

# CONTROL DEVICES

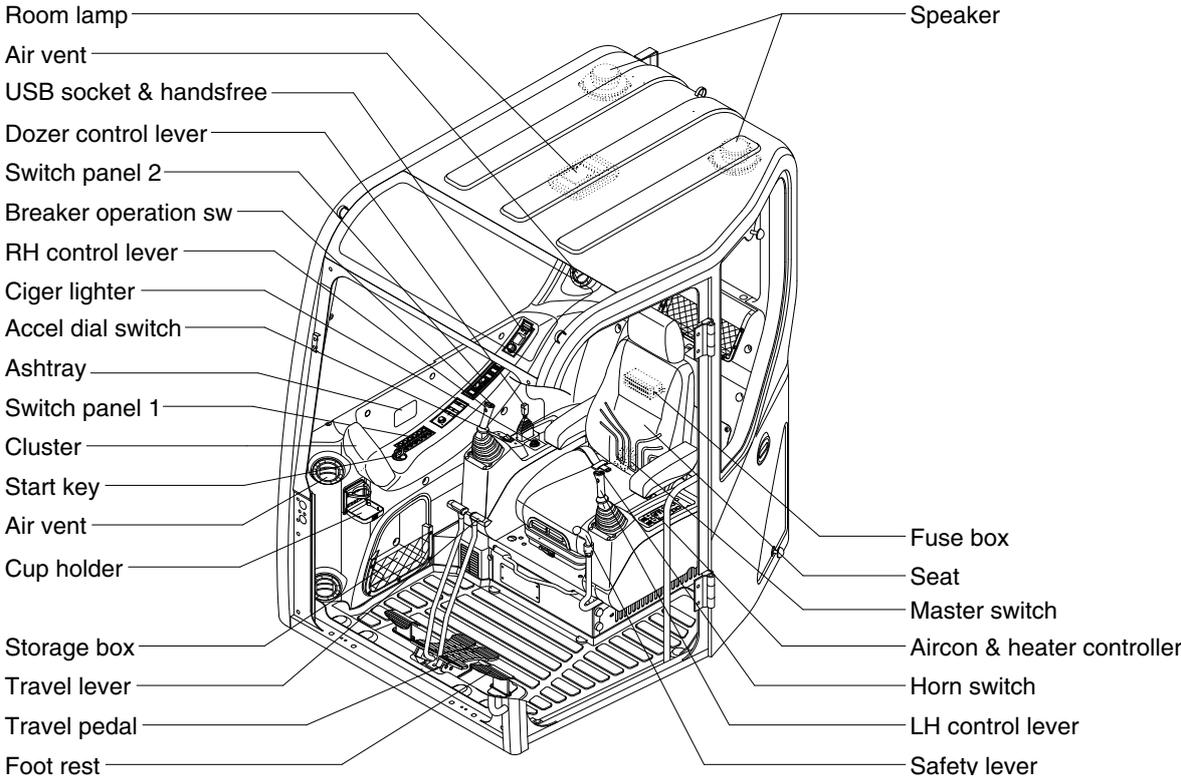
## 1. CAB DEVICES

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 safety warning system for early detection of machine malfunction.



80CR9A3CD01

## 2. CLUSTER (machine serial No.: ~#1865)

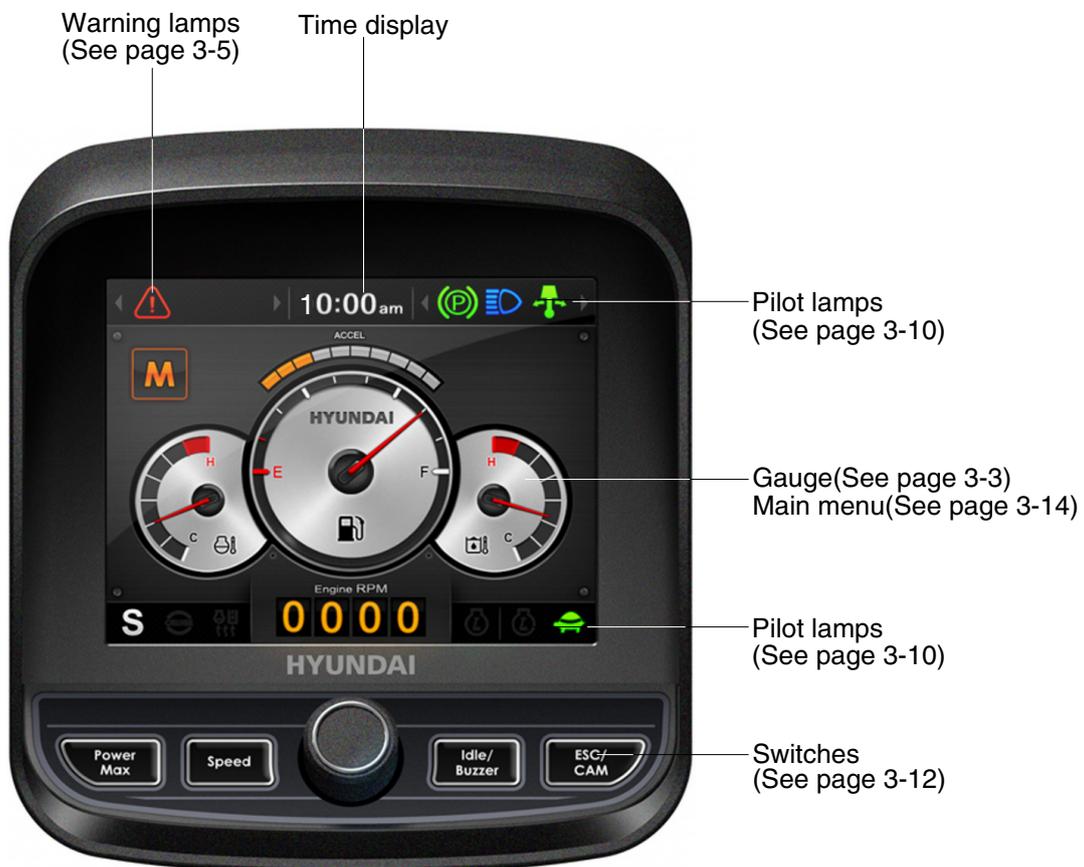
### 1) STRUCTURE

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.



559A3CD07

- ※ 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.

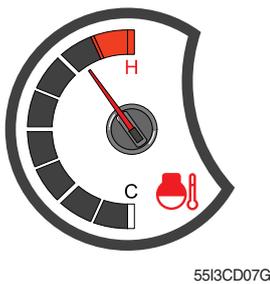


- |   |                           |   |                  |   |            |
|---|---------------------------|---|------------------|---|------------|
| 1 | Engine coolant temp gauge | 3 | Fuel level gauge | 5 | Accel dial |
| 2 | Hydraulic oil temp gauge  | 4 | Engine rpm       |   |            |

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

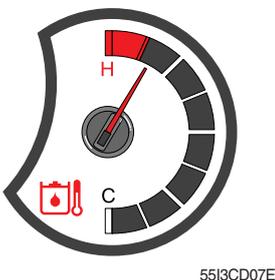
Refer to page 3-20 for details.

### (2) Engine coolant temperature gauge



- ① This gauge indicates the temperature of coolant.
    - Black range : 40-115°C (104-239°F)
    - Red range : Above 115°C (239°F)
  - 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 in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

### (3) Hydraulic oil temperature gauge



- 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 on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

#### (4) Fuel level gauge



55I3CD07F

- ① This gauge indicates the amount of fuel in the fuel tank.
- ② Fill the fuel when 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 on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

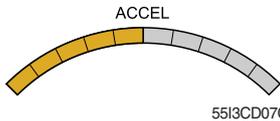
#### (5) Engine rpm display



559A3CD35

- ① This displays the engine speed.

#### (6) Accel dial display



55I3CD07C

- ① This displays acceleration dial level from 0 to 10 step.

### 3) COMMUNICATION ERROR AND LOW VOLTAGE WARNING POP-UP

#### (1) Communication error pop-up



559A3CD71

- 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.

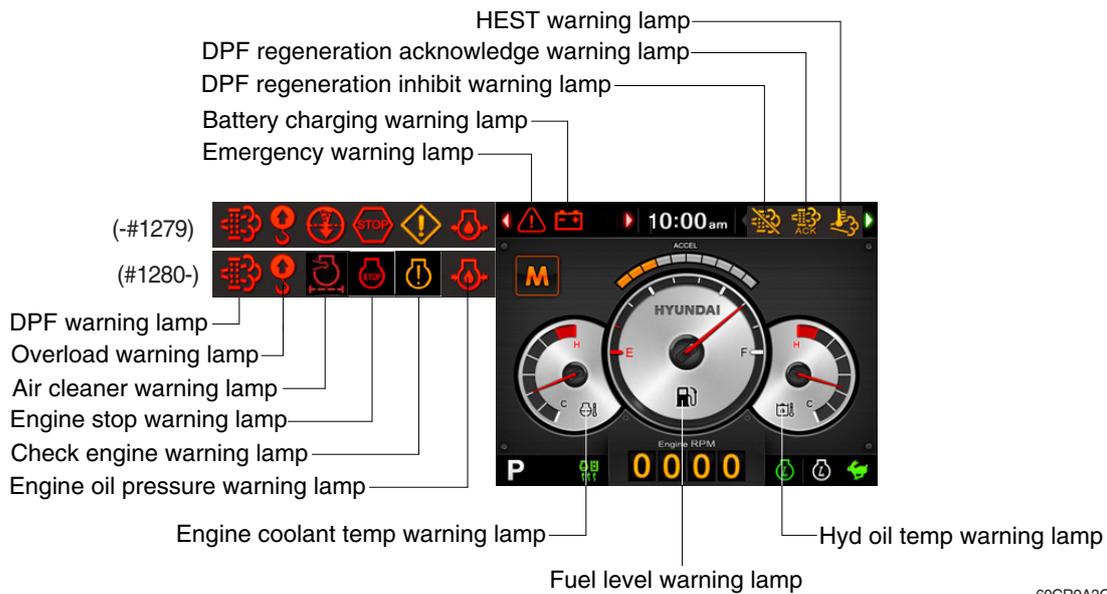
#### (2) Low voltage warning pop-up



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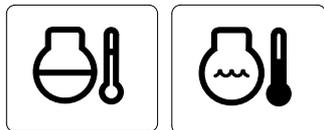
- ① Cluster displays this low voltage warning pop-up when the battery voltage is low.
- ② Low voltage warning pop-up displays at operation screen only. Just buzzer alarm at the other screen.
- ③ This pop-up will disappear with using touch screen or buzzer stop switch. While the battery voltage is low,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

#### 4) WARNING LAMPS



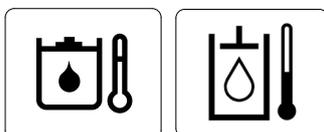
- ※ Each warning lamp on the left-top of the LCD pops up on the center of LCD and the buzzer sounds when the each warning is happened. The pop-up warning lamp moves to the original position and lights ON when the buzzer stop switch is pushed or the pop-up is touched. And the buzzer stops. Refer to page 3-36 for the switch.
- ※ When the warning lamps light ON more than 4, you can check all lamps with next page button( ◀ , ▶ ) near the warning lamps.

##### (1) Engine coolant temperature warning lamp



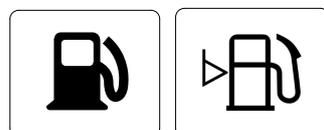
- ① The  lamp pops up on the center of LCD and the buzzer sounds when the engine coolant temperature is over 115°C.
- ② The pop-up  lamp moves to the original position and lights ON when the buzzer stop switch is pushed or pop-up is touched. Also, the buzzer stops and  lamp keeps ON.
- ③ Check the cooling system when the lamp keeps ON.

##### (2) Hydraulic oil temperature warning lamp



- ① The  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



- ① This warning lamp lights ON and the buzzer sounds when the level of fuel is below 10%.
- ② Fill the fuel immediately when the lamp is ON.

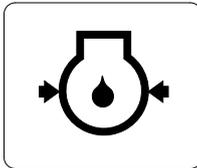
#### (4) Emergency warning lamp



21093CD30

- ① This lamp pops up and the buzzer sounds when each of the below warnings are happened.
  - Engine coolant overheating (over 115°C)
  - Hydraulic oil overheating (over 105°C)
  - 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 stops. This is same as following warning lamps.**
- ② When this warning lamp lights ON, machine must be checked and serviced immediately.

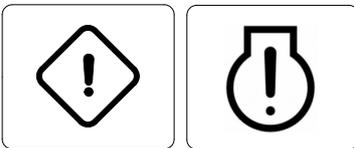
#### (5) Engine oil pressure warning lamp



21093CD32

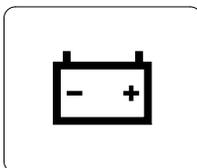
- ① This lamp lights ON when the engine oil pressure is low.
- ② If the lamp lights ON, shut OFF the engine immediately. Check oil level.

#### (6) Check engine warning lamp



- ① This lamp lights ON when the communication between MCU and engine ECM on the engine is abnormal, or if the cluster received any fault code from engine ECM.
- ② Check the communication line between them. 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.

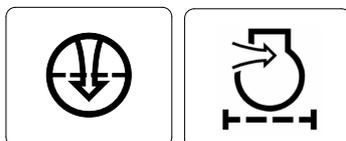
#### (7) Battery charging warning lamp



21093CD34

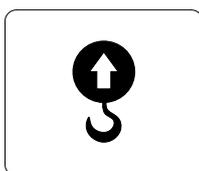
- ① This lamp lights ON when the battery charging voltage is low.
- ② Check the battery charging circuit when this lamp is ON.

#### (8) Air cleaner warning lamp



- ① This lamp lights ON when the filter of air cleaner is clogged.
- ② Check the filter and clean or replace it.

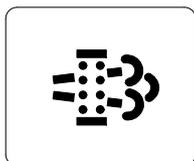
### (9) Overload warning lamp (opt)



21093CD36

- ① When the machine is overload, the overload warning lamp lights ON during the overload switch is ON. (if equipped)
- ② Reduce the machine load.  
Initiate a manual regeneration

### (10) DPF (diesel particulate filter) warning lamp

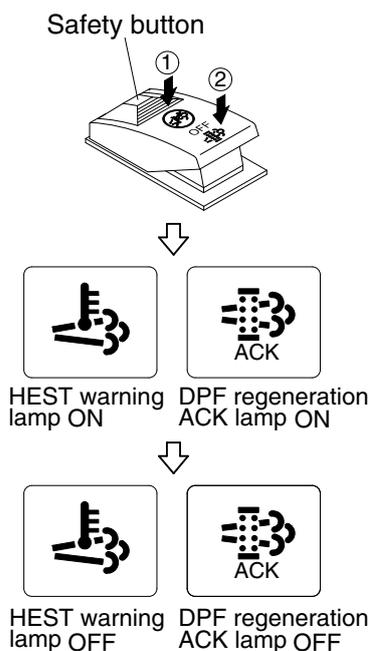


2609A3CD19

- ① This warning lamp lights ON or OFF when the regeneration is needed.
  - ② This warning lamp lights ON while DPF regeneration inhibit switch is in "Regeneration inhibited" state, when stationary regeneration is permitted.
  - ③ This warning lamp lights ON during reset regeneration standby or in back up mode.
  - ④ This warning lamp lights flash 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  or  (pop up)	Stop engine  or  (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. · Engine power may be reduced automatically (soot medium)
Soot midium	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 immediatary. · Please contact your Hyundai service center or local dealer.

※ Manual regeneration method of DPF



559A3CD143

※ Manual regeneration applies if the machine is in a fireproof area and there is no plan to turn off the machine during the regeneration.

- 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 the page 3-57 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 turns OFF and the regeneration acknowledge lamp and HEST warning lamp will light ON during the regeneration function is operating.
- ⑤ The regeneration acknowledge lamp and HEST warning lamp will light OFF when the regeneration function is completed.

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



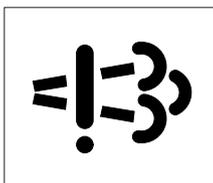
2609A3CD21

- 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 will be common for the lamp to illuminate on and off during normal equipment operation as the engine completes regeneration.

(12) Emission system fail warning lamp



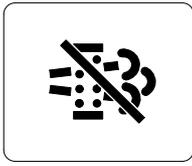
300A3CD15

- ① This warning lamp indicates there are faults related to the emission system.
- ② The lamp lights ON 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 diagnosis DPF systems.

※ Please contact your Hyundai service center or local dealer.

### (13) DPF regeneration inhibit warning lamp



2609A3CD20

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

※ Refer to the page 3-57 for the DPF switch.

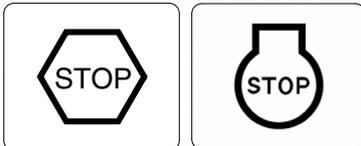
### (14) DPF regeneration acknowledge warning lamp



559A3CD10

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

### (15) Stop engine warning lamp

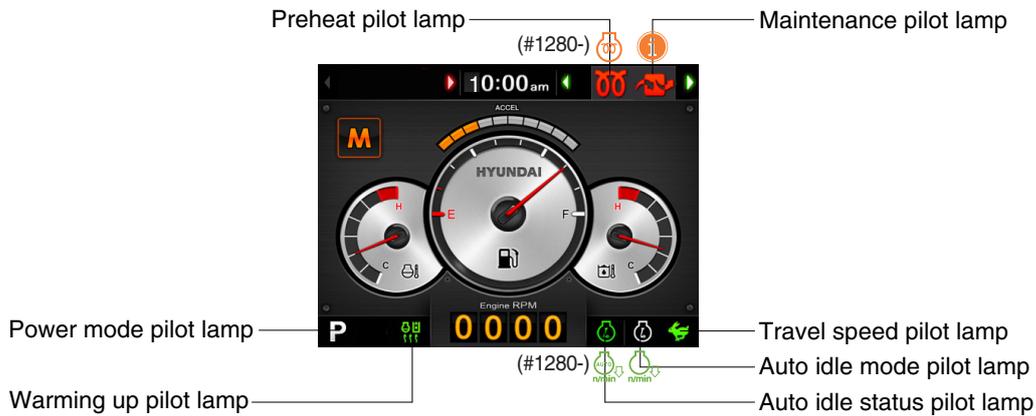


- ① If the lamp lights ON, stop the engine immediately and check the engine.

- ② Check the fault codes on the monitor.

※ Please contact your Hyundai service center or local dealer.

## 5) PILOT LAMPS



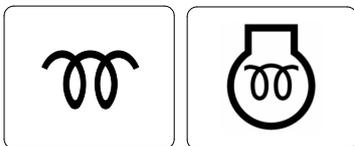
559A3CD02E

※ When the pilot lamps light ON 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 status
			Auto idle mode

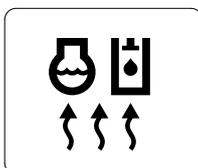
### (2) Preheat pilot lamp



55I3CD39

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

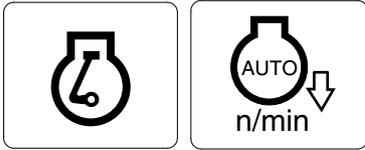
### (3) Warming up pilot lamp



21093CD40

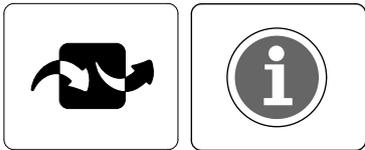
- ① This lamp is turned ON when the coolant temperature is below 30°C (86°F).
- ② The automatic warming up is cancelled when the engine coolant temperature is above 30°C, or when 10 minutes have passed since starting the engine.

#### (4) Auto idle status/ mode pilot lamp



- ① The auto idle pilot lamp will be ON when the idle mode is selected.
- ② The auto idle status pilot lamp will be ON when all levers and pedals are at neutral position, and the auto idle mode is selected.

