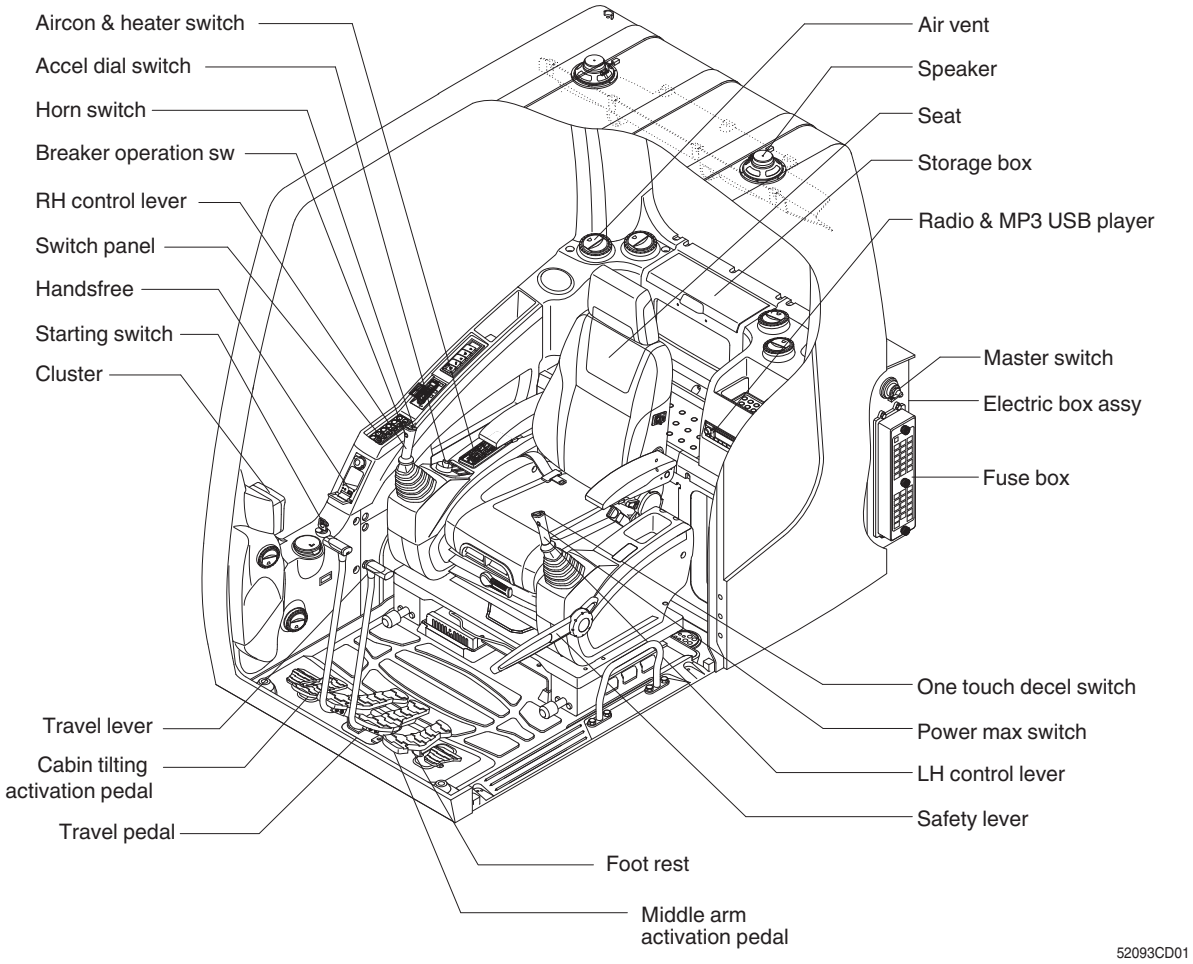
1. CAB DEVICES

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

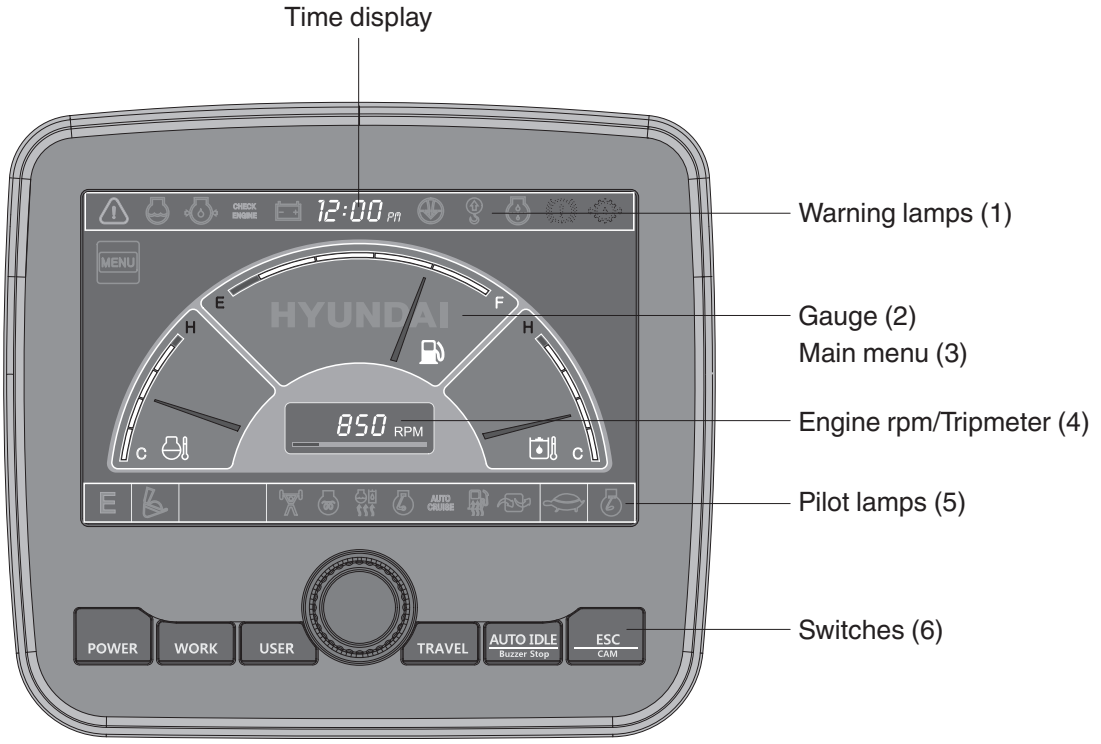
1) STRUCTURE

The cluster consists of the LCD and switches as illustrated below. The LCD warns the operator in case of abnormal machine operations or conditions for the appropriate operation and inspection. The LCD also sets and displays the modes, the monitoring and the switches utilities.

The switches 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 the daily checklist on page 6-10.**

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



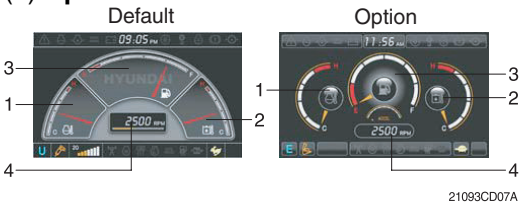
21093CD07

1 See page 3-4
2 See page 3-3
3 See page 3-11
4 See page 3-22
5 See page 3-6
6 See page 3-9

※ **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) GAUGES

(1) Operation screen



① Engine coolant temperature gauge

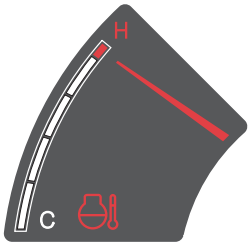
② Hydraulic oil temperature gauge

③ Fuel level gauge

④ RPM / Tripmeter display

※ **The operation screen type can be set by the screen type menu of the display.**
Refer to page 3-22 for details.

(2) Engine coolant temperature gauge

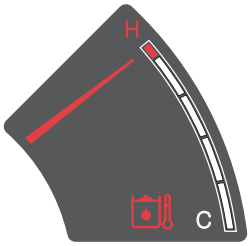


① This gauge indicates the temperature of the coolant.
- White range : 40-105°C (104-221°F)
- Red range : Above 105°C (221°F)

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

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

(3) Hydraulic oil temperature gauge



① This gauge indicates the temperature of the 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 the lamp blinks 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 the lamp blinks in red even though the machine is in a normal condition, check the electric device as it can be caused by a poor electricity or sensor connection.**

(4) Fuel level gauge

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

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

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

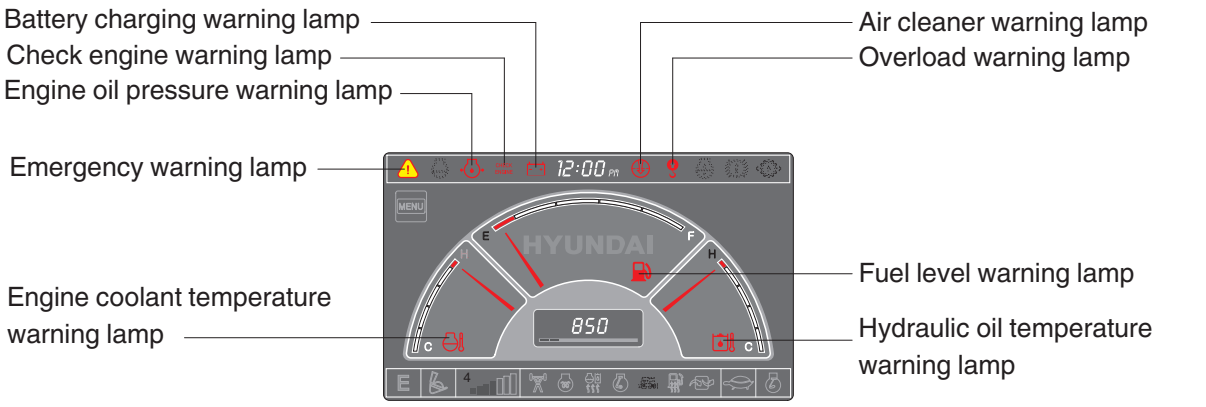
(5) **RPM / Tripmeter display**

21093CD02D

① This display shows the engine speed or the tripmeter.

※ **Refer to page 3-20 for details.**

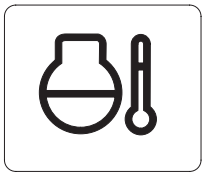
3) WARNING LAMPS



21093CD08D

※ **Each warning lamp on the top of the LCD pops up on the center of LCD and the buzzer sounds when each warning happens. The pop-up warning lamp moves to its original position and blinks when the select switch is pushed. Then the buzzer stops sounding. Refer to page 3-10 for details on the select switch.**

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

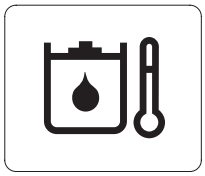

21093CD08A

① The engine coolant temperature warning is indicated in two steps:
- Over 100°C : the lamp blinks and the buzzer sounds.
- Over 105°C : the lamp pops up on the center of the 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 the lamp keeps blinking.

③ Check the cooling system when the lamp remains ON.

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


21093CD08C

① The hydraulic oil temperature warning is indicated in two steps:
- Over 100°C : the lamp blinks and the buzzer sounds.
- Over 105°C : the lamp pops up on the center of the 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 the lamp keeps blinking.

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

(3) **Fuel level warning lamp**

21093CD08B

① This warning lamp blinks and the buzzer sounds when the level of fuel is below 61 ℓ (16.1 U.S. gal).

② Fill the fuel immediately when the lamp blinks.

(4) **Emergency warning lamp**

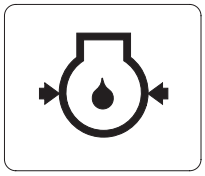
21093CD30

① This lamp pops up and the buzzer sounds when the below warnings occur.
- engine coolant overheating (over 105°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. The buzzer stops sounding. This is same as following warning lamps.**

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

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

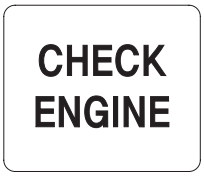


21093CD32

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

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

(6) **Check engine warning lamp**



21093CD33

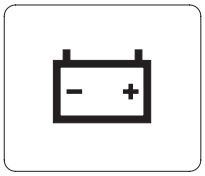
① This lamp blinks when the communication between the MCU and the engine ECM on the engine is abnormal, or if the cluster received any fault code from engine ECM.

② Check the communication line between the MCU and the engine ECM.
If the communication line is OK, then check the fault codes on the cluster.

29093CD03

③ This lamp blinks when "Engine check water in fuel" is displayed in the message box. Check the water separator.

(7) **Battery charging warning lamp**

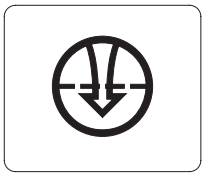


21093CD34

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**

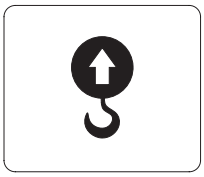


21093CD35

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** (Option)

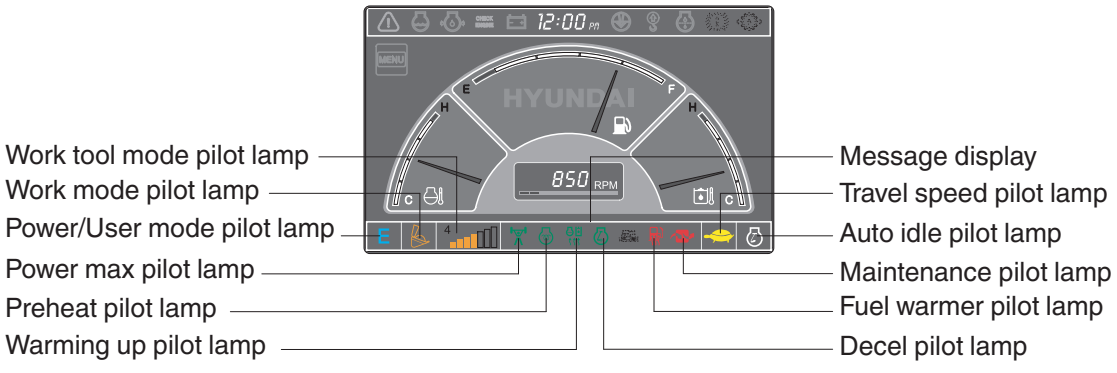


21093CD36

① When the machine is overloaded, the overload warning lamp blinks when the overload switch (if equipped) is ON.

② Reduce the machine load.

4) PILOT LAMPS



21093CD09

(1) **Pilot lamp modes**

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	4	Oil flow level of breaker or crusher mode
7	Message display	M	"Setting is completed" display after selection

(2) **Power max pilot lamp**

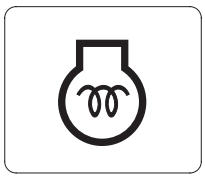
21093CD38

① When you push the power max switch on the LH RCV lever, the lamp will light on.

② The power max function is operated maximum 8 seconds.

※ **Refer to page 3-30 for the power max function.**

(3) **Preheat pilot lamp**

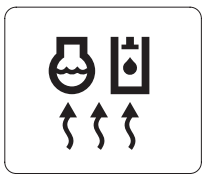


21093CD39

① Turning the start key switch to the ON position starts the preheating in cold weather.

② Start the engine after this lamp is OFF.

(4) **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.

(5) **Decel pilot lamp**

21093CD41

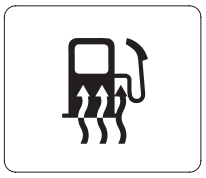
① The decel pilot lamp will light on when you push the one-touch decel switch on the RCV lever.

② Also, the lamp will turn on and the 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.

※ **The one-touch decel function is not available when the auto idle pilot lamp is turned ON.**

※ **Refer to page 3-29.**

(6) **Fuel warmer pilot lamp**



21093CD43

① This lamp is turned on when the coolant temperature is below 10°C (50°F).

② The automatic fuel warming is cancelled when the engine coolant temperature is above 10°C, or when 30 minutes have passed since the start switch was in the ON position.

