

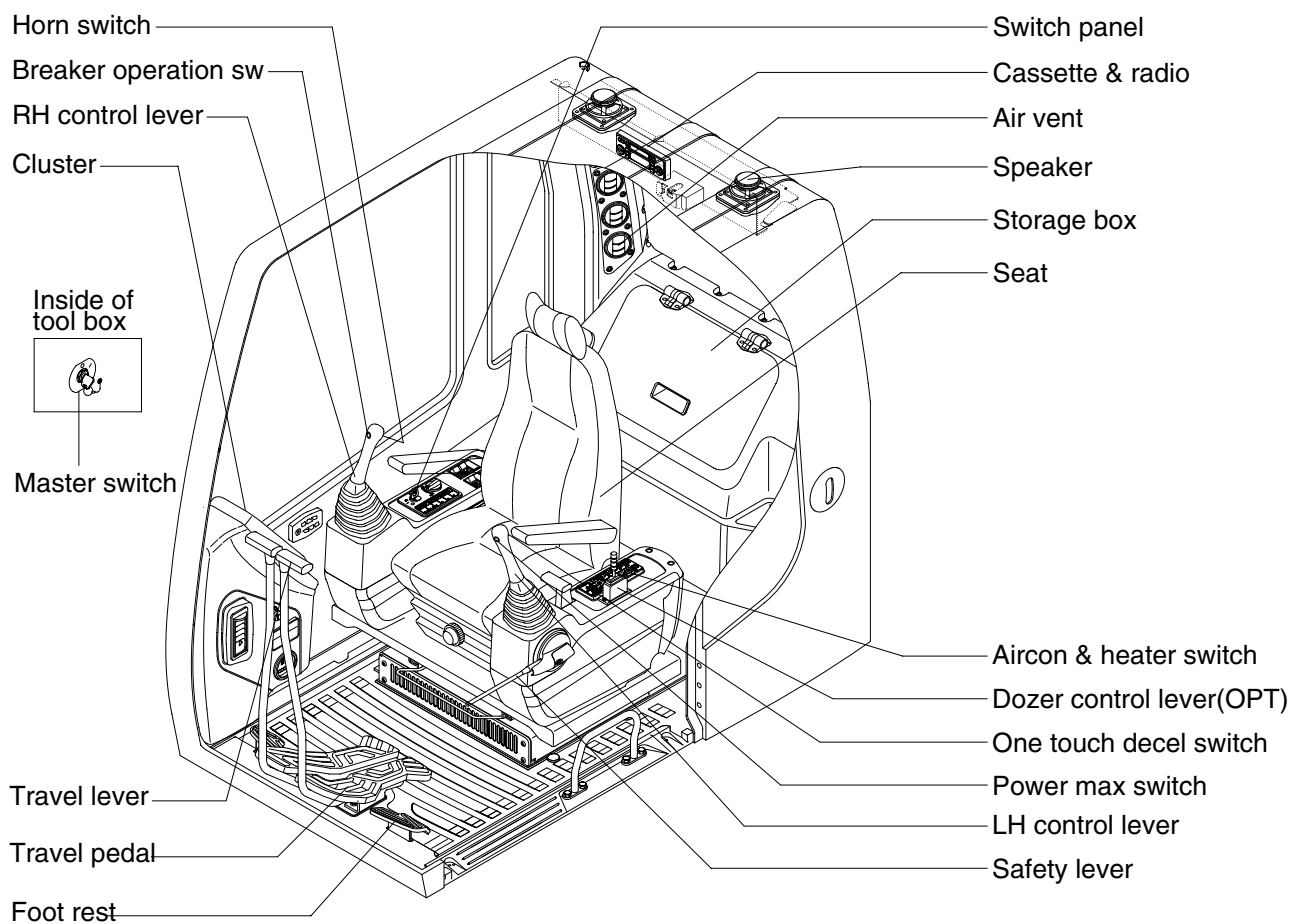
CONTROL DEVICES

1. CAB DEVICES

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

2) ELECTRONIC MONITOR SYSTEM

- (1) The centralized electronic monitor system allows the status and conditions of the machine to be monitored at a glance.
- (2) It is equipped with a safety warning system for early detection of machine malfunction.



807A3CD01

2. CLUSTER

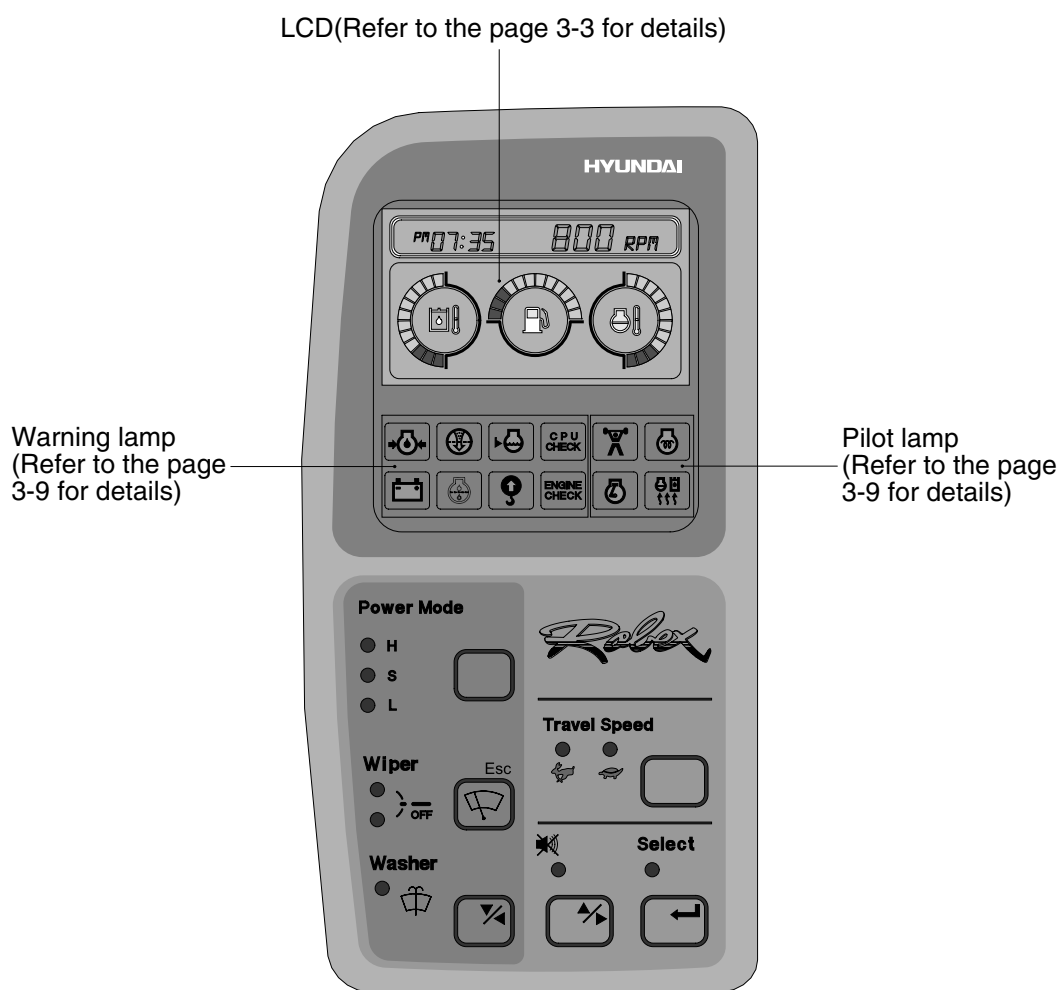
1) MONITOR PANEL

The monitor panel consists of LCD and lamps as shown below, to warn the operator in case of abnormal machine operation or conditions for the appropriate operation and inspection.

- LCD : Indicate operating status of the machine.
- Warning lamp : Indicate abnormality of the machine(Red).
- Pilot lamp : Indicate operating status of the machine(Amber).

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

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

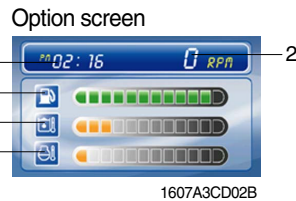
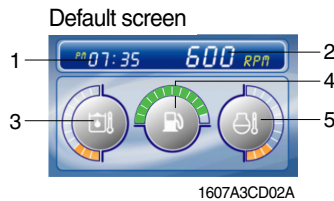


1107A3CD02

※ The warning lamp lights ON and the buzzer sounds when the machine has a problem.

In this case, press the buzzer stop switch and buzzer stop, but the warning lamp lights until the problem is cleared.

2) LCD main operation display



- 1 Time display
- 2 RPM display
- 3 Hydraulic oil temperature gauge
- 4 Fuel level gauge
- 5 Engine coolant temperature gauge

(1) Time display



- ① This displays the current time.

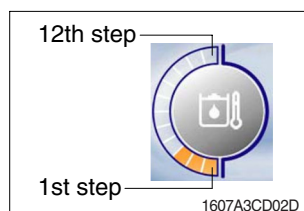
※ Refer to the page 3-7 to set time for details.

(2) RPM display



- ① This displays the engine rpm.

(3) Hydraulic oil temperature gauge



- ① This gauge indicates the temperature of hydraulic oil in 12 step gauge.

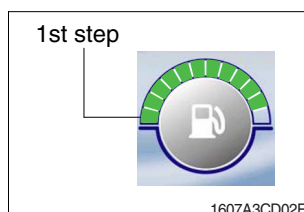
- 1st step : Below 30°C(86°F)
- 2nd~10th step : 30-105 °C(86-221°F)
- 11th~12th step : Above 105°C(221°F)

- ② The gauge between 2nd and 10th steps illuminates when operating.

- ③ Keep idling engine at low speed until the gauge between 2nd and 10th steps illuminates, before operation of machine.

- ④ When the gauge of 11th and 12th steps illuminates, reduce the load on the system. If the gauge stays in the 11th~12th steps, stop the machine and check the cause of the problem.

(4) Fuel level gauge

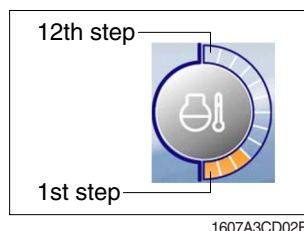


- ① This gauge indicates the amount of fuel in the fuel tank.

- ② Fill the fuel when the 1st step or fuel icon blinks in red.

※ If the gauge illuminates the 1st step or fuel icon blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

(5) Engine coolant temperature gauge



- ① This gauge indicates the temperature of coolant in 12 step gauge.

- 1st step : Below 30°C(86°F)
- 2nd~10th step : 30-105 °C(86-221°F)
- 11th~12th step : Above 105°C(221°F)

- ② The gauge between 2nd and 10th steps illuminates when operating.

- ③ Keep idling engine at low speed until the gauge between 2nd and 10th steps illuminates, before operation of machine.

- ④ When the gauge of 11th and 12th steps illuminates, turn OFF the engine, check the radiator and engine.

3) Warning of main operation screen

(1) Warning display

① Engine coolant temperature



- This lamp blinks and the buzzer sounds when the temperature of coolant is over the normal temperature 105°C (221°F) .
- Check the cooling system when the lamp blinks.

② Fuel level



- This lamp blinks and the buzzer sounds when the level of fuel is below 28 l (7.4U.S. gal).
- Fill the fuel immediately when the lamp blinks.

③ Hydraulic oil temperature



- This warning lamp operates and the buzzer sounds when the temperature of hydraulic oil is over 105 °C (221 °F) .
- Check the hydraulic oil level when the lamp blinks.
- Check for debris between oil cooler and radiator.

④ All gauge



- This lamp blinks and the buzzer sounds when the all gauge is abnormal.
- Check the each system when the lamp blinks.

⑤ Communication error



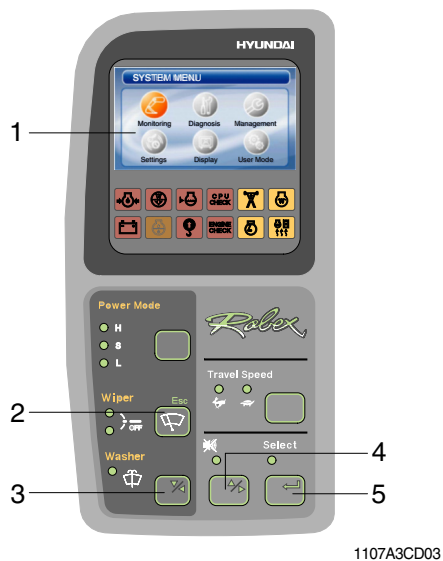
- Communication problem between MCU controller and cluster makes the lamp blinks and the buzzer sounds.
- Check if any fuse for MCU burnt off.
If not check the communication line between them.






(2) Pop-up icon display

No	Switch	Selected mode	Display
1	Power mode switch	High power work mode	
		Standard power work mode	
		Light power work mode	

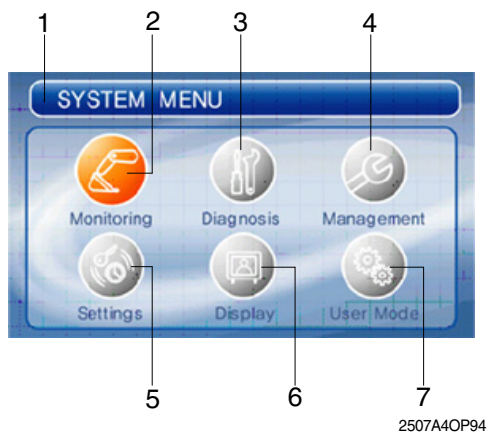
No	Switch	Selected mode	Display
2	Travel speed control switch	Low speed	
		High speed	








4) LCD



- 1  : LCD
- 2  : Escape,
Return to the previous menu
- 3  : Down/Left Direction
- 4  : Up/Right Direction
- 5  : Select(Enter)
Activate the currently chosen item

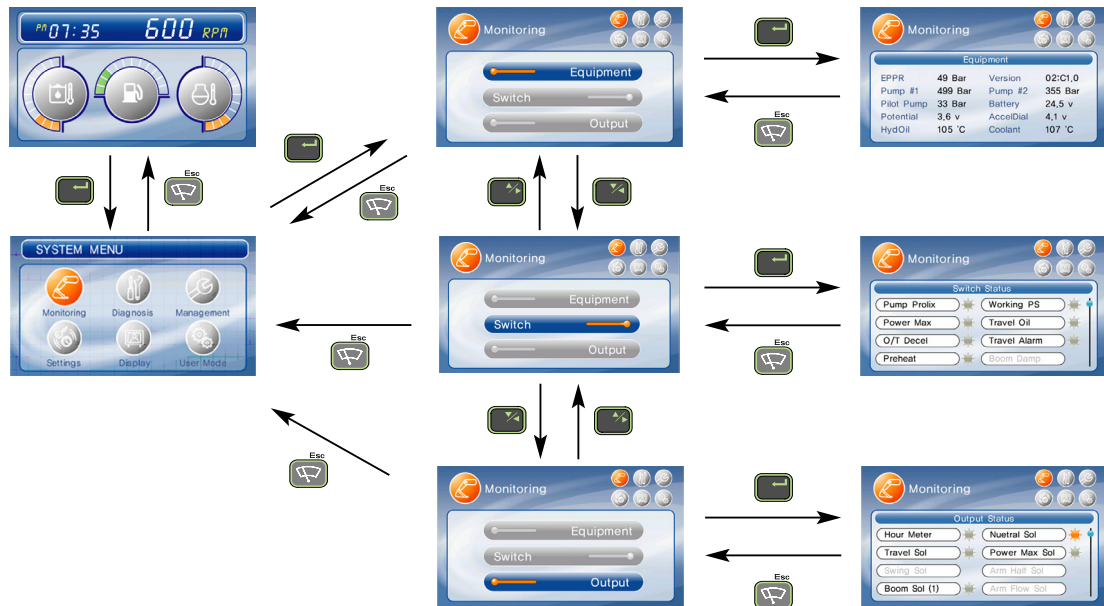
(1) Main menu



- 1  : Menu information
- 2  : Monitoring
- Equipment, Switch, Output
- 3  : Diagnosis
- Current error, Recorded error
- 4  : Maintenance
- 5  : Settings
- Time set, Dual mode
- System lock(Reserved)
- 6  : Display
- Operation skin, Brightness, Language
- 7  : User mode(null)