#### (5) Maintenance pilot lamp



- ① This lamp will be ON when the consuming parts are needed to change or replace. It means that the change or replacement interval of the consuming parts remains below 30 hours.
- ② Check the message in maintenance information of main menu. Also, this lamp lights ON for 3 minutes when the start switch is ON position.

※ Refer to the page 3-18.

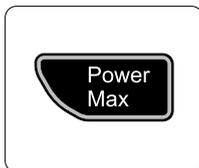
## 6) SWITCHES



559A3CD47

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

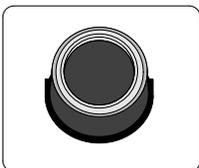
### (1) Power mode switch



559A3CD25

- ① This switch is to select the machine power mode and selected power mode pilot lamp is displayed on the pilot lamp position.
  - P : Heavy duty power work.
  - S : Standard power work.
- ② The pilot lamp changes S → P → S in order.

### (2) Select switch



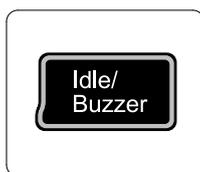
55I3CD50C

- 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

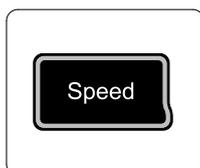
### (3) Auto idle/ buzzer stop switch



559A3CD50D

- ① This switch is used to activate or cancel the auto idle function.  
※ **Refer to the 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) Travel speed control switch



55I33CD50B

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

### (5) Escape/ Camera switch



559A3CD50E

- ① This switch is used to return to the previous menu or parent menu.
- ② In the operation screen, pushing this switch will display the view of the camera on the machine (if equipped).  
Please refer to page 3-22 for the camera.
- ③ If the camera is not installed, this switch is used only ESC function.

## 7) MAIN MENU

### · Operation screen



559A3CD32A



559A3CD32B



559A3CD32C



### Main menu screen



559A3CD32D

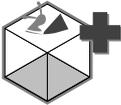
### Sub menu screen



559A3CD32E

※ Please refer to select switch, page 3-12 for selection and change of menu and input value.

### (1) Structure

No	Main menu	Sub menu	Description
1	 Monitoring 5513CD51A	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 5513CD51B	ESL mode setting Change password Option attach Maintenance information Machine Information A/S phone number Service menu	ESL mode setting Password change 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
3	 Display 5513CD51C	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 5513CD51D	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



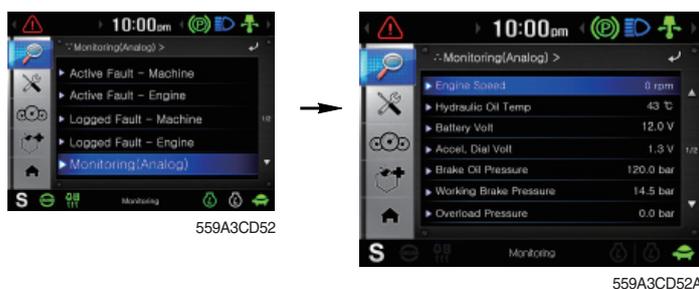
- The active faults of engine ECU can be checked by this menu.

### 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 ON.

### ⑥ Monitoring (Digital) - Output



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

### (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.
- If the ESL mode was selected Enable, the password will be required when the start switch is turned ON.
- **Disable** : Not used ESL function
- **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

#### ② Change password

- The password is 5~10 digits.



Enter the current password

Enter the new password

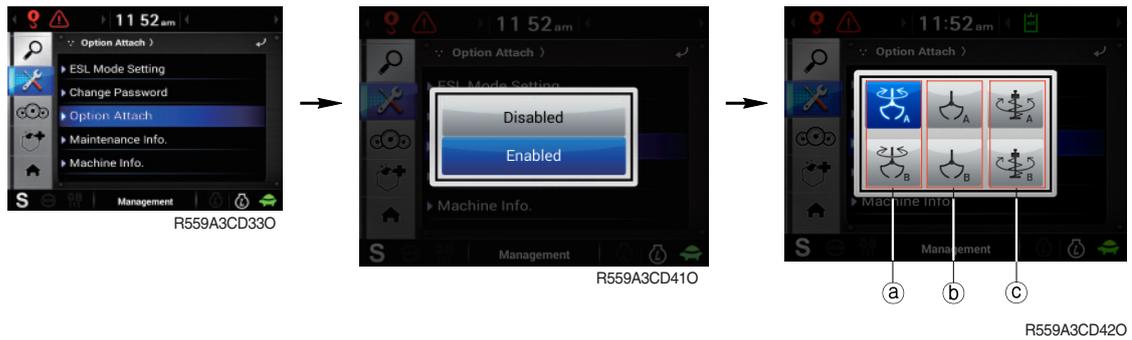
- ※ If the password has changed, turn the starting switch to the OFF position and **wait about 1 minute** before turning the switch to the ON position.



The new password is stored in the MCU.

Enter the new password again

③ Option attach  
a. Option attach selection



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

- ① Rotary Grapple (4 way)
- ② Grapple (2 way)
- ③ Auger (2 way)

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

## b. Proportional flux control setting

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

### a) Rotary setting



- Select Rotary RCV, button and flux 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



- Flux setting
  - Enable set from level 1 to level 5.
  - Example :
    - Select level 3.

## b) Grapple setting



- Select grapple  
RCV, button and flux 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



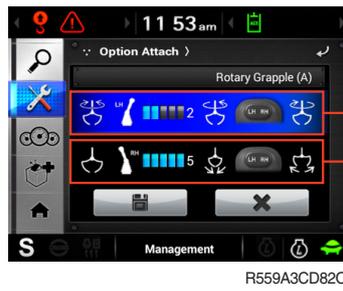
- Flux setting
  - Enable set from level 1 to level 5.
  - Example :  
Select level 1.



- Save setting value
  - Enable save setting value by pressing change (floppy disk icon) 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.

a) - Menu > Management > option attach

b) Rotary setting

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

b) Grapple setting

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

Symbol (  ) is activated when option attach function is used.

#### ④ Maintenance information



- Elapse : Maintenance elapsed time.
- Interval : The change or replace interval can be changed in the unit of 50 hours.
- History-Hour : Maintenance replacement history.
- Replacement : The elapsed time will be reset to zero (0).
- **Change or relpace interval**

No	Item	Interval
1	Engine oil	500
2	Final gear oil	1000
3	Hydraulic oil	5000
4	Pilot line filter	1000
5	Hydraulic oil return filter	1000
6	Engine oil filter	500
7	Fuel filter	500
9	Pre-filter	500
10	Hydraulic tank breather	1000
11	Air cleaner	500
12	Radiator coolant	2000

#### ⑤ Machine Information



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

⑥ A/S phone number



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

⑦ Service menu



- Delete logged fault : Logged faults of MCU or engine ECU can be deleted.
- S/W download : Update and display software about operating system, application, image and font.
- Operating hours : Operating hours since the machine line out can be checked.
- Power shift : Set power shift mode (standard/option)

(4) Display

① Clock



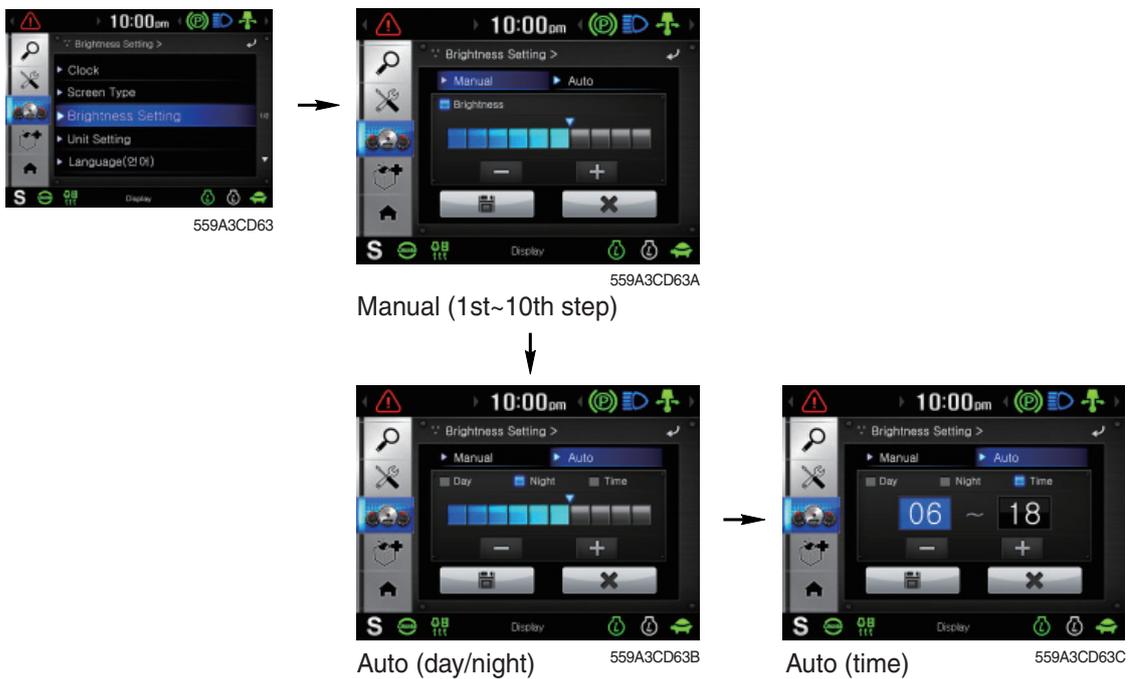
- The first line's three spots "\*\*\*\*-\*\*-\*\*" represent Year/Month/Day each.
- The second line shows the current time. (AM, PM/0:00~12:59)

## 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 differently set up. Also, users can define which day time interval. (Set day starting time and ending time)

## ④ Unit setting



- Temperature : °C ↔ °F
- Pressure : bar ↔ MPa ↔ kgf/cm<sup>2</sup> ↔ psi

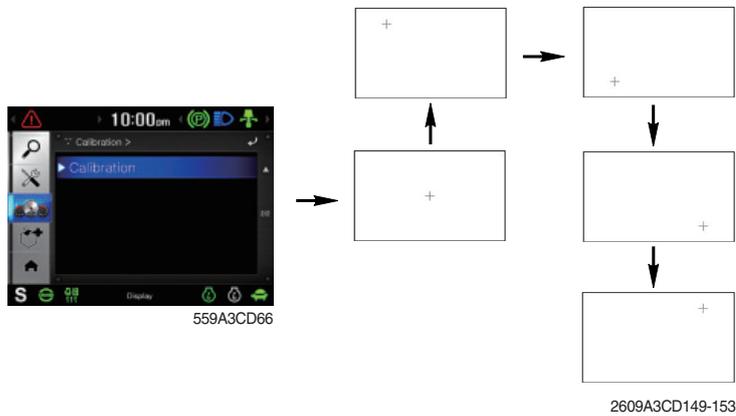
## ⑤ Language



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

## ⑥ Calibration

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



## (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	Previous track	Power mode switch or touch	7	Sound volume	Speed switch or touch
2	Next track	Speed switch or touch	8	Stop	ESC/CAM button or touch
3	Play	Touch	9	File name	-
4	Pause	Touch	10	Current time/ Total time	-
5	Contents display	Touch	11	Current playing time	-
6	Mute	Touch	-	-	-

## CLUSTER (machine serial No.: #1866~)

### 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.



HX60A3CD100B

- ※ 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 3-27 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       | 6 Clinometer |

※ Operation screen type can be set by the screen type menu of the display.  
Refer to page 3-44 for details.

### (2) Engine coolant temperature gauge



290F3CD53

- ① This gauge indicates the temperature of coolant.
    - Black range : 40-115°C (104-239°F)
    - Red range : Above 115°C (239°F)
  - 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 in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

### (3) Hydraulic oil temperature gauge



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 on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

#### (4) Fuel level gauge



HX60A3CD55A

- ① This gauge indicates the amount of fuel in the fuel tank.
  - ② Fill the fuel when 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 on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

#### (5) Engine rpm display



Engine rpm

HX60A3CD105K

- ① This displays the engine speed.

#### (6) Accel dial display



290F3CD59

- ① This displays acceleration dial level 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.

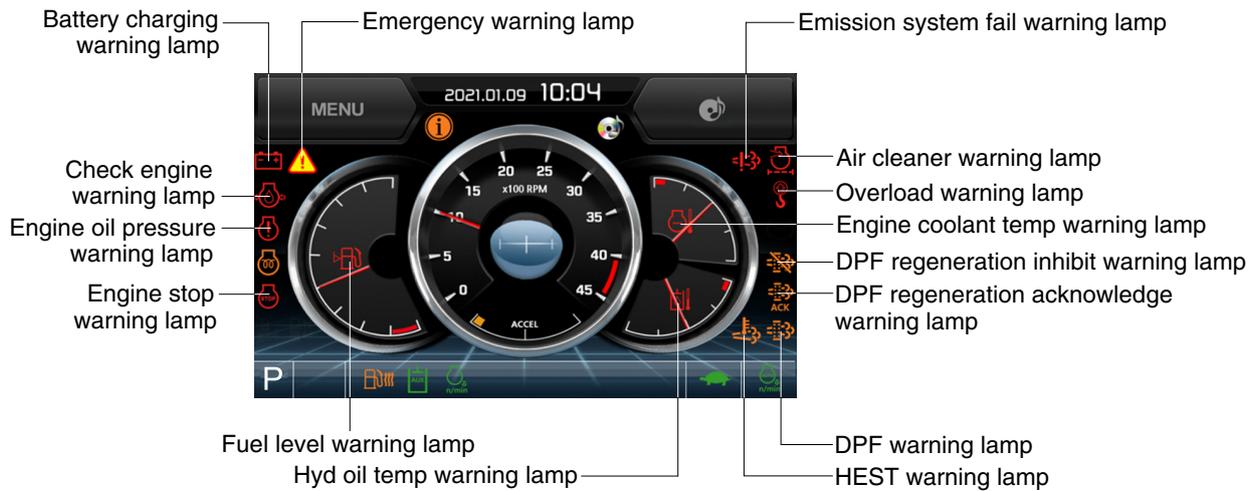
#### (2) Low voltage warning pop-up



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.

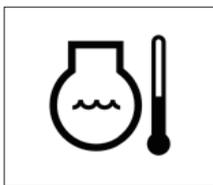
## 4) WARNING LAMPS



HX60A3CD109C

- ※ 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 3-36 for the switch.
- ※ When the warning lamps light ON more than 4, you can check all lamps with next page button( ◀ , ▶ ) near the warning lamps.

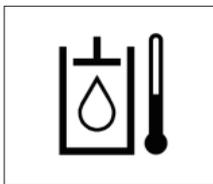
### (1) Engine coolant temperature warning lamp



290F3CD61

- ① The  lamp pops up on the center of LCD and the buzzer sounds when the engine coolant temperature is over 115°C or more.
- 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 cooling system when the lamp keeps ON.

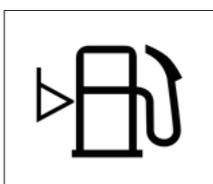
### (2) Hydraulic oil temperature warning lamp



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 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 ON and the buzzer sounds when the level of fuel is below 10%.
- ② Fill the fuel immediately when the lamp is ON.

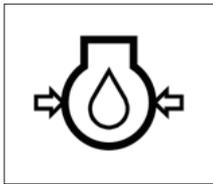
#### (4) Emergency warning lamp



290F3CD64

- ① This lamp pops up and the buzzer sounds when each of the below warnings are happened.
  - Engine coolant overheating (over 115°C)
  - Hydraulic oil overheating (over 105°C)
  - 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 stops. This is same as following warning lamps.**
- ② When this warning lamp lights ON, machine must be checked and serviced immediately.

#### (5) Engine oil pressure warning lamp



290F3CD65

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

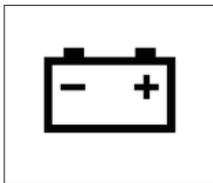
#### (6) Check engine warning lamp



290F3CD66

- ① This lamp lights ON when the communication between MCU and engine ECM on the engine is abnormal, or if the cluster received any fault code from engine ECM.
- ② Check the communication line between them.  
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 3-29 for the DPF warning lamp.

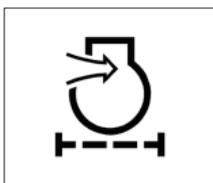
#### (7) Battery charging warning lamp



290F3CD67

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

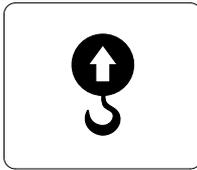
#### (8) Air cleaner warning lamp



290F3CD68

- ① This lamp lights ON when the filter of air cleaner is clogged.
- ② Check the filter and clean or replace it.

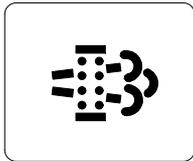
### (9) Overload warning lamp (option)



21093CD36

- ① When the machine is overload, the overload warning lamp lights ON during the overload switch is ON. (if equipped)
- ② Reduce the machine load.  
Initiate a manual regeneration

### (10) DPF (diesel particulate filter) warning lamp

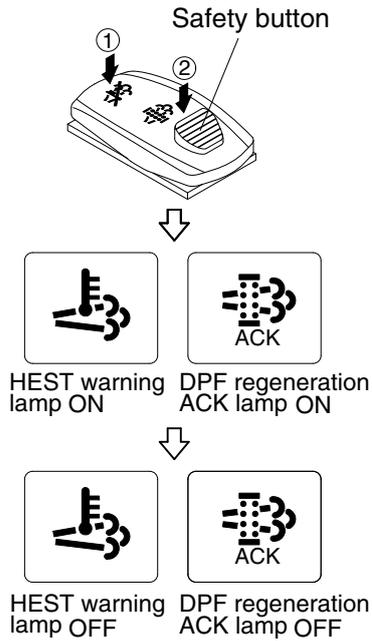


2609A3CD19

- ① This warning lamp lights ON or OFF when the regeneration is needed.
  - ② This warning lamp lights ON while DPF regeneration inhibit switch is in "Regeneration inhibited" state, when stationary regeneration is permitted.
  - ③ This warning lamp lights ON during reset regeneration standby or in back up mode.
  - ④ This warning lamp lights flash 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 3-57 page) · Engine power may be reduced automatically (soot medium)
Soot midium	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 immediatary. · Please contact your Hyundai service center or local dealer.

※ Manual regeneration method of DPF



HX603CD143

※ Manual regeneration applies if the machine is in a fireproof area and there is no plan to turn off the machine during the regeneration.

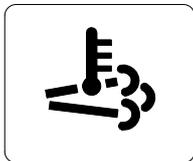
- ① Stop and park the machine.
- ② The accel dial to the lowest position and operate the engine in idling.
- ③ Pull the safety button and push the switch to position ② to initiate the manual regeneration of DPF.

※ Refer to the page 3-57 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 turns OFF and the regeneration acknowledge lamp and HEST warning lamp will light ON during the regeneration function is operating.
- ⑤ The regeneration acknowledge lamp and HEST warning lamp will light OFF when the regeneration function is completed.

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



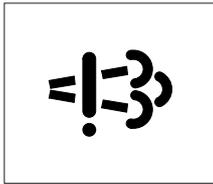
2609A3CD21

- 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 will be common for the lamp to illuminate on and off during normal equipment operation as the engine completes regeneration.