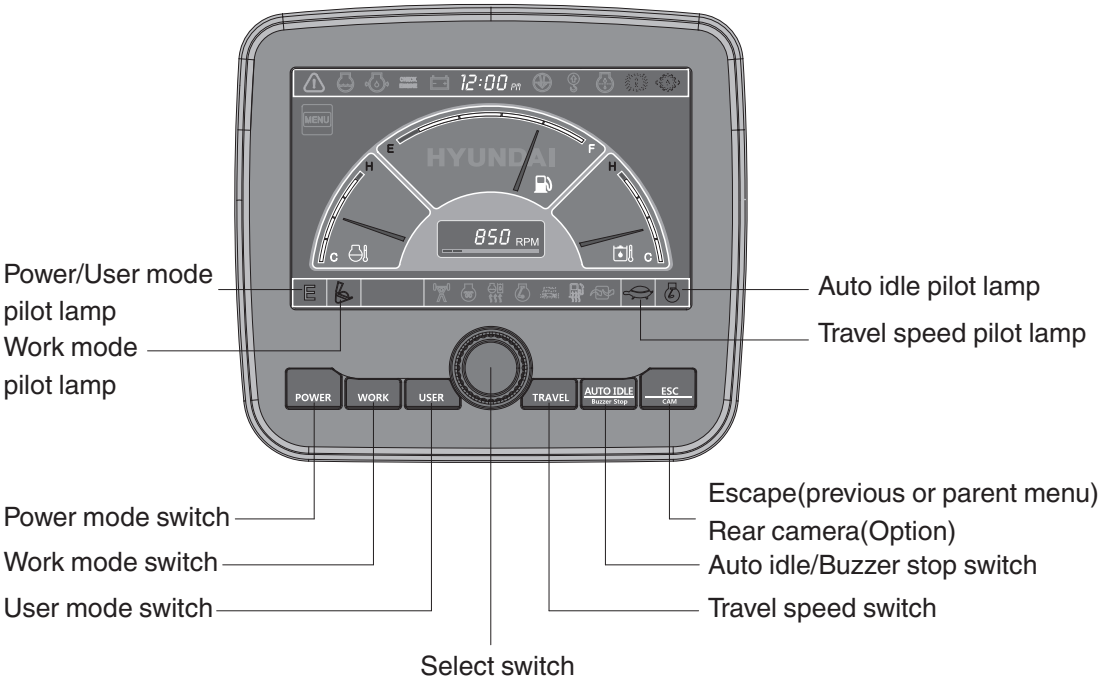
(7) **Maintenance pilot lamp**

21093CD44

① This lamp will turn on when the consuming parts need to be changed or replaced. This means that the change or replacement interval of the consuming parts remains below 30 hours.

② Check the message in the maintenance information of the main menu. Also, this lamp lights on for 3 minutes when the start switch is in the ON position.

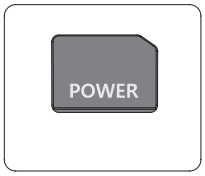
5) SWITCHES



21093CD45

※ **When the switches are selected, the pilot lamps are displayed on the LCD. Refer to page 3-6 for details.**

(1) **Power mode switch**



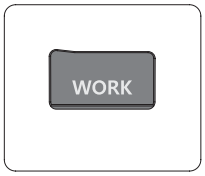
21093CD45A

① This switch selects the machine power mode. The 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 in this order: E → S → P → E

(2) **Work mode switch**



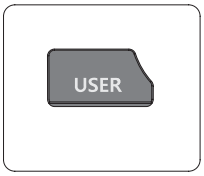
21093CD45C

① This switch selects the machine work mode, which shifts from the general operation mode to the 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 page 4-8 for details.**

(3) **User mode switch**



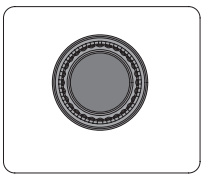
21093CD45D

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 page 3-12 for another set of user mode.

(4) **Select switch**



21093CD45E

① This switch selects or changes the menu and input value.

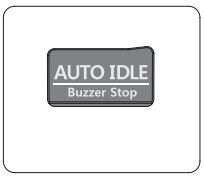
② Knob push

- 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**



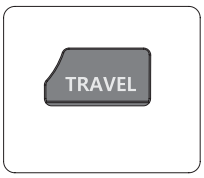
21093CD45F

① This switch activates or cancels 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 the buzzer stops, but the warning lamp blinks until the problem is cleared.

(6) **Travel speed control switch**

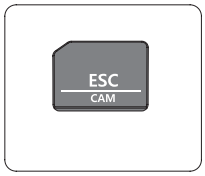


21093CD45G

① This switch selects the travel speed alternatively.

- : high speed
- : low speed

(7) **Escape/Camera switch**



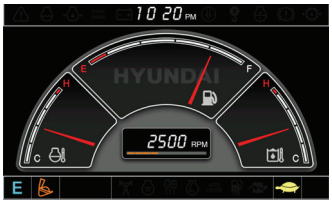
21093CD45H

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 3-23 for the camera.

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

6) MAIN MENU



21093CD64

21093CD64A

Press

21093CD64B

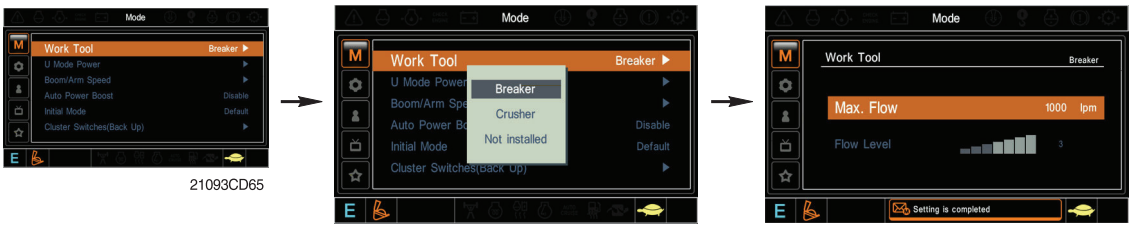
※ **Please refer to Select switch on page 3-10 for the selection and change of menu and input value.**

(1) Structure

No.	Main menu	Submenu	Description
1	M Mode 21093CD64D	Work tool	Breaker, Crusher, Not installed
		U mode power	User mode only
		Boom/arm speed	Boom speed, Arm speed
		Auto power boost	Enable, Disable
		Initial mode	Default, U mode
		Cluster switch (back-up)	Switch function
2	Monitoring 21093CD64E	Active fault	MCU, Engine ECM
		Logged fault	MCU, Engine ECM
		Delete logged fault	Delete all logged faults, Initialization cancelled
		Monitoring (analog)	Machine information
		Monitoring (digital)	Switch status, Output status
		Operating hours	Operating hours for each mode
3	Management 21093CD64F	Maintenance information	Replacement, Change interval oils and filters
		Machine security	ESL mode setting, Password change
		Machine information	Cluster, MCU, Engine, Machine
		A/S phone number	A/S phone number, A/S phone number change
		Service menu	Power shift, Hourmeter, Replacement history, Update
4	Display 21093CD64G	Display item	Engine speed, Tripmeter A, Tripmeter B, Tripmeter C
		Clock	Clock
		Brightness	Manual, Auto
		Unit	Temperature, Pressure, Flow, Date format
		Language	Korean, English, Chinese
		Screen type	A type, B type
5	Utilities 21093CD64H	Tripmeter	3 kinds (A, B, C)
		DMB	DMB select, DAB select, Channel scan, Exit
		Entertainment	Play MP4, codec.
		Camera setting	Basic direction, Display switching, Full screen
		Message box	Record for fault, attachment etc.

(2) **Mode setup**

① **Work tool**



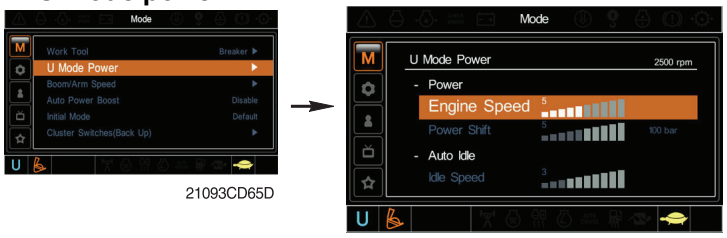
21093CD65 21093CD65A 21093CD65B

A B

- A : Select one installed optional attachment
- B : Max flow ("Max flow") - Set the maximum flow for the attachment
  Flow level ("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**

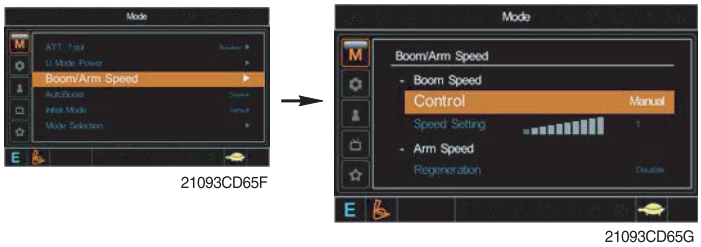


21093CD65D 21093CD65E

Step	Engine speed (rpm)	Idle speed (rpm)	Power shift (bar)
1	1450	700	0
2	1500	750	3
3	1550	800	6
4	1600	850	9
5	1650	900	12
6	1700	One-touch decel low idle (950)	16
7	1750	Auto decel rpm (1000)	20
8	1800	1050	26
9	1850	1100	32
10	1900	1150	38

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

③ **Boom/arm speed**

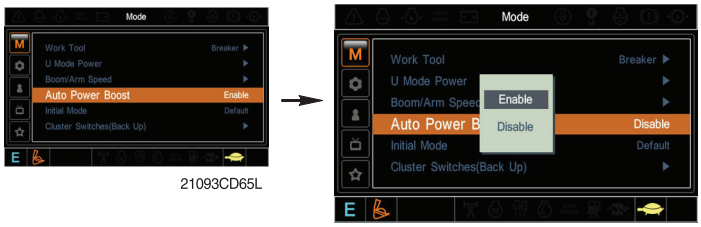


21093CD65F 21093CD65G

- **Boom speed**
  - Control type
    Manual ("Manual") - Boom up speed is fixed as set steps.
    Auto ("Auto") - Boom up speed is automatically adjusted as working conditions by the MCU.

- **Arm speed**
  - Regeneration ("Regeneration") - Arm regeneration function can be activated or cancelled.
    Enable ("Enable") - Arm in speed is up.
    Disable ("Disable") - Fine operation.

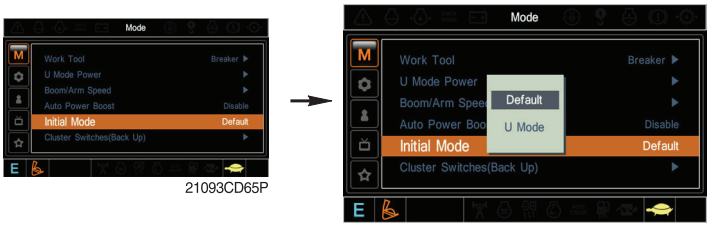
④ **Auto power boost**



21093CD65L 21093CD65M

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

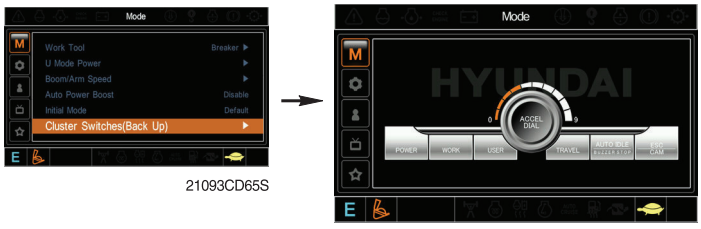
⑤ **Initial mode**



21093CD65P 21093CD65Q

- Default ("Default") - The initial power mode is set to the E mode when the engine is started.
- U mode ("U mode") - The initial power mode is set to the U mode when the engine is started.

⑥ **Cluster switch** (back-up)

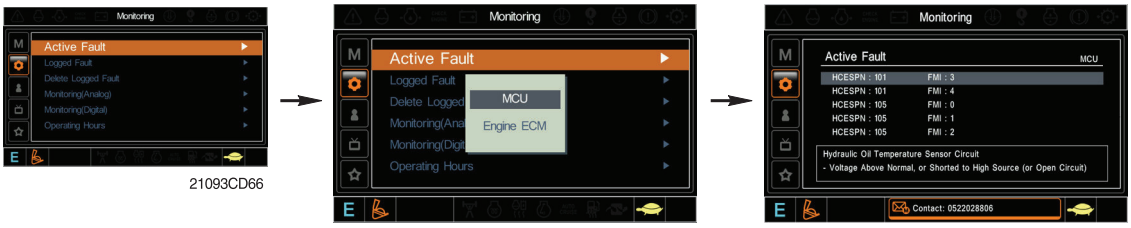


21093CD65S 21093CD65T

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

(3) **Monitoring**

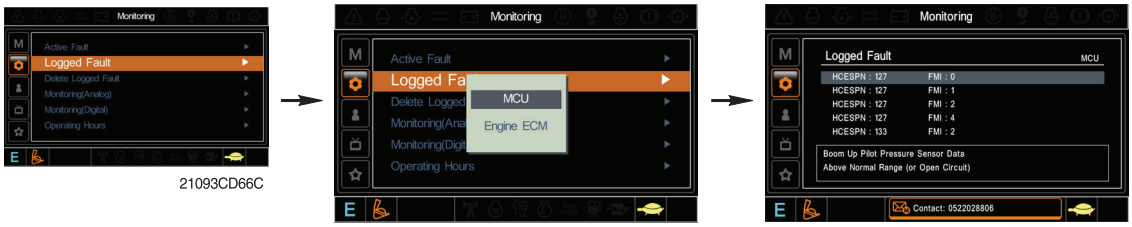
① **Active fault**



21093CD66 21093CD66A 21093CD66B

- The active faults of the MCU or engine ECM can be checked in this menu.

② **Logged fault**



21093CD66C 21093CD66D 21093CD66E

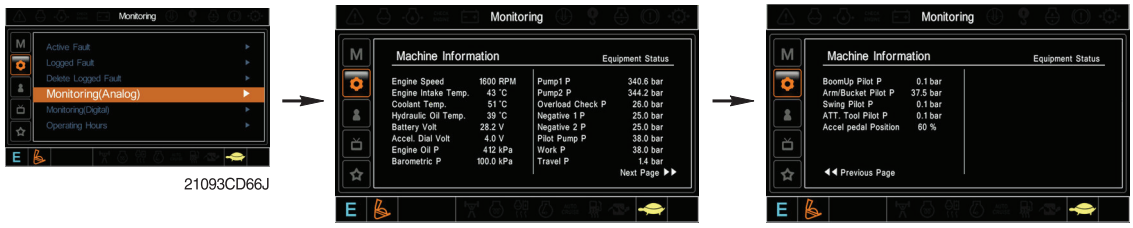
- The logged faults of the MCU or engine ECM can be checked in this menu.

③ **Delete logged fault**

21093CD66F 21093CD66G 21093CD66H

- The logged faults of the MCU or engine ECM can be deleted in this menu.

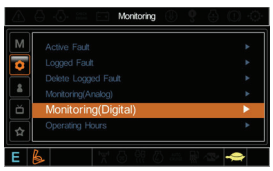
④ **Monitoring (analog)**



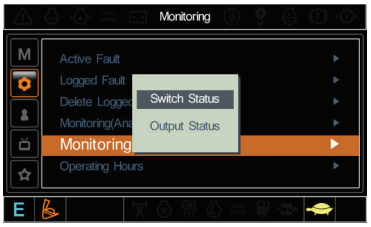
21093CD66J 21093CD66K 21093CD66L

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

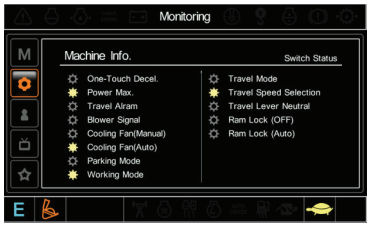
⑤ Monitoring (digital)



21093CD66M



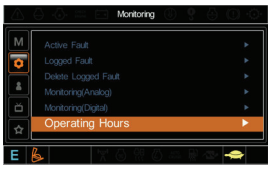
21093CD66N



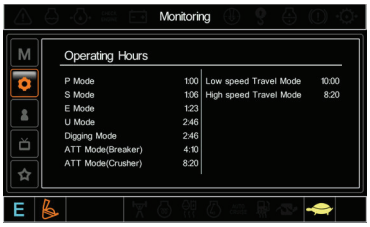
21093CD66P

- The switch status or output status can be confirmed by this menu.
- The activated switch or output pilot lamps are turned ON (☼).

⑥ Operating hours



21093CD66Q

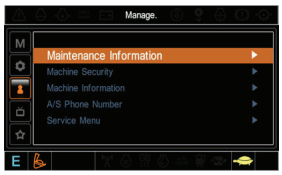


21093CD66R

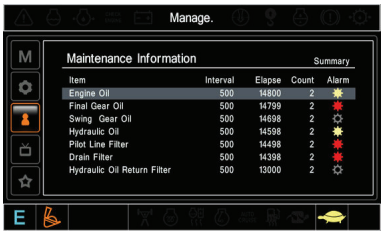
- The operating hour of each mode can be confirmed in this menu.