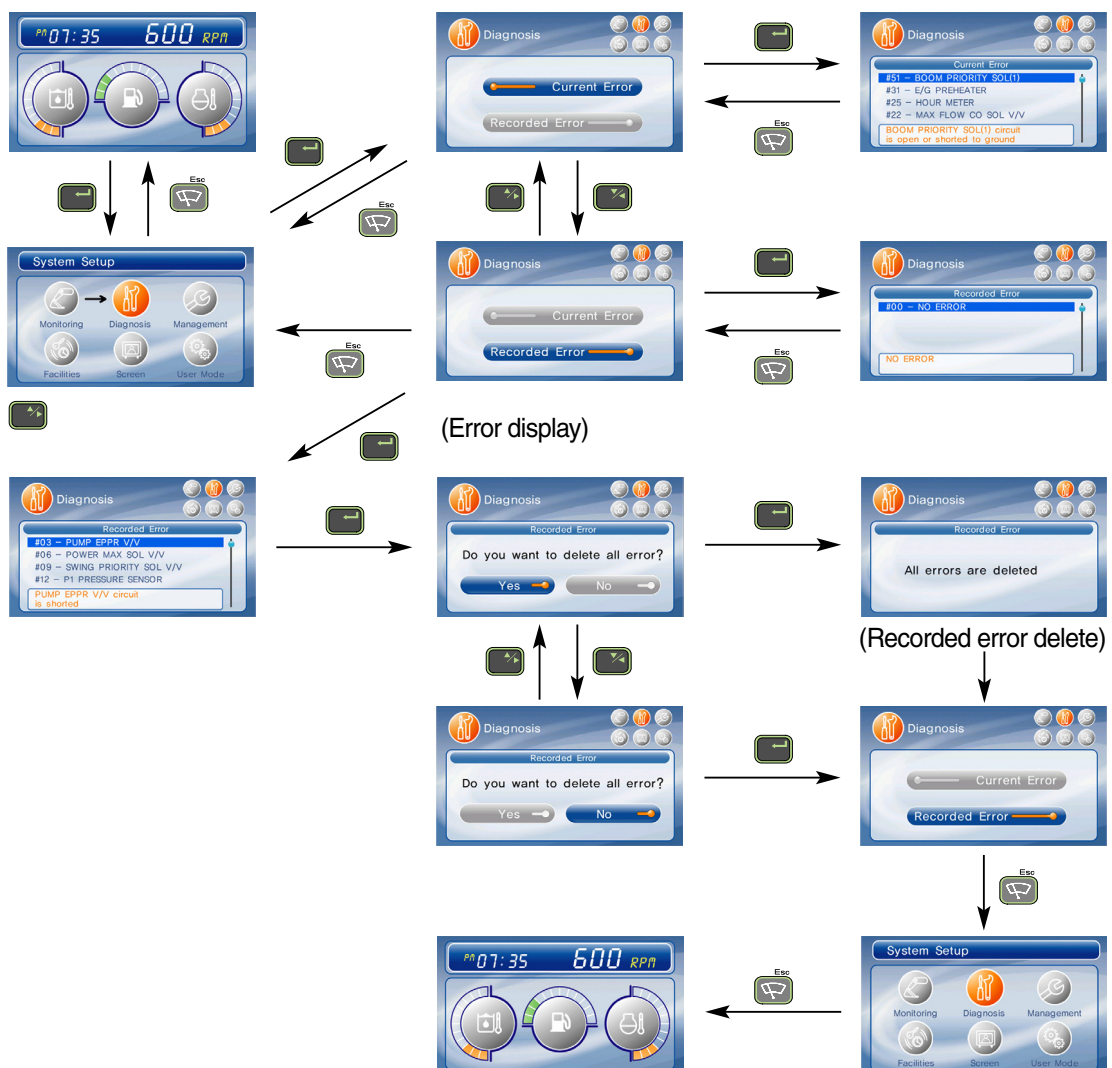
① Monitoring

① Monitoring



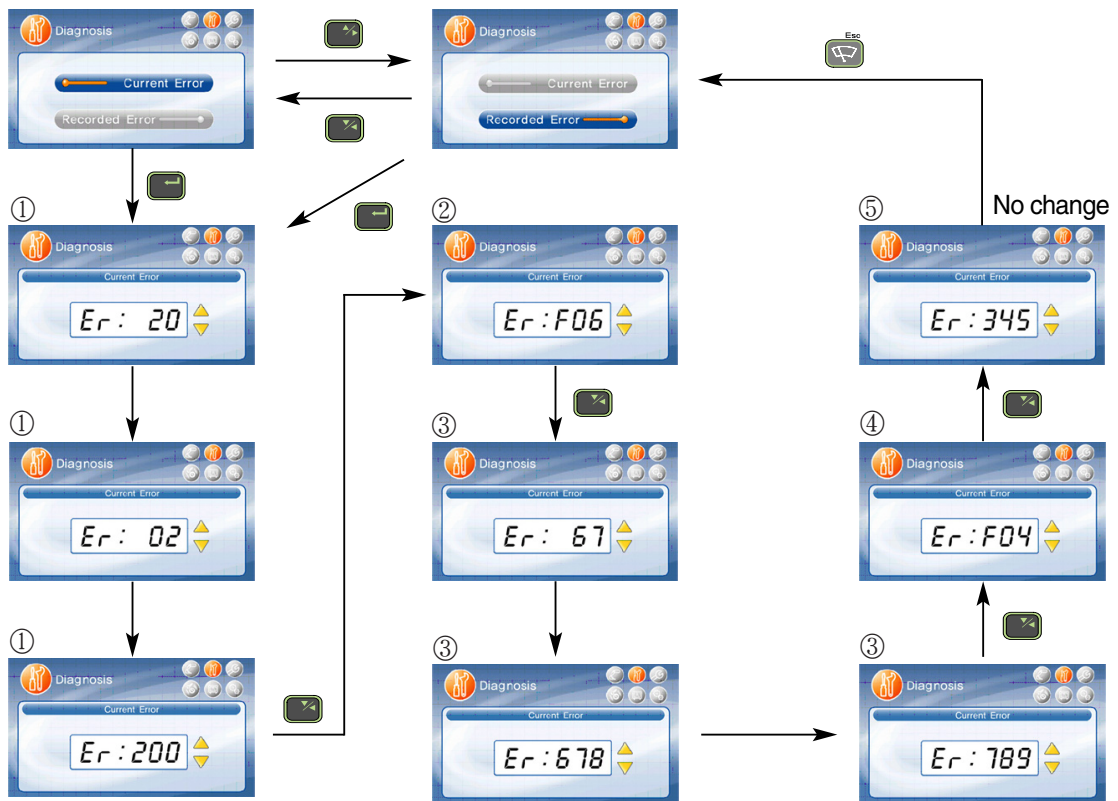
② Diagnosis

a. Protocol type 1

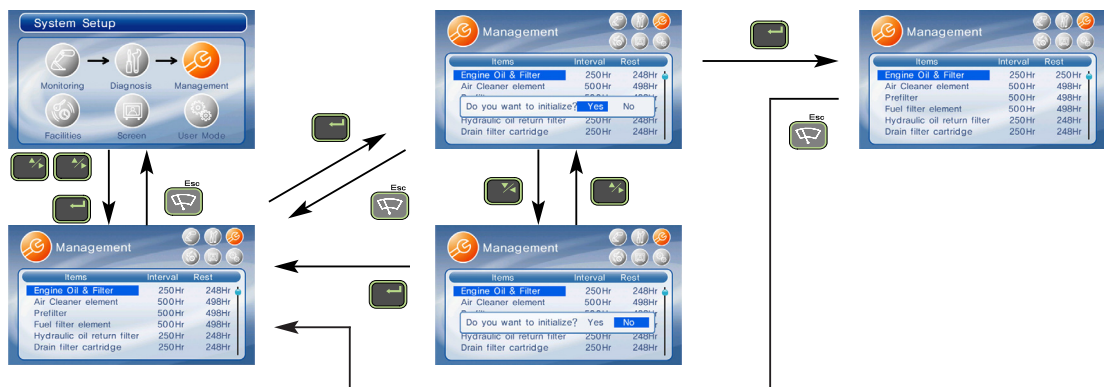


b. Protocol type 2

- If there are more than 2 error codes, each one can be displayed by pressing or switch respectively.
- 3 error codes (①SPN200200, ②FMI06, ③SPN6789, ④FMI04, ⑤345) display.

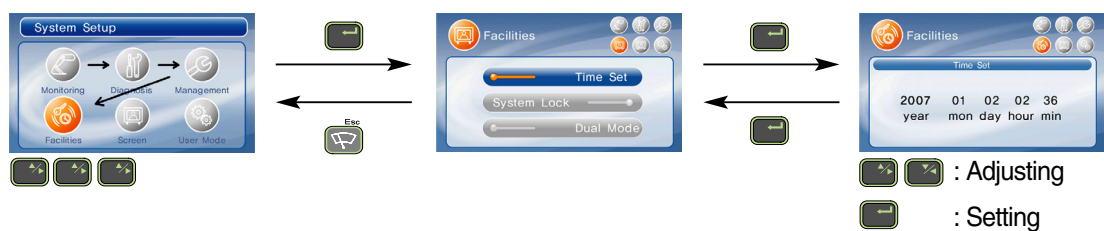


③ Maintenance



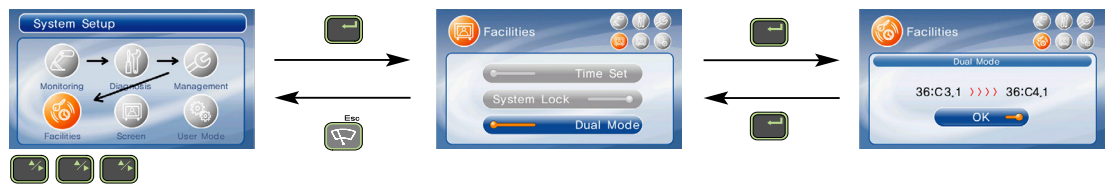
④ Setting

a. Time set



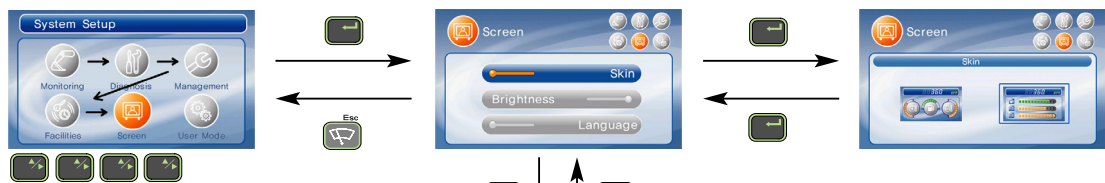
b. System lock - Reserved

- c. Dual mode
- Changing the MCU mode

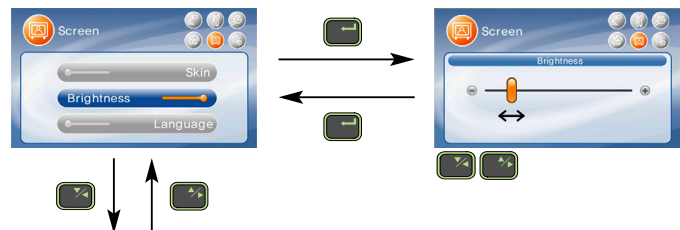


⑤ Display

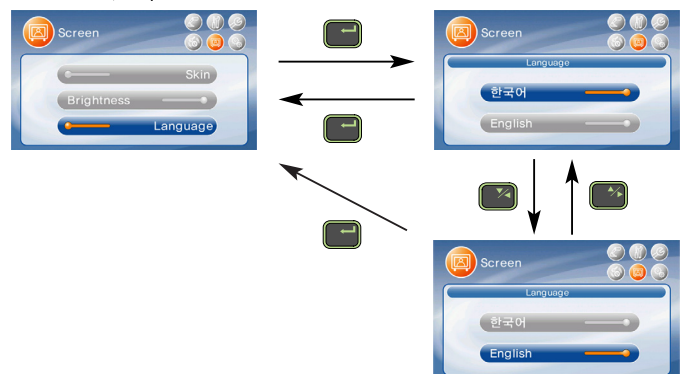
- a. Operation skin



- b. Brightness

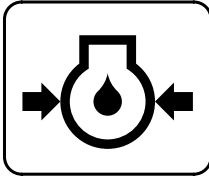


- c. Language



5) Warning and pilot lamp

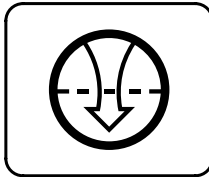
(1) Engine oil pressure warning lamp



21073CD07

- ① This lamp blinks and the buzzer sounds after starting the engine because of the low oil pressure.
- ② If the lamp blinks during engine operation, shut OFF engine immediately. Check oil level.

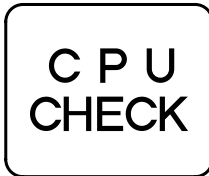
(2) Air cleaner warning lamp



21073CD08

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

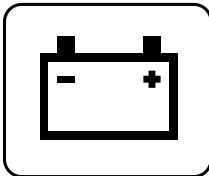
(3) MCU controller check warning lamp



21073CD10

- ① If any fault code is received from MCU controller, this lamp blinks and the buzzer sounds.
- ② Check the communication line between MCU controller and cluster.

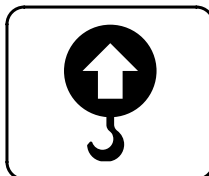
(4) Battery charging warning lamp



21073CD13

- ① This lamp blinks and the buzzer sounds when the starting switch is ON, it is turned OFF after starting the engine.
- ② Check the battery charging circuit when this lamp blinks during engine operation.

(5) Overload warning lamp



21073CD15

- ① When the machine is overload, the overload warning lamp blinks during the overload switch is ON.

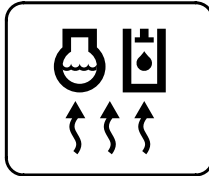
(6) Decel pilot lamp



21073CD17

- ① Operating auto decel or one touch decel makes the lamp ON.
- ② The lamp will be ON when pushing one touch decel switch on the LH RCV lever.

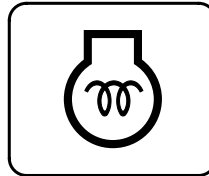
(7) Warming up pilot lamp



21073CD18

- 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.

