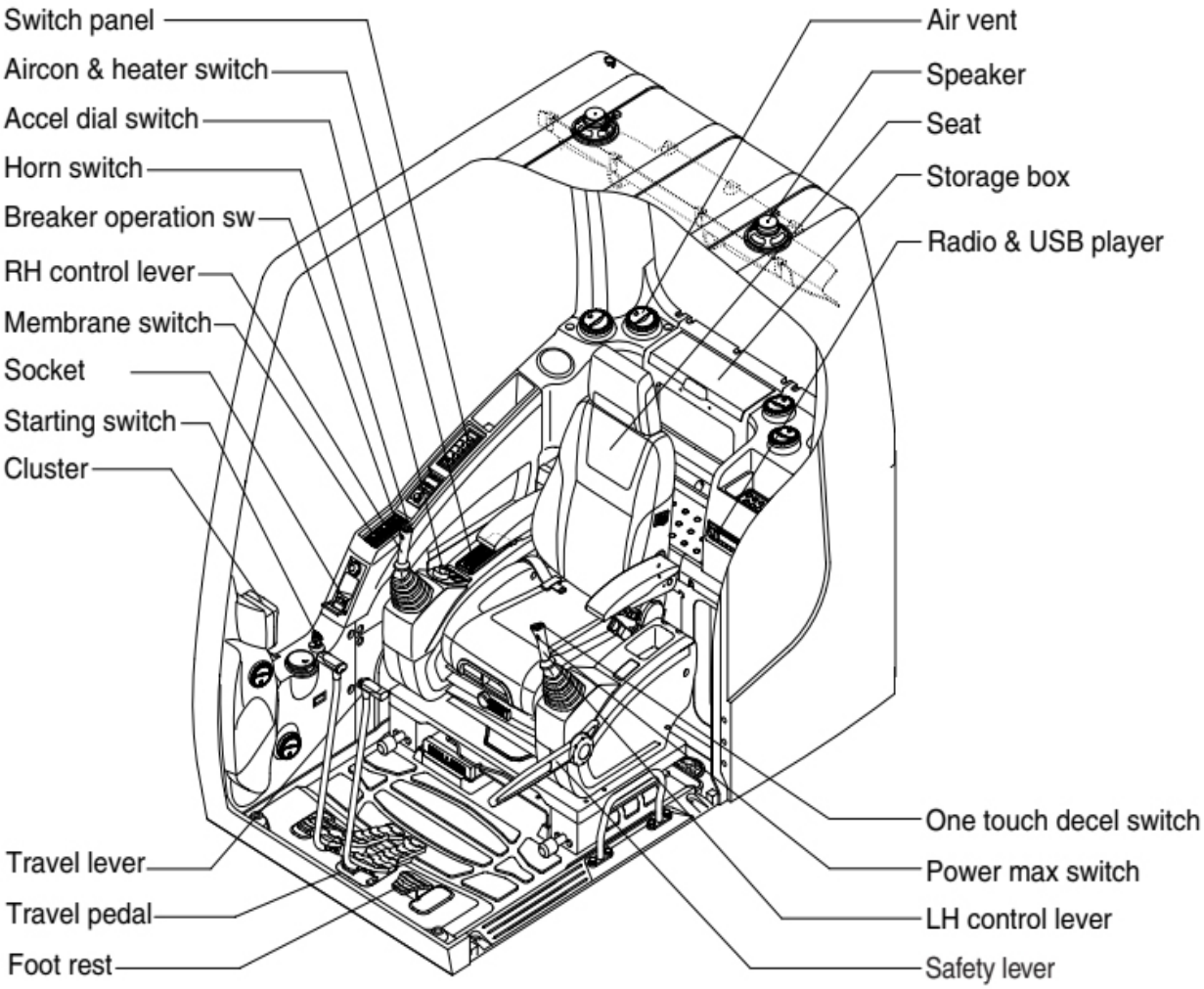
1. CAB DEVICES

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.



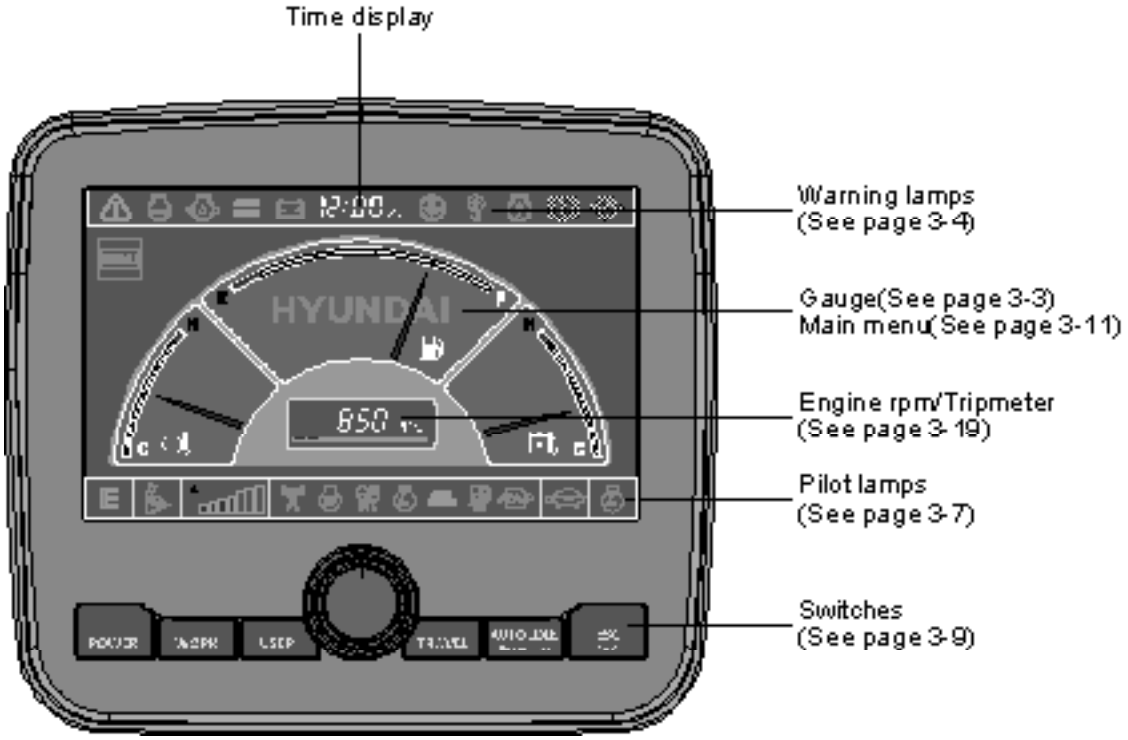
2. CLUSTER

1) STRUCTURE

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

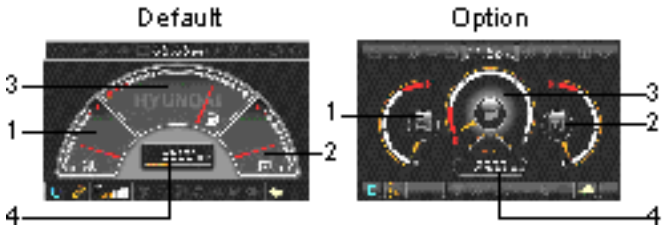
※ When the cluster provides a warning immediately check the problem, and perform the required action.



※ The warning lamp pops up and/or blinks and the buzzer sounds when the machine has a problem.
The warning lamp blinks until the problem is cleared. Refer to page 3-4 for details.

2) GAUGE

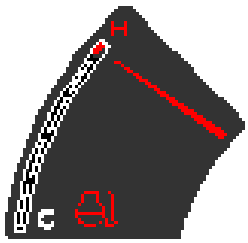
(1) Operation screen



1 Engine coolant temperature gauge
2 Hydraulic oil temperature gauge
3 Fuel level gauge
4 RPM / Tripmeter display

※ **Operation screen type can be set by the screen type menu of the display.**
Refer to page 3-21 for details.

(2) Engine coolant temperature gauge

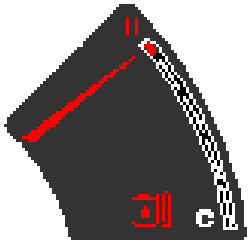


① This gauge indicates the temperature of coolant.
- White range : 40-107˚C(104-225˚F)
- Red range : Above 107˚C(225˚F)

② If the indicator is in the red range or lamp blinks in red, turn OFF the engine and check the engine cooling system.

※ **If the gauge indicates the red range or lamp blinks in red even though the machine is 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.
- White range : 40-105˚C(104-221˚F)
- Red range : Above 105˚C(221˚F)

② If the indicator is in the red range or lamp blinks is 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 blinks 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

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

② Fill the fuel when the red range, or lamp blinks in red.

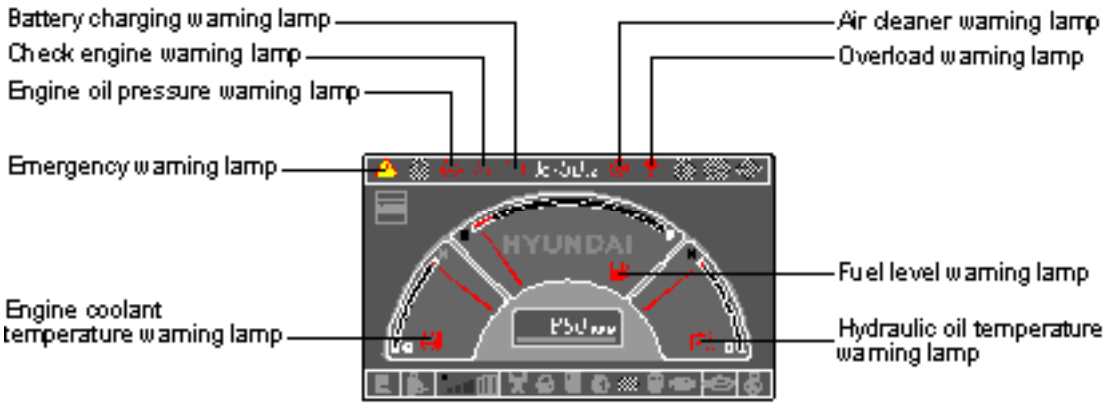
※ **If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.**

(5) RPM / Tripmeter display

① This displays the engine rpm or the tripmeter.

※ **Refer to page 3-19 for details.**

3) WARNING LAMPS



※ **Each warning lamp on the 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 blinks when the select switch is pushed. And the buzzer stops.**
Refer to page 3-10 for the select switch.

(1) Engine coolant temperature

① Engine coolant temperature warning is indicated two steps.
- 103˚C over : The lamp blinks.
- 107˚C over : The lamp pops up on the center of LCD and the buzzer sounds.

② The pop-up lamp moves to the original position and blinks when the select switch is pushed. Also, the buzzer stops and lamp keeps blink.

③ Check the cooling system when the lamp keeps ON.

(2) Hydraulic oil temperature

① Hydraulic oil temperature warning is indicated two steps.
- 100˚C over : The lamp blinks and the buzzer sounds.
- 105˚C over : The lamp pops up on the center of LCD and the buzzer sounds.

② The pop-up lamp moves to the original position and blinks when the select switch is pushed. Also, the buzzer stops and lamp keeps blink.

③ Check the hydraulic oil level and hydraulic oil cooling system.

(3) Fuel level

① This warning lamp blinks and the buzzer sounds when the level of fuel is below 75 ℓ (19.8 U.S. gal).

② Fill the fuel immediately when the lamp blinks.

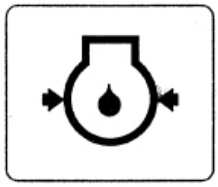
(4) Emergency warning lamp

① This lamp pops up and the buzzer sounds when each of the below warnings is happened.
- Engine coolant overheating (over 107˚C)
- Hydraulic oil overheating (over 105˚C)
- Pump EPPR circuit abnormal or open
- Attachment flow EPPR circuit abnormal or open
- MCU input voltage abnormal
- Accel dial circuit abnormal or open
- Cluster communication data error
- Engine ECM communication data error

※ The pop-up warning lamp moves to the original position and blinks when the select switch is pushed. Also the buzzer stops. This is same as following warning lamps.