(4) Management

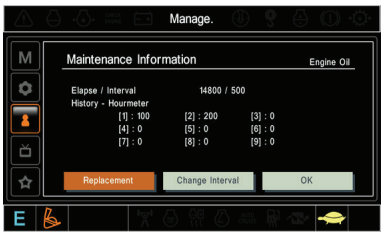
① Maintenance information



21093CD67

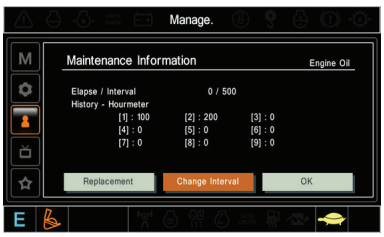


21093CD67A

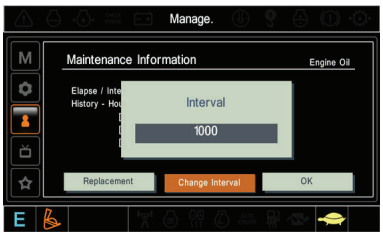


21093CD67Q

21093CD67R



21093CD67S



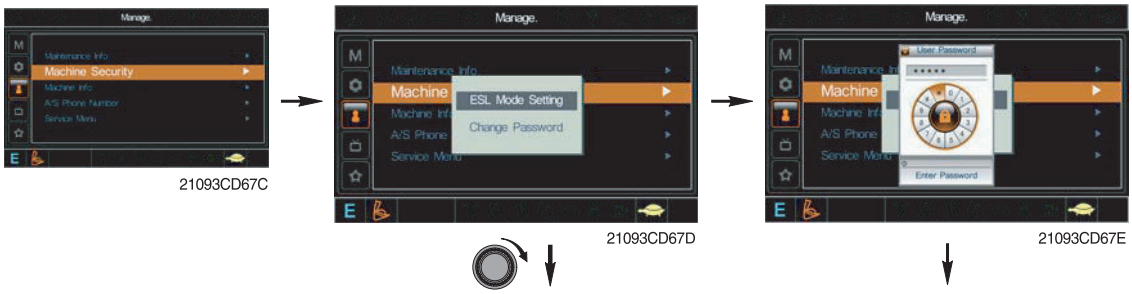
21093CD67T

- Alarm ("Alarm")( ) : gray - normal
  yellow - first warning
  red - second warning
- Replacement ("Replacement") : the elapsed time will be reset to zero (0).
- Change interval ("Change interval") : the change or replace interval can be changed in the unit of 50 hours.
- OK ("OK") : return to the item list screen.
- **Change or replace interval**

No.	Item	Interval
1	Engine oil	500
2	Final gear oil	1000
3	Swing gear oil	1000
4	Hydraulic oil	5000
5	Pilot line filter	1000
6	Drain filter	1000
7	Hydraulic oil return filter	1000
8	Engine oil filter	500
9	Fuel filter	500
10	Prefilter	500
11	Hydraulic tank breather	250
12	Air cleaner (inner)	500
13	Radiator coolant	2000

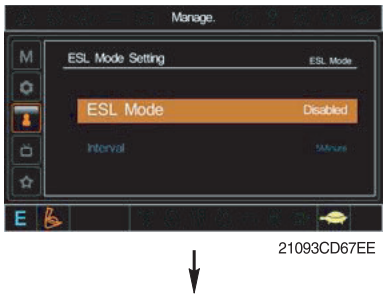
No.	Item	Interval
14	Swing gear pinion grease	1000

② Machine security

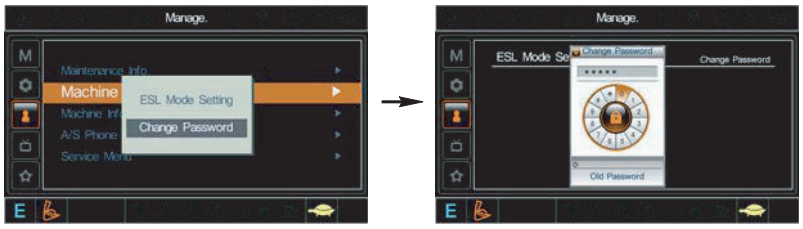


21093CD67C 21093CD67D 21093CD67E

- **ESL mode setting**
  - ESL: Engine Starting Limit
  - The ESL mode is designed as a theft deterrent and will prevent the unauthorized operation of the machine.
  - If the ESL mode is enabled ("Enable"), a password will be required when the start switch is turned on.
  - Legend:
    - Disabled ("Disabled"): the ESL function is not selected.
    - Enable (always) ("Enable (always)"): the password is required whenever the operator start engine.
    - Enable (interval) ("Enable (interval)"): the password is required when the operator starts the engine first. But the operator can restart the engine within an interval time without inputting the password.
      The interval time can be set at a maximum of 4 hours.



21093CD67EE 21093CD67H



21093CD67U Enter the current password 21093CD67V

- **Password change**
  - The password is 5~10 digits.

Enter the new password 21093CD67VV

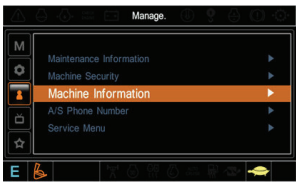
21093CD67X

The new password is stored in the MCU.

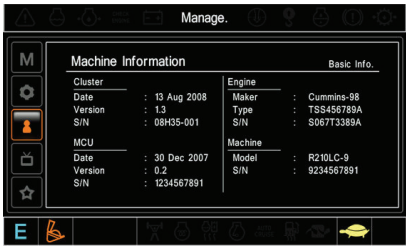
21093CD67XX

Enter the new password again

③ Machine information



21093CD67F



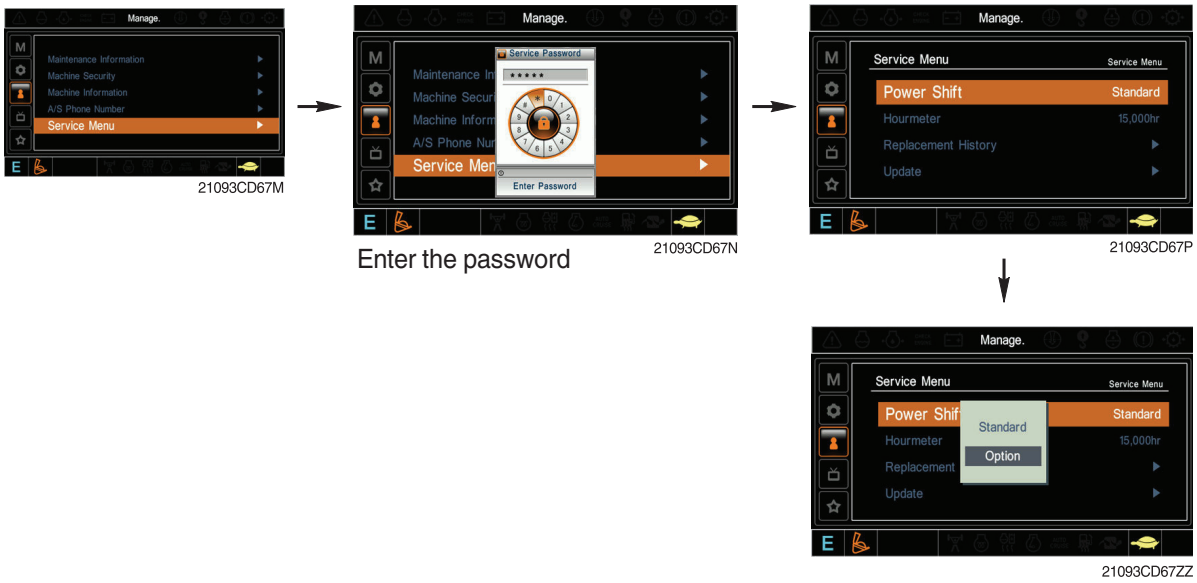
21093CD67G

- This screen displays information on the cluster, MCU, engine and machine.

④ A/S phone number

21093CD67J 21093CD67K 21093CD67L 21093CD67Y 21093CD67Z

⑤ Service menu



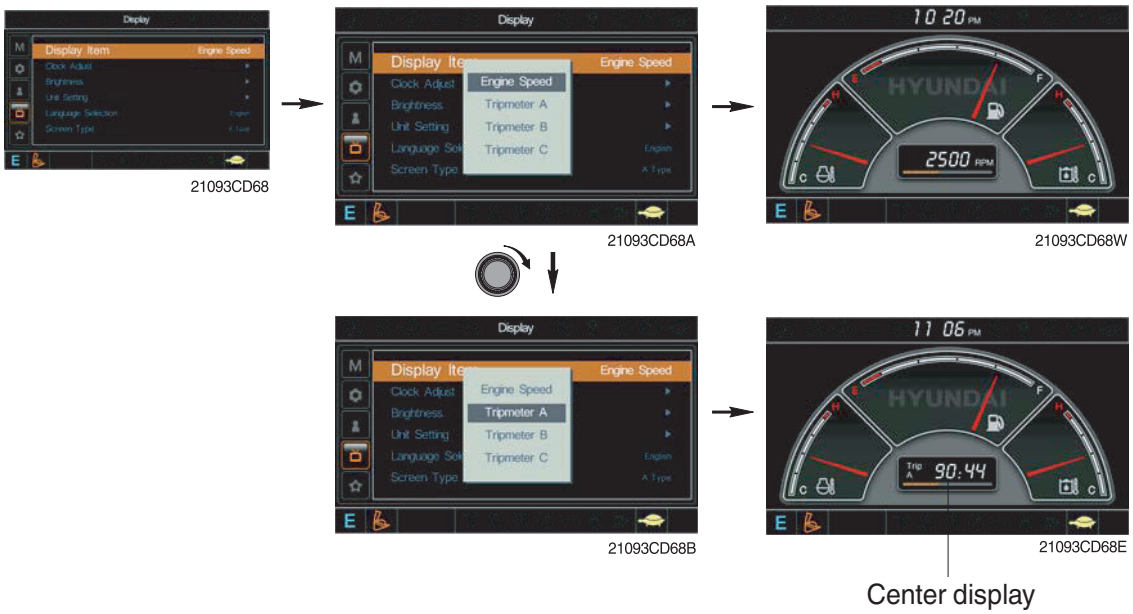
21093CD67M 21093CD67N 21093CD67P 21093CD67ZZ

Enter the password

- Legend:
  - "Power shift (standard/option)": the power shift pressure can be set in the "Option" submenu.
  - "Hourmeter": the operating hours since the machine line-out can be checked in this menu.
  - "Replacement history": the replacement history of the MCU and cluster can be checked in this menu.
  - "Update": Firmware can be upgraded in this menu (the USB port is located under the cluster).

(5) **Display**

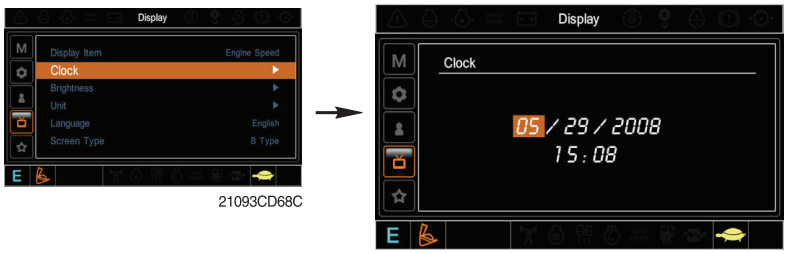
① **Display item**



21093CD68 21093CD68A 21093CD68W 21093CD68B 21093CD68E

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

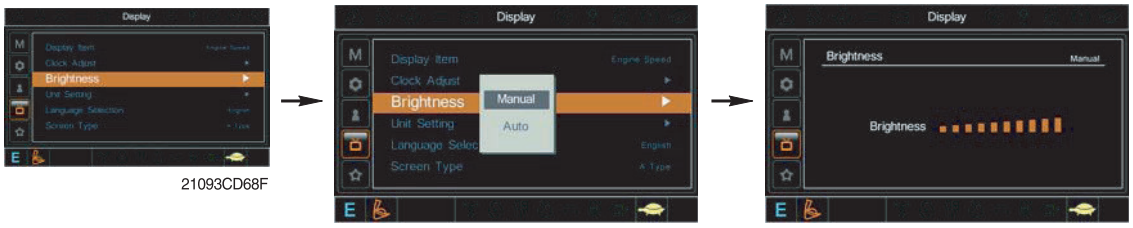
② **Clock**



21093CD68C 21093CD68D

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

③ Brightness



21093CD68F

Manual (1st~10th step) 21093CD68G

21093CD68H

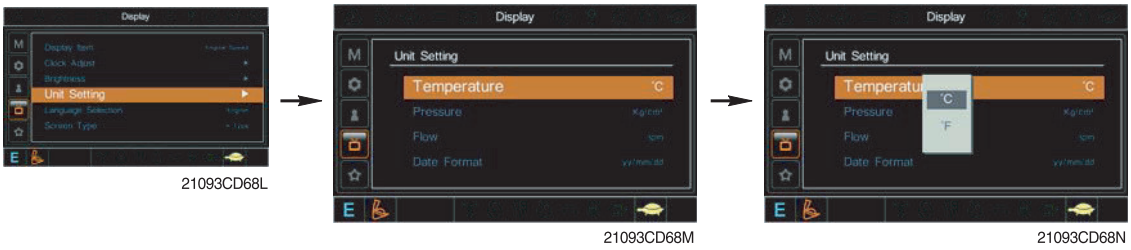
Auto (day/night)

21093CD68J

21093CD68K

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

④ Unit



21093CD68L

21093CD68M

21093CD68N

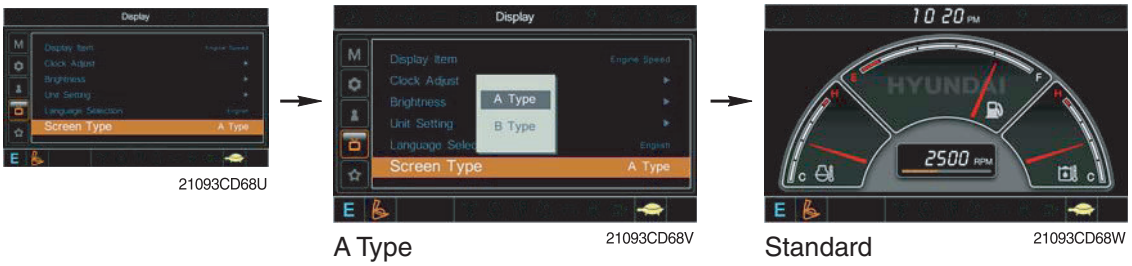
- Temperature ("Temperature") : °C ↔ °F
- Pressure ("Pressure"): bar ↔ MPa ↔ kgf/cm^2
- Flow ("Flow") : lpm ↔ gpm
- Date format ("Date format"): yy/mm/dd ↔ mm/dd/yy ↔ dd-mm-yy

⑤ Language

21093CD68R 21093CD68S 21093CD68T

- The user can select the preferred language. All displays will change to the selected language.

⑥ Screen type



21093CD68U 21093CD68V 21093CD68W

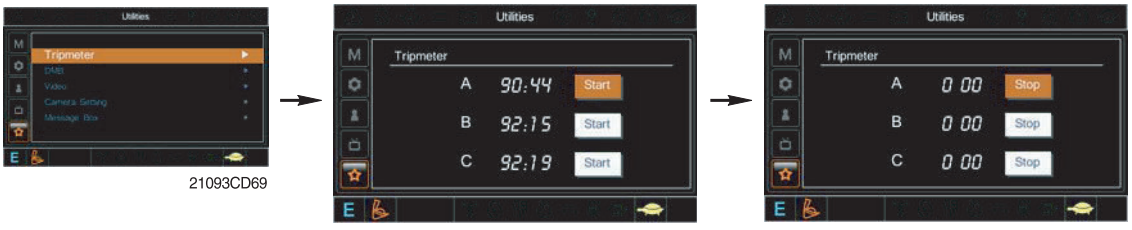
A Type Standard

21093CD68X 21093CD68Y

B Type Option

(6) Utilities

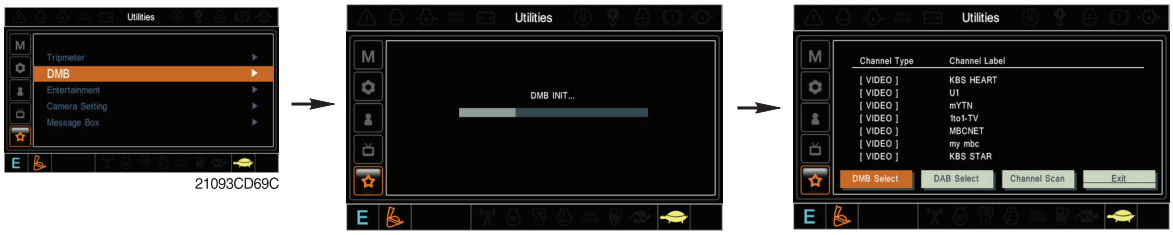
① Tripmeter



21093CD69 21093CD69A 21093CD69B

- 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

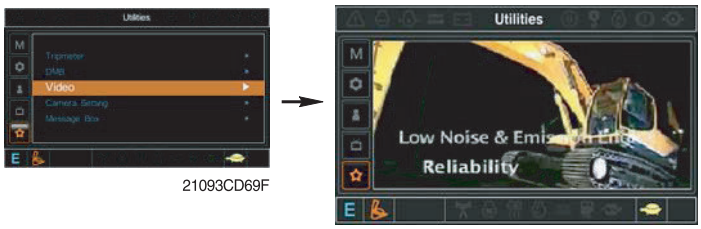


21093CD69C 21093CD69D 21093CD69E

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

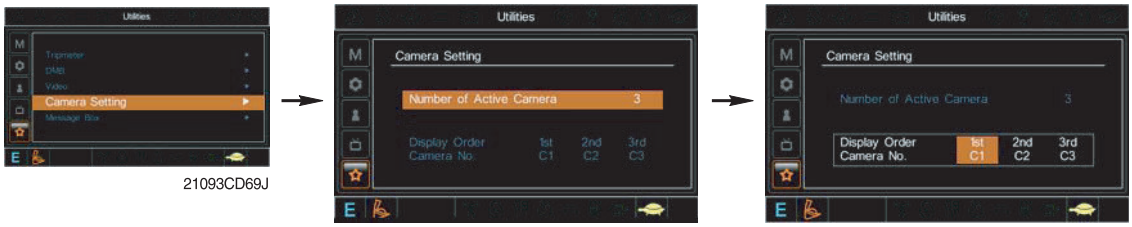
③ Entertainment

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



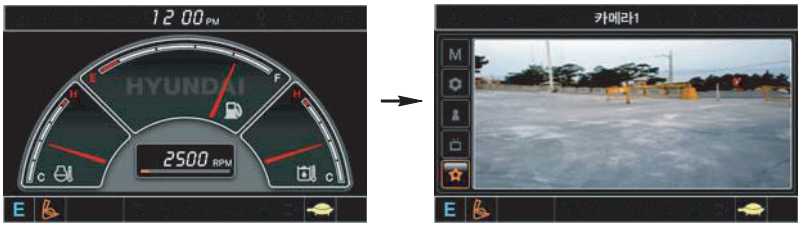
21093CD69F 21093CD69G

④ Camera setting



21093CD69J 21093CD69K 21093CD69L

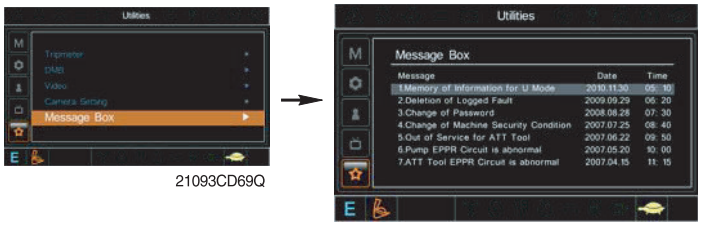
- Three cameras can be installed on the machine.
- The display order can be set in this menu.



