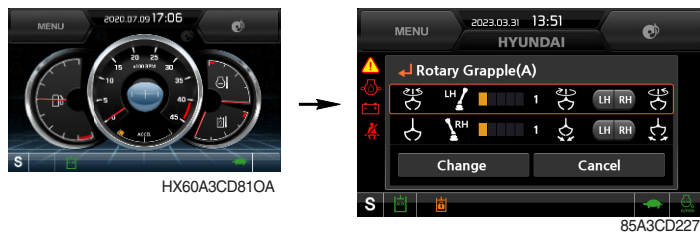
- Flow setting
 - Enable set from level 1 to level 5.


b) Grapple setting



- ※ Setting value saved once, it memorized in each icon and the last setting value is activated.
- ※ Saved setting can be used by pressing Icon button only.
- ※ There are two kinds (A and B) in each option attach setting and six kinds of option attach setting can be saved totally (2 of 4-way, 4 of 2-way).

c) Confirmation



- AUX flowing setting pilot lamp () is activated on the lower side of the main screen as below conditions.

※ The AUX switch is pressed to the AUX position and the AUX flow setting is selected Enabled.

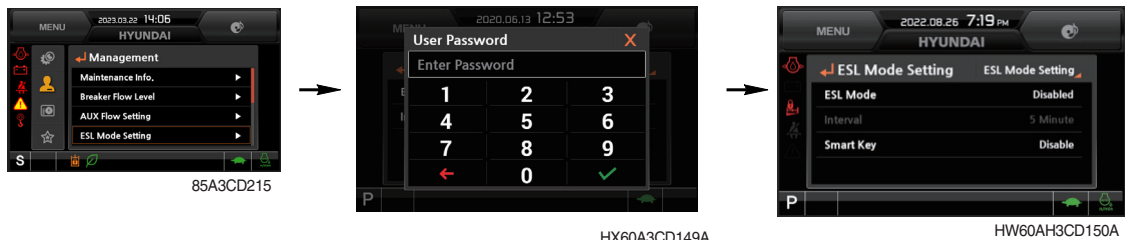
a) Rotary setting

- Rotary RCV : LH
- Rotary flow level : 3
- CW rotation : LH
- CCW rotation : RH

b) Grapple setting

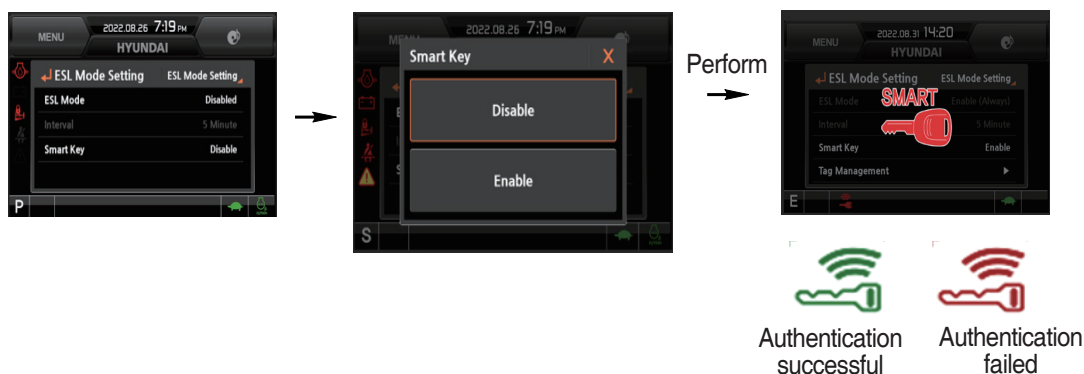
- Grapple RCV : RH
- Grapple flow level : 3
- Open : LH
- Close : RH

④ ESL mode setting



- ESL : Engine Starting Limit
- ESL mode is designed 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.
- 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

Start Limit - Smart Key Setting (When smart key is installed)



- Smart Key Exclusive

When the Smart key option (optional) is installed, Smart key menu is shown, and performance or non-performance of Smart key authentication can be set through the Smart key menu.

When the Smart key is not in the cabin, the approval procedure is rejected, and password must be entered.

Start Limit - Tag Management

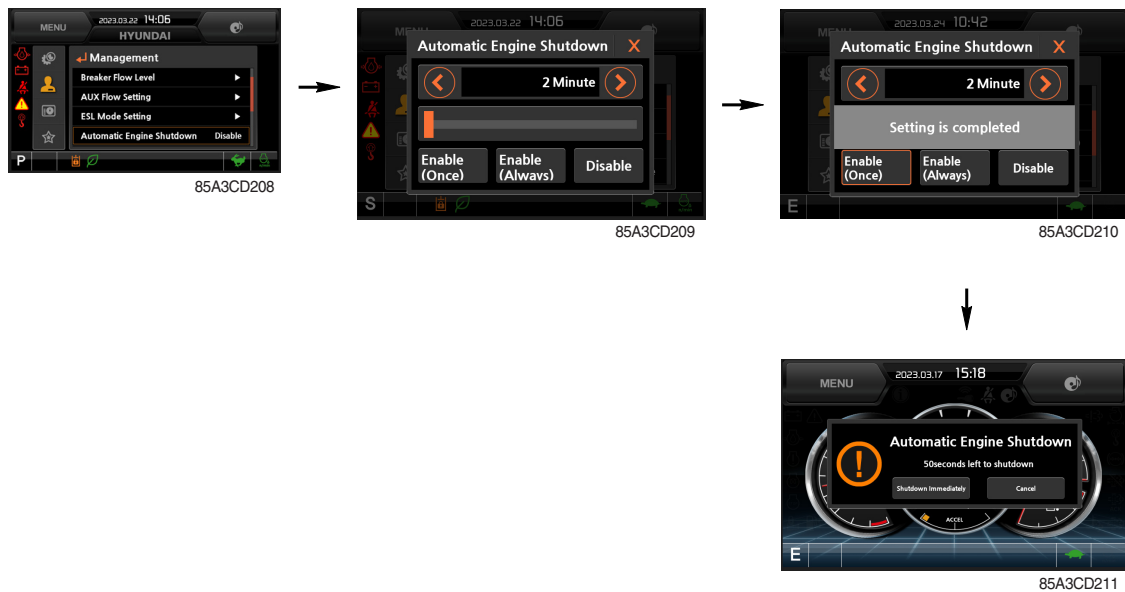


- The tag management menu is activated only when the Smart key menu is set through performance. Tag can be registered or deleted.
 - When registering the tag : Locate only the tag preferred for registration inside the cabin.
 - When deleting the tag : All registered tags are deleted.

※ Engine Starting Condition

Case	ESL Mode	Smart Key	Condition
1	Disable	Disable	- With registered tag : Engine can be started without password input. - Without registered tag : Engine can be started without password input.
2	Disable	Enable	If Smart Key is enabled, ESL Mode is automatically enabled. This Case 2 work the same as the Case 4.
3	Enable	Disable	- With registered tag : Engine can be started with password input. - Without registered tag : Engine can be started with password input.
4	Enable	Enable	- With registered tag : Engine can be started without password input. - Without registered tag : Engine can be started with password input.

⑤ Automatic engine shutdown



The automatic engine shutdown function can be set by this menu.

a. Once (one time)

- Automatic shutdown function set Once when key-on or engine operation condition.
 - Key-off when the shutdown button clicks after pop-up the automatic stop icon.
 - Shift automatic shutdown function to Disable when the cancel button clicks after pop-up the automatic stop icon.
- Keep Disable for the automatic shutdown function when key-off after key-on again or start engine.

b. Always (continuous use)

- Automatic shutdown function set Always when key-on or engine operation condition.
 - Key-off when the shutdown button clicks after pop-up the automatic stop icon.
 - Shift automatic shutdown function to Disable when when the cancel button clicks after pop-up the automatic stop icon.
- Keep Always for the automatic shutdown function when key-off after key-on again or start engine.

c. Disable

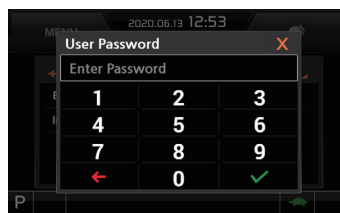
- Disable the engine automatic shutdown function.

⑥ Password change

– The password is 5~10 digits.

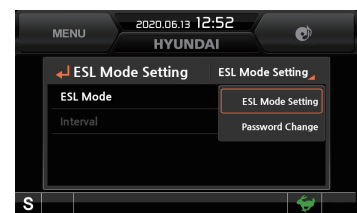


85A3CD215



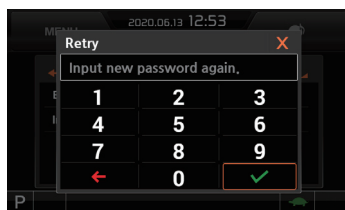
HX60A3CD149A

Enter the current password



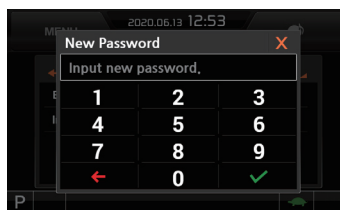
HX60A3CD153A

Select the password change



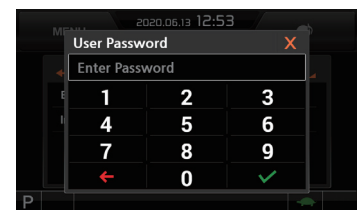
HX60A3CD156A

Saved the new password in the MCU



HX60A3CD155A

Enter the new password again



HX60A3CD149A

Enter the new password

⑦ Machine information



HX60A3CD160A



HX60A3CD161A



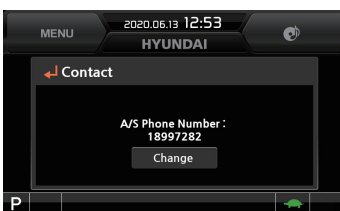
HX60A3CD162A

· The information of the cluster, machine MCU and engine and machine checked by this menu.

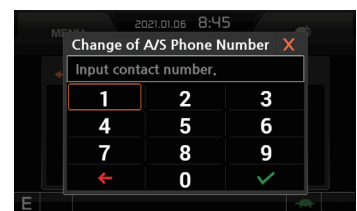
⑧ A/S phone number



HX60A3CD163A



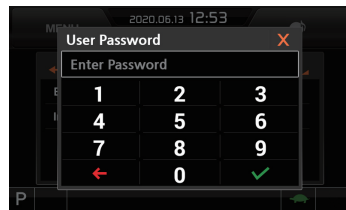
HX60A3CD164A



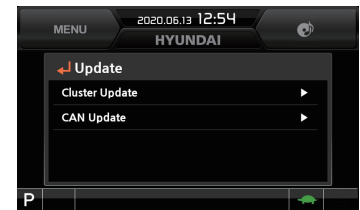
HX60A3CD165A

· The A/S phone number can be checked and changed.

⑨ Cluster update



Enter the user password



Select the cluster update

- The cluster and CAN device can be updated by this menu.
- ※ Do not turn power off while updating.

