

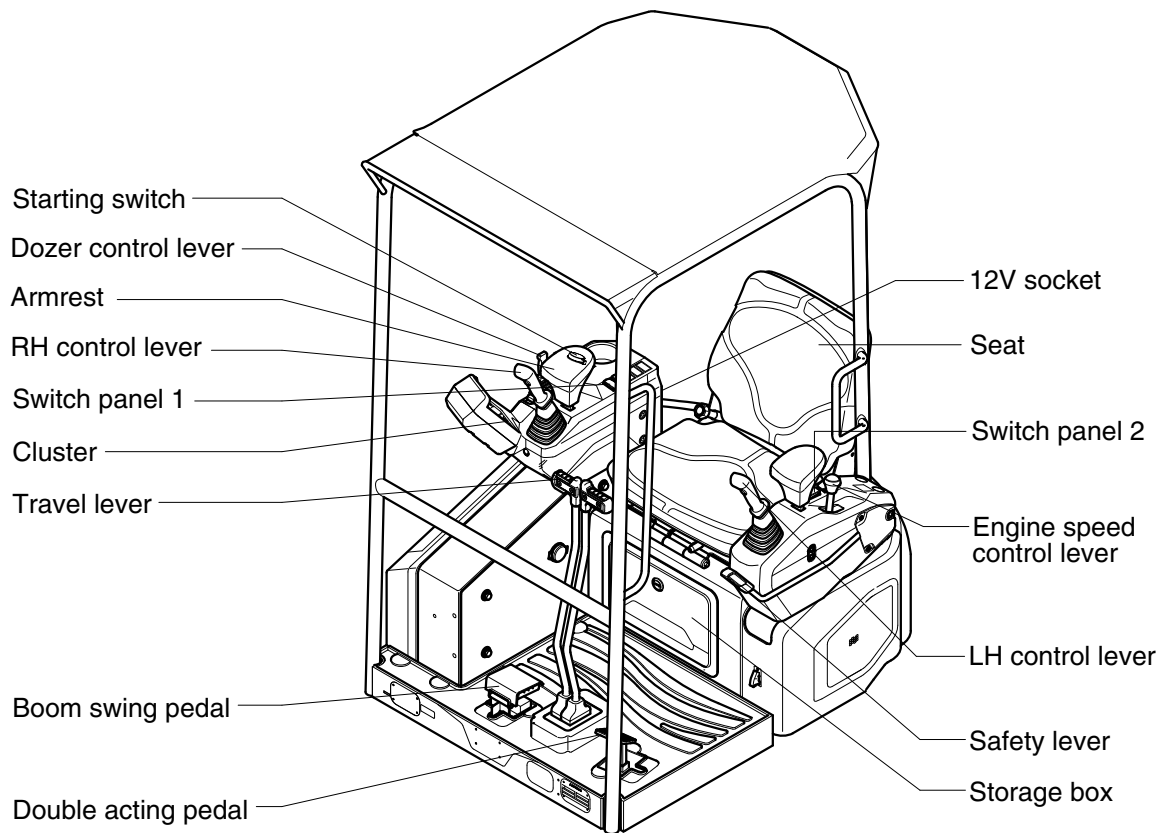
# CONTROL DEVICES

## 1. CAB DEVICES

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

### 2) ELECTRONIC MONITOR SYSTEM

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



17AZ3CD01

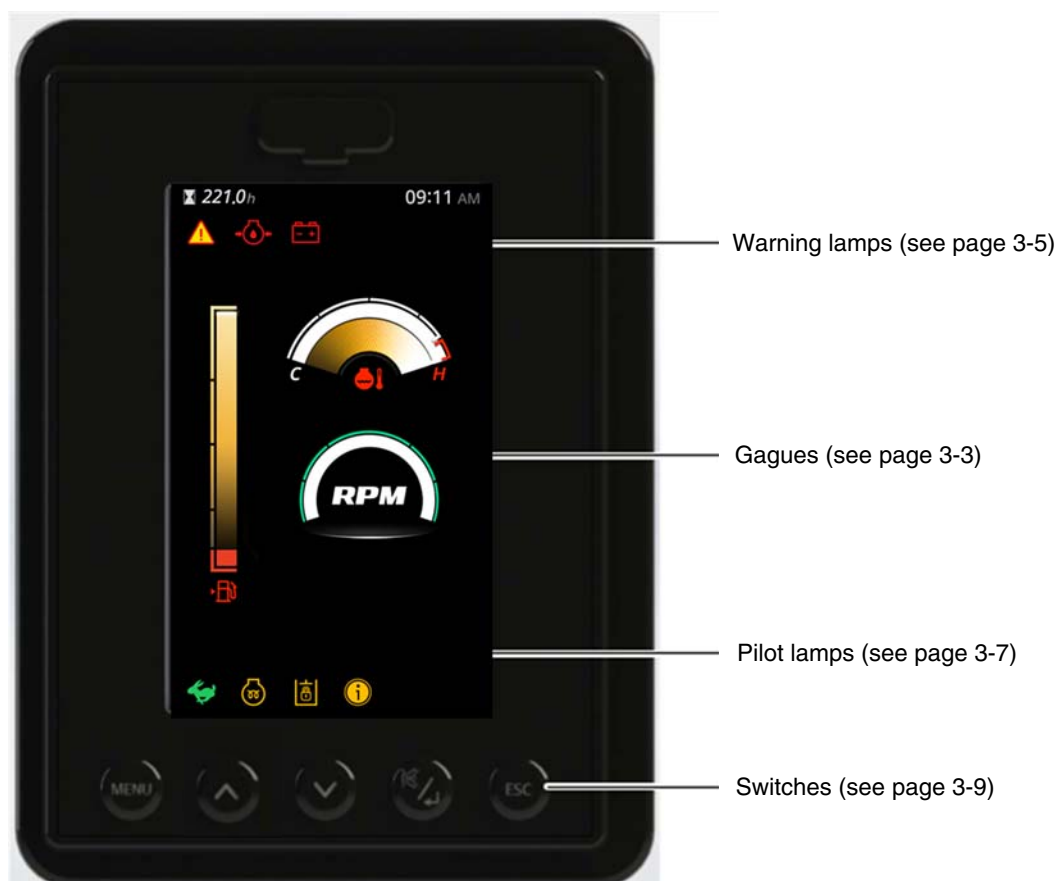
## 2. CLUSTER

### 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.

The LCD is to display for monitoring, manage and display set with the switches.

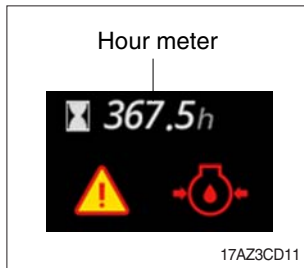
- ※ The cluster installed on this machine does not entirely guarantee the condition of the machine. Daily inspection should be performed according to chapter 6, Maintenance.
- ※ When the cluster provides a warning, immediately check the problem and perform the required action.



17AZ3CD10

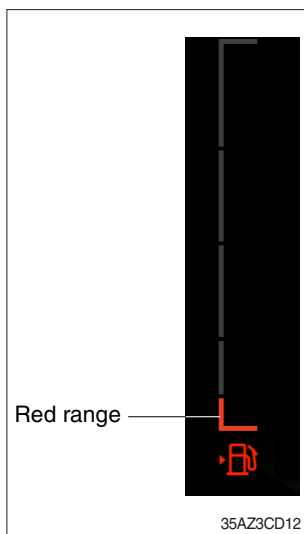
## 2) GAUGES AND DISPLAYS



### (1) Hour meter



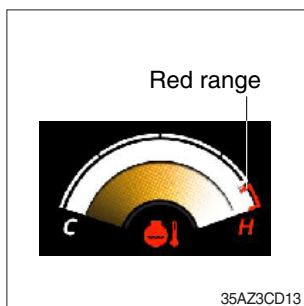
- ① This meter shows the total operation hours of the machine.
- ② Always ensure the operating condition of the meter during the machine operation.  
Inspect and service the machine based on hours as indicated in chapter 6, maintenance.



### (2) Fuel gauge



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

### (3) Engine coolant temperature gauge



- ① This indicates the temperature of coolant.
  - Red range : Above 105°C (221°F)
- ② When the red range pointed or warning lamp  ON, engine do not abruptly stop but run it at medium speed to allow it to cool gradually, then stop it.  
Check the radiator and engine.
- ※ If the engine is stopped without cooled down running, the temperature of engine parts will rise suddenly, this could cause severe engine trouble.
- ※ If the gauge indicates the red range or warning lamp  ON in red even though the machine is in the normal condition range, check the electric device as this can be caused by poor connection of sensor.