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

(5) Engine oil pressure warning lamp



① This lamp blinks when the engine oil pressure is low.

② If the lamp blinks, shut OFF the engine immediately. Check oil level.

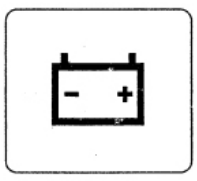
(6) Check engine warning lamp

① This lamp blinks 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 This lamp blinks when "Engine check water in fuel" is displayed in the message box then check water separator.

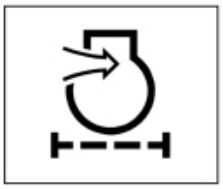
(7) Battery charging warning lamp



① This lamp blinks when the battery charging voltage is low.

② Check the battery charging circuit when this lamp blinks.

(8) Air cleaner warning lamp

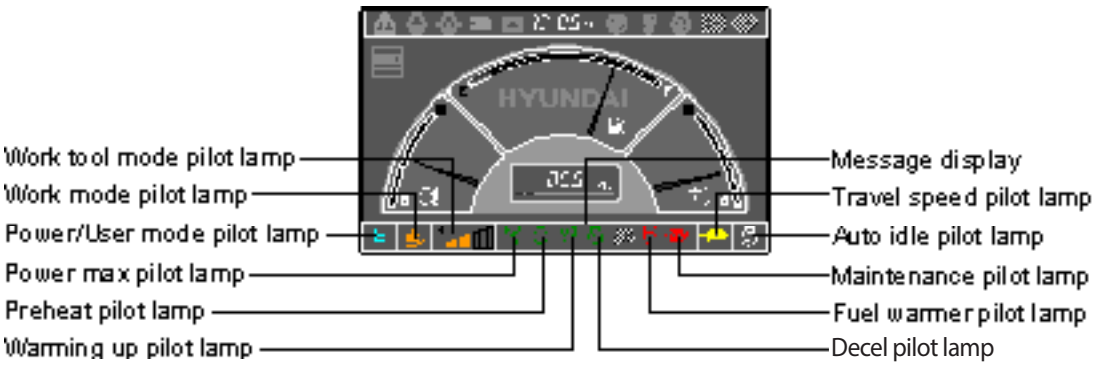


① This lamp blinks when the filter of air cleaner is clogged.
② Check the filter and clean or replace it.

(9) Overload warning lamp (opt)

① When the machine is overload, the overload warning lamp blinks during the overload switch is ON. (if equipped)
② Reduce the machine load.

4) PILOT LAMPS



(1) Mode pilot lamps

No	Mode	Pilot lamp	Selected mode
1	Power mode	P	Heavy duty power work mode
		S	Standard power mode
		E	Economy power mode
2	User mode	U	User preferable power mode
3	Work mode		General operation mode
			Breaker operation mode
			Crusher operation mode
4	Travel mode		Low speed traveling
			High speed traveling
5	Auto idle mode		Auto idle
6	Work tool mode		Oil flow level of breaker or crusher mode
7	Message display		"Setting is completed" display after selection

(2) Power max pilot lamp

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

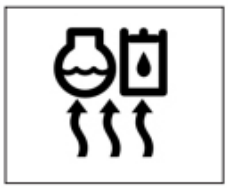
② The power max function is operated maximum 8 seconds.

※ **Refer to the page 3-26 for power max function.**

(3) Preheat pilot lamp

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

(4) Warming up pilot lamp



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.

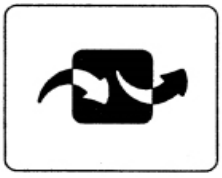
(5) Decel pilot lamp

① Operating one touch decel switch on the RCV lever makes the lamp ON.
② Also, the lamp will be ON and engine speed will be lowered automatically to save fuel consumption when all levers and pedals are at neutral position, and the auto idle function is selected.
※ One touch decel is not available when the auto idle pilot lamp is turned ON.
※ Refer to the page 3-26.

(6) Fuel warmer pilot lamp

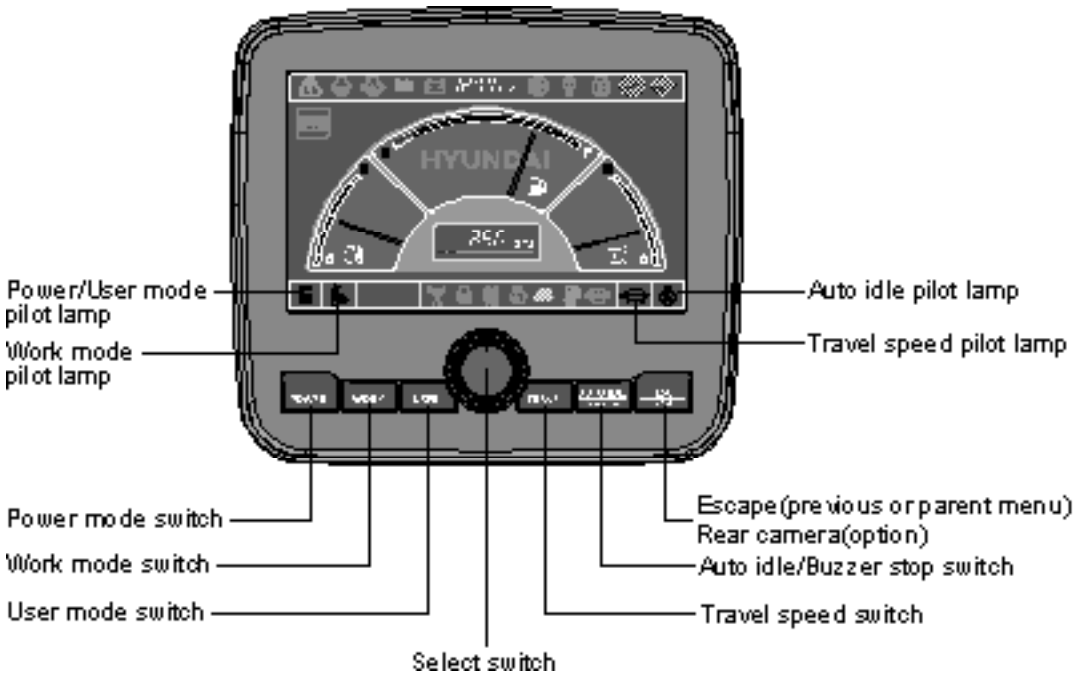
① This lamp is turned ON when the coolant temperature is below 10˚C(50˚F) or the hydraulic oil temperature 20˚C(68˚F).
② The automatic fuel warming is cancelled when the engine coolant temperature is above 60˚C, or the hydraulic oil temperature is above 45˚Csince the start switch was ON position.

(7) Maintenance pilot lamp



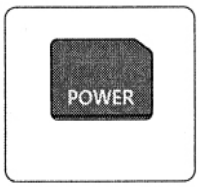
① This lamp will be ON when the consuming parts are needed to change or replace. It means that the change or replacement interval of the consuming parts remains below 30 hours.
② Check the message in maintenance information of main menu.
Also, this lamp lights ON for 3 minutes when the start switch is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

5) SWITCHES



※ When the switches are selected, the pilot lamps are displayed on the LCD. Refer to the page 3-7 for details.

(1) Power mode switch



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.
- E : Economy power work.

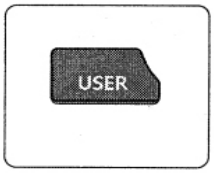
② The pilot lamp changes E → S → P → E in order.

(2) Work mode switch

① This switch is to select the machine work mode, which shifts from general operation mode to optional attachment operation mode.
- : General operation mode
- : Breaker operation mode (if equipped)
- : Crusher operation mode (if equipped)
- Not installed : Breaker or crusher is not installed.

※ Refer to the page 4-6 for details.

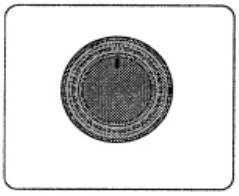
(3) User mode switch



① This switch is used to memorize the current machine operating status in the MCU and activate the memorized user mode.
- Memory : Push more than 2 seconds.
- Action : Push within 2 seconds.
- Cancel : Push this switch once more within 2 seconds.

② Refer to the page 3-12 for another set of user mode.

(4) Select switch

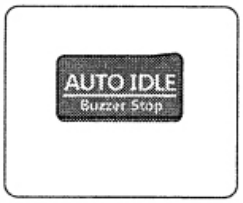


① This switch is used to select or change the menu and input value.

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

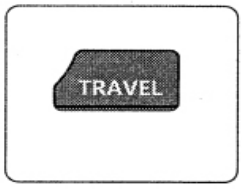
(5) Auto idle/ buzzer stop switch



① This switch is used to activate or cancel the auto idle function.
- Pilot lamp ON : Auto idle function is activated.
- Pilot lamp OFF : Auto idle function is cancelled.

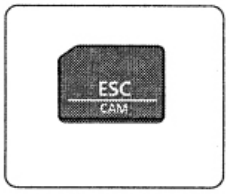
② The buzzer sounds when the machine has a problem.
In this case, push this switch and buzzer stops, but the warning lamp blinks until the problem is cleared.

(6) Travel speed control switch



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

(7) Escape/Camera switch



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

② In the operation screen, pushing this switch will display the view of the camera on the machine (if equipped).
Please refer to page 3-22 for the camera.

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

6) MAIN MENU

375LVS3CD64

375LVS3CD64A

※ **Please refer to select switch, page 3-10 for selection and change of menu and input value.**

(1) Structure

No	Main menu	Sub menu	Description
1	M Mode	Work tool U mode power Boom/Arm speed Auto power boost Initial mode Cluster switch (back up)	Breaker, Crusher, Not installed User mode only Boom speed, Arm speed Enable, Disable Default, U mode Switch function
2	Monitoring	Active fault Logged fault Delete logged fault Monitoring (analog) Monitoring (digital) Operating hours	MCU, Engine ECM MCU, Engine ECM All logged fault delete, Initialization canceled Machine information Switch status, Output status Operating hours for each mode
3	Management	Maintenance information Machine security Machine Information A/S phone number Service menu	Replacement, Change interval oils and filters ESL mode setting, Password change Cluster, MCU, Engine, Machine A/S phone number, A/S phone number change Power shift, Hourmeter start, Replacement history, Update
4	Display	Display item Clock Brightness Unit Language Screen type	Engine speed, Tripmeter A, Tripmeter B, Tripmeter C Clock Manual, Auto Temperature, Pressure, Flow, Date format Korean, English, Chinese A type, B type
5	Utilities	Tripmeter DMB Entertainment Camera setting Message box	3 kinds (A, B, C) DMB select, DAB select, Channel scan, Exit Play MP4, codec. Basic direction, Display switching, Full screen Record for fault, attachment etc.

(2) Mode setup

① Work tool

A B

- A : Select one installed optional attachment.
- B : Max flow - Set the maximum flow for the attachment.
  Flow level - Reduce the operating flow from maximum flow.
  Breaker - Max 7 steps, Reduced 10 lpm each step.
  Crusher - Max 4 steps, Reduced 20 lpm each step.

※ **The flow level is displayed with the work mode pilot lamp.**

② U mode power

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

Step (▮)	Engine speed (rpm)	Idle speed (rpm)	Power shift (bar)
1	1400	850	0
2	1500	900	3
3	1600	950	6
4	1700	1000	9
5	1800	1050	12
6	1850	1100	16
7	1900	1150	20
8	1950	1200	26
9	2000	1250	32
10	2050	1300	38

③ Boom/Arm speed

- **Boom speed**
  - Control type
    Manual - Boom up speed is fixed as set steps.
    Auto - Boom up speed is automatically adjusted as working conditions by the MCU.
  - Speed setting - Boom up speed is increased as much as activated steps.
- **Arm speed**
  - Regeneration - Arm regeneration function can be activated or cancelled.
    Enable - Arm in speed is up.
    Disable - Fine operation.

