

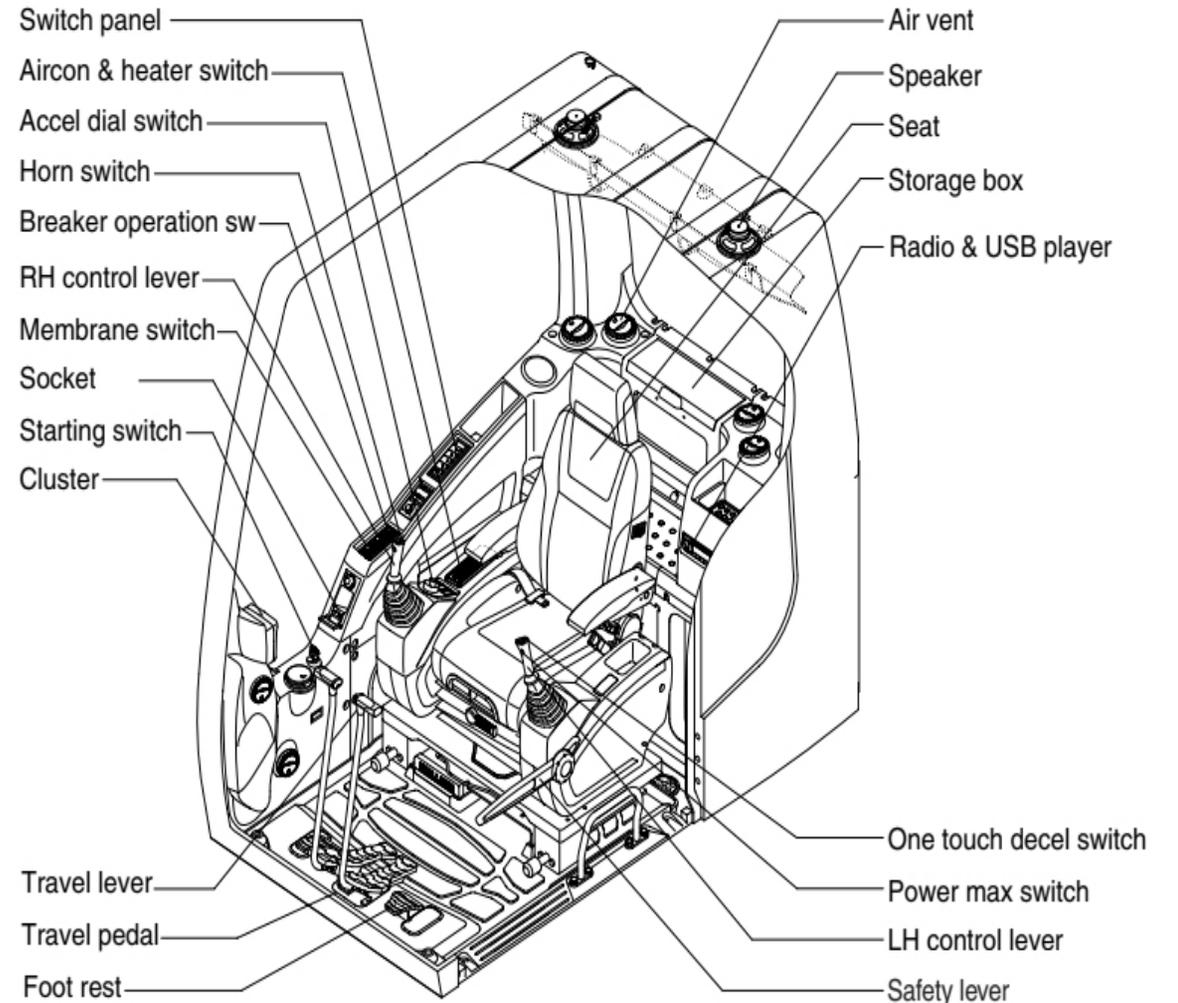
1. CAB DEVICES

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.



375LV53CD02

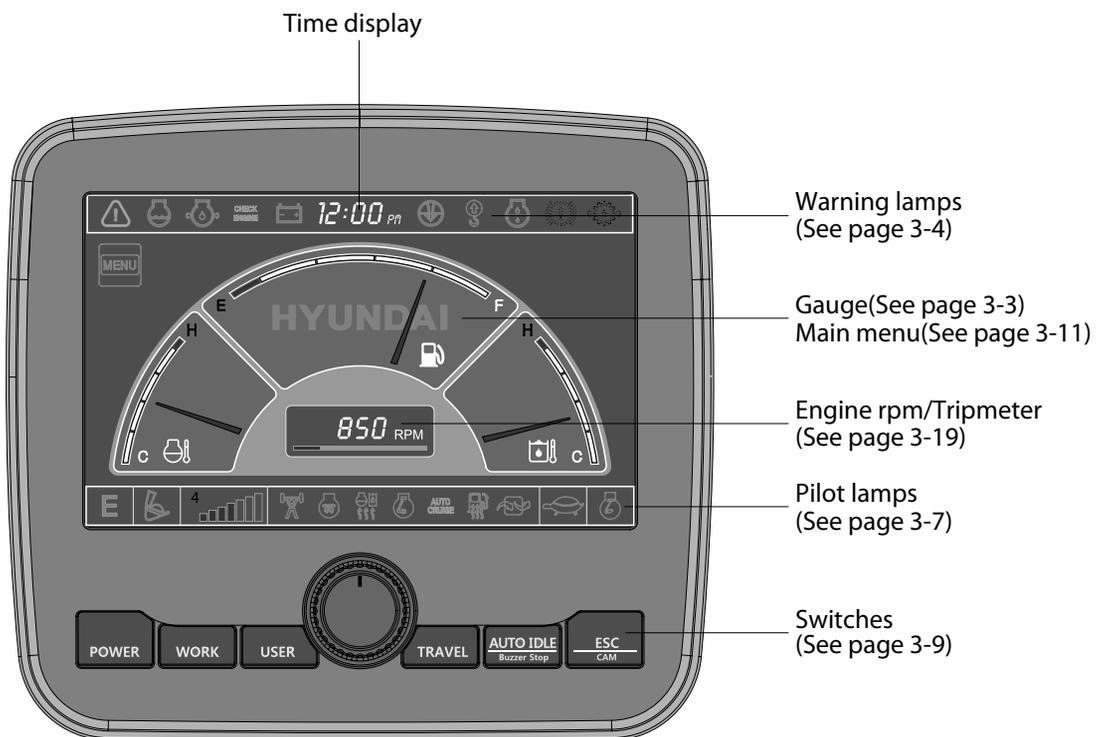
2. CLUSTER

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.**



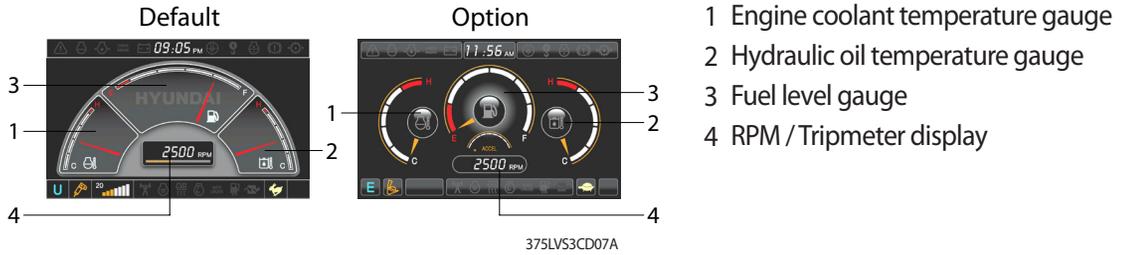
375LV53CD07

- ※ **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.

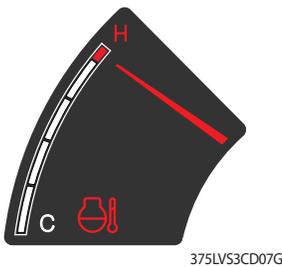
2) GAUGE

(1) Operation screen



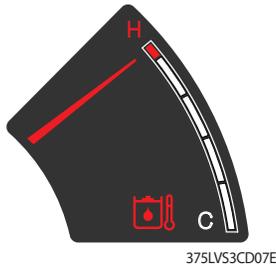
※ Operation screen type can be set by the screen type menu of the display.
Refer to page 3-21 for details.

(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



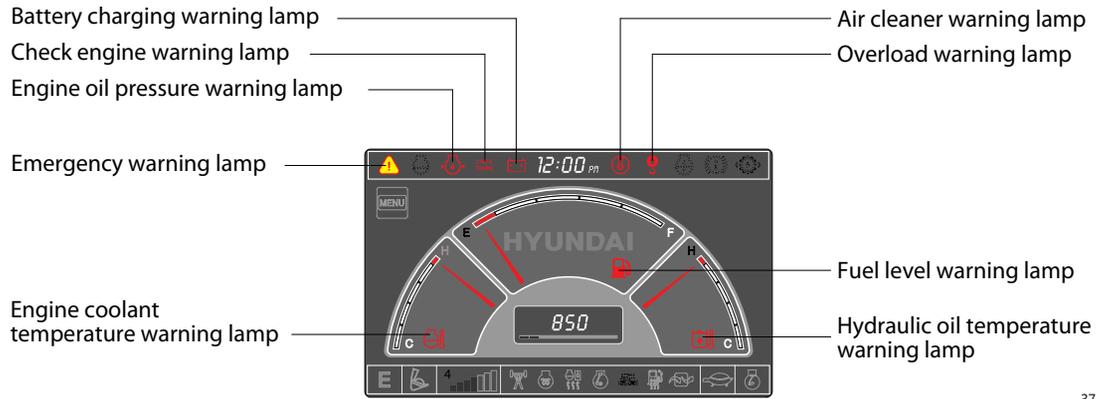
- ① This gauge indicates the amount of fuel in the fuel tank.
 - ② Fill the fuel when the red range, or  lamp blinks in red.
- ※ If the gauge indicates the red range or  lamp blinks in red even though the machine is on the normal condition, check the electric device as that can be caused by the poor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

(5) RPM / Tripmeter display



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

3) WARNING LAMPS



375LV53CD08D

※ 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.

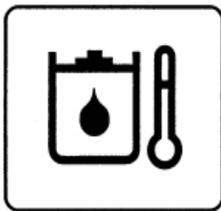
(1) Engine coolant temperature



375LV53CD08A

- 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



375LV53CD08C

- 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



375LV53CD08B

- ① This warning lamp blinks and the buzzer sounds when the level of fuel is below 75ℓ(19.8 U.S. gal).
- ② Fill the fuel immediately when the lamp blinks.

(4) Emergency warning lamp



375LV53CD30

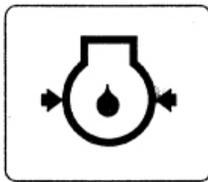
① This lamp pops up and the buzzer sounds when each of the below warnings is happened.

- 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



375LV53CD32

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



375LV53CD33



29093CD03

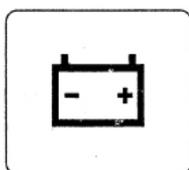
① This lamp blinks when the communication between MCU and engine ECM on the engine is abnormal, or if the cluster received any fault code from engine ECM.

