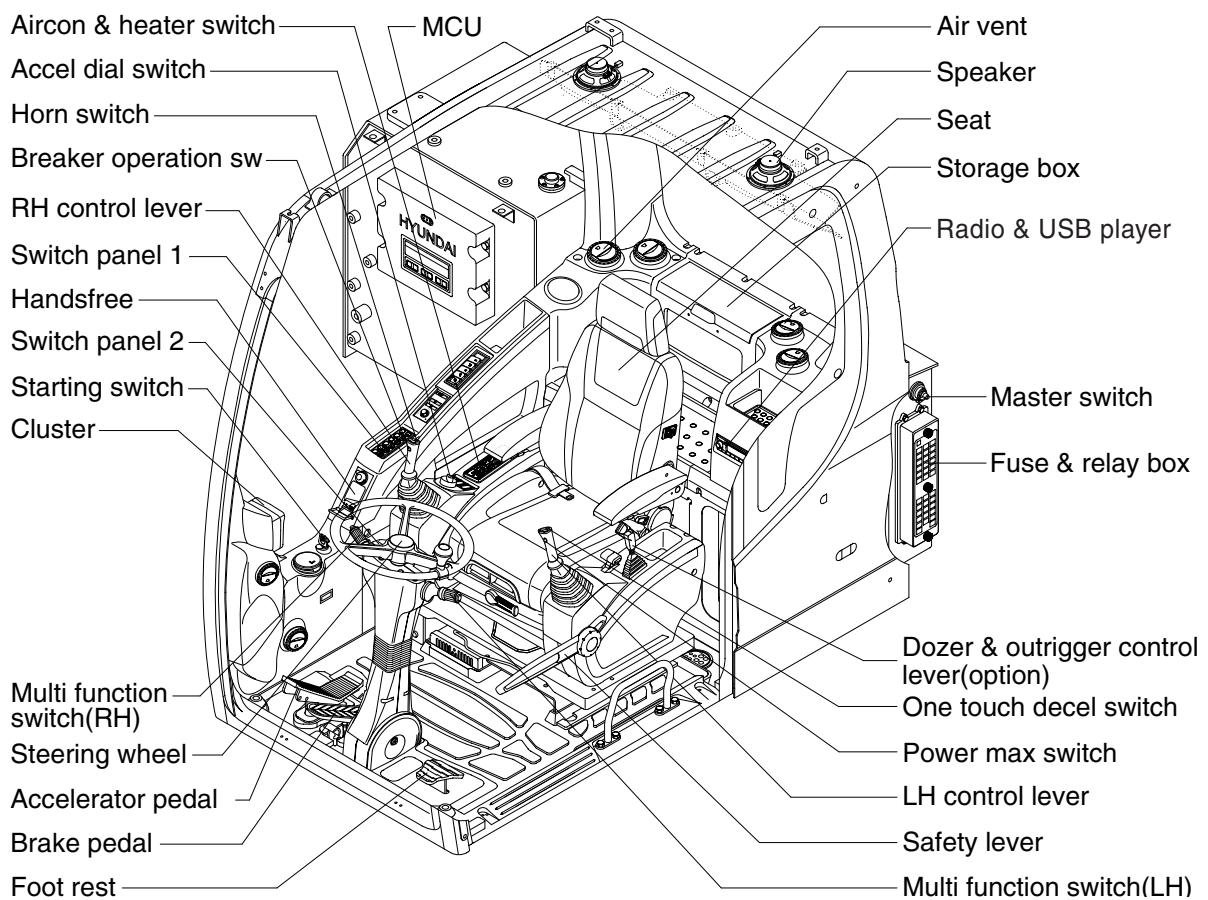


1. CAB DEVICES

- 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.



14W93CD01

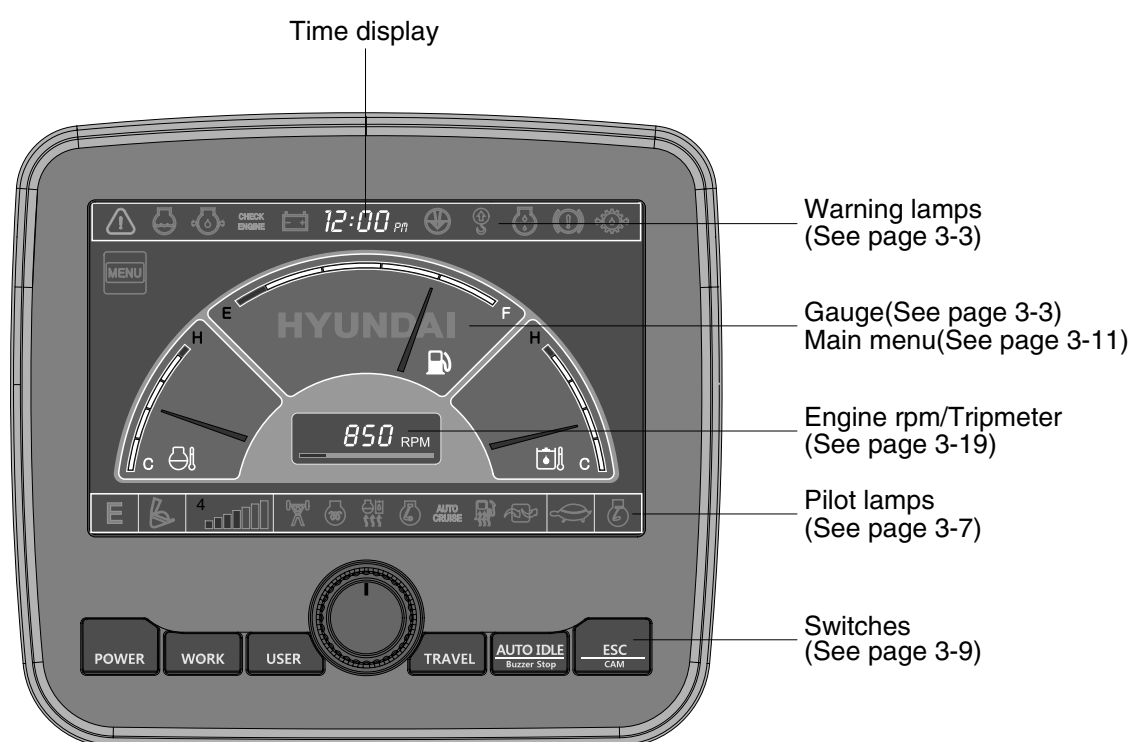
2. CLUSTER

1) STRUCTURE

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

The switches are to set the machine operation modes.

- ※ The cluster installed on this machine does not entirely guarantee the condition of the machine. Daily inspection should be performed according to chapter 6, Maintenance.
- ※ When the cluster provides a warning immediately check the problem, and perform the required action.



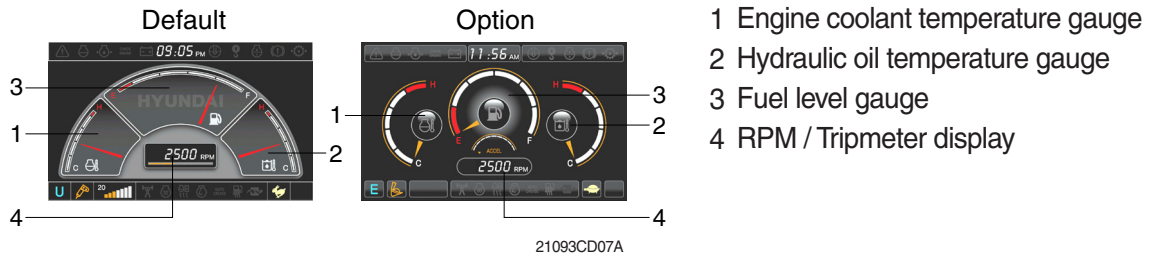
14W93CD07

- ※ The warning lamp pops up and/or blinks and the buzzer sounds when the machine has a problem.

The warning lamp blinks until the problem is cleared. Refer to page 3-4 for details.

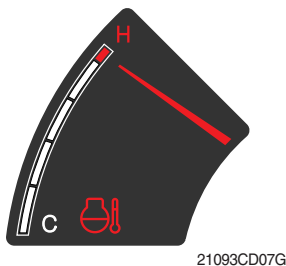
2) GAUGE

(1) Operation screen



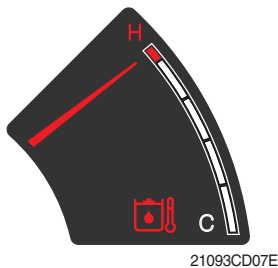
※ Operation screen type can be set by the screen type menu of the display.
Refer to page 3-21 for details.

(2) Engine coolant temperature gauge



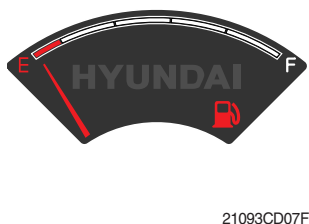
- ① This gauge indicates the temperature of coolant.
 - White range : 40-107°C (104-225°F)
 - Red range : Above 107°C (225°F)
 - ② If the indicator is in the red range or lamp blinks in red, turn OFF the engine and check the engine cooling system.
- ※ If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

(3) Hydraulic oil temperature gauge



- ① This gauge indicates the temperature of hydraulic oil.
 - White range : 40-105°C (104-221°F)
 - Red range : Above 105°C (221°F)
 - ② If the indicator is in the red range or lamp blinks is red, reduce the load on the system. If the gauge stays in the red range, stop the machine and check the cause of the problem.
- ※ If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

(4) Fuel level gauge



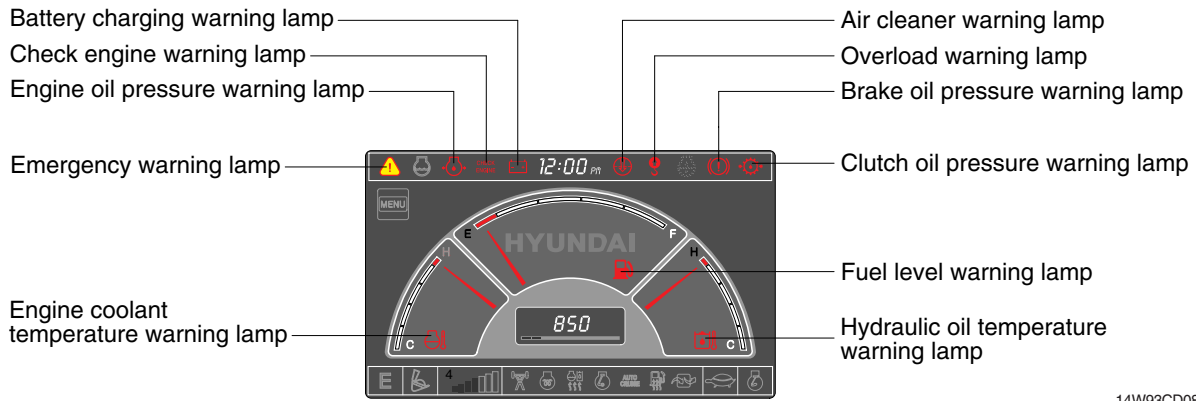
- ① This gauge indicates the amount of fuel in the fuel tank.
 - ② Fill the fuel when the red range, or lamp blinks in red.
- ※ If the gauge indicates the red range or lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor connection of electricity or sensor.

(5) RPM / Tripmeter display



- ① This displays the engine speed or the tripmeter.
- ※ Refer to page 3-19 for details.

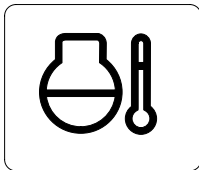
3) WARNING LAMPS



14W93CD08

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

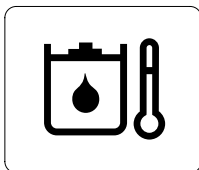
(1) Engine coolant temperature



21093CD08A

- ① Engine coolant temperature warning is indicated two steps.
 - 103°C over : The lamp blinks.
 - 107°C over : The lamp pops up on the center of LCD and the buzzer sounds.
- ② The pop-up lamp moves to the original position and blinks when the select switch is pushed. Also, the buzzer stops and lamp keeps blink.
- ③ Check the cooling system when the lamp keeps ON.

(2) Hydraulic oil temperature



21093CD08C

- ① Hydraulic oil temperature warning is indicated two steps.
 - 100°C over : The lamp blinks and the buzzer sounds.
 - 105°C over : The lamp pops up on the center of LCD and the buzzer sounds.
- ② The pop-up lamp moves to the original position and blinks when the select switch is pushed. Also, the buzzer stops and lamp keeps blink.
- ③ Check the hydraulic oil level and hydraulic oil cooling system.

(3) Fuel level



21093CD08B

- ① This warning lamp blinks and the buzzer sounds when the level of fuel is below 31 ˆ (8.2 U.S. gal).
- ② Fill the fuel immediately when the lamp blinks.

(4) Emergency warning lamp



21093CD30

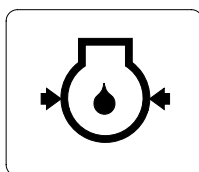
① This lamp pops up and the buzzer sounds when each of the below warnings is happened.

- Engine coolant overheating (over 107°C)
- Hydraulic oil overheating (over 105°C)
- Pump EPPR circuit abnormal or open
- Attachment flow EPPR circuit abnormal or open
- MCU input voltage abnormal
- Accel dial circuit abnormal or open
- Cluster communication data error
- Engine ECM communication data error

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

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

(5) Engine oil pressure warning lamp

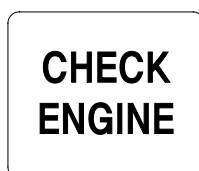


21093CD32

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

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

(6) Check engine warning lamp



21093CD33



29093CD03

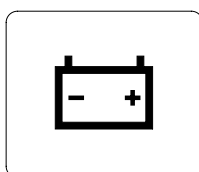
① This lamp blinks when the communication between MCU and engine ECM on the engine is abnormal, or if the cluster received any fault code from engine ECM.

② Check the communication line between them.

If the communication line is OK, then check the fault codes on the cluster.

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

(7) Battery charging warning lamp

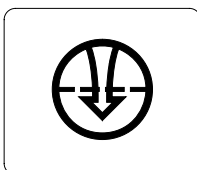


21093CD34

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

② Check the battery charging circuit when this lamp blinks.