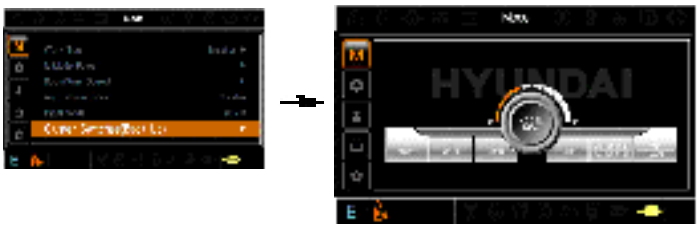
④ **Auto power boost**

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

⑤ **Initial mode**

· Default - The initial power mode is set E mode when the engine is started.
· U mode - The initial power mode is set U mode when the engine is started.

⑥ **Cluster switch** (back up)



- The cluster switch can be selected and changed by this menu when the switches are abnormal on the cluster.
- In order to exit "Cluster switch" mode, please put the cursor on the ESC/CAM switch by turning the select switch and push the select switch.
- In "Cluster switch", other switches except "Select switch" do not work.

(3) Monitoring

① Active fault

· The active faults of the MCU or engine ECM can be checked by this menu.

② Logged fault

· The logged faults of the MCU or engine ECM can be checked by this menu.

③ Delete logged fault

· The logged faults of the MCU or engine ECM can be deleted by this menu.

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)

· The switch status or output status can be confirmed by this menu.
· The activated switch or output pilot lamps ● e light ON.

⑥ **Operating hours**

· The operating hour of each mode can be confirmed by this menu.

(4) Management

① Maintenance information

· Alarm( ) : Gray Normal
Yellow - First warning
Red Second warning

· Replacement : The elapsed time will be reset to zero (0).

· Change interval : The change or replace interval can be changed in the unit of 50 hours.

· OK : Return to the item list screen.

· **Refer to Chapter 6 for details on replacement cycles.**

② Machine security

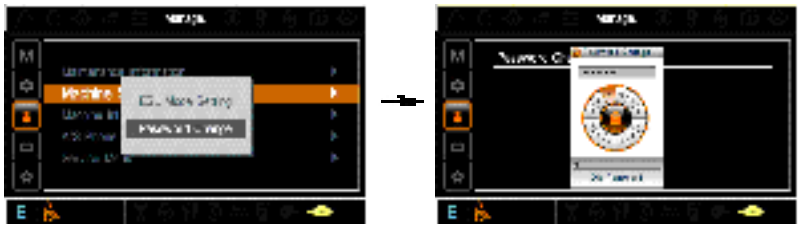
· **ESL mode**

- ESL : Engine Starting Limit
- ESL mode is desingned 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 start engine.

  Enable (interval) : The password is required when the operator start engine first. But the operator restarts the engine within the interval time, the password is not required.

  The interval time can be set maximum 4 hours.

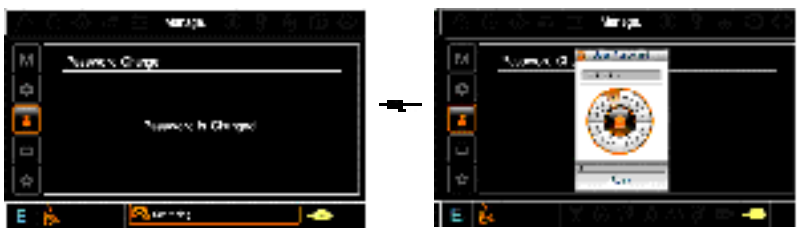


Enter the current password

· **Password change**

- The password is 5~10 digits.

Enter the new password



The new password is stored in the MCU.

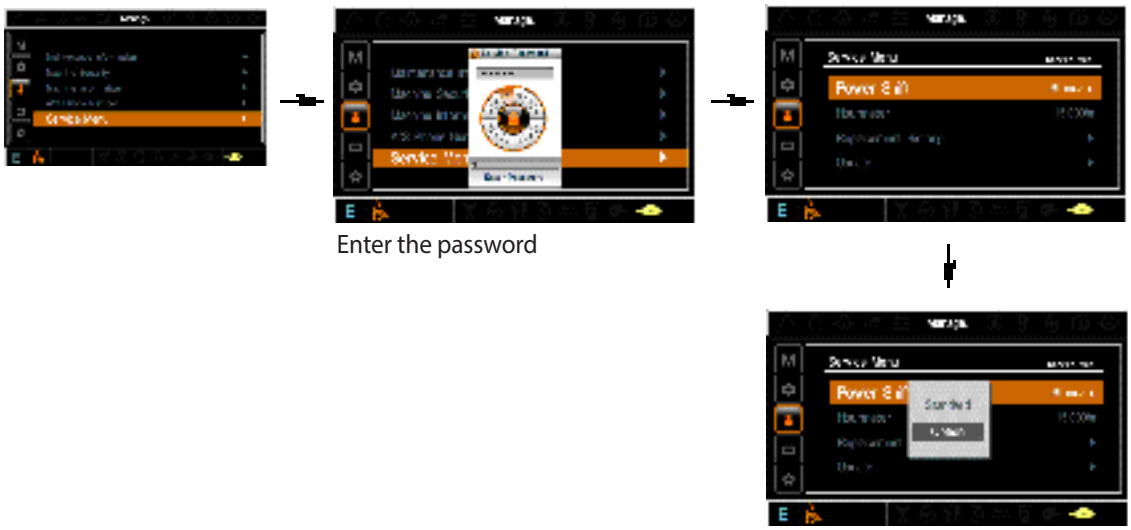
Enter the new password again

③ Machine Information

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

④ A/S phone number

⑤ Service menu



Enter the password

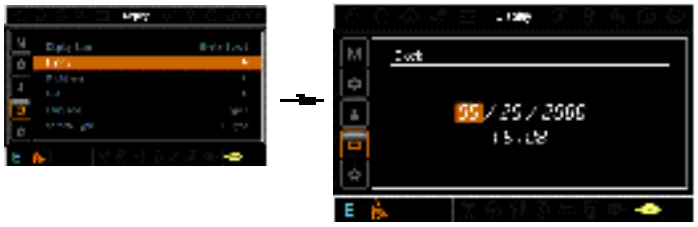
· Power shift (standard/option) : Power shift pressure can be set by option menu.
· Hourmeter start : Operating hours since the machine line out can be checked by this menu.
· Replacement history : Replacement history of the MCU and cluster can be checked by this menu.
· Update : Firm ware can be upgraded by this menu. (the USB port is located under the cluster)

(5) Display

① Display item

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

② Clock



- The first line's three spots "**/**/****" represent Month/Day/Year each.
- The second line shows the current time. (0:00~23:59)

③ Brightness

Manual (1st~10th step)

Auto (day/night)

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

④ Unit

- Temperature : ˚C ↔ ˚F
- Pressure : bar ↔ MPa ↔ kgf/cm²
- Flow : lpm ↔ gpm
- Date format : yy/mm/dd ↔ mm/dd/yy ↔ dd-Mar-yy

⑤ Language

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

⑥ Screen type

A Type

Standard

B Type

Option

(6) Utilities

① Tripmeter

- Maximum 3 kinds of tripmeters can be used at the same time.
- Each tripmeter can be turned on by choosing "Start" while it also can be turned off by choosing "Stop".
- If the tripmeter icon is activated in the operation screen, it can be controlled directly there.

② DMB

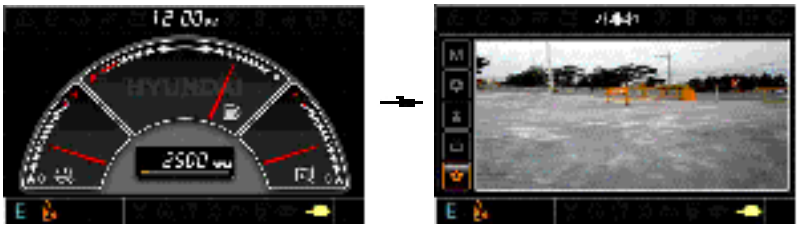
- DMB select : TV channel can be selected by this menu.
- DAB select : Audio channel can be selected by this menu.
- Channel scan : This menu can be used other region for TV/Audio.
- Exit : Exit DMB menu

③ Entertainment

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

④ Camera setting

- Three cameras can be installed on the machine.
- The display order can be set by this menu.

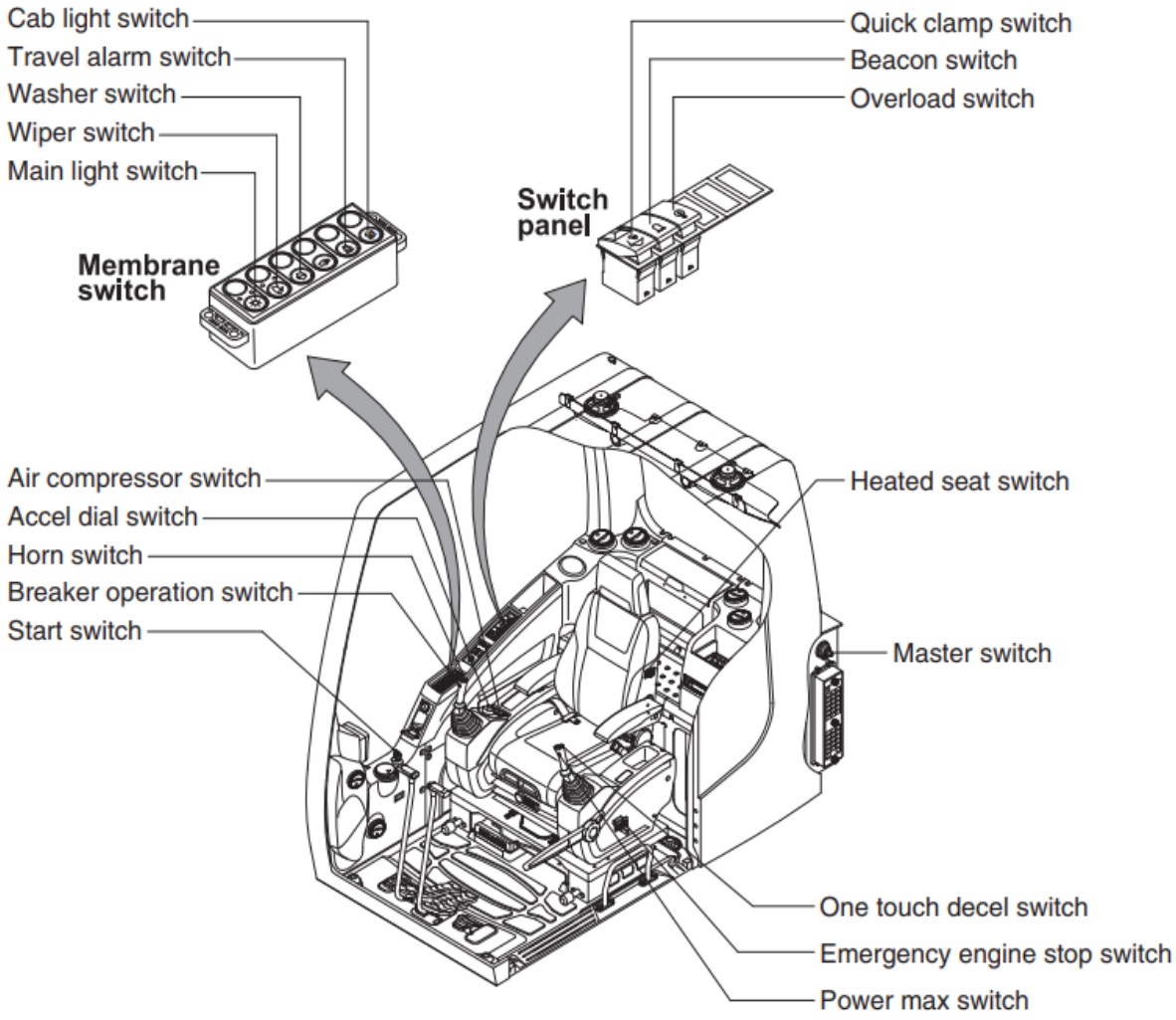


- If the camera was not equipped, this menu is not useful.
- In the operation screen, if the ESC/CAM switch is pushed, the first ordered display camera will be viewed.
- Turnning the select switch in clockwise direction, the next ordered will be shown and in counter-clockwise direction, the previously ordered will be shown.
- Push the select switch, the displayed screen will be enlargement.