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



375LV53CD35

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

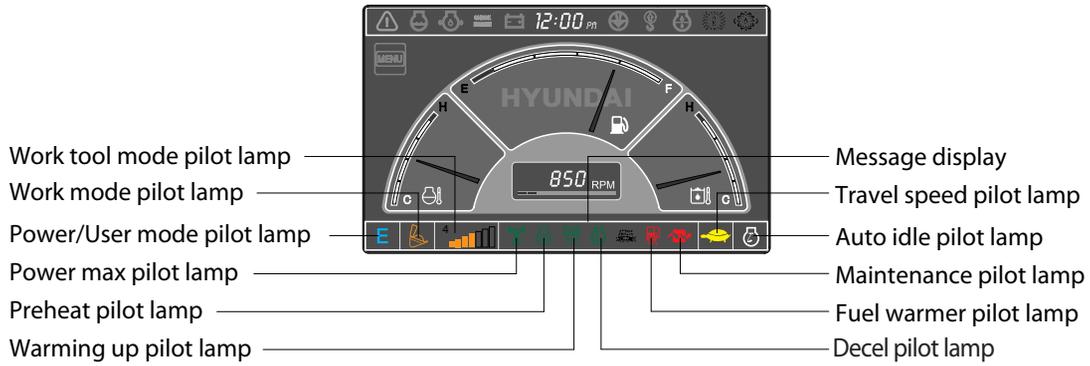
(9) Overload warning lamp (opt)



375LV53CD36

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

4) PILOT LAMPS



375LV53CD09

(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



375LV53CD38

- 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



375LV53CD39

- 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



375LV53CD40

- 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



375LV53CD41

- 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



375LV53CD43

- 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.

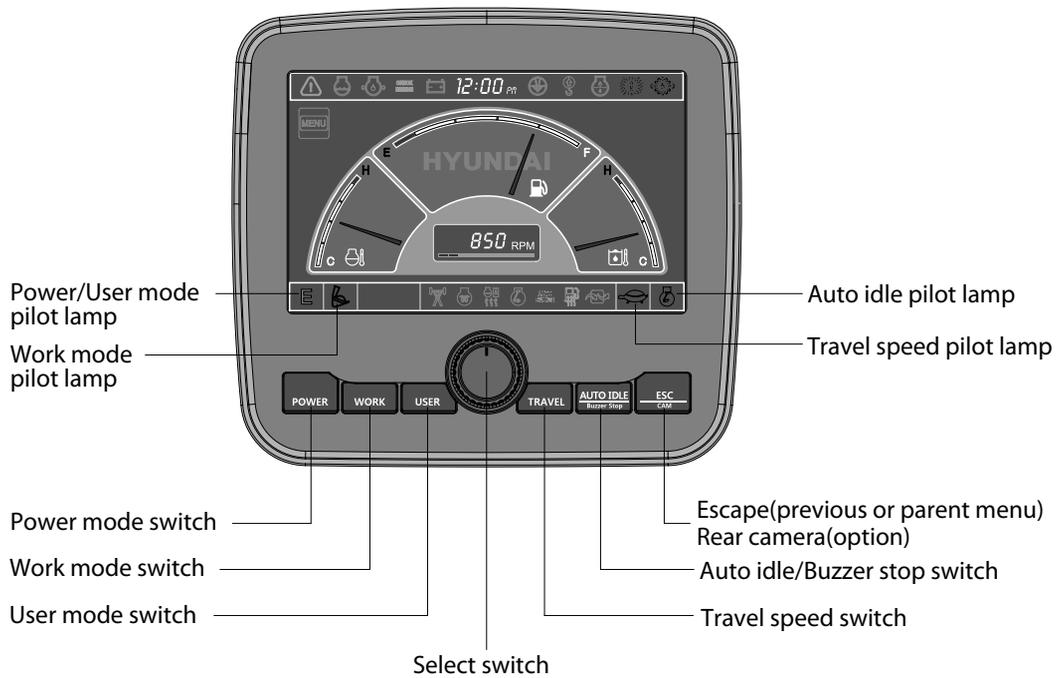
(7) Maintenance pilot lamp



375LV53CD44

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

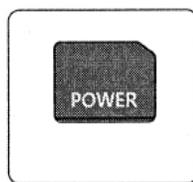
5) SWITCHES



375LV53CD45

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

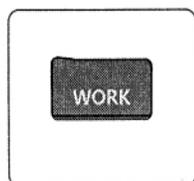
(1) Power mode switch



375LV53CD45A

- 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

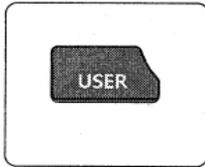


375LV53CD45C

- 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.

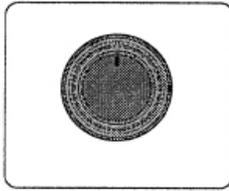
(3) User mode switch



375LV53CD45D

- 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.

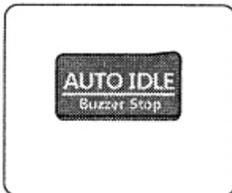
(4) Select switch



375LV53CD45E

- 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



375LV53CD45F

- ① This switch is used to activate or cancel the auto idle function.
 - Pilot lamp ON : Auto idle function is activated.
 - Pilot lamp OFF : Auto idle function is cancelled.
- ② The buzzer sounds when the machine has a problem.
In this case, push this switch and buzzer stops, but the warning lamp blinks until the problem is cleared.

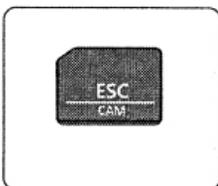
(6) Travel speed control switch



375LV53CD45G

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

(7) Escape/Camera switch



375LV53CD45H

- 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



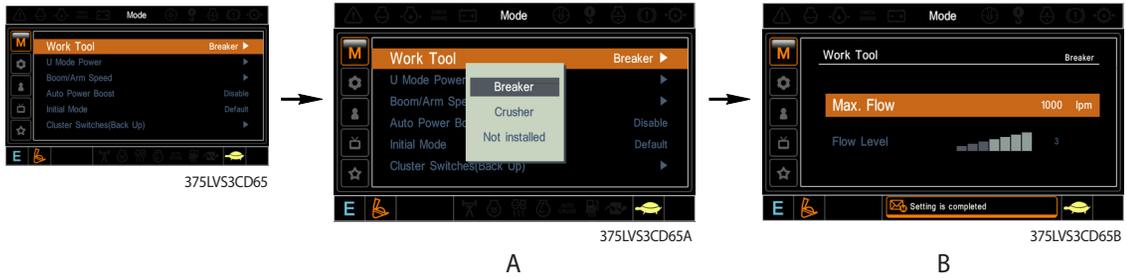
※ Please refer to select switch, page 3-10 for selection and change of menu and input value.

(1) Structure

No	Main menu	Sub menu	Description
1	 Mode 375LV53CD64D	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 375LV53CD64E	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 375LV53CD64F	Maintenance information Machine security Machine Information A/S phone number Service menu	Replacement, Change interval oils and filters ESL mode setting, Password change Cluster, MCU, Engine, Machine A/S phone number, A/S phone number change Power shift, Hourmeter start, Replacement history, Update
4	 Display 375LV53CD64G	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 375LV53CD64H	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.

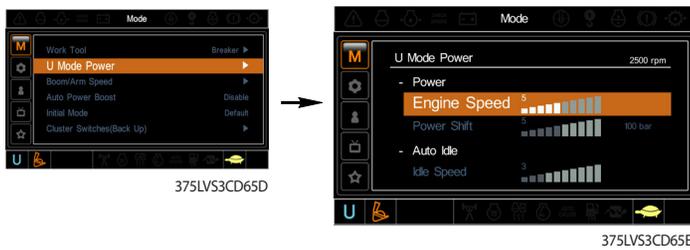
(2) Mode setup

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.

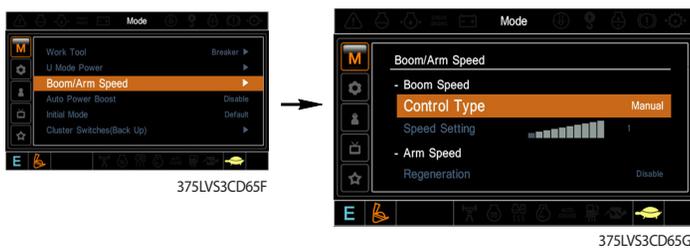
② U mode power



- 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.

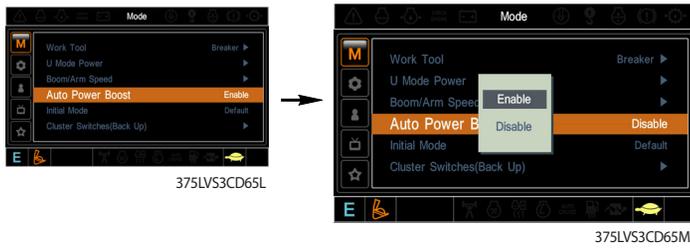
Step (■)	Engine speed (rpm)	Idle speed (rpm)	Power shift (bar)
1	1350	700	0
2	1400	750	3
3	1450	One touch decel low idle (800)	6
4	1500	850	9
5	1550	900	12
6	1600	950	16
7	1650	Auto decel rpm (1000)	20
8	1700	1050	26
9	1750	1100	32
10	1800	1150	38

③ Boom/Arm speed



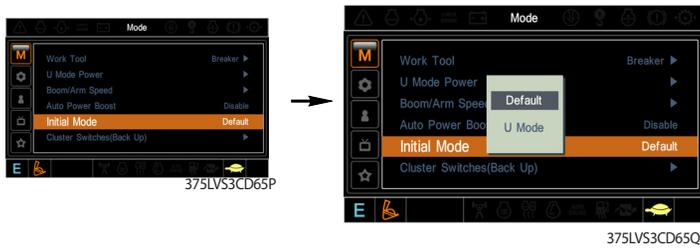
- **Boom speed**
 - Control type
 - Manual - Boom up speed is fixed as set steps.
 - Auto - Boom up speed is automatically adjusted as working conditions by the MCU.
 - Speed setting - Boom up speed is increased as much as activated steps.
- **Arm speed**
 - Regeneration - Arm regeneration function can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

④ Auto power boost



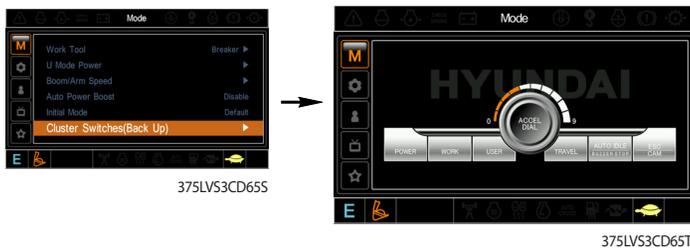
- The power boost function can be activated or cancelled.
- Enable - The digging power is automatically increased as working conditions by the MCU. It is operated max 8 seconds.
- Disable - Not operated.