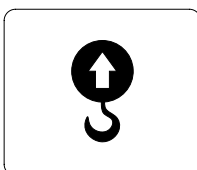
(8) Air cleaner warning lamp



21093CD35

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

(9) Overload warning lamp (opt)



21093CD36

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

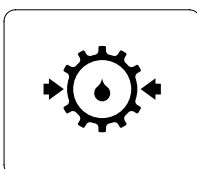
(10) Brake oil pressure warning lamp



14W93CD95

- ① This lamp blinks when the oil pressure of service brake drops below the normal range.
 - ② Stop the engine and check for its cause.
- ※ **Do not operate until any problems are corrected.**

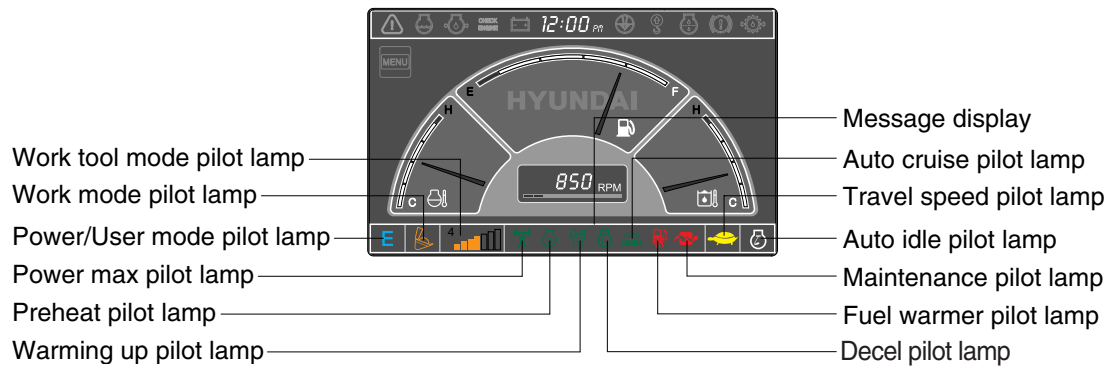
(11) Clutch oil pressure warning lamp



14W93CD96

- ① This lamp blinks when the oil pressure of the transmission drops.
- ② Stop the engine and check the transmission system.

4) PILOT LAMPS



14W93CD09

(1) Mode pilot lamps

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

(2) Power max pilot lamp



21093CD38

- ① The lamp will be ON when pushing power max switch on the LH RCV lever.
 - ② The power max function is operated maximum 8 seconds.
- ※ Refer to the page 3-26 for power max function.

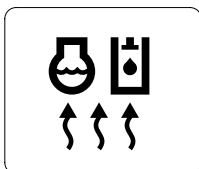
(3) Preheat pilot lamp



21093CD39

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

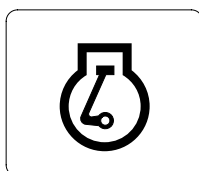
(4) Warming up pilot lamp



21093CD40

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

(5) Decel pilot lamp

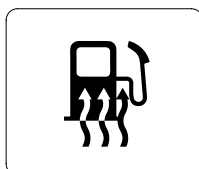


21093CD41

- ① Operating one touch decel switch on the RCV lever makes the lamp ON.
- ② Also, the lamp will be ON and engine speed will be lowered automatically to save fuel consumption when all levers and pedals are at neutral position, and the auto idle function is selected.

※ **One touch decel is not available when the auto idle pilot lamp is turned ON. Refer to the page 3-26.**

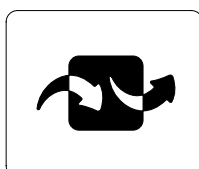
(6) Fuel warmer pilot lamp



21093CD43

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

(7) Maintenance pilot lamp



21093CD44

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

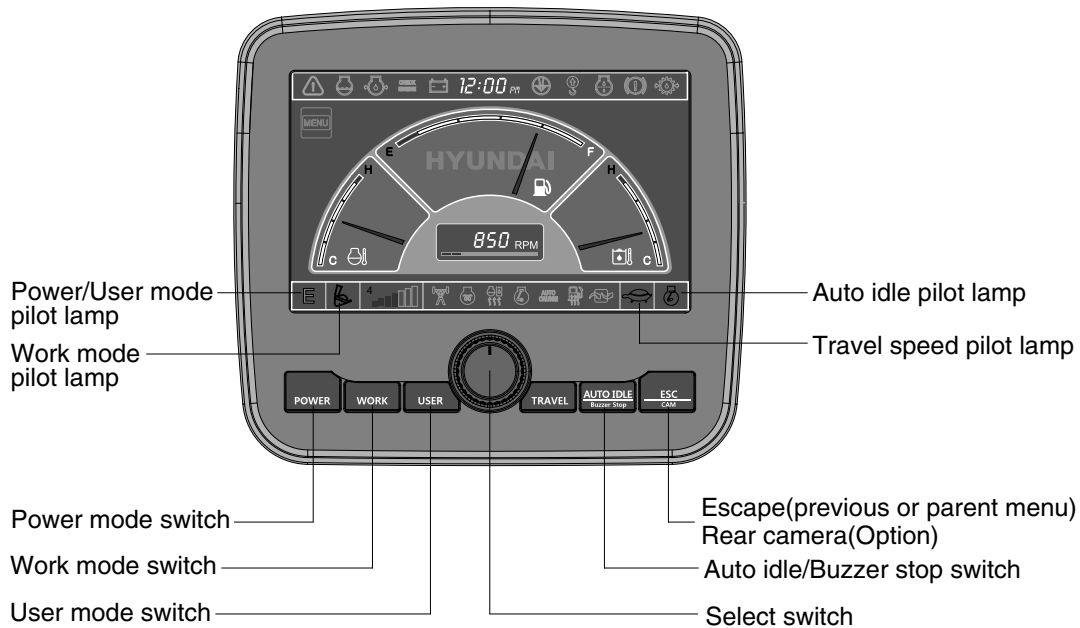
(8) Auto cruise pilot lamp



14W93CD42

- ① This lamp will be ON when pushing auto cruise switch end of the RH multifunction switch while forward high speed driving.
- ② The auto cruise function is kept uniform motion traveling.

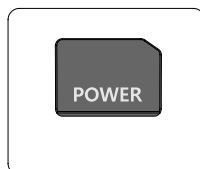
5) SWITCHES



14W93CD45

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

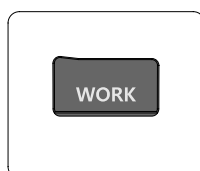
(1) Power mode switch






21093CD45A

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

(2) Work mode switch

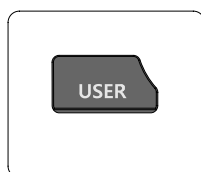


21093CD45C

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

※ Refer to the page 4-6 for details.

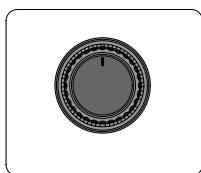
(3) User mode switch



21093CD45D

- ① This switch is used to memorize the current machine operating status in the MCU and activate the memorized user mode.
 - Memory : Push more than 2 seconds.
 - Action : Push within 2 seconds.
 - Cancel : Push this switch once more within 2 seconds.
- ② Refer to the page 3-12 for another set of user mode.

(4) Select switch



21093CD45E

- ① This switch is used to select or change the menu and input value.
- ② Knob push
 - Long (over 2 sec) : Return to the operation screen
 - Medium (0.5~2 sec) : Return to the previous screen
 - Short (below 0.5 sec) : Select menu
- ③ Knob rotation

This knob changes menu and input value.

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

(5) Auto idle/ buzzer stop switch

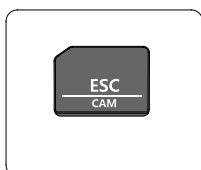


21093CD45F

- ① This switch is used to activate or cancel the auto idle function.
 - Pilot lamp ON : Auto idle function is activated.
 - Pilot lamp OFF : Auto idle function is cancelled.
- ② The buzzer sounds when the machine has a problem.

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

(6) Escape/Camera switch

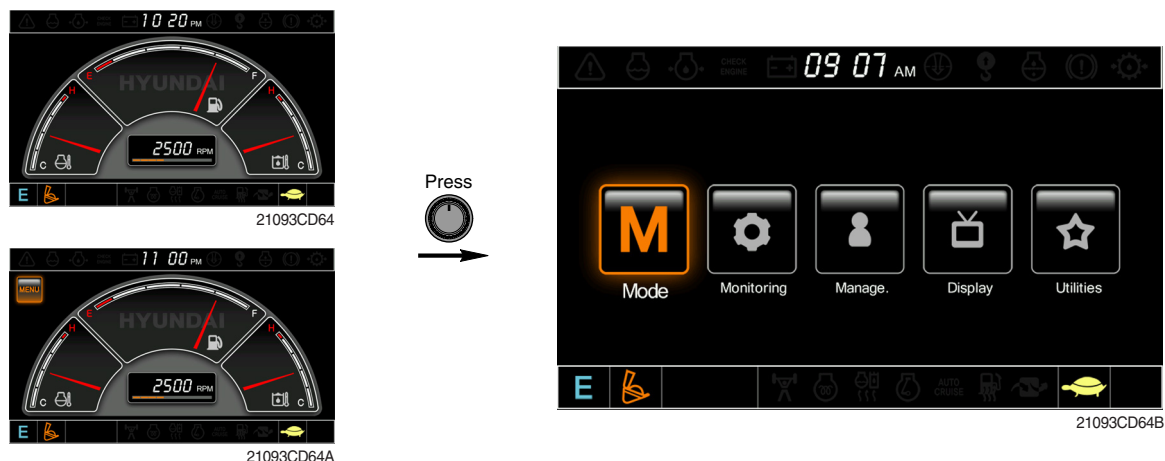


21093CD45H

- ① This switch is used to return to the previous menu or parent menu.
- ② In the operation screen, pushing this switch will display the view of the camera on the machine (if equipped).






Please refer to page 3-22 for the camera.
- ③ If the camera is not installed, this switch is used only ESC function.

6) MAIN MENU



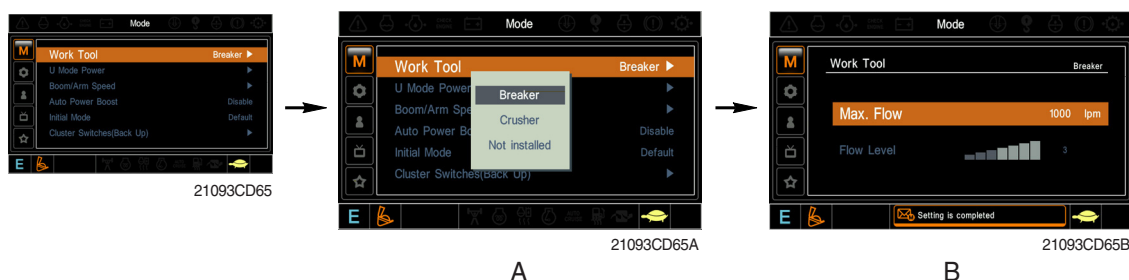
※ Please refer to select switch, page 3-10 for selection and change of menu and input value.

(1) Structure

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

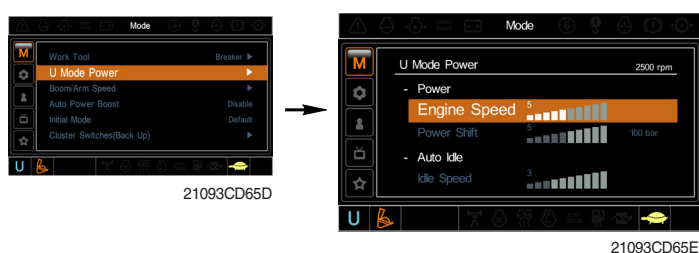
(2) Mode setup

① Work tool



- A : Select one installed optional attachment.
 - B : Max flow - Set the maximum flow for the attachment.
 Flow level - Reduce the operating flow from maximum flow.
 Breaker - Max 7 steps, Reduced 10 lpm each step.
 Crusher - Max 4 steps, Reduced 20 lpm each step.
- ※ The flow level is displayed with the work mode pilot lamp.

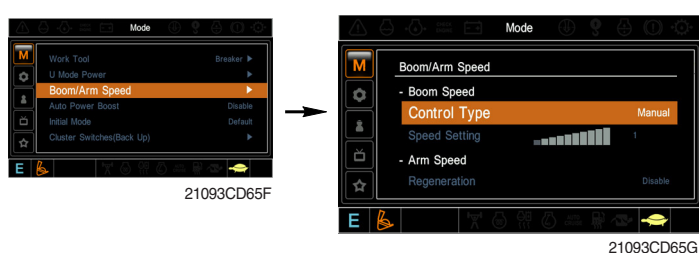
② U mode power



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

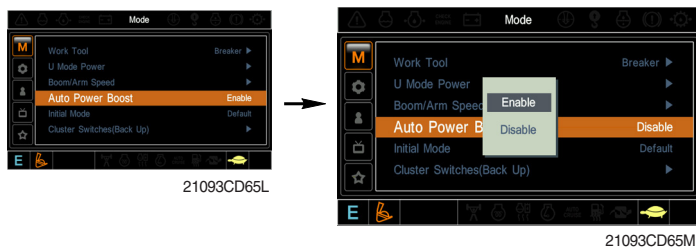
Step (I)	Engine speed (rpm)	Idle speed (rpm)	Power shift (bar)
1	1150	800 (low idle)	0
2	1200	850	3
3	1250	900	6
4	1300	950	9
5	1350	1000 (decel rpm)	12
6	1400	1050	16
7	1450	1100	20
8	1500	1150	26
9	1600	1200	32
10	1700	1250	38

③ Boom/Arm speed



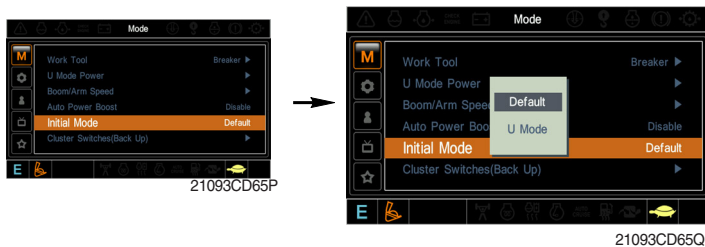
- **Boom speed**
 - Control type
 - Manual - Boom up speed is fixed as set steps.
 - Auto - Boom up speed is automatically adjusted as working conditions by the MCU.
 - Speed setting - Boom up speed is increased as much as activated steps.
- **Arm speed**
 - Regeneration - Arm regeneration function can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

④ Auto power boost



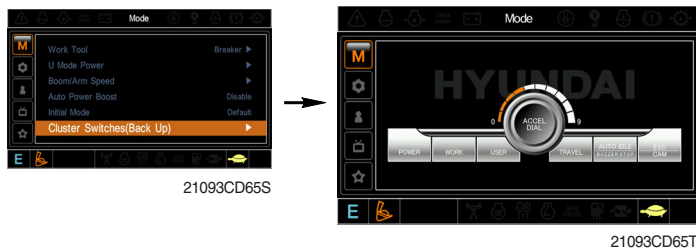
- The power boost function can be activated or cancelled.
- Enable - The digging power is automatically increased as working conditions by the MCU. It is operated max 8 seconds.
- Disable - Not operated.