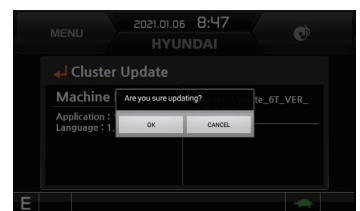
a. Application update



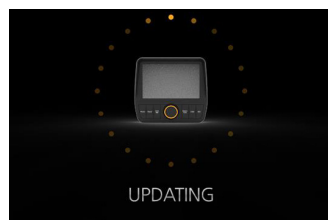
Select application item



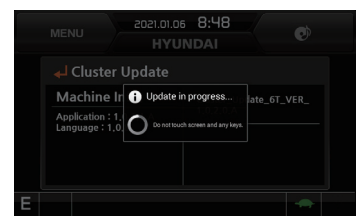
Select file to update



Select OK



Completed

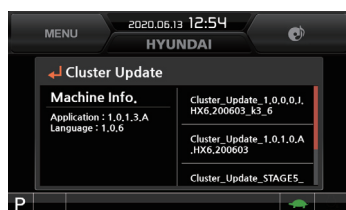


In process

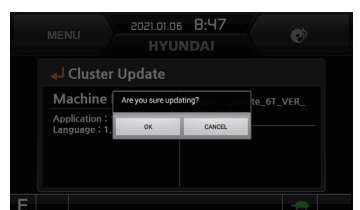
b. System update



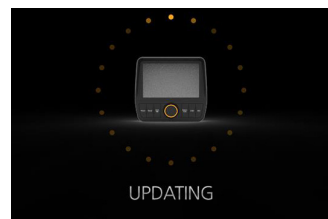
Select system item



Select file to update



Select OK

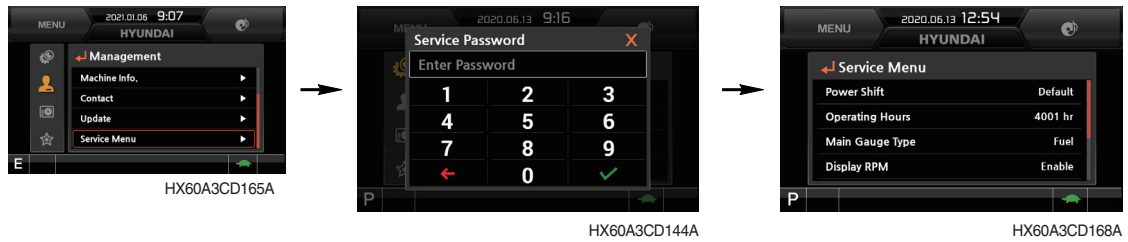


Completed



In process

⑩ Service menu



Enter the manager password

- Power shift : Power shift mode (default/option can be set by this menu.
- Operating hours : Operating hours in individual modes since the machine line out can be checked by this menu.
- Main gauge type : The engine rpm or fuel level gauge can be display on the main gauge of the main screen by this menu.
- Display RPM : Display the numeric value of engine rpm on the main gauge of the main screen can be set by this menu.
- AVCU setting : 2-Way or 4-Way dependent upon the machine options can be selected by this menu.
- Adding language : The language displayed on the cluster can be update by this menu when it is required to correct language.

※ This menu can be used only HCE service man. Do not attempt unauthorized adjustment.

(4) Display

① Clock adjust



HX60A3CD191A



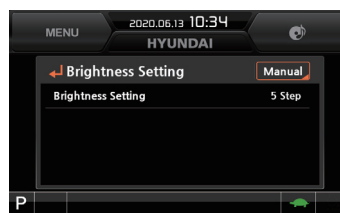
HX60A3CD192A

- The first row of boxes indicate Year/Month/Day.
- The second row shows the current time. (AM, PM/0:00~12:59)

② Brightness

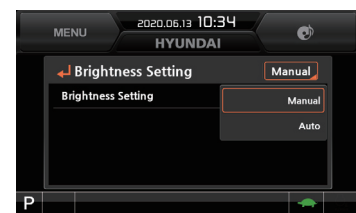


HX60A3CD193A

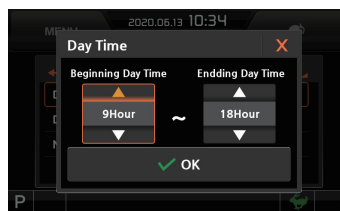


HX60A3CD194A

Manual (1st~10th step)



HX60A3CD195A



Auto (day/night)

HX60A3CD197A

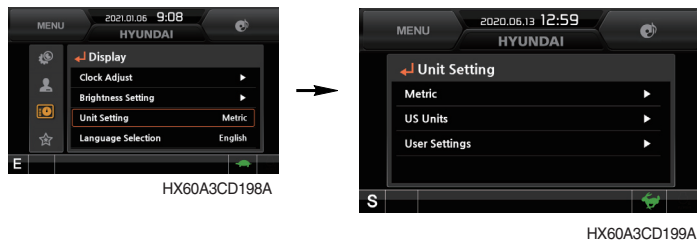


Auto (day time)

HX60A3CD196A

- If "Auto" is chosen, brightness for day and night can be set accordingly. Also, users can define which day time interval. (Set day starting time and ending time)

③ Unit set



- Metric units : Units change to metric units.
- US units : Units change to U.S. units
- User setting : Units change to user setting units

Item	Metric units	U.S. units	User setting
Temperature	°C	°F	°C, °F
Distance	km	mile	km, mile
Pressure	bar	Mpa	bar, Mpa, kgf/cm ² , psi
Flow	lpm	gpm	lpm, gpm
Volume	l	gal	l, gal

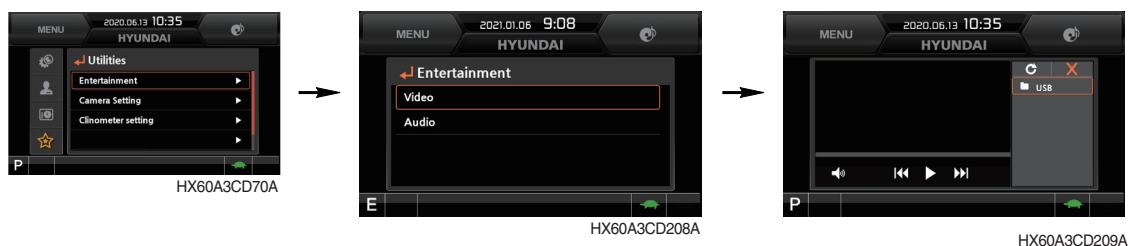
④ Language selection



- User can select preferable language (22 languages) and all displays are changed the selected language.

(5) Utilities

① Entertainment



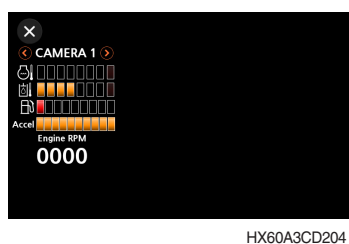
- Play MP4 or codec file of external hard disk through USB port.
- The USB port is located left side of the cluster.
- Over 1100 engine rpm, the screen turns into the operation screen with MP4 or codec file playing for the safety. The video is played again when the engine revolution is 1100 rpm or less.

⚠ The video play is prohibited for the safety reason when the machine is operated.

② Camera setting



- Three cameras can be installed on the machine and display order can be set by this menu.
 - ※ If the camera is not equipped, this menu is not useful.
 - Turning the select switch in clockwise direction, the next ordered will be shown and in counter-clockwise direction, the previously ordered will be shown. Also, the camera channel can be changed by touching the screen.
 - Display change to reduction size or display is not visible by pushing the select switch or touch the screen.
- (display reduction size → hiding → display)

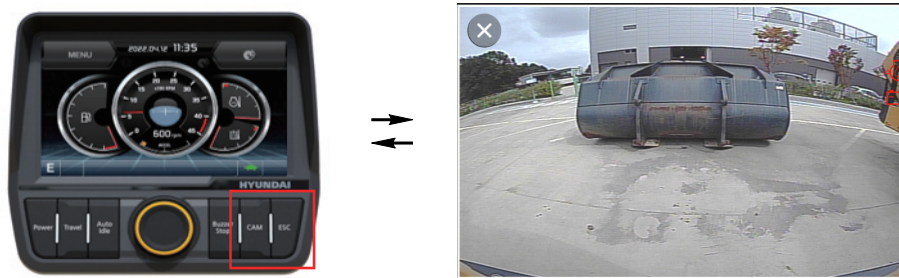


HX60A3CD204

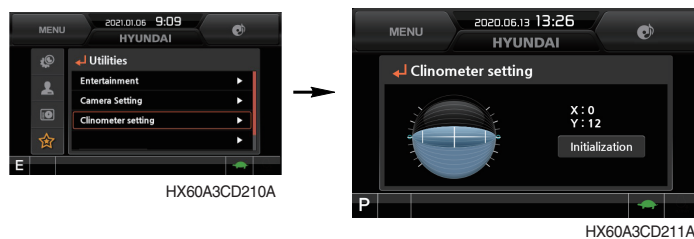
- The camera display is terminated by pressing the ESC switch or touch the X icon on the screen.

- **Camera control switch**

- Select the CAM switch to activate Rear / RH view camera from the beginning screen.
- While in that mode, select the ESC switch to return to the home screen.

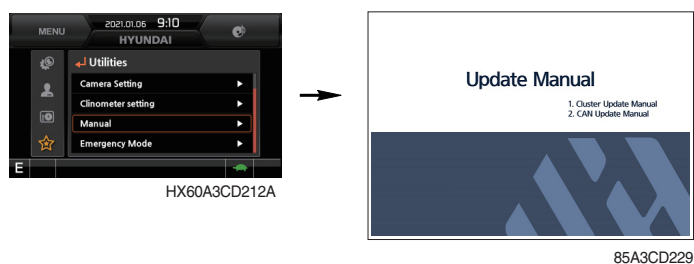


③ Clinometer setting



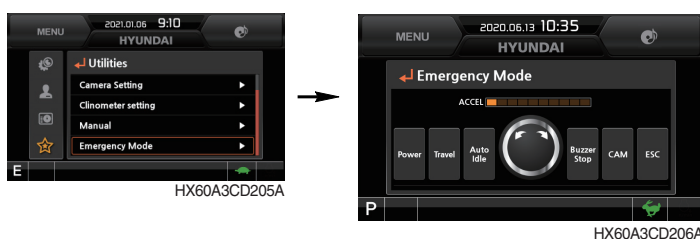
- When the machine is on the flatland, if you touch "initialization" on cluster, the values of X, Y will reset to "0".
- You can confirm tilt of machine in cluster's operating screen.

④ Manual



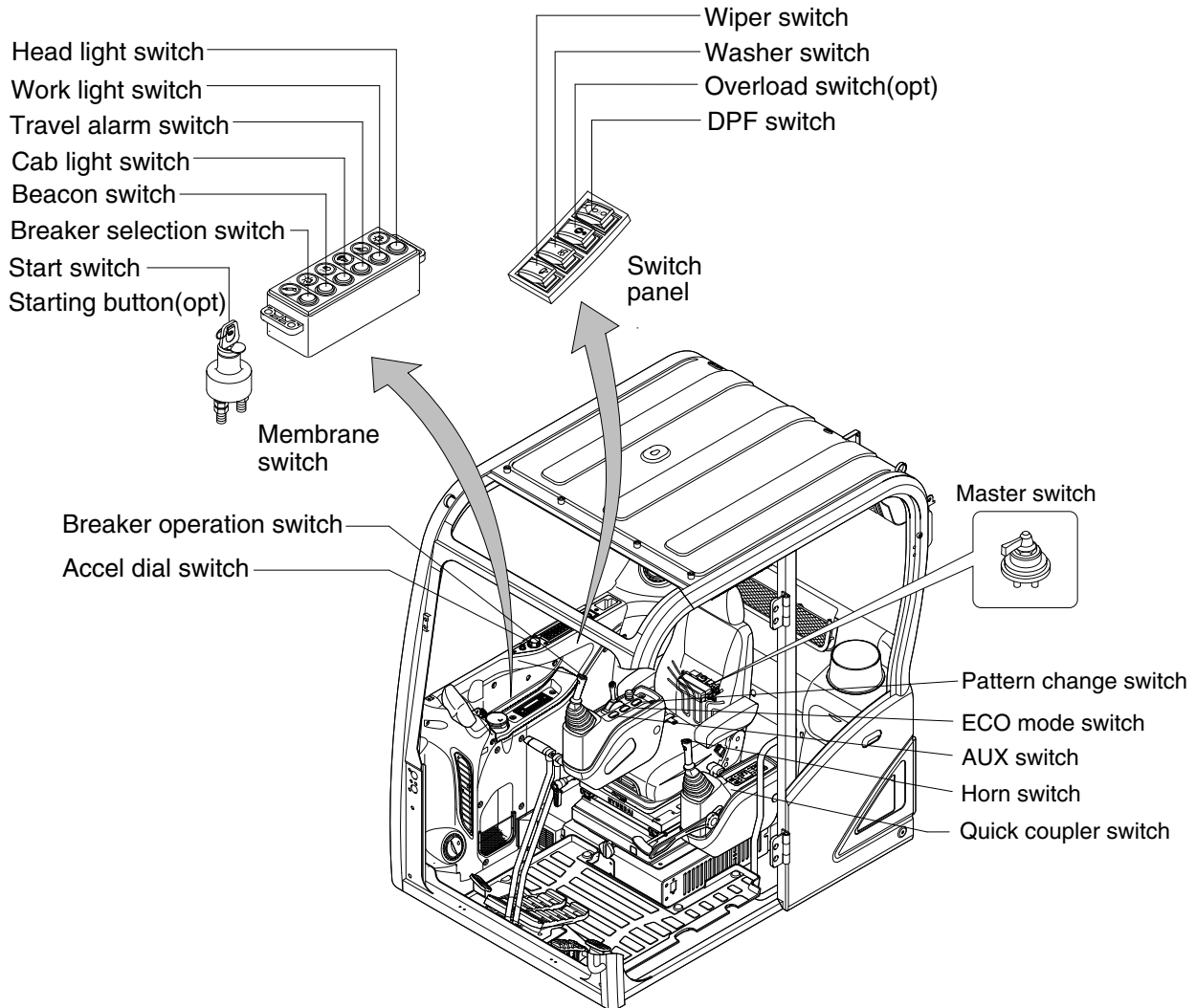
- Manual of the cluster can be read on the monitor.