⑤ Message box

- **The history of the machine operating status can be checked by this menu.**

3. SWITCHES



1) STARTING SWITCH

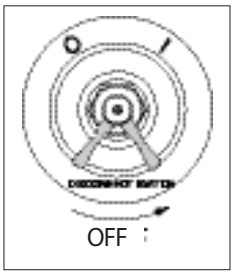
(1) There are three positions, OFF, ON and START.

- ◯ (OFF) : None of electrical circuits activate.
- | (ON) : All the systems of machine operate.
- (START) : Use when starting the engine.
  Release key immediately after starting.

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

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

2) MASTER SWITCH

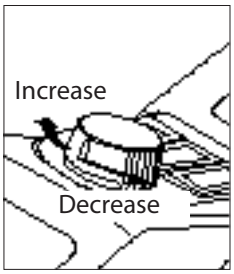


(1) This switch is used to shut off the entire electrical system.

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

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

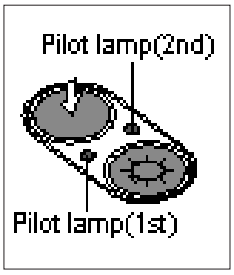
3) ACCEL DIAL SWITCH



(1) There are 10 dial setting.

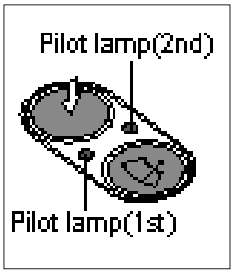
(2) Setting 1 is low idle and setting 10 is high idle.
- By rotating the accel dial to right : Engine speed increases
- By rotating the accel dial to left : Engine speed decreases

4) MAIN LIGHT SWITCH



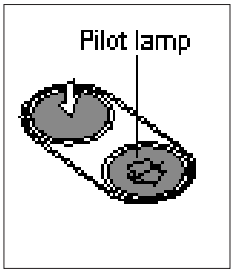
(1) This switch used to operate the head light and work light.
- Press the switch once, the head light comes ON and the 1st pilot lamp ON.
- Press the switch once more, the work light comes ON and the 2nd pilot lamp ON.
- Press the switch again, return to a first step position.
- Press the switch more than one second to turn off lights.

5) WIPER SWITCH



(1) This switch used to operate wiper.
- Press the switch once the wiper operates intermittently and the 1st pilot lamp comes ON.
- Press the switch once more, the wiper operates low speed and the 2nd pilot lamp comes ON.
- Press the switch again return to a first step position.
- Press the switch more than one second to turn off wiper.

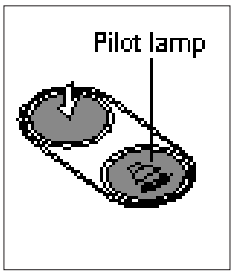
6) WASHER SWITCH



(1) The washer liquid is sprayed and the wiper is operated only while pressing this switch.

(2) The pilot lamp is turned ON when operating this switch.

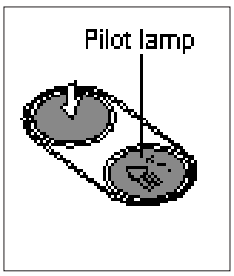
7) TRAVEL ALARM SWITCH



(1) This switch is to activate travel alarm function surrounding when the machine travels to forward and backward.

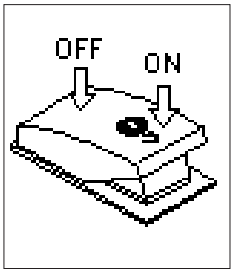
(2) On pressing this switch, the alarm operates only when the machine is traveling.

8) CAB LIGHT SWITCH (option)



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

9) OVERLOAD SWITCH (option)



(1) When this switch turned ON, buzzer makes sound and overload warning lamp comes ON in case that the machine is overload.

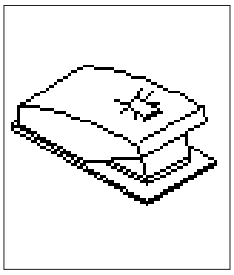
(2) When it turned OFF, buzzer stops and warning lamp goes out.

10) QUICK CLAMP SWITCH (option)

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

※ **Refer to the page 8-6 for details.**

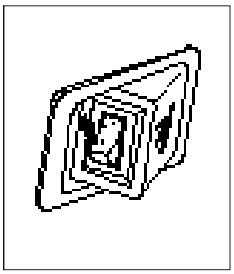
11) BEACON SWITCH (option)



(1) This switch turns ON the rotary light on the cab.

(2) The indicator lamp is turned ON when operating this switch.

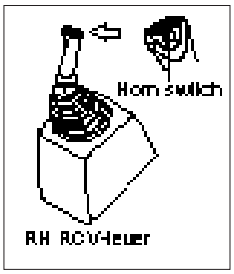
12) HEATED SEAT SWITCH (option)



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

(2) On pressing the switch, the indicator lamp is turned ON.

13) HORN SWITCH



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

14) BREAKER OPERATION SWITCH

(1) On pressing this switch, the breaker operates only when the breaker operation mode is selected.

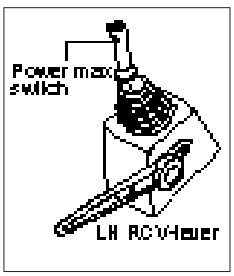
15) ONE TOUCH DECEL SWITCH

(1) This switch is used to actuate the deceleration function quickly.

(2) The engine speed is increased to previous setting value by pressing the switch again.

(3) One touch decel function is available only when the auto idle pilot lamp is turned OFF.

16) POWER MAX SWITCH

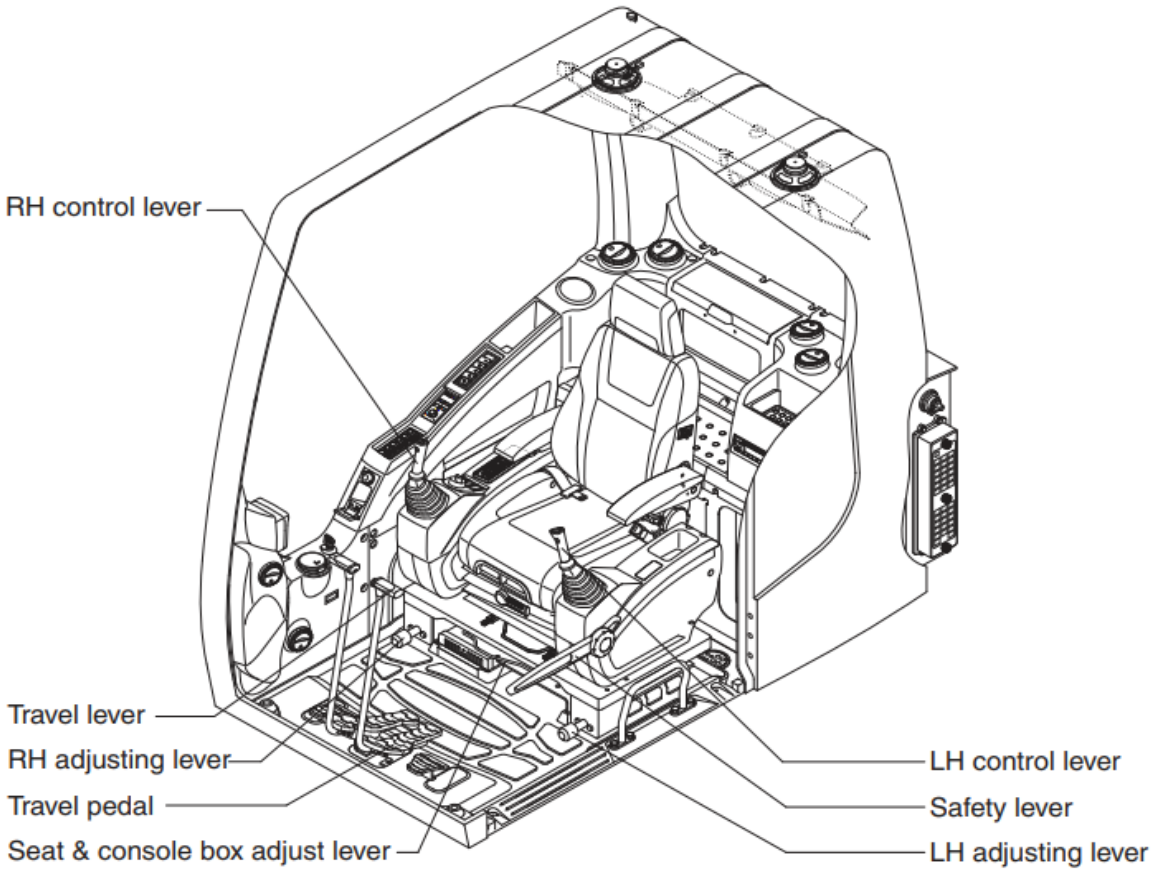


(1) This switch activate power max function.
When this switch is kept pressed, hydraulic power of work equipment will be increased to approx 110 percent during 8 seconds.

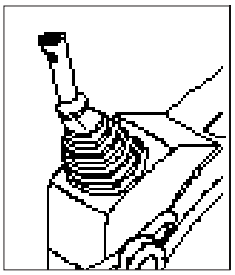
(2) After 8 seconds, function is cancelled automatically even the switch keeps pressed.

※ **Do not use for craning purposes.**

4. LEVERS AND PEDALS



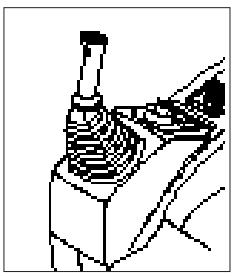
1) LH CONTROL LEVER



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

(2) Refer to operation of working device in chapter 4 for details.

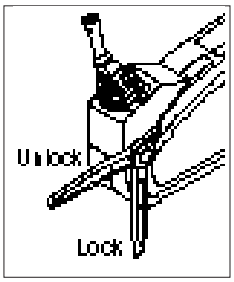
2) RH CONTROL LEVER



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

(2) Refer to operation of working device in chapter 4 for details.

3) SAFETY LEVER



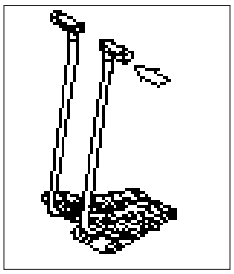
(1) All control levers and pedals are disabled from operation by locating the lever to lock position as shown.

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

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

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

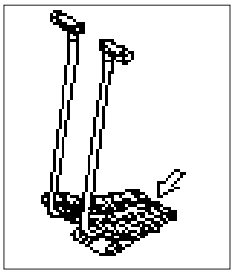
4) TRAVEL LEVER



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

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

5) TRAVEL PEDAL

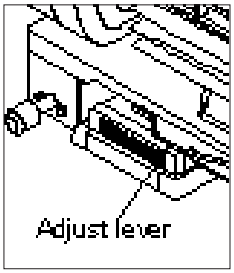


(1) This pedal is used to move the machine forward or backward.

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

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

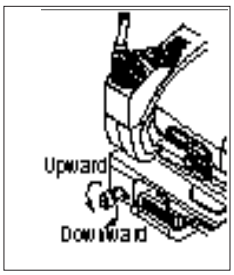
6) SEAT AND CONSOLE BOX ADJUST LEVER



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

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

7) ADJUSTING LEVER



(1) This lever is used to move the LH and RH control lever to fit the contours of the operator's body.

(2) The control lever can be moved upward and downward over 30 ㎜ (1.2").