21093CD69M 21093CD69N

- 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.
- Turning the select switch in clockwise direction, the next ordered will be shown and in counter-clockwise direction, the previously ordered will be shown.
- The display screen will be enlarged when you push the select switch.

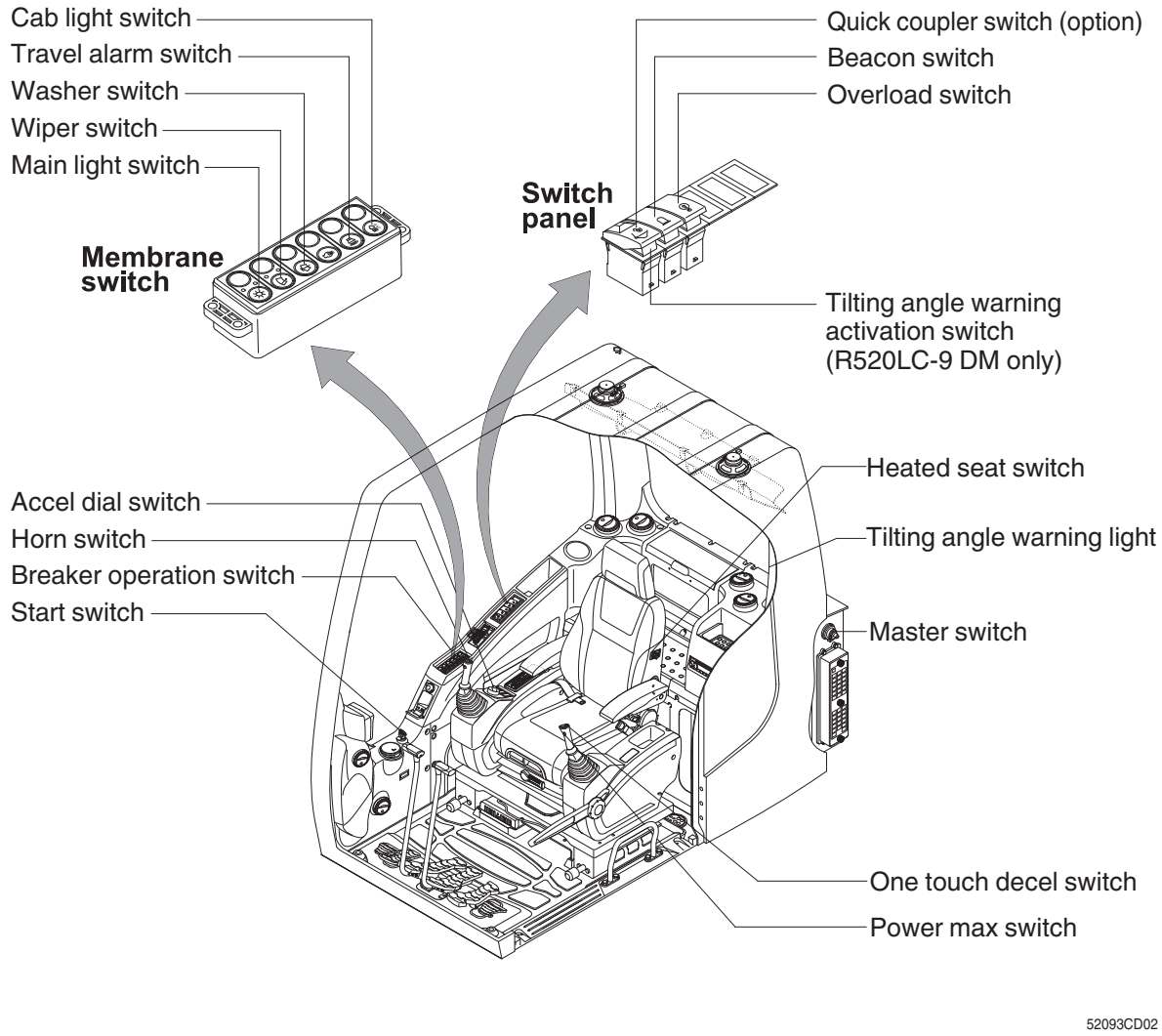
⑤ **Message box**



21093CD69Q 21093CD69R

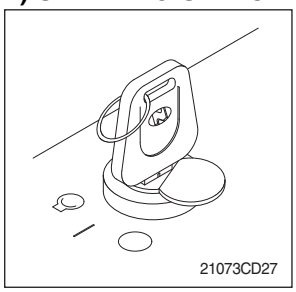
- The history of the machine operating status can be checked in this menu.

3. SWITCHES



52093CD02

1) STARTING SWITCH



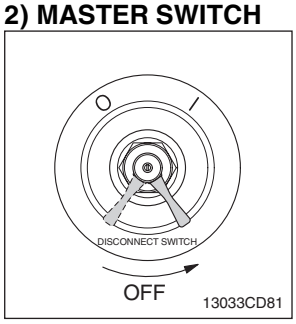
There are three positions: OFF, ON and START.

- ○ (OFF) : none of the electrical circuits activate.
- | (ON) : all systems of the machine operate.
- (START) : use when starting the engine. Release the 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.**

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

2) MASTER SWITCH

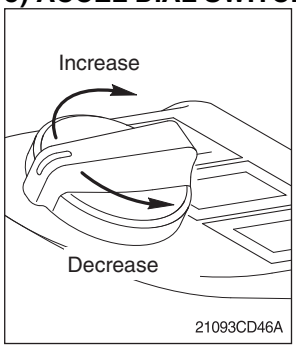


(1) This switch is used to shut off the entire electrical system.

(2) | : the battery remains connected to the electrical system.
◯ : the battery is disconnected from the electrical system.

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

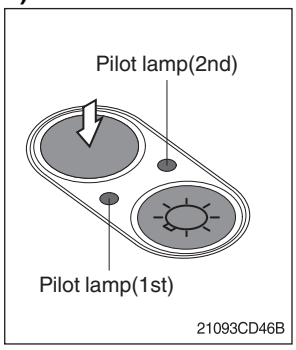
3) ACCEL DIAL SWITCH



(1) There are 10 dial settings.

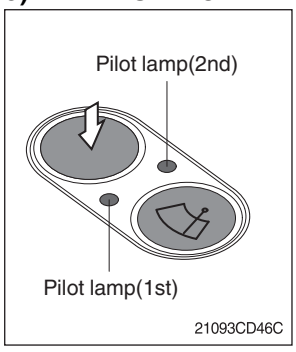
(2) Setting 1 is low idle and setting 10 is high idle.
- By rotating the accel dial to right: engine speed increases
- By rotating the accel dial to left: engine speed decreases

4) MAIN LIGHT SWITCH



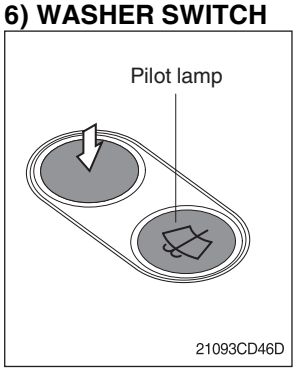
This switch operates the headlight and work light.
- When you press the switch once, the headlight and the first pilot lamp turn on.
- When you press the switch once more, the work light and the second pilot lamp turn on.
- Press the switch again to return to a first step position.
- Press the switch more than one second to turn off the lights.

5) WIPER SWITCH



This switch operates the wiper.
- When you press the switch once, the wiper operates intermittently and the 1st pilot lamp lights ON.
- When you press the switch once more, the wiper operates low speed and the 2nd pilot lamp lights ON.
- Press the switch again to return to a first step position.
- Press the switch more than one second to turn off the wiper.

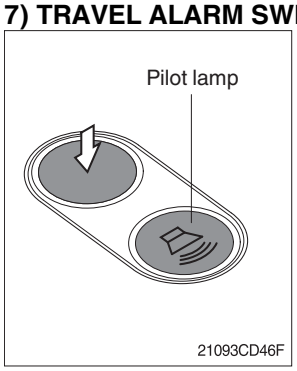
6) WASHER SWITCH



(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.

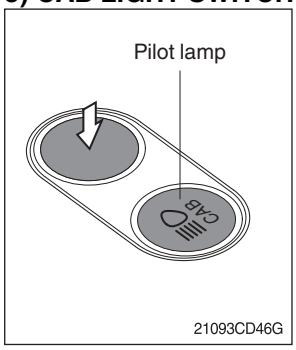
7) TRAVEL ALARM SWITCH



(1) This switch activates the travel alarm function, which sounds when the machine travels forward or backwards.

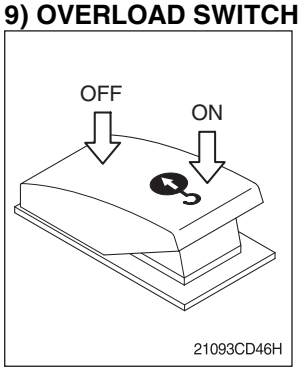
(2) When this switch is pressed, the alarm operates only when the machine is traveling.

8) CAB LIGHT SWITCH (Option)



(1) This switch turns ON the cab light.

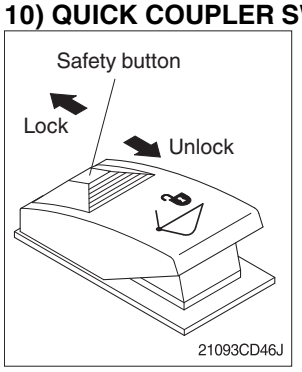
9) OVERLOAD SWITCH (Option)



(1) When this switch turned ON, the buzzer sounds and the overload warning lamp lights ON in case that the machine is overloaded.

(2) When the overload switch is turned OFF, the buzzer stops and the warning lamp goes out.

10) QUICK COUPLER SWITCH (Option)

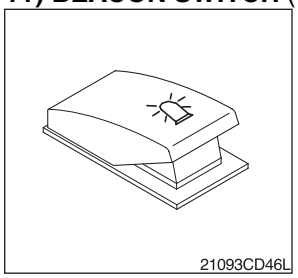


(1) This switch is used to engage or disengage the moving hook on the quick coupler.

※ **See page 8-6 for details.**

(2) For R520LC-9 DM only:
This switch is replaced by a normal toggle switch which activates the boom tilting angle warning system.

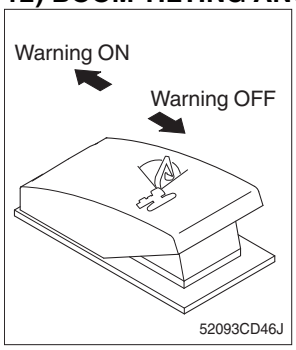
11) BEACON SWITCH (Option)



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

(2) The indication lamp is turned on when operating this switch.

12) BOOM TILTING ANGLE WARNING SWITCH (R520LC-9 DM only)

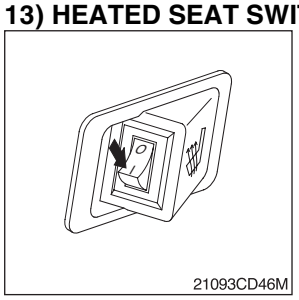


(1) This switch activates the boom tilting angle warning system.

(2) The safe tilting zone is 20° down measured from a 90° boom vertical position.

⚠ **WARNING: Working beyond this range is prohibited and indicated by an acoustic and visual alarm in the cabin.**

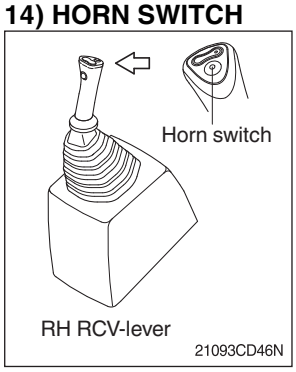
13) HEATED SEAT SWITCH (Option)



(1) This switch is used to heat the seat.

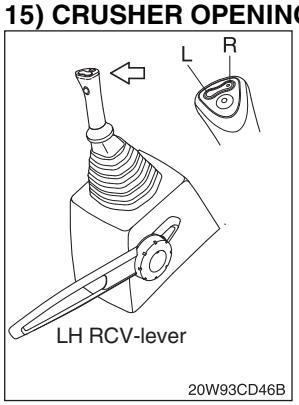
(2) When the switch is pressed, the below indicator lamp is turned ON.
- Heater ON: 10 ± 3.5°C
- Heater OFF: 20 ± 3°C

14) HORN SWITCH



(1) This switch is located at the top of the right-hand side control lever. The horn sounds when the switch is pressed.

15) CRUSHER OPENING/CLOSING SWITCH (R520LC-9 DM only)

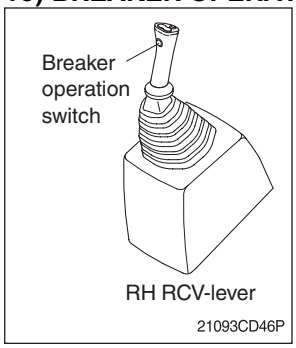


(1) This switch activates the opening and closing of the crusher jaws.

R : crusher is open

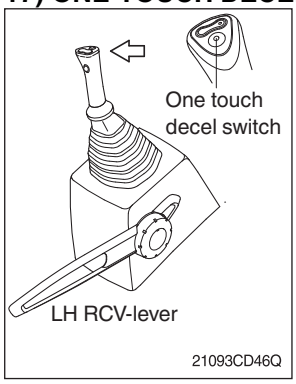
L : crusher is closed

16) BREAKER OPERATION SWITCH



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

17) ONE-TOUCH DECEL SWITCH

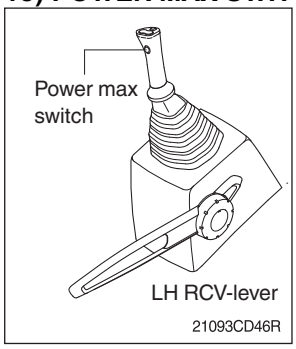


(1) This switch is used to actuate the deceleration function quickly.

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

(3) The one-touch decel function is only available when the auto idle pilot lamp is turned off.

18) POWER MAX SWITCH

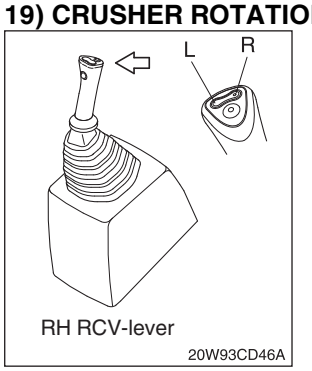


(1) This switch activates the power max function.
When this switch is kept pressed, hydraulic power of the work equipment will be increased to approximately 110% during 8 seconds.

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

⚠ Do not use the power max switch for craning purposes!