⑤ Emergency mode



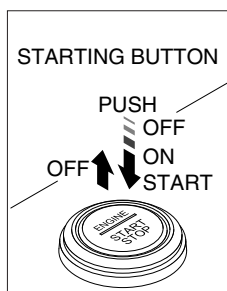
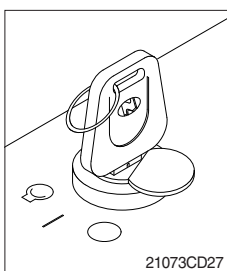
- When switches of the monitor and the accel dial fails, switches are displayed on LCD, and you are allowed to perform operation by touching the screen.
- Such operation is allowed only on this mode screen.

3. SWITCHES



85A3CD02B

1) STARTING SWITCH



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.

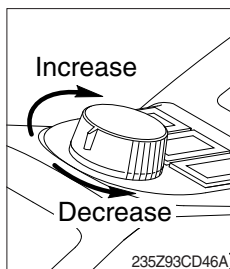
Release key immediately after starting.

※ 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 controller 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.

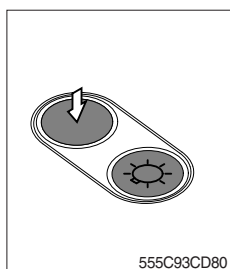
※ Key must be in the ON position with engine running maintain electrical and hydraulic function and prevent serious machine damage.

2) ACCEL DIAL



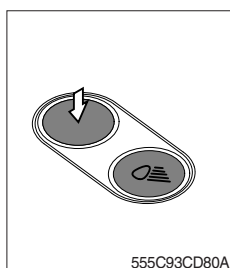
- (1) There are 10 dial settings.
- (2) Setting 1 is low idle and setting 10 is high idle.
 - By rotating the accel dial to right : Engine speed increased.
 - By rotating the accel dial to left : Engine speed decreased.

3) HEAD LIGHT SWITCH



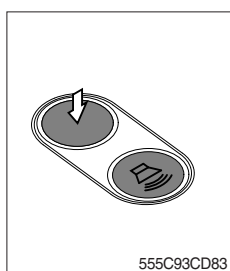
- (1) This switch is used to operate the head light and illumination lamps.
- (2) Press the switch once, the head light and the below illumination lamps light up.
 - Air conditioner and heater controller
 - Radio and USB player
 - USB socket, DPF switch, accel dial and cigar lighter
- (3) Press the switch once more, the head light and illumination lamps turn off.

4) WORK LIGHT SWITCH



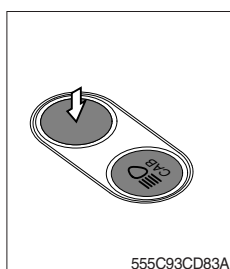
- (1) This switch is used to operate the work light.
 - Press the switch once, the work light and the pilot lamp light up.
 - Press the switch once more, the work light and pilot lamp turn off.

5) TRAVEL ALARM SWITCH



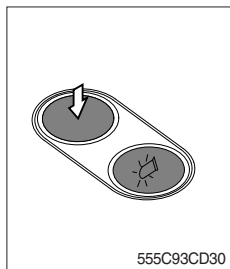
- (1) This switch is to activate travel alarm function surrounding when the machine travels.
 - ON : The travel alarm function is activated.
 - OFF : The travel alarm function is not activated.

6) CAB LIGHT SWITCH



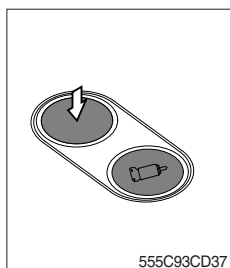
- (1) This switch turns on the cab light on the cab.

7) BEACON SWITCH (option)



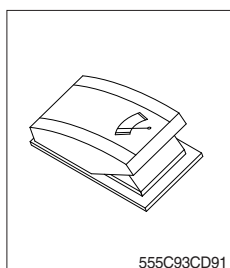
- (1) This switch turns ON the rotary light on the cab.
- (2) The indicator lamp lights up when operating this switch.

8) BREAKER SELECTION SWITCH (option)



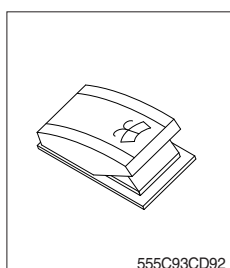
- (1) When this switch is pressed, the breaker will be ready to operation.
※ Refer to page 3-38 for details.

9) WIPER SWITCH



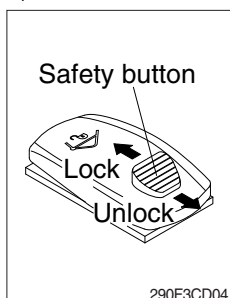
- (1) This switch is used to operate the wiper.
The wiper operates.
△ If wiper does not operate with the switch in the ON position, turn the switch off immediately. Check the cause. If the switch remains ON, motor failure can result.

10) WASHER SWITCH



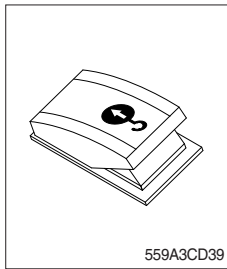
- (1) This switch is used to operate the washer.
· Washer fluid is sprayed and the wiper is operated only when this switch is pressed. If you release the switch, return to the first position.

11) QUICK COUPLER SWITCH (option)



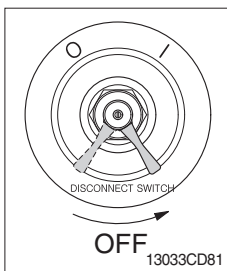
- (1) This switch is used to engage or disengage the moving hook on quick coupler.
※ Refer to page 8-6 for details.

12) OVERLOAD SWITCH (option)



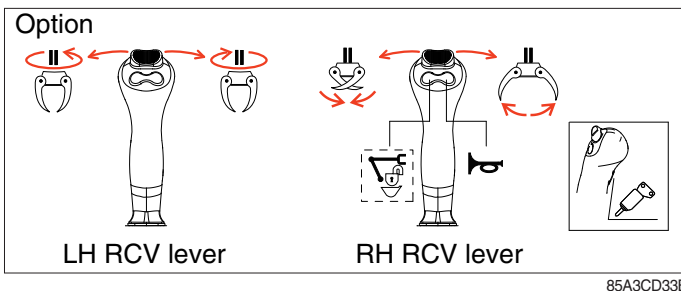
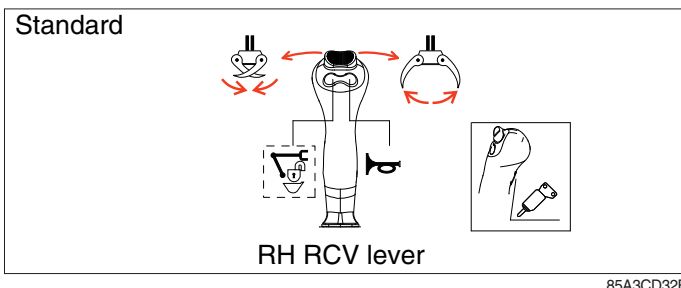
- (1) When this switch is activated, buzzer makes sound and overload warning lamp lights up in the event that the machine is or becomes in an overloaded situation.
- (2) When the switch is inactivated, buzzer stops and warning lamp goes off.

13) MASTER SWITCH



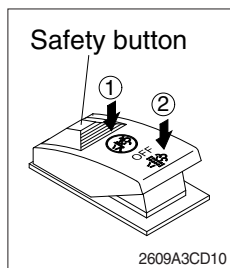
- (1) This switch is used to shut off the entire electrical system.
 - (2) I : The battery remains connected to the electrical system.
O : The battery is disconnected from the electrical system.
- ※ **Never turn the master switch to O (OFF) with the engine running. It could result in engine and electrical system damage.**

14) CONTROL LEVER SWITCH (LH, RH)



- (1) This switch use to operates the breaker operation by 3 steps.
 - **First step : Select breaker selection switch on the membrane switch.**
 - **Second step : Select Aux switch to position 3.**
 - **Third step : Press breaker operation switch.**
 - (2) This switch operates the clamshell or shear.
- ※ **This switch applies to double action hydraulic attachment circuit.**

15) DPF (diesel particulate filter) SWITCH



(1) This switch is used to select the regeneration function of the DPF.

(2) Inhibit position (①)

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

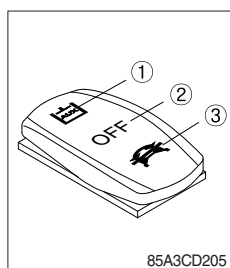
(3) OFF position

This position will initiate an automatic regeneration of the DPF.

(4) Manual regeneration position (②)

- ① This position will only initiate a manual regeneration of the DPF when the machine is in non-mission condition, engine must run at low idle speed and DPF soot levels are high enough to allow regeneration.
- ② HEST lamp will be illuminated during the entire regeneration.
- ※ Refer to the page 3-8 for details.
- ※ This switch can be moved to the manual regeneration position (②) only when the safety button is pulled backward.
- ※ Also, this switch returns to the OFF position when released from the manual regeneration position (②).

16) AUX SWITCH (option)

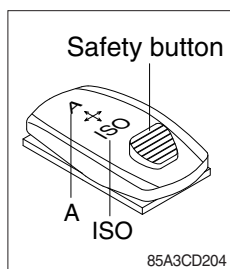


(1) This switch is used to select the auxiliary optional functions.

- ① : Angle dozer
- ② : Off
- ③ : Breaker operating or 2way or 4way

※ Refer to page 3-13 and section, Levers and pedals for details.

17) PATTERN CHANGE SWITCH



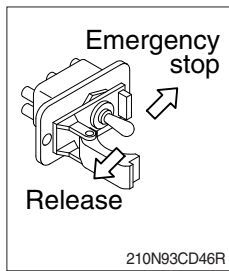
(1) The pattern change can be operated easily using this switch.