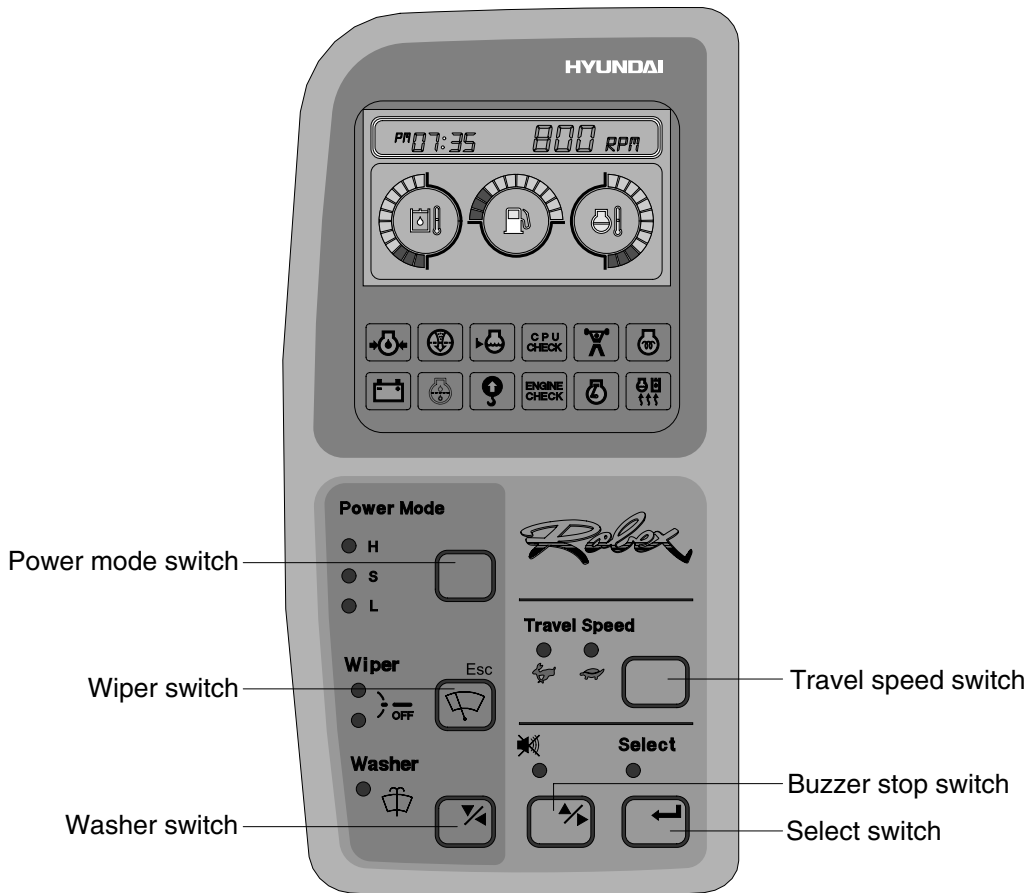
(8) Preheat pilot lamp



21073CD12

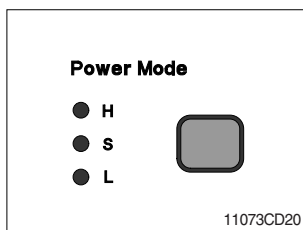
- ① Turning the start key switch ON position starts preheating in cold weather.
- ② Start the engine as this lamp is OFF.

6) SWITCH PANEL



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(1) Power mode switch

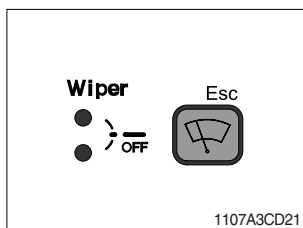


- ① This switch is to select the machine power mode, which shifts from high power work to standard power work and light power work in a row by pressing the switch.

- H : High power work mode
- S : Standard power work mode
- L : Light power work mode

※ Refer to the page 4-6 for details.

(2) Wiper mode switch



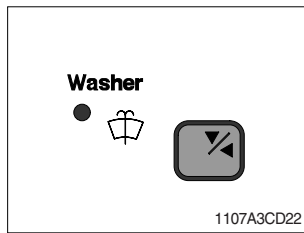
- ① This switch is used to operate wiper.

- Press the switch once to operate wiper.
- Press the switch once more to intermittently operate wiper low speed.
- Press the switch once more to turn off wiper.

※ Wiper motor doesn't operate with front sliding door open.

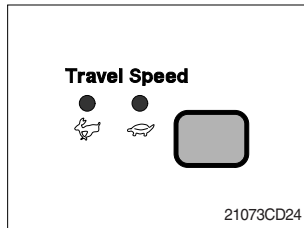
※ If wiper does not operate with the start switch in the ON position, turn the switch off immediately. Check the cause. If the switch remains ON, it can result in motor failure.

(3) Washer switch



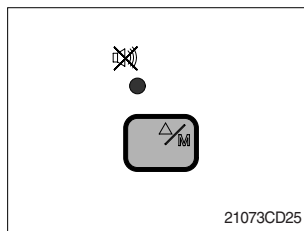
- ① The washer liquid is sprayed and the wiper is operated only while pressing this switch.
- ② The indicator lamp is turned ON when operating this switch.

(4) Travel speed control switch



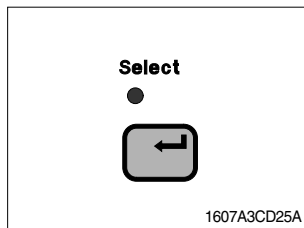
- ① This switch is to control the travel speed which is changed to high speed(Rabbit mark) by pressing the switch and low speed(Turtle mark) by pressing it again.

(5) Buzzer stop switch



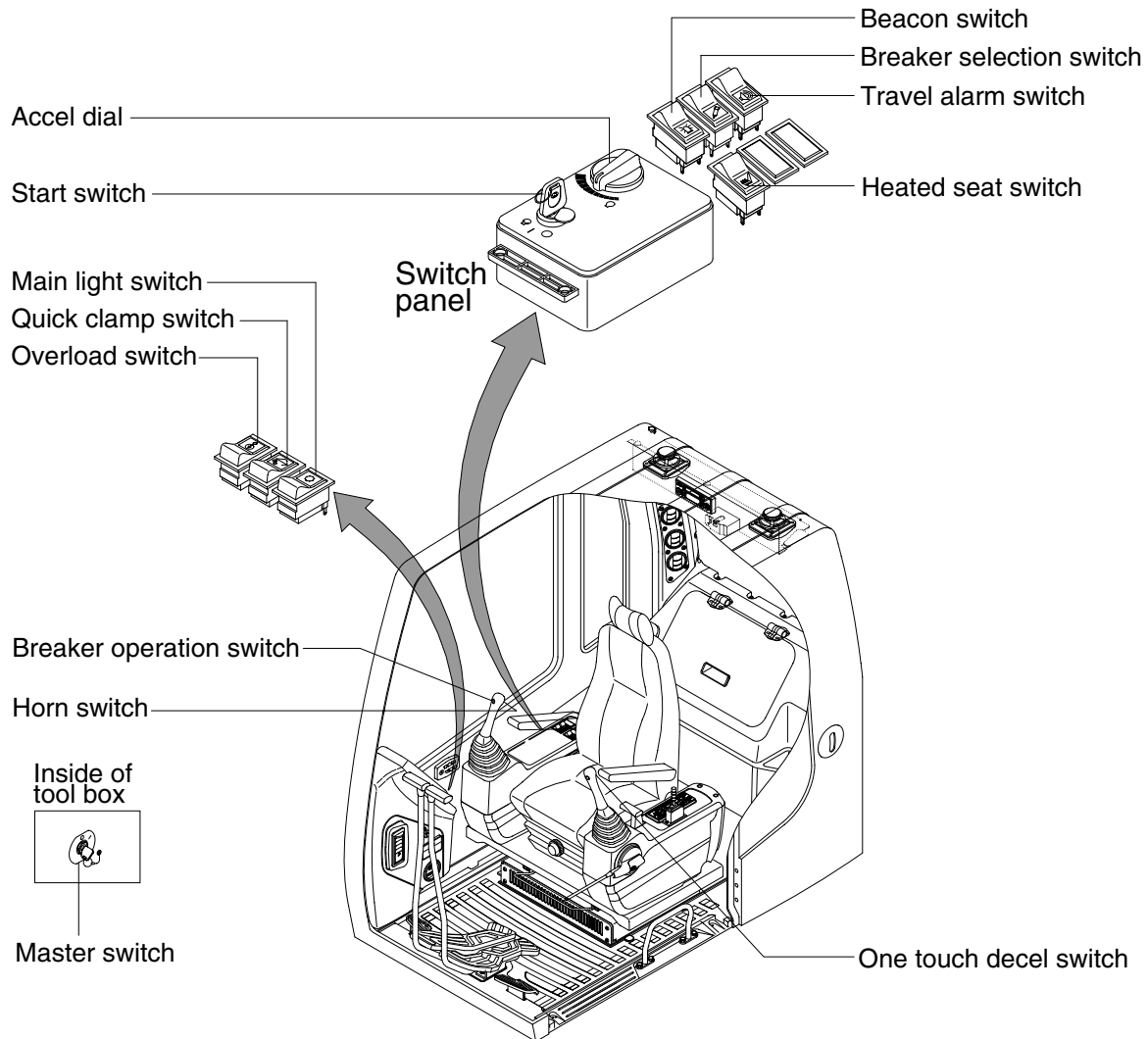
- ① When the starting switch is turned ON first, normally the alarm buzzer sounds for 2 seconds during lamp check operation.
- ② The red lamp lights ON and the buzzer sounds when the machine has a problem.
In this case, press this switch and buzzer stops, but the red lamp lights until the problem is cleared.

(6) Select switch



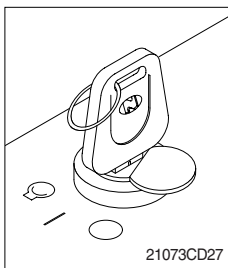
- ① This switch is used to enter main menu and sub menu for LCD.
※ Refer to the page 3-5 for details.

3. SWITCHES



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1) STARTING SWITCH



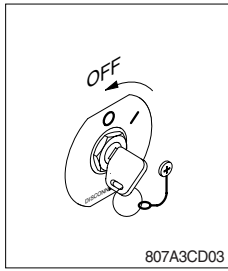
(1) There are three positions, OFF, ON and START.

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

Release key immediately after starting.

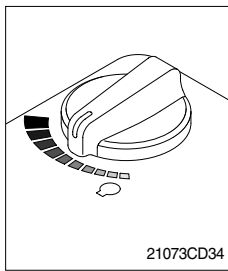
- ※ If you turn ON the starting switch in cold weather, the fuel warmer is automatically operated to heat the fuel by sensing the coolant temperature. Start the engine in 1~2 minutes after turning ON the starting switch. More time may take according to ambient temperature.
- ※ Key must be in the ON position with engine running to maintain electrical and hydraulic function and prevent serious machine damage.

2) MASTER SWITCH



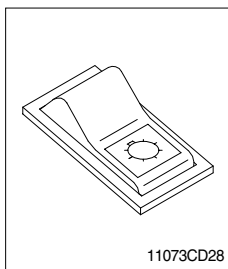
- (1) This switch is used to shut off the entire electrical system.
 - (2) I : The battery remains connected to the electrical system.
O : The battery is disconnected to the electrical system.
- ※ **Never turn the master switch to O(OFF) with the engine running. It could result in engine and electrical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

3) ACCEL DIAL SWITCH



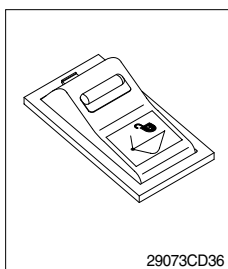
- (1) There are 10 dial setting.
- (2) Setting 1 is low idle and setting 10 is high idle.
 - By rotating the accel dial to right : Engine speed increases
 - By rotating the accel dial to left : Engine speed decreases

4) MAIN LIGHT SWITCH



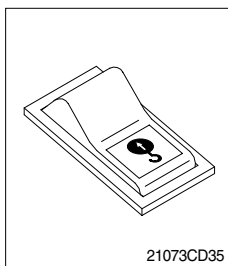
- (1) This switch is used to operate the head light and work light by two steps.
 - First step : Head light and cluster illumination lamp comes ON.
Also, the below indicator lamp comes ON.
 - Second step : Work light comes ON.

5) QUICK CLAMP SWITCH(Optional)



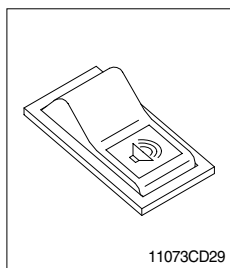
- (1) This switch is used to engage or disengage the moving hook on quick clamp.
- ※ **Refer to the page 8-6 for details.**

6) OVERLOAD SWITCH(Optional)



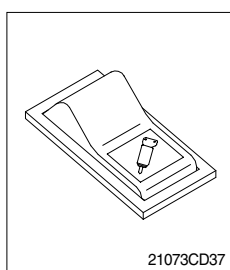
- (1) When this switch turned ON, buzzer makes sound and overload warning lamp comes ON in case that the machine is overloaded.
- (2) When turned OFF, buzzer stops and warning lamp goes out.

7) TRAVEL ALARM SWITCH



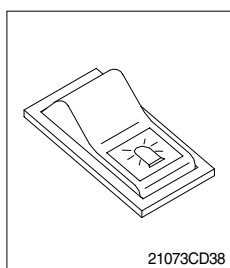
- (1) This switch is to activate travel alarm function when the machine travels forward and backward.
- (2) On pressing this switch, the alarm buzzer sounds only when the machine is traveling.

8) BREAKER SELECTION SWITCH(Optional)



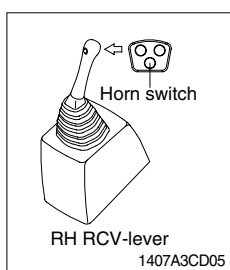
- (1) This switch is used to select breaker.
- ※ **The breaker operates only when this switch is selected.**

9) BEACON SWITCH(Optional)



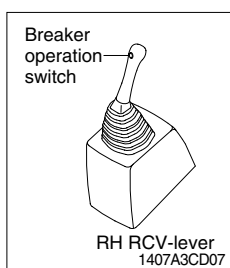
- (1) This switch turns ON the rotary light on the cab.
- (2) The below indicator lamp is turned ON when operating this switch.

10) HORN SWITCH



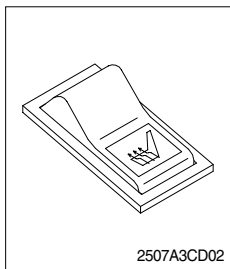
- (1) This switch is at the top of right side control lever.
On pressing, the horn sounds.

11) BREAKER OPERATION SWITCH



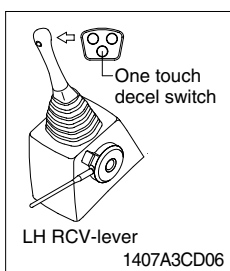
- (1) On pressing this switch, the breaker operates only when the breaker selection switch on the switch panel is selected.