19) CRUSHER ROTATION SWITCH (R520LC-9 DM only)



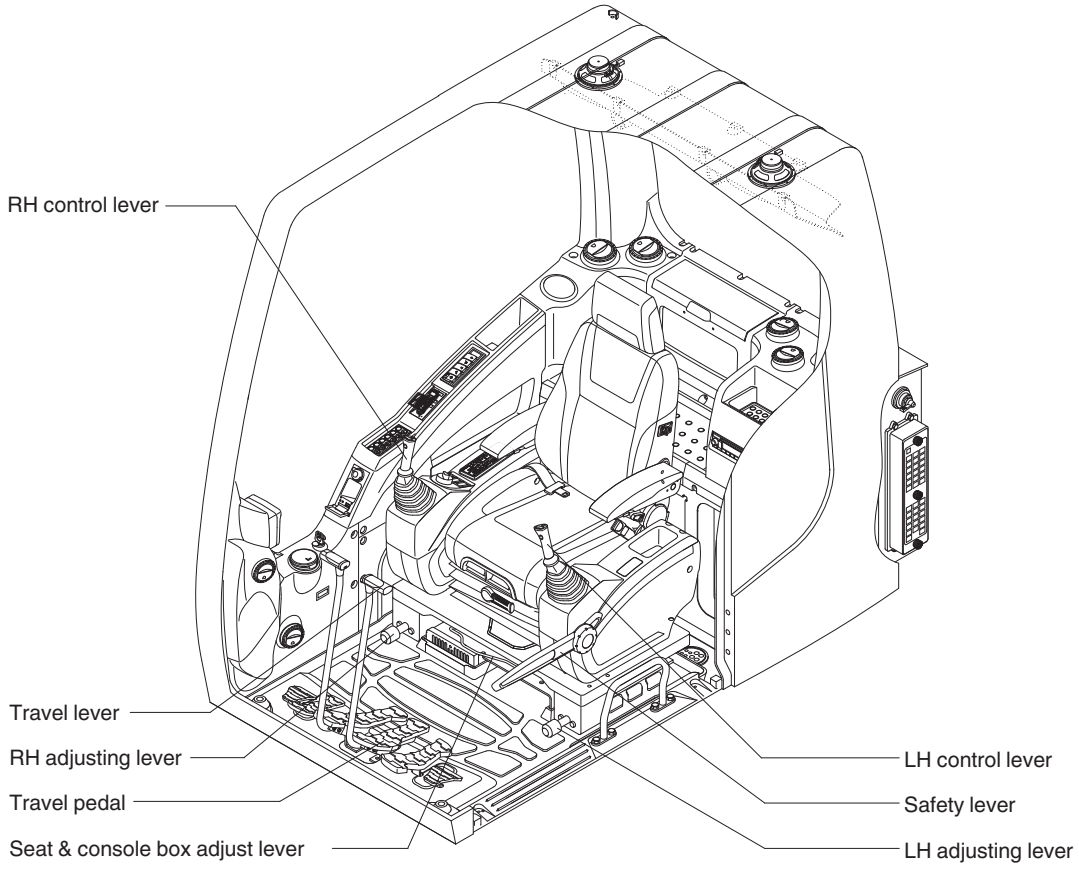
(1) This switch activates the rotation of the crusher:

R : rotates the crusher counterclockwise

L : rotates the crusher clockwise

⚠ Check with decal 97QB-37200.

4. LEVERS AND PEDALS



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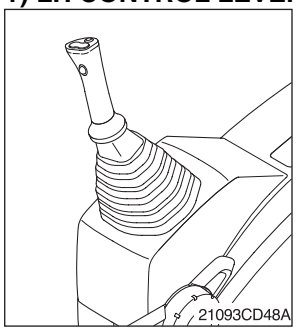
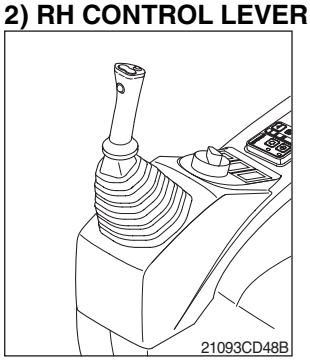
1) LH CONTROL LEVER



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

(2) Refer to page 4-13 for details.

2) RH CONTROL LEVER

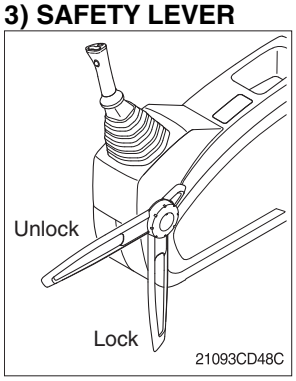


(1) This joystick is used to control the boom and the bucket.

(2) For R520LC-9 DM only: This joystick is used to control the boom and the crusher.

(3) Refer to page 4-13 for details.

3) SAFETY LEVER



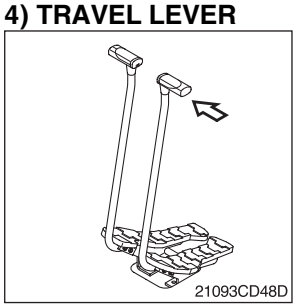
(1) All control levers and pedals are disabled from operation by locating the lever to lock position as shown.

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

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

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

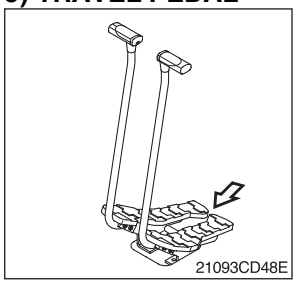
4) TRAVEL LEVER



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

(2) Refer to page 4-14 for details.

5) TRAVEL PEDAL

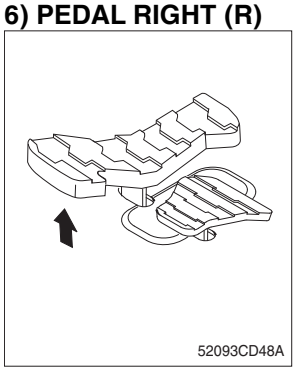


(1) This pedal is used to move the machine forward or backwards.

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

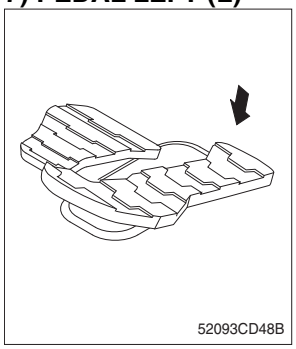
(3) Refer to page 4-14 for more details.

6) PEDAL RIGHT (R)



(1) This pedal is used to tilt the cabin backwards (max 30° tilt).
   ① Pushing the pedal backwards tilts the cabin backwards.
   ② Pushing the pedal forward tilts the cabin forward.

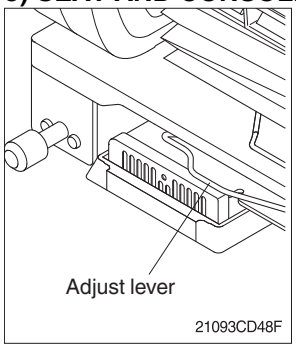
7) PEDAL LEFT (L)



(1) This pedal is used to move the middle arm in or out.
   ① Pushing the pedal backwards moves the middle arm in
   ② Pushing the pedal forward moves the middle arm out

※ **Only move the middle arm out when the base/extension boom are in the safety working range of the machine (max 25° downwards angle from perpendicular position to the ground).**

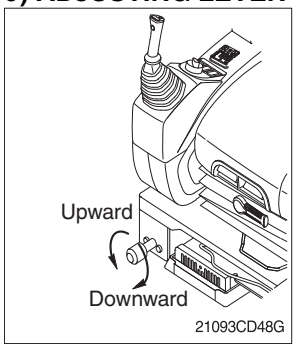
8) SEAT AND CONSOLE BOX ADJUST LEVER



(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 mm (6.7").

9) ADJUSTING LEVER



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

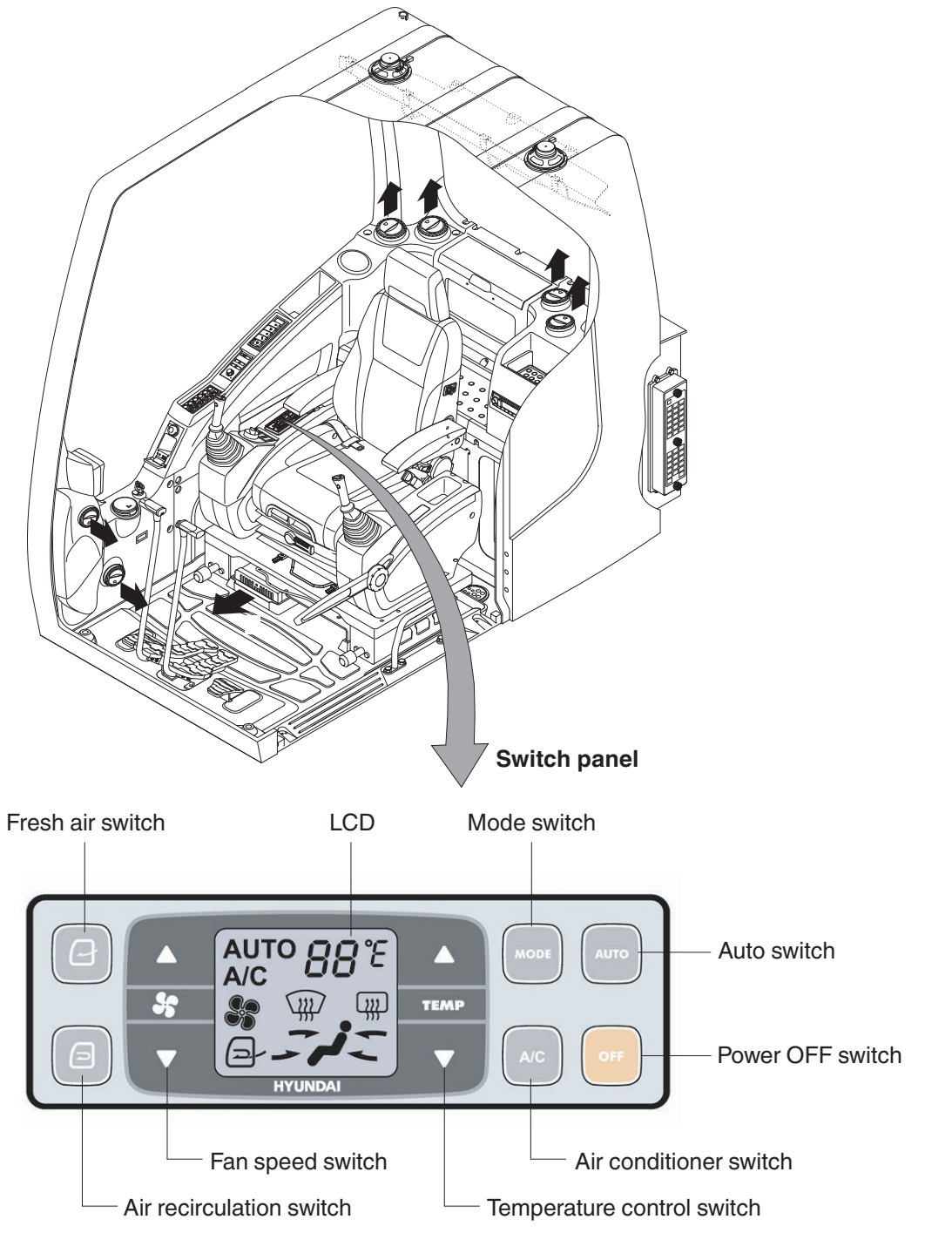
(2) The control lever can be moved upward and downward over 30 mm (1.2").

5. FULL AUTO AIR CONDITIONER AND HEATER (Standard)

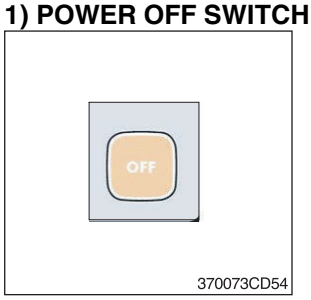
The full auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.

※ **Refer to page 3-38 for the semi auto air conditioner and heater.**

- **Location of air flow ducts**



1) POWER OFF SWITCH

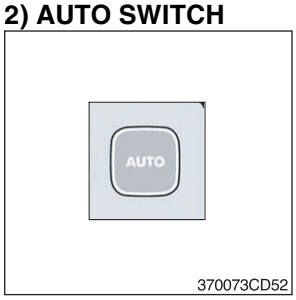


(1) This switch turns off the system and the LED.
Just before the power switches OFF, the set values are stored.

(2) Default setting values

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

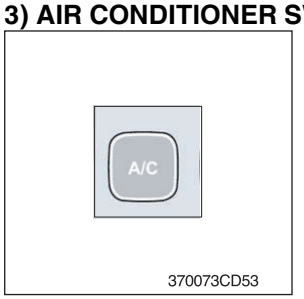
2) AUTO SWITCH



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

(2) This switch can restart the system after the system was turned off.

3) AIR CONDITIONER SWITCH (Compressor switch)

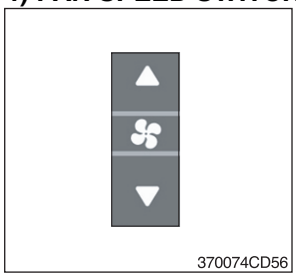


(1) This switch turns on the compressor and the LCD.

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

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

4) FAN SPEED SWITCH

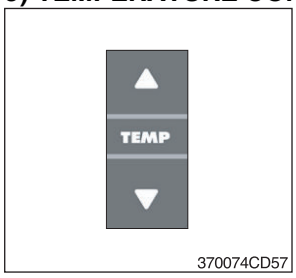


(1) Fan speed is controlled automatically by set temperature.

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

(3) This switch turns the system on.

5) TEMPERATURE CONTROL SWITCH



(1) Setting temperature indication (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.

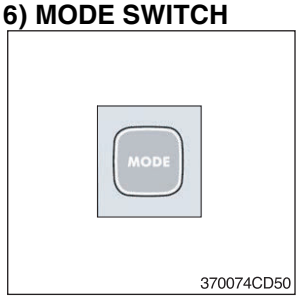
Temperature	Compressor	Fan speed	In/Outlet	Mode
Max cool	ON	Max (Hi)	Recirculation	Vent
Max warm	OFF	Max (Hi)	Fresh	Foot

(4) Temperature unit can be changed between celsius (°C) and Fahrenheit (°F).

① Default status (°C).

② Push the up/down temperature control switch simultaneously more than 5 seconds to change the displayed temperature unit (°C→°F).

6) MODE SWITCH

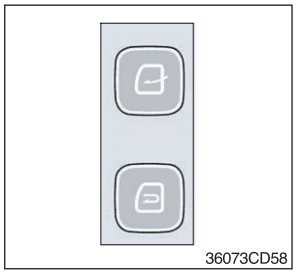


(1) Operating this switch, it beeps and displays symbol of each mode in order. (Vent →Vent/Foot→ Foot →Foot/Def →Vent)

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.

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** ( )

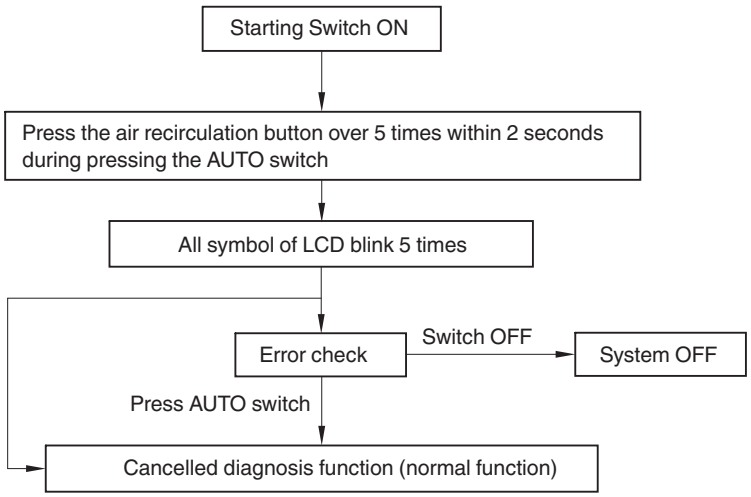
It recycles the heated or cooled air to increase the energy efficiency.