- Position ISO : ISO type pattern
- Position A : A type pattern

▲ Before starting the machine, check switch position.

※ Refer to page 4-22 for the details.

18) EMERGENCY ENGINE STOP SWITCH

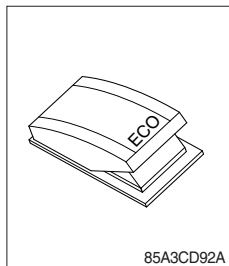


(1) This switch is used to stop the engine in the event of an emergency.

(2) The engine system reboot is required through master switch ON / OFF operation for restarting after the emergency stop switch operation.

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

19) ECO MODE SWITCH

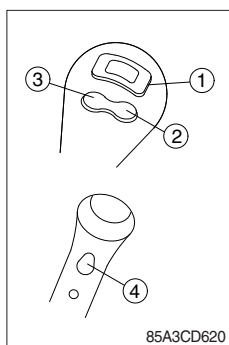


(1) This switch is used to improve the fuel economy of the equipment.

(2) The pump horsepower is reduced, when you press this switch.

20) LH RCV LEVER SWITCH

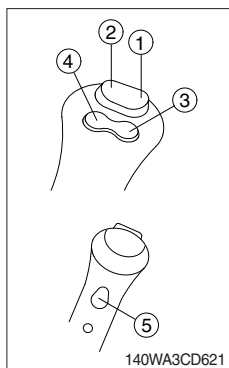
(1) Button type



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

- ① None
- ② None
- ③ None
- ④ None

(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.

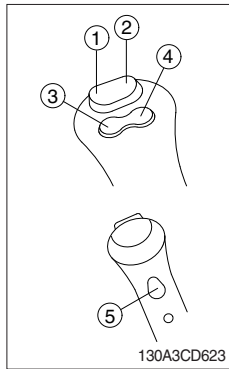
② CCW rotating switch

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

- ③ None.
- ④ None.
- ⑤ None.

21) RH RCV LEVER SWITCH

(1) Proportional type



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 page 8-6.

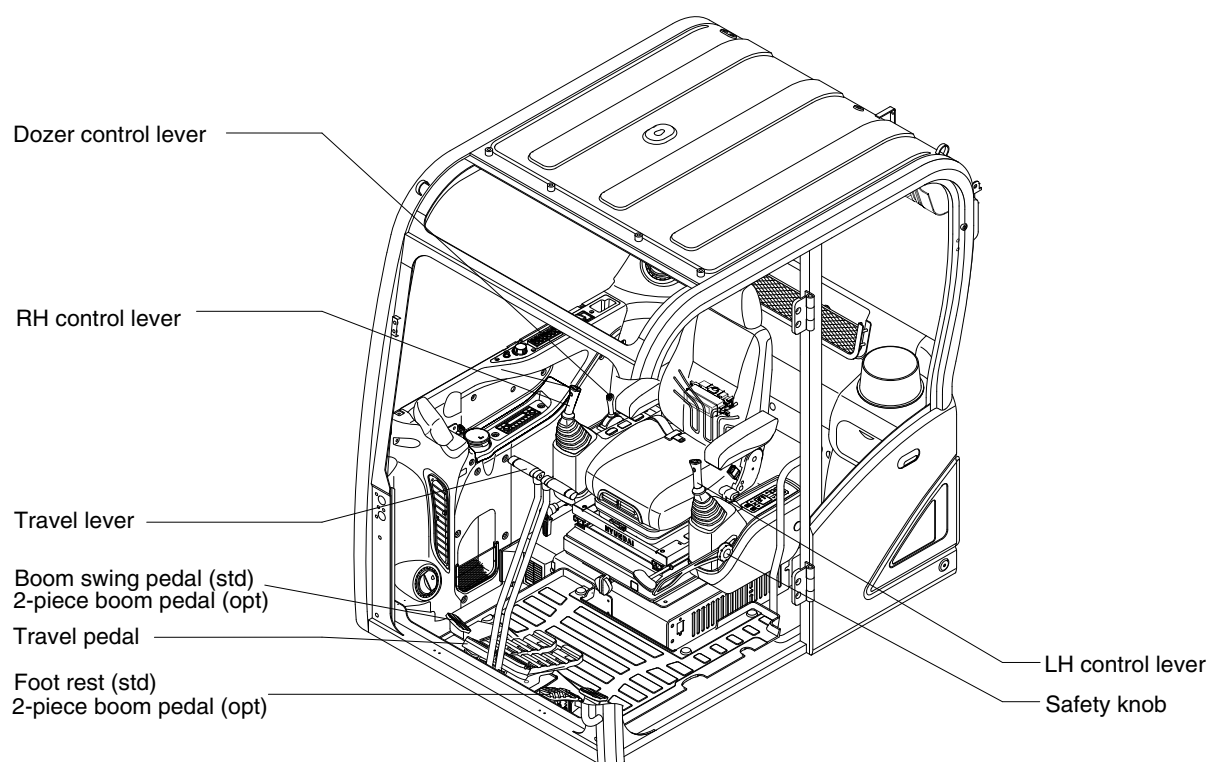
④ **Horn switch**

When this switch is pressed, the horn will sound.

⑤ **Breaker switch**

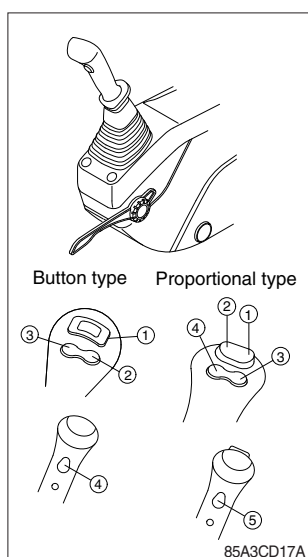
When this switch is pressed, the breaker will only operate when the breaker operation mode is selected.

4. LEVERS AND PEDALS



85A3CD03A

1) LH CONTROL LEVER



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

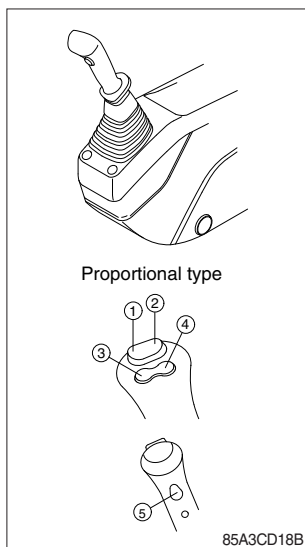
※ Refer to operation of working device in chapter 2 for details.

(2) The switch functions are as below.

No.	Button type	Proportional type (opt)
①	N.A	Rotating-CW
②	N.A	Rotating-CCW
③	N.A	N.A
④	N.A	N.A
⑤	-	N.A

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

2) RH CONTROL LEVER



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

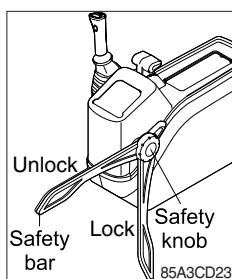
※ Refer to operation of working device in chapter 2 for details.

(2) The switch functions are as below.

No.	Proportional type
①	2-way clamp
②	2-way release
③	Quick coupler
④	Horn
⑤	Breaker

※ Refer to page 3-40-1 for the details of the switch function.

3) SAFETY KNOB



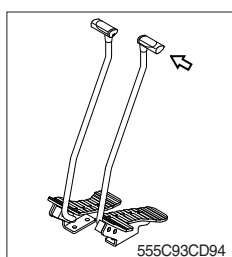
(1) All control levers and pedals are disabled from operation by locating the safety knob to the LOCK position as shown.

※ Be sure to turn the safety knob to LOCK position when entering or leaving from operators seat/cabin.

(2) The machine is operational by turning the safety knob to the UNLOCK position.

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

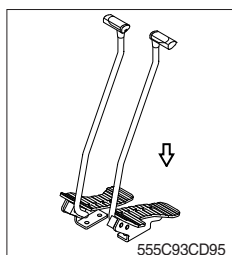
4) TRAVEL LEVER



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

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

5) TRAVEL PEDAL



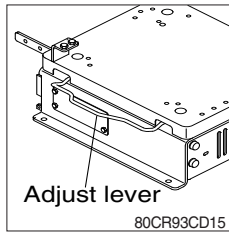
(1) This pedal is used to move the machine forward or backward.

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

If right side pedal is pressed, right track will move.

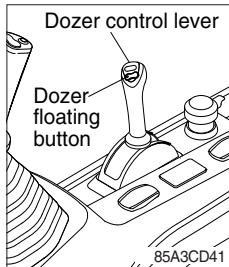
(3) Refer to traveling of machine in chapter 4 for details.

6) SEAT AND CONSOLE BOX ADJUST LEVER



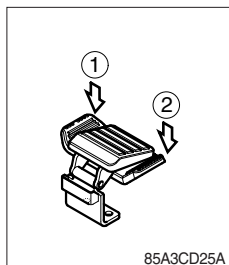
- (1) This lever is used to move the seat and console box to fit the contours of the operator's body.
- (2) Pull the lever to adjust forward or backward over 90 mm (3.5").

7) DOZER CONTROL LEVER



- (1) This lever is used to operate the dozer blade.
- (2) If the lever is pushed forward, the dozer blade will be going down.
If the lever is pulled back, the dozer blade will be going up.
- (3) The dozer floating feature activates when the dozer floating button is pressed.
 - First step : Press the dozer floating button.
 - Second step : Push the dozer lever until the end.
 - Third step : The lever is fixed even if the dozer lever is released.
(Detent function)
- (4) Floting release method.
 - First step : Press the dozer floating button again.
 - Second step : Pull back the fixed dozer lever.