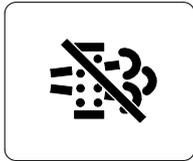
## (12) Emission system fail warning lamp



300A3CD15

- ① This warning lamp indicates there are faults related to the emission system.
  - ② The lamp lights ON 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 diagnosis DPF systems.**
- ※ **Please contact your Hyundai service center or local dealer.**

## (13) DPF regeneration inhibit warning lamp



2609A3CD20

- ① This warning lamp indicates, when illuminated, the DPF switch is pushed inhibit position, therefore automatic and manual regeneration can not occur.
- ※ **Refer to the page 3-57 for the DPF switch.**

## (14) DPF regeneration acknowledge warning lamp



559A3CD10

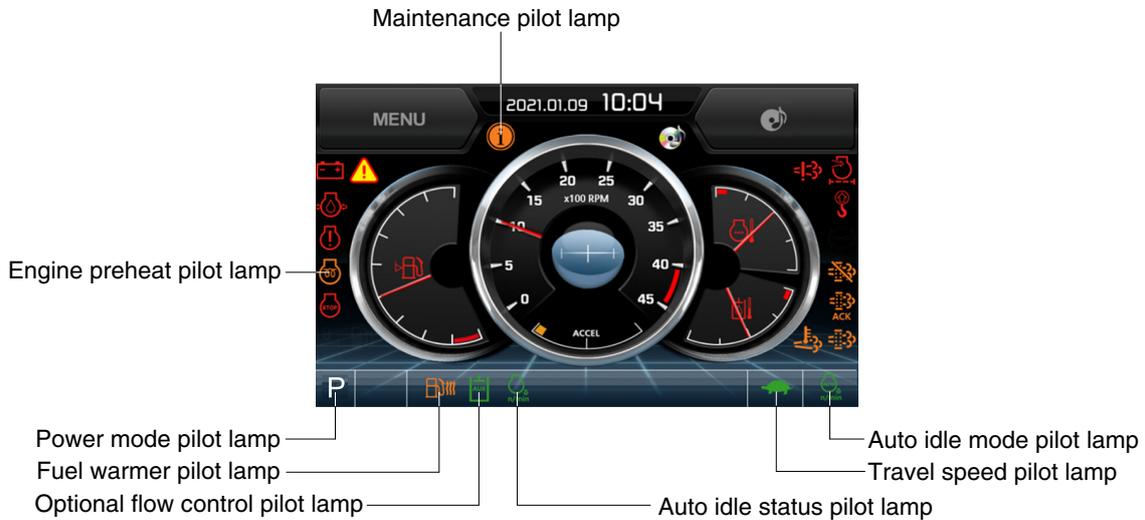
- ① This warning lamp lights ON stationary regeneration is in process.
- ② This warning lamp lights ON, when stationary regeneration is in process after DPF regeneration request switch is pressed and hold for more than 3 seconds.
- ③ This warning lamp lights flash when stationary regeneration standby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

## (15) Engine stop warning lamp



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

## 5) PILOT LAMPS



HX60A3CD112C

※ The left and the right movement buttons (◀ and ▶) are activated when nine indicator or more light, and touching the button shifts to the previous/next page. The buttons are not activated when eight indicators or less light.

### (1) Mode pilot lamp

Sequence	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

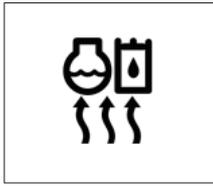
### (2) Engine preheat pilot lamp



290F3CD79

- ① Turning the start switch ON automatically starts preheating.
  - ② Start the engine after this indicator turns off.
- See Page 4-4.

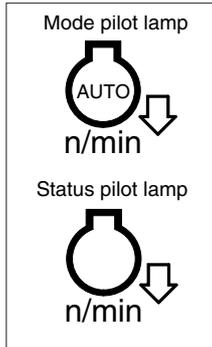
### (3) Warming up pilot lamp



290F3CD80

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

### (4) Auto idle status/ mode pilot lamp



85A3CD106

- ① The auto idle mode pilot lamp will be ON when the idle mode is selected.
- ② The auto idle status pilot lamp will be ON 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 be OFF and the engine speed returns to the previous conditions.

### (5) Maintenance pilot lamp

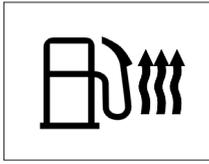


HX60A3CD116

- ① This lamp will be ON when the consuming parts are needed to change or replace. It means that the change or replacement interval of the consuming parts remains below 30 hours.
- ② Check the message in maintenance information of main menu. Also, this lamp lights ON for 3 minutes when the start switch is ON position.

※ Refer to the page 3-41.

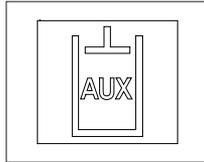
### (6) Fuel warmer pilot lamp



HX60A3CD111

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

### (7) Optional flow control pilot lamp



HW60A3CD48A

- ① The indicator lights when activating (performing) the optional flow control function.
- ※ Refer to the Page 3-41.

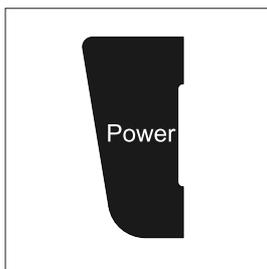
## 6) SWITCHES



HX60A3CD117D

※ Selecting the switch displays the indicator on LCD. See Page 3-32 for further information.

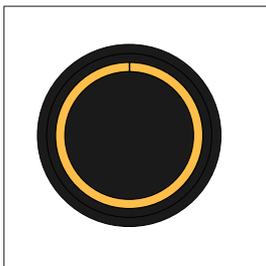
### (1) Power mode switch



HX60A3CD118

- ① This switch selects the system power mode, and the selected power mode indicator is displayed on the indicator position.
  - P : High-load work
  - S : Standard load work
- ② The indicators shifts in the sequence of S → P → S.

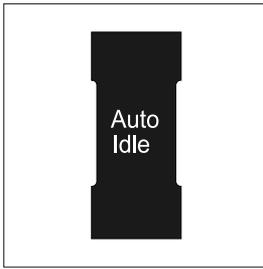
### (2) Select switch



HX60A3CD119

- ① The switch is used for selecting or changing the menus and input values.
- ② Knob pressing
  - Pressing short (0.5 sec. or less) : Menu selecting
- ③ Knob turning
  - This knob is used for changing menus and input values :
  - Right turning : Increasing downward direction and input value
  - Left turning : Decreasing upward direction and input value

### (3) Auto idle switch

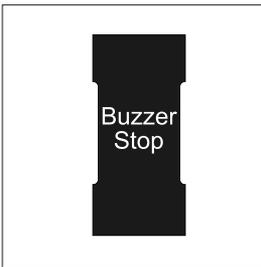


HX60A3CD120

① This switch is used for operating or canceling the auto idle function.

※ See Page 3-33 for further information.

### (4) Buzzer stop switch

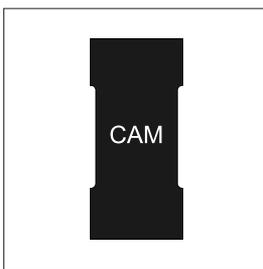


HX60A3CD121

① The buzzer sounds when the system fails.

In such a case, press the switch to stop the buzzer. The alarm indication is kept lit until trouble is resolved.

### (5) Camera switch

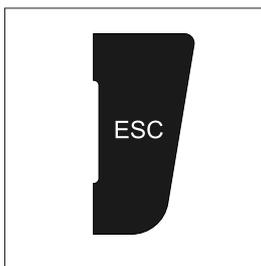


HX60A3CD122

① Pressing this switch on the operation screen of the main menu displays the area illuminated by the camera mounted on the system (if the camera is mounted).

See Page 3-51 for information of the camera.

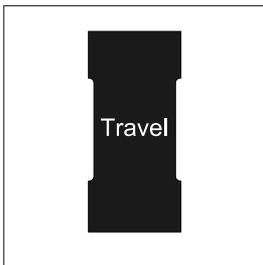
### (6) Escape switch



HX60A3CD123

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

### (7) Travel speed switch



HX60A3CD104

① This switch is used for changing driving speed.

 : High speed

 : Low speed

※ Do not operated the driving speed switch during driving.

System stability may adversely be affected.

⚠ Rapid change of system stability may cause injury or death of driver.

## 7) MAIN MENU

Main menu screen



HX60A3CD124A



Sub menu screen



HX60A3CD125A

※ See “Selection Switch” on page 3-35 for further information on selection and change of the menus and input values.

※ Touching the main menu switch, or pressing the selection switch prompts the sub-menu screen.

### (1) Structure

No.	Main menu	Sub-menu	Description
1	 Monitoring	Active fault Logged fault Delete logged fault Monitoring	List of active fault of system/engine List of logged fault of system/engine Deleting specifics of logged fault (system/engine) Monitoring (conditions of system, switch, and output)
2	 Management	Maintenance info. Aux flow setting ELS mode setting Machine information Contact Cluster update Service menu	Checking and initialization of service Interval of oil and filters Optional attachment setting ELS mode setting/user password changing Information of cluster, MCU, engine system Display and change of contact information for after-sales services System and application updating Power shift, Operation hours, Main gauge type, Display RPM, DPF filter exchange, AVCU setting, Adding language
3	 Display	Clock adjust Brightness setting Unit setting Language selection	Current time setting Manual, auto Temperature, Distance, Pressure, Flow, Volumn 24 languages
4	 Utilities	Entertainment Camera setting Clinometer setting Emergency mode	Video/music file playing Setup of number of active cameras, display sequences, and camera numbers Initializing slope sensor Back-up switch for failed cluster switch

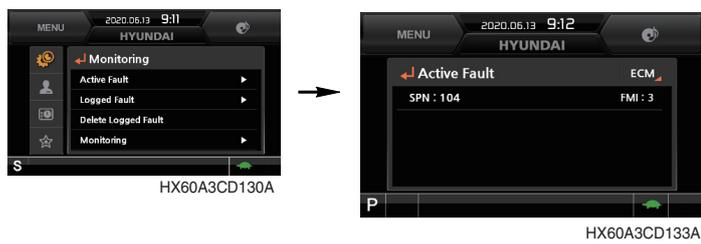
## (2) Monitoring

### ① Active fault - system



- You may use this menu to check active fault of MCU.

### ② Active fault - engine



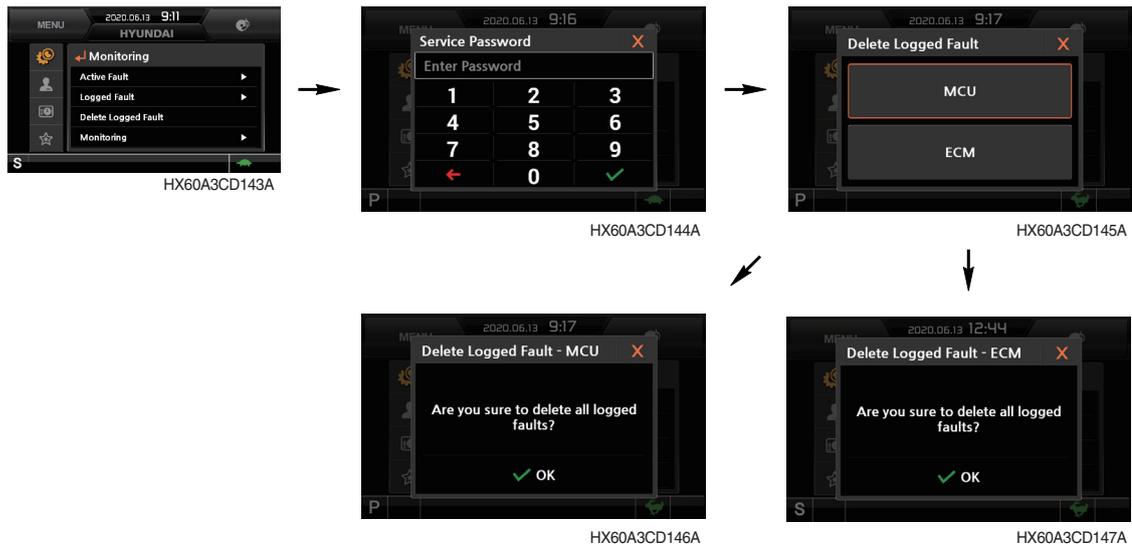
- You may use this menu to check active fault of engine ECM.

### ③ Logged fault - system/engine



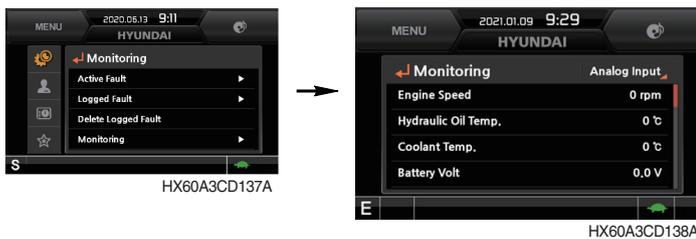
- You may use this menu to check fault logged on system MCU or engine ECM.
- The menu is accessible by maintenance engineer only.

#### ④ Delete logged fault



- Delete logged fault: You are allowed to delete fault logged on system MCU or engine ECM. (Deletion can be deleted only while the engine is kept stopped.)

#### ⑤ Monitoring (system conditions)



- You may use this menu to check the system conditions such as engine rotation rate, oil temperature, voltage and pressure.

#### ⑥ Monitoring (switch conditions)



- You may use this menu to check digital switch information of the system.
- The operation switch lights blue.

## ⑦ Monitoring (output conditions)



- You may use this menu to check digital output information of the system.
- Output lights blue.

### (3) Management

#### ① Maintenance info.



- Elapsed: Time elapsed since inspection and maintenance is displayed.
- Change interval: You are allowed of changing exchange cycle in 50 hours.
- History-Hourmeter: History of inspection, maintenance and exchange is displayed.
- Replacement: Elapsed time is reset to zero.
- **Change or replace interval**

No	Item	Interval
1	Engine oil	500
2	Final gear oil	1000
3	Hydraulic oil	5000
4	Pilot line filter	1000
5	Hydraulic oil return filter	1000
6	Engine oil filter	500
7	Fuel filter	500
9	Pre-filter	500
10	Hydraulic tank breather	1000
11	Air cleaner	500
12	Radiator coolant	2000

#### ② Aux flow setting

##### a. Optional attachment setup



- Setup up to three optional attachments.

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

※ Each option attachment operating in one of two user modes (Type A and B)

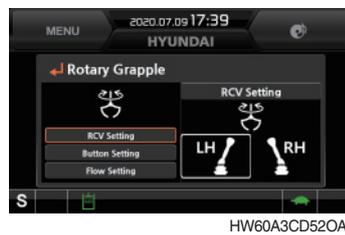
## b. Proportional flow control setting

You may use this menu to set the values of individual option attachments.

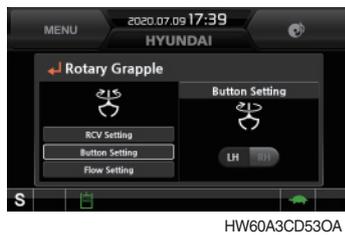
### a) Rotary setup



- Rotary selecting RCV, button, and flow setup.



- RCV setup
  - It is possible to set operating RCV for rotary operation to LH or RH .
  - Selecting rotary RCV to LH automatically sets grapple RCV to RH.

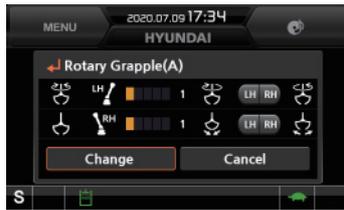


- Button setup (rotating clockwise)
  - Selecting clockwise rotating direction to LH automatically sets counterclockwise rotating direction to RH.

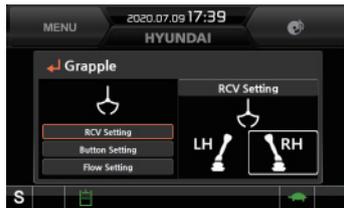


- Flow setup
  - You may set flow between Level 1 and 5.

## b) Grapple setting



- Grapple selection  
RCV, button and flow setup



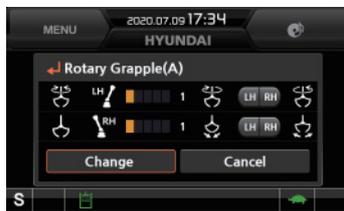
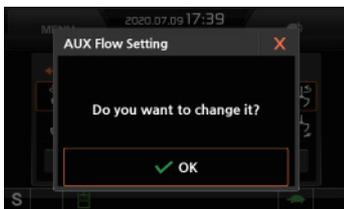
- RCV setup
  - It is possible to set RCV for grapple operation to LH or RH.
  - Selecting grapple RCV to RH automatically sets rotary RCV to LH.



- Button setup (Close)
  - Setting Close to RH automatically sets Open to LH.



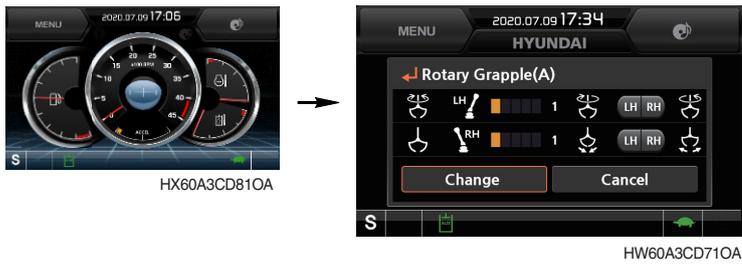
- Flow setup
  - Setting between Level 1 and 5.



- Never forget to select Change button **once** flow setting is complete.

- ※ Saved setting is stored in each icon, and value finally stored becomes active.
- ※ You may use any stored values by pressing Icon button.
- ※ It is possible to perform two user's settings per attachment (A and B), and to store up to six values. (Two for 4-way, four for 2-way)

### c) Checking settings



※ Operating optional attachment function activates the symbol  on the bottom of the main screen.

※ You are allowed of checking settings as follows in the course of Menu - Administrator Functions - Optional Attachment.

#### (a) Rotary setup

- Rotary RCV setup : LH
- Rotary flow level : 3
- CW direction control : LH
- CCW direction control : RH

#### (b) Grapple setup

- Grapple RCV setup : RH
- Grapple flow level : 3
- Open control : LH
- Close contro l: RH

### ③ ESL mode setting



- The ESL mode setting is designed to prevent theft and unauthorized operation of the system.
- When selecting the ESL mode setting to continuous operation, password should be entered when turning the Start button ON.
- Disabled : The ESL mode setting function does not operate.

Continuous operation : Password should be entered whenever operator starts the engine.

Enable(interval): Password should be entered when operator starts the engine first. It is not required to enter the password until restart within specified time.

You may set the specified time up to two days.

※ Default password : 00000

※ Length of password : 5-10 digits

#### ④ Changing password

- The length of the password is between 5 and 10 digits.



HX60A3CD151A



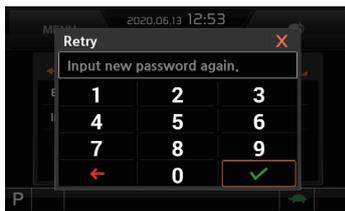
HX60A3CD149A

Entering current password



HX60A3CD153A

Selecting Change Password



HX60A3CD156A

Storing new password in MCU



HX60A3CD155A

Entering new password again



HX60A3CD149A

Entering new password

#### ⑤ Machine information



HX60A3CD160A



HX60A3CD161A



HX60A3CD162A

- On this screen, you may check information of the instrument panel, the system controller (MCU), the engine and the system.

#### ⑥ Contact



HX60A3CD163A



HX60A3CD164A



HX60A3CD165A

- You may check or change the contact information for after-sales services.

## ⑦ Cluster update



HX60A3CD169A



HX60A3CD170A

Selecting Cluster Update



HX60A3CD149A

Entering user's password

- It is possible to update the cluster and CAN.
- ※ Do not turn power off while updating.