※ **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**



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(2) **Error check**

- The corresponding error code blinks on the setup temperature display panel, the other symbol will turn off.
- The error code blinks every 0.5 seconds.
- If there are more than two error codes, each code blinks 2 times in sequence.
- Error codes

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

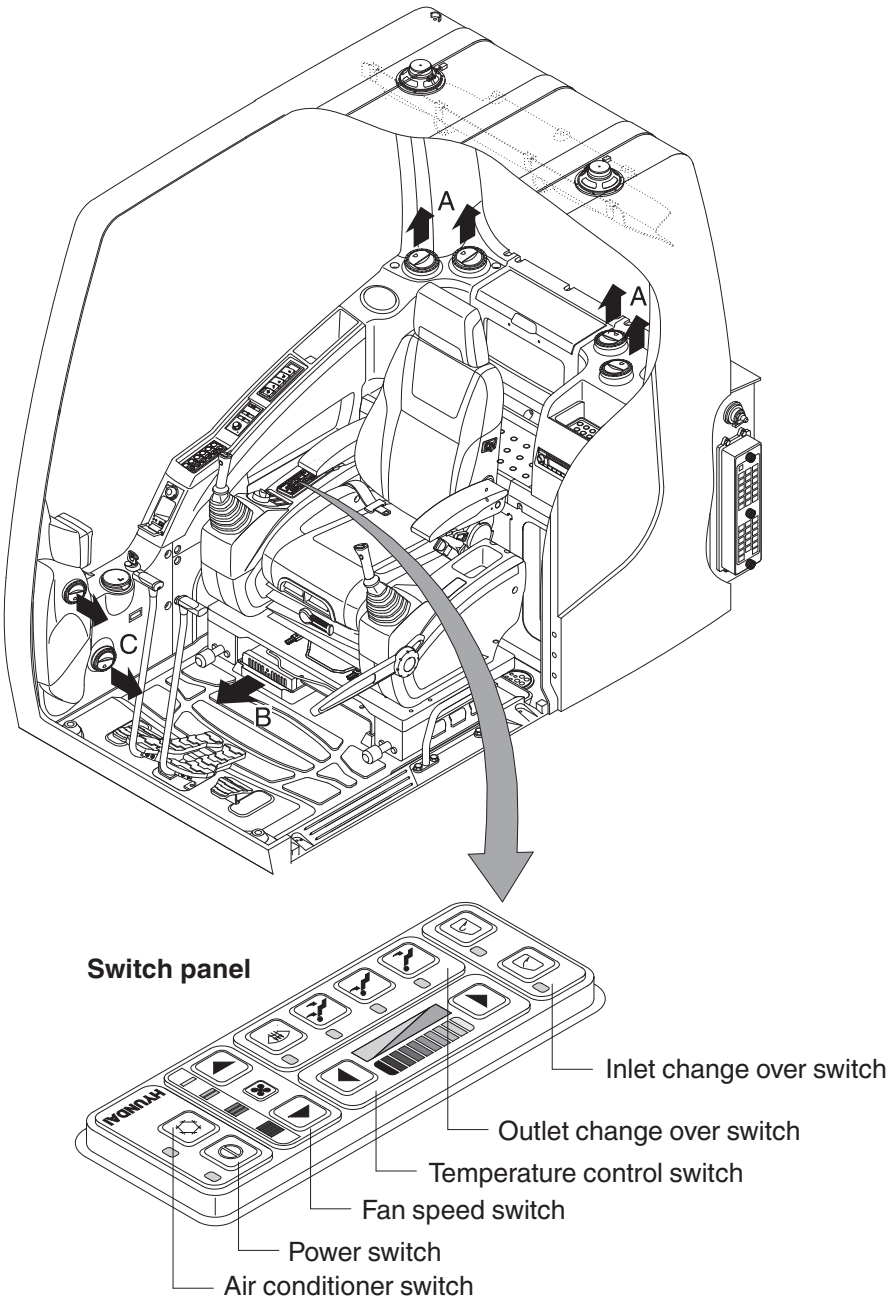
(3) **Fail safe function**

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. SEMI AUTO AIR CONDITIONER AND HEATER (Option)

Semi auto air conditioner and heater is equipped for pleasant operation against outside temperature and defrost on window glass.

- Refer to page 3-34 for auto air conditioner and heater.
- **Location of air flow ducts**



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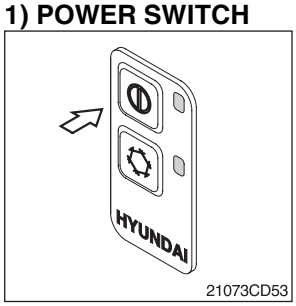
1) POWER SWITCH

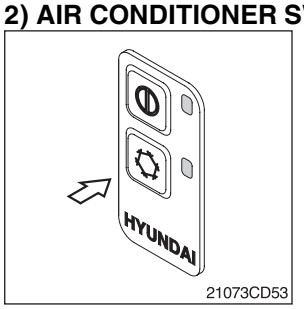


(1) This switch turns the system and the LED simultaneously on or off.

(2) Default setting values

Function	Air condition-er	Fan speed	Temperature	Outlet	Inlet
Value	OFF	1	Max cool	Face	Recirculation

2) AIR CONDITIONER SWITCH (Compressor switch)

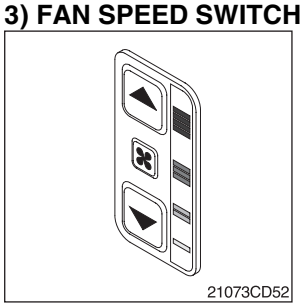


(1) Operating this switch turns the compressor and the LED simultaneously ON or OFF.

(2) In accordance with the evaporator temperature, compressor turns on or off automatically without changing LED state.

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

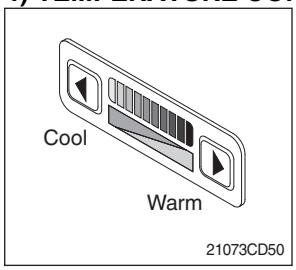
3) FAN SPEED SWITCH



(1) It is possible to control the fan to four steps.

(2) The first step or the fourth step gives 5 times beeps.

4) TEMPERATURE CONTROL SWITCH



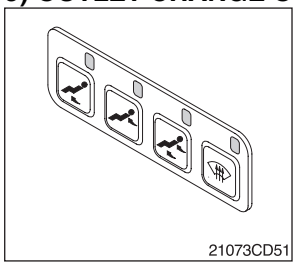
(1) There are 9 steps to control temperature from max cool to max warm controlled up and down by 1 step.

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

(3) For the max warm or the max cool it's better to be configured as following table.

Temperature	Air conditioner	Fan speed	Outlet	Inlet
Max cool	ON	4	Face	Recirculation
Max warm	OFF	3	Foot	Fresh

5) OUTLET CHANGE OVER SWITCH



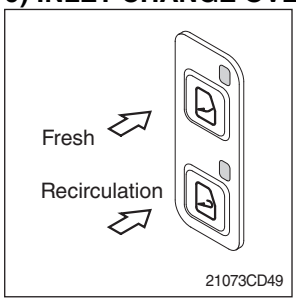
(1) There are four steps of air flow.

Switch position		Mode			
Outlet	A		●	●	
	B	●		●	●
	C				●

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

(3) In case of heating range (5~Max warm), air conditioner won't turns ON.

6) INLET CHANGE OVER SWITCH



(1) It is possible to change the air-inlet method.

① **Fresh**

Inhaling air from the outside to pressurize cab inside.

※ **Check out the fresh air filter periodically to keep a good efficiency.**

② **Recirculation**

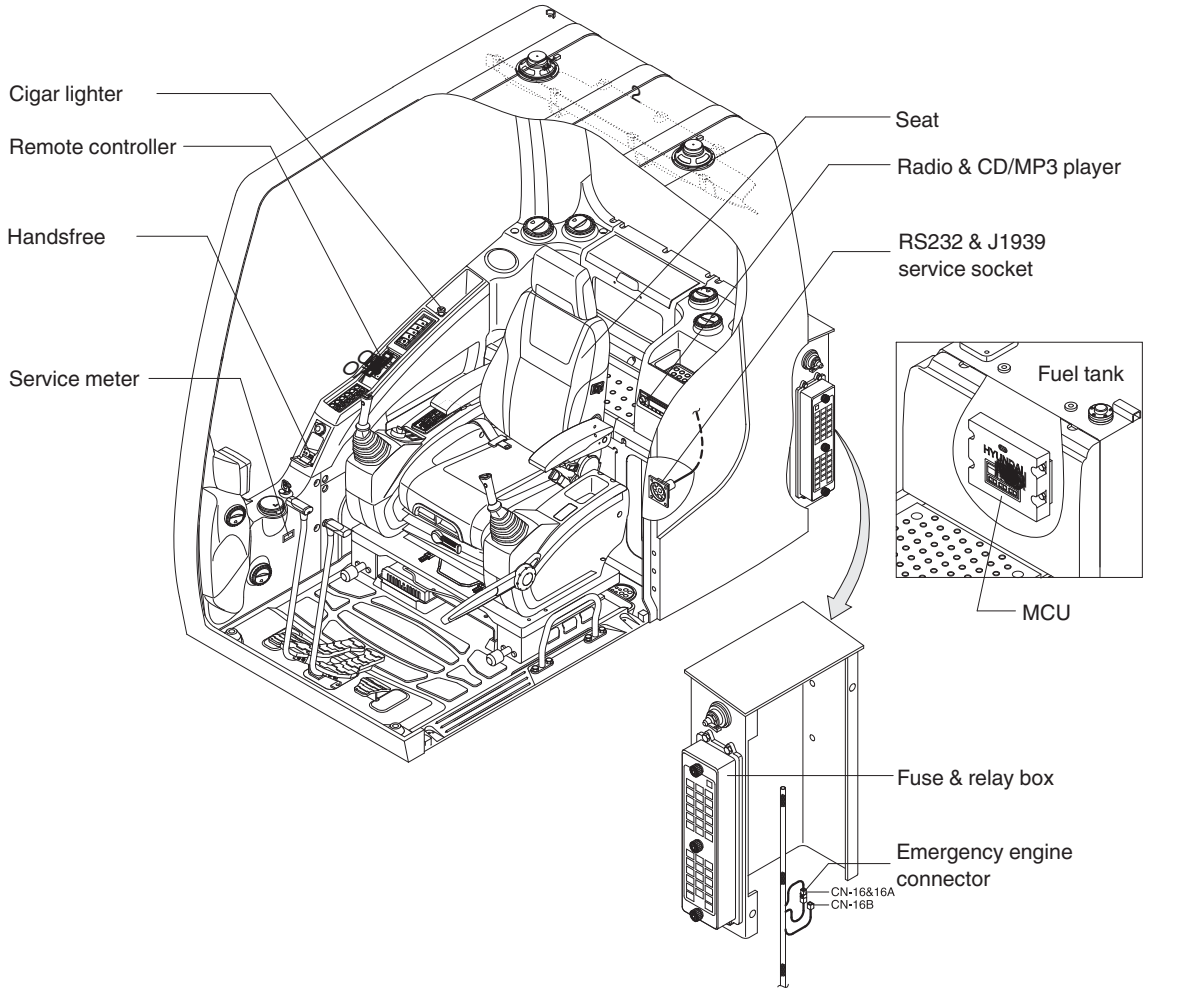
It recycles the heated or cooled air to increase the energy efficiency.

※ **Change air occasionally when using recirculation for a long time.**

※ **Check out the recirculation filter periodically to keep a good efficiency.**

(2) Recirculation function operates when the system is off but it can be changed whenever needed.

7. OTHERS



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1) CIGAR LIGHTER

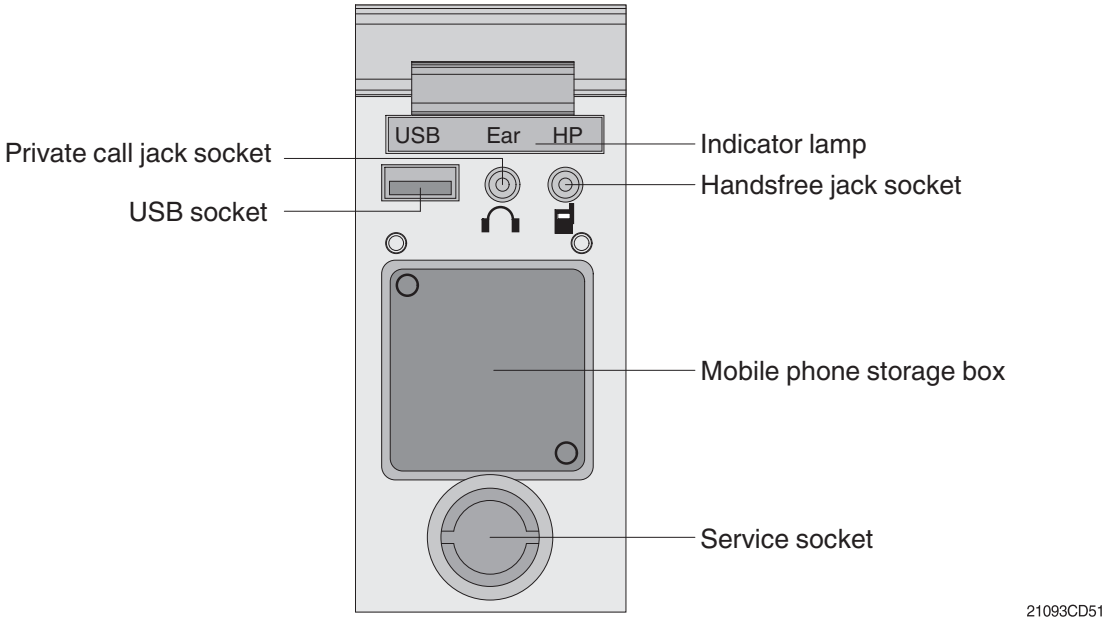
13033CD69

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

(2) The lighter can be used when it springs out shortly after being pressed down.

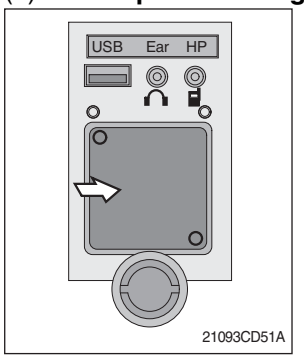
※ **Service socket**
Use cigar lighter socket when you need emergency power.
Do not use the lighter exceeding 24V, 100W.

2) HANDSFREE



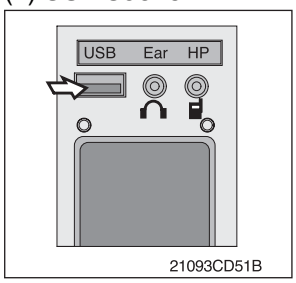
The handsfree set allows you to dial a call or to have a conversation without holding your handset. Use the remote controller when making and answering a call or ring off.

(1) **Mobile phone storage box**



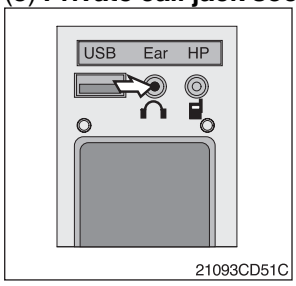
The mobile phone can be stored when you're calling handsfree.

(2) **USB socket**



This socket is used to charge the mobile phone.

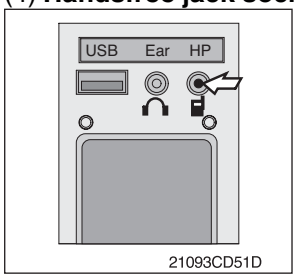
(3) **Private call jack socket**



① This can be used to protect your privacy when you're calling by using ear phone.

② The mobile phone must be connected to the handsfree jack socket.

(4) **Handsfree jack socket**

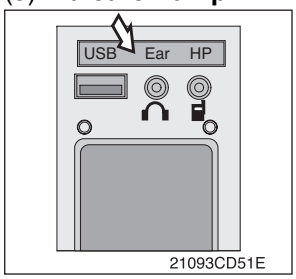


① Connect the jack cable when you're calling handsfree.

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

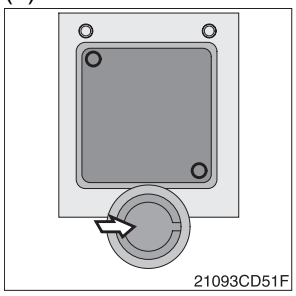
③ Check the jack type of the mobile phone before use.

(5) **Indicator lamp**



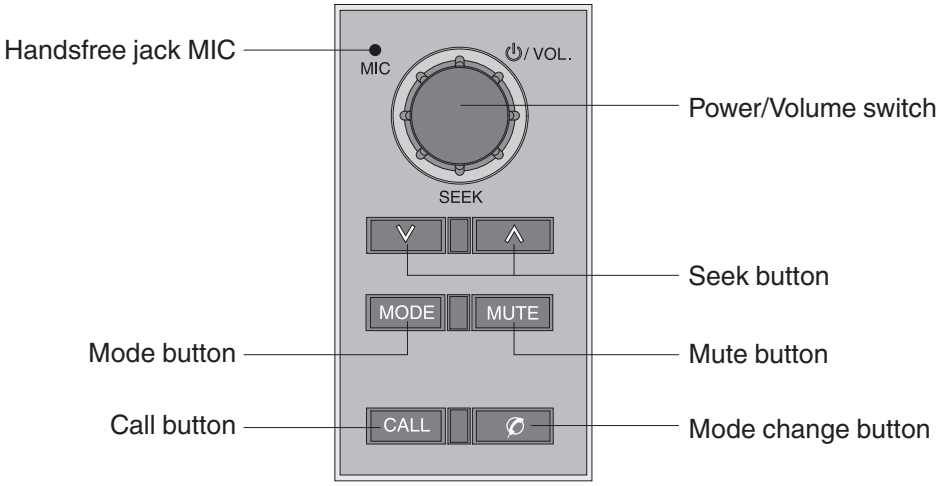
This lamp is turned ON when the handsfree mode is selected.