8) BOOM SWING PEDAL

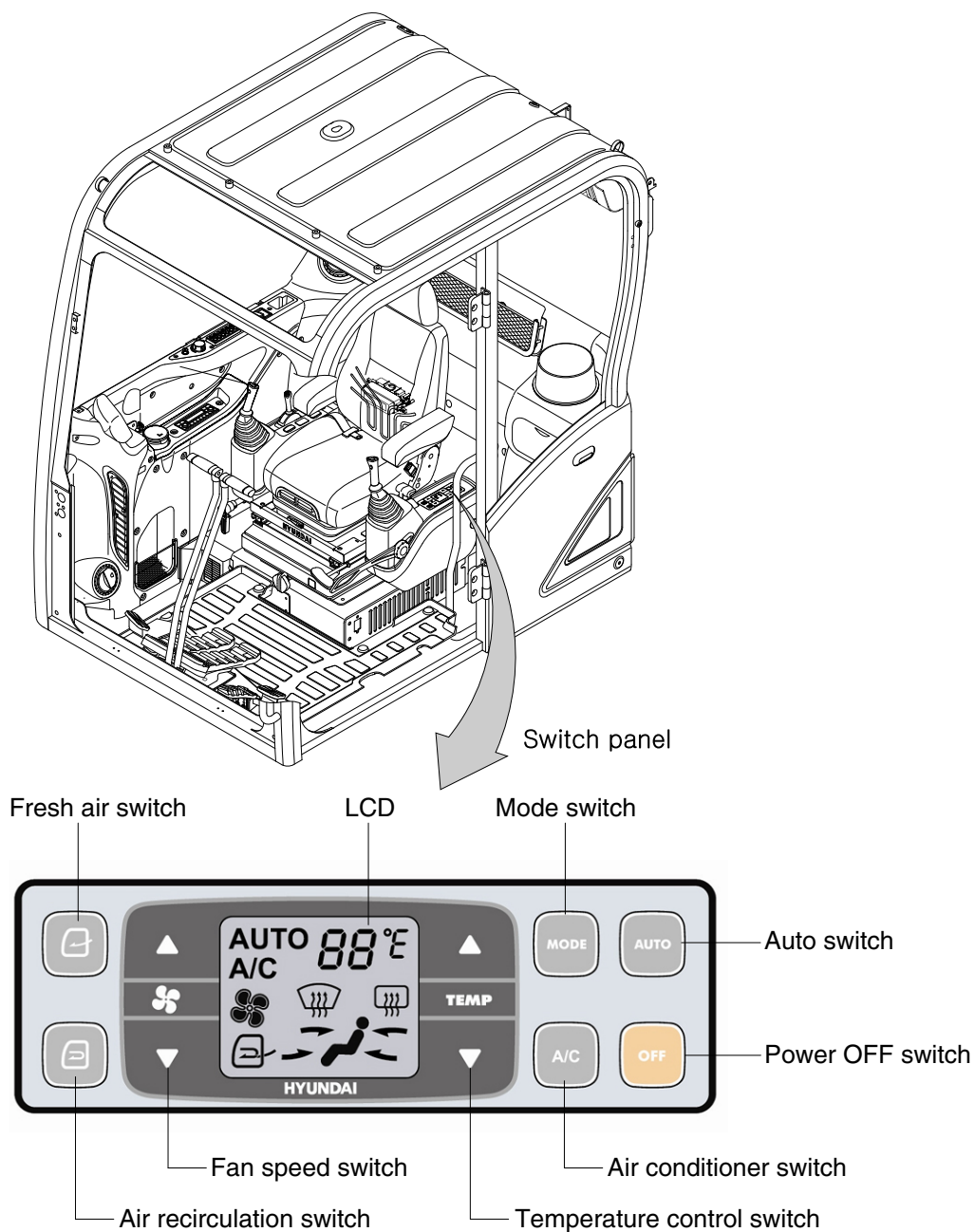


- (1) This pedal is used to swing the boom to the right and left direction.
- (2) If the front (①) of the pedal is pressed, boom will swing to the left direction.
If the rear (②) of the pedal is pressed, boom will swing to the right direction.

5. FULL AUTO AIR CONDITIONER AND HEATER

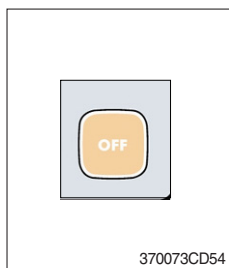
Full auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.

- Location of air flow ducts



85A3CD05A

1) POWER OFF SWITCH

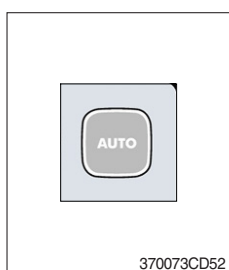


- (1) This switch turns the system and the LED OFF.
Just before the power OFF, set values are stored.

(2) Default setting values

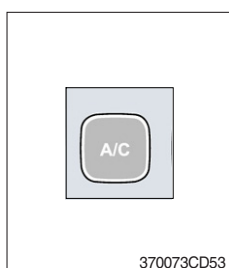
Function	Air conditioner	In/outlet	LCD	Temperature	Mode
Value	OFF	Inlet	OFF	Previous sw OFF	Previous sw OFF

2) AUTO SWITCH



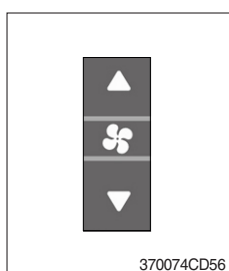
- (1) Turn the starting switch to ON position, LCD lights up.
Auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.
- (2) This switch can restart system after system goes OFF.

3) AIR CONDITIONER SWITCH (compressor switch)



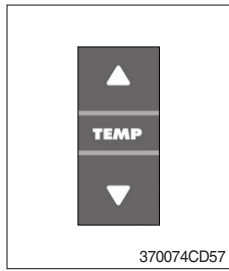
- (1) This switch turns the compressor and the LCD ON.
- (2) In accordance with the temperature sensed by duct (evaporator) sensor, compressor turns ON or OFF automatically.
- ※ **Air conditioner operates to remove vapor and drains water through a drain hose. Water can be sprayed into the cab in case 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 sett 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

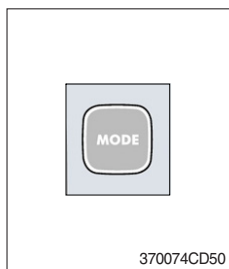


- (1) Setting temperature indication (17~32°C, scale : 1 °C)
- (2) Max cool and max warm beeps 5 times.
- (3) The max cool or the max warm position operates per the following table.

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 (°C ↔ °F) by pressing temperature switches (Up/Down) simultaneously for more than 5 seconds.

6) MODE SWITCH

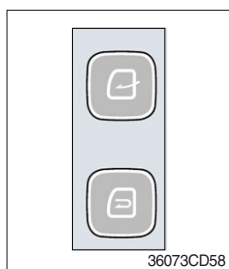


- (1) Operating this switch, it beeps and displays symbol of each mode in the following order. (Vent → Vent/Foot → Foot → Foot/Def → Vent)

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

- (2) When operating defroster, FRESH AIR/AIR RECIRCULATION switch turns to FRESH AIR mode and air conditioner switch turns ON.
- (3) When this switch ON, the system operates with previous configuration.

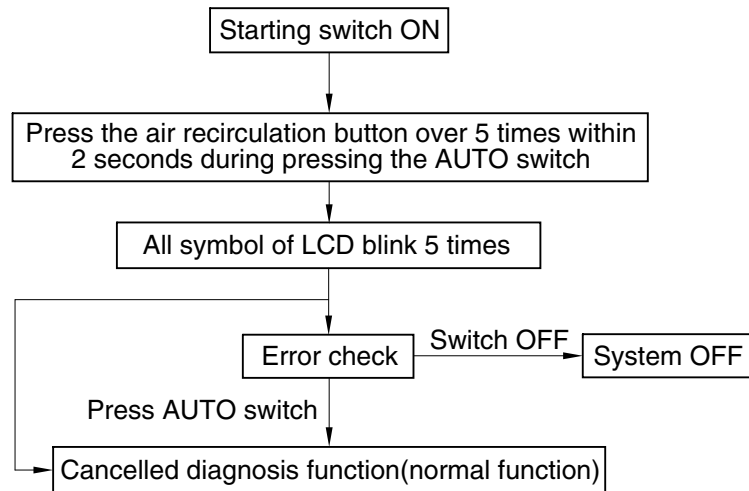
7) FRESH AIR/AIR RECIRCULATION SWITCH



- (1) It is possible to change the air-inlet method.
 - ① **Fresh air** ()
Inhaling air from the outside.
※ **Check out the fresh air 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



3607A3CD69

(2) Error check

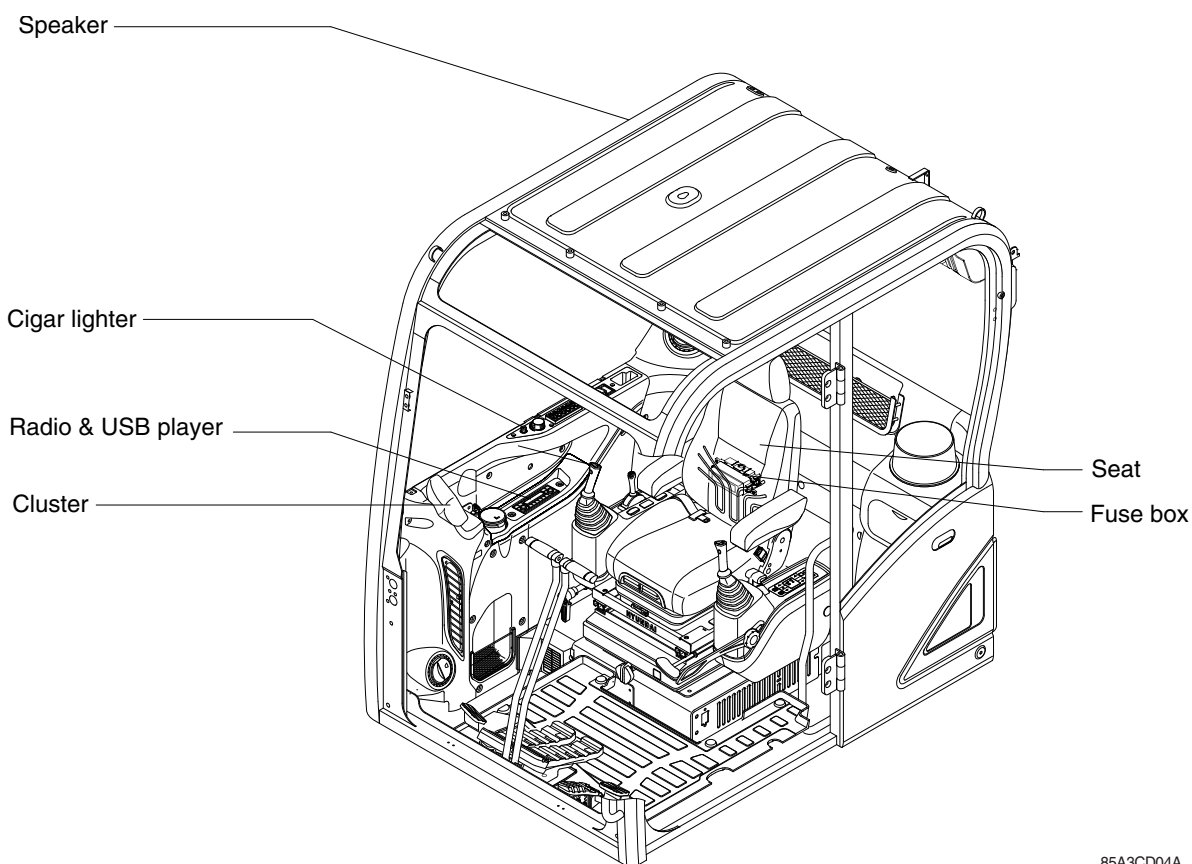
- The corresponding error code flickers on the setup temperature display panel, the other symbol will turn OFF.
- Error code flickers every 0.5 second.
- If error code is more than two, each code flickers 2 times in sequence.
- Error code

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

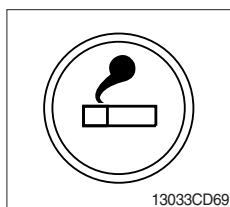
Error description	Fail safe function
Cabin inside sensor (11)	25°C alternate value control
Ambient sensor (12)	20°C alternate value control
Duct (evaporator) sensor (14)	1°C alternate value control
Temp actuator (15)	If opening amount is 0 %, the alternate value is 0 %
	If not, the alternate value is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

6. OTHERS



85A3CD04A

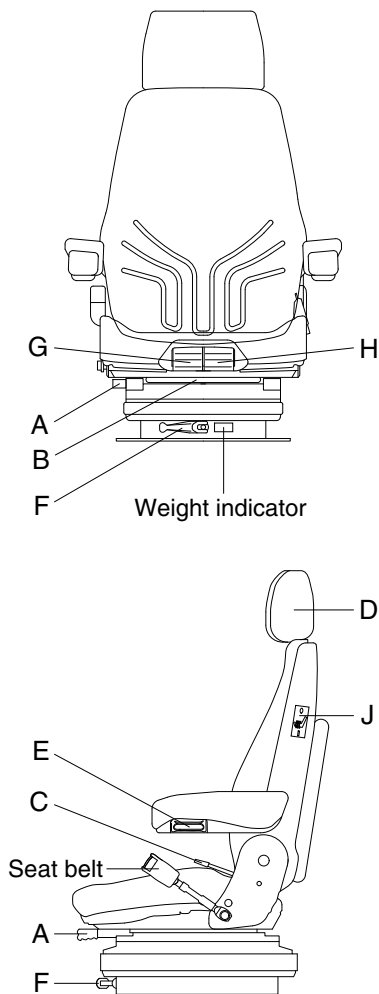
1) CIGAR LIGHTER



- (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 12 V, 120 W.