### a. Application update



HX60A3CD172A

Selecting application items



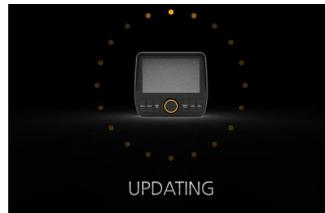
HX60A3CD173A

Selecting files to update



HX60A3CD174A

Selecting OK



HX60A3CD176

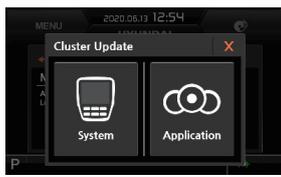
Completed



HX60A3CD175A

In progress

## b. System update



Selecting system items



Selecting files to update



Selecting OK



Completed



In progress

## ⑧ Service menu



Entering service password

- Power shift : Set the power shift mode (default/option).
  - Operating hours : You may check operating hours of the system in individual modes after acceptance of the system.
  - Main gauge type : It is possible to display engine rotation rate or fuel level on the main gauge of the main screen.
  - Display RPM : It is possible to set display of numeric value of engine rotation rate on the main gauge of the main screen.
  - DPF filter exchange : You may initialize parameters relevant to DPF of engine ECU after cleaning the DPF filter.
  - AVCU setting : You may select Standard, 2-Way or 4-Way dependent upon the system options.
  - Adding language : It is possible to update language displayed on the cluster when it is required to correct language.
- ※ The service menu is accessible by maintenance engineer only. Do not attempt unauthorized adjustment.

#### (4) Display

##### ① Clock adjust



HX60A3CD191A



HX60A3CD192A

- "\*\*\*\*\_\*\*\_\*\*" on the first line indicates year/month/day.
- The second line indicates current time (00:00 - 12:59 am/pm)

##### ② Brightness setting



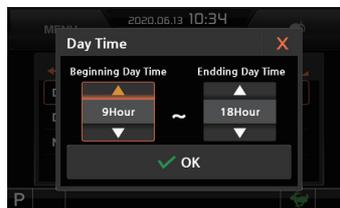
HX60A3CD193A



Manual (Level 1 to 10) HX60A3CD194A



HX60A3CD195A



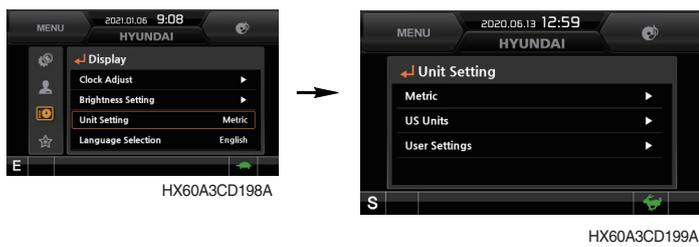
Auto (day/night) HX60A3CD197A



Auto (daytime) HX60A3CD196A

- Selecting "Auto" allows setting brightness different in day and night. It is also allowed to set hours in daytime. (Setting beginning day time and ending day time)

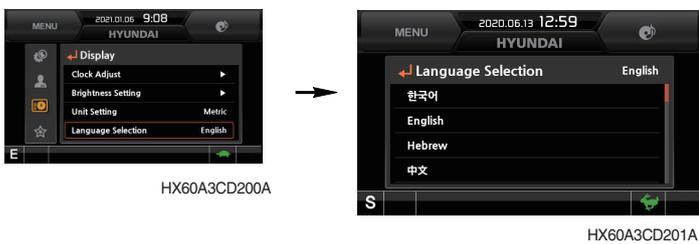
### ③ Unit setting



- Metric: Units are changed to metric units.
- U.S. units: Units are changed to U.S. units.
- User setting : Units are changed to user setting.

Item	Metric system	U.S. unit	User's setup
Temperature	°C	°F	°C, °F
Distance	km	mile	km, mile
Pressure	bar	Mpa	bar, Mpa, kgf/cm <sup>2</sup> , psi
Flow	lpm	gpm	lpm, gpm
Volume	l	gal	l, gal

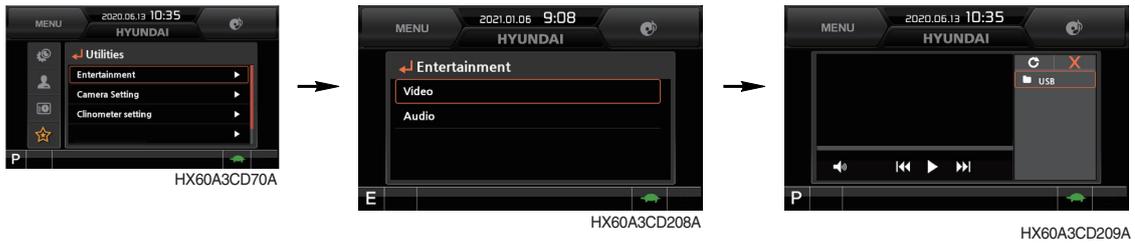
### ④ Language selection



- You may select your language (from 24 languages), and all the information is displayed in the selected language.

## (5) Utilities

### ① Entertainment



- You may play MP4 or CODEC files of detachable hard disk through USB port.
- USB port is on the left of the instrument panel.
- When engine rotation rate exceeds 1100 rpm or higher, the screen is switched to the operation screen even while MP4 or CODEC file is played for safety. When engine rotation rate drops to 1100 rpm or lower, animation clip is played again.

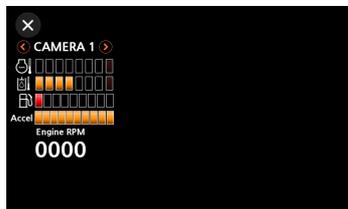
**⚠ Do not play animation clip while operating the system to prevent risks of accident.**

### ② Camera setting



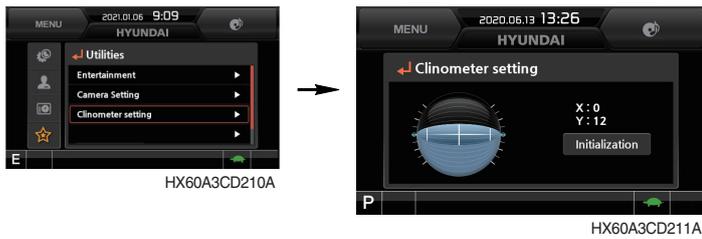
- You may install three cameras on the system, and set display sequence on this menu.
- If no camera is installed, this menu is disabled.
- When rotating Select switch clockwise, the screen of the next camera is displayed. When rotating the switch counterclockwise, the screen of the previous camera is displayed. You may also change the camera channel by touching the screen.
- You may display or hide the mini instrument panel by pressing Select switch or touching the screen.

(Mini instrument panel displayed → hidden → displayed)



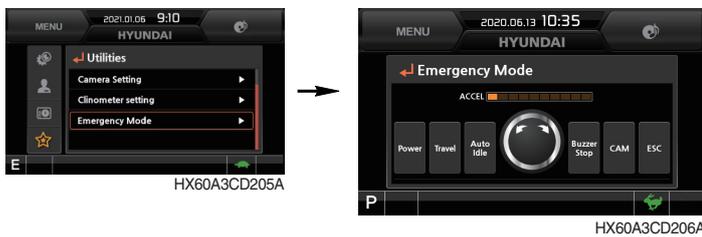
- Pressing ESC switch or touching X icon on the screen terminates the camera mode.

### ③ Clinometer setting



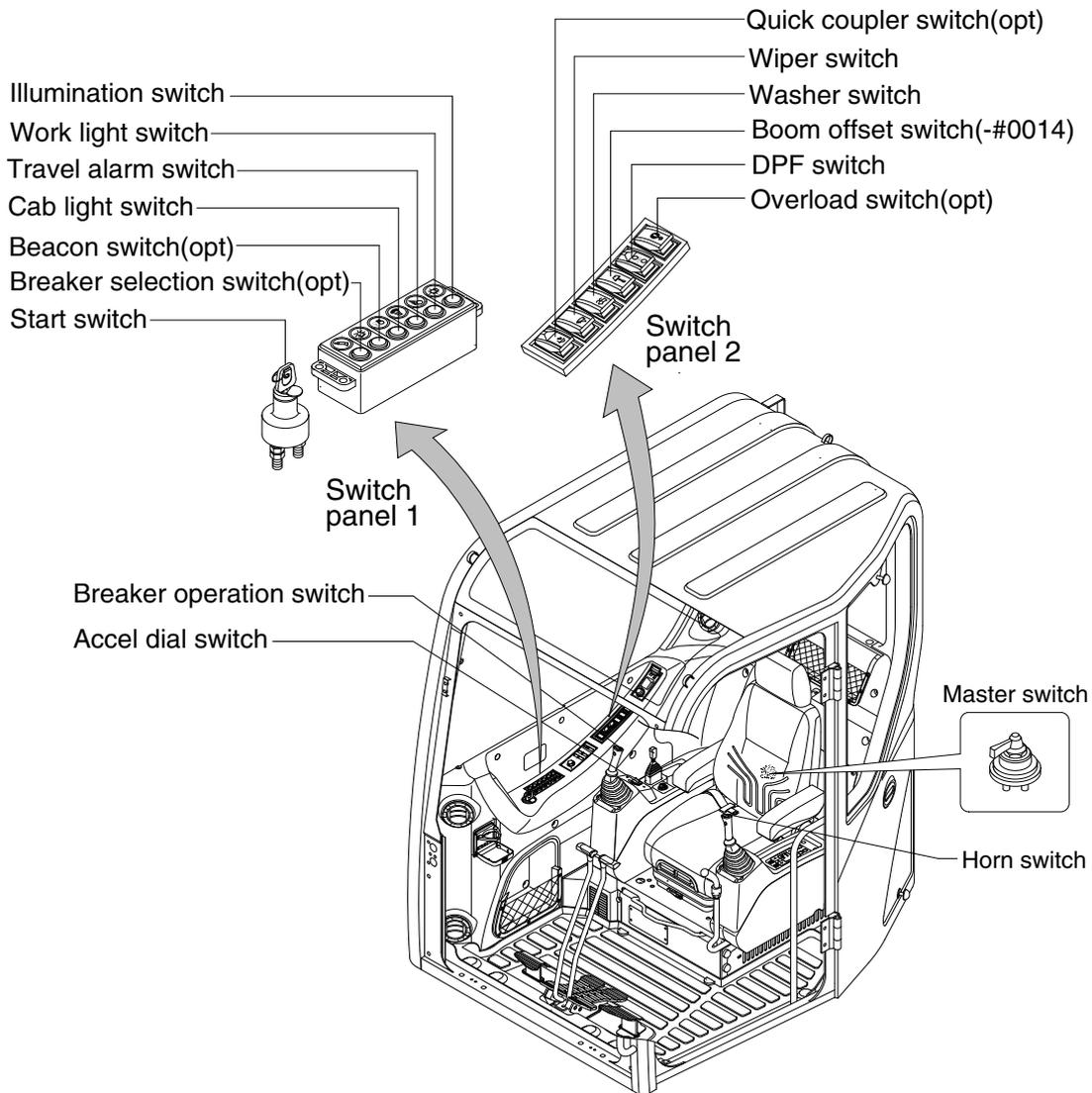
- Pressing “Default” when the system is kept on flat surface resets X and Y values to zero.
- You may check gradient of the system on the operating screen of the instrument panel.

### ④ Emergency mode



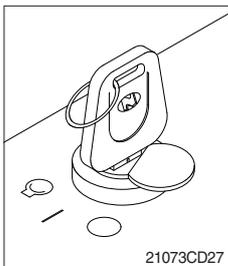
- When the switch or the acceleration dial of the monitor fails, the switch is displayed on LCD, and you are allowed to perform operation by touching the screen.
- Such operation is allowed only on this mode screen.

### 3. SWITCHES



60CR9A3CD02A

#### 1) STARTING SWITCH



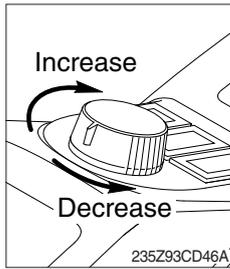
(1) There are three positions, OFF, ON and START.

- ○ (OFF) : None of electrical circuits activate.
- | (ON) : All the systems of machine operate.
- ◐ (START) : Use when starting the engine.

Release key immediately after starting.

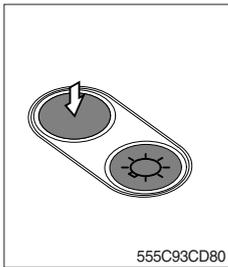
※ **Key must be in the ON position with engine running to maintain electrical and hydraulic function and prevent serious machine damage.**

## 2) ACCEL DIAL



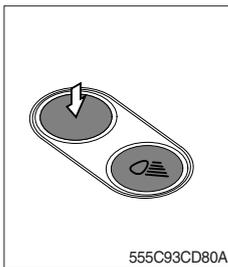
- (1) There are 10 dial setting.
- (2) Setting 1 is low idle and setting 10 is high idle.
  - By rotating the accel dial to right : Engine speed increased.
  - By rotating the accel dial to left : Engine speed decreased.

## 3) ILLUMINATION SWITCH



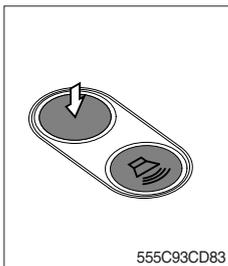
- (1) This switch is used to operate the illumination.
- (2) Press the switch once, the below illumination lamps come ON.
- (3) Press the switch once more, the below illumination lamps turn off.
  - Air conditioner and heater controller
  - Radio and USB player
  - USB socket, DPF switch, accel dial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

## 4) WORK LIGHT



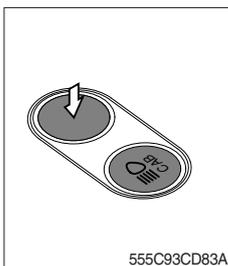
- (1) This switch is used to operate the work light.
  - Press the switch once, the work light comes ON and the pilot lamp ON.
  - Press the switch once more, the work light and pilot lamp turn off.

## 5) TRAVEL ALARM SWITCH



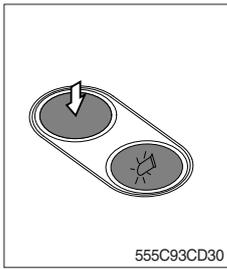
- (1) This switch is used to alarm surroundings when the machine travels to forward and backward.
- (2) On pressing this switch, the alarm operates only when the machine is traveling.

## 6) CAB LIGHT SWITCH



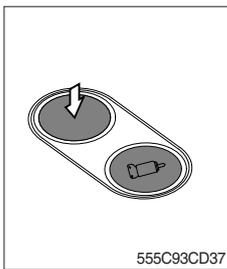
- (1) This switch turns on the cab light on the cab.

### 7) BEACON SWITCH (option)



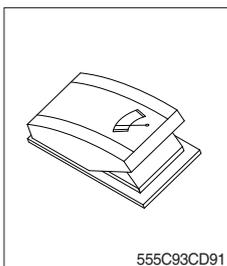
- (1) This switch turns ON the rotary light on the cab.
- (2) The below indicator lamp is turned ON when operating this switch.

### 8) BREAKER SELECTION SWITCH (option)



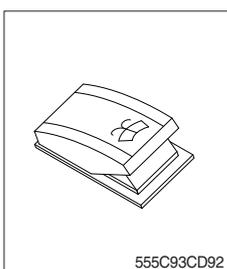
- (1) This switch is used to operate breaker.
- ※ **The breaker operates only when this switch is pressed.**

### 9) WIPER SWITCH



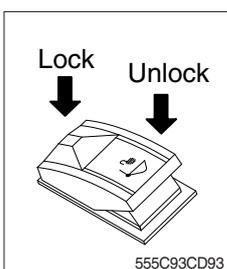
- (1) This switch is used to operate the wiper.  
The wiper operates.
- ※ **Wiper motor doesn't operate with front sliding door open.**
- ※ **If wiper does not operate with the switch in the ON position, turn the switch off immediately. Check the cause. If the switch remains ON, motor failure can result.**

### 10) WASHER SWITCH



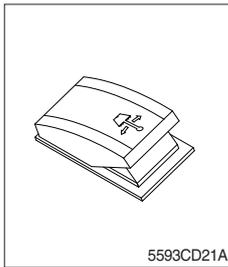
- (1) This switch is used to operate the washer.  
· The washer liquid is sprayed and the wiper is operated only while pressing this switch. If release the switch, return to the first position.

### 11) QUICK COUPLER SWITCH (option)



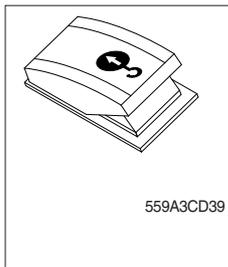
- (1) This switch is used to engage or disengage the moving hook on quick coupler.
- ※ **Refer to the page 8-6 for details.**

### 12) BOOM OFFSET SWITCH (machine serial No.: -#0014)



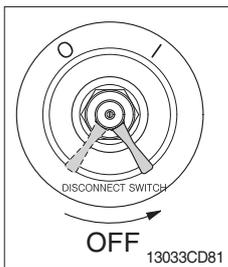
- (1) This switch is used to swing the boom to the right or left direction.
  - (2) The indicator lamp turned ON when selected this switch.
- ※ Refer to the page 4-7 for the operation.

### 13) OVERLOAD SWITCH (option)



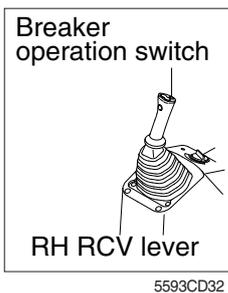
- (1) When this switch pressed ON position, buzzer makes sound and overload warning lamp comes ON in case that the machine is overload.
- (2) When it pressed OFF position, buzzer stops and warning lamp goes out.

### 14) MASTER SWITCH

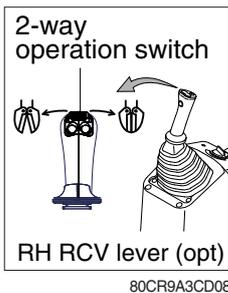


- (1) This switch is used to shut off the entire electrical system.
  - (2) I : The battery remains connected to the electrical system.  
O : The battery is disconnected to the electrical system.
- ※ **Never turn the master switch to O (OFF) with the engine running. It could result in engine and electrical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

### 15) BREAKER AND 2-WAY OPERATION SWITCH

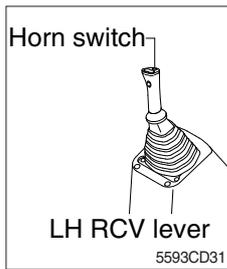


- (1) On pressing this switch, the breaker operates only when the breaker selection switch on the switch panel is selected.
- ※ This switch applies to single action hydraulic attachment circuit.



- (2) This switch operates the clamshell or shear.
- ※ This switch applies to double action hydraulic attachment circuit.

## 16) HORN SWITCH



- (1) This switch is at the top of left side control lever.  
On pressing, the horn sounds.

## 17) 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 concerned about high temperature.
- ③ It is strongly recommended that this position is only activated when high temperatures may cause a hazardous condition.