⑤ Initial mode



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

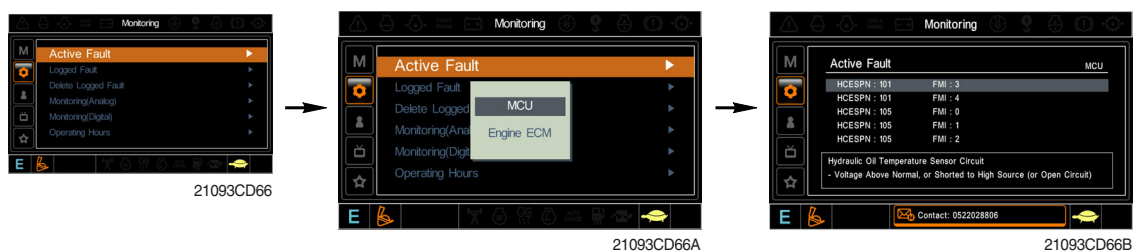
⑥ Cluster switch (back up)



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

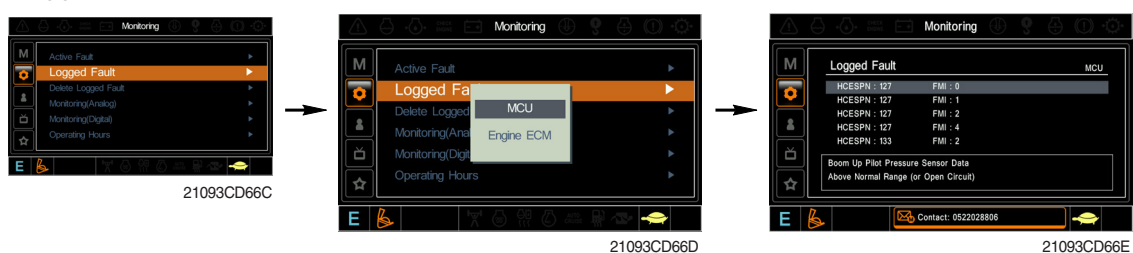
(3) Monitoring

① Active fault



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

② Logged fault



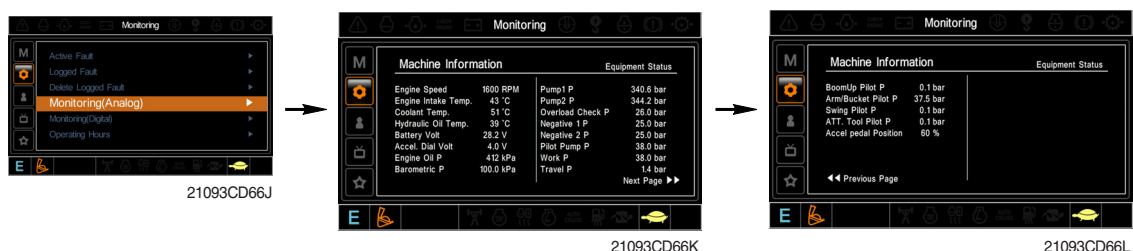
- The logged faults of the MCU or engine ECM can be checked by this menu.

③ Delete logged fault



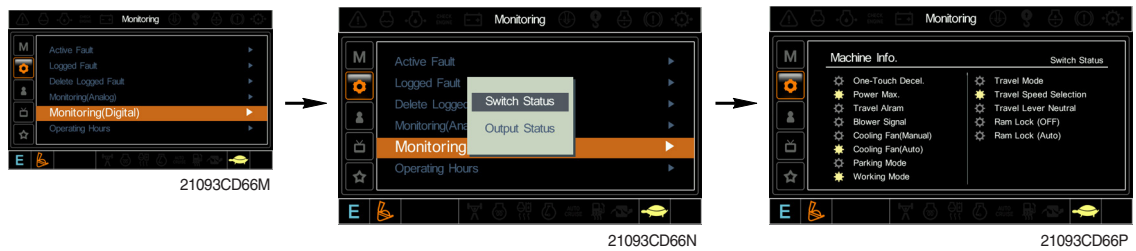
- The logged faults of the MCU or engine ECM can be deleted by this menu.


④ Monitoring(Analog)



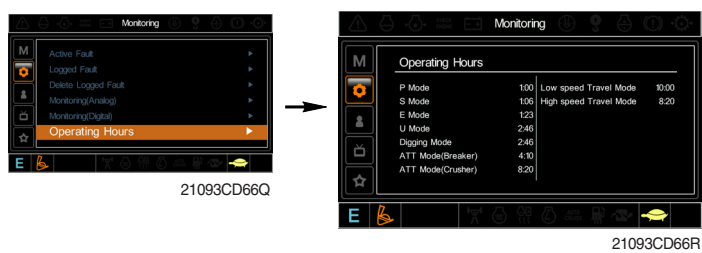
- The machine status such as the engine rpm, oil temperature, voltage and pressure etc. can be checked by this menu.

⑤ Monitoring (digital)



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

⑥ Operating hours



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

(4) Management

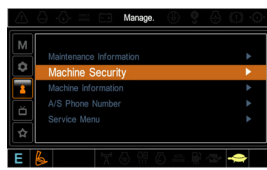
① Maintenance information



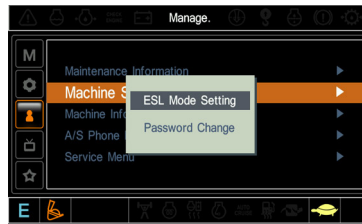
- Alarm (⚙️ 🟡 🔴) : Gray ⚙️ - Normal
Yellow 🟡 - First warning
Red 🔴 - Second warning
- Replacement : The elapsed time will be reset to zero (0).
- Change interval : The change or replace interval can be changed in the unit of 50 hours.
- OK : Return to the item list screen.
- Change or replace interval**

No	Item	Interval	No	Item	Interval
1	Engine oil	500	11	Hydraulic tank breather	1000
3	Swing gear oil	1000	12	Air cleaner (inner)	500
4	Hydraulic oil	5000	13	Radiator coolant	2000
5	Pilot line filter	1000	14	Swing gear pinion grease	1000
6	Drain filter	1000	15	Transmission oil	1000
7	Hydraulic oil return filter	1000	16	Front axle differential gear oil	1000
8	Engine oil filter	500	17	Rear axle differential gear oil	1000
9	Fuel filter	500	18	Axle planetary gear oil	1000
10	Pre-filter	500			

② Machine security



21093CD67C



21093CD67D



21093CD67E

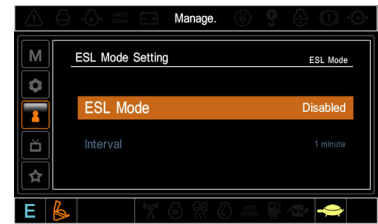
· ESL mode

- ESL : Engine Starting Limit
- ESL mode is designed to be a theft deterrent or will prevent the unauthorized operation of the machine.
- If the ESL mode was selected Enable, the password will be required when the start switch is turned ON.
- Disable : Not used ESL function

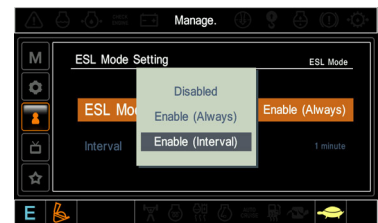
Enable (always) : The password is required whenever the operator start engine.

Enable (interval) : The password is required when the operator start engine first. But the operator can restart the engine within the interval time without inputting the password.

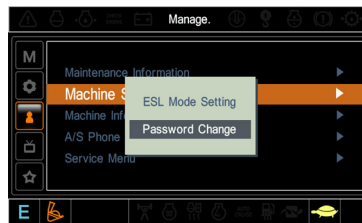
The interval time can be set maximum 4 hours.



21093CD67EE



21093CD67H



21093CD67U



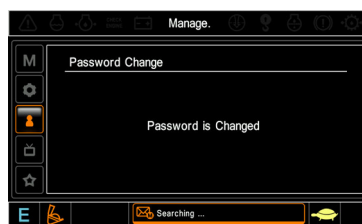
21093CD67V

· Password change

- The password is 5~10 digits.

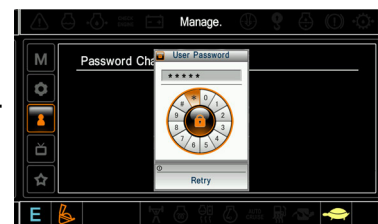


21093CD67VV



21093CD67X

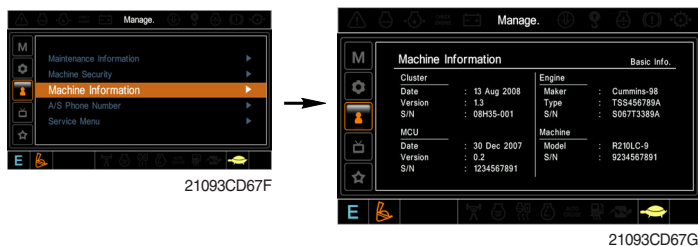
The new password is stored in the MCU.



21093CD67XX

Enter the new password again

③ Machine Information

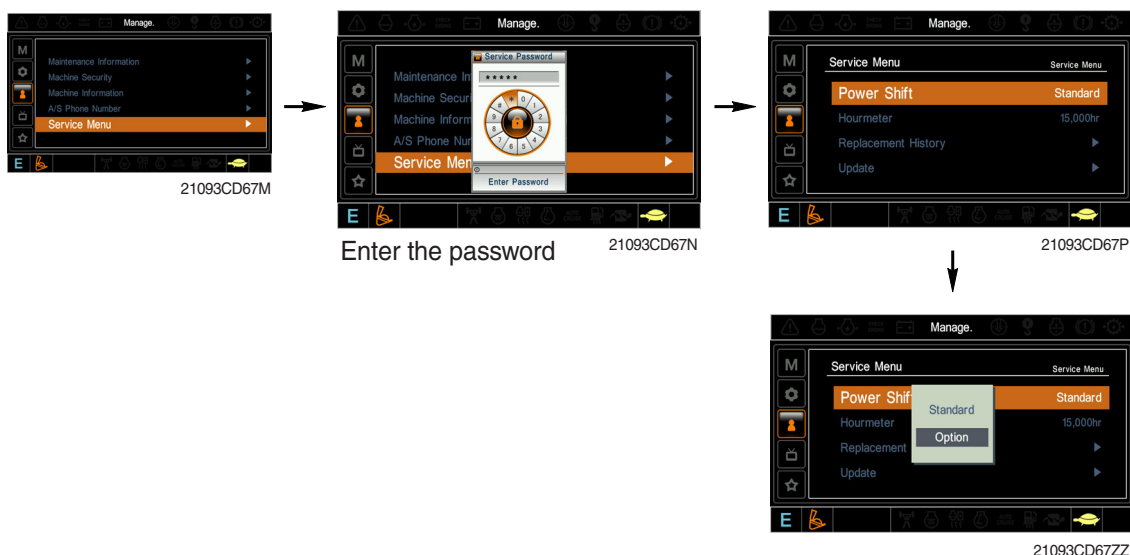


- This can confirm the identification of the cluster, MCU, engine and machine.

④ A/S phone number



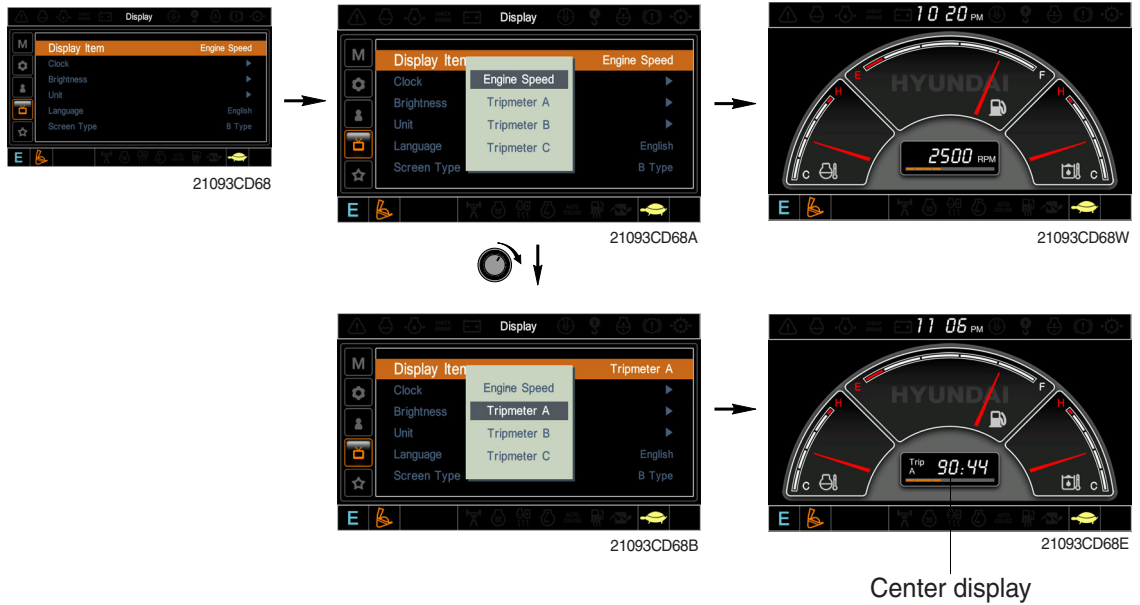
⑤ Service menu



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

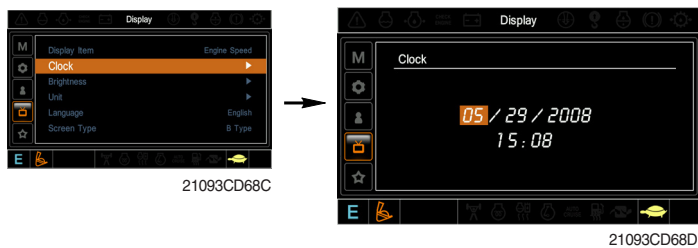
(5) Display

① Display item



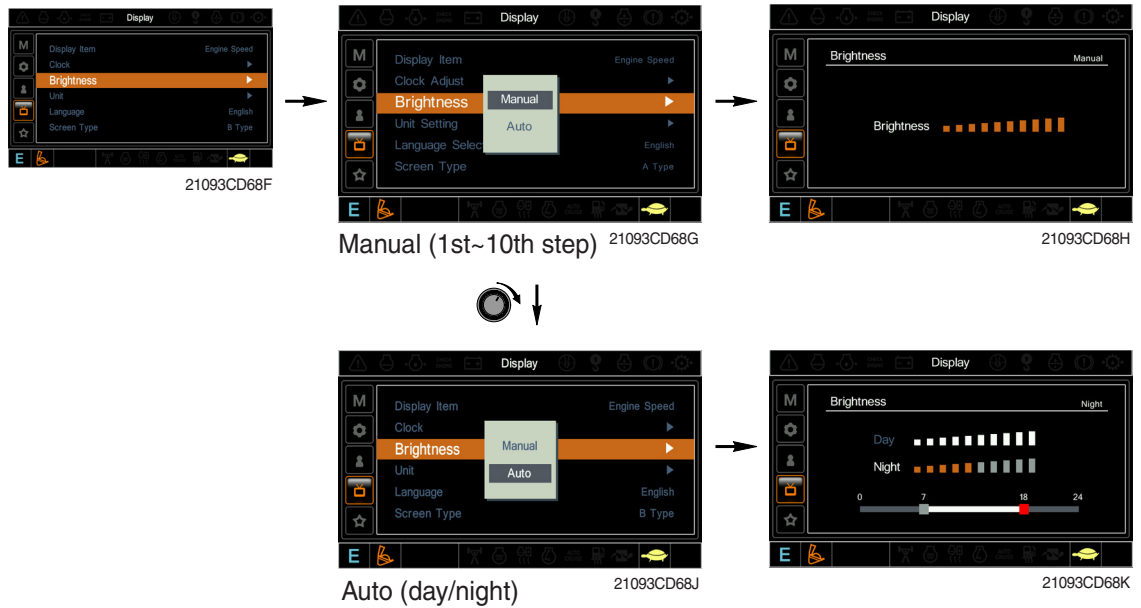
- The center display type of the LCD can be selected by this menu.
- The engine speed or each of the tripmeter (A,B,C) is displayed on the center display.