2) SEAT

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



140Z93CD55

(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 130 mm (5.1") in 13 steps.

▲ Do not lift the locking lever with you leg.

(2) Upward/Downward adjustment (B)

- ① Pull lever B to adjust seat upward or downward over 60 mm (2.4").
- ② Forward or backward side adjustment only can be made, tilting to one side, by moving lever B respectively.

(3) Reclining adjustment (C)

Pull lever C to adjust seat back rest.

(4) Armrest adjustment (E)

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

(5) Headrest adjustment (D)

This is adjustable vertically and forward or rearward to fit operator's requirements.

(6) Weight adjustment (F)

Adjust the lever with the seat empty to the operator's weight.

(7) Seat depth adjustment (G)

- ① The depth of the seat pan can be individually adjusted.
- ② To adjust the depth of the seat cushion, pull the right handle upward. By moving the seat cushion backwards or forwards the desired seating position can be reached.

(8) Seat pan angle adjustment (H)

- ① The angle of the seat pan can be individually adjusted.
- ② To adjust the angle of the seat pan, pull the left handle upwards. By exerting pressure on or off the front or rear part of the seat pan it can be moved to the desired position.

(9) Seat heater (J)

The seat heater can be turned on/off by pressing the switch.

0 = Seat heater OFF

I = Seat heater ON

▲ 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.

3) FUSE BOX

SPARE		40A	SPARE		40A
SPARE	20A	CABIN LAMP	20A	MCU	10A
SPARE	20A	BECON LAMP	20A	CLUSTER	10A
SPARE	20A	SAFETY SOL	10A	CASSETTE, SW PANEL	10A
SPARE	20A	ALT, START	20A	ECU	20A
HORN	20A	SOLENOID	20A	MCU	10A
CIGAR	20A	AC HEATER	20A	ROOM LAM, AC HEATER	20A
EPPR POWER	20A	WIPER	20A	CLUSTER	10A
12V OUTLET	20A	FUEL FILLER PUMP	20A	START KEY	20A
HEAT-SEAT	10A	WORK LAMP	20A	CASSETTE	20A
PRE-HEAT	10A	HEAD LAMP	20A	FUSE HOLDER	
FEED PUMP	20A	SOLENOID	20A		
SPARE	20A				
SPARE	20A				
SPARE	10A				
SPARE	10A				
SPARE	10A				

85A3CD13

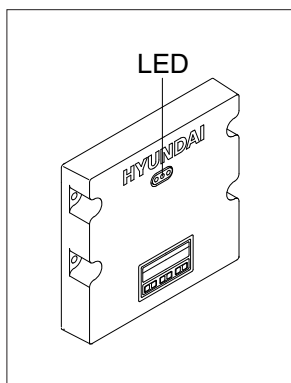
(1) The fuses protect the electrical parts and wiring from burning out.

(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, be sure to turn OFF the starting switch.**

4) MCU



85A3CD57

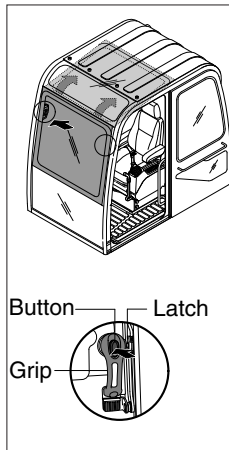
(1) To match the pump absorption torque with the engine torque, MCU varies EPPR valve output pressure, which controls pump discharge volume whenever engine speed drops and provides feedback, under the reference rpm of each mode set.

(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 are 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

5) UPPER WINDSHIELD



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

- ① Release both latches in order to release the upper windshield.
- ② Hold both grips that are located at both sides the windshield frame and push the windshield upward.
- ③ Hold both grips that are provided on the windshield frame and pull back into the storage position until auto lock latch is engaged.

※ **When working, without having locked the windshield by the auto lock (by pushing the windshield to the rear until 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.
Steps in the reverse order to close the upper windshield.

6) RADIO AND USB PLAYER (MACHINE SERIAL NO. : -#0646)

■ WITH BLUETOOTH



9403CD100

■ FRONT PANEL PRESENTATION

- | | | | | | |
|---|--|---|----|--|---|
| 1 | | Power ON/OFF,
Volume UP/DOWN button | 10 | | Station preset 5
DIR- Directory down button |
| 2 | | Manual UP/DOWN Tuning,
File search, SEL button | 11 | | Station preset 6
DIR+ Directory up button |
| 3 | | Mode button,
Audio mute button | 12 | | Scan play button (SCAN)
Best station memory (BSM) button |
| 4 | | Call & Pair button | 13 | | Auto tune up, Seek up button |
| 5 | | Call end button | 14 | | Auto tune down, Track down button |
| 6 | | Station preset 1
DIS Display button | 15 | | USB connector |
| 7 | | Station preset 2 | 16 | | AUX IN Jack |
| 8 | | Station preset 3
RPT Repeat play button | 17 | | MIC hole |
| 9 | | Station preset 4
RDM Random play button | | | |

■ 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.

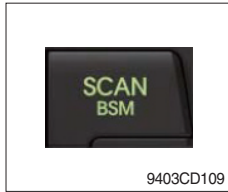


(4) Station preset button



- 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



- 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



- 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.



(3) MP3 directory / File searching



- 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.

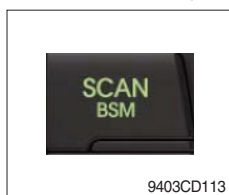
(4) Directory Up / Down button



- 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

- 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.
- Display up to 32 characters in the LCD display.
- No support any of MULTI-CARD Reader.
- 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°C (14°F), 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.

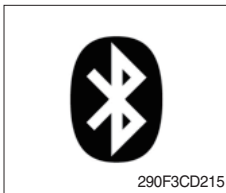
To get the best results when connecting the portable media to the audio system, follow these steps :

- 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)

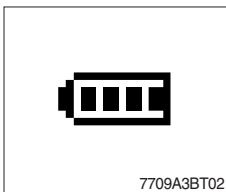
(1) Using a bluetooth wireless connection

- 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.



a. Bluetooth icon

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



b. Battery icon

It indicates the battery status of the connected bluetooth device.



c. 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.



- 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.



- 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.



- 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.**

6) RADIO AND USB PLAYER (MACHINE SERIAL NO. : #0647-)

■ WITH BLUETOOTH



19A3RD02

1 USB port with cover : Open the cover and connect the USB storage device.

2 ENTER/AST button with tune dial.

3 Display window for play / reception / menu state and information.

4 POWER button with VOLUME dial : turns power on, mute function on/off or selects a menu item (press), control the volume level or menu item.

5 AUX port with cover : Open the cover and plugging the external audio device.

6 Call / call end button :

- when a call comes in : accepts a call (press); rejects a call (press and hold)
- during a call connection : ends a call (press) ; switches between hands-free and private call modes (press and hold)
- in standby mode: opens call list (press) ; makes a call a recently connected number (press and hold)

7 BAND button : enters Radio mode or changes the radio band (press).

8 Preset button :

- Radio: Recall each stored station (press) ; store each station (press and hold).
- USB : changes playback mode (press 1 II, 2 RPT or 3 RDM buttons); shows available information about the current track (press 4 INFO button) ; move to folder down/up (press 5 D-/6 D+ buttons).
- Bluetooth audio : pause/resume playback (press 1 II) ; shows information of the connected Bluetooth device (press 4 INFO button).

9 MODE button : selects USB, Bluetooth audio or AUX play mode (press).

10 MENU button : enters Menu setting mode or returns to the previous menu (press).

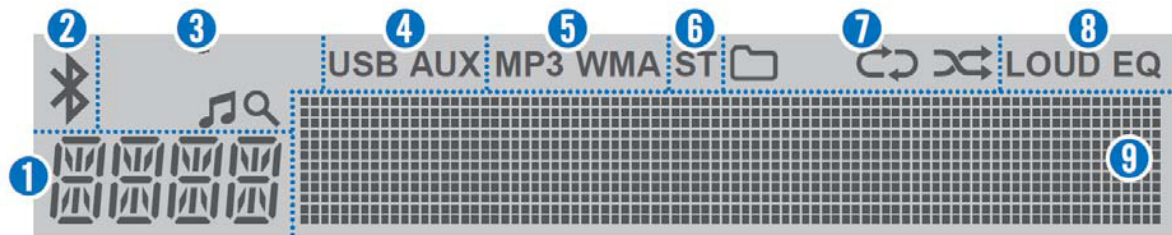
■ WITHOUT BLUETOOTH






19A3RD01

- | | |
|---|--|
| <p>1 USB port with cover : Open the cover and connect the USB storage device.</p> <p>2 ENTER/AST button with tune dial.</p> <p>3 Display window for play/reception/menu state and information.</p> <p>4 POWER button with VOLUME dial : turns power on, mute function on/off or selects a menu item (press), control the volume level or menu item.</p> <p>5 AUX port with cover : Open the cover and plugging the external audio device.</p> <p>6 FM button : enters FM Radio mode.</p> <p>7 AM button : enters AM Radio mode.</p> | <p>8 Preset button :
 - Radio : Recall each stored station (press) ; store each station (press and hold).
 - USB : changes playback mode (press 1 II, 2 RPT or 3 RDM buttons) ; shows available information about the current track (press 4 INFO button) ; move to folder down/up (press 5 D-/6 D+ buttons).</p> <p>9 MODE button : selects USB or AUX play mode (press).</p> <p>10 MENU button : enters Menu setting mode or returns to the previous menu (press).</p> |
|---|--|

■ DISPLAY WINDOW (LCD)

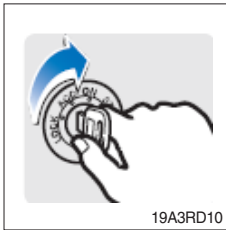


19A3RD03

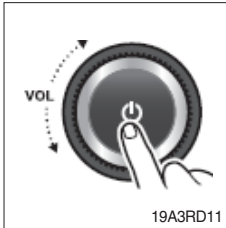
- | | |
|--|---|
| <p>1 Function display area for showing the function mode.</p> <p>2 Bluetooth indicator for the Bluetooth connection.</p> <p>3 Search indicator for USB play list.</p> <p>4 USB/AUX indicators for the USB or External device connection.</p> <p>5 MP3/WMA indicators for USB's Audio Stream detections.</p> <p>6 ST (Stereo) indicators for FM stereo reception.</p> | <p>7 Playback mode indicators for USB playback mode.</p> <p style="margin-left: 20px;">  : Folder mode.
  : Repeat playback.
  : Random playback. </p> <p>8 LOUD/EQ indicators for sound effect.</p> <p style="margin-left: 20px;">LOUD : Loudness mode.
EQ : EQ mode.</p> <p>9 Multi-function display area for showing the play, reception or menu information.</p> |
|--|---|

■ GENERAL

(1) Power and volume button



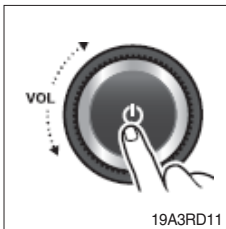
- ① Turn the starting switch to ON position.



- ② Press the POWER button to turn the power on.

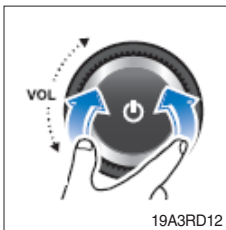
- If the source is ready, playback also starts.
- To turn on the power directly.

By connecting an USB into the USB port or pressing the BAND, MODE (while the USB is connected), you can also turn on the power and the unit then plays.



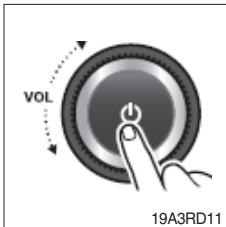
- ③ When power is on, press and hold the POWER button to turn power off.