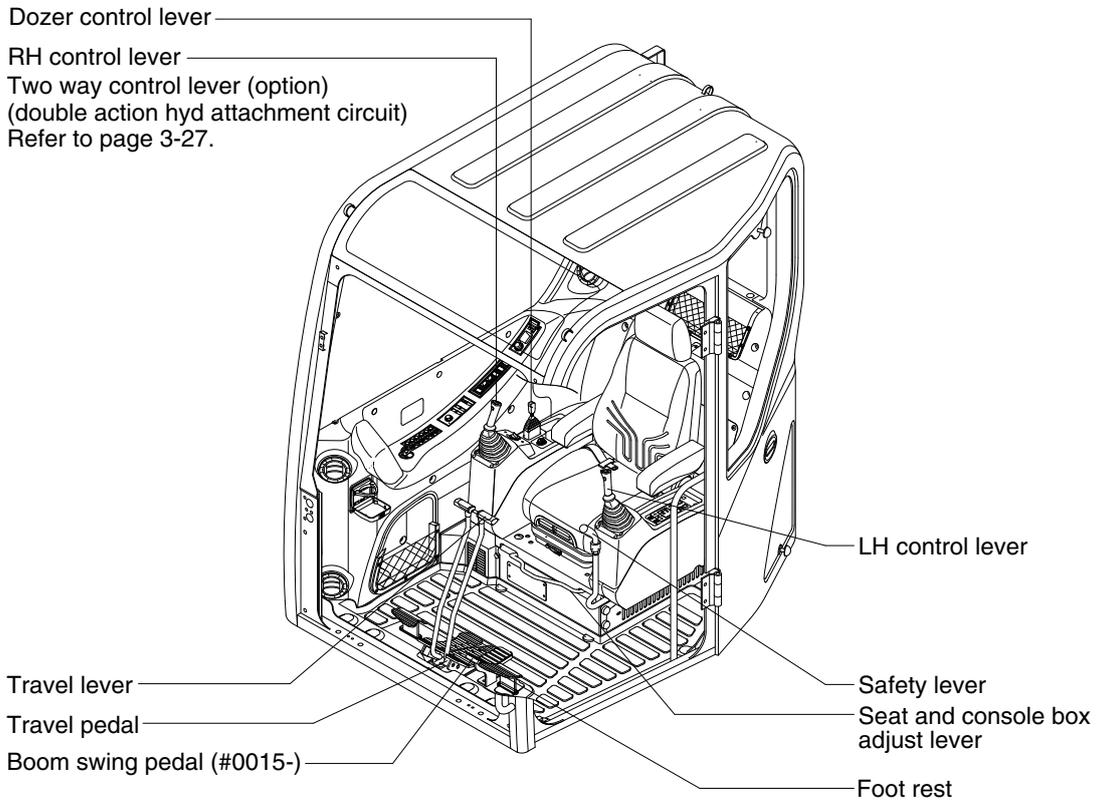
### (3) OFF position

This position will initiate a automatic regeneration of the DPF.

### (4) Manual regeneration position (②)

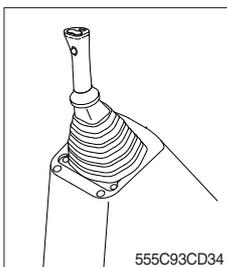
- ① This position will only initiate a manual regeneration of the DPF when the machine is in non-mission condition, engine must run at low idle speed and DPF soot levels are high enough to allow regeneration.
  - ② HEST lamp will be illuminated during the entire regeneration.
- ※ Refer to the page 3-8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

## 4. LEVERS AND PEDALS



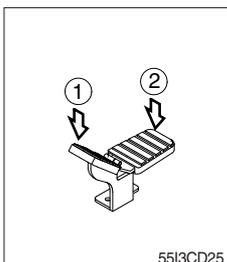
60CR9A3CD03

### 1) CONTROL LEVER



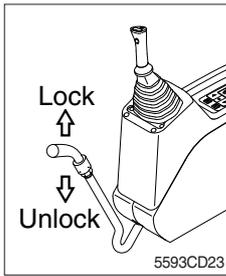
- (1) The LH joystick is used to control the swing and the arm.
- (2) The RH joystick is used to control the boom and the bucket.
- (2) Refer to **operation of working device** in chapter 4 for details.

### 2) 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.

### 3) SAFETY LEVER



(1) LH, RH control levers and dozer control lever are disabled from operation by locating the lever to lock position as shown.

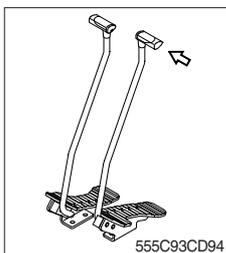
※ **Be sure to raise the lever to LOCK position when leaving from operator's seat.**

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

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

▲ **The machine is able to travel even when the safety lever is in the LOCK position.**

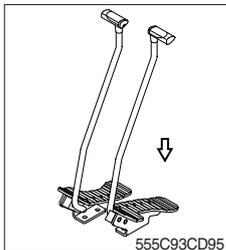
### 4) TRAVEL LEVER



(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



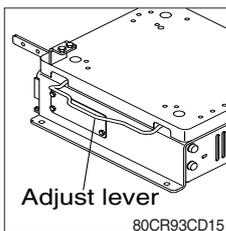
(1) This pedal is used to move the machine forward or backward.

(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.

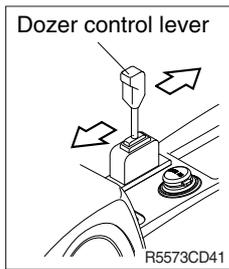
### 6) SEAT AND CONSOLE BOX ADJUST LEVER



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

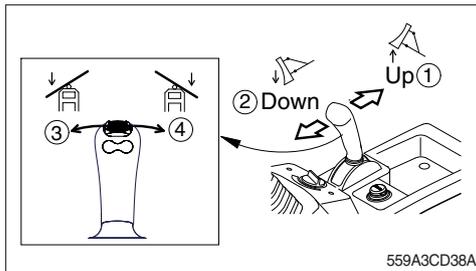
(2) Pull the lever to adjust forward or backward over 90 mm (3.5").

## 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.

## - ANGLE BLADE CONTROL LEVER (OPT)



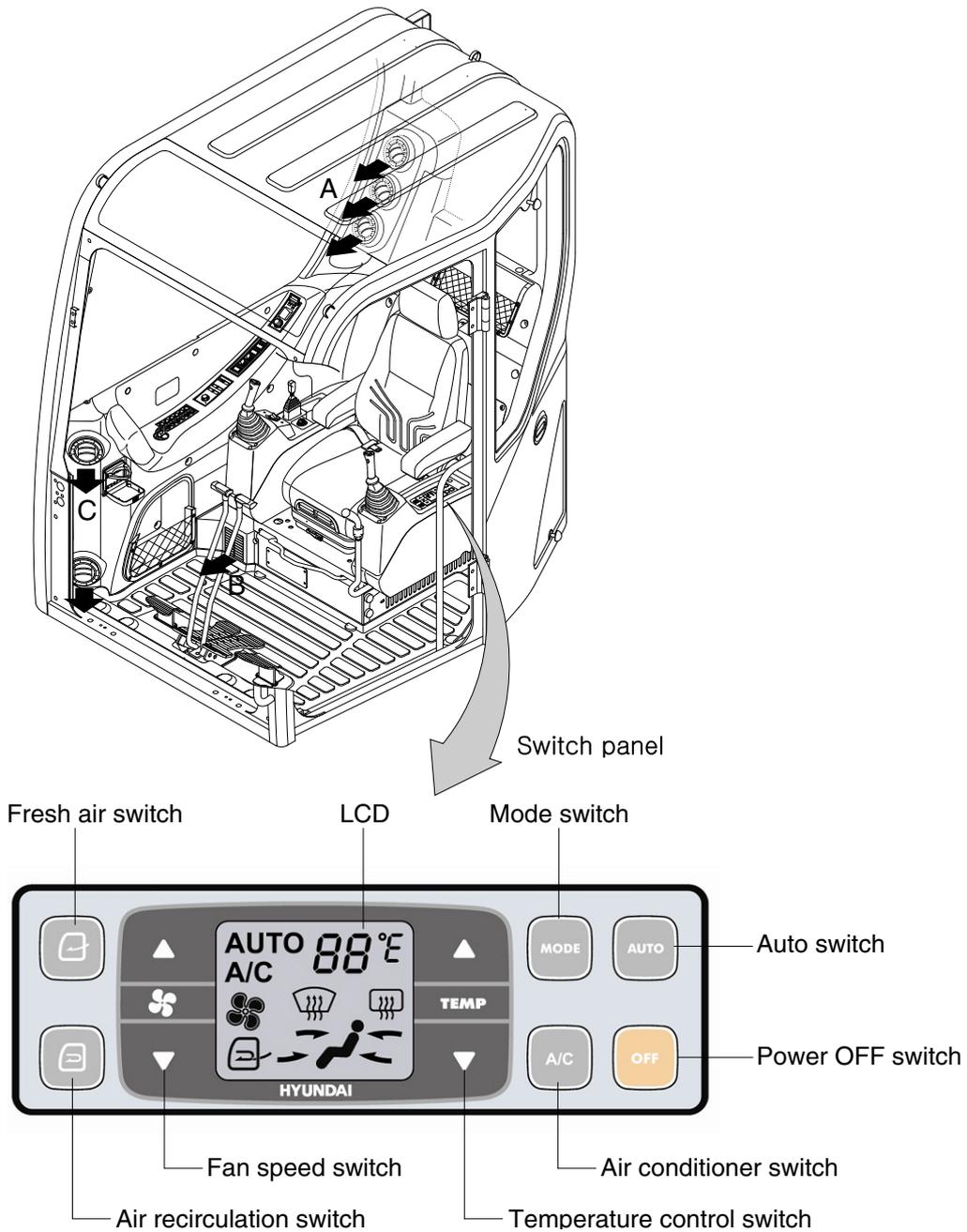
### (1) Angle blade control lever

- ① Dozer blade up
  - ② Dozer blade down
  - ③ Dozer blade tilting left
  - ④ Dozer blade tilting right
- ※ Do not angle blade up with the angle blade placed at an angle.

## 5. FULL AUTO AIR CONDITIONER AND HEATER

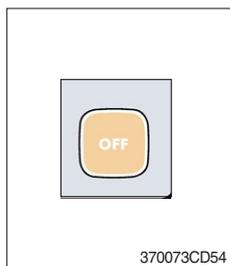
Full auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.

### · Location of air flow ducts



80CR9A3CD05

## 1) POWER OFF SWITCH

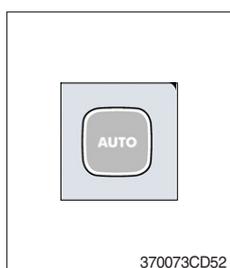


- (1) This switch makes the system and the LED OFF.  
Just before the power OFF, set values are stored.

### (2) Default setting values

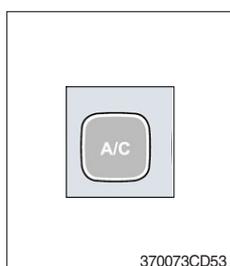
Function	Air conditioner	In/outlet	LCD	Temperature	Mode
Value	OFF	Inlet	OFF	Previous sw OFF	Previous sw OFF

## 2) AUTO SWITCH



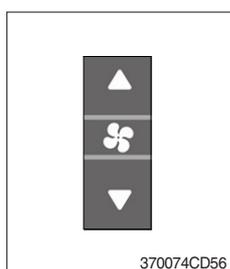
- (1) Turn the starting switch to ON position, LCD lights ON.  
Auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.
- (2) This switch can restart system after system OFF.

## 3) AIR CONDITIONER SWITCH (compressor switch)



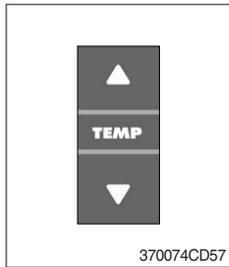
- (1) This switch turns the compressor and the LCD ON.
  - (2) In accordance with the temperature sensed by duct (evaporator) sensor, compressor turns ON or OFF automatically.
- ※ **Air conditioner operates to remove vapor and drains water through a drain hose. Water can be sprayed into the cab in case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

## 5) TEMPERATURE CONTROL SWITCH

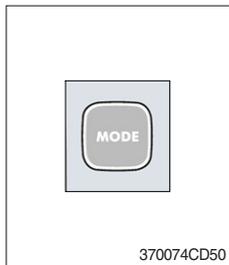


- (1) Setting temperature indication (17~32°C, scale : 1°C)
- (2) Max cool and max warm beeps 5 times.
- (3) The max cool or the max warm position operates as following table.

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 Push Up/Down temperature control switch simultaneously more than 5 second displayed temperature unit change (°C → °F)

## 6) MODE SWITCH

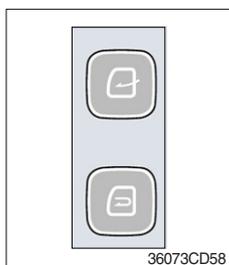


- (1) Operating this switch, it beeps and displays symbol of each mode in order. (Vent → Vent/Foot → Foot → Foot/Def → Vent)

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

- (2) When defroster switch operating, 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.

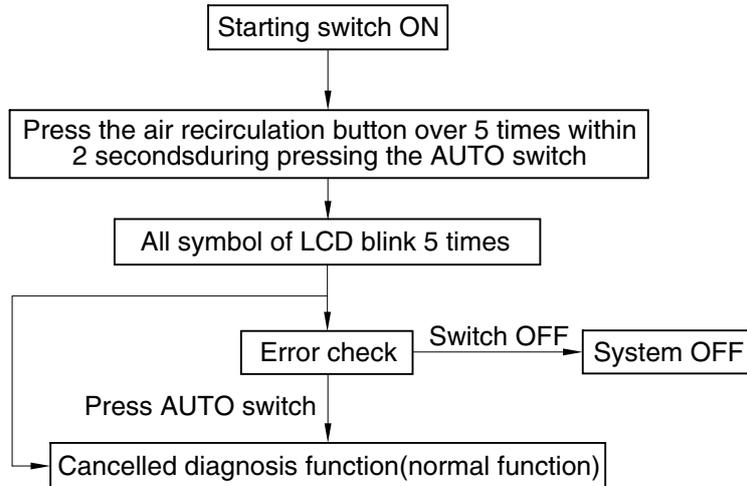
## 7) FRESH AIR/AIR RECIRCULATION SWITCH



- (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 time.**  
\* **Check out the recirculation filter periodically to keep a good efficiency.**

## 8) SELF DIAGNOSIS FUNCTION

### (1) Procedure



3607A3CD69

### (2) Error check

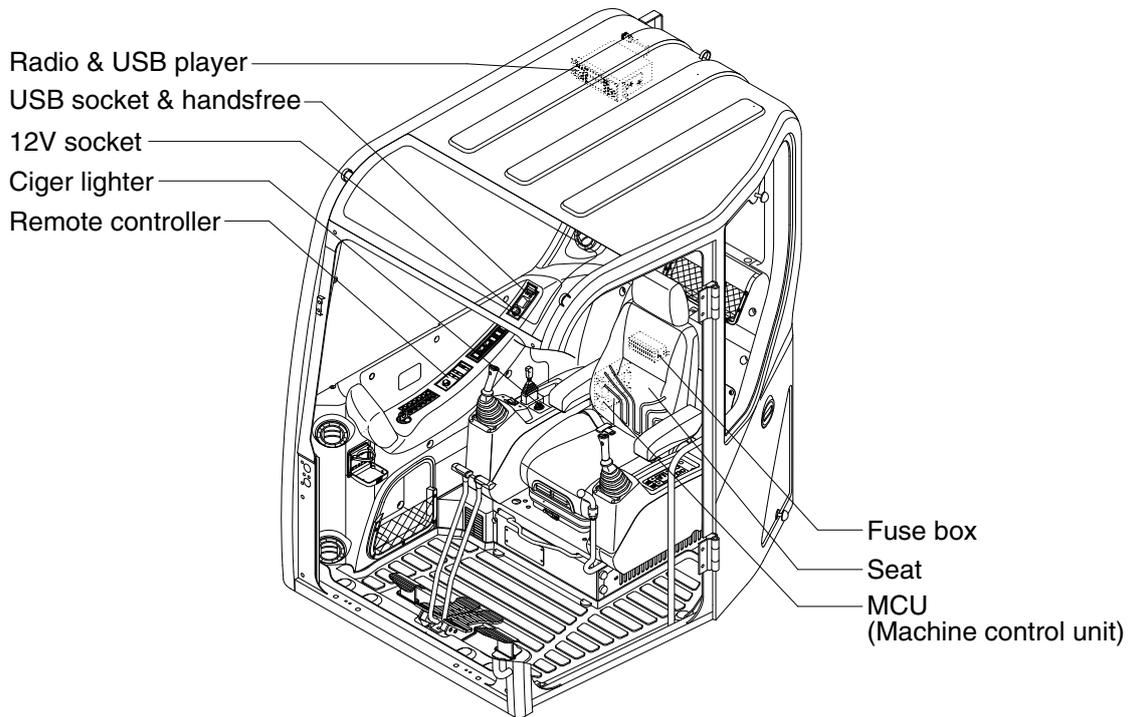
- The corresponding error code flickers on the setup temperature display panel, the other symbol will turn OFF.
- Error code flickers every 0.5 second.
- If error code is more than two, each code flickers 2 times in sequence.
- Error code

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

### (3) Fail safe function

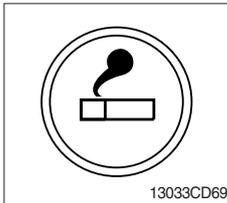
Error description	Fail safe function
Cabin inside sensor (11)	25°C alternate value control
Ambient sensor (12)	20°C alternate value control
Coolant temp sensor (13)	More than 10 minutes after engine start up, the alternate value is ON
Duct (evaporator) sensor (14)	1°C alternate value control
Temp actuator (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



80CR9A3CD04

### 1) CIGAR LIGHTER

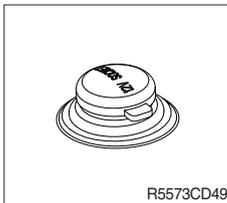


- (1) This can be used when the engine starting switch is ON.
- (2) The lighter can be used when it springs out in a short while after being pressed down.

※ **Service socket**

**Use cigar lighter socket when you need emergency power.  
Do not use the lighter exceeding 12 V, 120 W.**

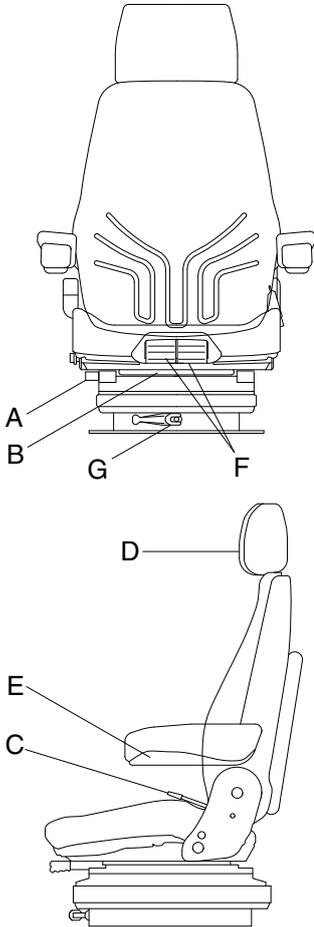
### 2) 12V SOCKET (option)



- (1) Utilize the power of 12 V as your need and do not exceed power of 12 V, 120 W.