② Clock



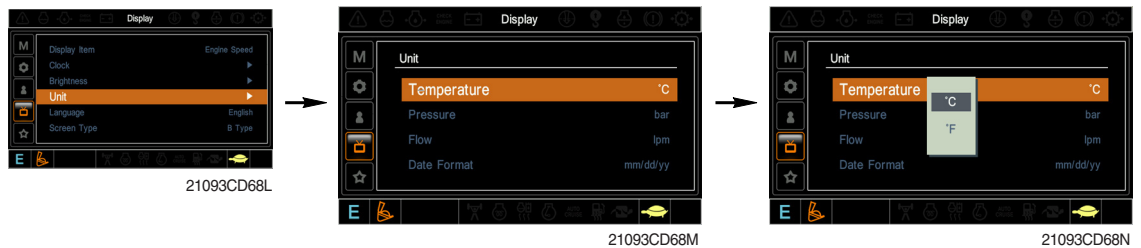
- The first line's three spots "**/**/****" represent Month/Day/Year each.
- The second line shows the current time. (0:00~23:59)

③ Brightness



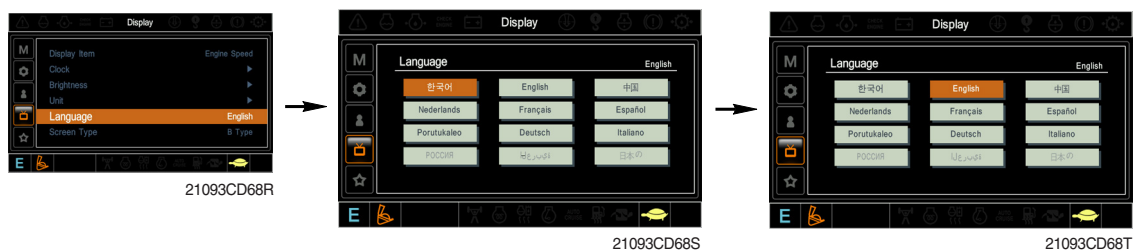
※ If "Auto" is chosen, brightness for day and night can be differently set up. Also by using the bar in lower side, users can define which time interval belongs to day and night. (in bar figure, gray area represents night time while white shows day time)

④ Unit



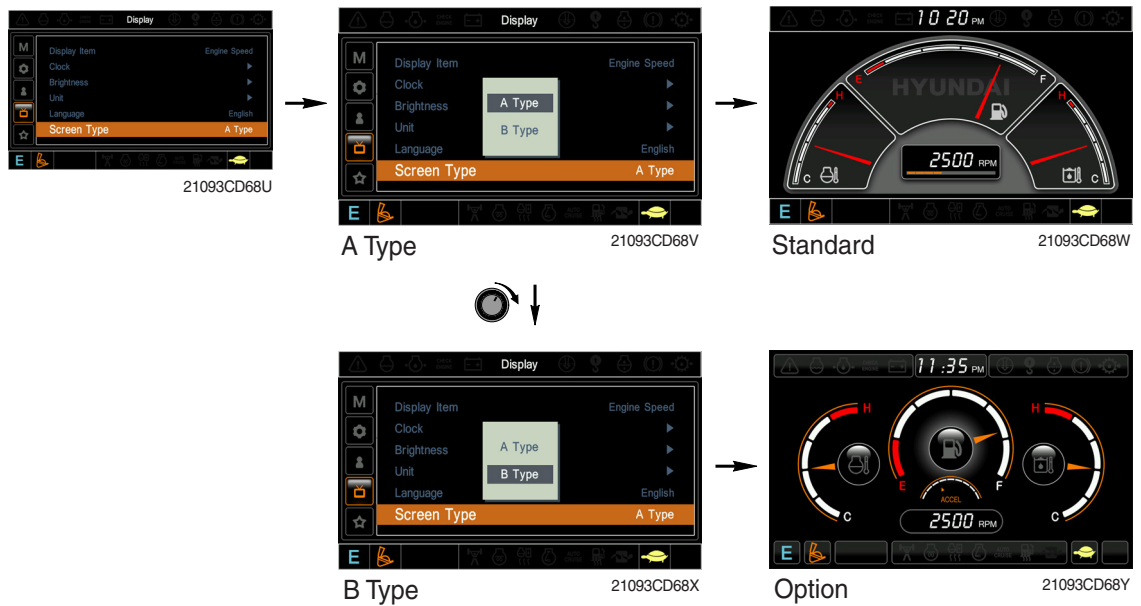
- Temperature : °C ↔ °F
- Pressure : bar ↔ MPa ↔ kgf/cm²
- Flow : lpm ↔ gpm
- Date format : yy/mm/dd ↔ mm/dd/yy ↔ dd-Mar-yy

⑤ Language



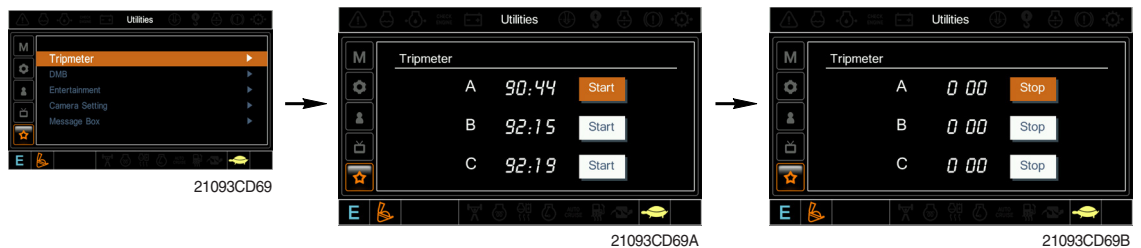
- User can select preferable language and all displays are changed the selected language.

⑥ Screen type



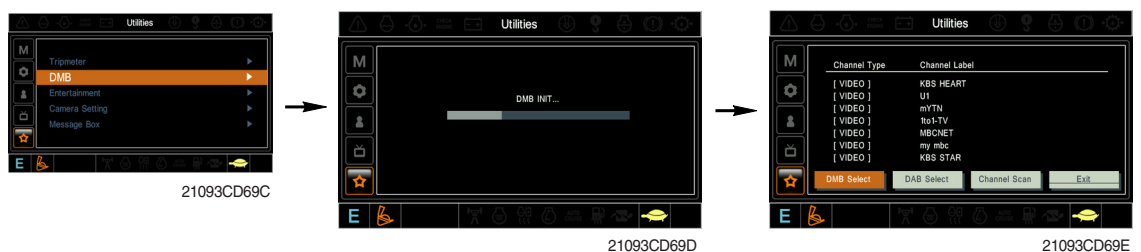
(6) Utilities

① Tripmeter



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

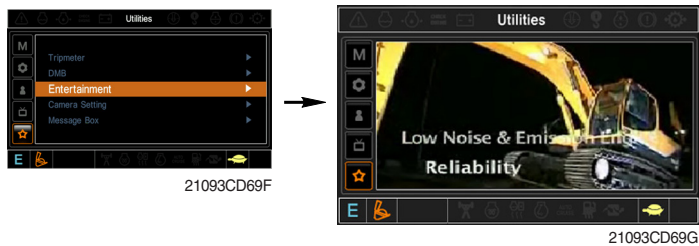
② DMB



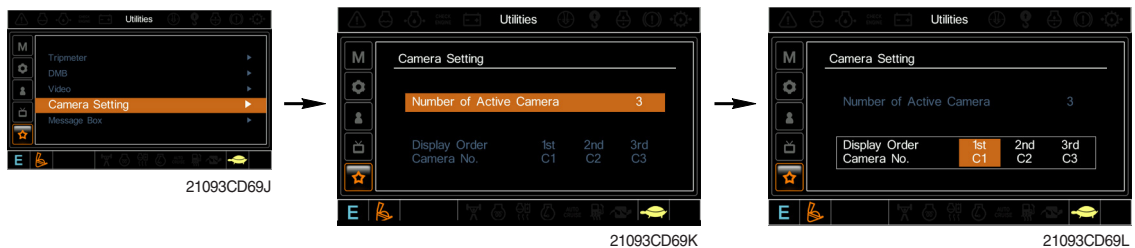
- DMB select : TV channel can be selected by this menu.
- DAB select : Audio channel can be selected by this menu.
- Channel scan : This menu can be used other region for TV/Audio.
- Exit : Exit DMB menu

③ Entertainment

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



④ Camera setting



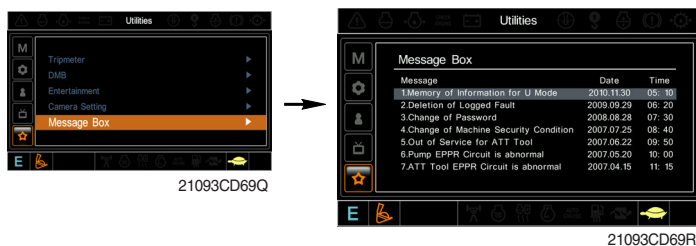
- Three cameras can be installed on the machine.
- The display order can be set by this menu.



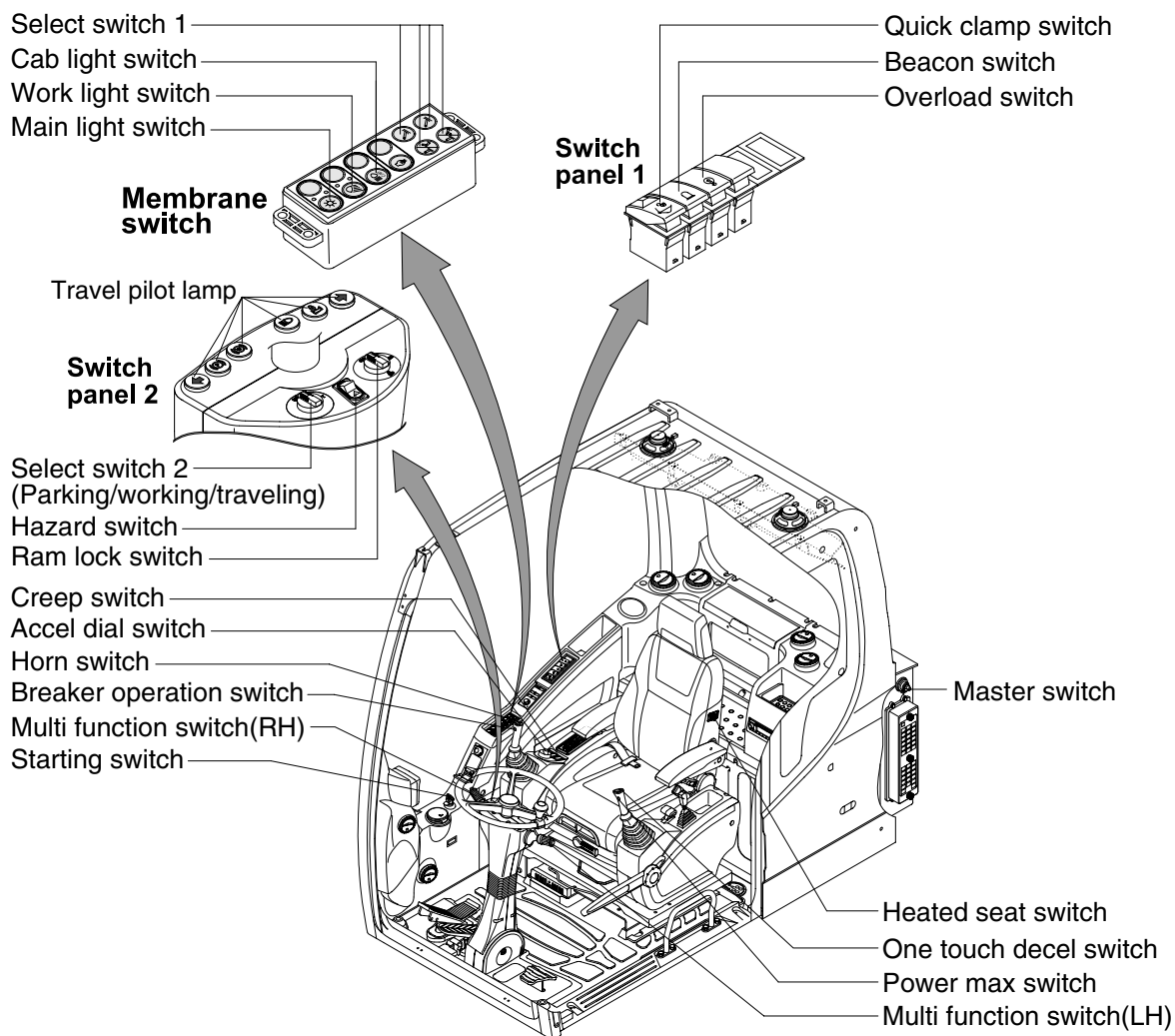
- If the camera was not equipped, this menu is not useful.
- In the operation screen, if the ESC/CAM switch is pushed, the first ordered display camera will be viewed.
- Turning the select switch in clockwise direction, the next ordered will be shown and in counter-clockwise direction, the previously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

⑤ Message box

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

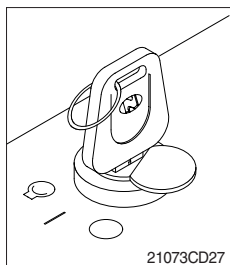


3. SWITCHES



14W93CD46

1) STARTING SWITCH



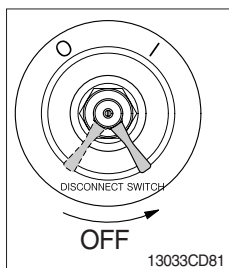
(1) There are three positions, OFF, ON and START.

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

Release key immediately after starting.