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



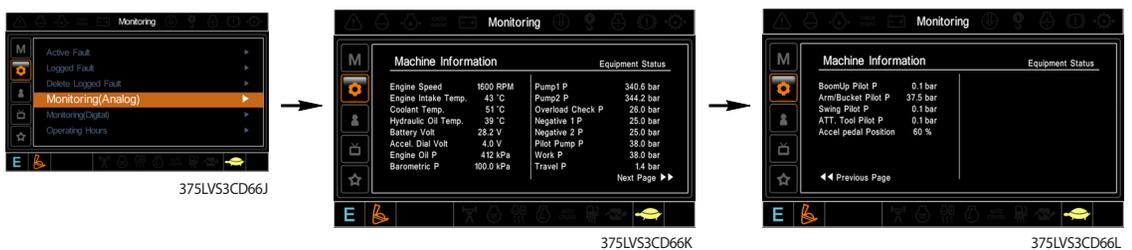
- The logged faults of the MCU or engine ECM can be checked by this menu.

③ Delete logged fault



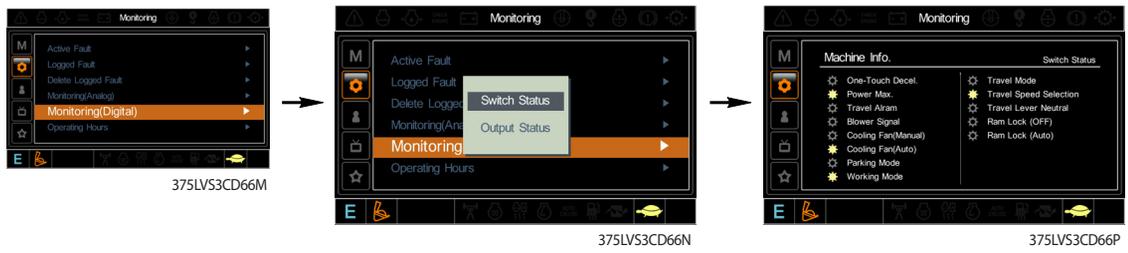
- The logged faults of the MCU or engine ECM can be deleted by this menu.

④ Monitoring(Analog)



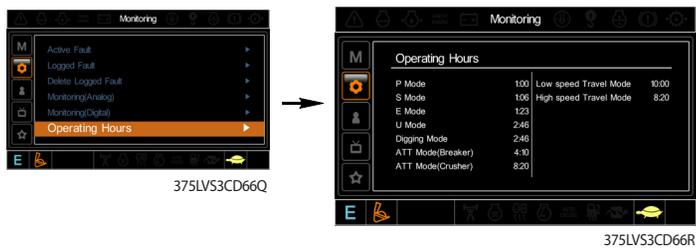
- The machine status such as the engine rpm, oil temperature, voltage and pressure etc. can be checked by this menu.

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

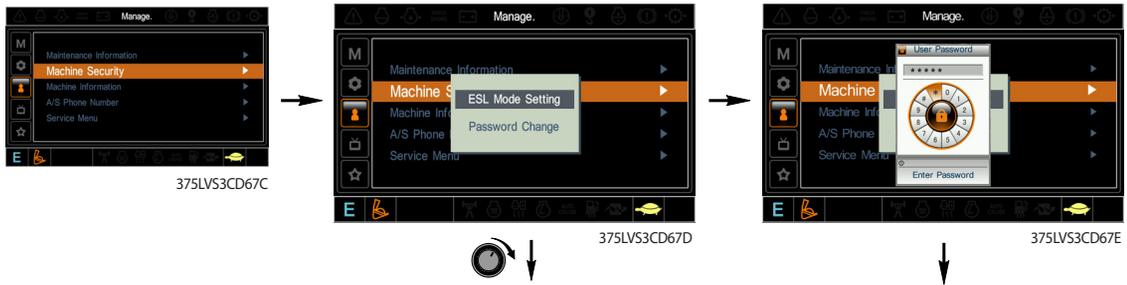
① Maintenance information



- 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
1	Engine oil	500
2	Final gear oil	1000
3	Swing gear oil	1000
4	Hydraulic oil	5000
5	Pilot line filter	1000
6	Drain filter	1000
7	Hydraulic oil return filter	1000
8	Engine oil filter	500
9	Fuel filter	500
10	Pre-filter	500
11	Hydraulic tank breather	1000
12	Air cleaner (inner)	500
13	Radiator coolant	2000
14	Swing gear pinion grease	1000

② Machine security



• ESL mode

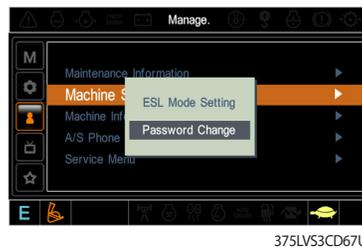
- ESL : Engine Starting Limit
- ESL mode is designed to be a theft deterrent or will prevent the unauthorized operation of the machine.
- If the ESL mode was selected Enable, the password will be required when the start switch is turned ON.

- 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 restarts the engine within the interval time, the password is not required.

The interval time can be set maximum 4 hours.



• Password change

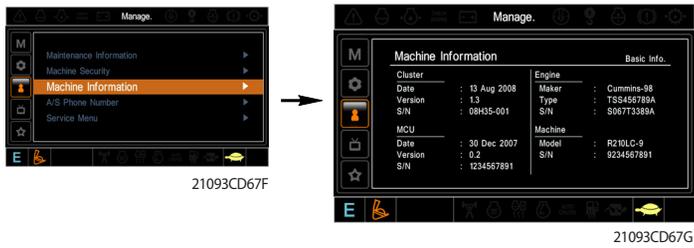
- The password is 5~10 digits.



The new password is stored in the MCU.

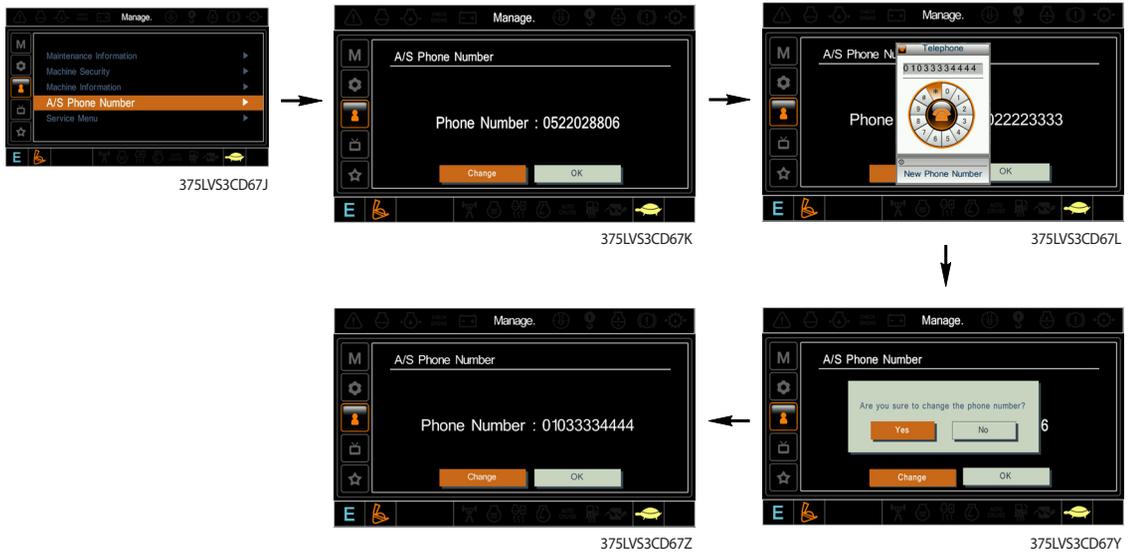
Enter the new password again

③ Machine Information

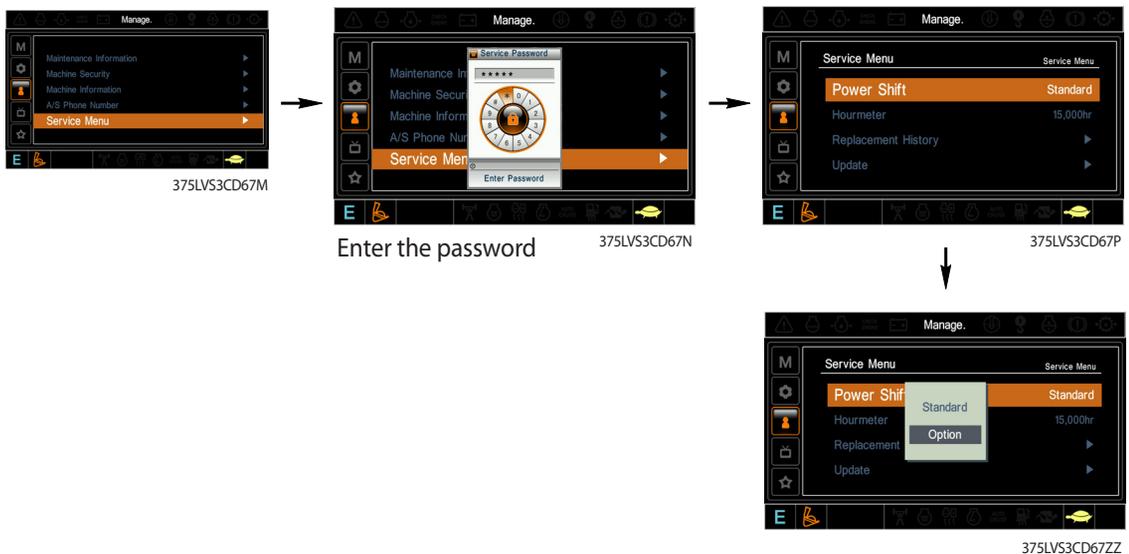


- This can confirm the identification of the cluster, MCU, engine and machine.