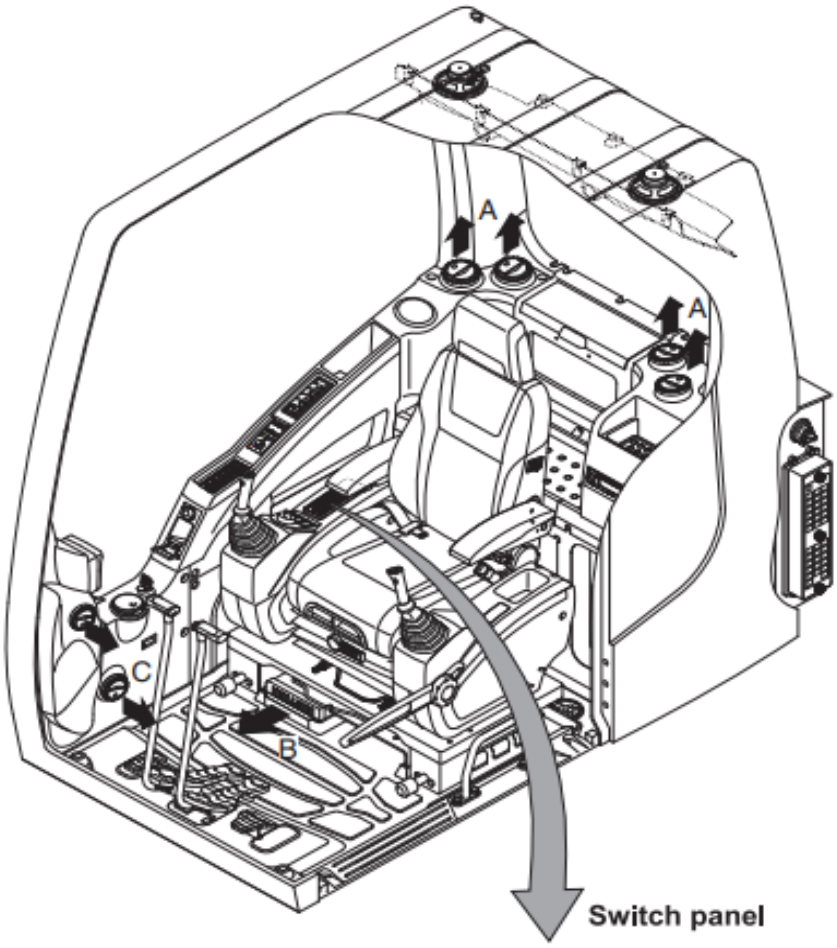
5. AIR CONDITIONER AND HEATER

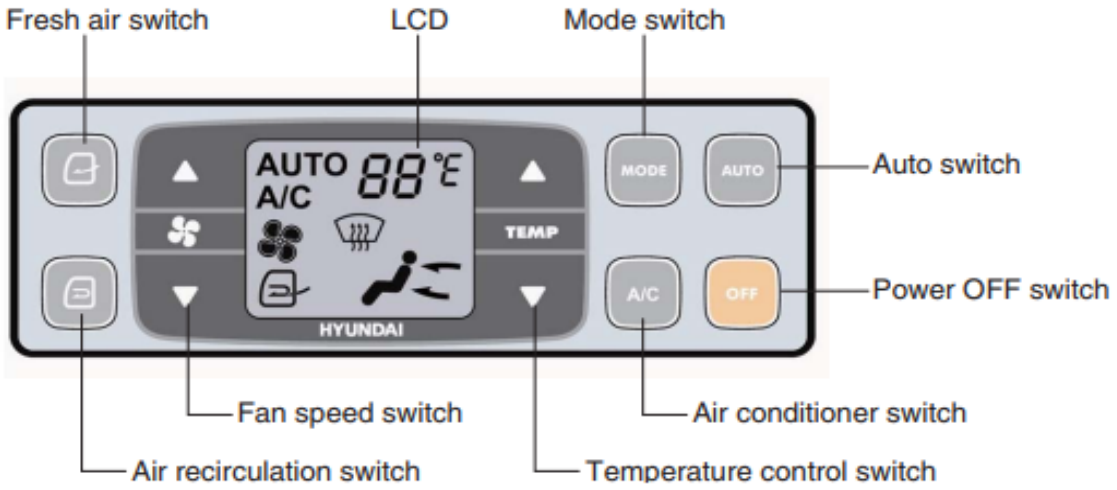
■ **FULL AUTO AIR CONDITIONER AND HEATER** (standard)

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.

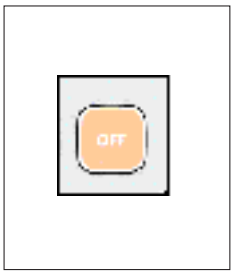
※ **Refer to the page 3-33 for semi auto air conditioner and heater.**

· **Location of air flow ducts**





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

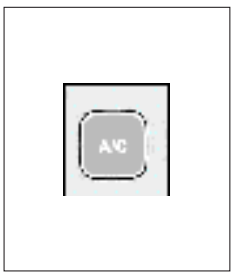
Function	Air conditioner	c	LCD	Temperature	Mode
Value	OFF	Inlet	OFF	Previous sw OFF	Previous sw OFF

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)

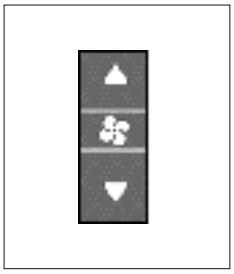


(1) This switch turns the compressor and the LCD ON.

(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

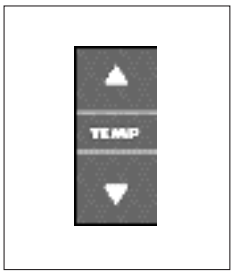


(1) Fan speed is controlled automatically by setted temperature.

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

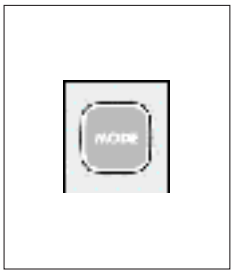
(2) Max cool and max warm beeps 5 times.

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

· A type : Vent → Vent/Foot → Foot → Foot/Def → Vent

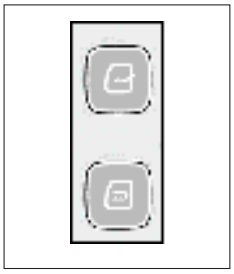
Mode switch		Vent	Vent/Foot	Foot	Foot/Def
Outlet	A	●	●		
	B		●	●	●
	C				●

· B type : Vent → Vent/Foot → Def/Foot → Def/Vent → Def/Vent/Foot

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

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

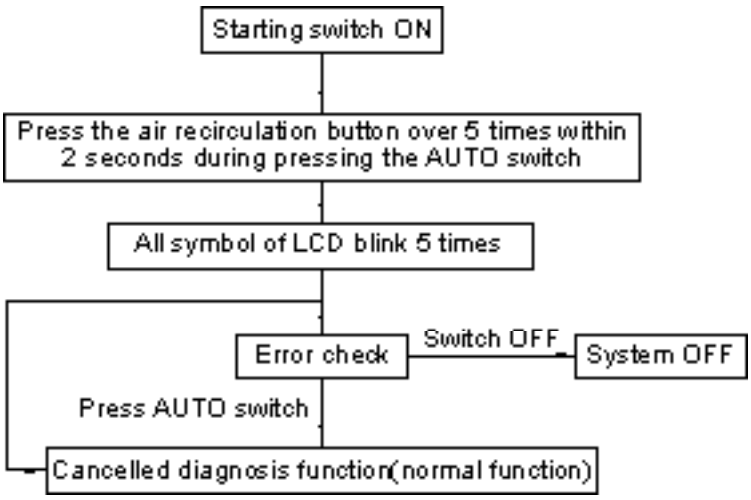
7) FRESH AIR/AIR RECIRCULATION SWITCH



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



(2) Error check

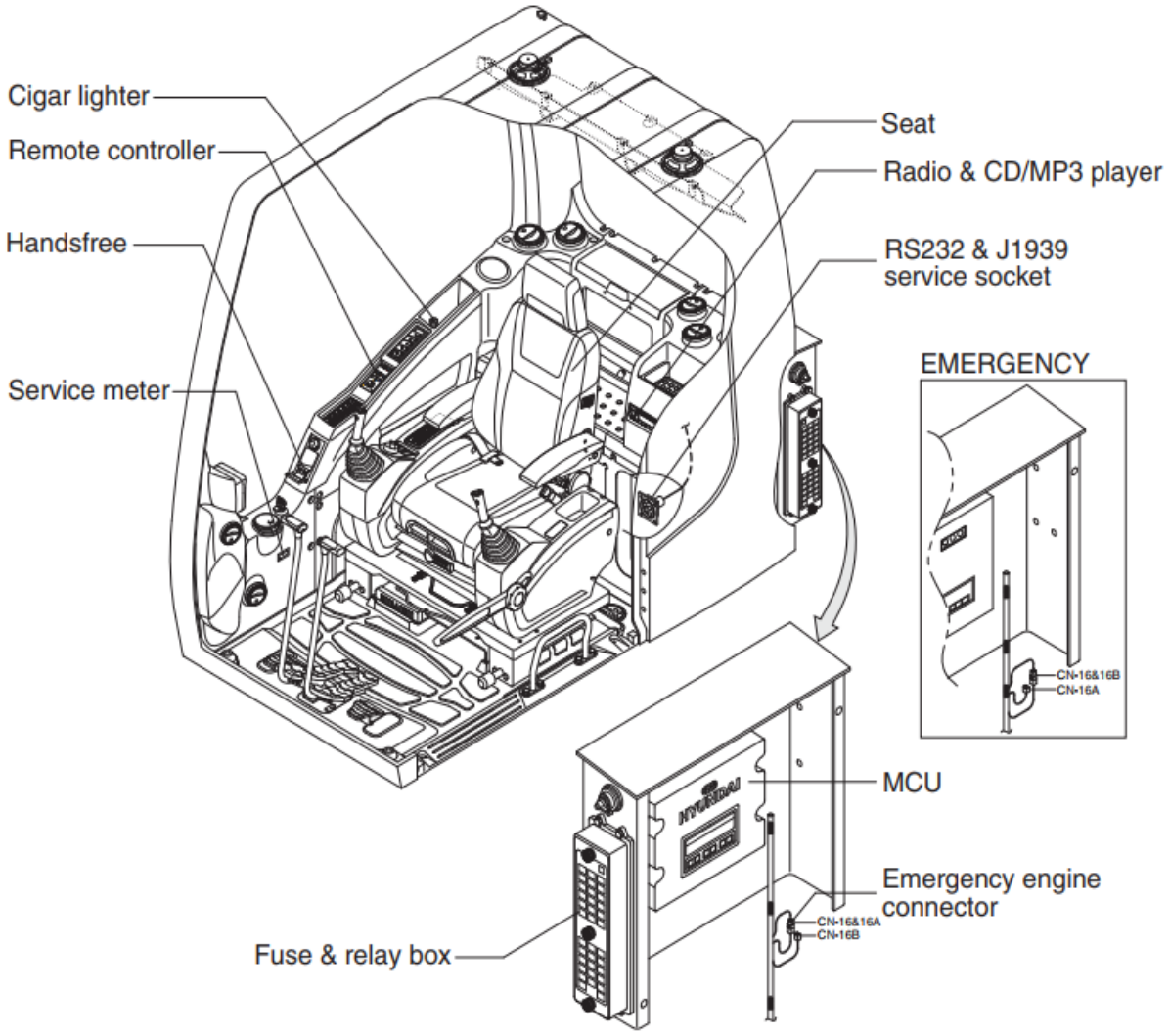
- The corresponding error code flickers on the setup temperature display panel, the other symbol bol will turn OFF.
- Error code flickers every 0.5 second.
- If error code is more than two, each code flickers 2 times in sequence.
- Error code

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

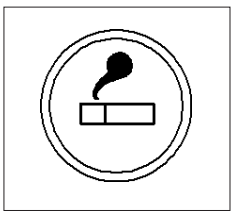
(3) Fail safe function

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

6. OTHERS



1) CIGAR LIGHTER



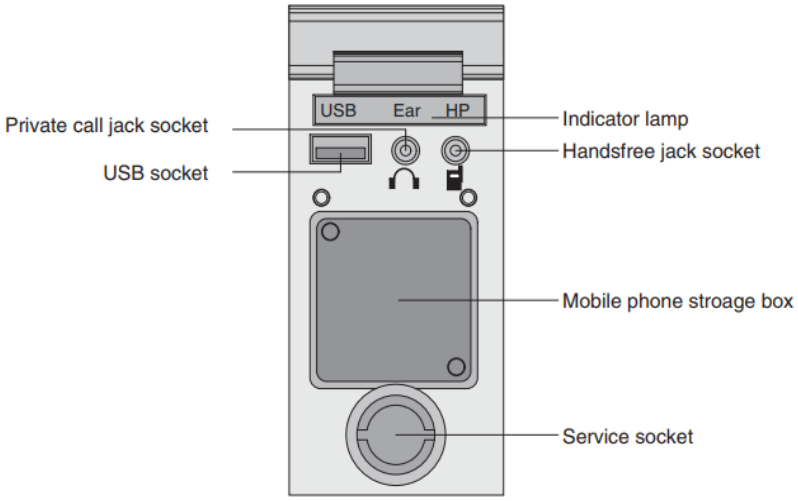
(1) This can be used when the engine starting switch is ON.