(2) Adjusting volume directly



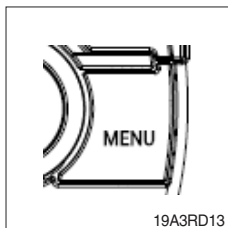
- ① Turn the VOLUME dial to control volume.
 - Available volume range : 00 (mute)~41.

(3) Muting the sound quickly

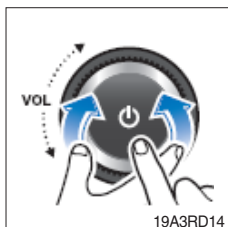


- ① Press the MUTE button to turn mute on.
 - "MUTE" will flash on the display and mute the sound.
 - Press the MUTE button again or turn VOLUME dial to restore sound.

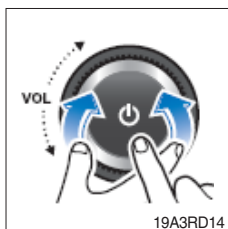
(4) Setting the sound



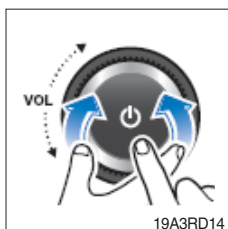
- ① Press MENU button to enter the Settings menu mode.
- After entering MENU mode, press MENU button to return to the previous item.



- ② Turn VOLUME dial to select the "SOUND" or "EQUALIZER" as below, then press this dial.
- SOUND : sets the sound mode.
 - EQUALIZER : selects the equalizer style.

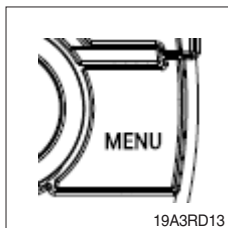


- ③ Turn VOLUME dial to select the desired Sound setting mode, then press this dial.
- BASS : sets the bass sound level (-5~+5).
 - MIDDLE : sets the middle sound level (-5~+5).
 - TREBLE : sets the treble sound level (-5~+5).
 - BALANCE : sets the sound balance between the right and left speakers (LEFT 15~RIGHT 15).
 - EQUALIZER : selects the one of the 7 EQ styles (EQ OFF, POP, ROCK, COUNTRY, VOICE, JAZZ, CLASSIC).
 - PREVIOUS : Return to previous menu screen.

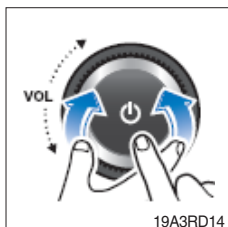


- ④ Turn VOLUME dial to adjust the value of the level, balance or style, then press this dial.

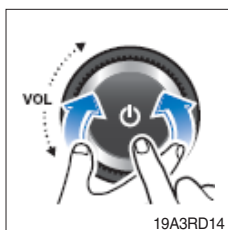
(5) Setting the system functions



- ① Press MENU button to enter the Settings menu mode. Turn VOLUME dial to select "SYSTEM" as below, then press this dial.

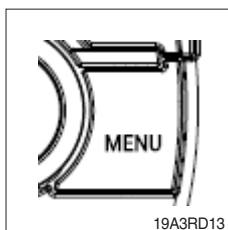


- ② Turn the VOLUME dial to select the "BT ON/OFF", "SCROLL", "LOUD" or "BEEP" then press this dial.
 - BT (Bluetooth) ON/OFF : activate (On) or deactivate (Off) the Bluetooth function. – (only ARA-9010HB).
 - SCROLL : activate (On) or deactivate (Off) the text scroll feature for LCD display screen.
 - LOUD : activate (On) or deactivate (Off) the loudness sound effect.
 - BEEP : activate (On) or deactivate (Off) the beep sound feature.
 - PREVIOUS : Return to previous menu screen.

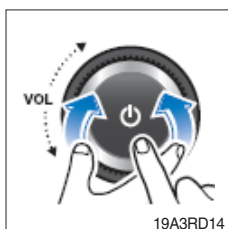


- ③ Turn VOLUME dial to select ON or OFF, then press this dial.

(6) Setting the region



- ① Press MENU button to enter the Settings menu mode. Turn VOLUME dial to select "AREA" as below, then press this dial.
 - AREA : sets the region for radio.



- ② Turn the VOLUME dial to select the desired area as below, then press this dial.
 - If the region setting is not selected correctly to your country or region, the radio reception can not be received. Retry the setting the region of radio reception correctly.
 - The region setting is required only for the first time.

- **ASIA/M.East**

FM : 87.5~108.0 MHz (100 kHz step)

AM : 531~1,602 kHz (9 kHz step)

- **AMERICA**

FM : 87.5~107.9 MHz (200 kHz step)

AM : 530~1,710 kHz (10 kHz step)

- **LATIN**

FM : 87.5~108.0 MHz (100 kHz step)

AM : 530~1,710 kHz (10 kHz step)

- **EUROPE**

FM : 87.5~108.0 MHz (50 kHz step)

AM : 531~1,620 kHz (9 kHz step)

- **JAPAN**

FM : 76~90 MHz (100 kHz step)

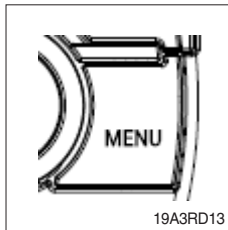
AM : 522~1,629 kHz (9 kHz step)

- **Russia (OIRT)**

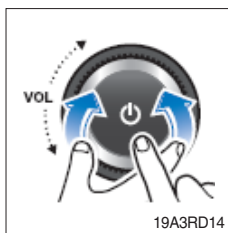
FM : 65.0~74.0 MHz (30 kHz step)

AM : 522~1,602 kHz (9 kHz step)

(7) Checking/updating the system Software

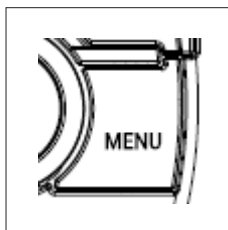


- ① Press MENU button to enter the Settings menu mode. Turn VOLUME dial to select "SOFTWARE" as below, then press this dial.
 - SOFTWARE : check/update the system software.

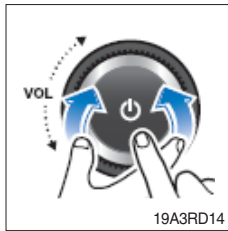


- ② To check the system software, turn the VOLUME dial to select the "VERSION CHECK", then press this dial.
- ③ To update the system software, turn the VOLUME dial to select the "UPDATE", then press this dial.
 - Download the latest system software to a USB device for update to this unit, then open the cover and plug the USB device to the USB port.
 - Perform update with the start switch "ON" when the battery is sufficiently charged by driving the vehicle. When the battery is discharged while updating, the system may get damaged with the update stopped.

(8) Setting the Bluetooth mode (only ARA-9010HB)



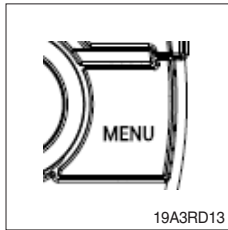
- ① Press MENU button to enter the Settings menu mode. Turn VOLUME dial to select "BLUETOOTH" as below, then press this dial.
 - Bluetooth: Bluetooth setting mode.



- ② Turn VOLUME dial to select the desired Bluetooth setting mode, then press this dial.
 - PAIR : register a Bluetooth device.
 - SELECT : selects/connects a device from registered Bluetooth devices.
 - DELETE : removes a device from registered Bluetooth device.
 - MIC VOL : adjusts the Bluetooth microphone.
 - H/F VOL : adjusts the Bluetooth hands-free volume.
 - Phone Book : activates/deactivates the phone book download feature from connected device.
 - BT INFO : shows the Bluetooth information of this system.
 - PREVIOUS : returns to previous menu screen.
- ③ To change the connected Bluetooth device, turn the VOLUME dial to select the "SELECT", then press this dial. Turn the VOLUME dial to select the desired device list, then press this dial.
- ④ To delete the Bluetooth device, turn the VOLUME dial to select the "DELETE", then press this dial. Turn the VOLUME dial to select the desired device list, then press this dial.
 - If the currently connected device is delete, this unit attempts to connect with the following priority Bluetooth device automatically.
- ⑤ To adjust the Bluetooth microphone initial volume, turn the VOLUME dial to select the "MIC VOL", then press this dial. Turn the VOLUME dial to set desired Bluetooth microphone initial volume level, then press this dial.
 - The default setting is 3, the volume range is 1~5.
- ⑥ To adjust the Bluetooth hands-free initial volume, turn the VOLUME dial to select the "H/F VOL", then press this dial. Turn the VOLUME dial to set desired Bluetooth hands-free initial volume level, then press this dial.
 - The default setting is 15, the volume range is 6~32.
- ⑦ To download the phone book, turn the VOLUME dial to select the "phone book", then press this dial. Turn the VOLUME dial to select the "ENABLE", then press this dial.
 - The phone book can download up to 1,000 phone numbers.

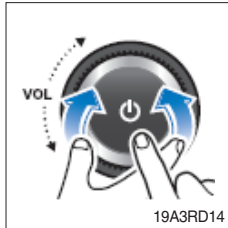
■ BLUETOOTH

(1) Pairing/Connecting your device




- ① Firstly, set up the Bluetooth device to be connected from the Bluetooth settings menu to enable other devices to search for the Bluetooth device.

Press MENU button to enter the Menu settings mode.





- ② Turn VOLUME dial to select the "BLUETOOTH" as below, then press this dial.

- ③ Turn the VOLUME dial to select the "PAIR", then press this dial.

- When you first register, appear the "BT Pairing" on the display window, then search the Bluetooth devices for connection.
- If a Bluetooth device is not connected, press and hold the  button to enter the pairing mode directly.

- ④ Search and select device "Device Name" in your Bluetooth device, then confirm.

- The Bluetooth registration standby proceeds for 1 minute. If the registration is failed during 1minute, restart over from the beginning.
- After a while, the Bluetooth device is automatically registered. When pairing is successful, the "Connected" and "Device name" will be displayed 3 seconds.
- When your Bluetooth device is connected,  appear on the display.
- If the Bluetooth device is disconnected,  disappear.

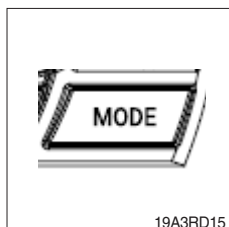
- ⑤ Repeat items 1~4 to register to add another Bluetooth device.


- Up to 5 devices can be paired to this unit.
- The last device connected to this unit is set to automatically connect to the highest priority.

(2) Playing the Bluetooth music

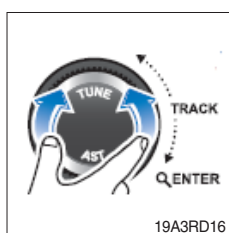
To play Bluetooth music

- ※ A2DP (Advanced Audio Distribution Profile) : This function only operates with Bluetooth devices that support A2DP version 1.2 or above.
- ※ Should be set to Stereo Headset in Bluetooth device type menu of your device

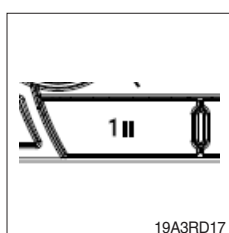


- ① Press the MODE button repeatedly to select the BT Audio mode. Appears  on display window and start playback.
 - If a Bluetooth device is not connected, you can not select.
 - If music is not yet playing from your mobile device after switching to Bluetooth Music (streaming audio) mode or after pressing Play on the mobile device itself, try to start music playback by pressing the Play button again.
 - The output music playback from Bluetooth devices with this unit.
 - There will be music playback automatically play upon entering since once played. It stops automatically when you exit from the music.
 - You can also phone or Bluetooth device other than the home screen mode, Bluetooth music play mode when entering and exiting, the device does not play automatically.