### 3) 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.



#### (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 or calf.**

#### (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.

555C93CD85

#### (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

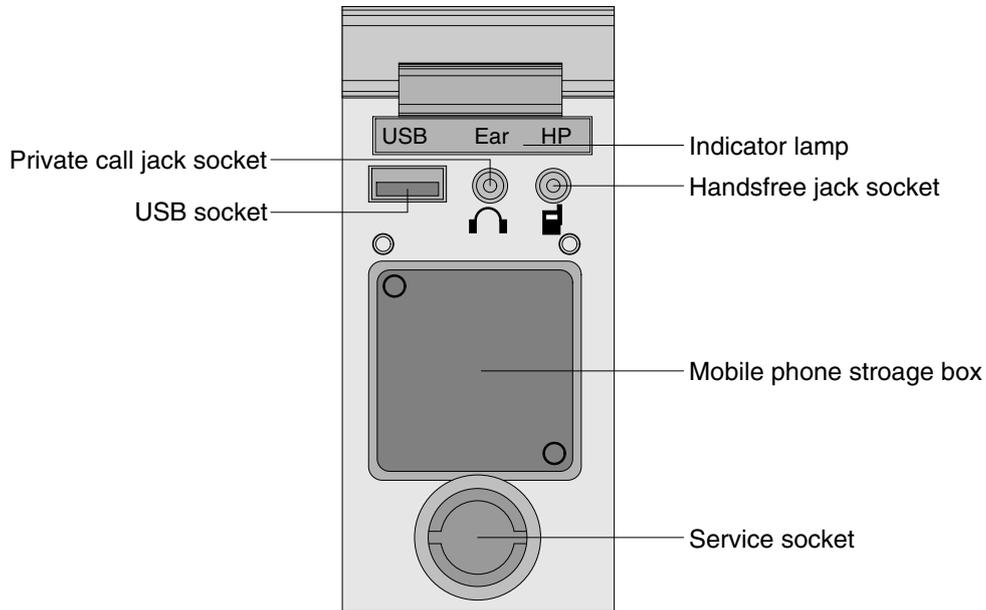
I = Seat heater ON

**▲ 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.**

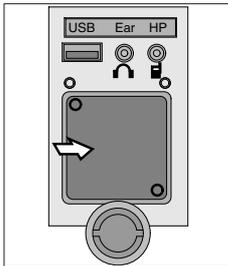
#### 4) HANDSFREE

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



21093CD51

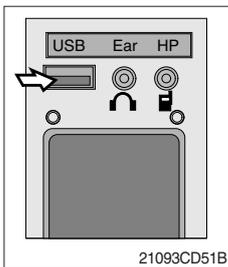
##### (1) Mobile phone storage box



21093CD51A

- ① Mobile phone can be stored when call by handsfree.

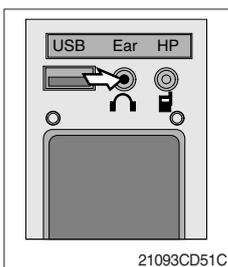
##### (2) USB socket



21093CD51B

- ① This socket is used to charging the mobile phone.

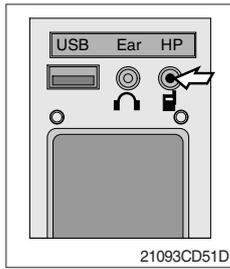
##### (3) Private call jack socket



21093CD51C

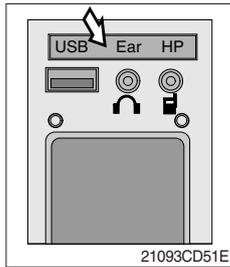
- ① This can be used protect you privacy calling by using ear phone.
- ② The mobile phone must be connected handsfree jack socket.

#### (4) Handsfree jack socket



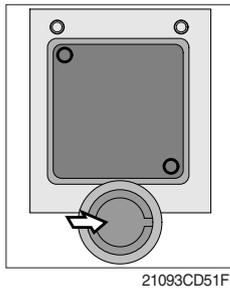
- ① Connect the jack cable when call by handsfree.
- ② Use the special adapter when jack cable is not interchangeable.
- ③ Check the jack type of mobile phone before use.

#### (5) Indicator lamp



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

#### (6) Service socket



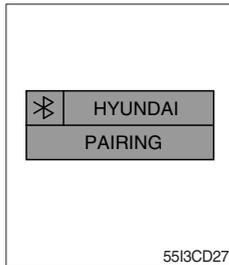
- ① Utilize the power of 12 V as your need and do not exceed power of 12 V, 30 W.

## (7) Wireless handsfree

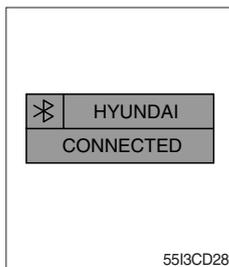


- ① Select the handsfree mode by pressing bluetooth button on the mobile phone.

Press the **CALL** button for more than 6 seconds for pairing (connection process of the mobile phone and handsfree), you can hear beep sounds three times.

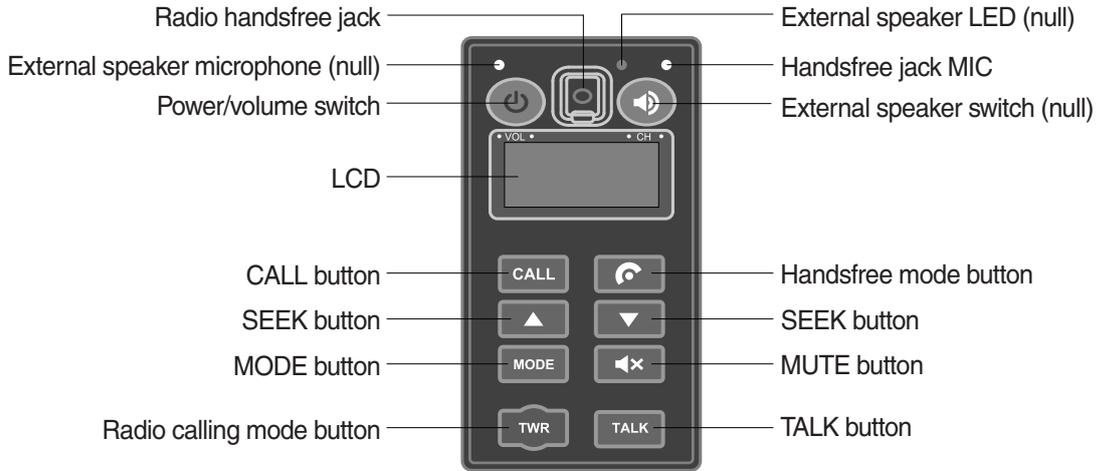


- ② The mobile phone finds bluetooth named "HYUNDAI".  
Select "HYUNDAI" and set "connect with Bluetooth on the mobile phone".  
· Default password : 0000



- ③ The Bluetooth pairing is made, the LCD screen shows "CONNECTED".
- ④ Once the Bluetooth pairing is made, they will be automatically connected after 20 seconds when start key ON.
- ⑤ When you want to deactivate the pairing, press and hold the **CALL** button for more than 3 seconds then you can hear beep sounds twice and the function will be deactivated.

## 5) REMOTE CONTROLLER (-#2134)



5513CD31

### (1) Power and volume switch



5513CD31A

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

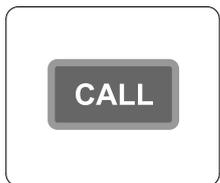
### (2) Mode change button



5513CD31B

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

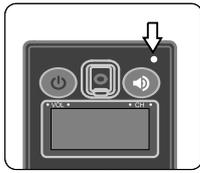
### (3) Call button



5513CD31C

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

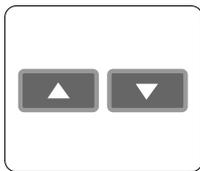
#### (4) Handsfree MIC



55I3CD31D

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

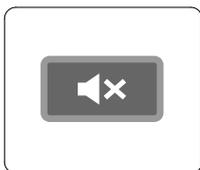
#### (5) Seek button



55I3CD31E

- ① If this button pressed, the radio automatically stops at the next frequency of broadcasting for your listening.
- ② This button enable to select the song of the MP3 from USB.
  - ▲ : Turn a station of higher frequency and the next song of the MP3.
  - ▼ : Turn a station of lower frequency and the previous song of the MP3.

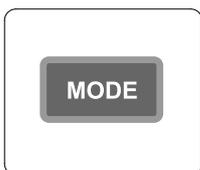
#### (6) Mute button



55I3CD31F

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

#### (7) Mode button



55I3CD31G

- ① Press the mode button to select the desired mode.
  - ② Radio → MP3 → AUX
- ※ **The LCD displayed each mode.**

### (8) Radio calling mode button



55I3CD31H

- ① Press this button, activated or deactivated the radio handsfree function.
- ② As long as you do not press this button, you can hear the other party.
- ③ The LED is turned ON when this button is activated.  
The LED turned OFF when the audio mode or the mobile phone handsfree calling mode is activated.

#### ※ Radio handsfree

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

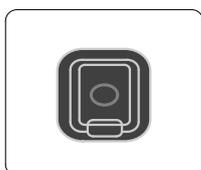
### (9) Talk button



55I3CD31J

- ① The call is connected while pressing this button (when TALK button is activated).
- ※ **Unlike mobile phones, when you want to talk through the radio, you need to press the button (Push-to-talk method).**  
**While one is talking through the radio, the other party can only listen to him/her.**

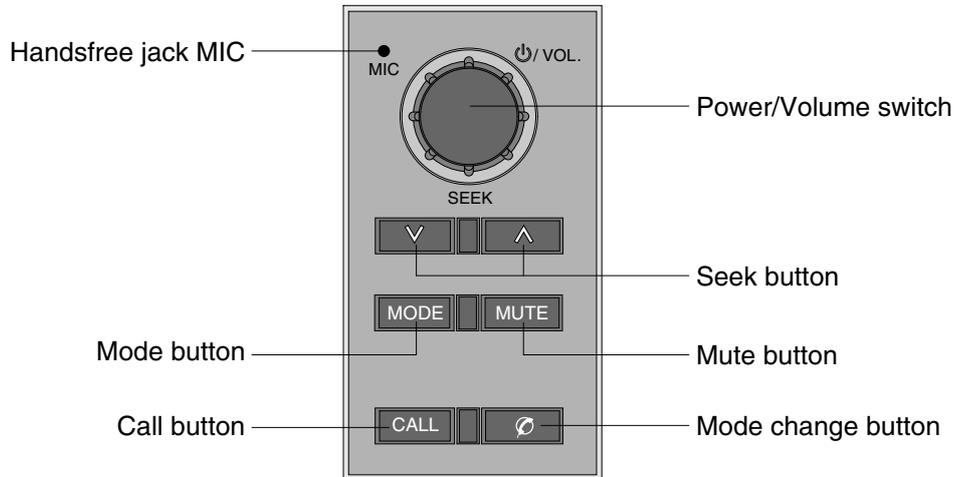
### (10) Handsfree jack



55I3CD31K

- ① Connect the jack cable when call by radio handsfree.

## REMOTE CONTROLLER (#2135-)



21093CD52

### (1) Power and volume switch



21093CD52A

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

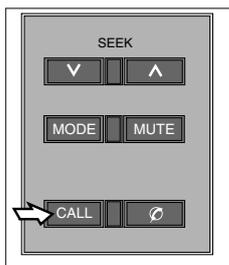
### (2) Mode change button



21093CD52B

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

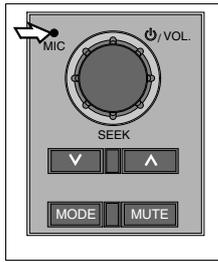
### (3) Call button



21093CD52C

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

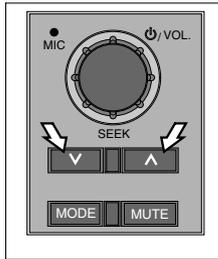
#### (4) Handsfree MIC



21093CD52D

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

#### (5) Seek button



21093CD52E

- ① If this button pressed, the radio automatically stops at the next frequency of broadcasting for your listening.
- ② Press  to turn a station of a higher frequency or  to a lower frequency.

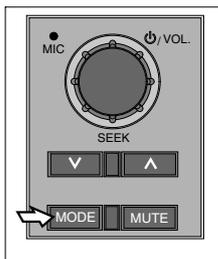
#### (6) Mute button



21093CD52G

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

#### (7) Mode button



21093CD52F

- ① Press the mode button to select the desired mode.
  - ② FM1 → FM2 → AM → CD → MP3 → FM1
- ※ The LCD displayed each mode.

## 6) FUSE BOX

WORK LAMP	20A	START KEY	30A
FUEL PUMP HORN	20A	CASSETTE CLUSTER	20A
CIGAR LIGHT WIPER MOTOR	20A	ROOM LAMP AIRCON HEATER	30A
AIR-CON HEATER	20A	MCU	20A
SOLENOID	10A	ECU	20A
ALT. ANT-RESTART RY	20A	CLUSTER SWITCH PANEL	20A
SAFETY SOL	10A	MCU	20A
BEACON LAMP	20A	CASSETTE RADIO	20A
PRE HEAT	20A	SPARE	20A
CABIN LAMP FEED PUMP	30A	HEAD LAMP	20A
FUSE HOLDER		SPARE	20A
		SPARE	30A

60CR9A3CD13

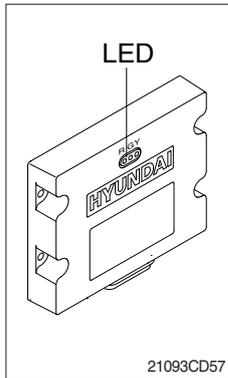
(1) The fuses protect the electrical parts and wiring from burning out.

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

※ **Replace a fuse with another of the same capacity.**

▲ **Before replacing a fuse, be sure to turn OFF the starting switch.**

## 7) MCU



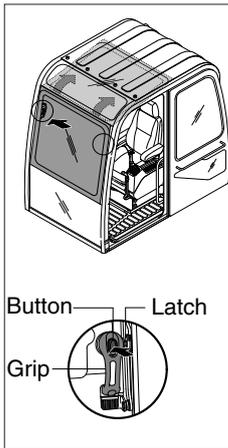
(1) To match the pump absorption torque with the engine torque, MCU varies EPPR valve output pressure, which control pump discharge amount whenever feedbacked engine speed drops under the reference rpm of each mode set.

(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 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

## 8) UPPER WINDSHIELD

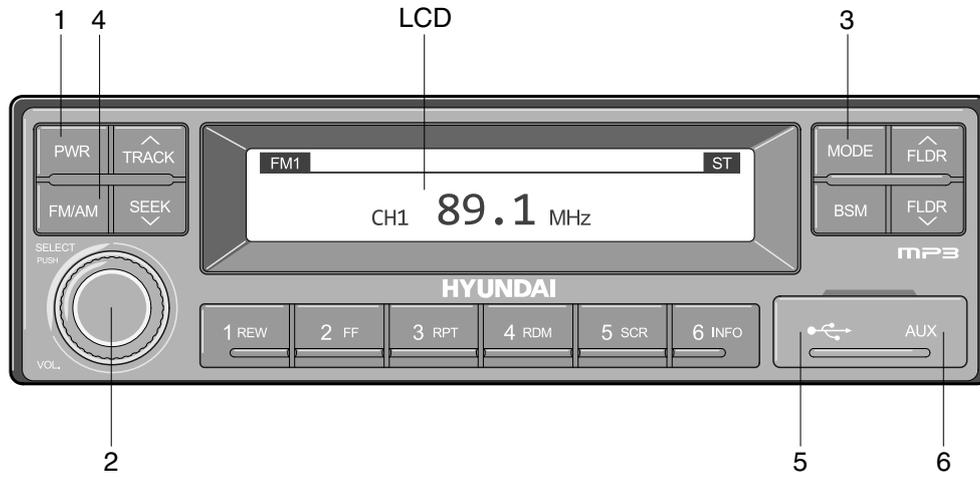


- (1) Perform the following procedure in order to open the upper windshield.
  - ① Release both latches in order to release the upper windshield.
  - ② Hold both grips that are located at both side the windshield frame push the windshield upward.
  - ③ Hold both grips that are provided on the windshield frame and back into the storage position until auto lock latch is engaged.
- (2) Perform the following procedure in order to close the upper windshield.

Reverse step ① through step ③ in order to close the upper windshield.

## 8) RADIO AND USB PLAYER (MACHINE SERIAL NO.: ~#0837)

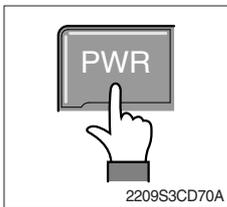
### ■ BASIC FUNCTIONS



2209S3CD70

- |                               |                                  |
|-------------------------------|----------------------------------|
| 1 Power (PWR) button          | 4 Radio (FM/AM) selection button |
| 2 Volume/Sound setting button | 5 USB slot                       |
| 3 Mode selection button       | 6 AUX terminal                   |

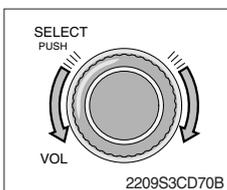
#### (1) Power (PWR) button



- ① Press the PWR button to turn on the audio. While the audio is operating, press the button to turn the power off.

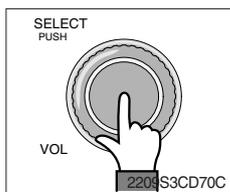
#### (2) Volume/Sound setting button

##### · Volume (VOL) button



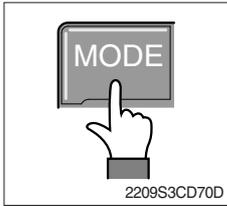
- ① Turn the VOL button clockwise to increase the volume and counter-clockwise to decrease the volume.

## · Sound setting



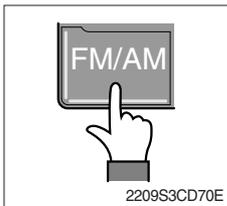
- ① Press the SELECT button to conduct sound setting.  
Each press of the button will change the sound setting in the following order.  
BASS → MIDDLE → TREBLE → BALANCE → EQ → BEEP
- ② After selecting the desired setting, turn the SELECT button clockwise/counter-clockwise to adjust the sound setting value.
- ③ **BASS adjustment**  
Turn the SELECT button clockwise to increase the bass and counter-clockwise to decrease the bass. BASS can be adjusted from max +10/min -10. If there are no adjustments for 3 seconds, the changes will be saved and the previous mode will be restored.
- ④ **MIDDLE adjustment**  
Turn the SELECT button clockwise to increase the middle and counter-clockwise to decrease the middle. MIDDLE can be adjusted from max +10/min -10. If there are no adjustments for 3 seconds, the changes will be saved and the previous mode will be restored.
- ⑤ **TREBLE adjustment**  
Turn the SELECT button clockwise to increase the treble and counter-clockwise to decrease the treble. TREBLE can be adjusted from max +10/min -10. If there are no adjustments for 3 seconds, the changes will be saved and the previous mode will be restored.
- ⑥ **Left/Right BALANCE adjustment**  
Turn the SELECT button clockwise to increase the right-side speaker volume and counter-clockwise to increase the left-side speaker volume. BALANCE can be adjusted from 10L/10R. If there are no adjustments for 3 seconds, the changes will be saved and the previous mode will be restored.
- ⑦ **EQ (EQUALIZER) adjustment**  
Turn the SELECT button clockwise/counter-clockwise to select the desired EQ. EQ settings are as shown below.  
Cls (classic) → Pop → Rock → Jazz → off  
If there are no adjustments for 3 seconds, the changes will be saved and the previous mode will be restored.
- ※ **Upon selecting EQ, the BASS, MIDDLE and TREBLE values will be turned off.**  
**The BASS, MIDDLE, TREBLE values can be set only when EQ Off is selected.**
- ⑧ **BEEP sound adjustment**  
Turn the SELECT button clockwise/counter-clockwise to the beep sound ON/OFF. If there are no adjustments for 3 seconds, the changes will be saved and the previous mode will be restored.