④ A/S phone number



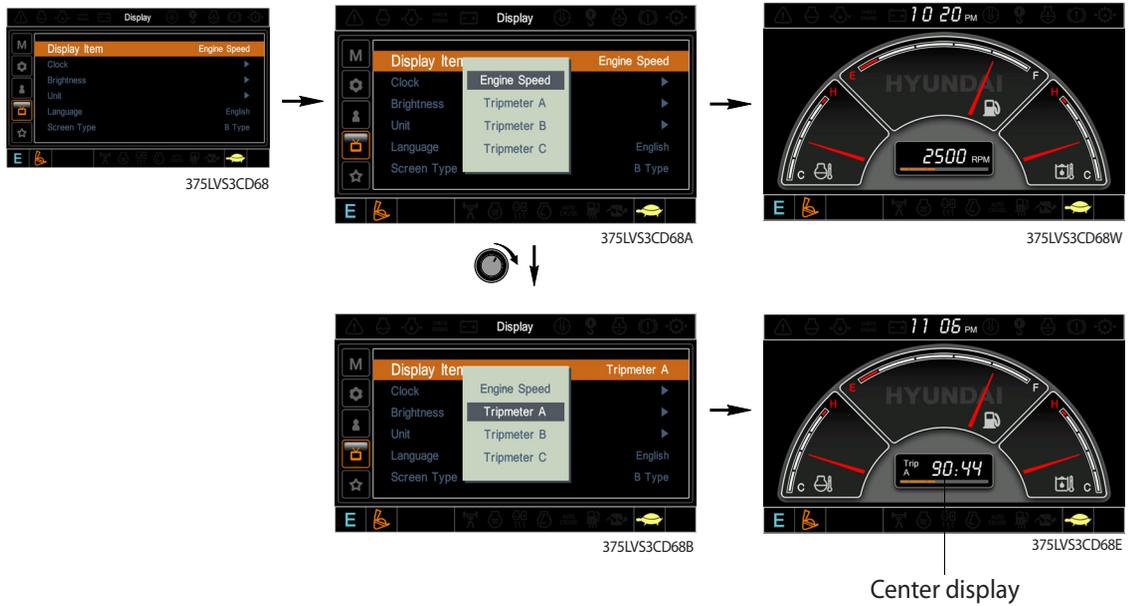
⑤ Service menu



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

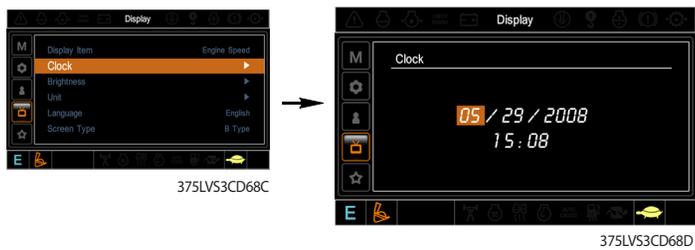
(5) Display

① Display item



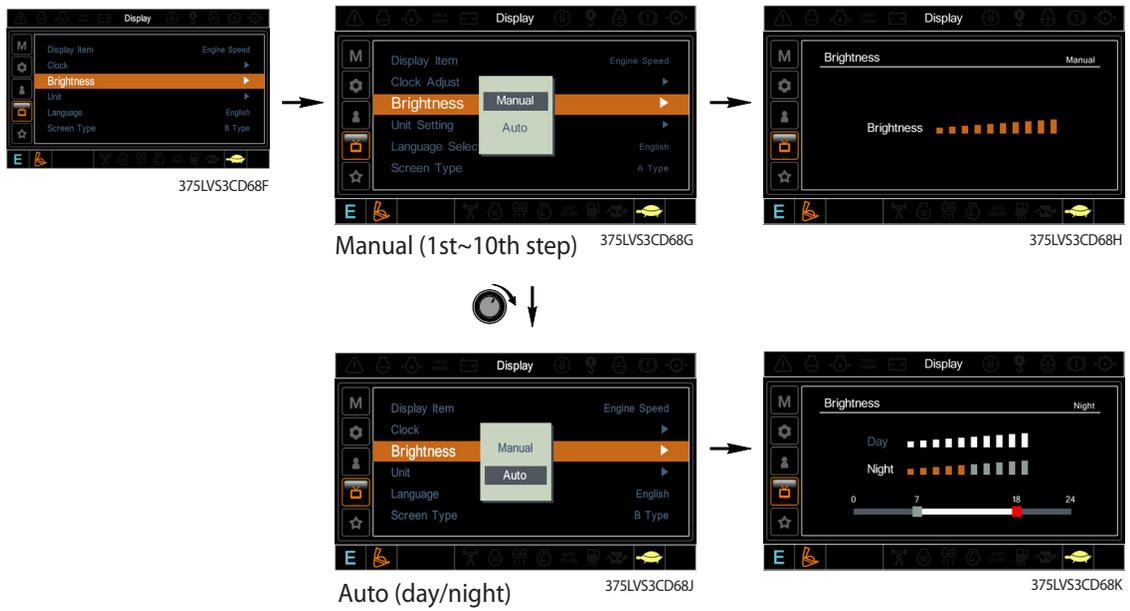
- The center display type of the LCD can be selected by this menu.
- The engine speed or each of the tripmeter (A,B,C) is displayed on the center display.

② Clock



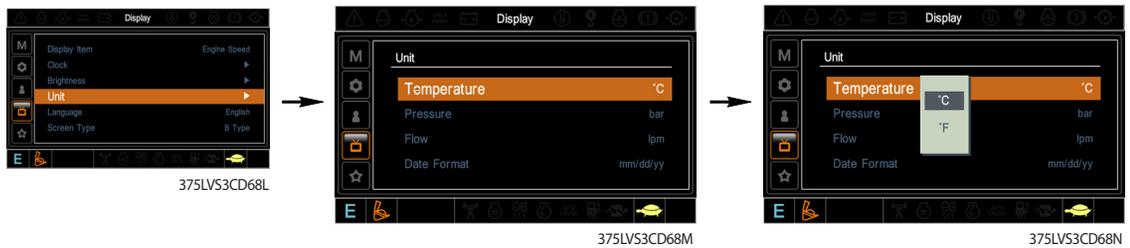
- The first line's three spots "***/**/*****" represent Month/Day/Year each.
- The second line shows the current time. (0:00~23:59)

③ Brightness



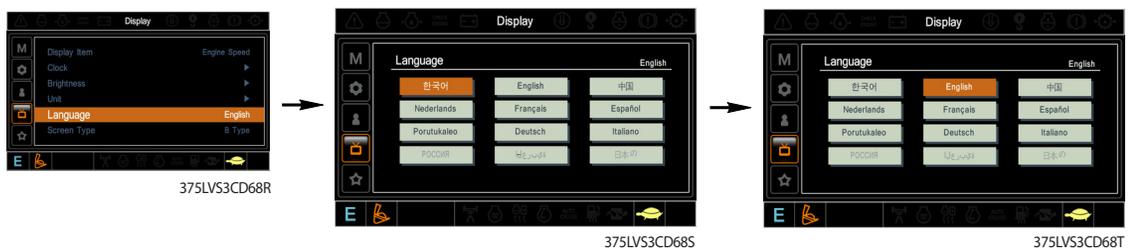
※ If "Auto" is chosen, brightness for day and night can be differently set up. Also by using the bar in lower side, users can define which time interval belongs to day and night. (in bar figure, gray area represents night time while white shows day time)

④ Unit



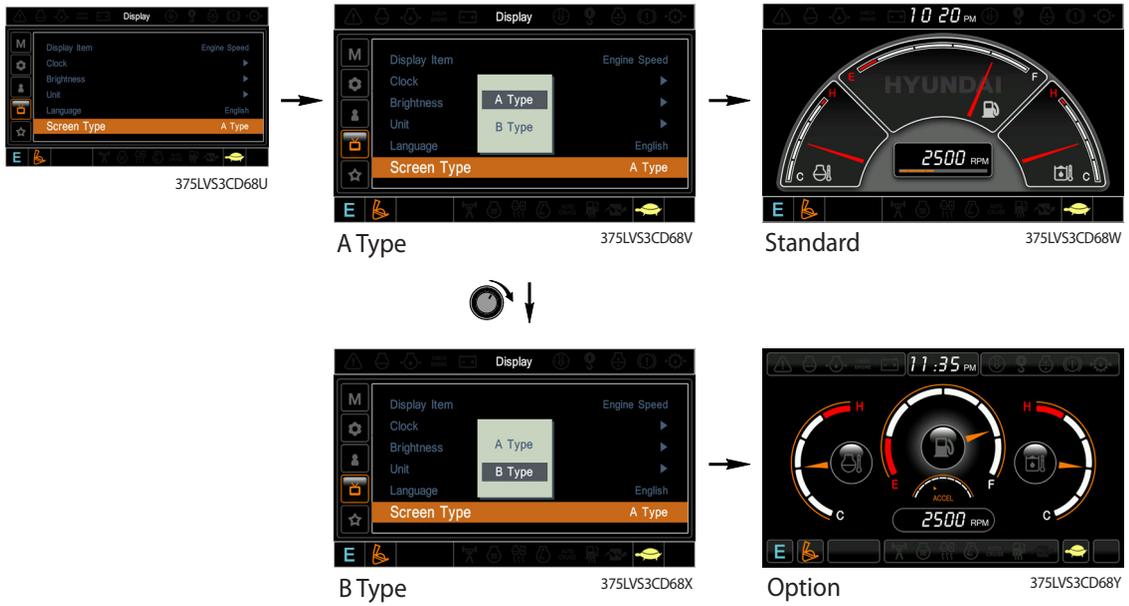
- Temperature : °C ↔ °F
- Pressure : bar ↔ MPa ↔ kgf/cm²
- Flow : lpm ↔ gpm
- Date format : yy/mm/dd ↔ mm/dd/yy ↔ dd-Mar-yy

⑤ Language



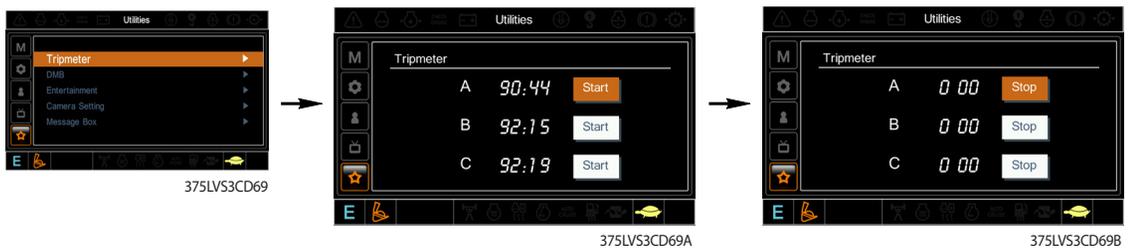
- User can select preferable language and all displays are changed the selected language.

⑥ Screen type



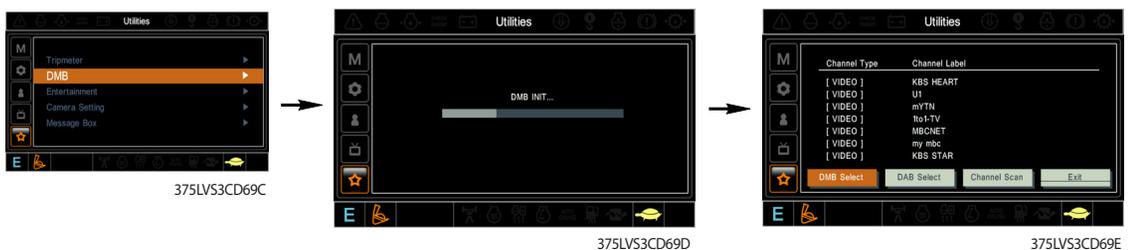
(6) Utilities

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.

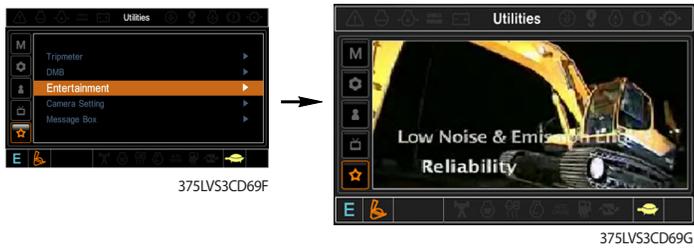
② DMB



- 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



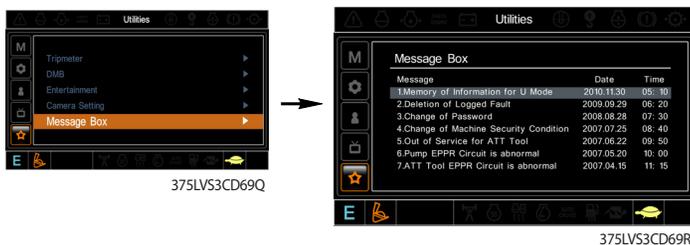
- Three cameras can be installed on the machine.
- The display order can be set by this menu.