12) HEATED SEAT SWITCH(Optional)



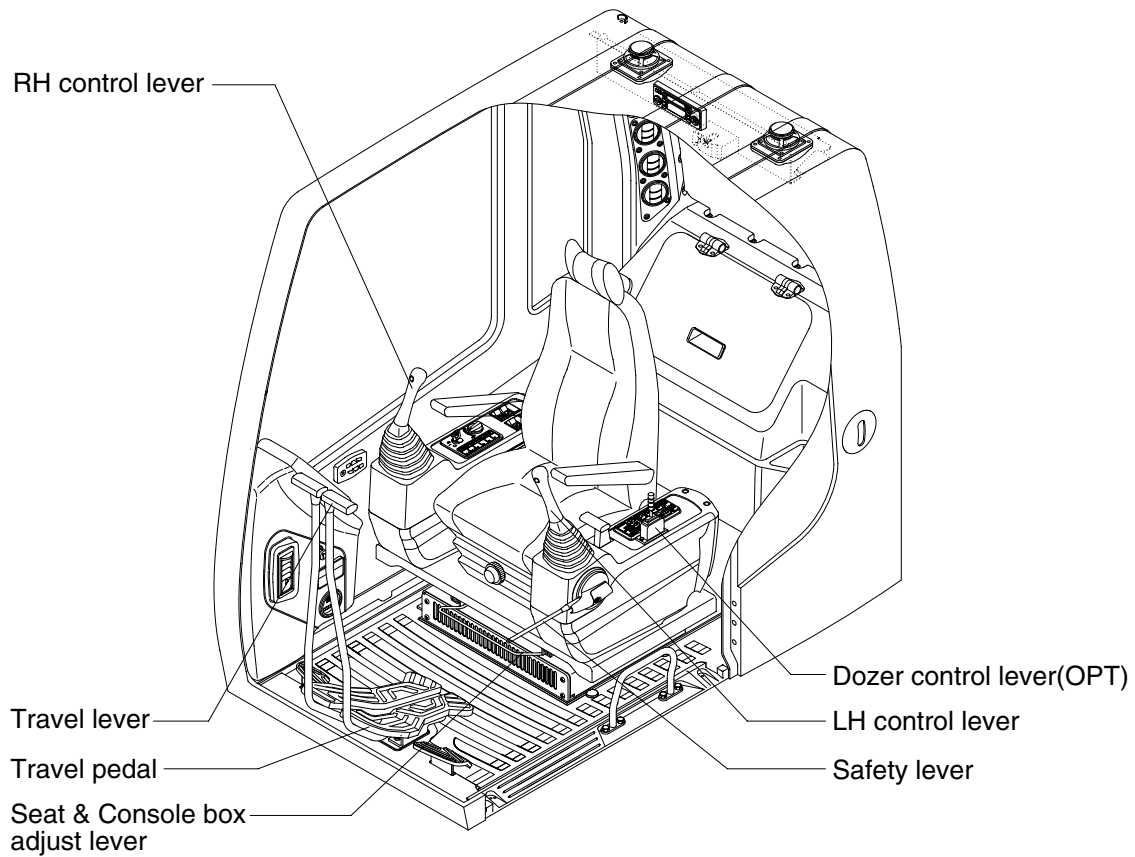
- (1) This switch is used to heat the seat.
- (2) On pressing the switch, the below indicator lamp is turned ON.
 - Heater operating temperature : $28 \pm 3.5^{\circ}\text{C}$
 - Heater operating cancel temperature : $37 \pm 3^{\circ}\text{C}$

13) ONE TOUCH DECEL SWITCH



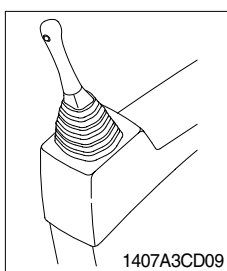
- (1) This switch is used to actuate the deceleration function quickly.
- (2) The engine speed is increased to previous setting value by pressing the switch again.

4. LEVERS AND PEDALS



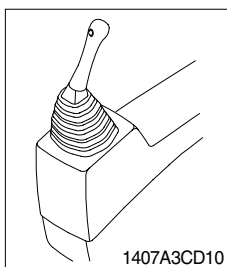
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1) LH CONTROL LEVER



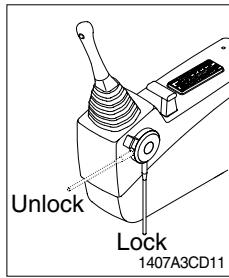
- (1) This joystick is used to control the swing and the arm.
- (2) Refer to **operation of working device** in chapter 4 for details.

2) RH CONTROL LEVER



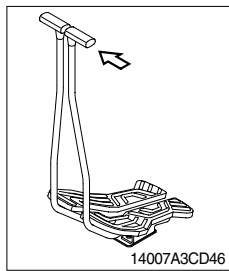
- (1) This joystick is used to control the boom and the bucket.
- (2) Refer to **operation of working device** in chapter 4 for details.

3) SAFETY LEVER



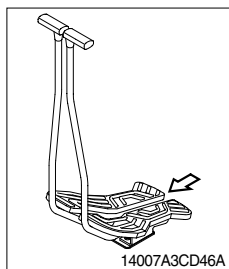
- (1) All control levers and pedals are disabled from operation by locating the lever to lock position as shown.
 - ※ **Be sure to lower the lever to LOCK position when leaving from operator's seat.**
- (2) By pull lever to UNLOCK position, machine is operational.
 - ※ **Do not use the safety lever for handle when getting on or off the machine.**

4) TRAVEL LEVER



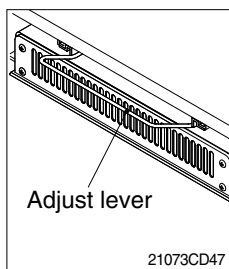
- (1) This lever is mounted on travel pedal and used for traveling by hand. The operation principle is same as the travel pedal.
- (2) Refer to **traveling of the machine** in chapter 4 for details.

5) TRAVEL PEDAL



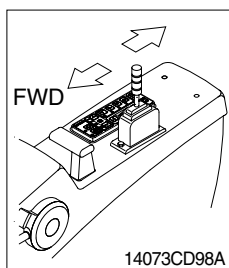
- (1) This pedal is used to move the machine forward or backward.
- (2) If left side pedal is pressed, left track will move.
If right side pedal is pressed, right track will move.
- (3) Refer to **traveling of machine** in chapter 4 for details.

6) SEAT AND CONSOLE BOX ADJUST LEVER



- (1) This lever is used to move the seat and console box to fit the contours of the operator's body.
- (2) Pull the lever to adjust forward or backward over 170mm(6.7").

7) DOZER CONTROL LEVER(Optional)



- (1) This lever is used to operate the dozer blade.
- (2) If the lever is pushed forward, the dozer blade will be going down.
And the lever is pulled back, the dozer blade will be going up.

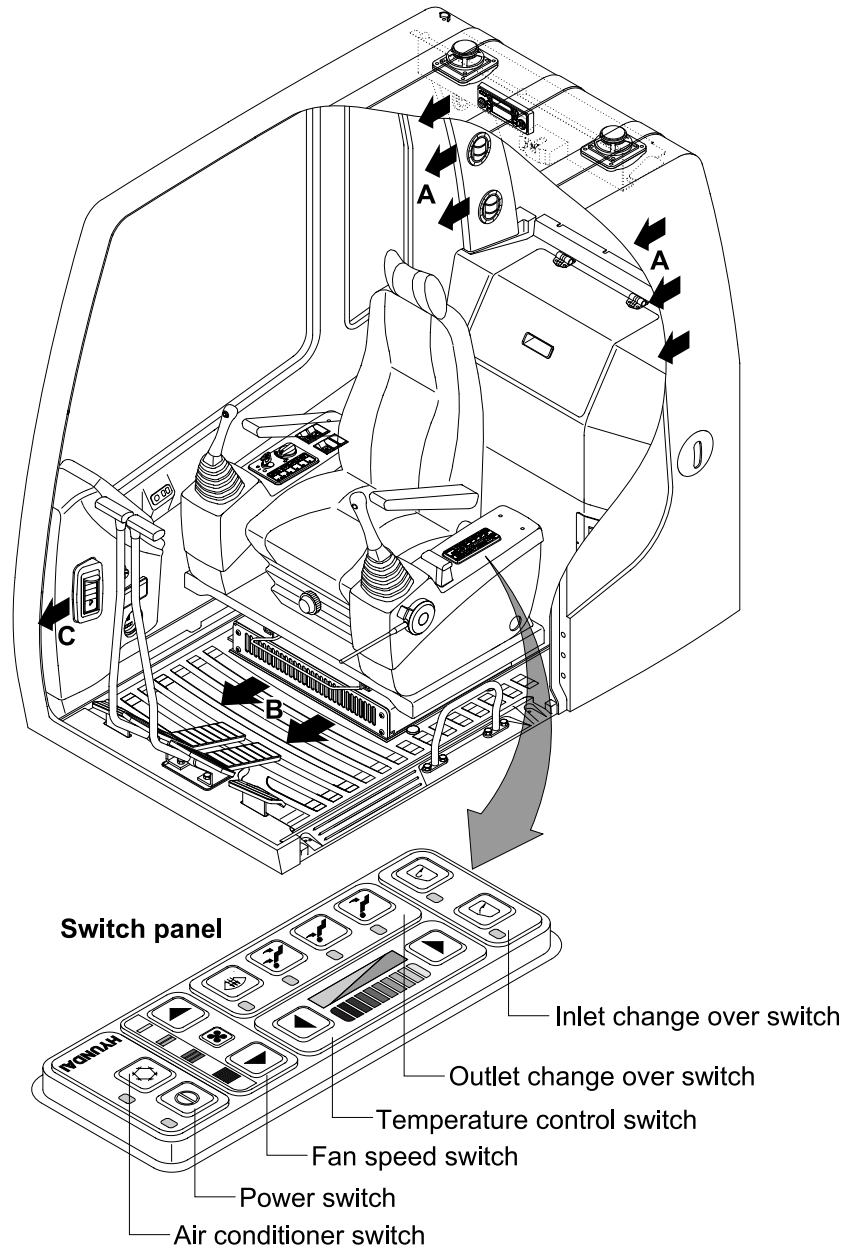
5. AIR CONDITIONER AND HEATER

■ MANUAL TYPE(STD)

Air conditioner and heater are equipped for pleasant operation against outside temperature and defrost on window glass.

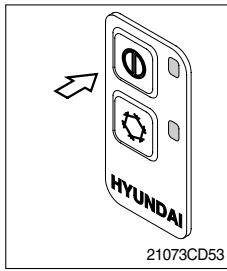
· Refer to the page 3-22 for auto air conditioner and heater(option)

· Location of air flow ducts



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1) POWER SWITCH

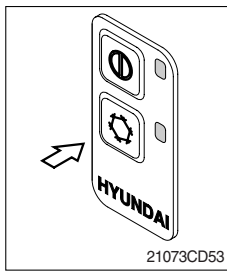


(1) This switch makes the system and the LED simultaneously ON or OFF.

(2) Default setting values

Function	Air conditioner	Fan speed	Temperature	Outlet	Inlet
Value	OFF	1	Max cool	Face	Recirculation

2) AIR CONDITIONER SWITCH(Compressor switch)

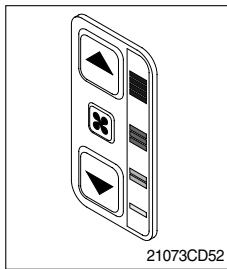


(1) Operating this switch turns the compressor and the LED simultaneously ON or OFF.

(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.

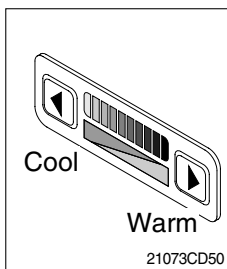
3) FAN SPEED SWITCH



(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



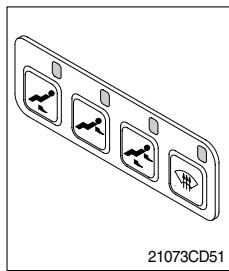
(1) There are 9 steps to control temperature from max cool to max warm controlled up and down by 1 step.

(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



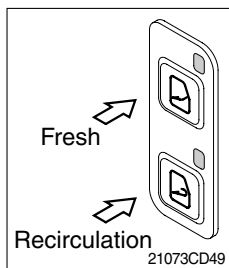
(1) There are four steps of air flow.

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.**

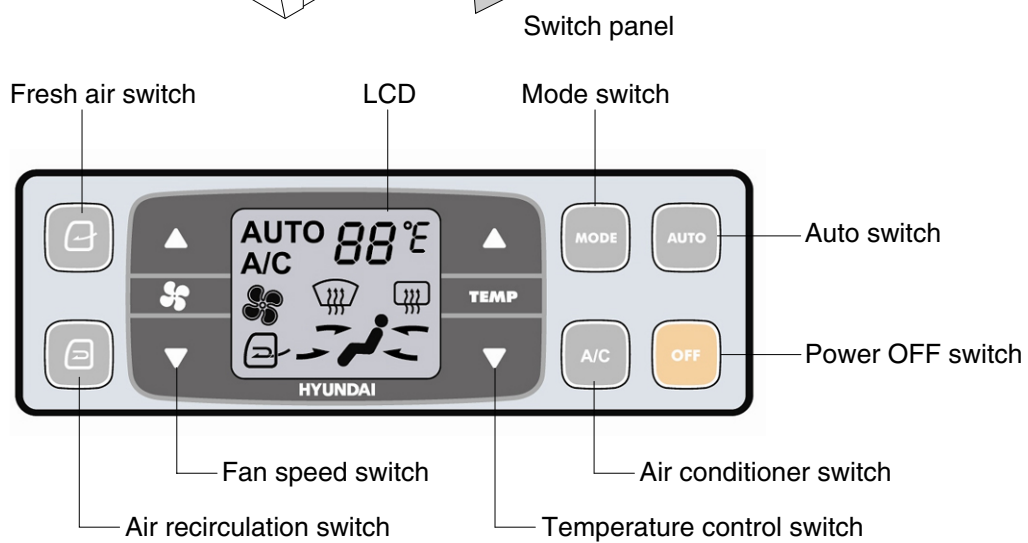
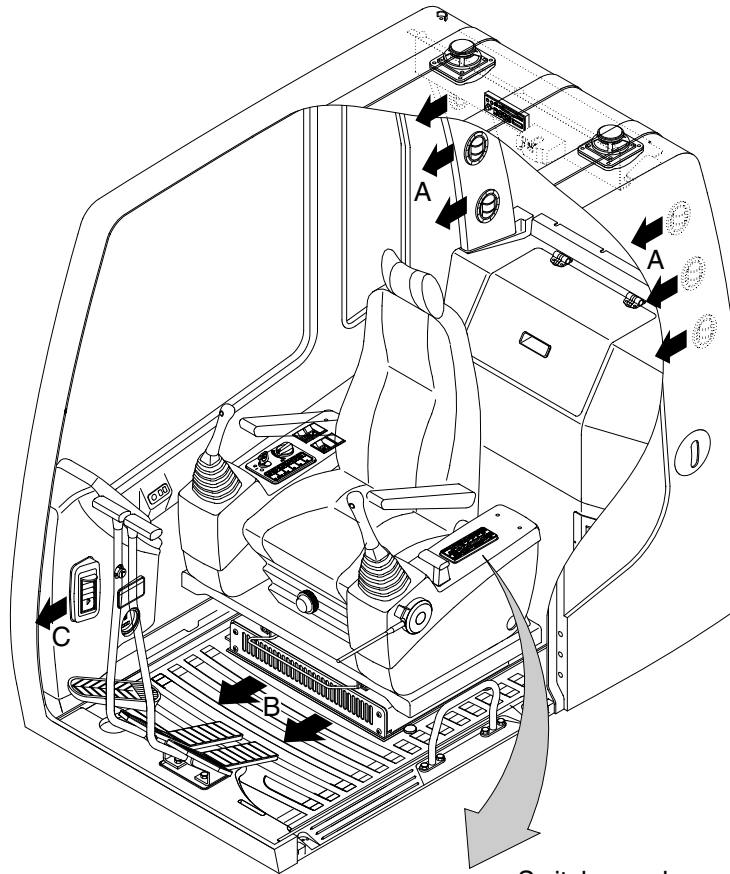
※ **Check out the recirculation filter periodically to keep a good efficiency.**

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

■ AUTO AIR CONDITIONER AND HEATER(OPTION)

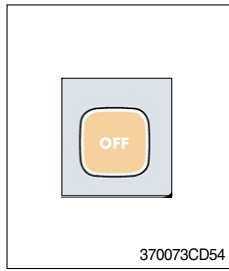
Auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.

• Location of air flow ducts



807A3CD49

1) POWER OFF SWITCH

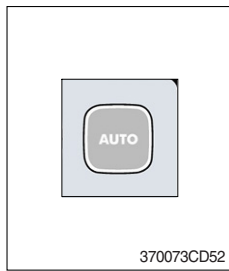


- (1) This switch makes the system and the LED OFF.
Just before the power OFF, setted values are stored.