### (3) MODE selection button



- ① Press the MODE button to change to RADIO/USB/AUX/iPod modes. However, the mode can be selected only when the respective media is connected.
  - ② If iPod is connected to the audio, the mode will change in the following order.  
RADIO → iPod → USB (handfree)
  - ③ If USB, AUX is connected to the audio, the mode will change in the following order.  
RADIO → USB(front) → USB(handfree) → AUX
- ※ **USB and AUX mode will operate only when corresponding devices are connected.**
  - ※ **When connecting iPod, AUX and front USB cannot be connected.**
  - ※ **The iPod is connected to the USB in the machine handfree.**

### (4) Radio (FM/AM) selection button



- ① Each press of the FM/AM button will change the radio mode in the following order.  
FM1 → FM2 → FM3 → AM
- ② Preset memory of up to FM : 18 stations, AM : 6 stations

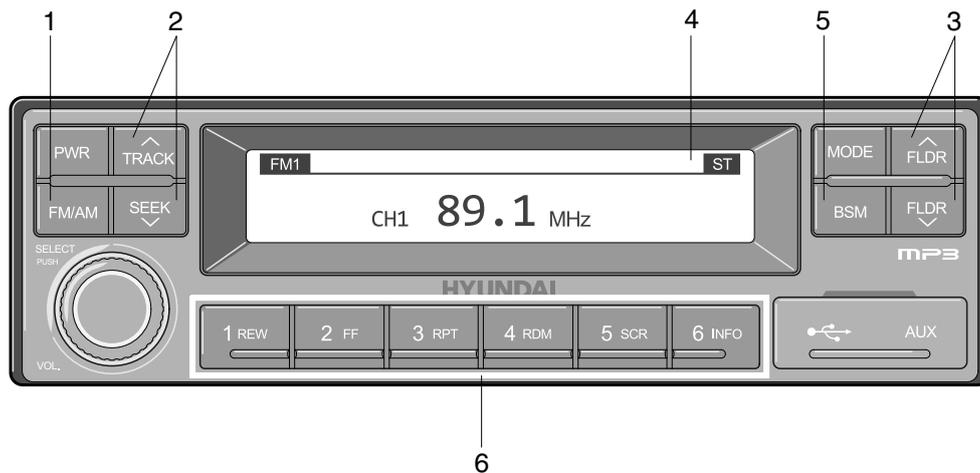
### (5) USB slot

Connects USB to play USB music files.

### (6) AUX terminal

Connects AUX cable to play AUX music files.

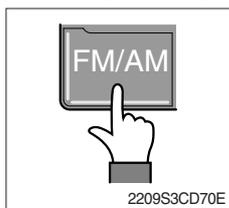
## ■ RADIO



2209S3CD71

- |   |                                       |   |  |
|---|---------------------------------------|---|--|
| 1 | Radio (FM/AM) selection button        | 4 | LCD display                                    |
| 2 | TRACK/SEEK button                     | 5 | BSM (Best Station Memory) button               |
| 3 | Broadcast manual search (FLDR) button | 6 | Saving broadcast frequencies to PRESET numbers |

### (1) Radio (FM/AM) selection button



- ① Each press of the FM/AM button will change the radio mode in the following order.

FM1 → FM2 → FM3 → AM

- ② In addition, pressing the FM/AM button when the starting switch is in ON state will turn the power on and activate the radio.

### ③ Setting regional Radio Frequency

#### ▶ North America Frequency

Press the FM/AM and Preset 1 button simultaneously to set frequency in accordance to the North America Frequency settings. "nA" will become displayed on the LCD for one second.

FM : 87.7 ~ 107.9 MHz (200 KHz)

AM : 530 ~ 1710 KHz (10 KHz)

#### ▶ Local/Middle East/Asia Frequency

Press the FM/AM and Preset 2 button simultaneously to set frequency in accordance to the Local/Middle East/Asia Frequency settings. "InT" will become displayed on the LCD for one second.

FM: 87.5 ~ 108 MHz (100 KHz)

AM: 531 ~ 1602 KHz (9 KHz)

#### ▶ Europe Frequency

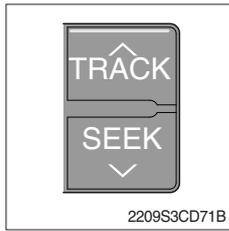
Press the FM/AM and Preset 3 button simultaneously to set frequency in accordance to the North America Frequency settings. "Eu" will become displayed on the LCD for one second.

FM: 87.5 ~ 108 MHz (50 KHz)

MW: 531 ~ 1602 KHz (9 KHz)

LW: 153 ~ 279 KHz (1 KHz)

## (2) TRACK/SEEK button



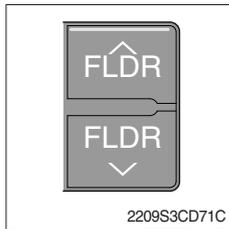
- ① As buttons used to automatically search broadcasts, pressing the button will automatically search and stop at a frequency with superior reception.

TRACK ^ : Searches frequencies higher than current frequency

SEEK v : Searches frequencies lower than current frequency

- ※ **When frequencies cannot be properly found due to weak broadcast reception, try using manual FLDR button. (Refer to manual FLDR button explanation below)**

## (3) Broadcast manual search (FLDR) button



- ① As button used to search frequencies manually, a press of the SEEK step (refer to note below) will change the frequency.

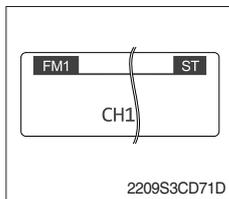
Pressing and holding the button will continue changing the frequency. Releasing the button will stop the search at the current frequency.

FLDR ^ : Searches frequencies higher than current frequency

FLDR v : Searches frequencies lower than current frequency

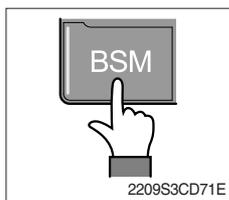
- ※ **SEEK STEP : FM-100KHz, AM-9KHz**

## (4) LCD display



- ① The currently received broadcast frequency info and status are displayed.

## (5) BSM (Best Station Memory) button

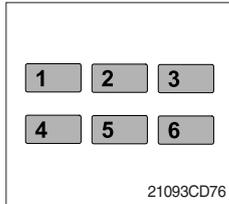


- ① Press and hold the BSM button to listen to the presets saved in FM BAND FM1, FM2, and FM3 or AM BAND AM for 5 seconds each.

When you find a station you wish to listen to, press the BSM button again to receive the selected broadcast.

- ② Shortly press the BSM button to automatically save frequencies with superior reception in presets (1REW~6INFO). The BSM feature will save AM frequencies in AM mode and FM frequencies in FM mode.

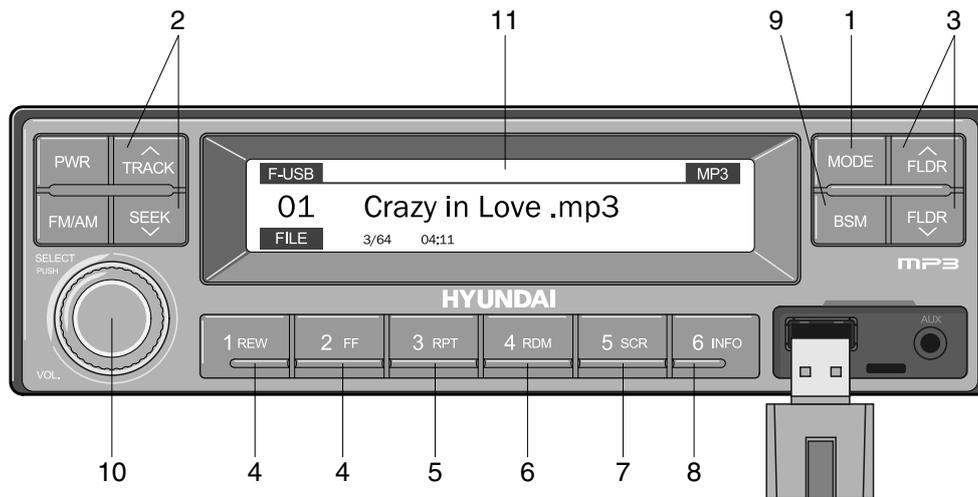
## (6) Saving broadcast frequencies to PRESET numbers



Up to 18 FM broadcasts and 6 AM broadcasts can be saved.

- ① Use the auto/manual search buttons to find the desired frequency.
  - ② Select the preset button (1REW~ 6INFO) to which you wish to save the selected frequency. Press and hold the preset button.
  - ③ The frequency will be saved to the preset button to a sound of a beep. The saved frequency number will be displayed on the LCD DISPLAY. (However, the beep will not sound if the beep function has been turned off in sound setting.)
  - ④ After saving is complete, pressing the preset button will play the corresponding broadcast frequency.
- ※ No beep sound signifies that the preset has not been saved. In this case, try again from the first step. (However, the beep will not sound if the beep function has been turned off in sound setting.)

## ■ USB CONNECTION

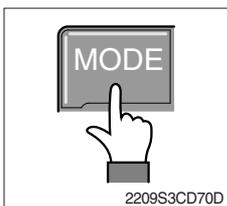


2209S3CD72

- |                             |   |
|-----------------------------|---|
| 1 USB selection button      | 7 Scroll (SCR) button                       |
| 2 TRACK UP/SEEK DOWN button | 8 View music info (INFO) button             |
| 3 FLDR UP/DOWN button       | 9 Scan button (BSM)                         |
| 4 FF/REW button             | 10 Finding and playing file (SELECT) button |
| 5 RPT/FOLDER RPT button     | 11 LCD display                              |
| 6 RDM/FOLDER RDM button     |   |

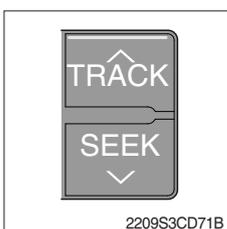
- Operates only when a USB is connected. Connecting a USB to the audio will automatically convert to USB mode.
- Connecting the USB when the starting switch is in ON state will turn the power on and automatically play the songs within the USB.

### (1) USB selection button



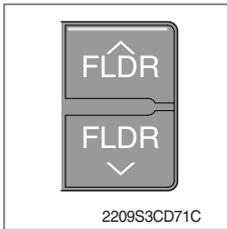
- ① While playing a different mode, press the MODE button to convert to USB mode. Connecting a USB to the audio will automatically convert to USB mode even if another mode is playing and automatically play the songs within the USB.
- ② If the USB is connected to both the front USB and handfree, then MODE is converted in the following order.  
RADIO → USB(front) → USB(handfree)

### (2) TRACK UP/SEEK DOWN button



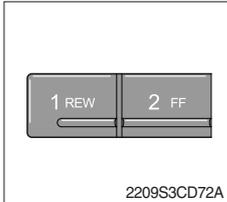
- ① While playing USB, press the TRACK ^ button to play the beginning of the next song.  
Press the SEEK v button to return to the beginning of the current song. Press the button again to play the beginning of the previous song.

### (3) FLDR UP/DOWN button



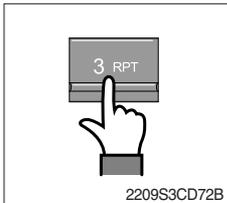
- ① If there are more than 2 folders in the USB, pressing the FLDR UP/DOWN button will move to the previous or next folder.
- ② If there are no folders in the USB, then pressing the button will move up/down within the folder in 10 file increments.

### (4) FF/REW button



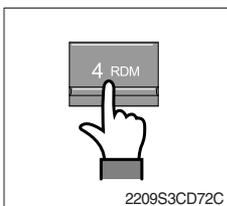
- ① While a USB is operating, press and hold the FF button to fast-forward the song. When fast-forward is complete, the next song will properly play from the beginning even if you continue holding the button. Press and hold the REW button to rewind the song. When rewind is complete, the current song will properly play from the beginning even if you continue holding the button. Shortly pressing the buttons will not operate the FF/REW.

### (5) RPT/FOLDER RPT button



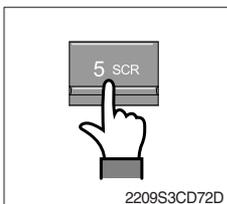
- ① While music is playing, shortly press the RPT button to repeat the currently playing song.
- ② (RPT function) Press and hold the RTP button to sequentially repeat all songs within the current folder. (FOLDER RPT, however, music files in the USB must be saved in folder format.)

### (6) RDM/FOLDER RDM button



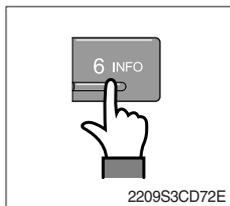
- ① While music is playing, shortly press the RDM button to randomly play the songs in the current folder. (RDM)
- ② While music is playing, press and hold the RDM button to randomly play the songs in the current folder. (FOLDER RDM, however, music files in the USB must be saved in folder format.)

### (7) Scroll (SCR) button



- ① Press the SCR button to turn ON/OFF the scroll function which scrolls the file name of the currently playing song on the LCD from right to left.

### (8) View music info (INFO) button



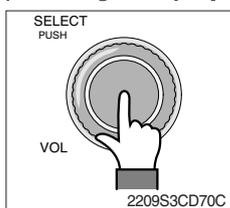
- ① Each time the INFO button is pressed, the info on the currently playing song will be displayed in the following order.  
FILE NAME → TITLE → ARTIST → ALBUM → DIR

### (9) Scan button (BSM)



- ① While music is playing, shortly press the BSM button to scan each song within the USB for 10 seconds in sequential order. (SCN)
- ② Press and hold the BSM button to scan each song within the current folder for 10 seconds in sequential order. (FOLDER SCN, however, music files in the USB must be saved in folder format.)

### (10) Finding and playing file (SELECT) button



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

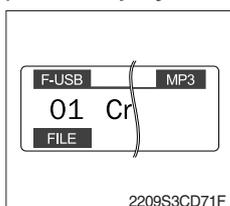
After entering FILE BROWSER mode, turn the SELECT button left/

- ② right to find the desired folder. After finding the folder, press the SELECT button to select the folder. Turn the SELECT button left/right to find the desired song and press the SELECT button to play.

If there are no adjustments for 3 seconds after pressing the

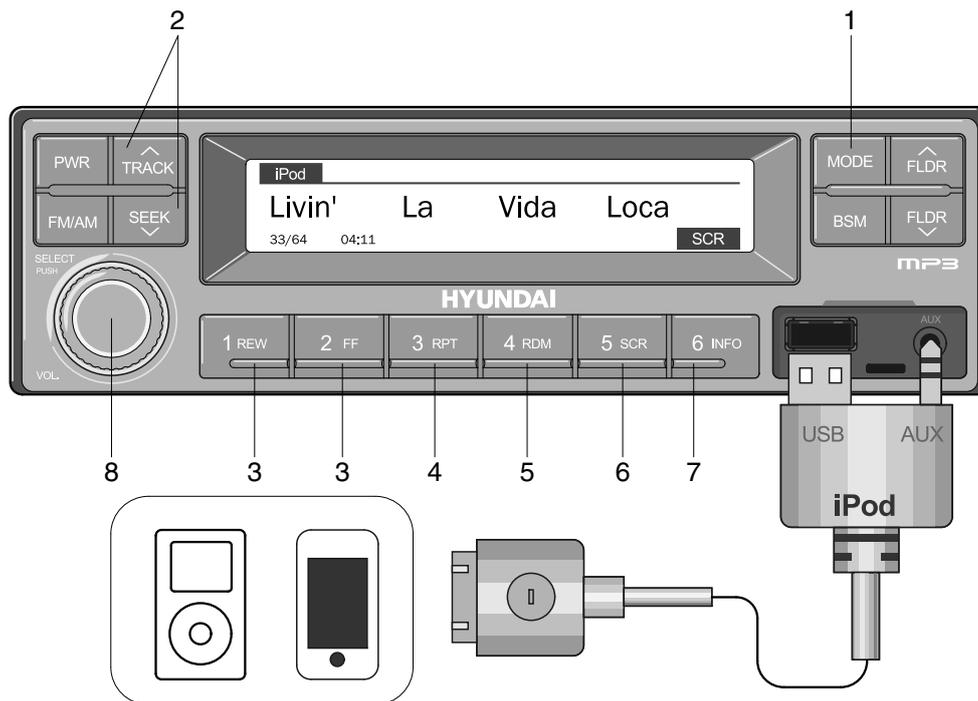
- ③ SELECT button, the function will be turned off and the USB play screen will be displayed.

### (11) LCD display



- ① Displays the info of the currently playing song.
  - F-USB : Displays USB is connected to the Audio Front
  - R-USB : Displays USB is connected to the handfree
  - RPT : Displays that repeat function is turned on
  - RPT : Displays that folder repeat function is turned on
  - RDM : Displays that random play is turned on
  - RDM : Displays that folder random play is turned on
  - SCR : Displays that SCROLL is turned on

## ■iPOD CONNECTION

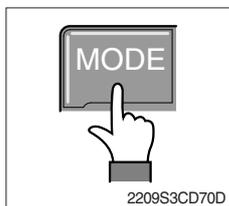


2209S3CD73

- |                             |  |
|-----------------------------|--|
| 1 iPod selection button     | 5 Random play (RDM) button                 |
| 2 TRACK UP/SEEK DOWN button | 6 Scroll (SCR) button                      |
| 3 FF/REW button             | 7 View music info (INFO) button            |
| 4 Repeat (RPT) button       | 8 Finding and playing file (SELECT) button |

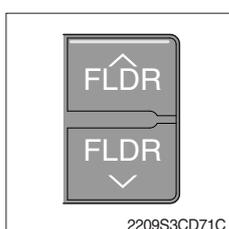
- Operates only when an iPod is connected. Connecting an iPod to the audio will automatically convert to iPod mode. Connecting the USB when the starting switch is in ON state will turn the power on and automatically play the songs within the iPod.
- The iPod cable is supplied separately.

### (1) iPod selection button



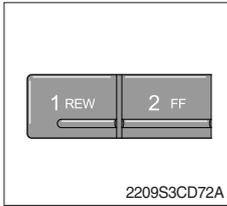
- ① While playing a different mode, press the MODE button to convert to iPod mode. Connecting an iPod to the audio will automatically convert to iPod mode even if another mode is playing and automatically play the songs within the iPod.

### (2) TRACK UP/SEEK DOWN button



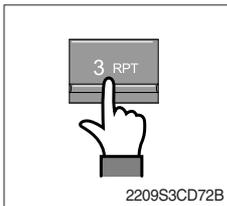
- ① While playing music, press the TRACK ^ button to play the beginning of the next song. Press the SEEK v button to return to the beginning of the current song. Press the button again to play the beginning of the previous song.

### (3) FF/REW button



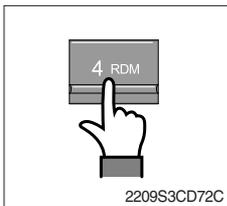
- ① While an iPod is operating, press and hold the FF button to fast-forward the song.
- ② When fast-forward is complete, the next song will properly play from the beginning even if you continue holding the button. Press and hold the REW button to rewind the song.
- ③ When rewind is complete, the current song will properly play from the beginning even if you continue holding the button.
- ④ Shortly pressing the buttons will not operate the FF/REW.

### (4) Repeat (RPT) button



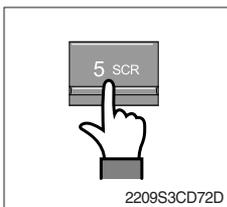
- ① While music is playing, press the RPT button to repeat the currently playing song.

### (5) Random play (RDM) button



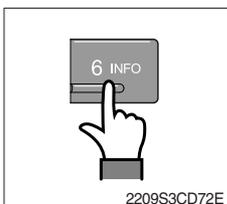
- ① While music is playing, press the RDM button to randomly play the songs.

### (6) Scroll (SCR) button



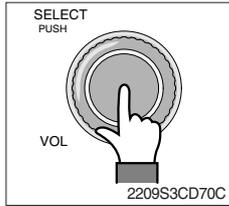
- ① Displays the file name of the currently playing song on the LCD. Here, the SCR button turns the file name SCROLL ON/OFF.