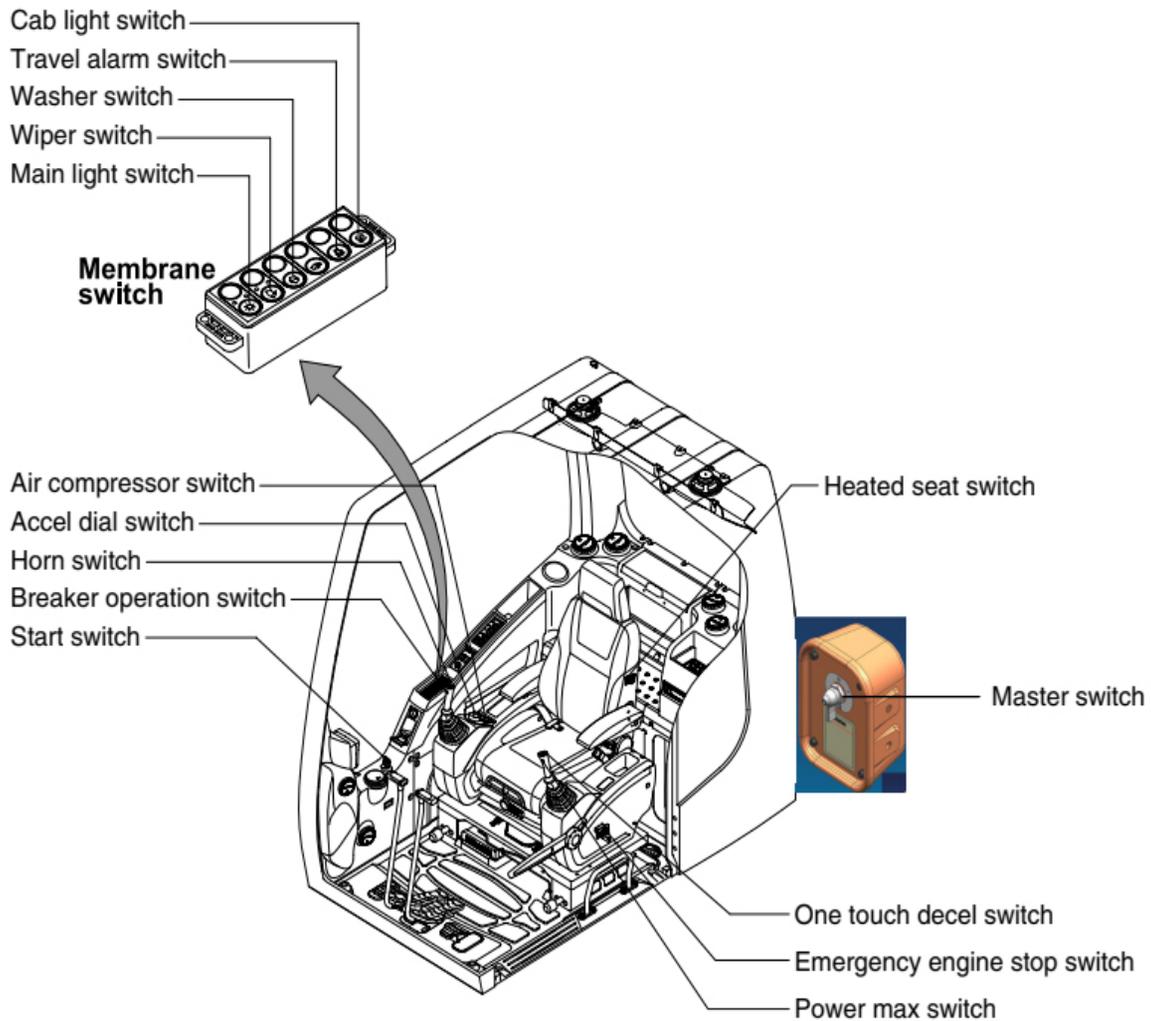
- If the camera was not equipped, this menu is not useful.
- In the operation screen, if the ESC/CAM switch is pushed, the first ordered display camera will be viewed.
- Turning the select switch in clockwise direction, the next ordered will be shown and in counter-clockwise direction, the previously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

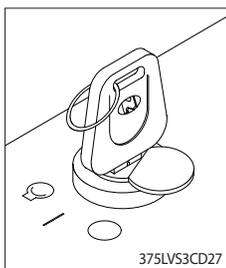


3. SWITCHES



375LV53CD02

1) STARTING SWITCH



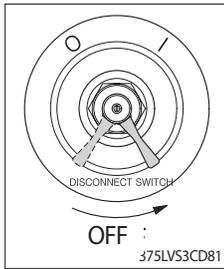
(1) There are three positions, OFF, ON and START.

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

Release key immediately after starting.

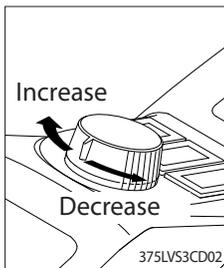
- ※ If you turn ON the starting switch in cold weather, the fuel warmer is automatically operated to heat the fuel by sensing the coolant temperature. Start the engine in 1~2 minutes after turning ON the starting switch. More time may take according to ambient temperature.
- ※ Key must be in the ON position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

2) MASTER SWITCH



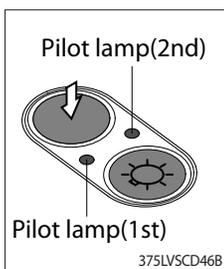
- (1) This switch is used to shut off the entire electrical system.
 - (2) I : The battery remains connected to the electrical system.
O : The battery is disconnected to the electrical system.
- ※ **Never turn the master switch to O (OFF) with the engine running. Engine and electrical system damage could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

3) ACCEL DIAL SWITCH



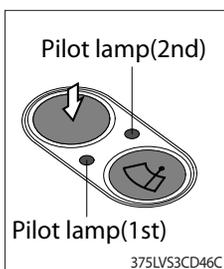
- (1) There are 10 dial settings.
- (2) Setting 1 is low idle and setting 10 is high idle.
 - By rotating the accel dial to right : Engine speed increases
 - By rotating the accel dial to left : Engine speed decreases

4) MAIN LIGHT SWITCH



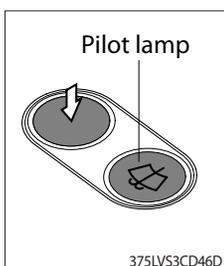
- (1) This switch is used to operate the head light and work light.
 - Press the switch once, the head light comes ON and the 1st pilot lamp ON.
 - Press the switch once more, the work light comes ON and the 2nd pilot lamp ON.
 - Press the switch again, return to a first step position.
 - Press the switch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

5) WIPER SWITCH



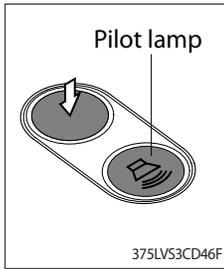
- (1) This switch is used to operate the wiper.
 - Press the switch once the wiper operates intermittently and the 1st pilot lamp comes ON.
 - Press the switch once more, the wiper operates low speed and the 2nd pilot lamp comes ON.
 - Press the switch again return to a first step position.
 - Press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

6) WASHER SWITCH



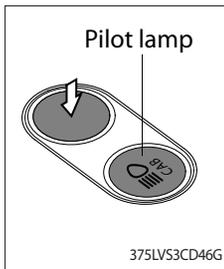
- (1) The washer liquid is sprayed and the wiper is operated only while pressing this switch.
- (2) The pilot lamp is turned ON when operating this switch.

7) TRAVEL ALARM SWITCH



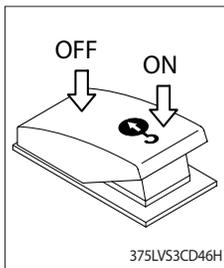
- (1) This switch is to activate travel alarm function surrounding when the machine travels to forward and backward.
- (2) On pressing this switch, the alarm operates only when the machine is traveling.

8) CAB LIGHT SWITCH (option)



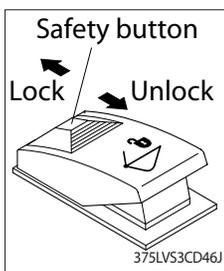
- (1) This switch turns ON the cab light on the cab.

9) OVERLOAD SWITCH (option)



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

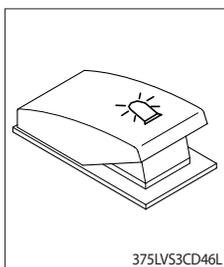
10) QUICK CLAMP SWITCH (option)



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

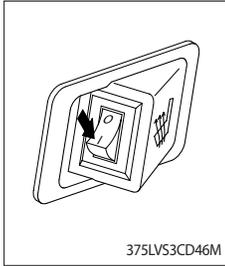
※ Refer to the page 8-6 for details.

11) BEACON SWITCH (option)



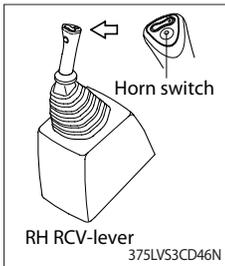
- (1) This switch turns ON the rotary light on the cab.
- (2) The indicator lamp is turned ON when operating this switch.

12) HEATED SEAT SWITCH (option)



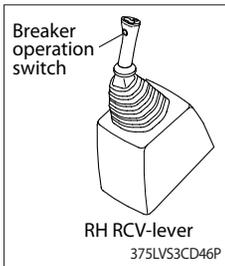
- (1) This switch is used to heat the seat.
 - Heater ON : $10 \pm 3.5^{\circ}\text{C}$
 - Heater OFF : $20 \pm 3^{\circ}\text{C}$
- (2) On pressing the switch, the indicator lamp is turned ON.

13) HORN SWITCH



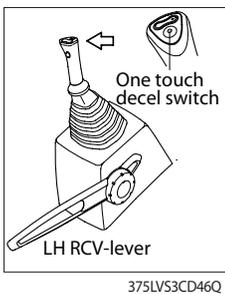
- (1) This switch is at the top of right side control lever.
On pressing, the horn sounds.

14) BREAKER OPERATION SWITCH



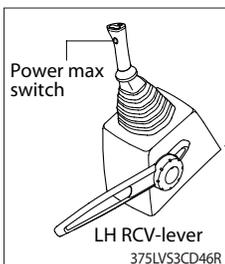
- (1) On pressing this switch, the breaker operates only when the breaker operation mode is selected.

15) ONE TOUCH DECEL SWITCH



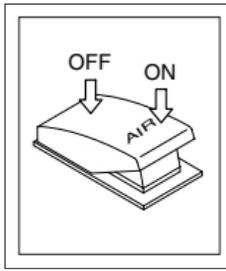
- (1) This switch is used to actuate the deceleration function quickly.
- (2) The engine speed is increased to previous setting value by pressing the switch again.
- (3) One touch decel function is available only when the auto idle pilot lamp is turned OFF.