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

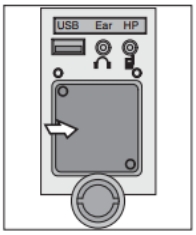
※ **Service socket**
Use cigar lighter socket when you need emergency power.
Do not use the lighter exceeding 24V, 100W.

2) HANDSFREE

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

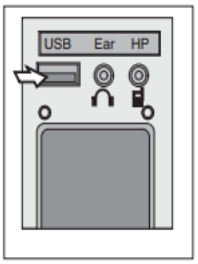


(1) Mobile phone storage box



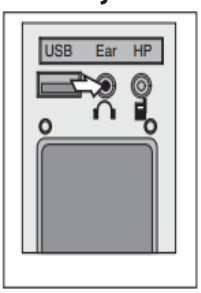
1、Mobile phone can be stored when call by handsfree.

(2) USB socket



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

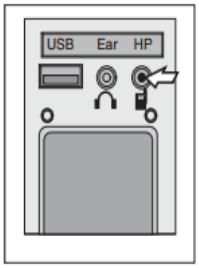
(3) Private call jack socket



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

2、The mobile phone must be connected handsfree jack socket.

(4) Handsfree jack socket

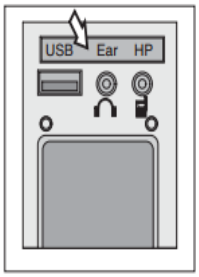


1、Connect the jack cable when call by handsfree.

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

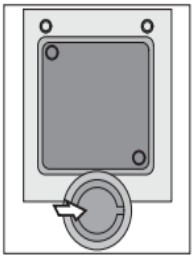
3、 Check the jack type of mobile phone before use.

(5) Indicator lamp



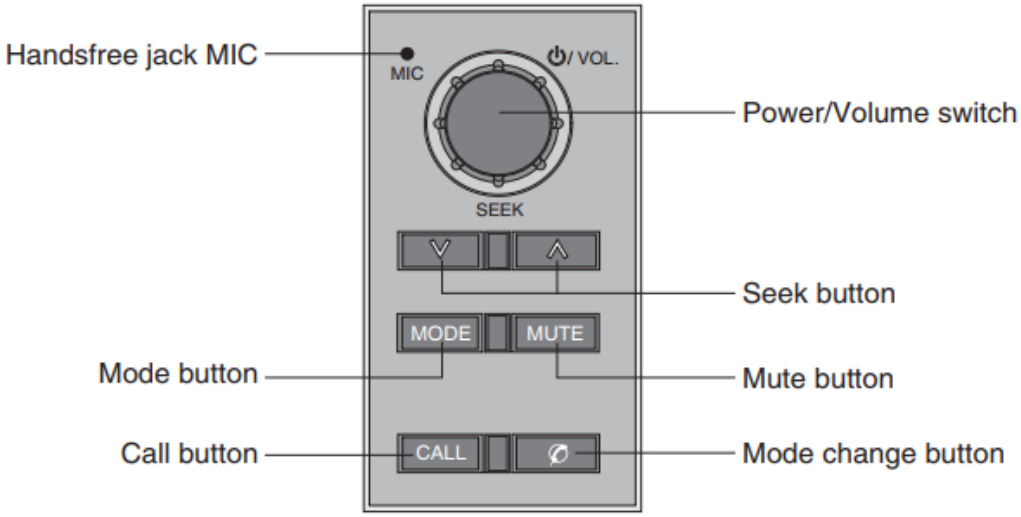
1、This lamp is turned ON when the handsfree mode selected

(6) Service socket



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

3) REMOTE CONTROLLER



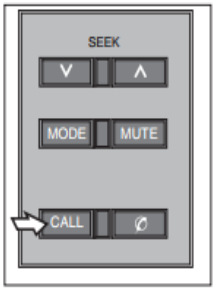
(1) Power and volume switch

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 Power and volume switch.

(2) Mode change button

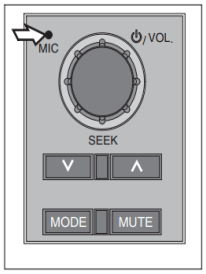
1、This button is to select the handsfree mode or audio mode.
Â Lamp ON : Handsfree mode ("TEL MUTE" displayed ON audio LCD)
Â Lamp OFF : Audio mode

(3) Call button



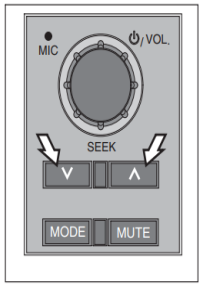
1、This button is used answer a call, last number redial, ring off.
2、For calling, press the button over 0.5sec within 3 seconds until the beep sounds.
※ This can be used when the starting switch is ON

(4) Handsfree MIC



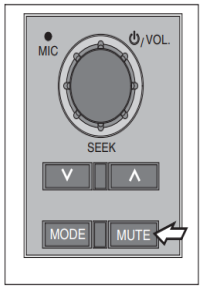
1、This MIC transfers user voice to receiver of the call when making a call by handsfree.

(5) Seek button



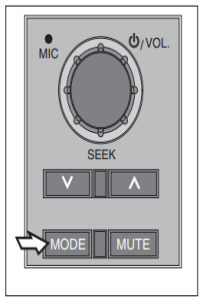
1、If this button pressed, the radio automatically stops at the next frequency of broadcasting for your listening.
2、Press ∧ to turn a station of a higher frequency or ∨ to a lower frequency.

(6) Mute button



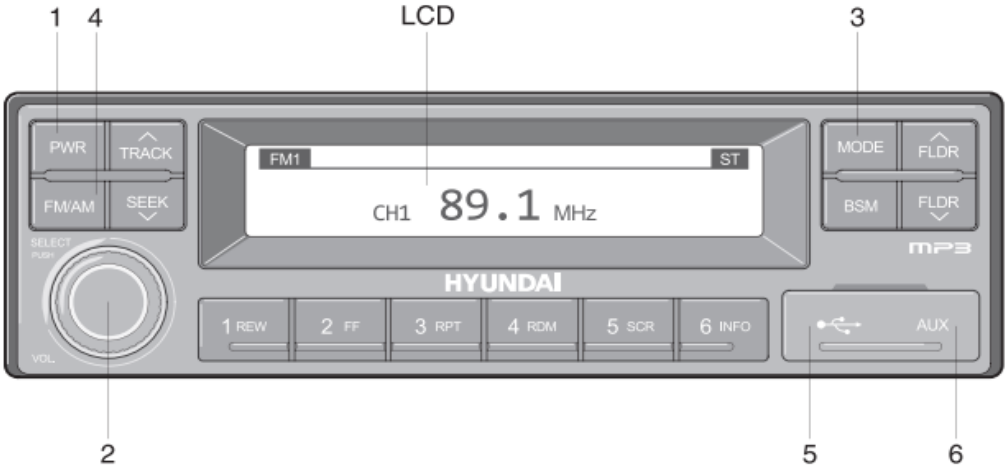
1、Short press this button to mute or cancel the mute (silence) while broadcasting.

(7) Mode button



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

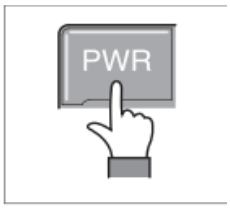
4) RADIO AND USB PLAYER



1 Power Button (PWR)
2 Volume/tone setting
3 Mode selection
4 Radio (FM/AM) selection
5 USB ports
6 AUX interface

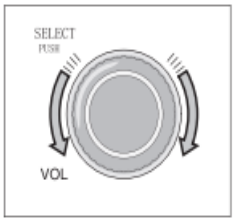
■ Basic function

(1)Power Button(PWR)



1、Press PWR button to power on, then press to power of

(2)Volume/tone setting



1、Turn the VOL button clockwise to increase the volume and counterclockwise to decrease the volume

. Set the tone

1、Press the SELECT button to set the tone
Each press the key is changed in the following order
BASS→MIDDLE→TREBLE→BALANCE→EQ→BEEP

2、After selecting the desired setting, rotate the SELECT button clockwise/counterclockwise to adjust the tone setting

3、Base adjustment
Rotate the SELECT button clockwise to increase bass, and counterclockwise to decrease bass
Bass can adjust Max +10/ min -10. If not adjusted for 3 seconds, the Settings are saved and reverted to the previous mode

4、Middle adjustment
Rotating the SELECT button clockwise increases Middle and counterclockwise decreases Middle.
Middle can adjust Max +10/ min -10. If not adjusted for 3 seconds, the Settings are saved and reverted to the previous mode

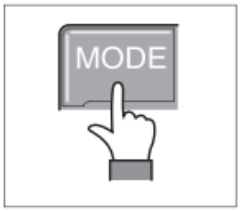
5、Treble adjustment
Rotating the SELECT button clockwise increases Treble and counterclockwise decreases Treble.
Treble can adjust Max +10/ min -10. If not adjusted for 3 seconds, the Settings are saved and reverted to the previous mode

6、Left /Right balance adjustment
Turn the Select button clockwise to increase the volume on the right speakerand counterclockwise to increase the volume on the left speaker.Balance can be adjusted to 10L/10R.If it is not adjusted for 3 seconds, the Settings are saved and returned to the previous mode

7、EQ(equalizer) adjustment
Rotate the SELECT button clockwise/counterclockwise to set the desired EQ
EQ sets the order: Cls→Pop→Rock→Jazz→off
If it is not adjusted for 3 seconds, the Settingsare saved and returned to the previous mode
※ Bass,MIDDLE, and TREBLE values are off when EQ is set above.
※ Bass,MIDDLE, and TREBLE can only be set when EQ is off

8、Beep tone adjustment
Rotate the SELECT buttonclockwise/counterclockwise to set the Beep If it is not adjusted for 3 seconds, the Settingsare saved and returned to the previous mode

(3) Mode selection



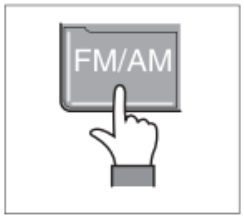
1、Press MODE button to change radio /USB/AUX/ IPOD MODE.Only when the corresponding media of the mode is connected, the corresponding mode can be selected

2、If the iPod is connected, the mode changes in the following order
Radio→iPod→USB(Hands free)

3、If the USB,AUX is connected, the mode changes in the following order
Radio→iPod(Front)→USB(Hands free) → AUX

※ USB & AUX mode can only be operated after the corresponding device is connected.
※ AUX and USB(front) cannot connect when connecting an iPod.
※ The iPod connects to USB in the machine's hands-free system.