(2) Default setting values

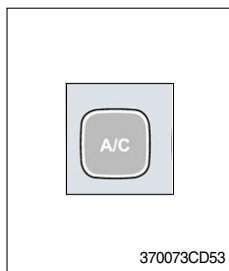
Function	Air conditioner	In/outlet	LCD	Temperature	Mode
Value	OFF	Inlet	OFF	Previous sw OFF	Previous sw OFF

2) AUTO SWITCH



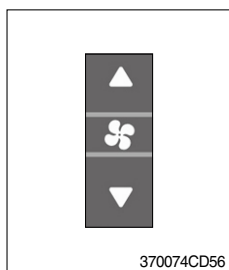
- (1) Turn the starting switch to ON position, LCD lights ON.
Auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.
- (2) This switch can restart system after system OFF.

3) AIR CONDITIONER SWITCH(Compressor switch)



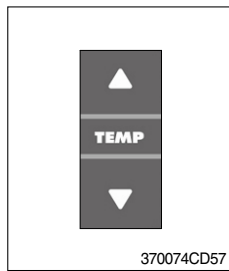
- (1) This switch turns the compressor and the LCD ON.
- (2) In accordance with the temperature sensed by duct(evaporator) sensor, compressor turns ON or OFF automatically.
- ※ **Air conditioner operates to remove vapor and drains water through a drain hose. Water can be sprayed into the cab in case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

4) FAN SPEED SWITCH



- (1) Fan speed is controlled automatically by setted temperature.
- (2) This switch controls fan speed manually.
- There are 8 up/down steps to control fan speed.
 - The maximum step or the minimum step beeps 5 times.
- (3) This switch makes the system ON.
- ▲ : First step(AUTO)
 - ▼ : First step(Manually)

5) TEMPERATURE CONTROL SWITCH

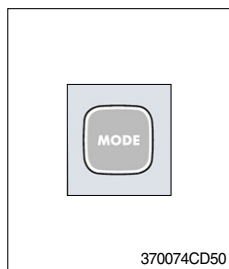


- (1) Setting temperature indication(17~32°C, Scale : 1°C)
- (2) Max cool and max warm beeps 5 times.
- (3) The max cool or the max warm position operates as following table.

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

- (4) Temperature unit can be changed between celsius(°C) and Fahrenheit(°F)
 - ① Default status(°C)
 - ② Push Up/Down temperature control switch simultaneously more than 5 second displayed temperature unit change(°C → °F)

6) MODE SWITCH

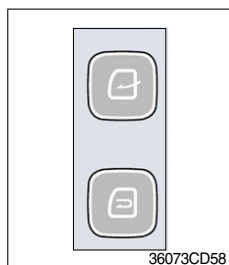


- (1) Operating this switch, it beeps and displays symbol of each mode in order.(Vent → B/L → Foot → Def → Vent)

Mode switch		Vent	B/L	Foot	Defroster
Outlet	A	●	●		
	B		●	●	●
	C				●

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

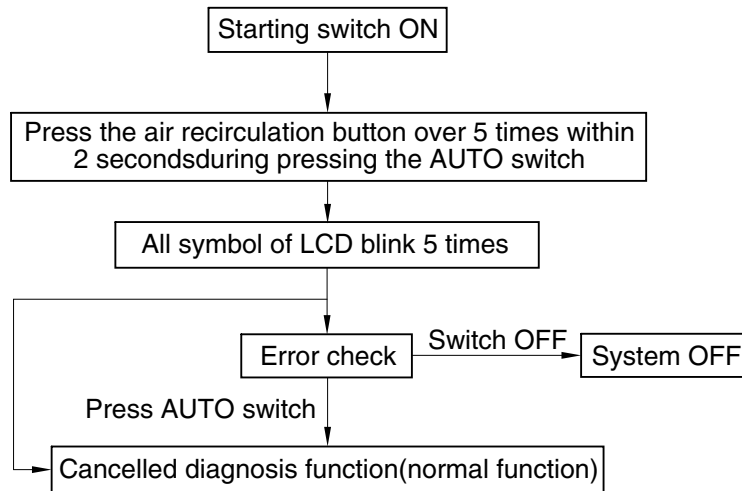
7) FRESH AIR/AIR RECIRCULATION SWITCH



- (1) It is possible to change the air-inlet method.
 - ① **Fresh air()**
Inhaling air from the outside.
※ **Check out the fresh air filter periodically to keep a good efficiency.**
 - ② **Air recirculation()**
It recycles the heated or cooled air to increase the energy efficiency.
※ **Change air occasionally when using recirculation for a long time.**
※ **Check out the recirculation filter periodically to keep a good efficiency.**

8) SELF DIAGNOSIS FUNCTION

(1) Procedure



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(2) Error check

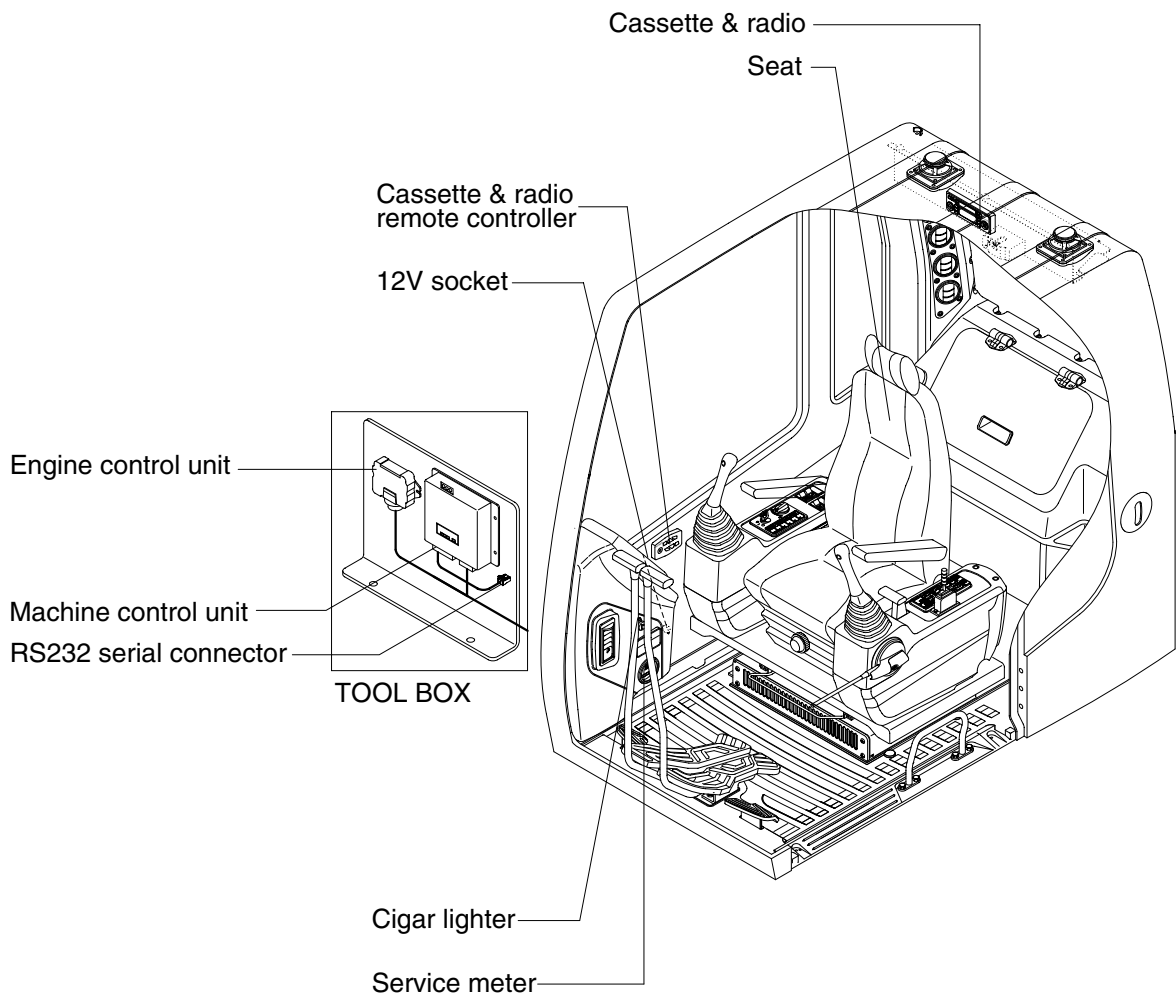
- The corresponding error code flickers on the setup temperature display panel, the other symbol will turn OFF.
- Error code flickers every 0.5 second.
- If error code is more than two, each code flickers 2 times in sequence.
- Error code

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

(3) Fail safe function

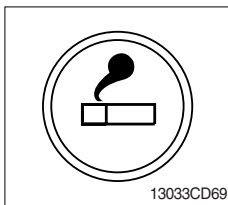
Error description	Fail safe function
Ambient sensor(11)	25°C alternate value control
Cabin inside sensor(12)	20°C alternate value control
Coolant temp sensor(13)	More than 10 minutes after engine start up, the alternate value is ON
Duct(evaporator) sensor(14)	1°C alternate value control
Temp actuator(15)	If opening amount is 0%, the alternate value is 0%
	If not, the alternate value is 100%
Mode actuator(16)	The alternate value is Vent

6. OTHERS



807A3CD54

1) CIGAR LIGHTER



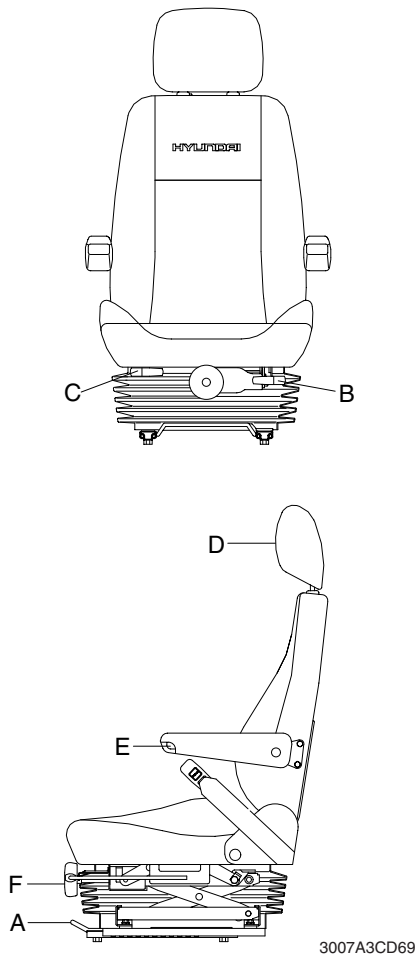
- (1) This can be used when the engine starting switch is ON.
- (2) The lighter can be used when it springs out in a short while after being pressed down.

※ **Service socket**

**Use cigar lighter socket when you need emergency power.
Do not use the lighter exceeding 12V, 100W.**

2) SEAT

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



(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 130mm(5.1") in 13 steps.

(2) Upward/Downward adjustment(B)

- ① Pull lever B to adjust seat upward or downward.
- ② Forward or backward side adjustment only can be made, tilting to one side, by moving lever B respectively.

(3) Reclining adjustment(C)

Pull lever C to adjust seat back rest.

(4) Arm rest adjustment(E)

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

(5) Head rest adjustment (D)

This is adjustable vertically to fit operator's requirements.

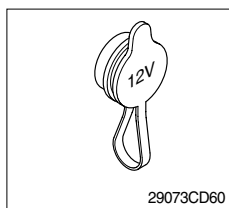
(6) Cushion adjustment (F)

Adjust the handle to the operator's weight.

▲ Always check the condition of the seat belt and mounting hardware before operating the machine.

▲ Replace the seat belt at least once every three years, regardless of appearance.

3) 12V SOCKET(Optional)



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

4) FUSE BOX

START STOP	30A	START KEY	30A
PRE-HEAT FILLER P/P	30A	CASSETTE ROOM LAMP	10A
WIPER	20A	AC & HEATER	20A
HEAD LAMP CIGAR	10A	ECU	20A
WORK LAMP	10A	MCU	10A
CABIN LAMP	20A	WIPER	10A
FEED PUMP	5A	CLUSTER	10A
AC & HEATER	30A	CASSETTE	10A
HORN BEACON LAMP	20A	MCU	10A
SOLENOID	20A	SWITCH PANEL	10A
FUSE HOLDER		SPARE	10A
		SPARE	30A

807A3CD60

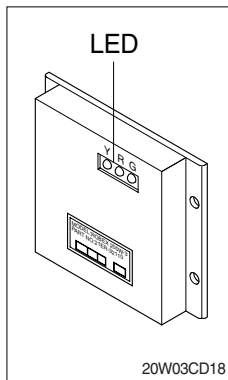
(1) The fuses protect the electrical parts and wiring from burning out.

(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.**

5) MCU CONTROLLER

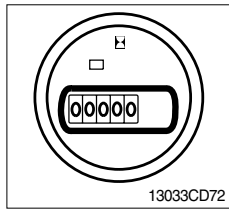


(1) Three LED lamps on the MCU controller display as below.

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

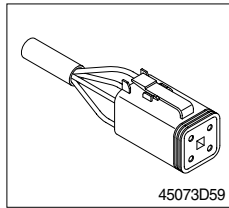
G : green, R : red, Y : yellow

6) SERVICE METER



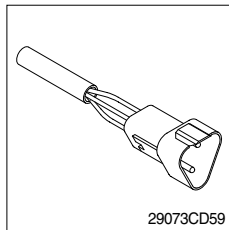
- (1) This meter shows the total operation hours of the machine.
- (2) Always ensure the operating condition of the meter during the machine operation. Inspect and service the machine based on hours as indicated in chapter 6, **maintenance**.

7) RS232 SERIAL CONNECTOR



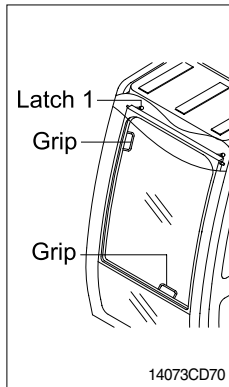
- (1) MCU controller communicates the machine data with Lap top computer through RS232 connector.

8) J1939 SERIAL CONNECTOR

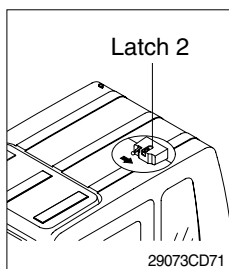


- (1) ECU communicates the engine data with cummins INLINE-II adapter through J1939 connector.
 - ① ECU fault code check
 - ② ECU program change
 - ③ Engine data monitoring & test

10) UPPER WINDSHIELD

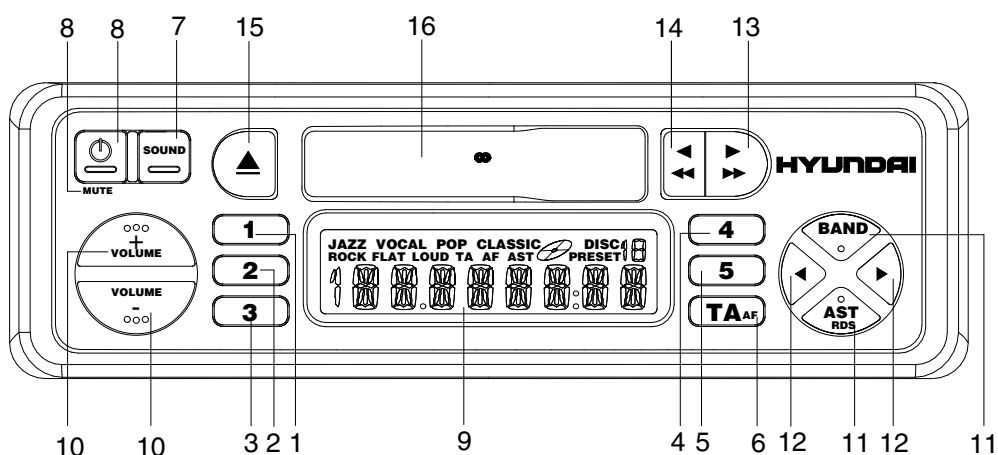


- (1) Perform the following procedure in order to open the upper windshield.
 - ① Release both latches(1) in order to release the upper windshield.
 - ② Hold both grips that are located at the bottom of the windshield frame and at the top of the windshield frame push the windshield upward.
 - ③ Hold both grips that are provided on the windshield frame and back into the storage position until auto lock latch(2) is engaged, move the levers of both latches(1) into the locked position. Push the levers toward the rear of the cab in order to hold the windshield in storage position.