16) POWER MAX SWITCH



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

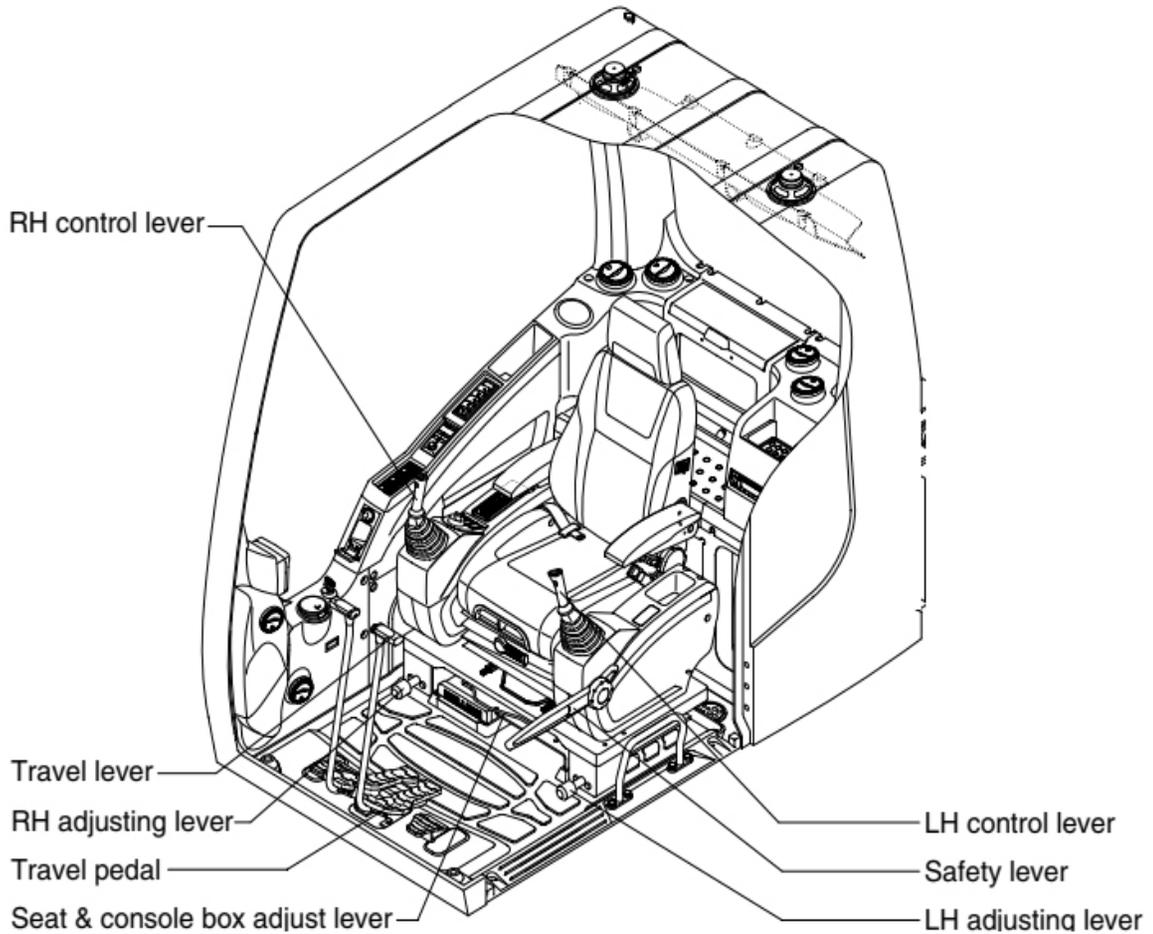
17) AIR COMPRESSOR SWITCH



17W93CD46N

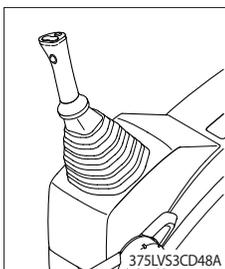
- (1) This switch is used to activate the air compressor.
- (2) The indicator lamp is turned on when operating this switch.

4. LEVERS AND PEDALS



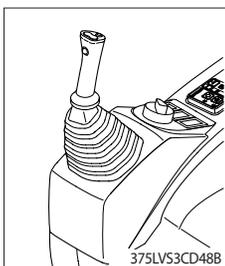
375LV53CD02

1) LH CONTROL LEVER



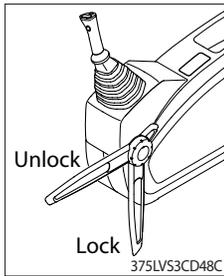
- (1) This joystick is used to control the swing and the arm.
- (2) Refer to operation of working device in chapter 4 for details.

2) RH CONTROL LEVER



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

3) SAFETY LEVER



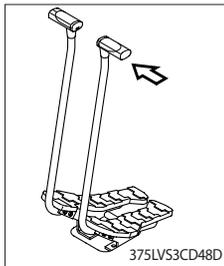
(1) All control levers and pedals are disabled from operation by locating the lever to lock position as shown.

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

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

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

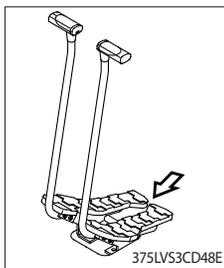
4) TRAVEL LEVER



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

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

5) TRAVEL PEDAL



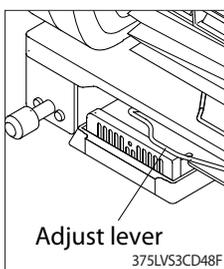
(1) This pedal is used to move the machine forward or backward.

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

If right side pedal is pressed, right track will move.

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

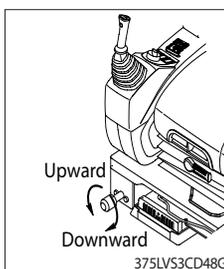
6) SEAT AND CONSOLE BOX ADJUST LEVER



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

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

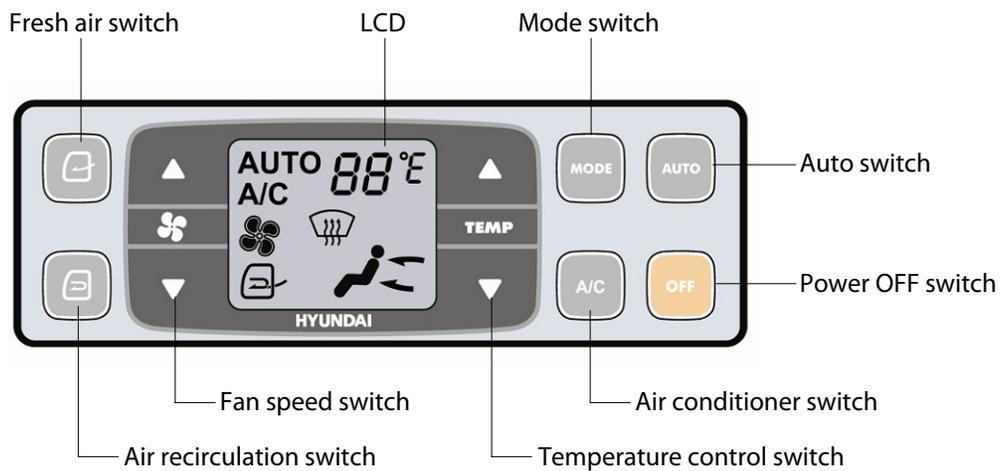
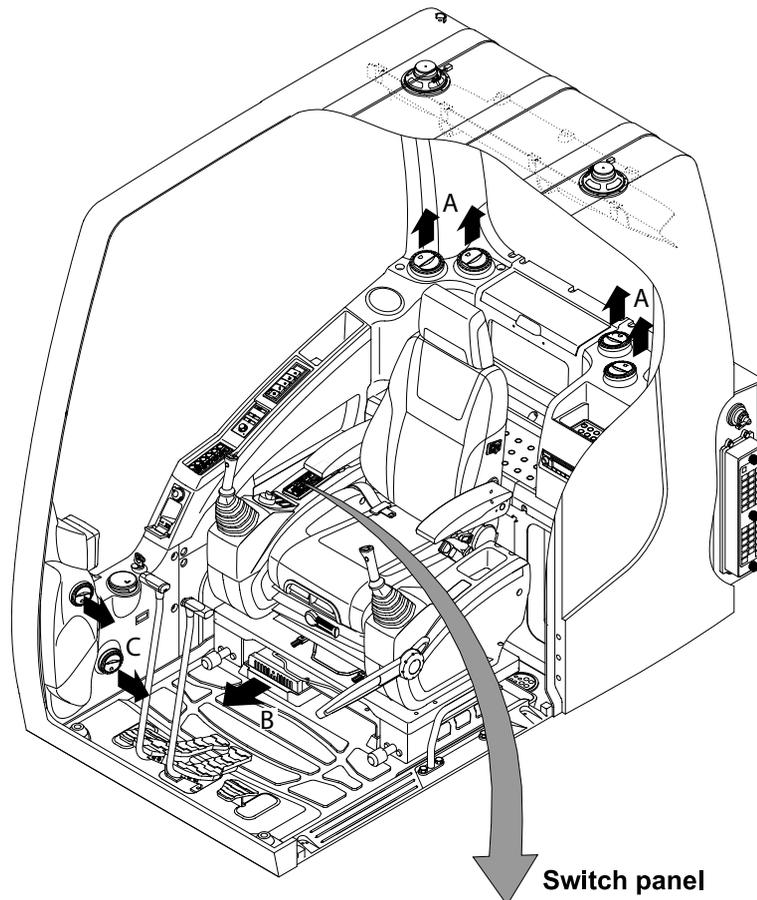
5. AIR CONDITIONER AND HEATER

■ FULL AUTO AIR CONDITIONER AND HEATER (standard)

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

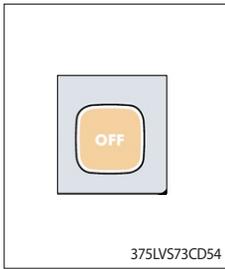
※ Refer to the page 3-33 for semi auto air conditioner and heater.

· Location of air flow ducts



375LV53CD49

1) POWER OFF SWITCH

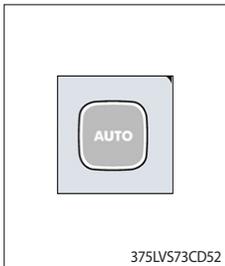


- (1) This switch makes the system and the LED OFF.
Just before the power OFF, set values are stored.

(2) Default setting values

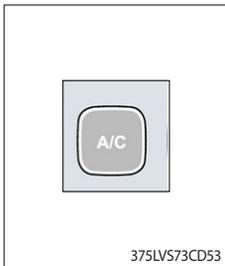
Function	Air conditioner	c	LCD	Temperature	Mode
Value	OFF	Inlet	OFF	Previous sw OFF	Previous sw OFF

2) AUTO SWITCH



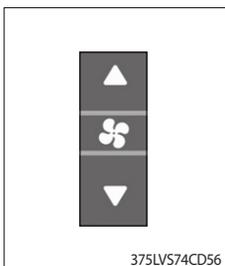
- (1) Turn the starting switch to ON position, LCD lights ON.
Auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.
- (2) This switch can restart system after system OFF.