(6) **Service socket**



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

3) REMOTE CONTROLLER



21093CD52

(1) **Power and volume switch**

21093CD52A

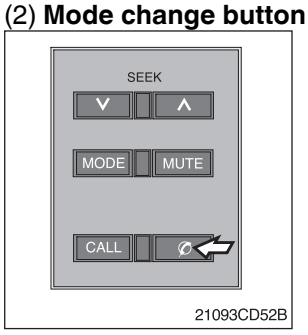
① This switch is used to turn the audio or handsfree on or off.

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 adjusts the audio volume when the audio mode is selected.**

(2) **Mode change button**

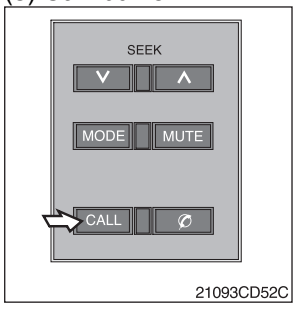


21093CD52B

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**



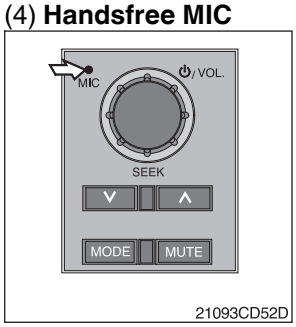
21093CD52C

① This button is used to 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.

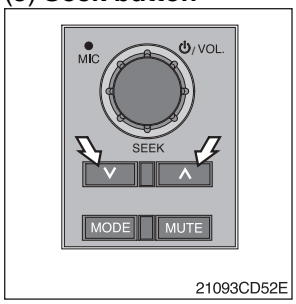
※ **This can be used when the starting switch is ON.**

(4) **Handsfree MIC**



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

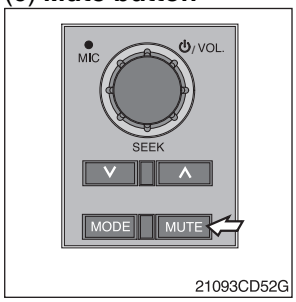
(5) **Seek button**



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

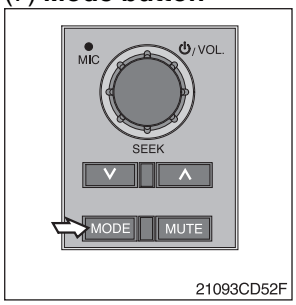
② Press ∧ to turn a station of a higher frequency or ∨ to a lower frequency.

(6) **Mute button**



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

(7) **Mode button**



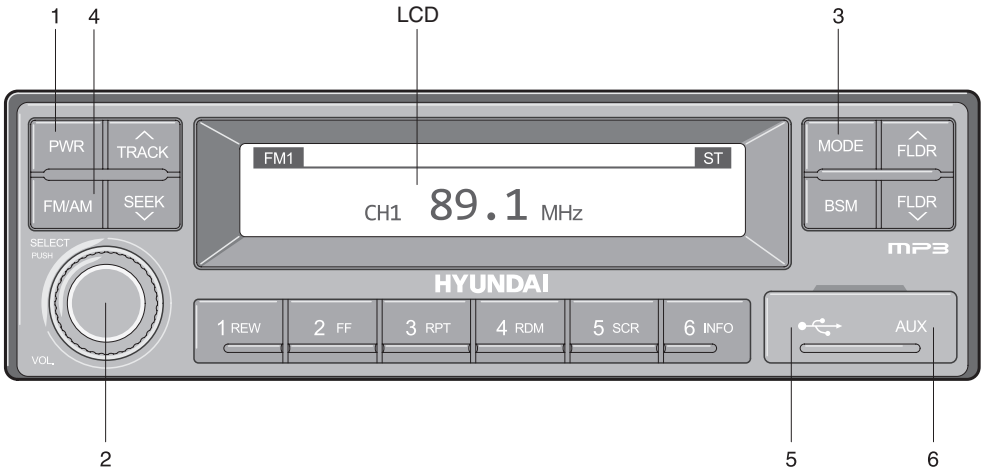
① Press the mode button to select the desired mode.

② FM1 → FM2 → AM → CD → MP3 → FM1

※ **The LCD displays each mode.**

4) RADIO AND MP3 USB PLAYER

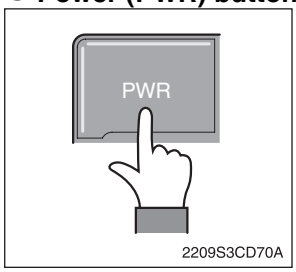
(1) BASIC FUNCTIONS



2209S3CD70

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

① Power (PWR) button

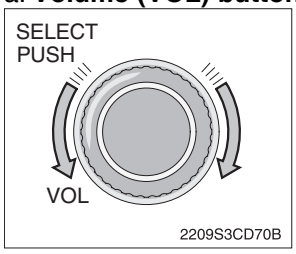


2209S3CD70A

a. 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

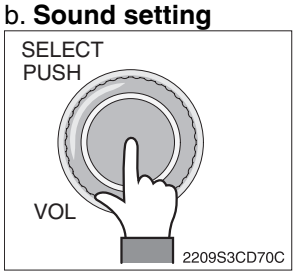
a. **Volume (VOL) button**



2209S3CD70B

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

b. **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.

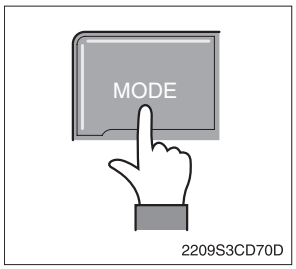
6 Left/Right BALANCE adjustment
Turn the SELECT button clockwise to increase the right-side speaker volume and counter-clockwise to increase the left-side speaker volume. BALANCE can be adjusted from 10L/10R. If there are no adjustments for 3 seconds, the changes will be saved and the previous mode will 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**



a. 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.

b. If iPod is connected to the audio, the mode will change in the following order.
RADIO → iPod → USB (handfree)

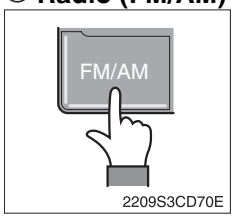
c. If USB or AUX is connected to the audio, the mode will change in the following order.
RADIO → USB (front) → USB (handfree) → AUX

※ **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**



a. Each press of the FM/AM button will change the radio mode in the following order.
FM1 → FM2 → FM3 → AM

b. Preset memory of up to FM: 18 stations, AM: 6 stations.

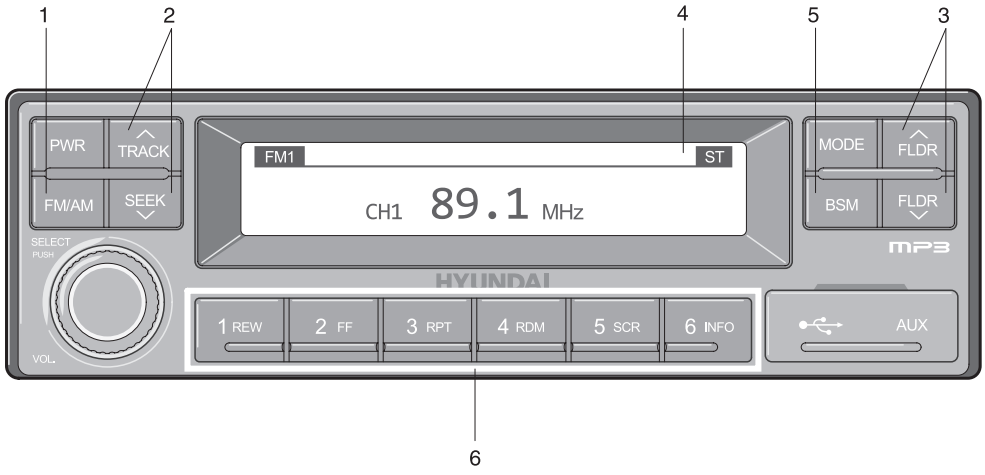
⑤ **USB slot**

Connects USB to play USB music files.

⑥ **AUX terminal**

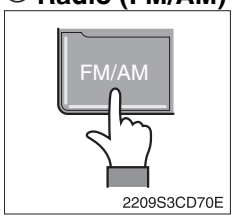
The AUX terminal connects AUX cable to play AUX music files.

(2) **RADIO**



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

① **Radio (FM/AM) selection button**



a. Each press of the FM/AM button will change the radio mode in the following order.
FM1 → FM2 → FM3 → AM

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

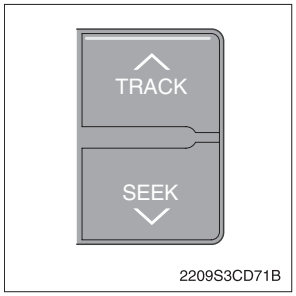
c. Setting regional Radio Frequency

• 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. “lnT” 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)

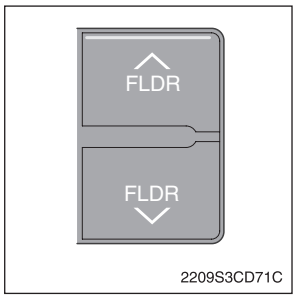
② TRACK/SEEK button



a. 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 ∨: 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).**

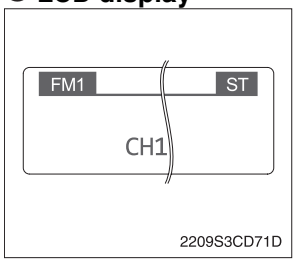
③ Broadcast manual search (FLDR) button



a. 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 ∨: Searches frequencies lower than current frequency

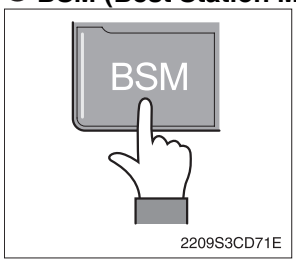
※ **SEEK STEP: FM-100KHz, AM-9KHz.**

④ LCD display



a. The currently received broadcast frequency info and status are displayed.

⑤ BSM (Best Station Memory) button

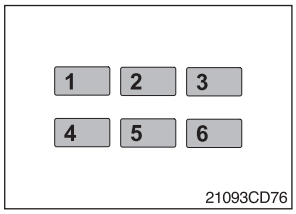


a. Press and hold the BSM button to listen to the presets saved in FM BAND FM1, FM2, and FM3 or AM BAND AM for 5 seconds each. When you find a station you wish to listen to, press the BSM button again to receive the selected broadcast.

b. 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.**



a. Use the auto/manual search buttons to find the desired frequency.

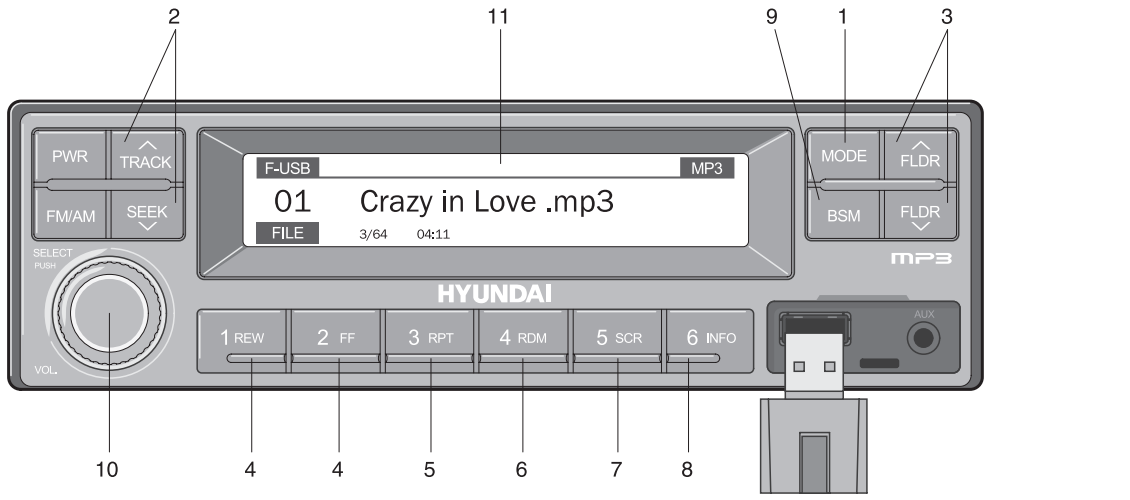
b. Select the preset button (1REW~ 6INFO) to which you wish to save the selected frequency. Press and hold the preset button.

c. 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).

d. 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).**

(3) USB CONNECTION

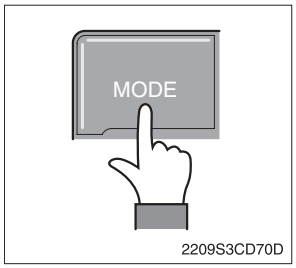


1 USB selection button
2 TRACK UP/SEEK DOWN button
3 FLDR UP/DOWN button
7 Scroll (SCR) button
8 View music info (INFO) button
9 Scan button (BSM)

4 FF/REW button
5 RPT/FOLDER RPT button
6 RDM/FOLDER RDM button
10 Finding and playing file (SELECT) button
11 LCD display

- 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.

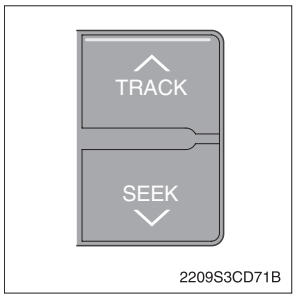
① USB selection button



a. 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.

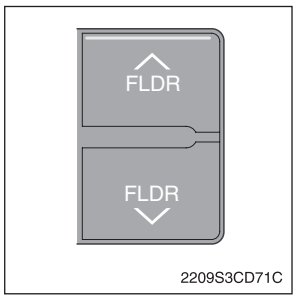
b. If the USB is connected to both the front USB and handfree, then MODE is converted in the following order.
RADIO → USB (front) → USB (handfree)

② TRACK UP/SEEK DOWN button



a. While playing USB, press the TRACK ∧ button to play the beginning of the next song.
Press the SEEK ∨ button to return to the beginning of the current song. Press the button again to play the beginning of the previous song.

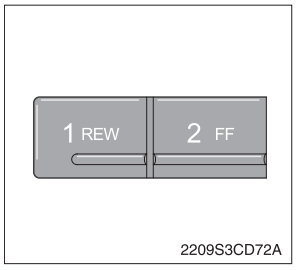
③ FLDR UP/DOWN button



a. If there are more than 2 folders in the USB, pressing the FLDR UP/ DOWN button will move to the previous or next folder.

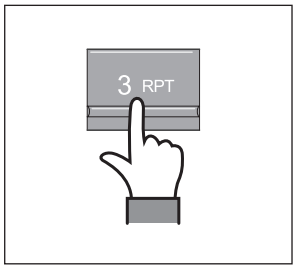
b. If there are no folders in the USB, then pressing the button will move up/down within the folder in 10 file increments.

④ FF/REW button



a. While a USB is operating, press and hold the FF button to fastforward 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.

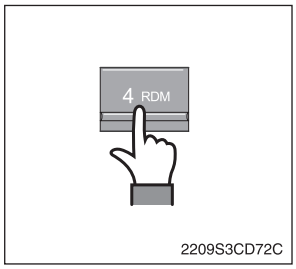
⑤ RPT/FOLDER RPT button



a. While music is playing, shortly press the RPT button to repeat the currently playing song.

b. (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).

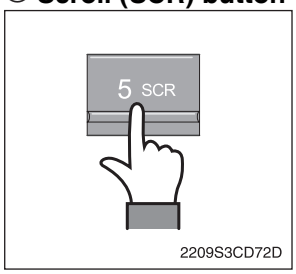
⑥ RDM/FOLDER RDM button



a. While music is playing, shortly press the RDM button to randomly play the songs in the current folder. (RDM)

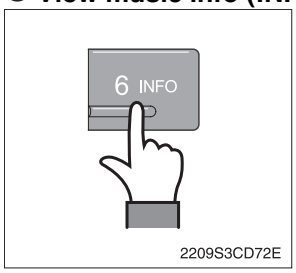
b. While music is playing, press and hold the RDM button to randomly play the songs in the current folder (FOLDER RDM, however, music files in the USB must be saved in folder format).

⑦ Scroll (SCR) button



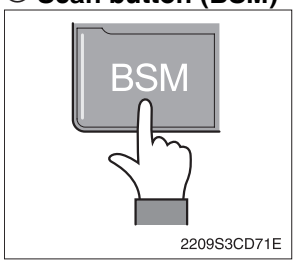
a. Press the SCR button to turn ON/OFF the scroll function which scrolls the file name of the currently playing song on the LCD from right to left.