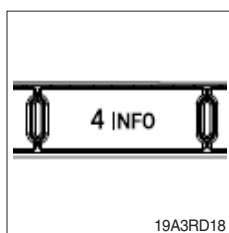
(3) Controlling the playback



- ① While playing, turn the TUNE/TRACK dial to moves to the previous or next track.
 - Clockwise : move to the next file.
 - Counter-clockwise : move to beginning of the current file or previous file.



- ② While playing, press the [1 II] button to pause the track with "PAUSE" indicator.
 - Press this button again to play the current track.





- ③ Press the [4 INFO] button to check the information of current connected device.
 - About the music files are not displayed.
 - During Bluetooth music playback, do not operate the music changes too quickly. Allow enough time for the machine-to-machine communication.

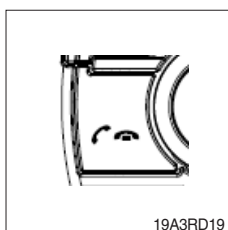
(4) Answering a call


- ※ When a call comes in, the audio source is muted, and display the call information with ring tone.
- ※ If the phonebook is not downloaded, only incoming phone number is displayed without the caller information.

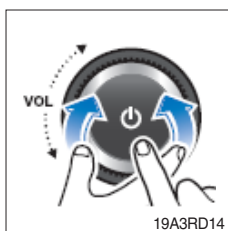



- ① To answer a call, press the  button or to reject a call press and hold the  button.
 - When a call comes in, the audio source is muted.
 - When a call is ended, this unit returns to the previous state media playback.

(5) Making a call from recent number

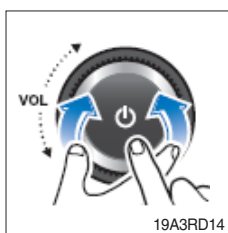


- ① To call the recent connected number, press the  button to display recent call number.
 - The recent calls list is displayed. Turn the VOLUME dial to select a recent call number, then press this dial to make a call.
 - The recent calls list displays up to 10.



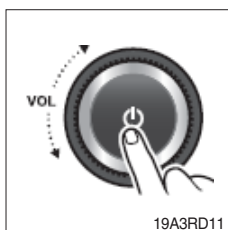
- ② To call the last connected number directly, press and hold the  button.



(6) During a call ...




- ① To adjust the a call volume, turn the VOLUME dial.
 - The call volume works with Bluetooth devices, and operates separately from the volume of this unit.

- ② To deactivate the microphone, press the POWER button.

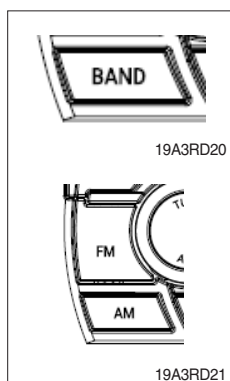


- ③ To switch from hands-free mode to the phone handset mode, press and hold the  button.
To returns the phone conversation to hands-free mode, press and hold the  button.

- ④ To end a call, press the  button.
 - • End a call, then return to the playing state.

■ RADIO

(1) Tuning in a radio station

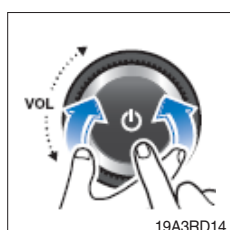


① Press the BAND or FM/AM button repeatedly to enter the radio band in order of FM1, FM2, FMA, AM1, AM2 or AMA.

- You can select the FM1, FM2, FMA or AM1, AM2, AMA radio band.

While the Auto Store stations(AST) are stored, you can select the AMA or FMA band by additional.

- The previously chosen broadcasting station will be received.

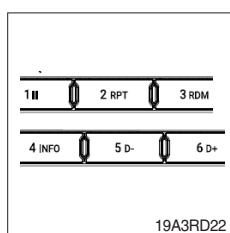


② Turn the TUNE/TRACK dial to select the station.

- Briefly turn this dial, plays previous/next frequency.
- Turn and hold this dial, automatically search for station with superior reception.
- Press this dial, starting from the current station, stations with superior reception are scanned for 5 seconds and the previous station is restored. During the seeking or scanning, if press or turn the dial left/right again, the selected station will begin playing.
- During the FM reception, the Stereo [ST] indicator is on.

(2) Saving radio stations manually

※ You can save up to 6 preset channels each for FM1, FM2, AM1, AM2 and AM2 band. If change the stations while driving, use preset button to prevent accidents.



① Press the BAND or FM/AM button repeatedly to select the band.

② After selecting the frequency, press and hold the PRESET [1II]~[6 D+] button.

③ The frequency is saved to the selected preset button.

- A total of 24 frequencies with 6 preset frequencies each for FM1/FM2/AM1/AM2 modes can be saved.

(3) Saving radio stations automatically

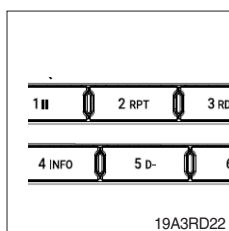
※ You can save up to 6 preset channels automatically each for FMA and AMA band.



- ① Press the BAND or FM/AM button repeatedly to enter the radio band.
 - The previously chosen broadcasting station will be received.
- ② Press and hold the AST button to automatically save receivable frequencies to Preset button.
 - Up to 6 stations can be stored in each of the FMA and AMA band.

(4) Listening to a preset station

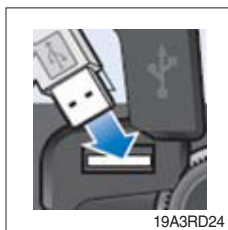
- ① Press the BAND or FM/AM button repeatedly to enter the radio band in order of FM1, FM2, FMA, AM1, AM2 or AMA.
 - You can select the FM1, FM2, FMA or AM1, AM2, AMA radio band.
 - While the Auto Store stations(AST) are stored, you can select the AMA or FMA band by additional.
 - The previously chosen broadcasting station will be received.



- ② Press the PRESET [1II]~[6 D+] button.
 - From the 6 presets, select the frequency you want to listen to.

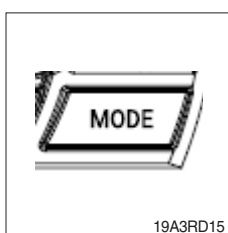
■ USB PLAYER

(1) Playing an USB device



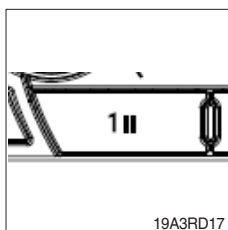
① Open the cover, plug the USB device(included MP3/WMA media file) to the USB port.

- Once a USB is connected, USB will automatically start playing from the first file within the USB.
- If a previously played USB is reconnected, then the file after the most recently played file is played.
- If a different USB is connected or the file information within the USB was changed, then the USB will start playing from the first song within the USB.



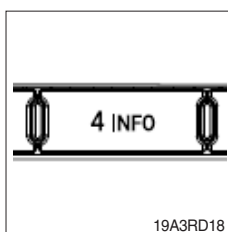
② When an USB device to be played is already connected, press the MODE button to play USB device.

- The previously selected file is played.



③ While playing, press the [1||] button to pause the file.

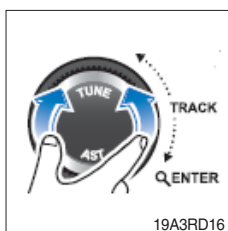
(2) Changing the song information



① Press the [4 INFO] button repeatedly to display information about the file being played.

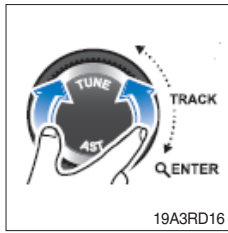
- The information displayed includes the file name, playing time, ID3 Tag or folder name information saved with the song.
- If there is no information on the playing file, the unit will display "NO INFO", and then file name.

(3) Controlling the playback

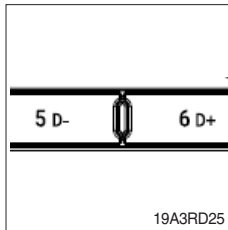


① While playing, turn the ►► I TRACK I ◀◀ dial left/right to moves to the previous or next track.

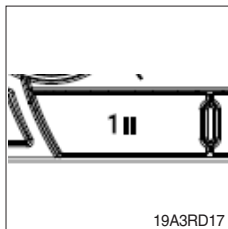
- Clockwise : move to the next file.
- Counter-clockwise : move to the previous file.



- ② While the ►►| TRACK |◀◀ dial is being turned and held, the file will rewind or fast forward at high speed. Once released, the file will begin playing at normal speed.
- Clockwise : fast forward.
 - Counter-clockwise : fast rewind
 - The search function works but search speed is not constant. While fast forwarding or rewinding, the playback sound is not output.



- ③ Press the [5 D-] or [6 D+] button to moves to the previous or next folder.
- [5 D-] press : move to previous folder.
 - [6 D+] press : move to next folder.
 - While folder moving, the folder name will be displayed briefly.

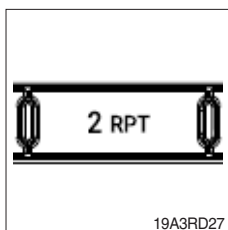




- ④ While playing, press the [1 II] button to pause the track.
- Press the button again to play the current track.

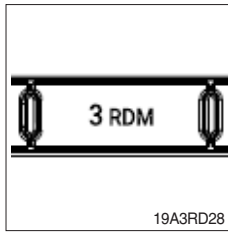





- ④ To find the song you want to play directly, press the Q (Search) button.
- Turn the ►►| TRACK |◀◀ dial to select the desired file name, then press this dial.

(4) Change the playback mode



- ① Press the [2 RPT] button to select the Repeat playback mode.
-  On : The current file plays repeatedly.
 -  On : The current folder plays repeatedly.
 - Off : Cancels repeat playback.



- ② Press the [3 RDM] button to select the Random playback mode.
-   On : All files of current folder play in random order.
 -  On : All files of USB device play in random order.
 - Off : Cancels random playback.

(5) Handling precautions for USB device

- The device will only recognize USB devices formatted in FAT 16/32. When formatting the external USB device, the device may not properly recognize a Byte/Sector selection other than 512 Bytes or 2,048 Bytes.
- The amount of time required to recognize the external USB device may differ depending on the type, size, or file formats stored on the USB. Such differences in the required time are not indications of malfunction. Please wait the period of time required to recognize the device.
- This unit can recognize maximum 9,999 files and 256 folders into the USB device.
- The device may not recognize the USB device if separately purchased USB hubs and extension cables are being used.
- The device may not support normal operation when using formats such as HDD Type, CF, or SD Memory.
- The device will not support files locked by DRM (Digital Rights Management).

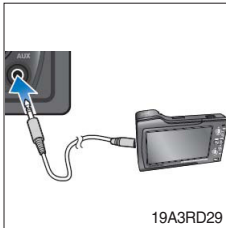
■ AUX PLAYER

(1) Listening to auxiliary audio equipment

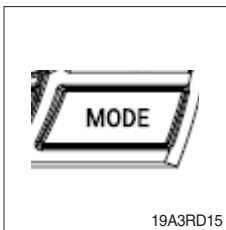
※ By connecting an optional portable audio device to the AUX input jack (stereo 3.5 pi) on the unit and then simply selecting the source, you can listen on your car speakers.



- ① Turn the VOLUME dial left to decrease the volume level.
 - The AUX volume can also be controlled separately through the connected device.



- ② Turn the external audio equipment off. Open the cover, connect the audio output of the external audio equipment to AUX input terminal on the unit.
- ③ Turn the external audio equipment on. Start playback of the external audio equipment at a moderate volume.



- ④ Press the MODE button repeatedly to select the AUX function.
- ⑤ Set your usual listening volume by turn the VOLUME dial left/right on the unit.
 - Once the connector is disconnected, the previous mode will be restored.
 - AUX mode can be used only when an external audio player has been connected.