3) AIR CONDITIONER SWITCH (compressor switch)



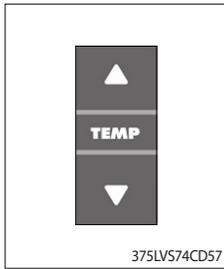
- (1) This switch turns the compressor and the LCD ON.
 - (2) In accordance with the temperature sensed by duct (evaporator) sensor, compressor turns ON or OFF automatically.
- ※ **Air conditioner operates to remove vapor and drains water through a drain hose. Water can be sprayed into the cab in case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

4) FAN SPEED SWITCH



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

5) TEMPERATURE CONTROL SWITCH



(1) Setting temperature indication

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

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

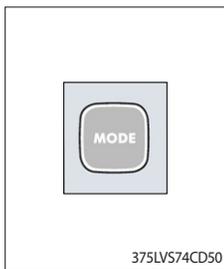
(3) The max cool or the max warm position operates as following table.

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

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

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

6) MODE SWITCH



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

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

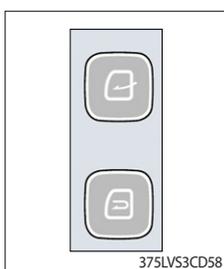
Mode switch		Vent	Vent/Foot	Foot	Foot/Def
Outlet	A	●	●		
	B		●	●	●
	C				●

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

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

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

7) FRESH AIR/AIR RECIRCULATION SWITCH



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

① Fresh air ()

Inhaling air from the outside.

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

② Air recirculation ()

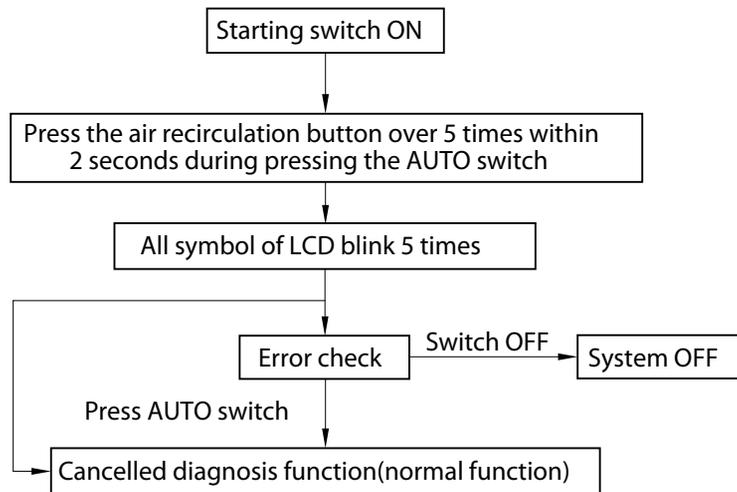
It recycles the heated or cooled air to increase the energy efficiency.

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

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

8) SELF DIAGNOSIS FUNCTION

(1) Procedure



375LVSA3CD69

(2) Error check

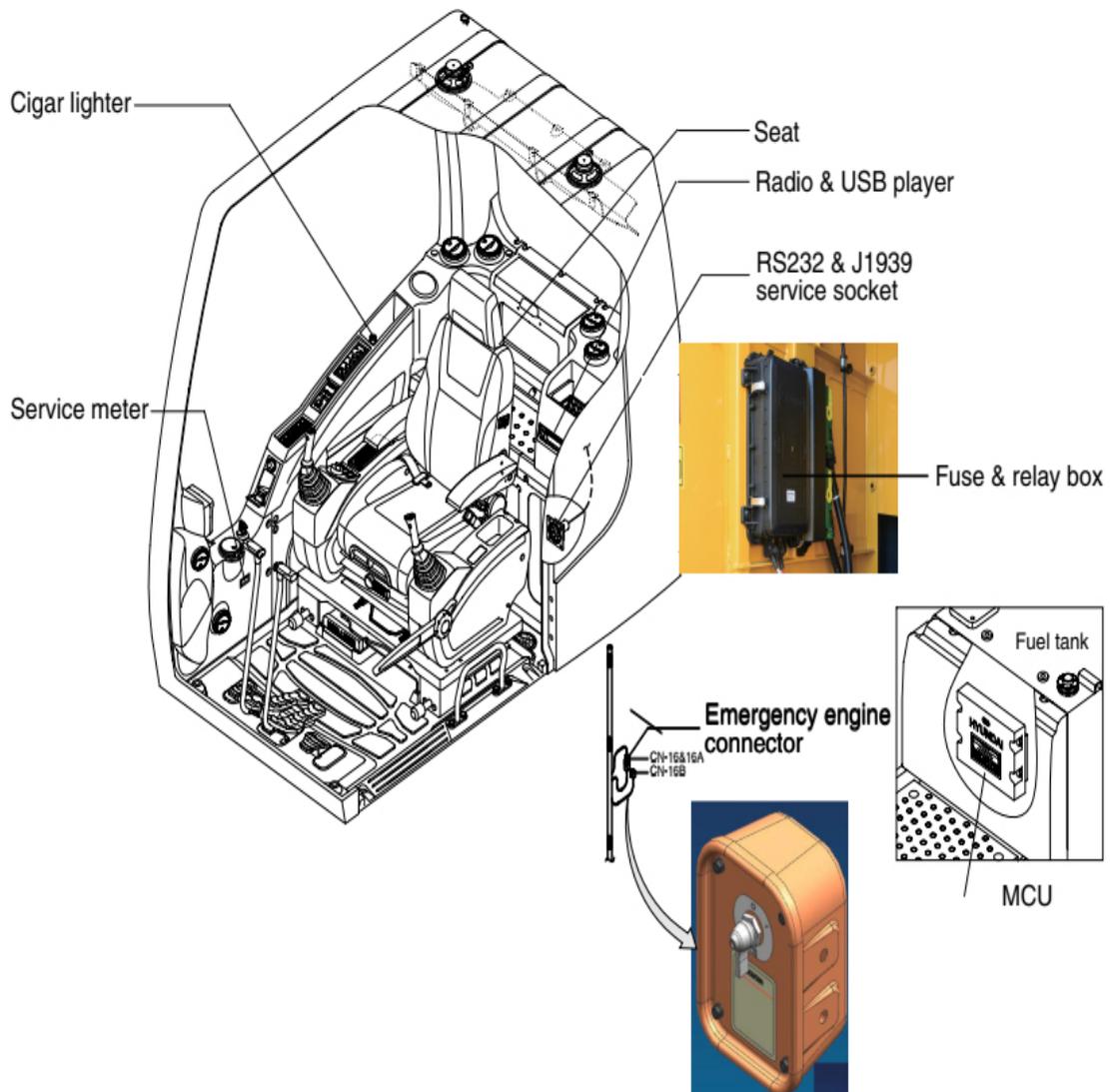
- The corresponding error code flickers on the setup temperature display panel, the other symbol bol will turn OFF.
- Error code flickers every 0.5 second.
- If error code is more than two, each code flickers 2 times in sequence.
- Error code

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

(3) Fail safe function

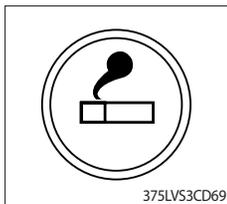
Error description	Fail safe function
Cabin inside sensor (11)	25°C alternate value control
Ambient sensor (12)	20°C alternate value control
Duct (evaporator) sensor (14)	1°C alternate value control
Temp actuator (15)	If opening amount is 0 %, the alternate value is 0 %
	If not, the alternate value is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

6. OTHERS



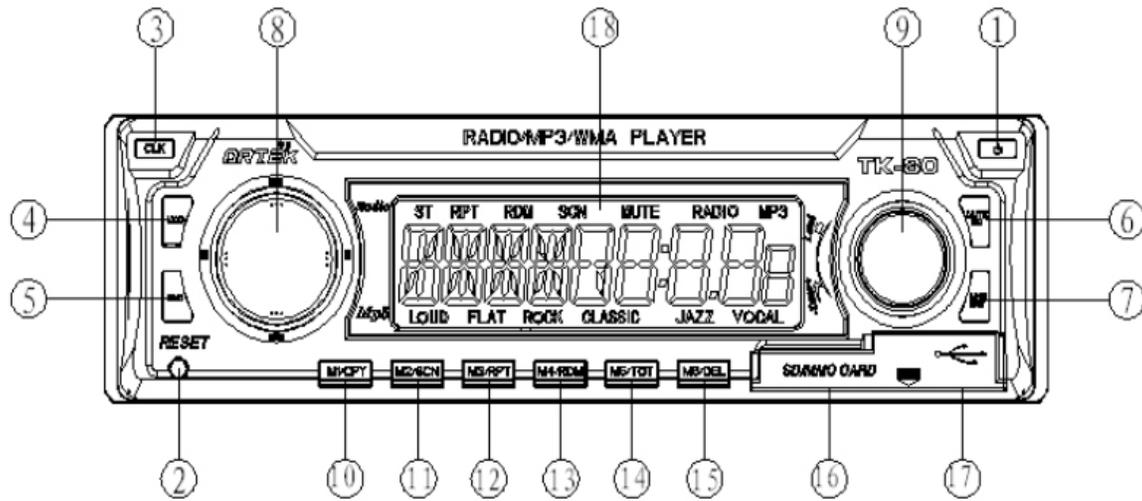
375LV53CD01

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) RADIO AND CD/MP3 PLAYER



375LV53CD70

■ Buttons introduction

- 1 Power switch
- 2 RESET Power restart control button
- 3 CLOCK Displays and sets control button
- 4 MODE RADIO/MP3/AUX MODE switch control button
- 5 BAND Radio BAND selection, automatic storage of all radio control button
- 6 MUTE/EQ MUTE and equalizer select control button
- 7 MENU/ENTER Sound selection and confirm control button
- 8 VOL+/VOL-/TUNE+ /TUNE- Volume, automatic channel selection, next track, previous track, fast forward, fast rewind, clock setting Quadruple one control button
- 9 LOUD/TUNE+, TUNE- ,such as loudness, manual console control button
- 10 M1/CPY radio preset button
- 11 M2/SCN radio preset, listening control button
- 12 M3/RPT radio preset and repeat control button
- 13 M4/RDM radio preset, random control button
- 14 M5/TOT radio preset, total track control button
- 15 M6/DEL radio preset button
- 16 SD/MMC CARD SD/MMC Plug bayonet
- 17 USB USB memory port
- 18 LCD displayer

■ Technical specifications

(1) Part of MP3

noise ratio > 60DB

Channel separation > 50DB

frequency response > 20Hz—20KHz

(2) Line output

The output 350 mv Max

Impedance 10 kohm

(3) Tuning (AM)

The frequency range 531 -- 1602KHz

the first IF fre 450KHz the second IF fre 10.71kHz

Practical sensitivity 30DB

The SNR 55 DB

Frequency step 9KHz

(4) Tuning (FM)

Frequency range 87.5-108MHz

Intermediate frequency 10.7 MHz

Practical sensitivity 10DB

Signal-to-noise ratio 60 db

Frequency step 100KHz

(5) General features

Power supply voltage 24V (allowed range 21.5V - 28.5V)

Speaker impedance 4 or 8ohm

Maximum current consumption 5A

Output power 45W*2CH

Note: Subject to change without prior notice

■ Operating instructions

(1) Radio mode button function description

① M1, M2, M3, M4, M5, M6 buttons are used for frequency of FM1, FM2, FM3, AM1, AM2 waves.