⑧ View music info (INFO) button



a. 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

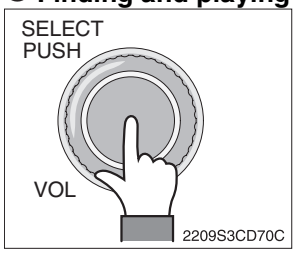
⑨ Scan button (BSM)



a. While music is playing, shortly press the BSM button to scan each song within the USB for 10 seconds in sequential order. (SCN)

b. 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

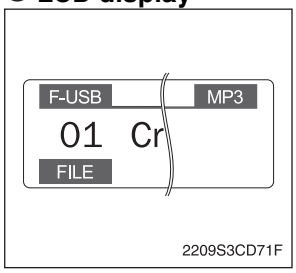


a. While USB is playing, press and hold the SELECT button for over 3 seconds to enter FILE BROWER mode and search for desired files.

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

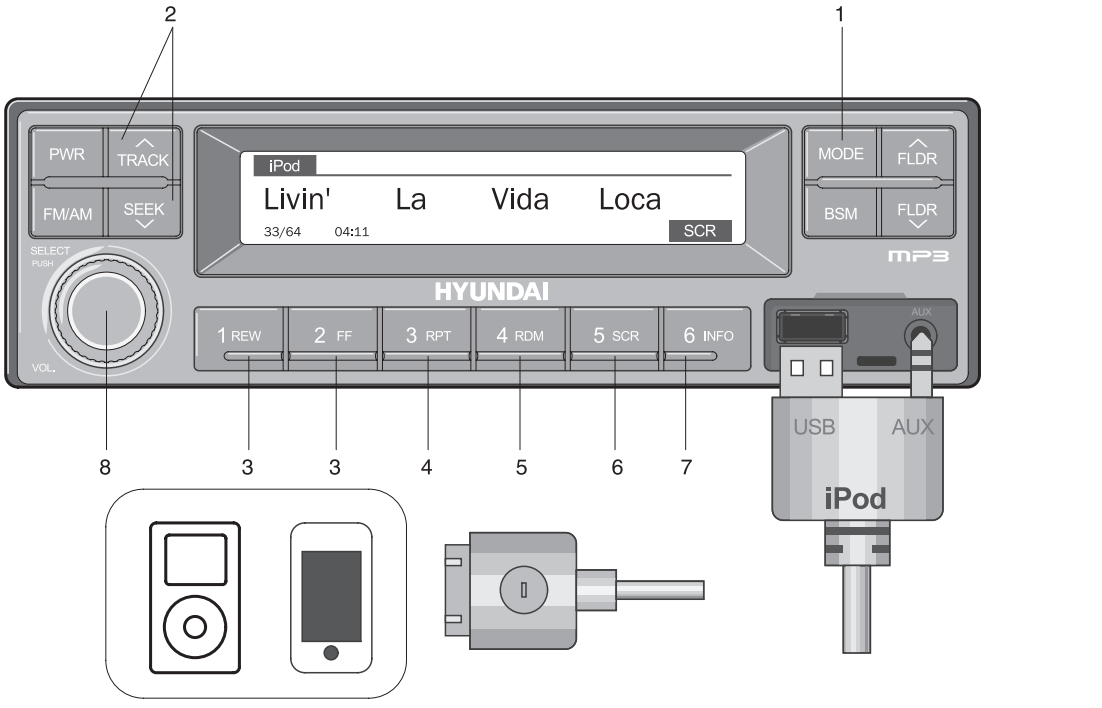
c. If there are no adjustments for 3 seconds after pressing the SELECT button, the function will be turned off and the USB play screen will be displayed.

⑪ LCD display



a. 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

(4) iPOD CONNECTION



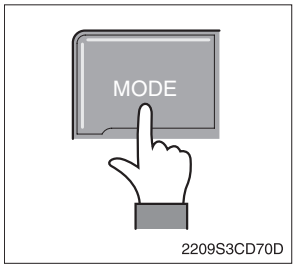
1 iPod selection button
2 TRACK UP/SEEK DOWN button
3 FF/REW button
5 Random play (RDM) button
6 Scroll (SCR) button
7 View music info (INFO) button

4 Repeat (RPT) button

8 Finding and playing file (SELECT) button

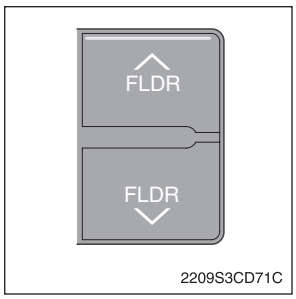
- Operates only when an iPod is connected. Connecting an iPod to the audio will automatically convert to iPod mode. Connecting the USB when the starting switch is in ON state will turn the power on and automatically play the songs within the iPod.
- The iPod cable is supplied separately.

① iPod selection button



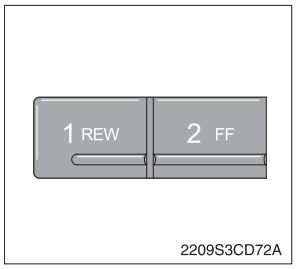
a. While playing a different mode, press the MODE button to convert to iPod mode. Connecting an iPod to the audio will automatically convert to iPod mode even if another mode is playing and automatically play the songs within the iPod.

② TRACK UP/SEEK DOWN button



a. While playing music, press the TRACK ∧ button to play the beginning of the next song.
Press the SEEK ∨ 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



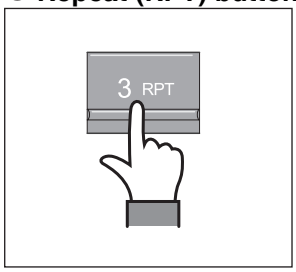
a. While an iPod is operating, press and hold the FF button to fast-forward the song.

b. 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.

c. When rewind is complete, the current song will properly play from the beginning even if you continue holding the button.

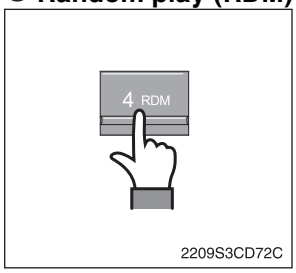
d. Shortly pressing the buttons will not operate the FF/REW.

④ Repeat (RPT) button



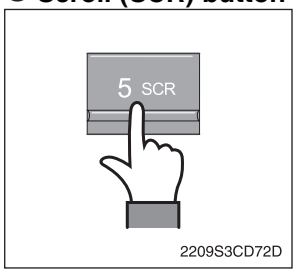
a. While music is playing, press the RPT button to repeat the currently playing song.

⑤ Random play (RDM) button



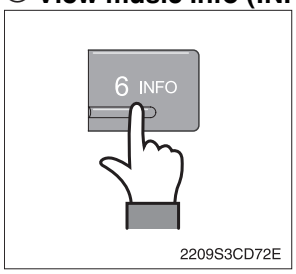
a. While music is playing, press the RDM button to randomly play the songs.

⑥ Scroll (SCR) button



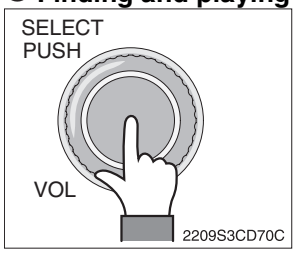
a. Displays the file name of the currently playing song on the LCD. Here, the SCR button turns the file name SCROLL ON/OFF.

⑦ View music info (INFO) button



a. 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



a. While iPod is playing, press and hold the SELECT button for over 3 seconds to enter CATEGORY mode and search for desired files.

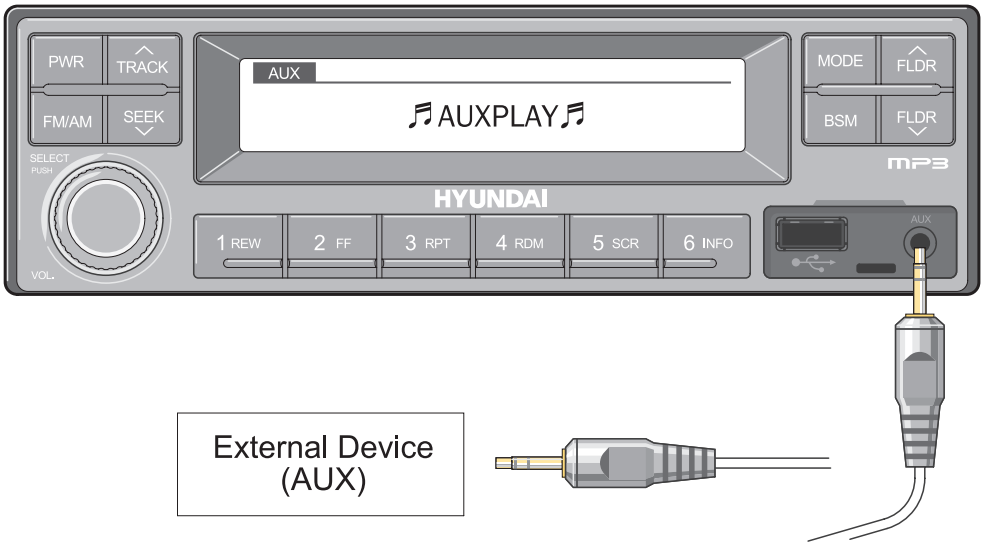
b. After entering CATEGORY mode, turn the SELECT button left/right to find the desired category.

c. Category will be displayed in the following order.
PLAYLISTS → ARTISTS → ALBUMS → GENRES → SONGS → COMPOSERS → AUDIOBOOKS → PODCACSTS

d. 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.

e. 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.

(5) **AUX CONNECTION**



2209S3CD74

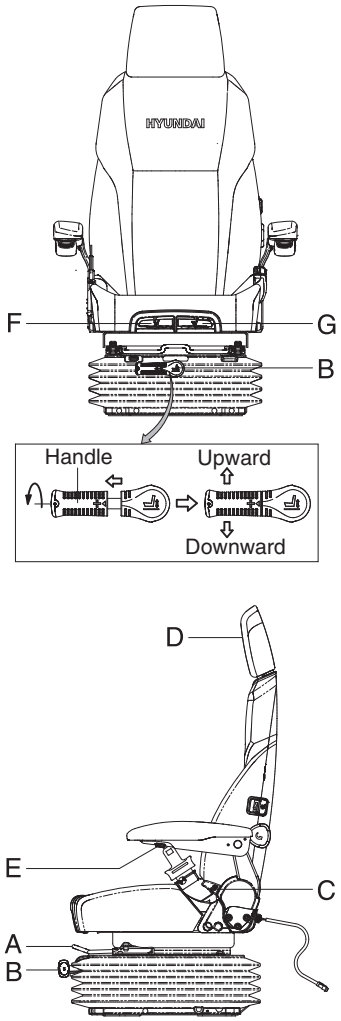
- Operates only when an external device is connected to AUX. Connecting an AUX device to the audio using the AUX cable will automatically convert to AUX mode.
- When an external device is connected, only the PWR, FM/AM, MODE, and VOL buttons can be operated.
- Settings can be made only through the external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

① **Connecting an external device using the AUX cable**

a. While playing a different mode, press the MODE button to convert to AUX mode.

b. 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.

5) SEAT



21093CD55

(1) Forward/Backward adjustment (A)

① Pull lever A to adjust seat forward or backward.

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

(2) Height/weight adjustment (B)

① Turn the handle to adjust seat upward or downward.

- If you turn the handle clockwise, the seat is moved upward and the weight is increased.

  If the handle is turned counterclockwise, the seat is moved downward and the weight is decreased.

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

- First pull the handle to outside.
- Then rotate 180° and release the handle.

(3) Reclining adjustment (C)

Pull lever C to adjust the seat backrest.

(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 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)

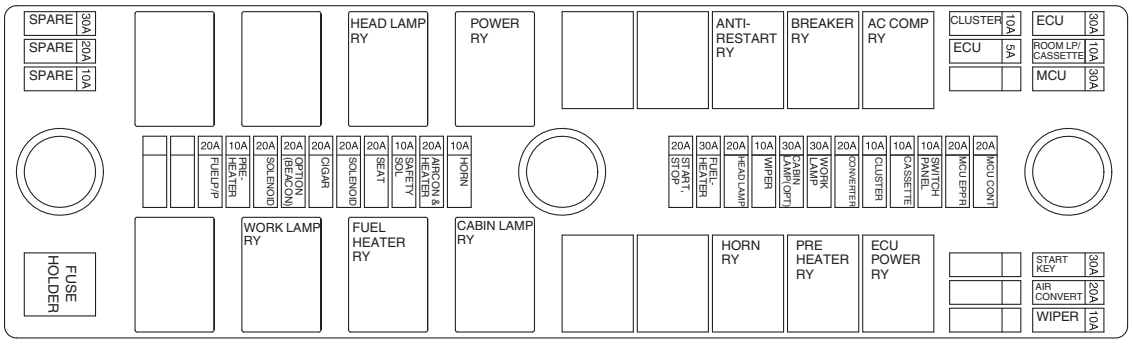
※ The seat is adjustable to fit the contours of the operator's body. It will reduce operator fatigue due to long work hours and enhance work efficiency.

⚠ Pull lever G to adjust the 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



21093CD56

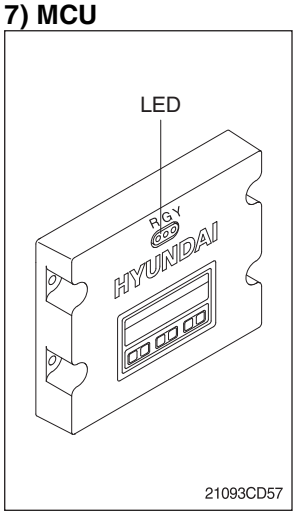
(1) The fuses protect the electrical parts and wiring from burning out.

(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



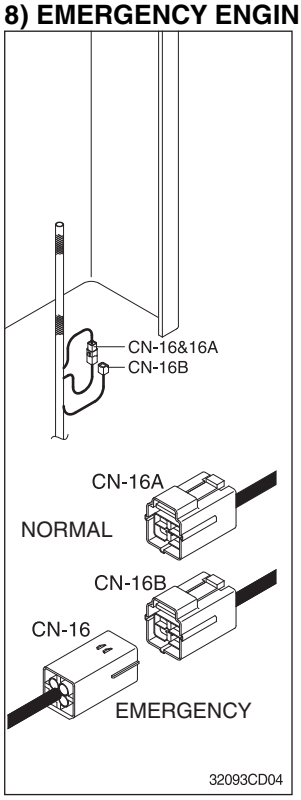
21093CD57

(1) To match the engine torque with the pump absorption torque, the MCU varies the EPPR valve output pressure, which controls the pump discharge amount whenever the 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[*1] is turned ON	Normal	-
G and R[*2] are turned ON	Trouble on MCU	• Change the MCU
G and Y[*3] are turned ON	Trouble on serial communication line	• Check if the serial communication lines between the 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
[*1]: Green [*2]: Red [*3]: Yellow		

8) EMERGENCY ENGINE STARTING CONNECTOR



(1) Emergency start

① If the MCU is removed, the engine does not start.

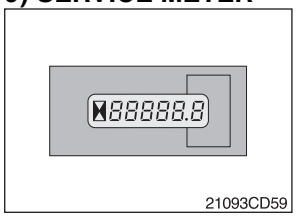
② Before starting the engine, connect the connector CN-16 with 16B.

(2) Emergency speed control

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

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

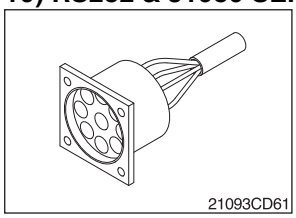
9) SERVICE METER



(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 Section 6, Maintenance.

10) RS232 & J1939 SERVICE SOCKET



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

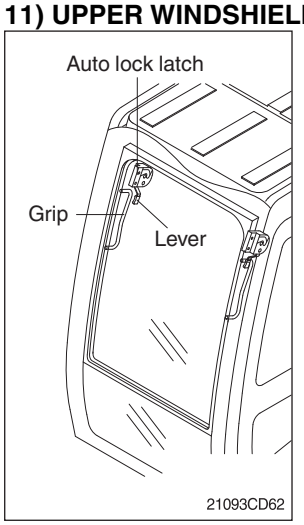
(2) ECM communicates the engine data with cummins INSITE adapter through J1939 service socket.

① ECM fault code check

② ECM program change

③ Engine data monitoring & test

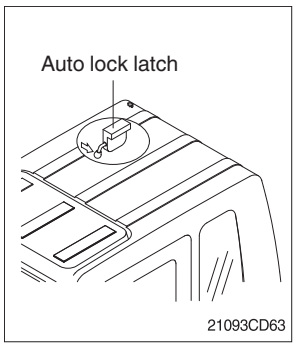
11) UPPER WINDSHIELD



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

① Pull both levers while holding 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.



(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.