(4) Radio(FM/AM) selection



1、Pressing the FM/AM button each time changes the radio mode in the following order.
FM1→FM2→FM3→AM
2、Number of stations on multiple presets is
FM:18 AM:6

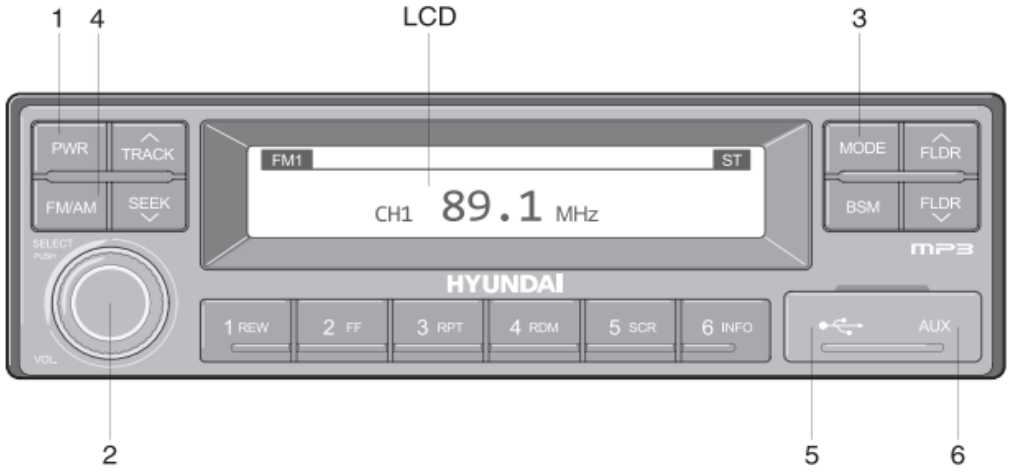
(5) USB ports

Connect USB to play USB music files.

(6) AUX interface

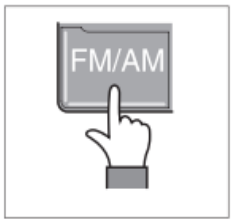
Use the AUX cable to play AUX music files.

■ Radio



1 Power Button (PWR)
2 Volume/tone setting
3 Mode selection
4 Radio (FM/AM) selection
5 USB ports
6 AUX interface

(1) Radio(FM/AM) selection



1、Pressing the FM/AM button each time changes the radio mode in the following order.
FM1→FM2→FM3→AM

2、When the start key is in the ON position, press FM/AM to turn on the radio function

3、Set the radio channel

▶ North America
Press FM/AM and the preset memory button 1 to set up the North American channel.
display"nA"1 second
FM: 87.7～107.9MHz(200KHz) AM: 530～1710KHz(10KHz)

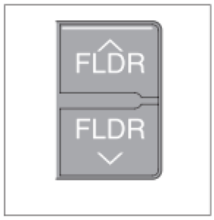
▶ Local/Middle East/Asia
Press FM/AM and the preset memory button 2 to set up the Local Middle East/Asia channel.
display"inT"1 second
FM: 87.5～108MHz(100KHz) AM: 531～1602KHz(9KHz)

▶Europe
Press FM/AM and the preset memory button 2 to set up the Europe channel.
display "Eu"1 second
FM: 87.5～108MHz(50KHz) MW: 531～1602KHz(9KHz) LW:153～279KHz(1KHz)

(2) Track / seek

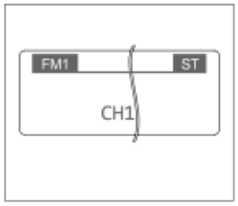
1、Used to automatically search the radio station, automatically search and stay at the optimal frequency.
TRACK∧ Search for higher frequencies
SEEK ∨ Search for lower frequency
※ When the broadcast signal is weak and cannot be searched automatically, the channel can be searched manually.

(3) Manual search



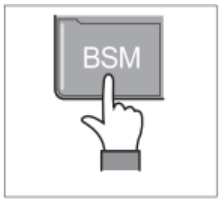
1、Used to manually searching channels, press the FLDR once and the frequency changes once.Press this button, the frequency changes continuously, release this key, stay at the current frequency.
FLDR∧Search for higher frequencies
FLDR∨Search for lower frequency
※The search orde: FM-100KHz， AM-9KHz

(4) LCD display screen



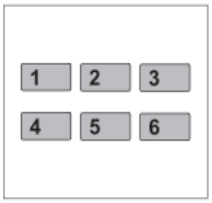
1、Displays the frequency information and status currently received.

(5) BSM(BEST RADIO MEMORY)



1、Hold down the BSM button to listen to the preset FM or AM band for 5 seconds each. When you find the desired station, press the BSM button again to listen.
2、Simply press the BSM key to automatically save the best radio signal to the preset key(1REW～6INFO).
BSM stores AM channels in AM mode and FM channels in FM mode.

(6) Preset memory button



Save up to 18 FM channels and 6 AM channels.

1、Use the auto/manual search button to search for the desired channel

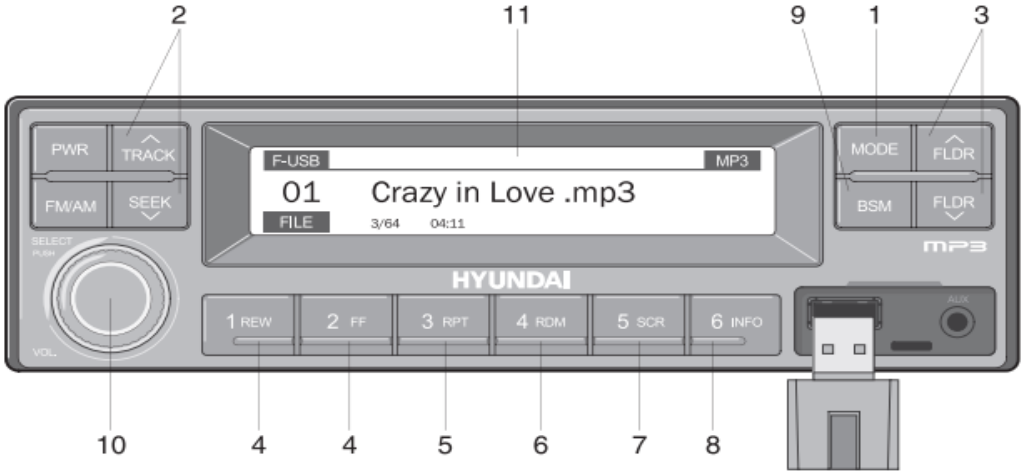
2、Use the auto/manual search keys to search for the desired channel (1REW～6INFO)

3、When the prompt sound is heard, the channel is saved into the preset number button, and the channel number is displayed on the LCD screen (if the prompt sound is turned off in the tone setting function, the prompt sound cannot be heard).

4、After saving, press the corresponding preset number key to play the corresponding channel.

※ If you do not hear the prompt sound when the prompt sound function is turned on in the tone setting function, the preset channel is not successful.

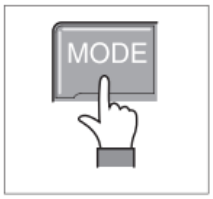
■ USB Connect



1 USB option
2 Track / seek
3 manual search (FLDR)
4 FF/REW
5 RPT/FOLDER RPT
6 RDM/FOLDER RDM
7 Scroll button (SCR)
8 View music information (INFO)
9 Browse button (BSM)
10 Find and play files (SELECT)
11 LCD display screen

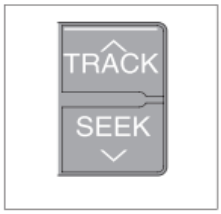
. It can only be operated when USB is connected.Switch to USB mode automatically when connecting USB devices.
. When the starts key ON and connects to USB, the system will turn on the power of the player and automatically play the songs in the USB device.

(1) USB Option



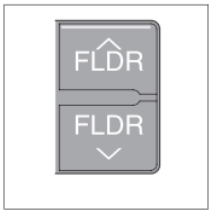
1、Press the MODE button to switch to USB MODE while playing other modes.As long as you connect to USB, the system will automatically switch from other playback modes to USB mode and play songs inside the USB device.
2、If you are connected to both the front USB and the hands-free the MODE button is converted in the following order: Radio→USB(front)→USB(hands-free)

(2) Track / seek



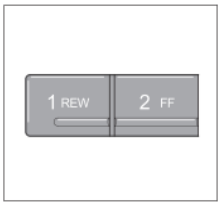
1、Press Track to play the next song; Press the Seek to return to the start of the current song.Press this button again to play the previous song.

(3) Manual search(FLDR)



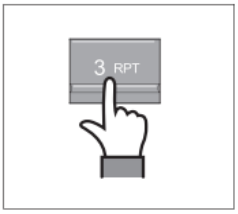
1、If there are two folders on the USB device, press the FLDR to select the previous folder or the next folder.
2、If there is no folder on the USB device, press this button to page up/down by 10 files.

(4) FF/REW键



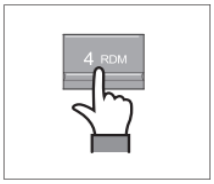
1、press the FF button to fast-forward.When the song is fast-forward play ends, if you continue to press this button,The next song is playing
press the REW button and the song rewinds.When the song rewinds to the end, if you continue to press this button, the current song will start from the beginning.
Pressing the FF/REW key briefly does not activate this feature.

(5) RPT/FOLDER RPT



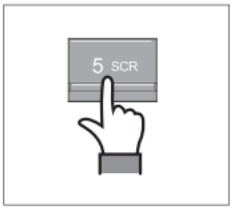
1、when playing music, briefly press the RPT button to repeat the current song.
press the RTP button to play all the songs in the current folder in order
(Music files on USB devices are required to be stored as folders.)

(6) RDM/RDM RPT



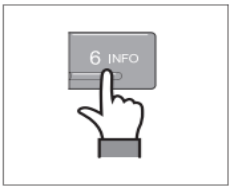
1、While playing music, briefly press the RDM button to randomly play the songs in the current folder.
(Music files on USB devices are required to be stored as folders.)

(7) Scroll button(SCR)



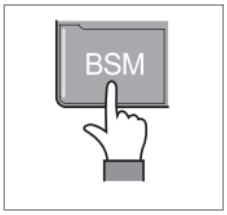
1、Press SCR to turn on/off the captioning scrolling function.Scroll right to left on the LCD screen to display the file name of the currently playing song.

(8) View music information(INFO)



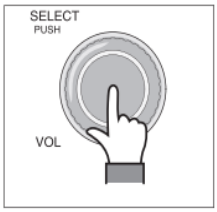
1、Each time you press the INFO button, the currently playing music information will be displayed in the following order:
filename→ title →artist→ album→ catalog

(9) Browse button(BSM)



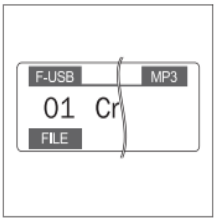
1、When playing music, briefly press the BSM button to browse each song in the USB in order, and play each song for 10 seconds.
(Music files on USB devices are required to be stored as folders.)

(10) Find and play files(SELECT)



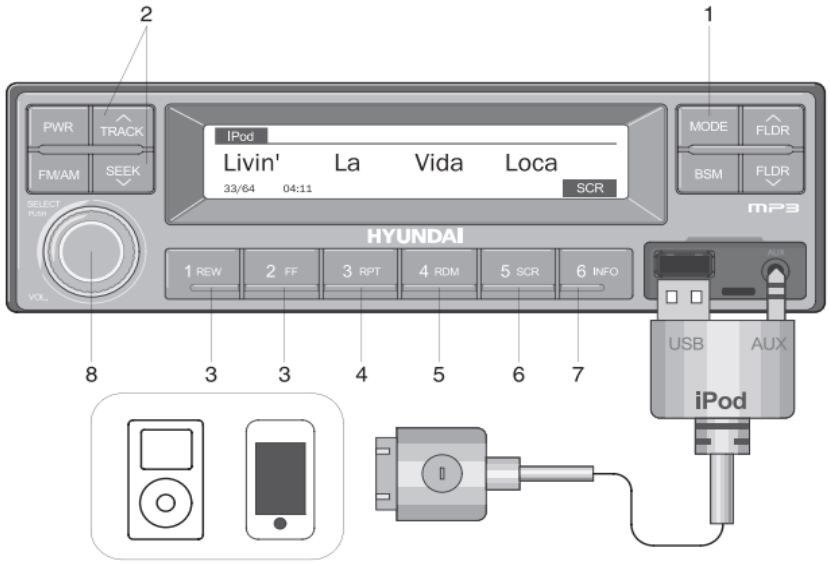
1、When the USB device is playing, press the SELECT button for more than 3 seconds to enter the file browsing mode and search for the files you want.
2、After entering the file browsing mode, rotate the "Select" button left/right to find the desired folder, press the "Select" button to select the folder, then rotate the "Select" button left/right to find the desired song, and press the "Select" button to start playing.
If you press the SELECT key and do not continue within 3 seconds this function will automatically cancel and the USB playback screen will be displayed.select the folder, then rotate the "Select" button left/right to find the desired song, and press the "Select" button to start playing.
3、If you press the SELECT key and do not continue within 3 seconds this function will automatically cancel and the USB playback screen will be displayed.