Prestore data values

- Push the button <2 seconds, when the button release call up the radio station corresponding to the current button memory
- Push the button >2 seconds, the current listening radio frequency value into the current button corresponding memory

② BND is used for switching between radio bands FM1, FM2, FM3, AM1, AM2.

- Push the button <2 seconds, form the band switching function, in different bands FM1 -> FM2 -> FM3 -> AM1 -> AM2 -> FM1
- When push the button >2 seconds, the band scan storage function is formed (AUT function).

* Describes the band scan storage function (AUT function)

- Before scanning in FM band, clear short range flag (LOC), that is, remote search; From FM1 band CH1, 87.5M frequency

- The rate starts to scan up and automatically store the found channel. When the memory of FM1 ~ FM3 band (CH1 ~ CH6, A total of 18 stations); Or after scanning a circle from 87.5m ~ 108M, switch to FM1 band CH1 to listen.

- If there are stations in the original memory, the newly received stations will overwrite the original stations of the same band and station number. Such as: original FM2, CH2 has 91.8m radio, the current scanning band is FM2, AND CH1 will be saved after receiving the new valid radio 93M is FM2, CH2, then the original 91.8m will be covered.

- Scan before AM band. Starting from the CH1, 531K/530K frequency band of AM1, scan upward and automatically store the search When the memory of AM1 ~ AM2 band has been stored (CH1 ~ CH6, a total of 12 stations); Or 531K minus 1602K/530K ~ 1620K after scanning a circle, turn to AM1 band CH1 to listen.

- If there are stations in the original memory, the newly received station will overwrite the original station of the same band and station number.

- During automatic storage, the station number is displayed according to the station number stored.

- When the system is in BAND scan storage mode, press BAND, POWER, M1, M2, M3, M4, M5, or M6 Key to exit this function .

■ Operating instructions

③ Rotary encoder (button panel label is (9))

- Tune + For radio frequency manual selection, rotate to right or left to move one step .

④ Automatic radio search (left and right keys of the button panel numbered (8))

- TU+/TU- Is used to search up or down from the current frequency. If a channel is found, stop at the current frequency and listen. Otherwise, the search continues .

■ USB/SD/MMC/ Built-in FLASH mode button function description

(1) MP3/WMA button function description

① M1/CPY

- CPY button has no function .

② M2/SCN

- Listening function switch button .
- Play the first ten seconds of each song .

③ M3/RPT

- Repeat function switch button .
- Repeat the current song .

④ M4/RDM

- Switch between RADIO/MP3/AUX modes .

⑤ M5/TOT

- Displays total number of songs .

⑥ M6/DEL

- This button is no function .

⑦ MENU/ENTER

- Confirm copy and delete .
- After pressing "COPY" or "DELETE" , the "ENTER" confirms the current selection .
- In other cases, for MENU sound selection .

⑧ TN+

- This button is to Add up or fast-forward to play .
- Push this button <2 seconds, add up a song to play, if the current is the largest song, then jump to the first song to play .
- Push this button >2 seconds, fast forward play (6X), and stop to until release the button .

⑨ TB-

- This button is to Scroll down or rewind to play .
- Push this button <2 seconds, subtract down one song to play, if the current is the first song, jump to the maximum song to play .
- Push this button >2 seconds, fast back play (6X), and stop to release the button, if fast back to this song , It starts from the first song and does not perform the fast rewind funct .

■ USB/SD/MMC/ Built-in FLASH mode button function description

(2) Copy and delete description (some of them are equipped with FLASH function)

- The "COPY" priority is USB -> SD -> FLASH. That is, COPY to high priority media is considered first , if "COPY" condition is not met, the media with a lower priority is copied. If the "COPY" condition is not met, the "COPY" is copied to the media with a lower priority. Otherwise, the COPY is invalid .
- "COPY" step: press the "COPY" button. If the COPY condition is met, the COPY string will appear and flash.
- If you confirm the current COPY operation, press MENU/ENTER to confirm, the normal MP3/WMA playback will stop and start to COPY;
- If you do not want to confirm the current COPY operation, push any button other than MENU/ENTER to exit the COPY.
- If it's COPY single, the progress is displayed as a percentage (%). If you COPY everyone , The progress shown is the number of remaining songs .
- During COPY, press COPY to cancel the COPY state .

- "DELETE" step: Press the DELETE button, DEL string appears and flashes. If you confirm the current DEL operation, press MENU/ENTER to confirm, MP3/WMA normal playing will stop .
- when DEL starts. If you do not want to confirm the current DEL operation, press any button other than MENU/ENTER to exit DEL .
- Because the deletion time is relatively fast, once confirmed, it cannot be cancelled .

■ USB/SD/MMC/ Built-in FLASH mode button function description

(3) Function description of VOLUME mode keys

EQ is a preset EQ function: FLAT normal /ROCK /CLASSIC /JAZZ /VOCAL pop option .

- "MENU" is "Bass" - bass, "TRE" - stress, BAL-left/right balance, fad-front/back balance sound adjustment option.
- "VOL+" and "VOL-" are electronic volume mode switches. In normal display mode, push "VOL+" and "VOL-" to adjust the corresponding tone .
Returns the original mode if no operation is performed within 5 seconds .
- "MUTE" is the mute switch control button

(4) Power mode button function description

- Under normal working module, push the "POWER" button to enter the power off mode .
- The first power-on enters the power off mode .
- If you push the "POWER" button in power off mode, you will return to the previous working mode .

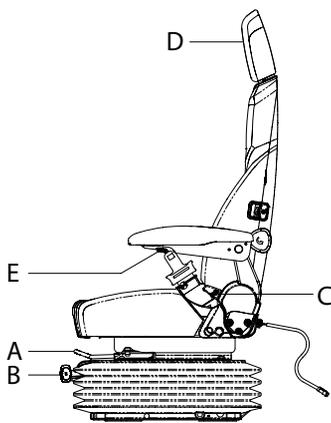
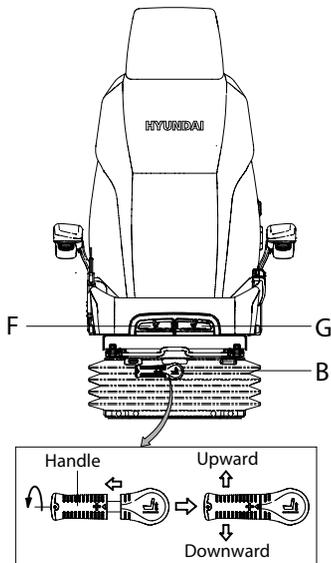
(5) Other mode keys function description

"CLOCK" - clock control button

- push this button < 2 seconds, To enter the clock display mode .
- push this button > 2 seconds, To enter the clock adjustment mode .

3) SEAT

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



375LVS3CD55

(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)

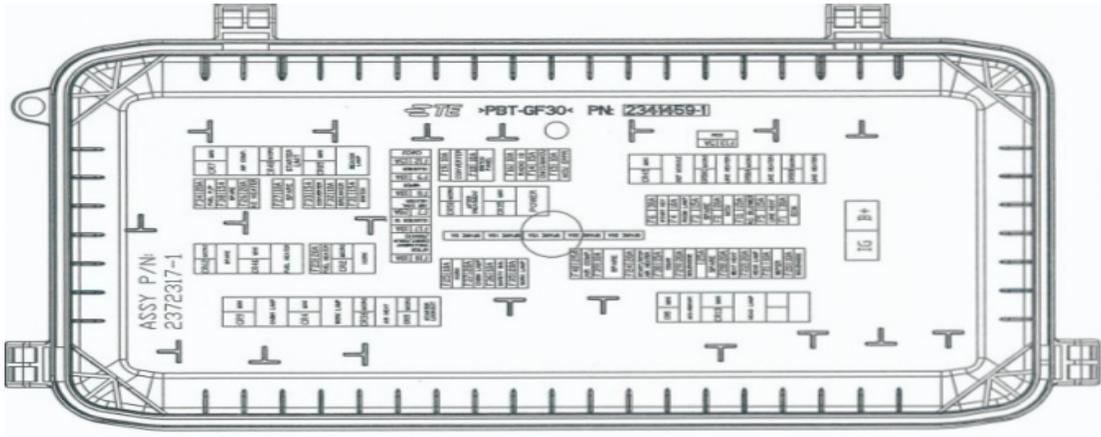
Pull lever F to adjust seat cushion tilting angle.

(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.

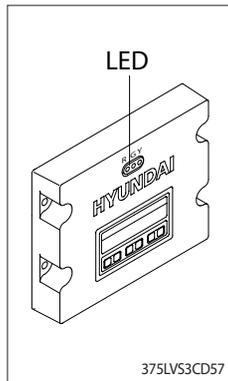
4) FUSE & RELAY BOX



375LV53CD56

- (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



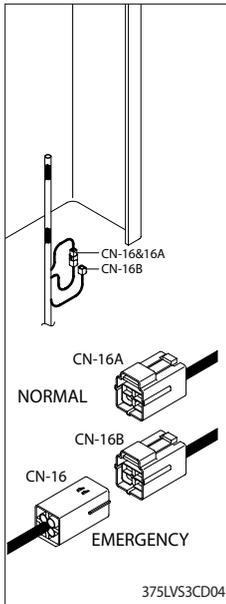
375LV53CD57

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

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

G: green, R: red, Y: yellow

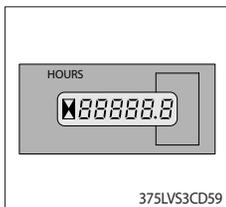
5) EMERGENCY ENGINE SPEED CONTROL CONNECTOR



(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.**

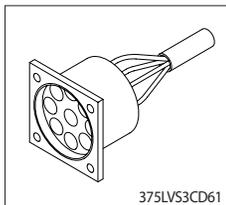
6) SERVICE METER



(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 & J1939 SERVICE SOCKET

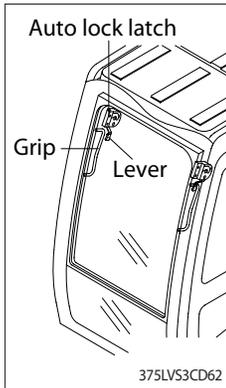


(1) MCU communicates the machine data with Laptop computer through RS232 service socket.

(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

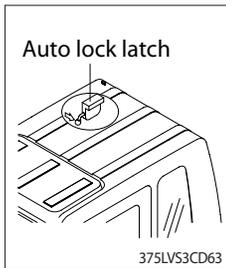
8) UPPER WINDSHIELD



(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.