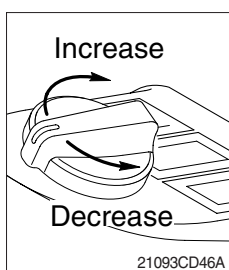
- ※ If you turn ON the starting switch in cold weather, the fuel warmer is automatically operated to heat the fuel by sensing the coolant temperature. Start the engine in 1~2 minutes after turning ON the starting switch. More time may take according to ambient temperature.
- ※ Key must be in the ON position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

2) MASTER SWITCH



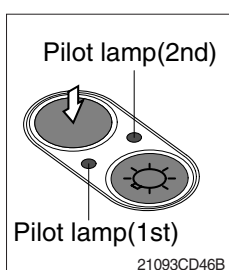
- (1) This switch is used to shut off the entire electrical system.
 - (2) I : The battery remains connected to the electrical system.
O : The battery is disconnected to the electrical system.
- ※ **Never turn the master switch to O (OFF) with the engine running. Engine and electrical system damage could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

3) ACCEL DIAL SWITCH



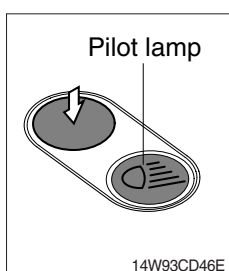
- (1) There are 10 dial setting.
- (2) Setting 1 is low idle and setting 10 is high idle.
 - By rotating the accel dial to right : Engine speed increases
 - By rotating the accel dial to left : Engine speed decreases

4) MAIN LIGHT SWITCH



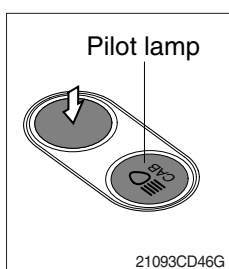
- (1) This switch used to operate the head light and work light.
 - Press the switch once, the head light comes ON and the 1st pilot lamp ON.
 - Press the switch once more, the work light comes ON and the 2nd pilot lamp ON.
 - Press the switch again, return to a first step position.
 - Press the switch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

5) WORK LIGHT SWITCH



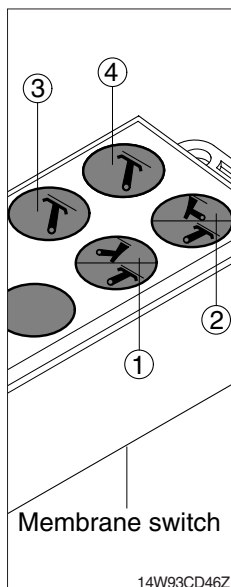
- (1) This switch used to operate the work light.
- (2) The pilot lamp is turned ON when operating this switch.

6) CAB LIGHT SWITCH (option)



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

7) SELECT SWITCH 1 (outrigger / dozer, option)



(1) This switch is used to select dozer blade or outrigger operation.

Switch	Operation
①	Front left outrigger or front dozer blade
②	Rear left outrigger or rear dozer blade
③	Front right outrigger
④	Rear right outrigger

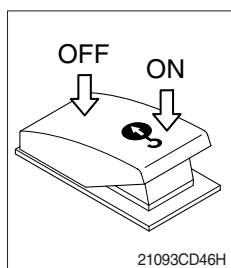
※ **Please check the installed equipment (outrigger or dozer) on your machine before selecting the switches.**

(2) The lamps are turned ON when selecting these switches.

(3) If the dozer and outrigger lever is moved forward position, the dozer blade or outrigger is downed, if the lever is moved backward, the dozer blade or outrigger moved upward.

Please refer to the dozer and outrigger lever at page 3-33.

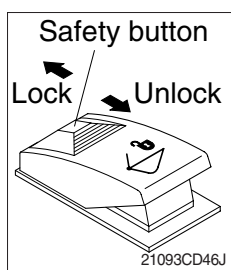
8) OVERLOAD SWITCH (option)



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

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

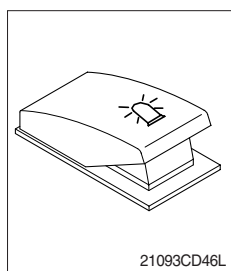
9) QUICK CLAMP SWITCH (option)



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

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

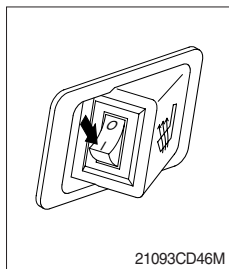
10) BEACON SWITCH (option)



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

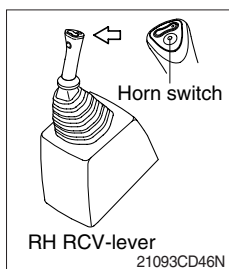
(2) The indicator lamp is turned ON when operating this switch.

11) HEATED SEAT SWITCH (option)



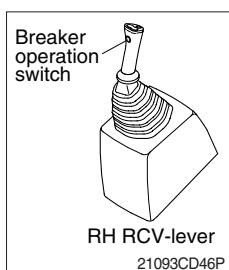
- (1) This switch is used to heat the seat.
 - Heater ON (I) : $10 \pm 3.5^{\circ}\text{C}$
 - Heater OFF (O) : $20 \pm 3^{\circ}\text{C}$
- (2) On pressing the switch, the indicator lamp is turned ON.

12) HORN SWITCH



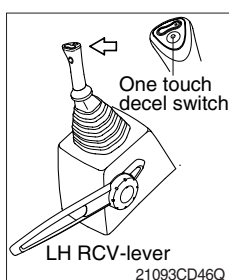
- (1) This switch is at the top of right side control lever.
On pressing, the horn sounds.

13) BREAKER OPERATION SWITCH



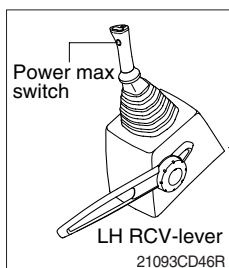
- (1) On pressing this switch, the breaker operates only when the breaker operation mode is selected.

14) ONE TOUCH DECEL SWITCH



- (1) This switch is used to actuate the deceleration function quickly.
- (2) The engine speed is increased to previous setting value by pressing the switch again.
- (3) One touch decel function is available only when the auto idle pilot lamp is turned OFF.

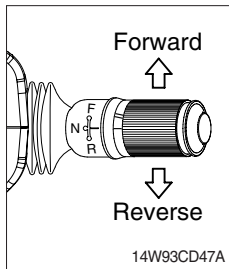
15) POWER MAX SWITCH



- (1) This switch activate power max function.
When this switch is kept pressed, hydraulic power of work equipment will be increased to approx 110 percent during 8 seconds.
 - (2) After 8 seconds, function is cancelled automatically even the switch keeps pressed.
- ※ **Do not use for craning purposes.**

16) RH MULTI FUNCTION SWITCH

(1) FNR lever



① This lever changes travel direction of machine.

- **F** : Machine moves forward
- **N** : Neutral position
- **R** : Machine moves backward

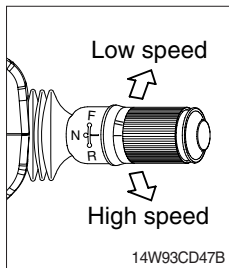
▲ Travel direction will be reversed if lower structure is positioned with dozer in front.

② The warning buzzer sounds when the lever is in the reverse position.

▲ If this lever is not in the neutral position, engine does not started.

▲ Be sure to stop the machine when changing the direction forward or backward while traveling.

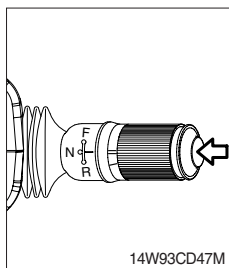
(2) Travel speed switch



① This switch is for selecting travelling speed between high and low.

- Low speed (—) : 10 km/hr (6.2 mph)
- High speed (=) : 37.0 km/hr (23.0 mph)

(3) Auto cruise switch

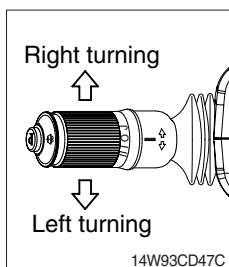


① This switch is for kept uniform motion while driving.

② Auto cruise function is available when the FNR lever is forward and high speed position.

17) LH MULTI FUNCTION SWITCH

(1) Direction indication lamp switch

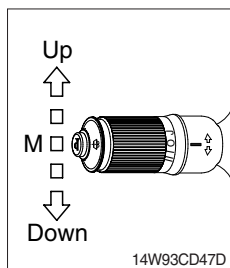





① This switch is used to warn or signal the turning direction of the machine to other machines or equipment.

② Push the lever to forward for turning right (↗), pull the lever to backward for turning left (↖).

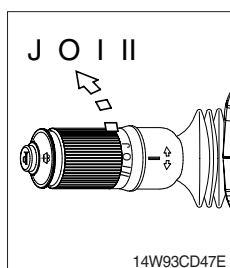
③ The turning pilot lamp comes ON at the travel pilot lamp on the steering column.

(2) Dimmer switch



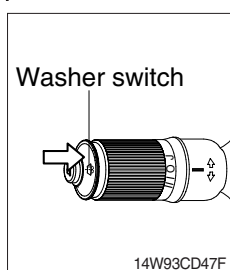
- ① This switch is used to turn the head lights direction.
- ② Switch positions.
 - Up () : To flash for passing
 - Middle () : Head lights low beam ON
 - Down () : Head lights high beam ON
- ③ If you release the switch when it's in up position, the switch will return to middle.

(3) WIPER SWITCH



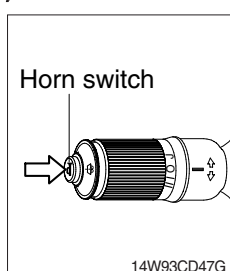
- ① When the switch is in J position, the wiper moves intermittently.
- ② When placed in I or II position, the wiper moves continuously.

(4) WASHER SWITCH



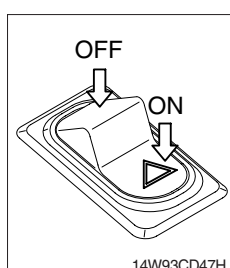
- ① If you push the grip of the lever, washer liquid will be sprayed and the wiper will be activated 2-3 times.
- ※ **Check the quantity of washer liquid in the tank. If the level of the washer liquid is LOW, add the washer liquid (in cold, winter days) or water. The capacity of tank is 1.5 liter.**

(5) HORN SWITCH



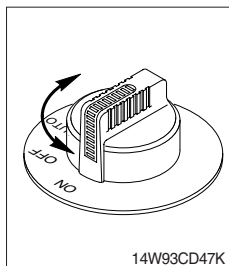
- ① This switch is at the end of left side multifunction switch. On pressing, the horn sounds.

18) HAZARD SWITCH



- (1) Use for parking, or loading machine.
- (2) LH and RH turn signal lamps come ON at the same time by this switch.
- ※ **If the switch is left ON for a long time, the battery may be discharged.**

19) RAM LOCK SWITCH

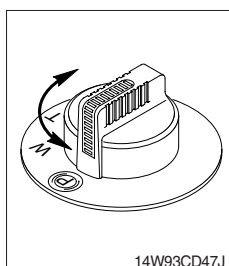


(1) This switch activate front axle oscillation cylinder to locking position for increase of stability.

- ON : Set front axle to locking position for excavation work or travels even ground. Also, the ram lock pilot lamp comes ON at the travel pilot lamp.
- OFF : Front axle will be oscillate depend on ground condition when the machine travel uneven ground.
- AUTO : Set front axle to locking or unlocking as table.

Select switch 2 (parking/working/ traveling)	Ram lock	Conditions
Parking	Locking	· Always
Traveling	Unlocking	· Always
Working	Locking	· FNR lever in neutral position · Service brake pedal is depressed.
	Unlocking	· FNR lever in forward/reverse position and service brake pedal is not depressed. · 2 way pedal is equipped and service brake pedal is not depressed.

20) SELECT SWITCH 2 (parking / working / traveling)

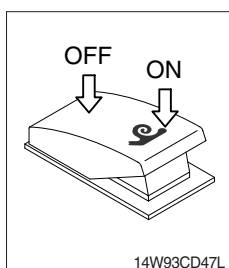


(1) This switch is used to select the operation mode as below.

- Parking (P) : The parking brake is applied.
- Working (W) : The machine needs to be working.
- Traveling (T) : The machine needs to be traveling.

(2) When you set this switch to parking or working, the parking or working lock pilot lamp comes ON at the travel pilot lamp.

21) CREEP SWITCH

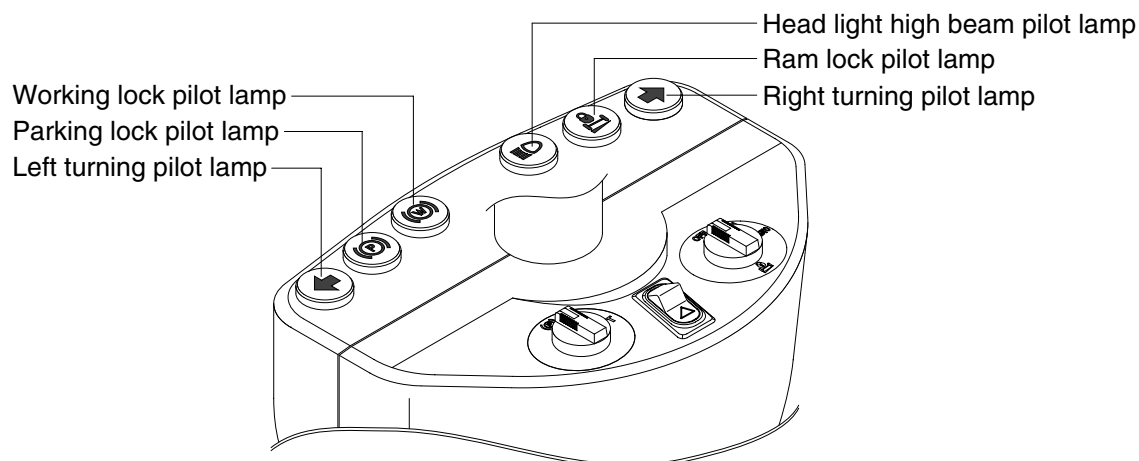


(1) This switch is used to very low speed traveling more than 1st speed.

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

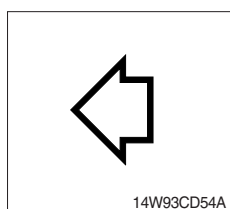
- Speed : 3.8 km/h (2.4 mph)

22) TRAVEL PILOT LAMP



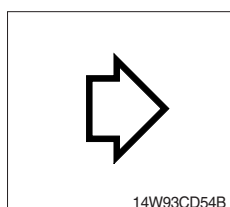
14W93CD54

(1) Left turning pilot lamp



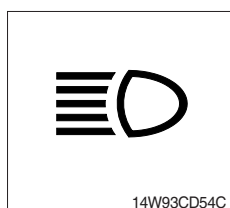
- ① This lamp flashes with sound when the LH multifunction switch is move to backward position.

(2) Right turning pilot lamp



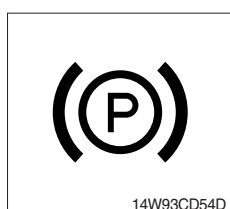
- ① This lamp flashes with sound when the LH multifunction switch is move to forward position.

(3) Head light high beam pilot lamp



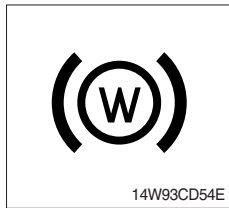
- ① This lamp is ON when the head light switch is high beam position or passing function.
- ② When passing other machines ahead, this lamp must be used for a few seconds to give other machines warning for a few seconds.