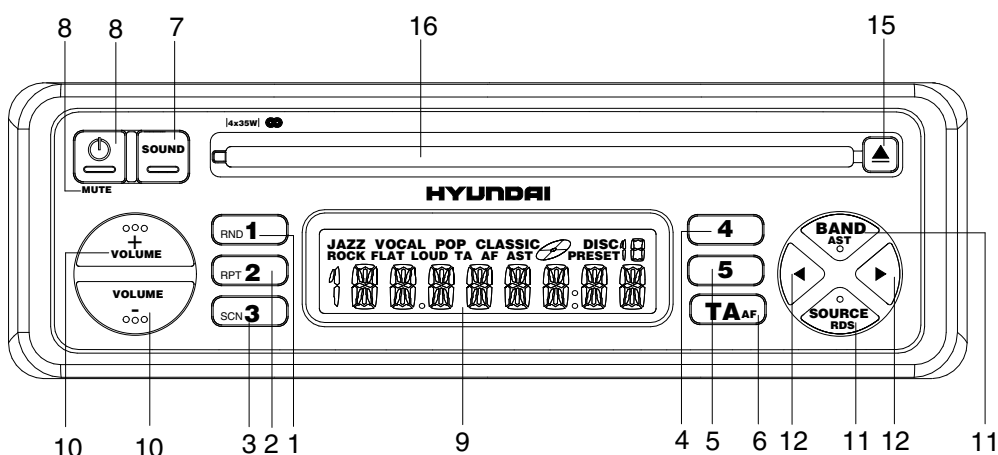
- (2) Perform the following procedure in order to close the upper windshield.
 - ① Move the lever of the auto lock latch(2) in the direction of the arrow in order to release the auto lock latch.
 - ② Reverse step ① through step ③ in order to close the upper windshield.

12) RADIO AND CASSETTE (TYPE A)



7807A3CD81

RADIO AND CD PLAYER (Option)



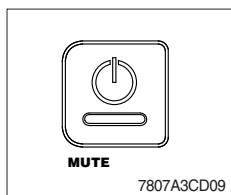
7807A3CD82

■ FRONT PANEL PRESENTATION

- | | |
|--|--|
| 1 1 Preset button 1 | 11 SOURCE .. Short press : Change source (Radio/CD) |
| RND CD random playback on/off | RDS Long press : RDS on/off |
| 2 2 Preset button 2 | BAND Short press : To select band |
| RPT CD repeat track on/off | AST Long press : Autostore (CD) |
| 3 3 Preset button 3 | Short press : Autostore (Cassette) |
| SCN CD's track scan | 12 ◀▶ Tuner mode |
| 4 4 Preset button 4 | Short press : Auto search up/down |
| 5 5 Preset button 5 | Long press : Manual search up/down |
| 6 TA/AF Short press : TA on/off | Cassette mode : No function |
| Long press : AF on/off | CD mode |
| 7 SOUND Select sound/audio styles | Short press : Next/previous track |
| 8 ⏻ Short press : power on | Long press : Fast forward or fast rewind |
| Long press : power off | 13 ▶▶ Fast forward (cassette deck) |
| MUTE Short press : To mute or cancel mute. | 14 ◀◀ Fast rewind (cassette deck) |
| 9 Display | 15 ▲ Disc eject (CD) |
| 10 Volume knob : Press up/down to adjust the volume ; adjust selected audio mode | Eject cassette |
| | 16 CD opening / Cassette opening |

■ AUDIO


(1) Power and mute button



① POWER ON/OFF

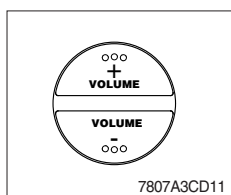
Press  to switch on the set. Press  for more than 2 seconds to switch off the set.

② MUTE (silence)

Short press  key to mute or cancel the mute (silence).

※ **The silence period may be interrupted by ALARM announcement or traffic announcement messages (If TA is switched on).**

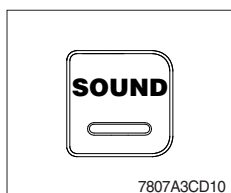
(2) Volume button



① Press the volume button up/down to adjust the volume.

Please make sure you can still hear the traffic (horns, sirens..).

(3) Sound button



① SOUND

Whether you listen to Jazz, Vocal, Pop, Classic or Rock music, the SOUND button is the perfect setting for your choice.

- Press SOUND then the sound button to select BASS-Treb for your own sound style, or adjust the settings with the volume up/down buttons to select one of the pre define sound styles :

- BASE -TRE : Your own settings of bass and treble.

- FLAT : Original
- JAZZ : Jazz music
- VOCAL : Speech
- POP : Pop music
- CLASSIC : Classical music
- ROCK : Rock music

② AUDIO SETTING

- Press SOUND to select desired audio mode.
- Adjust the settings with the volume up/down buttons :

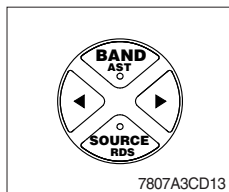
- Sound style : BASS-TRE, FLAT, JAZZ, VOCAL, POP, CLASSIC, ROCK

- BASS : Low notes
- TREBLE : High notes
- BALANCE : Left-right
- FADER : Rear-front
- LOUD : OFF, LOW, MID, HIGH

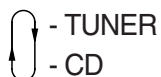
- Press the volume button to adjust the selected audio mode.
After 5 seconds the display goes back to the last mode of operation.

Adjustment of Bass and Treble settings is only possible when BASS-TRE is selected as the sound style.

(4) Source button



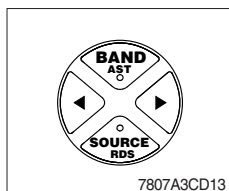
① Press SOURCE to select the desired source :



※ Products with cassette mechanism will change source to cassette only when a tape is inserted.

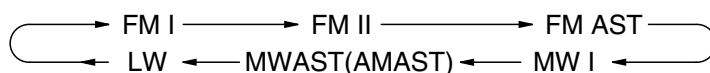
■ RADIO

(1) Wave band / Automatic search button



① WAVEBAND

• Press BAND to select the desired band :



② AUTOMATIC SEARCH

Use search tuning to automatically search for a station.

- Press ◀ to tune a station of a lower frequency or ▶ to a higher frequency.
- To search for another station, press the key again.

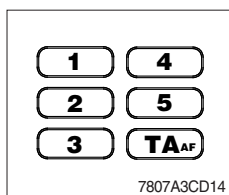
③ MANUAL TUNING (If you know the frequency of the required station)

• To switch to manual tuning :

Long press the search button ◀ or ▶ for more than 2 seconds will switch the tuning to manual tuning.

- Then press ◀ to tune to a station of a lower frequency or ▶ to a higher frequency.
- When keys are released, a time-out start to count. After 5 seconds time-out, display 'Auto' for one second and return to automatic search.

(2) Preset button



Preset stations

① Manually storing stations in a preset

Five stations per band can be stored and recalled using the preset keys (1 to 5).

- Tune in to the desired station.
- Press the desired preset key (1 to 5) for more than 2 seconds to store the current tuned station.

When storing an FM station, the current program station name and the AF mode are stored on the preset (Some stations use alternating program service name).

② Recalling a preset

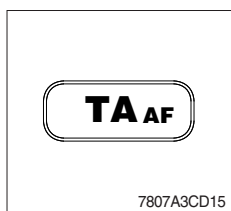
Press the desired preset key (1 to 5) to recall the stored station.

③ Automatically storing stations (AUTO-STORE)

You can automatically store 5 strongest FM stations on the FM AST band or 5 strongest MW (AM) stations on the MW (AM) AST band. When you use Auto store, the new stations replace any stations previously stored in the FM AST band or the MW (AM) AST band.

- Press AST to activate autostore.
- The set gives a beep and then mutes.
- When it has finished, you hear a beep followed by the station stored on preset 1.
- Sometimes it may not be possible to find 5 stations.

■ RADIO DATA SYSTEM (RDS) ON FM



More and more stations broadcasts RDS informations in order to offer you many advantages including :

(1) Program service name (PS)

Allows the radio to display the name of the station instead of its frequency.

(2) Automatic returning (AF)

The set remains tuned to the current station by continually searching the best alternative frequency for best reception.

You can switch AF off.

- Activate/Deactivate AF

This set continuously search for other alternative frequencies for the tuned radio station and automatically selects the best frequency for reception. Long press **TA AF** for more than 2 second to activate/deactivate AF.

(3) Alarm messages (PTY ALARM)

This set automatically receives emergency messages made by the broadcaster.

- During the messages the display shows 'ALARM' and the station-name alternately.

(4) Traffic announcements (TA)

You can activate the TA modes to give priority so as to hear traffic announcements related to these subjects (even if you play a cassettes/CD or mute the set).

- Activate/Deactivate TA

- Short press BAND to select an FM band.
- Press **TA AF** to activate/deactivate TA.

- If you activate TA mode

- You will hear the traffic announcements when broadcast by station (even if you play a cassette/CD or mute the set).
- If the tuned station does not enable the reception of traffic announcements, the display shows 'NO TA'. The radio automatically searches and appropriate station.

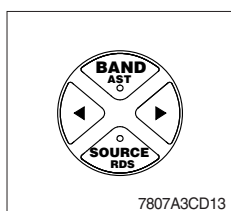
- Interrupting traffic announcement mode

If you do not wish to continue listening to a particular traffic announcement

- Short press **TA AF** key to interrupt traffic announcement without switching off the mode
- The set will return to the previous operating mode.

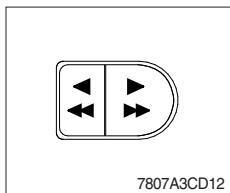
※ You can switch off RDS features if not required.

- Long press RDS key to switch off RDS.
- All RDS related features e.g., TA, etc...will be deactivated when RDS is switch off.



■ CASSETTE PLAYER

(1) Winding / Rewinding button



- ※ Only use good quality cassettes.
- ※ To avoid possible tape damage always take out the cassette after use. Protect your cassettes. Put them back in their boxes immediately after use.
- ※ Never expose cassettes to heat or direct sunlight.

① Play back

Slide the cassette, with the open side to the right into the cassette opening. Playback starts.

The direction of playback is shown by indicator ► .

② Stopping playback (▲)

- To stop playback, Press the ▲ button fully home.
- The unit will switch over to radio reception.
- The cassette is partially ejected.

③ Reverse (before the end of the tape)

Press the ◀◀ and ▶▶ buttons at the same time halfway in.

④ Fast rewind / Fast forward (◀◀ or ▶▶)

The direction of fast winding depends on the direction of play indicated on the display.

Display during playback	Action	Key to press
►	Fast forward	▶▶
►	Fast rewind	◀◀
◀	Fast forward	◀◀
◀	Fast rewind	▶▶

During fast forward or rewind the radio resumes. If you continue fast winding until the end of the tape, play back restarts automatically.

⑤ To stop fast winding

To stop fast winding before the end of the tape, press the key which is not pressed (◀◀ or ▶▶). Playback is then resumed.

⑥ End of the tape

At the end of the tape, playback continues in the revers direction.

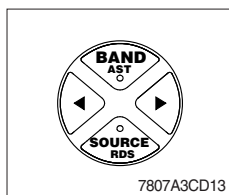
⑦ Maintenance

After extended use of the cassette player, dust, contamination or grime can accumulate on the playback head.

This results in diminishing high-note reproduction. This can be remedied using a cleaning cassette (one or twice a month) and playing it through like an ordinary cassette.

■ CD PLAYER

(1) Winding / Rewinding button



① CD playback

This CD player is suitable only for 12 cm disc, do not use irregular shaped CD.

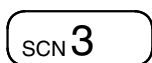
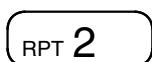
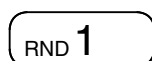
- Slide the disc into the slot with label facing upwards. Playback starts.
- If a disc is already inserted :
Press **SOURCE** to select CD as the source.
Playback starts.

② Previous / Next track (◀ or ▶)

- Short press the ◀ or ▶ button to select the desired track.
- Playback resume with the chosen track.

③ Fast rewind / Fast forward (◀◀ or ▶▶)

- Long press the ◀ or ▶ button for more than 2 seconds to quickly move rewind or forward through the disc.
- Normal play back resumes when you release the button.



④ Random track playback

- Press **RND** to activate / deactivate random track playback.

⑤ Repeat track

- Press **RPT** to activate / deactivate repeat current track.

⑥ Scan track

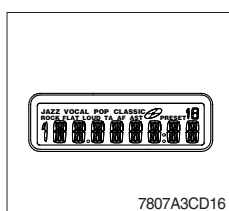
The scan function enables you to listen to the first few seconds of each track.

- Press **SCN** to activate / deactivate scan track.


⑦ Disc eject

- Press **▲** to eject the disc.


■ RADIO SETTING




(1) AMERICA

Press , No. 1 and No. 4 buttons at the same time. Set up completes displaying "AMERICA".

(2) SOUTH AMERICA

Press , No. 2 and No. 5 buttons at the same time. Set up completes displaying "SOUTH".

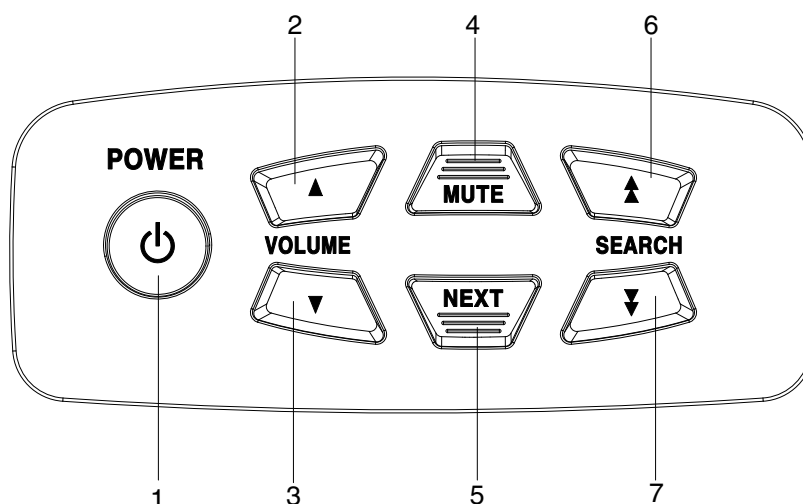
(3) ASIA

Press , No. 1 and No. 5 buttons at the same time. Set up completes displaying "ASIA".

(4) EUROPE

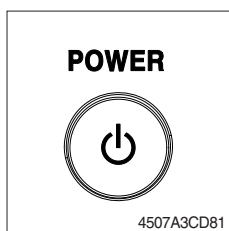
Press power, No. 2 and No. 4 buttons at the same time. Set up completes displaying "EUROP".



13) REMOTE CONTROLLER



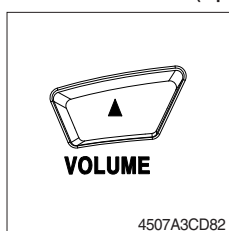
4507A3CD90

(1) Power ON/OFF button



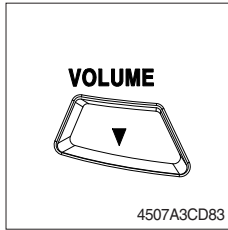
- ① Press  to switch ON the set. Press  for more than 2seconds to switch OFF the set.