### (7) View music info (INFO) button



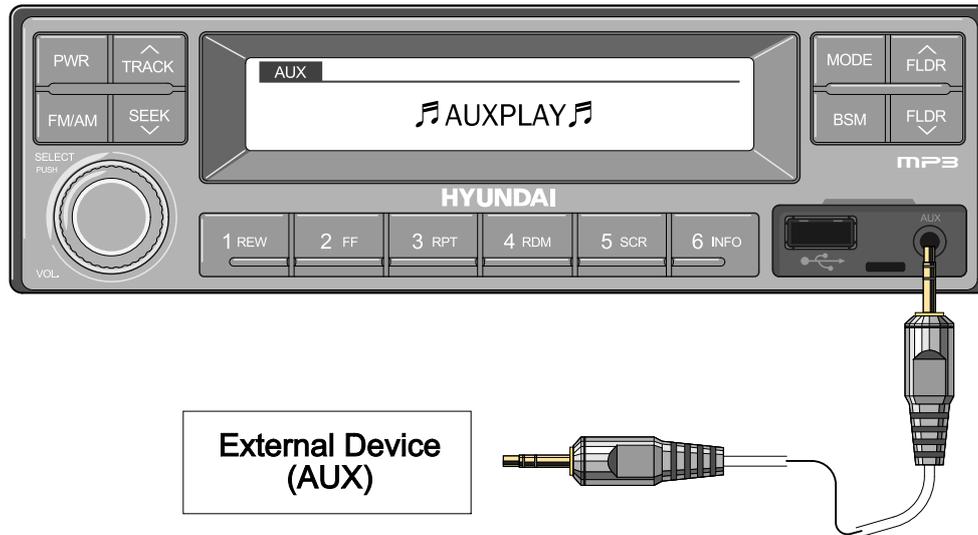
- ① Each time the INFO button is pressed, the info on the currently playing song will be displayed in order of ARTIST → ALBUM → TITLE.

## (8) Finding and playing file (SELECT) button



- ① While iPod is playing, press and hold the SELECT button for over 3 seconds to enter CATEGORY mode and search for desired files.
- ② After entering CATEGORY mode, turn the SELECT button left/right to find the desired category.
- ③ Category will be displayed in the following order.  
PLAYLISTS → ARTISTS → ALBUMS → GENRES → SONGS → COMPOSERS → AUDIOBOOKS → PODCASTS
- ④ After finding the category, press the SELECT button to select the category. Turn the SELECT button left/right to find the desired song and press the SELECT button to play.
- ⑤ If there are no adjustments for 3 seconds after pressing the SELECT button, the function will be turned off and the iPod play screen will be displayed.

## ■AUX connection



2209S3CD74

- Operates only when an external device is connected to AUX. Connecting an AUX device to the audio using the AUX cable will automatically convert to AUX mode.
- When an external device is connected, only the PWR, FM/AM, MODE, and VOL buttons can be operated.
- Settings can be made only through the external device connected to AUX.
- The AUX cable is supplied separately.

### (1) Connecting an external device using the AUX cable

- ① While playing a different mode, press the MODE button to convert to AUX mode.
- ② If an external device is connected to the Audio through the AUX terminal, AUX mode will automatically be converted and play music from AUX. Connecting the AUX when the starting switch is in ON state will turn the power on and automatically play the songs within the AUX.

## 8) RADIO AND USB PLAYER (MACHINE SERIAL NO.: #0838~#2499)



9403CD101

### FRONT PANEL PRESENTATION

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

## ■ GENERAL

### (1) Power and volume button



#### ① Power ON / OFF button

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

#### ② Volume UP/DOWN control knob

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

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

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

#### ③ Initial volume level set up

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

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

#### ④ Clock ON/OFF control

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

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

#### ⑤ Clock adjustment

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

## (2) Menu Selection



- ① This button can adjust the sound effect 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 no mp3 or wma files in USB device, it will convert to the previous mode after display 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 random play the tracks in 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-CAED 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.
- ※ The temperature below -10 Celsius, the audio unit with USB hook up would be affected to 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.

## ■ RESET AND PRECAUTIONS

### (1) Reset function

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

① press and hold   simultaneously for about 5 seconds. (without Bluetooth)

② Take out the fuse for the audio system in the vehicle once and then plug it back in.

※ It will be necessary to re-enter the radio preset memories as these will have been erased when the microprocessor was reset.

※ After resetting the player, ensure all functions are operating correctly.

### (2) Precautions

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

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

① Operation voltage : 9~32 volts DC, negative

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

③ Tuning range

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

#### ● AREA Selection :

- To select an area, press and hold related buttons at FM1 band for about 3 seconds.

- USA Area: Press and hold mode + 1DIS buttons for 3 seconds

- EUROPE Area: Press and hold mode + 2 buttons for 3 seconds

- ASIA Area: Press and hold mode + 3RPT buttons for 3 seconds

- LATIN Area: Press and hold mode + 4RDM buttons for 3 seconds.

④ USB version : USB 1.1

## 8) RADIO AND USB PLAYER (MACHINE SERIAL NO. : #2500-)

### ■ 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).

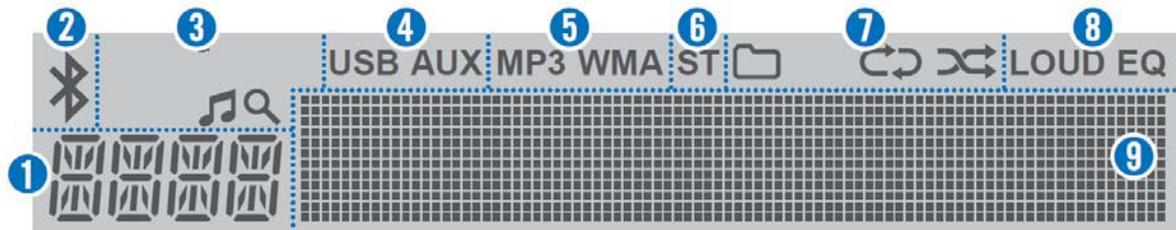
## ■ WITHOUT BLUETOOTH



19A3RD01

- 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 FM button : enters FM Radio mode.
- 7 AM button : enters AM Radio mode.
- 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).
- 9 MODE button : selects USB or AUX play mode (press).
- 10 MENU button : enters Menu setting mode or returns to the previous menu (press).

## ■ DISPLAY WINDOW (LCD)

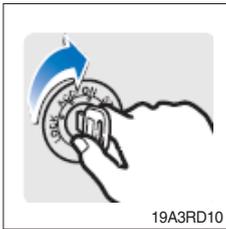


19A3RD03

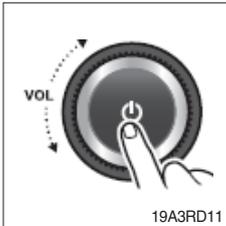
- |  |  |
|--|--|
| <p>1 Function display area for showing the function mode.</p> <p>2 Bluetooth indicator for the Bluetooth connection.</p> <p>3 Search indicator for USB play list.</p> <p>4 USB/AUX indicators for the USB or External device connection.</p> <p>5 MP3/WMA indicators for USB's Audio Stream detections.</p> <p>6 ST (Stereo) indicators for FM stereo reception.</p> | <p>7 Playback mode indicators for USB playback mode.</p> <p>    📁 : Folder mode.</p> <p>    🔄 : Repeat playback.</p> <p>    🎲 : Random playback.</p> <p>8 LOUD/EQ indicators for sound effect.</p> <p>    LOUD : Loudness mode.</p> <p>    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

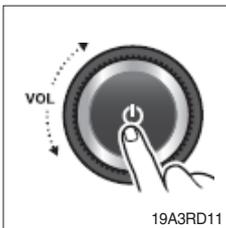


- ① Turn the starting switch to ON position.



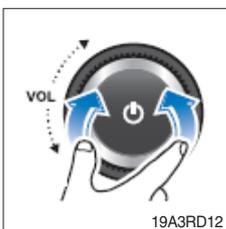
- ② Press the POWER button to turn the power on.
  - If the source is ready, playback also starts.
  - To turn on the power directly.

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.



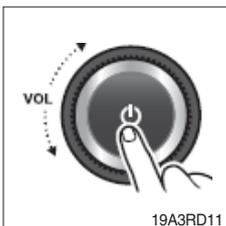
- ③ When power is on, press and hold the POWER button to turn power off.

### (2) Adjusting volume directly



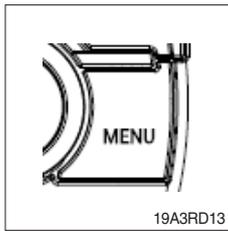
- ① Turn the VOLUME dial to control volume.
  - Available volume range : 00 (mute)~41.

### (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.

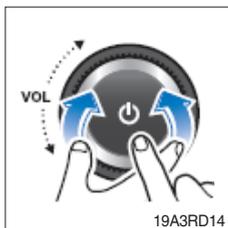
#### (4) Setting the sound



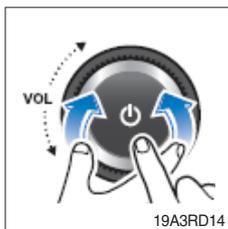
- ① Press MENU button to enter the Settings menu mode.
  - After entering MENU mode, press MENU button to return to the previous item.



- 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.

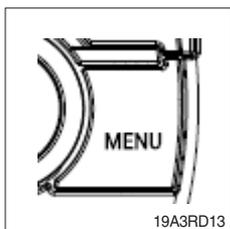


- ③ Turn VOLUME dial to select the desired Sound setting mode, then press this dial.
  - BASS : sets the bass sound level (-5~+5).
  - MIDDLE : sets the middle sound level (-5~+5).
  - TREBLE : sets the treble sound level (-5~+5).
  - BALANCE : sets the sound balance between the right and left speakers (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.

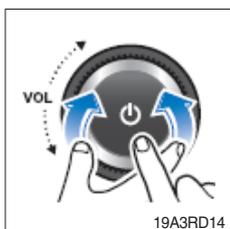


- ④ Turn VOLUME dial to adjust the value of the level, balance or style, then press this dial.

## (5) Setting the system functions

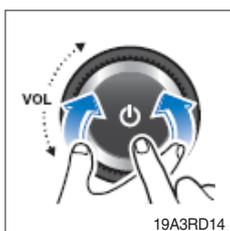


① Press MENU button to enter the Settings menu mode. Turn VOLUME dial to select "SYSTEM" as below, then press this dial.



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.



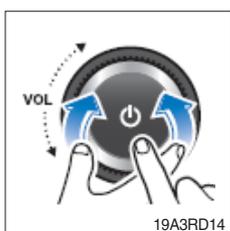
③ Turn VOLUME dial to select ON or OFF, then press this dial.

## (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.

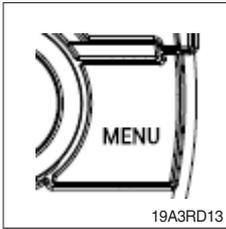


② Turn the VOLUME dial to select the desired area as below, then press this dial.

- 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

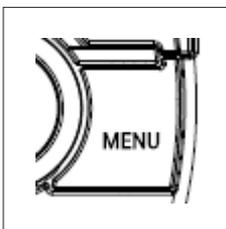


- ① Press MENU button to enter the Settings menu mode. Turn VOLUME dial to select "SOFTWARE" as below, then press this dial.
  - SOFTWARE : check/update the system software.



- 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)



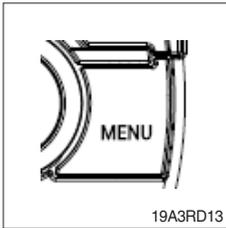
- ① Press MENU button to enter the Settings menu mode. Turn VOLUME dial to select "BLUETOOTH" as below, then press this dial.
  - Bluetooth : Bluetooth setting mode.



- 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.



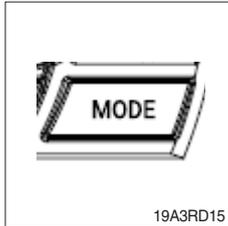
- ② Turn VOLUME dial to select the "BLUETOOTH" as below, then press this dial.
- ③ Turn the VOLUME dial to select the "PAIR", then press this dial.
  - When you first register, appear the "BT Pairing" on the display window, then search the Bluetooth devices for connection.
  - If a Bluetooth device is 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.

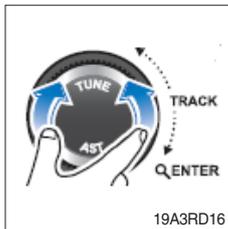
※ Should be set to Stereo Headset in Bluetooth device type menu of your device



① Press the MODE button repeatedly to select the BT Audio mode. Appears  on display window and start playback.

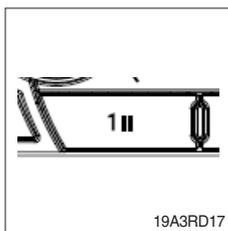
- If a Bluetooth device is not connected, you can not select.
- If music is not yet playing from your mobile device after switching to Bluetooth Music (streaming audio) mode or after pressing Play on the mobile device itself, try to start music playback by pressing the Play button again.
- The output 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



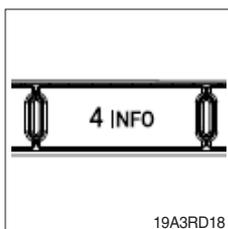
① While playing, turn the TUNE/TRACK dial to moves to the previous or next track.

- 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.

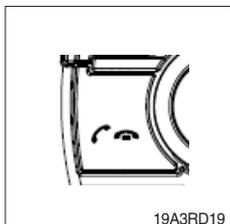


③ Press the [4 INFO] button to check the information of current connected device.

- 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.

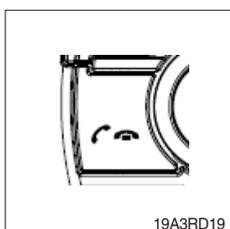
#### (4) Answering a call

- ※ 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.

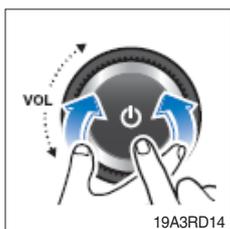


- ① To answer a call, press the  button or to reject a call press and hold the  button.
  - When a call comes in, the audio source is muted.
  - When a call is ended, this unit returns to the previous state media playback.

#### (5) Making a call from recent number

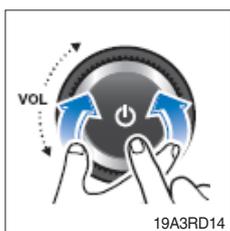


- ① To call the recent connected number, press the  button to display recent call number.
  - The recent calls list is displayed. Turn the VOLUME dial to select a recent call number, then press this dial to make a call.
  - The recent calls list displays up to 10.



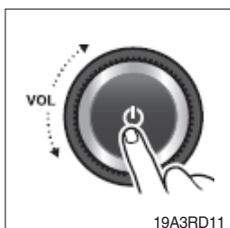
- ② To call the last connected number directly, press and hold the  button.

#### (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.

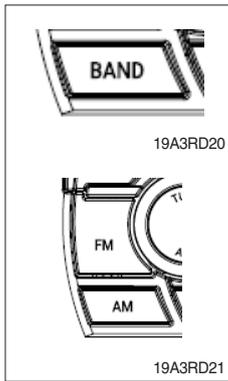


- ③ To switch from hands-free mode to the phone handset mode, press and hold the  button.  
To returns the phone conversation to hands-free mode, press and hold the  button.

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

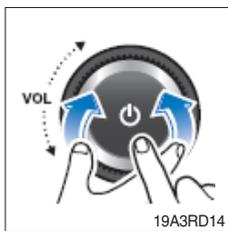
## ■ RADIO

### (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.

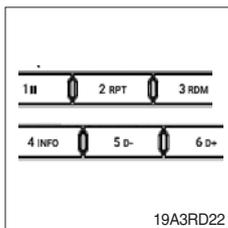


② Turn the TUNE/TRACK dial to select the station.

- 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,AM 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

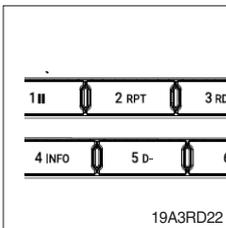
※ You can save up to 6 preset channels automatically each for FMA and AMA band.



- 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.

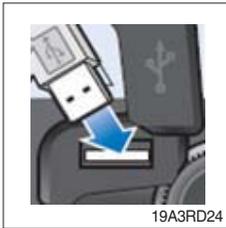
### (4) Listening to a preset station

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

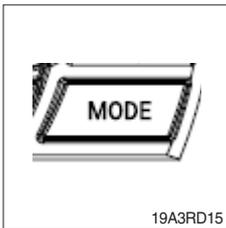


## ■ USB PLAYER

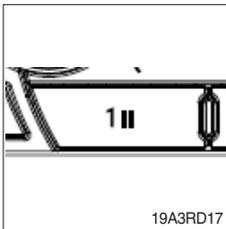
### (1) Playing an USB device



- ① Open the cover, plug the USB device (including 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.

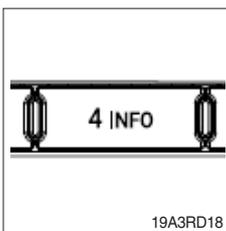


- ② When an USB device to be played is already connected, press the MODE button to play USB device.
  - The previously selected file is played.



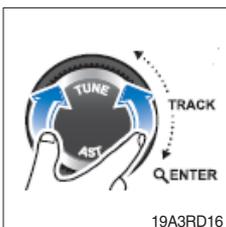
- ③ While playing, press the [1||] button to pause the file.

### (2) Changing the song information

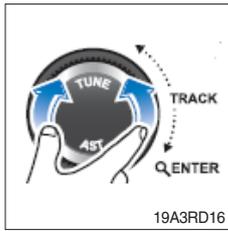


- ① Press the [4 INFO] button repeatedly to display information about the file being played.
  - The information displayed includes the file name, playing time, ID3 Tag or folder name information saved with the song.
  - If there is no information on the playing file, the unit will display "NO INFO", and then file name.

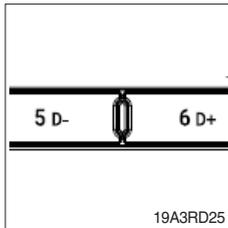
### (3) Controlling the playback



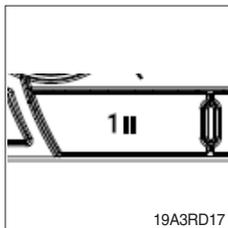
- ① While playing, turn the ►► I TRACK I ◀◀ dial left/right to move to the previous or next track.
  - Clockwise : move to the next file.
  - Counter-clockwise : move to the previous file.



- ② While the ►► I TRACK I ◀◀ 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.

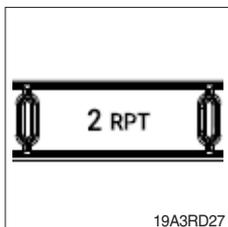


- ④ While playing, press the [1 II] button to pause the track.
- Press the button again to play the current track.

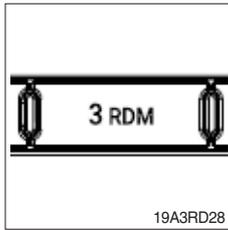


- ④ To find the song you want to play directly, press the Q (Search) button.
- Turn the ►► I TRACK I ◀◀ dial to select the desired file name, then press this dial.

#### (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.

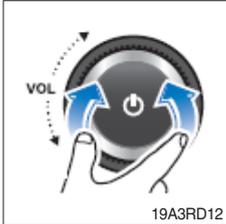
#### (5) Handling precautions for USB device

- ① 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.
- ② 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.
- ③ This unit can recognize maximum 9,999 files and 256 folders into the USB device.
- ④ The device may not recognize the USB device if separately purchased USB hubs and extension cables are being used.
- ⑤ The device may not support normal operation when using formats such as HDD Type, CF, or SD Memory.
- ⑥ The device will not support files locked by DRM (Digital Rights Management).

## ■ AUX PLAYER

### (1) Listening to auxiliary audio equipment

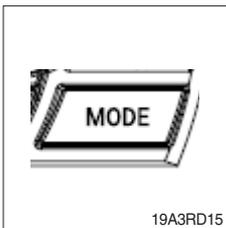
※ By connecting an optional portable audio device to the AUX input jack (stereo 3.5 pi) on the unit and then simply selecting the source, you can listen on your car speakers.



- 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.