(11) LCD display screen



1、Displays information about the currently playing song.
F-USB: Display USB connection to front-end audio
R-USB: Display USB connection to hands-free
RPT: Display repeat play enabled
RPT: Display folder repeat function enabled
RDM: Display Random Play enabled
RDM: Display folder random play function enabled
SCR: Display scrolling enabled

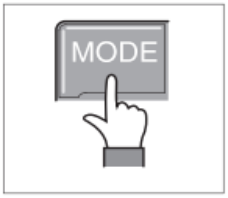
■ IPOD Connect



1 iPod option
2 Track / seek
3 FF/REW
4 repeat (RPT)
5 random play (RDM)
6 scroll (SCR)
7 View music information (INFO)
8 Find and play files (SELECT)

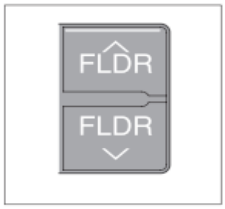
It only works when the iPod is connected.Switch to iPod mode automatically when you connect to iPod.When the start key ON and the USB is connected the system will turn on the player power and automaticallyplay the songs in the iPod.

(1) IPOD Option



1、Switch to iPod MODE by press the Mode button while playing another mode.Once you connect to the iPod, the system will automatically switch from other playback modes to iPod mode and play songs from the iPod device.

(2) Track / seek

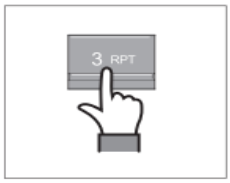


1、Press Track to play the next song; Press the Seek to return to the start of the current song.Press this button again to play the previous song.

(3) FF/REW

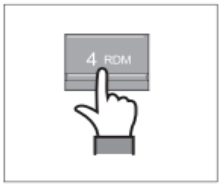
1、When playing an iPod, press the FF button to fast-forward.
2、When the fast forward ends, the next song starts playing and when you press the REW button, the song rewinds.
3、When the song rewinds to the end, press this button and the current song starts from the beginning.
4、Pressing the FF/REW key briefly does not activate this feature.

(4) Repeat(RPT)



1、When playing a song, press the RPT button to replay the current song.

(5) Random play(RDM)

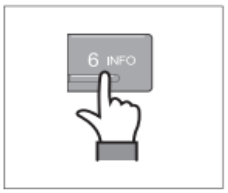


1、When playing a song, press the RDM button to randomly play a song.

(6) Scroll(SCR)

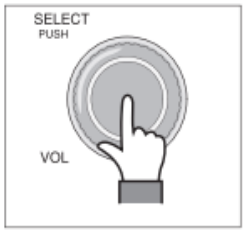
1、Displays the file name of the currently playing song on the LCD screen.The SCR button is used to turn scrolling file names on/off.

(7) View music information(INFO)



1、Each time you press INFO, the information of the currently playing song will be displayed in the following order:
artist →album→ title

(8) Find and play files(SELECT)



1、When the iPod is playing, hold down the Select button for more than 3 seconds to go into Category mode and search for the files you want.

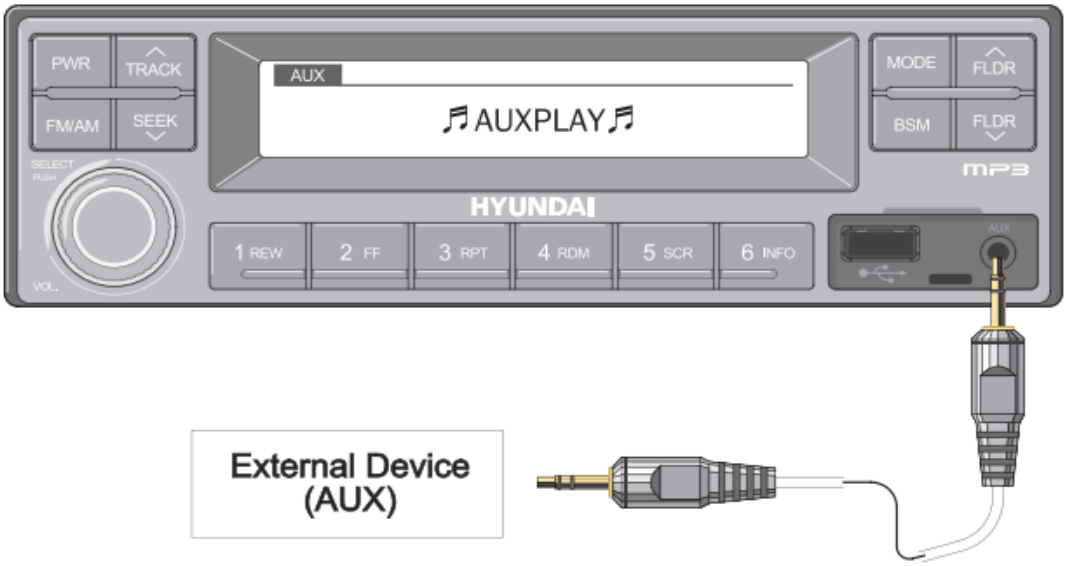
2、After entering Category mode, rotate the Select button left/right to find the desired category.

3、The categories are shown in the following order:
PLAYLISTS→ARTISTS→ALBUMS→GENRES→SONGS→COMPOSERS→AUDIOBOOKS→PODCACSTS

4、After finding the category, press the SELECT button to SELECT the category, rotate the SELECT button to find the desired song left/right, and press the SELECT key to play.

5、If you press the SELECT key and do not continue for three seconds this feature is disabled and the iPod playback screen is displayed.

■ AUX Connect



. Operates only when the external device is connected to the AUX interface. When an AUX device is connected to the system using an AUX cable, the system automatically switches to AUX mode.

. When the external device is connected, only the PWR,FM/AM,MODE and VOL keys can be used.

. This can only be set by an external device connected to the AUX interface.

. AUX cable must be purchased separately.

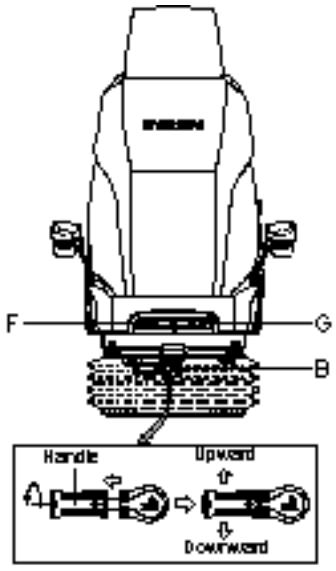
(1) Connect the external device using the AUX cable

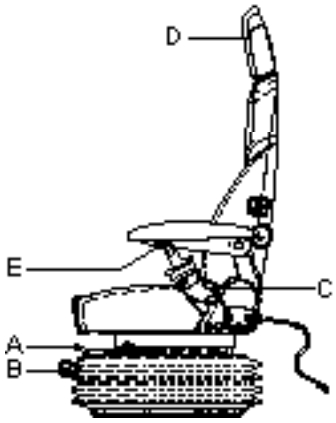
1、When playing other modes, press the MODE button to switch to AUX MODE.

2、If you connect the external device to the audio system through the AUX interface, the system will automatically switch to AUX mode to play the song.
When the start key is turned ON and AUX is connected, the system will turn on the player and automatically play the songs in the AUX

5) SEAT

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





(1) Forward/Backward adjustment (A)

① Pull lever A to adjust seat forward or backward.

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

(2) Height/weight adjustment (B)

① Turn the handle to adjust seat upward or downward

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

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

· First, pull the handle to outside.

· Second, rotate 180˚ and release the handle.

(3) Reclining adjustment (C)

Pull lever C to adjust seat back rest.

(4) Arm rest adjustment (E)

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

(5) Head rest adjustment (D)

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

(6) Seat cushion tilt adjustment (F)

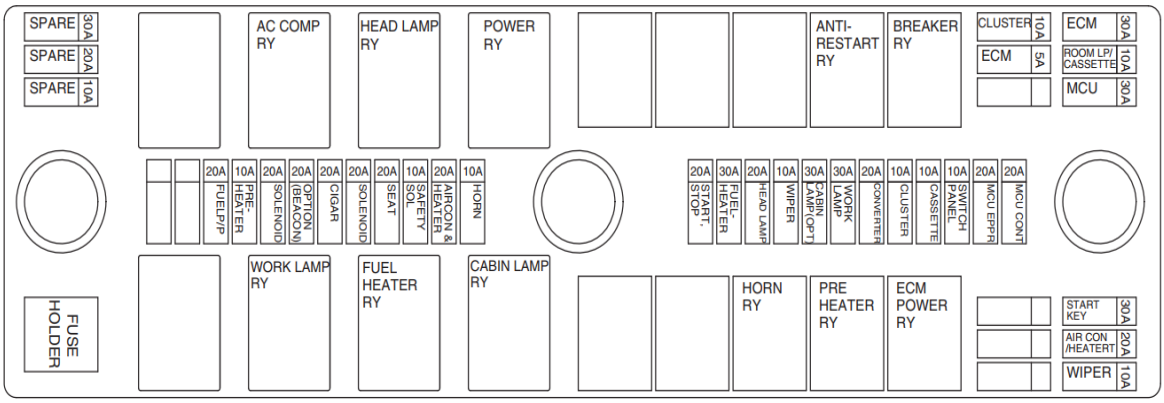
Pull lever F to adjust seat cushion tilting angle.

(7) Seat cushion length adjustment (G)

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

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

6) FUSE & RELAY BOX



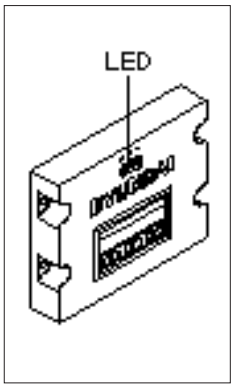
(1) The fuses protect the electrical parts and wiring from burning out.

(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



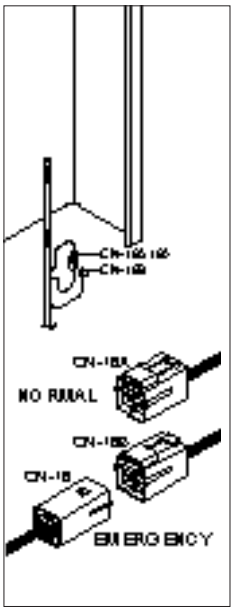
(1) To match the pump absorption torque with the engine torque, MCU varies EPPR valve output pressure, which control pump discharge amount whenever feedbacked engine speed drops under the reference rpm of each mode set.

(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

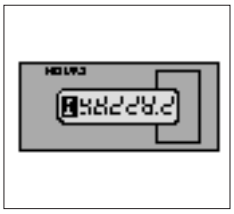
8) EMERGENCY ENGINE SPEED CONTROL CONNECTOR



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

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

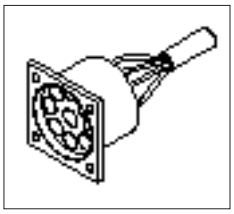
9) SERVICE METER



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

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

10) RS232 & J1939 SERVICE SOCKET



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

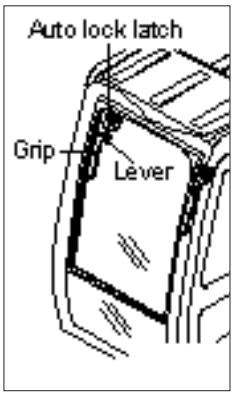
(2) ECM communicates the engine data with adapter through J1939 service socket.

① ECM fault code check

② ECM program change

③ Engine data monitoring & test

11) UPPER WINDSHIELD



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

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

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

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

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

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

② Reverse above step ① and ② in order to close the upper windshield.