(2) Volume button (up)



- Short press : Volume up one step
- Long press : Volume up continuous

(3) Volume button (down)



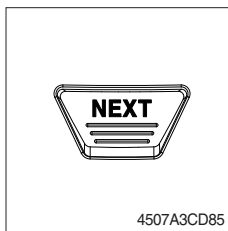
- Short press : Volume down one step
- Long press : Volume down continuous.

(4) Source & mute button



- Short press : Change source (Radio/CD)
- Long press : To mute or cancel mute.

(5) Next button



- ① Tuner mode
 - Short press : Preset up
 - Long press : Band up
- ② Cassette mode
 - Short press : Reverse (before the end of the tape)
 - Long press : No function
- ③ CD mode
 - Short press : Track 1
 - Long press : Scan track

(6) Search button (up)



- ① Tuner mode
 - Short press : Search up one step
 - Long press : Search up continuous
- ② Cassette & CD mode
 - Short press : Next track
 - Long press : Fast forward

(7) Search button (down)



- ① Tuner mode
 - Short press : Search down one step
 - Long press : Search down continuous
- ② Cassette & CD mode
 - Short press : Previous track
 - Long press : Fast rewind

RADIO AND USB PLAYER (TYPE B)



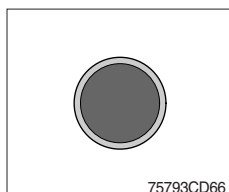
75793CD62

■ FRONT PANEL PRESENTATION

- | | | | | | |
|---|------|---|----|----|---|
| 1 | | Sound function selection button (audio selection) | 10 | | Preset memory button 6 |
| 2 | | Power and volume button | | D+ | Directory up |
| 3 | | Mode button (select RADIO / USB / AUX) | 11 | | Aux function |
| 4 | | UP / DOWN tuning button | 12 | | Preset scan (PS)
Best station memory (BSM) |
| 5 | | Preset memory button 1 | 13 | | Audio mute button |
| | DISP | ID3 v2 display | 14 | | AM / FM button (radio) |
| 6 | | Preset memory button 2 | | | |
| | SCN | File scan | | | |
| 7 | | Preset memory button 3 | | | |
| | RPT | Repeat play selector | | | |
| 8 | | Preset memory button 4 | | | |
| | RDM | Random play selector | | | |
| 9 | | Preset memory button 5 | | | |
| | D- | Directory down | | | |

■ GENERAL

(1) Power and volume button



① Power ON/OFF button

Press power button to turn the unit ON or OFF shortly.

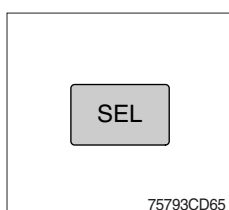
When the power is ON, the previous mode (last memory) will appear.

② Volume up / down control

Turn volume up / down button right to increase the volume level.

The level will be shown in VOLUME xx on the LCD display. Turn it left to decrease the volume level. After 5 seconds of volume indication, display will return to the previous mode.

(2) Sound function selection button (audio selection)




- ① This button is to adjust the sound. Each time you press power button shortly, LCD displays each mode as follows :

BASS → TREBLE → BAL → BEEP → LOUD → VOLUME



- ※ When this button is pressed, LCD display shows selected function for 5 seconds and then returns back to the previous mode. On selected function, level can be controlled by turning this button. The display will automatically return to normal indication in 5 seconds after the last adjustment is made or when another function is activated.


② Bass control

To adjust the bass level, first select the bass mode by pressing the select button  until BASS indication appears on the LCD display. Within 5 seconds of choosing the bass mode, turn power button right / left to adjust the bass level as desired.

The bass level will be shown on the LCD display from a minimum of BASS -10 to a maximum of BASS +10.

The display will automatically return to the normal indication in 5 seconds after the last adjustment or when another function is activated.


③ Treble control

To adjust the treble level, first select the treble mode by pressing the select button  until TREBLE indication appears on the LCD display. Within 5 seconds of choosing the treble mode, turn power button right / left to adjust the treble level as desired.

The treble level will be shown on the LCD display from a minimum of TREBLE -10 to a maximum of TREBLE +10.

The display will automatically return to the normal indication in 5 seconds after the last adjustment or when another function is activated.

④ Balance control

To adjust the left-right speaker balance, first select the balance mode by pressing the select button  until the BAL indication appears on the LCD display.


Within 5 seconds of choosing the balance mode, turn power button right / left to adjust the balance as desired.

The balance position will be shown on the LCD display from BAL 10L (full left) to BAL 10R (full right).

When the volume level between the left and right speakers is equal, BAL L=R will be shown on the LCD display panel.

The display will automatically return to the normal indication in 5 seconds after the last adjustment or when another function is activated.

⑤ Beep control

To adjust the beep mode, first select the beep mode by pressing the select button  until BEEP indication appears on the LCD display.

The beep mode will be shown on the LCD display from BEEP 2ND, BEEP OFF and BEEP ON by turning power button right / left.

The display will automatically return to the normal indication in 5 seconds after the last adjustment or when another function is activated.


Select BEEP ON when you wish to hear the BEEP sound whenever any function button is pressed.


Select BEEP 2ND when you wish to hear the BEEP sound whenever any tuner pre-set button and/or tune seek buttons are pressed for more than 3 seconds.

⑥

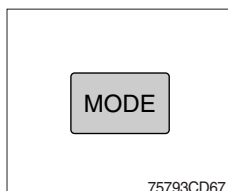
Loud control

When listening to music at low volume levels, this feature will boost the bass and treble response.

This action will compensate for the reduction in bass and treble performance experienced at low volume. 

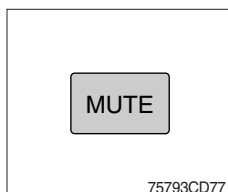
To select the loudness feature, press select button  until LOUD ON or LOUD OFF is displayed, then turn power button left or right

(3) Mode button



- ① Press mode button to select RADIO / USB / AUX.

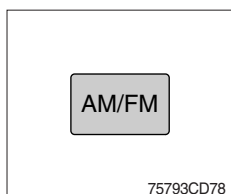
(4) Audio mute button



- ① Press mute button momentarily to mute volume and MUTE mark will blink on the LCD display.
Press the button again to return to the mode in use before the mute mode was activated.

■ RADIO

(1) AM / FM / LW band selector

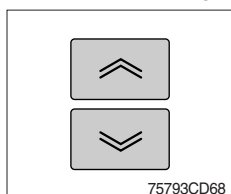


- ① Each time this button is pressed, the radio button is changed. Each time this button is pressed, LCD displays each band as follows :

FM1 → FM2 → FM3 → AM → LW

※ LW band is only available for Europe.

(2) Up / down tuning

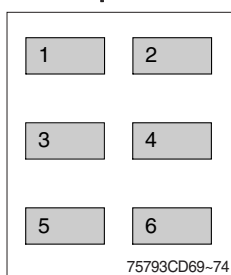


- ① To automatically select a radio station, momentarily press the up tune seek button or down tune seek button for less than 3 seconds to search for the closest radio station.

To manually select a radio station, press the up tuning & down tuning button for longer than 3 seconds.

The radio frequency will move up or down step by step each time you press button.

(3) Station pre-set button

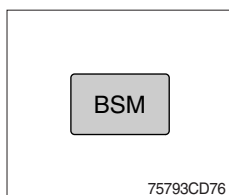


- ① Pressing these buttons shortly will recall your favorite pre-set radio stations.

To store your favorite stations into any of the 6 pre-set memories in each band (AM/FM/LW), use the following procedure :

- a. Turn the radio ON and select the desired band.
- b. Select the first station to be pre-set using the manual up/down or automatic seek tuning control button.
- c. Press the chosen pre-set button to store your selected station into and continue to hold it in. The beep sound will be momentarily heard and the pre-set number will appear on the LCD display indicating that the station is now set into that pre-set memory position and can be recalled at any time, by pressing that pre-set button.

(4) Pre-set scan (PS) / Best station memory (BSM) button



① Pre-set scan (PS)

Press BSM button shortly to scan the 6 pre-set station stored the memories on each band (AM/FM/LW).

The unit will stop at each pre-set station (the pre-set number on the LCD display will flash during pre-set scan operation) and remain on the selected frequency. Press the button momentarily again to remain on the station currently being heard.

② Best station memory (BSM)

Pressing BSM button for longer than 2 seconds will activate the BSM tuning feature which will automatically scan and enter each station into memory.

If you have already set the pre-set memories to your favorite stations, activating the BSM tuning feature will erase those stations and enter the new ones.

This BSM feature is most useful when traveling in a new area where you are not familiar with the local stations.

■ USB PLAYER

(1) USB function

There are two ways to play mp3 files in a USB device : using USB socket in the cab and the USB /AUX cable connected to the front side of the player.

· Use of USB socket

- ① Connect a USB device, which saves mp3 files, to USB socket in the cabin.
- ② If a USB device has not been connected, MP3 files are automatically played when you insert it into the USB port.
- ③ If a USB device has connected, MP3 files are played when you press mode for USB.

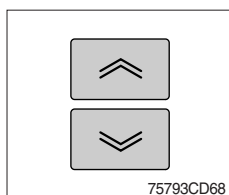
· Use of USB/AUX cable (option)



75793CD81

- ① Connect the USB/AUX cable to the player in order to play MP3 files in a USB device.
- ② If a USB device has not been connected, MP3 files are automatically played when you insert it into the cable.
- ③ If a USB device has connected, MP3 files are played when you press mode for USB.

(2) File selection & cue / review button



① File selection function

This button is used to select file up / down. Each time the forward file select ≧ is pressed, file number is increased.

Each time the backward file select ≦ is pressed, file number is decreased.

② Cue / review functions

High-speed audible search of file on a USB can be made by this button (the cue and review functions).

Press and hold the cue button ≧ to advance rapidly in the forward direction or the review button ≦ to advance rapidly in the backward direction.

(3) MP3 directory / file searching

① The power button is used to select a particular directory and file.

Press and hold for more than 3 seconds while playing MP3 file.

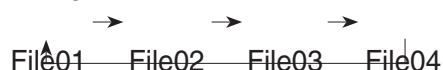
Turn right / left the power button to search the directory. Press the button when you find the wanted directory.

For example, the directory search generally changes in two methods depending on the order of writing as follows.

- Method 1 : ROOT → Dir01 → Dir02 → Dir03 → Dir04 → Dir05 → Dir06 → Dir07
- Method 2 : ROOT → Dir01 → Dir02 → Dir05 → Dir03 → Dir06 → Dir04 → Dir07

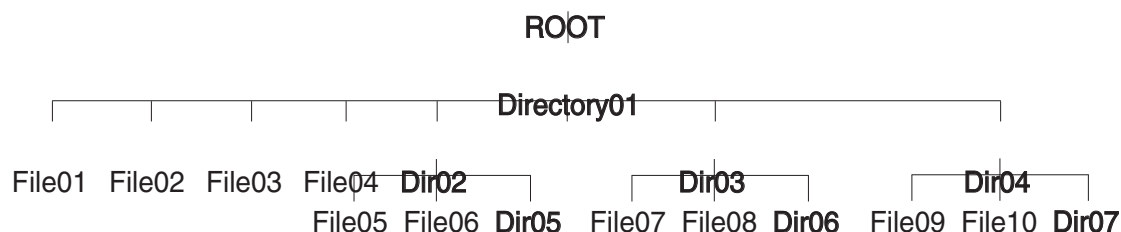
If you want to search the file in the located directory, turn right / left the power button consecutively. Press the button when you find the wanted file. The unit will then play the selected file.

For instance, the file search changes in Dir01 as follows.

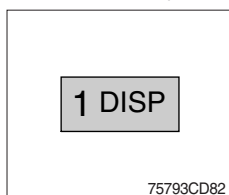


※

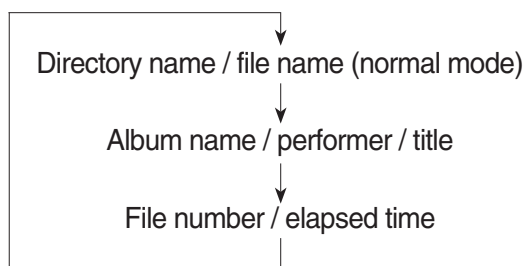
MP3 direction / file configuration



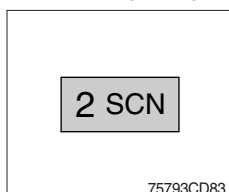
(4) ID3 v2 display



- ① Disp button is used to change the display information.
While playing an MP3 file, you can change the file information shown on the LCD display.
Each time you press DISP (display), the display changes to show the following.
- ※ If the MP3 disc does not have any ID3 information, the display will show NO ID3 on LCD display.

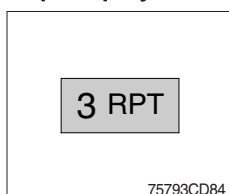


(5) File scan (SCN)



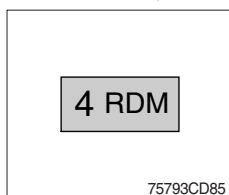
- ① During USB play, press SCN button to play the first 10 seconds of each file on the whole file on the USB (SCN mark will appear on the LCD display).
When a desired file is reached, press the SCN button again to cancel the function.
The unit will then play the selected file.
- ※ In case of playing MP3 file, when the SCN (scan) button is pressed and held for longer than 2 seconds, the SCN mark will blink on the LCD display and all files in the selected directory will be introduced until the file scan mode is cancelled by pressing the SCN button again or by activating the random or repeat functions.

(6) Repeat play selector (RPT)



- ① During USB play, press RPT button to play the selected file repeatedly (RPT will appear on the LCD display).
Play of the file will continue to repeat until this button is pressed again and the RPT disappears from the LCD display.
- ※ In case of playing MP3 file, when the RPT button is pressed and held longer than 2 seconds, the RPT mark will blink on the LCD display and play all files in the selected directory and will be repeated until the directory repeat mode is cancelled by pressing the repeat button again or by activating the scan or random functions (RPT mark will disappear from LCD display).

(7) Random play selector (RDM)

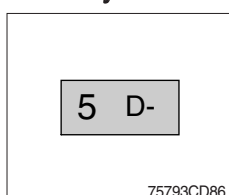


- ① During USB play, press RDM button to play the files on the USB in a random shuffled order (RDM will appear on the LCD display). The file select function will also select file in the random order instead of the normal process.

The random play mode can be cancelled by this button again.

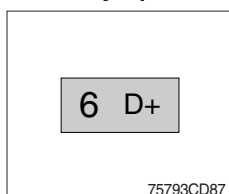
- ※ In case of MP3 file, when the random button is pressed and held longer than 2 seconds, the RDM mark will blink on the LCD display and play all files in directory randomly until the directory random mode is cancelled by pressing the random button again or by activating the scan or repeat functions (RDM mark will disappear from LCD display).

(8) Directory down



- ① Press D- button briefly while playing MP3. The previous directory is located each time you press this button.

(9) Directory up

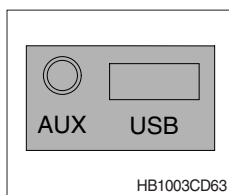


- ① Press D+ button briefly while playing MP3 . The next directory is located each time you press this button.
- ※ If the MP3 file does not have a directory, the unit play MP3 at 10-file intervals.
- ※ If any MP3 file does not exist in USB, this button can not operate.