(4) Parking lock pilot lamp



- ① This lamp lights ON when the select switch 2 (parking/working/traveling) is set to parking.
- ② Please refer to select switch 2 at page 3-29 for details.
- ※ **Check the lamp is OFF before driving.**

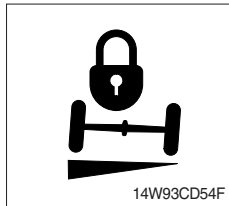
(5) Working lock pilot lamp



① This lamp lights ON when the select switch 2 (parking / working / traveling) is set to working.

※ Please refer to select switch 2 at page 3-29 for details.

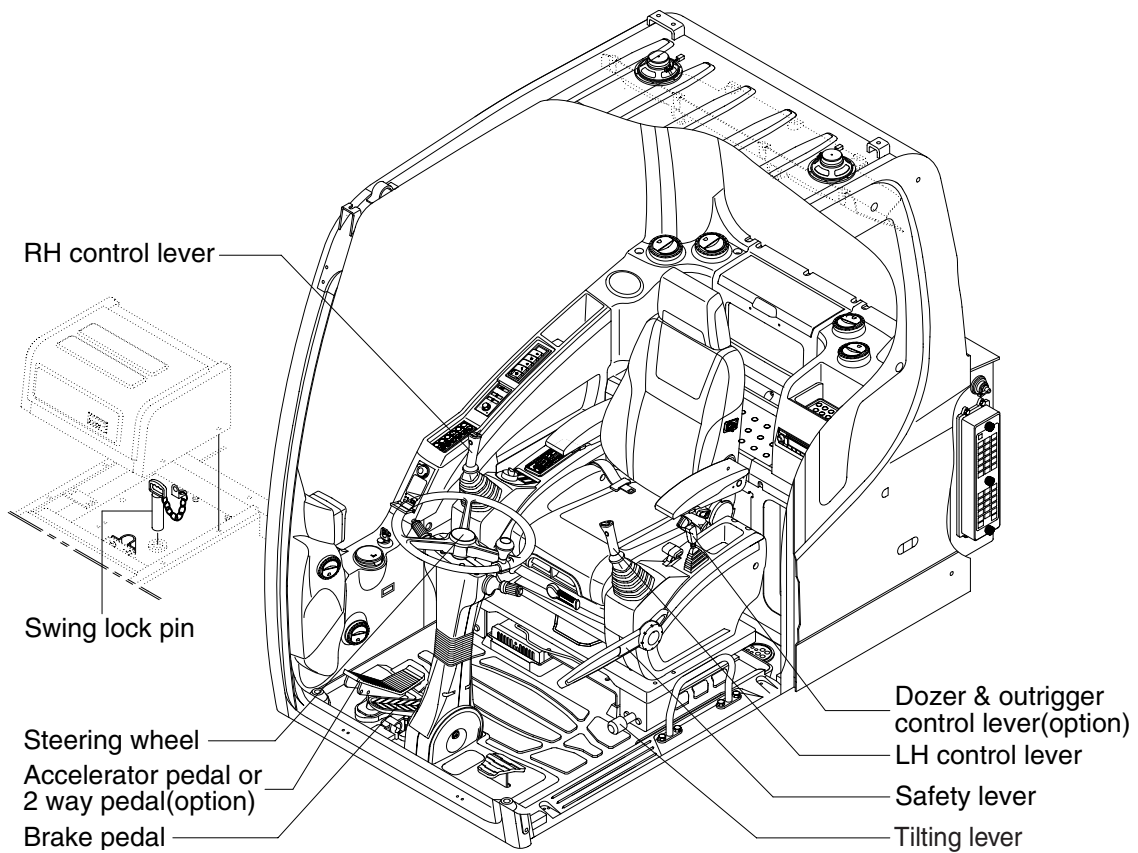
(6) Ram lock pilot lamp



① This pilot lamp lights ON when ram lock is activated.

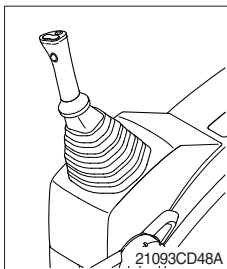
※ Please refer to ram lock switch at page 3-29 for details.

4. LEVERS AND PEDALS



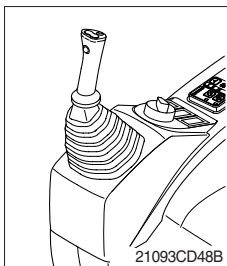
14W93CD48

1) LH CONTROL LEVER



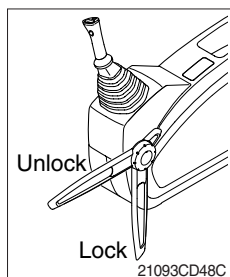
- (1) This joystick is used to control the swing and the arm.
- (2) Refer to operation of working device in chapter 4 for details.

2) RH CONTROL LEVER



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

3) SAFETY LEVER



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

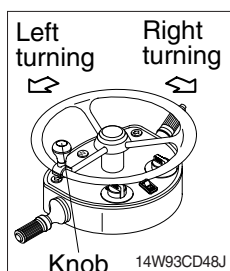
※ **Be sure to lower the lever to LOCK position when leaving from operator's seat.**

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

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

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

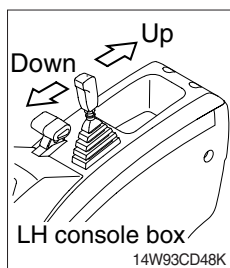
4) STEERING WHEEL



(1) If the steering wheel is turned to left, the machine will move to the left and turn it to the right, the machine will move to the right.

(2) As the handle is equipped with a knob, it is convenient to operate with one hand or quickly.

5) DOZER AND OUTRIGGER LEVER

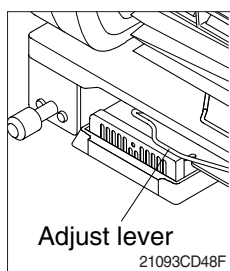


(1) This lever is used to operate dozer blade or outrigger by selecting the select switch 1 (dozer / outrigger).

※ **Please refer to the select switch 1 (dozer / outrigger) at page 3-25.**

(2) If the lever is pushed forward, the dozer blade or outrigger will be going down. And if the lever is pulled back, the dozer blade or outrigger will be going up the dozer blade.

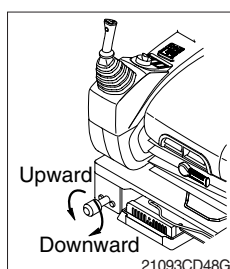
6) SEAT AND CONSOLE BOX ADJUST LEVER



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

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

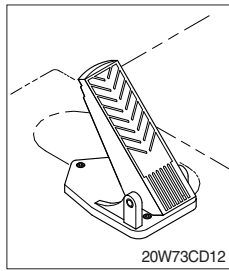
7) ADJUSTING LEVER



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

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

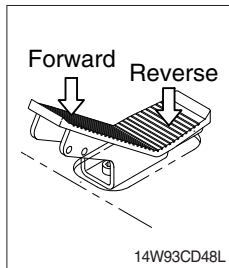
8) ACCELATOR PEDAL



(1) When this pedal is stepped, the machine starts traveling.

▲ Before starting the machine with stepping on the pedal, check if the underframe is certainly in the traveling direction.

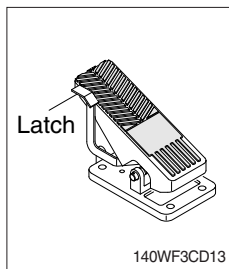
9) 2 WAY PEDAL (option)



(1) This pedal is used to select traveling direction and to accelerate of the machine.

(2) Push the pedal to front for forward traveling, push the pedal to rear for reverse traveling regardless RNR lever at working mode of select switch 2.

10) BRAKE PEDAL



(1) Pedal and latch provide two kinds of service brake function.

(2) To operate service brake, push pedal with latch by foot.

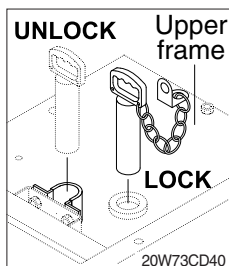
▲ Push pedal and latch at once to avoid unexpected locking of pedal in traveling condition.

▲ During travel, do not push pedal only in full stroke. It is dangerous due to the locking of service brake.

(3) If you want to choose working brake, just push pedal in full stroke without latch then the latch locks pedal and service brake is working continuously until you push the latch to release the pedal.

(4) Push latch to release working brake.

11 SWING LOCK LEVER



(1) This is the system to lock the swing by connecting the upper swing part and the lower frame mechanically.

(2) The swing is locked when the lever is down and unlocked when the lever is up.

※ Before operating the machine, be sure to unlock the swing lock device.

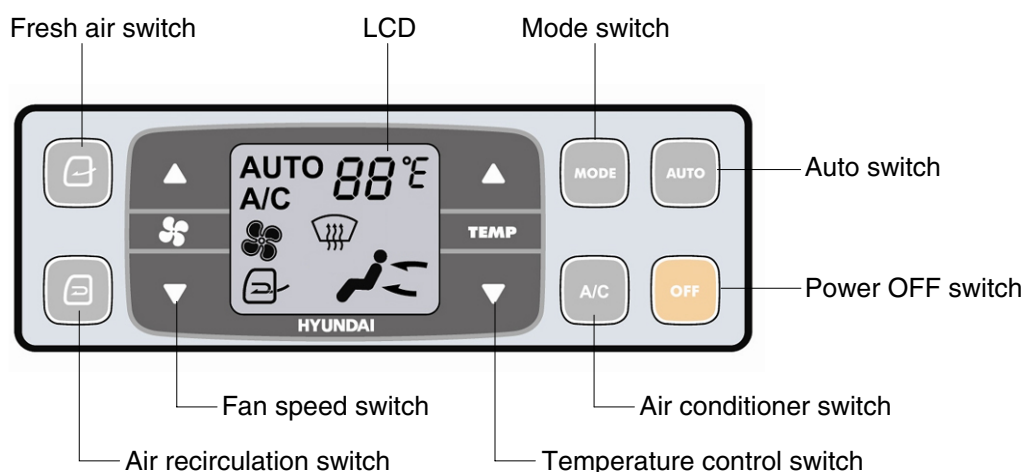
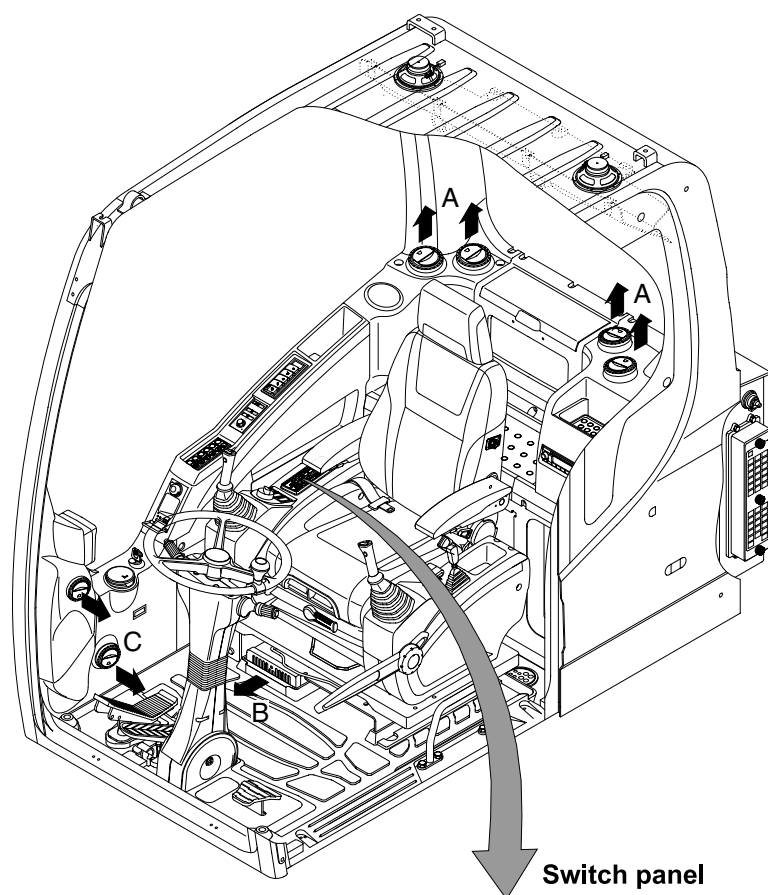
5. AIR CONDITIONER AND HEATER

■ FULL AUTO AIR CONDITIONER AND HEATER (standard)

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

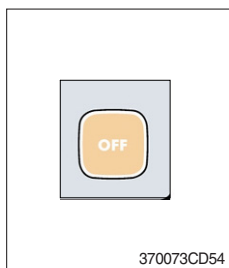
※ Refer to the page 3-39 for semi auto air conditioner and heater.

- Location of air flow ducts



14W93CD49

1) POWER OFF SWITCH

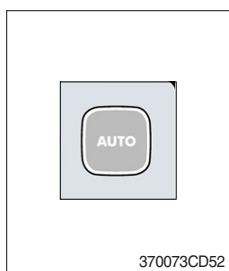


- (1) This switch makes the system and the LED OFF.
Just before the power OFF, set values are stored.

(2) Default setting values

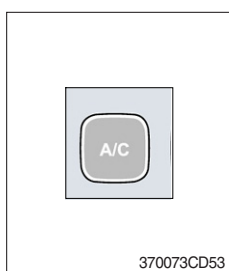
Function	Air conditioner	In/outlet	LCD	Temperature	Mode
Value	OFF	Inlet	OFF	Previous sw OFF	Previous sw OFF

2) AUTO SWITCH



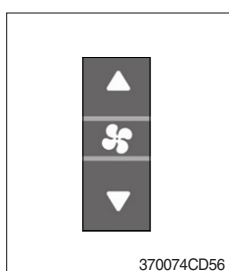
- (1) Turn the starting switch to ON position, LCD lights ON.
Auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.
- (2) This switch can restart system after system OFF.

3) AIR CONDITIONER SWITCH (compressor switch)



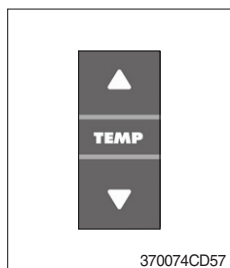
- (1) This switch turns the compressor and the LCD ON.
- (2) In accordance with the temperature sensed by duct (evaporator) sensor, compressor turns ON or OFF automatically.
- ※ **Air conditioner operates to remove vapor and drains water through a drain hose. Water can be sprayed into the cab in case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

4) FAN SPEED SWITCH



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

5) TEMPERATURE CONTROL SWITCH



(1) Setting temperature indication

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

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

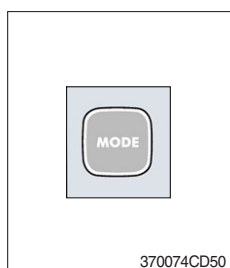
(3) The max cool or the max warm position operates as following table.

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

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

- ① Default status (°C)
- ② Push Up/Down temperature control switch simultaneously more than 5 second displayed temperature unit change (°C → °F)

6) MODE SWITCH



(1) Operating this switch, it beeps and displays symbol of each mode in order.