■ AUX PLAYER

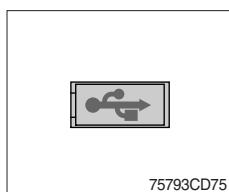
(1) Aux function

· Use of USB socket



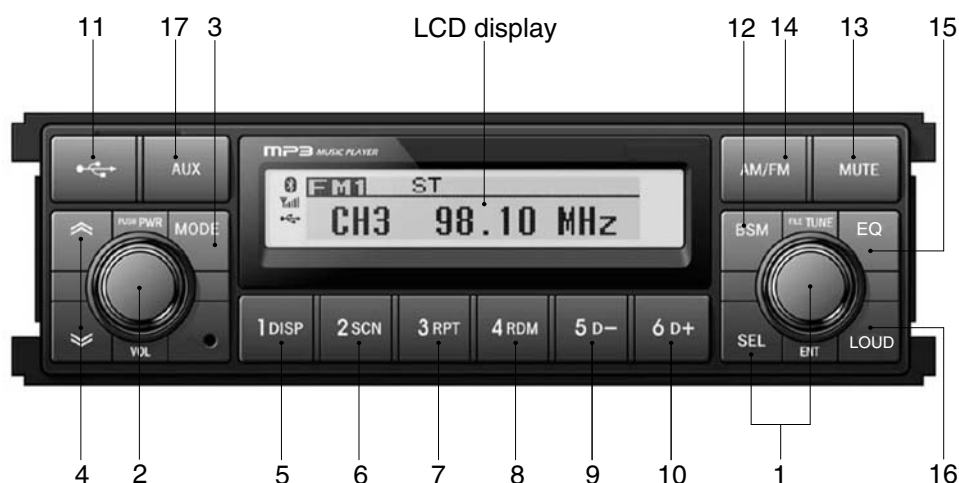
- ① If you want to listen to music of a external audio device, connect a external audio device into the USB port.
- ② Press mode button to change a current mode for AUX. If audio file of audio device is playing, you can listen to music through speaker.

· Use of USB/AUX cable (option)



- ① If you want to listen to music of a external audio device, connect a external audio device through USB/AUX cable.
- ② Press mode button to change a current mode for AUX. If audio file of audio device is playing, you can listen to music through speaker.

RADIO AND USB PLAYER (TYPE C)



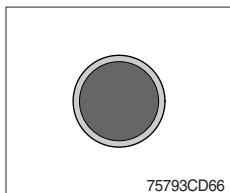
R25Z9A3CD38

■ FRONT PANEL PRESENTATION

- | | | | | | |
|---|--|--|----|--|---|
| 1 | | Audio selection button | 10 | | Preset memory button 6
D+ Directory up |
| | | Audio selection knob | 11 | | Aux function |
| 2 | | Power and volume button | 12 | | Preset scan (PS)
Best station memory (BSM) |
| 3 | | Mode button
(select RADIO / USB / AUX) | 13 | | Audio mute button |
| 4 | | UP / DOWN tuning button | 14 | | AM / FM button (radio) |
| 5 | | Preset memory button 1
DISP ID3 v2 display | 15 | | Equalizer |
| 6 | | Preset memory button 2
SCN File scan | 16 | | Loud |
| 7 | | Preset memory button 3
RPT Repeat play selector | 17 | | Aux connector |
| 8 | | Preset memory button 4
RDM Random play selector | | | |
| 9 | | Preset memory button 5
D- Directory down | | | |

■ GENERAL

(1) Power and volume button



① Power ON/OFF button

Press power button to turn the unit ON or OFF shortly.

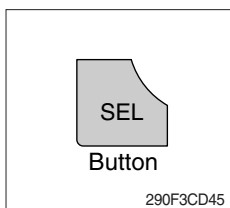
When the power is ON, the previous mode (last memory) will appear.

② Volume up / down control

Turn volume up / down button right to increase the volume level.

The level will be shown in VOLUME xx on the LCD display. Turn it left to decrease the volume level. After 5 seconds of volume indication, display will return to the previous mode.

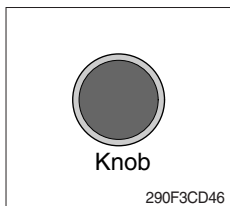
(2) Sound function selection button/knob (audio selection)



① This button is to adjust the sound. Each time you press SEL button shortly, LCD displays each mode as follows :

BASS → TREBLE → BAL → LOUD → EQ → BASS

※ When this button is pressed, LCD display shows selected function for 5 seconds and then returns back to the previous mode. On selected function, level can be controlled by turning this button. The display will automatically return to normal indication in 5 seconds after the last adjustment is made or when another function is activated.



② Bass control

To adjust the bass level, first select the bass mode by pressing the SEL button until BASS indication appears on the LCD display. Within 5 seconds of choosing the bass mode, turn selection knob right / left to adjust the bass level as desired.

The bass level will be shown on the LCD display from a minimum of BASS -10 to a maximum of BASS +10.

The display will automatically return to the normal indication in 5 seconds after the last adjustment or when another function is activated.

③ Treble control

To adjust the treble level, first select the treble mode by pressing the SEL button until TREBLE indication appears on the LCD display. Within 5 seconds of choosing the treble mode, turn selection knob right / left to adjust the treble level as desired.

The treble level will be shown on the LCD display from a minimum of TREBLE -10 to a maximum of TREBLE +10.

The display will automatically return to the normal indication in 5 seconds after the last adjustment or when another function is activated.

④ Balance control

To adjust the left-right speaker balance, first select the balance mode by pressing the SEL button until the BAL indication appears on the LCD display.

Within 5 seconds of choosing the balance mode, turn selection knob right / left to adjust the balance as desired.

The balance position will be shown on the LCD display from BAL 10L (full left) to BAL 10R (full right).

When the volume level between the left and right speakers is equal, BAL L=R will be shown on the LCD display panel.

The display will automatically return to the normal indication in 5 seconds after the last adjustment or when another function is activated.

⑤ Loud control

When listening to music at low volume levels, this feature will boost the bass and treble response.

This action will compensate for the reduction in bass and treble performance experienced at low volume.

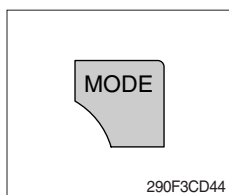
To select the loudness feature, press SEL button until LOUD ON or LOUD OFF is displayed, then turn selection knob left or right to activate or deactivate loudness.

⑥ Equalizer (EQ)

You can select an equalizer curve designed for 4 music types (POP, ROCK, CLASSIC, JAZZ).

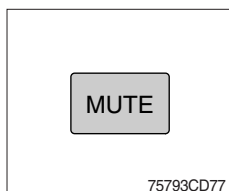
To select the desired curve, first select the EQ mode by pressing SEL button until the "EQ OFF" indication appears on the display panel. Within 5 seconds of choosing the EQ mode, turn selection knob to select an equalizer curve as desired.

(3) Mode button



- ① Press mode button to select RADIO / USB / AUX audio.

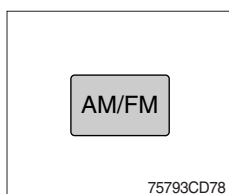
(4) Audio mute button



- ① Press mute button momentarily to mute volume and MUTE mark will blink on the LCD display. Press the button again to return to the mode in use before the mute mode was activated.

■ RADIO

(1) AM / FM / LW band selector

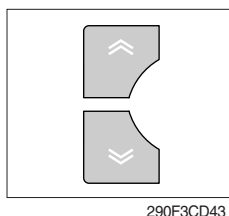


- ① Each time this button is pressed, the radio band is changed. Each time this button is pressed, LCD displays each band as follows :

FM1 → FM2 → FM3 → AM → LW → FM1

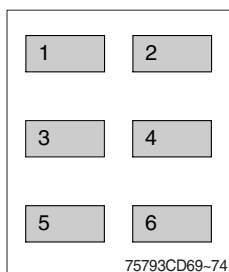
※ LW band is only available for Europe.

(2) Up / down tuning



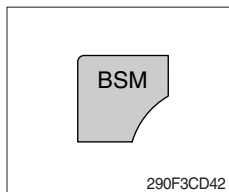
- ① To automatically select a radio station, momentarily press the up tune seek button or down tune seek button for less than 3 seconds to search for the closest radio station. To manually select a radio station, press the up tuning & down tuning button for longer than 3 seconds. The radio frequency will move up or down step by step each time you press button.

(3) Station pre-set button



- ① Pressing these buttons shortly will recall your favorite pre-set radio stations. To store your favorite stations into any of the 6 pre-set memories in each band (AM/FM/LW), use the following procedure :
 - a. Turn the radio ON and select the desired band.
 - b. Select the first station to be pre-set using the manual up/down or automatic seek tuning control button.
 - c. Press the chosen pre-set button to store your selected station into and continue to hold it in. The beep sound will be momentarily heard and the pre-set number will appear on the LCD display indicating that the station is now set into that pre-set memory position and can be recalled at any time, by pressing that pre-set button.

(4) Pre-set scan (PS) / Best station memory (BSM) button



① Pre-set scan (PS)

Press BSM button shortly to scan the 6 pre-set station stored the memories on each band (AM/FM/LW).

The unit will stop at each pre-set station (the pre-set number on the LCD display will flash during pre-set scan operation) and remain on the selected frequency. Press the button momentarily again to remain on the station currently being heard.

② Best station memory (BSM)

Pressing BSM button for longer than 2 seconds will activate the BSM tuning feature which will automatically scan and enter each station into memory.

If you have already set the pre-set memories to your favorite stations, activating the BSM tuning feature will erase those stations and enter the new ones.

This BSM feature is most useful when traveling in a new area where you are not familiar with the local stations.

■ USB PLAYER



R25Z9A3CD39

(1) USB function

① Connect a USB device if you want to listen to MP3 file in a USB device.

② It will automatically play MP3 file in the USB device and the LCD display will show "READING USB".

※ If there are no files on USB device, playback will revert back to the previous mode after displaying "NO FILE".

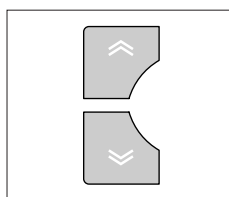
(2) AUX function

① If you want to listen to music of a external audio device, connect a external audio device through AUX cable.

② Change AUX mode by pressing MODE button.

If audio file of Audio device is playing, you can listen to music through speaker.

(3) File selection & cue / review button



290F3CD43

① File selection function

This button is used to select file up / down.

Each time the forward file select ⏮ is pressed, file number is increased.

Each time the backward file select ⏭ is pressed, file number is decreased.

② Cue / review functions

High-speed audible search of file on a USB can be made by this button (the cue and review functions).

Press and hold the cue button ⏮ to advance rapidly in the forward direction or the review button ⏭ to advance rapidly in the backward direction.

(4) MP3 directory / file searching

① The D-, D+ button is used to select a particular directory and file.

Press and hold for more than 3 seconds while playing MP3 file.

Turn right / left the selection knob to search the directory. Press the button when you find the wanted directory.

For example, the directory search generally changes in two methods depending on the order of writing as follows.

· Method 1 : ROOT → Dir01 → Dir02 → Dir03 → Dir04 → Dir05 → Dir06 → Dir07 → ROOT

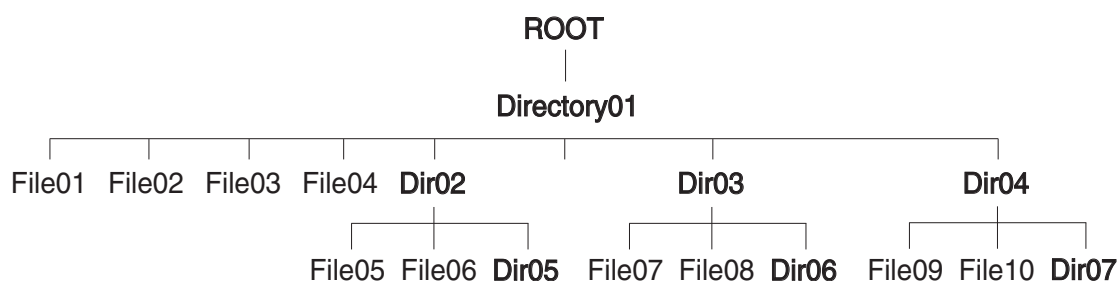
· Method 2 : ROOT → Dir01 → Dir02 → Dir05 → Dir03 → Dir06 → Dir04 → Dir07 → ROOT

If you want to search the file in the located directory, turn right / left the selection knob consecutively. Press the button when you find the wanted file. The unit will then play the selected file.

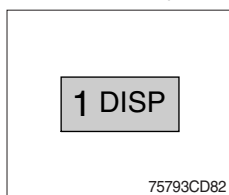
For instance, the file search changes in Dir01 as follows.

File01 → File02 → File03 → File04 → File01

※ MP3 directory / file configuration



(5) ID3 v2 display



- ① Disp button is used to change the display information.
While playing an MP3 file, you can change the file information shown on the LCD display.
Each time you press DISP (display), the display changes to show the following.
- ※ If the MP3 disc does not have any ID3 information, the display will show NO ID3 on LCD display.

Directory name / file name (normal mode)



Album name / performer / title

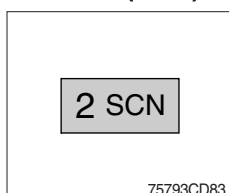


File number / elapsed time



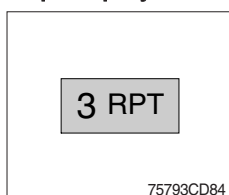
Directory name / file name (normal mode)

(6) File scan (SCN)



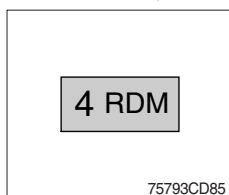
- ① During USB play, press SCN button to play the first 10 seconds of each file on the whole file on the USB (SCN mark will appear on the LCD display).
When a desired file is reached, press the SCN button again to cancel the function.
The unit will then play the selected file.
- ※ In case of playing MP3 file, when the SCN (scan) button is pressed and held for longer than 2 seconds, the SCN mark will blink on the LCD display and all files in the selected directory will be introduced until the file scan mode is cancelled by pressing the SCN button again or by activating the random or repeat functions.

(7) Repeat play selector (RPT)



- ① During USB play, press RPT button to play the selected file repeatedly (RPT will appear on the LCD display).
Play of the file will continue to repeat until this button is pressed again and the RPT disappears from the LCD display.
- ※ In case of playing MP3 file, when the RPT button is pressed and held longer than 2 seconds, the RPT mark will blink on the LCD display and play all files in the selected directory and will be repeated until the directory repeat mode is cancelled by pressing the repeat button again or by activating the scan or random functions (RPT mark will disappear from LCD display).

(8) Random play selector (RDM)

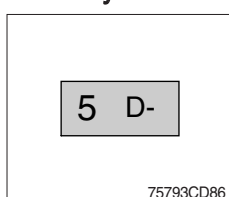


- ① During USB play, press RDM button to play the files on the USB in a random shuffled order (RDM will appear on the LCD display). The file select function will also select file in the random order instead of the normal process.

The random play mode can be cancelled by this button again.

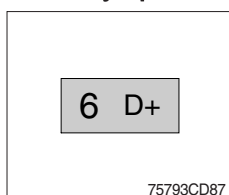
- ※ In case of MP3 file, when the random button is pressed and held longer than 2 seconds, the RDM mark will blink on the LCD display and play all files in directory randomly until the directory random mode is cancelled by pressing the random button again or by activating the scan or repeat functions (RDM mark will disappear from LCD display).

(9) Directory down



- ① Press D- button briefly while playing MP3. The previous directory is located each time you press this button.

(10) Directory up



- ① Press D+ button briefly while playing MP3 . The next directory is located each time you press this button.
- ※ If the MP3 file does not have a directory, the unit play MP3 at 10-file intervals.
- ※ If any MP3 file does not exist in USB, this button can not operate.