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

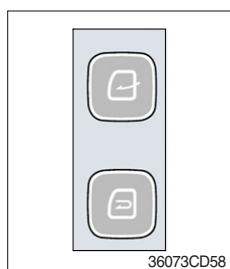
Mode switch		Vent	Vent/Foot	Foot	Foot/Def
Outlet	A	●	●		
	B		●	●	●
	C				●

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

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

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

7) FRESH AIR/AIR RECIRCULATION SWITCH



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

① **Fresh air** ()

Inhaling air from the outside.

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

② **Air recirculation** ()

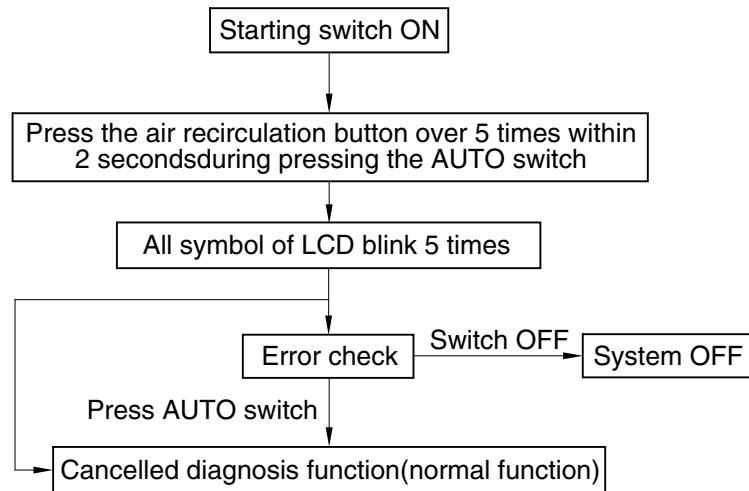
It recycles the heated or cooled air to increase the energy efficiency.

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

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

8) SELF DIAGNOSIS FUNCTION

(1) Procedure



3607A3CD69

(2) Error check

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

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

(3) Fail safe function

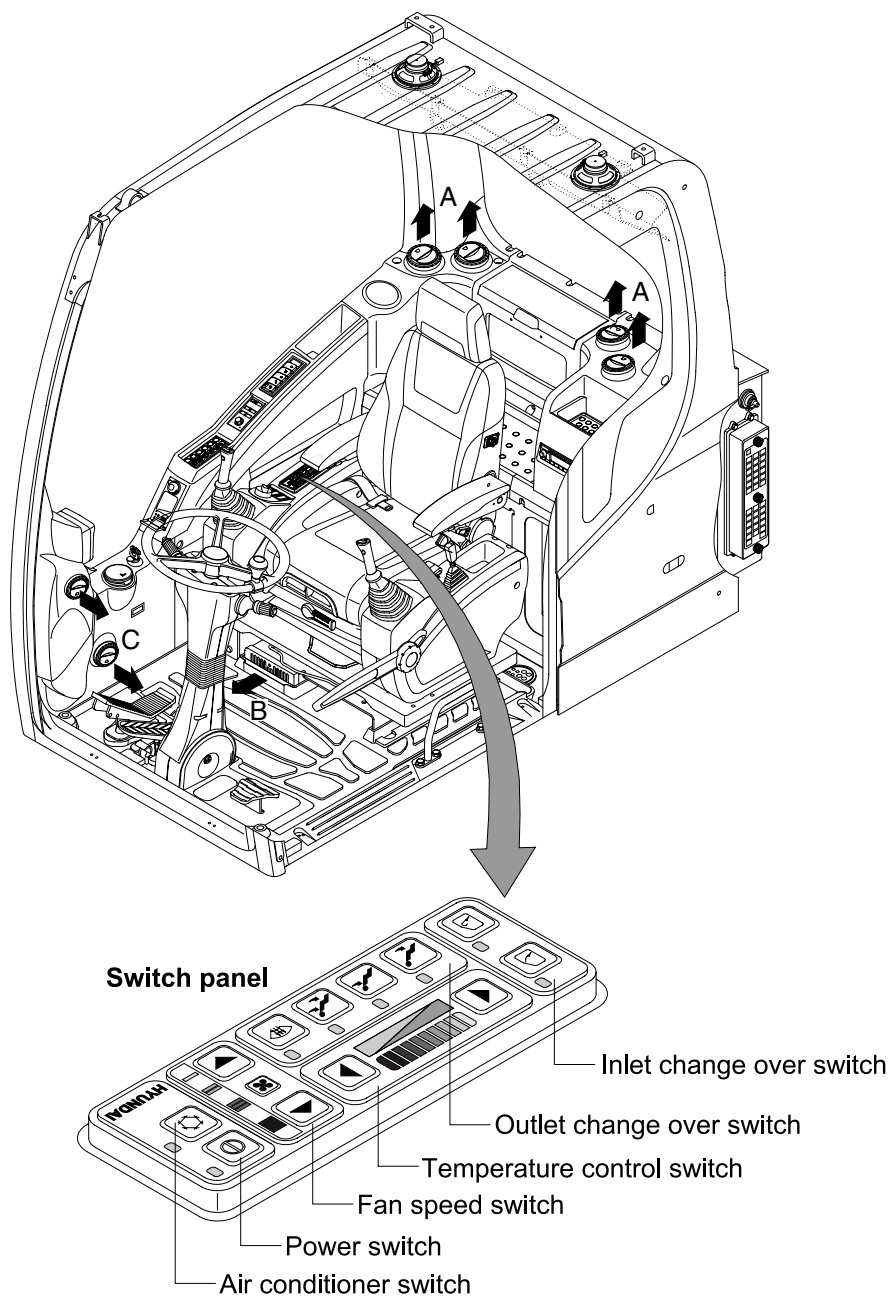
Error description	Fail safe function
Cabin inside sensor (11)	25°C alternate value control
Ambient sensor (12)	20°C alternate value control
Duct (evaporator) sensor (14)	1°C alternate value control
Temp actuator (15)	If opening amount is 0 %, the alternate value is 0 %
	If not, the alternate value is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

■ SEMI AUTO AIR CONDITIONER AND HEATER (option)

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

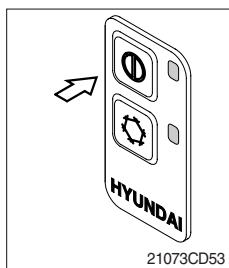
※ Refer to the page 3-35 for full auto air conditioner and heater.

- Location of air flow ducts



14W93CD53

1) POWER SWITCH

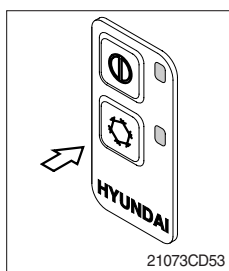


(1) This switch makes the system and the LED simultaneously ON or OFF.

(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)

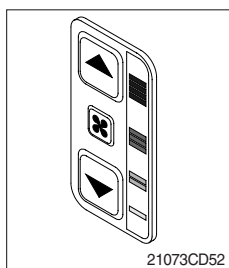


(1) Operating this switch turns the compressor and the LED simultaneously ON or OFF.

(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.**

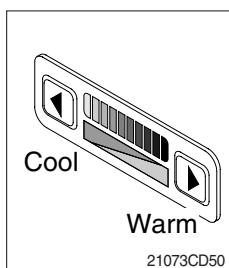
3) FAN SPEED SWITCH



(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



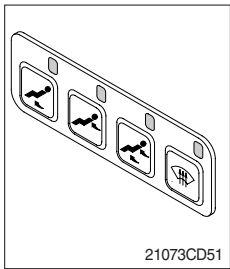
(1) There are 9 steps to control temperature from max cool to max warm controlled up and down by 1 step.

(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



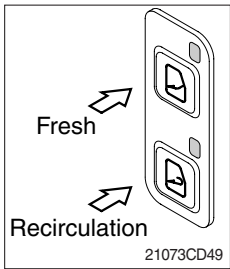
(1) There are four steps of air flow.

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

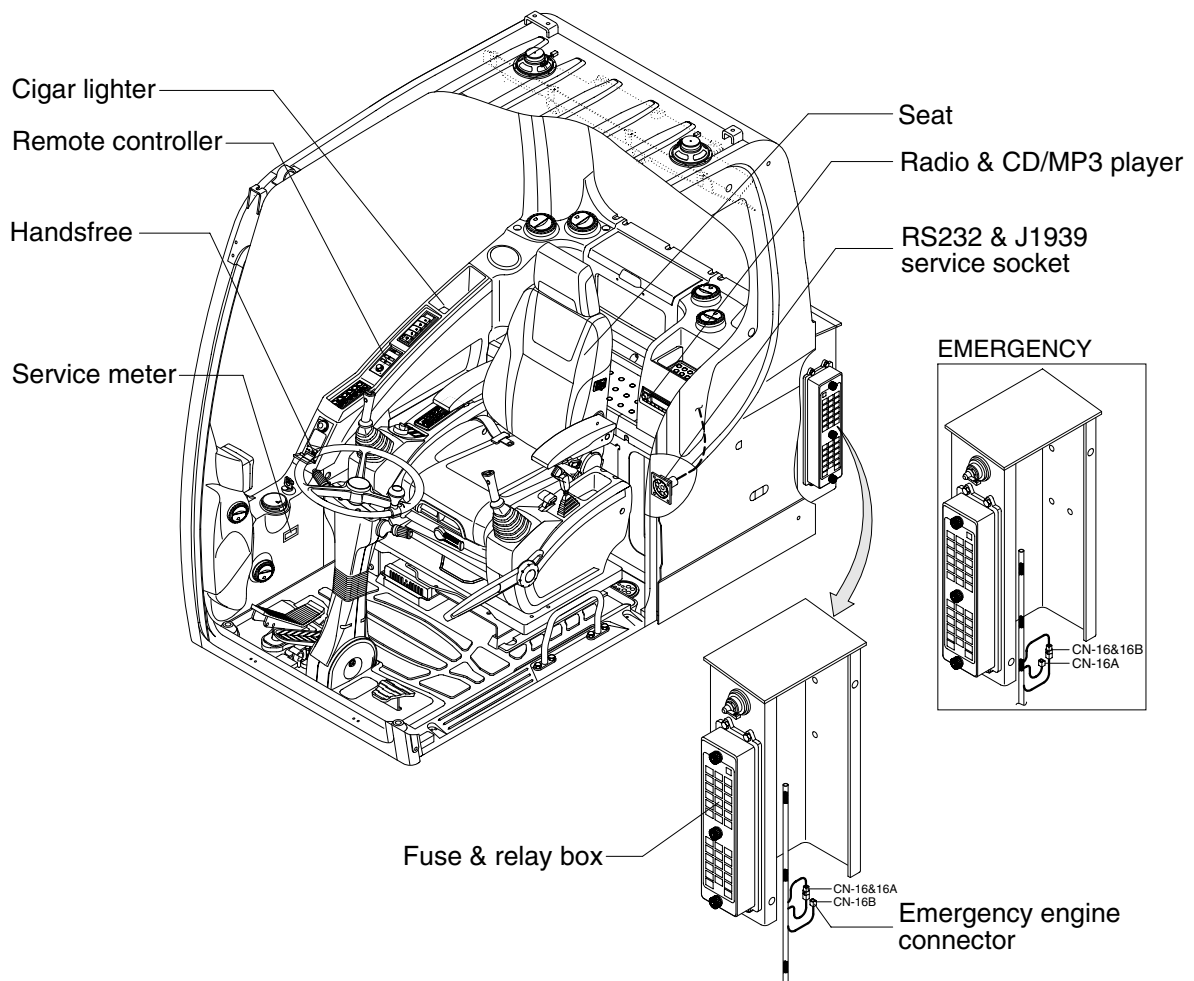
It recycles the heated or cooled air to increase the energy efficiency.

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

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

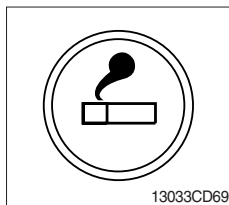
(2) Recirculation function operates when the system is OFF but it can be changed whenever needed.

6. OTHERS



14W93CD50

1) CIGAR LIGHTER



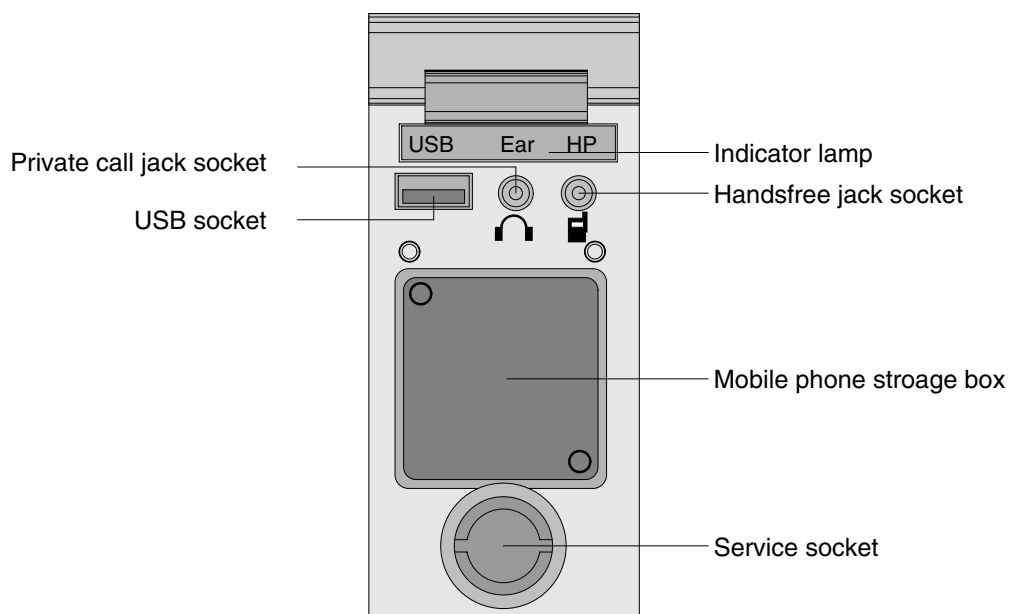
- (1) This can be used when the engine starting switch is ON.
- (2) The lighter can be used when it springs out in a short while after being pressed down.

※ **Service socket**

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

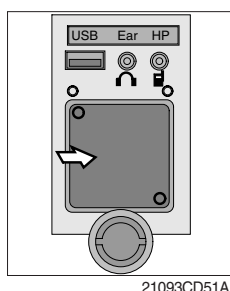
2) HANDSFREE

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



21093CD51

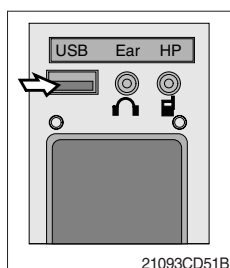
(1) Mobile phone storage box



21093CD51A

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

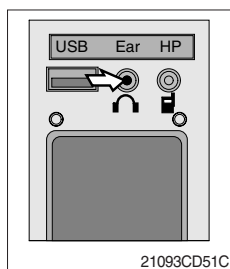
(2) USB socket



21093CD51B

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

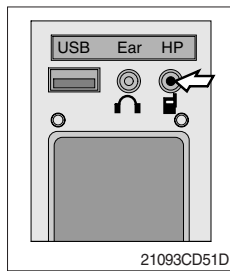
(3) Private call jack socket



21093CD51C

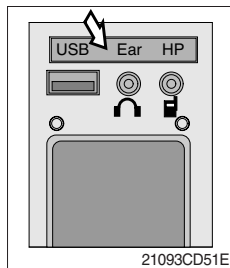
- ① This can be used protect you privacy calling by using ear phone.
- ② The mobile phone must be connected handsfree jack socket.

(4) Handsfree jack socket



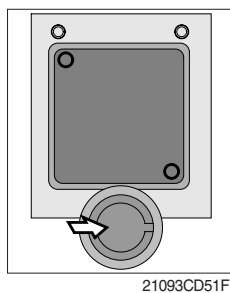
- ① Connect the jack cable when call by handsfree.
- ② Use the special adapter when jack cable is not interchangeable.
- ③ Check the jack type of mobile phone before use.

(5) Indicator lamp



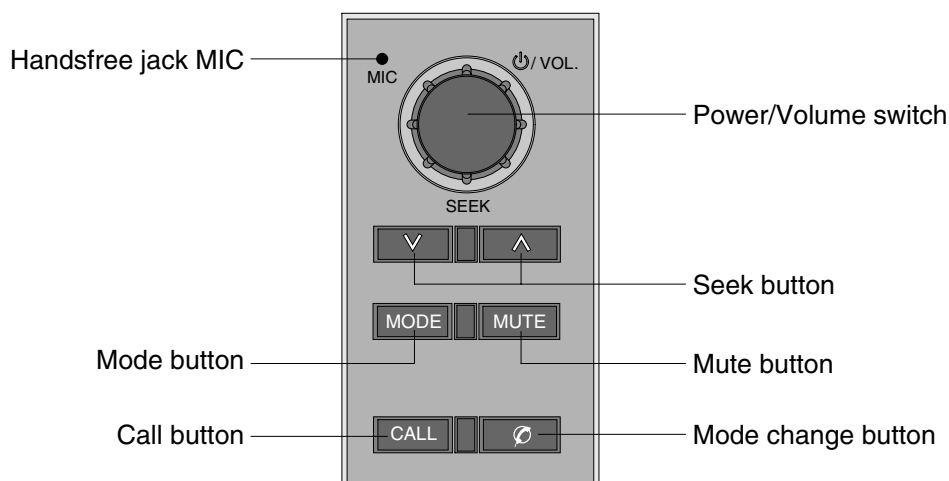
- ① This lamp is turned ON when the handsfree mode selected.

(6) Service socket



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

3) REMOTE CONTROLLER



21093CD52

(1) Power and volume switch



21093CD52A

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

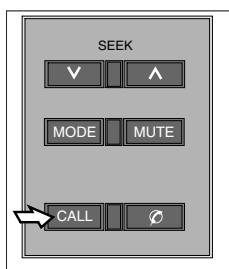
(2) Mode change button



21093CD52B

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

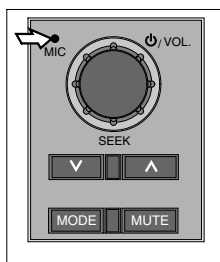
(3) Call button



21093CD52C

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

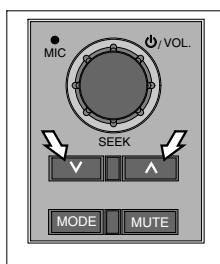
(4) Handsfree jack MIC





21093CD52D

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

(5) Seek button



21093CD52E

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

(6) Mute button



21093CD52G

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

(7) Mode button



21093CD52F

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

4) Technical specifications for radio



Technical Specifications

FM Section

Frequency range 87.5MHz-108MHz

Search up long 100KHz

Lock sensitivity $23\pm 8\text{dB}$

Signal to noise ratio $\geq 48\text{dB}$

MP3 part

Frequency response 20Hz-20KHz

Signal to noise ratio 60dB

AM FM section

Frequency range 522KHz-1620KHz

Lock sensitivity $36\pm 10\text{dB}$

Signal to noise ratio $\geq 43\text{dB}$

The device supports the function of charging mobile phone with USB data cable.

Note: It is not advisable to charge for a long time, and the battery may be damaged because there is no battery saturation detection function during charging.

Function for radio



Td-650 is a knob-type car audio system, including FM, AM tuning radio, Bluetooth, MP3 (USB/SD) clock sound adjustment, external audio input, loudness and other functions.

- . System configuration: digital tuned radio, USB/SD-MP3 player, electronic clock display.
- . Radio function: support FM (87.5~108MHz), AM (522~1620KHz), can store 24 stations.
- . AUX function: Supports the play of MP3 files in U disk or SD card, and supports the input of audio from mobile phone and MP3.
- . Sound function: support POP/ROCK/Classic/Flat sound.
- . Bluetooth function: Support bluetooth phone connection and bluetooth music playback function.

Radio button



- (1) PWR: switch machine
- (2) BND: band rotation
- (3) LOU/📞: loudness control, hang up the phone
- (4) 1/□ /II, 2/INT, 3/RPT, 4/RDM, 5/D-DN, 6/D-LP: radio/storage keys, MP3 player keys
- (5) AS/PS: Automatic presets of radio/songs
- (6) MOD: Mode selection
- (7) ⏮⏭: Manual/automatic search radio button; Select previous/Next song button, fast forward/fast back button
- (8) MOD: short press to switch from USB/SD to FM, then short press to switch FM1/FM2/FM3 long press to automatically search and save
- (9) CLK: clock display/Settings





Radio operation



1. Basic setting

1.1 Mode switch: Press "PWR" to make the product in working state. Press the "MOD" button to loop through each mode in turn. If the USB flash drive is connected, the product directly enters the next mode. This product consists of RADIO mode, BT PLAY mode, USB mode and AUX IN mode

1.2 Radio Settings: Press the "PWR" button, and then press the "BND" button to select the desired band from FM1, FM2, FM3, AM1 and AM2.

Short press the " " button or " " button to start automatic radio search. Long press the " " button or " " button for more than 2S to manually search the radio station. Long press the "AS/PS" button for more than 2S to automatically preset the radio. Long press any of the "1" to "6" buttons for more than 2S, and the current radio will be preset to the corresponding button

2. MP3(USB/SD/MMC) play

2.1 In the radio working mode, after inserting the USB flash drive /SD, it will automatically switch to the USB flash drive /SD playback mode

Press the button to play the previous/next song in USB /SD

Long press the button to rewind/forward the current song

When the USB flash drive /SD is played, the corresponding USB flash drive /SD icon blinks

2.2 In MP3 playing mode: play/pause control keys, browse, repeat, random, -10/+10 song selection operation

1/ /||: Play/pause control 2/INT: Preview play/scan play 3/RPT: Repeat/All

4/RDM: Random/All 5/D-DN: tune number minus 10 tune selection control key

6/D-LP: tune number plus 10 tune selection control key

Turn the knob counterclockwise to reduce the current volume and turn the button clockwise to increase the current volume

Radio operation



3. Clock setting

3.1 Operation in radio /MP3 playing mode

3.2 Short press MUTE/CLK to switch the MUTE switch

3.3 Long press the key to display the clock, and then long press the key again to adjust the hour value by turning the knob against/clockwise after beating for hours, and long press the key again to adjust the value of minutes by turning the knob against/clockwise after beating for minutes. 5 consecutive beats will automatically quit the clockwise setting

Note: The clock will continue to cycle when the BAT power is off after the setting

4. Sound settings

4.1 Operation in radio /MP3 mode: Short press the knob, successively appear BS O/TE O/BL O/EQOF

4.2 appear BS O display (Bass), reverse/clockwise turn the button to select the low value

4.3 appear TE O display (Treble), Turn the reverse/clockwise button to select the high tone value of the BL O display (Balance)

4.4 Turn the reverse/clockwise button to select the balance value of left and right speakers after the appearance

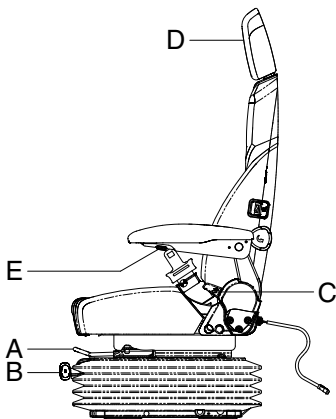
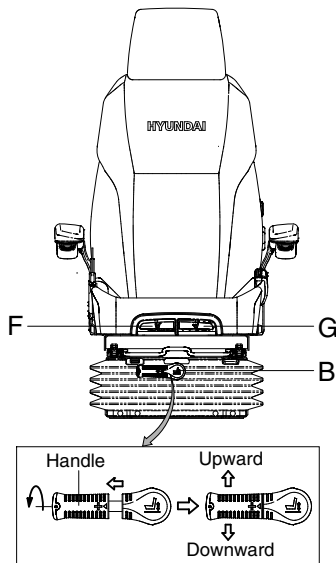
4.5 Turn the reverse/clockwise button only after the appearance of the EQOF display. Will produce the JAZZ/POP/ROCK/CLASSIC/FLAT/EQOF sound, will not be able to manually during the electronic sound bass and treble values

5. The bluetooth Settings

5.1 Open the bluetooth of the mobile phone and search for the new "device" function. When the system gets signal contact with the mobile phone, it will prompt whether the mobile phone is connected to the device. Select "Yes" to start the connection. After the connection is successful "BT" is displayed on the LCD screen of the system, indicating that the connection is successful. If you are not in BT PLAY mode after bluetooth pairing, press the "MOD" button to switch to BT PLAY mode

5) SEAT

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



21093CD55

(1) Forward/Backward adjustment (A)

- ① Pull lever A to adjust seat forward or backward.
- ② The seat can be moved forward and backward over 140 mm (5.5") in 13 steps.

(2) Height/weight adjustment (B)

- ① Turn the handle to adjust seat upward or downward
 - Turn to clockwise, the seat is moved to upward and the weight is increased.
 - If it is turned to counterclockwise, the seat is moved to downward and the weight is decreased.

② Method of changing direction (up/down)

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

(3) Reclining adjustment (C)

Pull lever C to adjust seat back rest.

(4) Arm rest adjustment (E)

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

(5) Head rest adjustment (D)

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

(6) Seat cushion tilt adjustment (F)

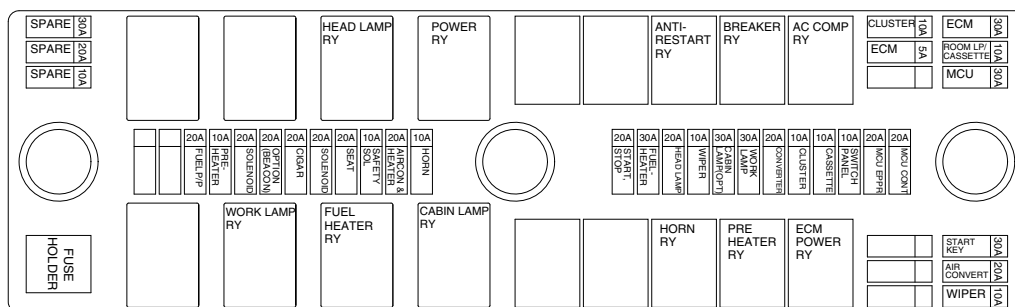
Pull lever F to adjust seat cushion tilting angle.

(7) Seat cushion length adjustment (G)

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

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

6) FUSE & RELAY BOX



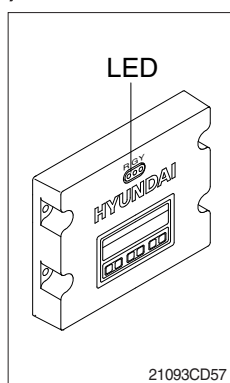
14W93CD56

- (1) The fuses protect the electrical parts and wiring from burning out.
- (2) The fuse box cover indicates the capacity of each fuse and circuit it protects.

※ Replace a fuse with another of the same capacity.

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

7) MCU

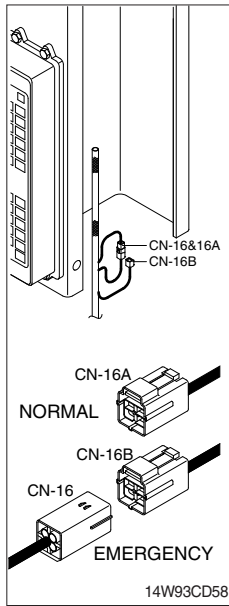


- (1) To match the pump absorption torque with the engine torque, MCU varies EPPR valve output pressure, which control pump discharge amount whenever feedbacked engine speed drops under the reference rpm of each mode set.
- (2) Three LED lamps on the MCU display as below.

LED lamp	Trouble	Service
G is turned ON	Normal	-
G and R are turned ON	Trouble on MCU	<ul style="list-style-type: none"> • Change the MCU
G and Y are turned ON	Trouble on serial communication line	<ul style="list-style-type: none"> • Check if serial communication lines between MCU and cluster are disconnected
Three LED are turned OFF	Trouble on MCU power	<ul style="list-style-type: none"> • Check if the input power wire (24 V, GND) of MCU is disconnected • Check the fuse

G : green, R : red, Y : yellow

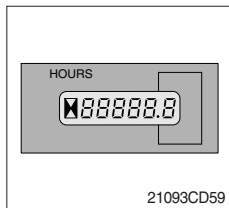
8) EMERGENCY ENGINE SPEED CONTROL CONNECTOR



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

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

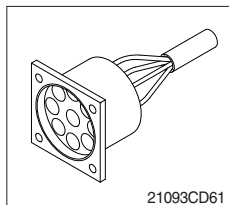
9) SERVICE METER



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

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

10) RS232 & J1939 SERVICE SOCKET



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

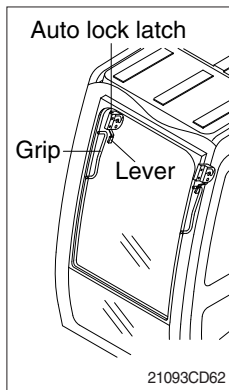
(2) ECM communicates the engine data with cummins INSITE adapter through J1939 service socket.

① ECM fault code check

② ECM program change

③ Engine data monitoring & test

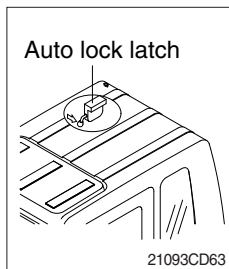
11) UPPER WINDSHIELD



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

- ① Pull both levers with hold both grips that are located at the top of the windshield frame and push the windshield upward.
- ② Hold both grips and back into the lock position until auto lock latch is engaged, then release the lever locked position.

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



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

- ① Pull the lever of the auto lock latch in order to release the auto lock latch.
- ② Reverse above step ① and ② in order to close the upper windshield.