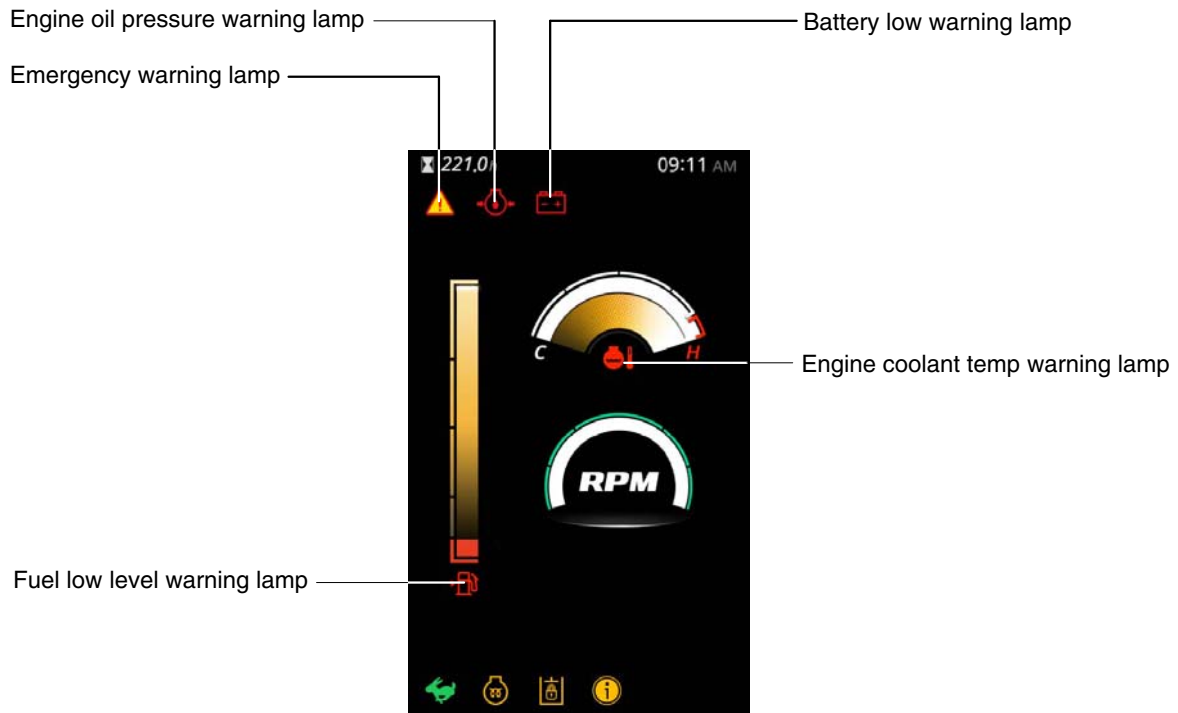
(4) Engine rpm gauge



17AZ3CD15

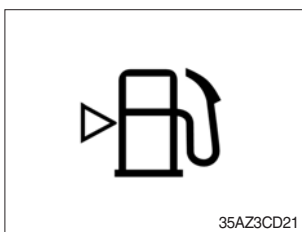
① This gauge indicates the engine speed.

### 3) WARNING LAMPS



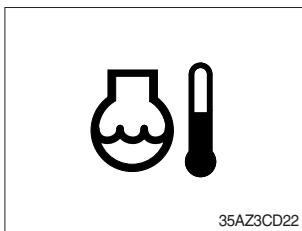
17AZ3CD20

#### (1) Fuel low level warning lamp



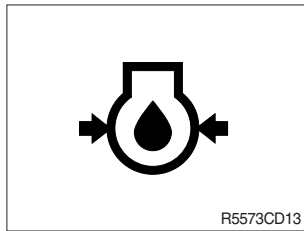
- ① This lamp lights up and buzzer sounds when the level of fuel is below 7 ℓ (1.8 U.S. gal).
- ② Fill the fuel immediately when the lamp ON.

#### (2) Engine coolant temperature warning lamp



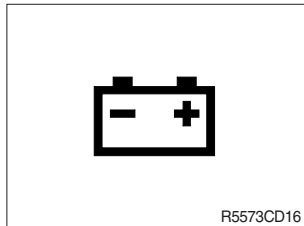
- ① This lamp lights up and buzzer sounds when the temperature of coolant is over the normal temperature 105°C (221°F).
- ② Check the cooling system when the lamp ON.

### (3) Engine oil pressure low warning lamp



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

### (4) Battery low warning lamp



- ① This lamp lights up and buzzer sounds when the starting switch is ON, it is turned OFF after starting the engine.
- ② Check the battery charging circuit when this lamp does not turn off, or turns on or blinks during engine operation.

### (5) Emergency warning lamp





- ① This lamp pops up and the buzzer sounds when each of the below warnings occurs.
  - Engine coolant temperature high warning lamp ON
- ※ **The pop-up warning lamp moves to the original position and lights up when the buzzer stop switch is pushed or pop-up is touched. The buzzer will stop. This is same as following warning lamps.**
- ② When this warning lamp lights up, machine must be checked and serviced immediately.

4) PILOT LAMP

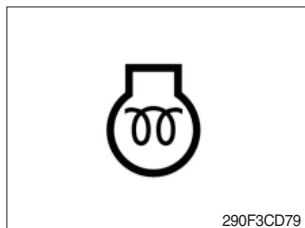


17AZ3CD30

(1) Travel mode pilot lamp

No	Mode	Pilot lamp	Selected mode
1	Travel mode	 	Low speed traveling High speed traveling

## (2) Preheat pilot lamp



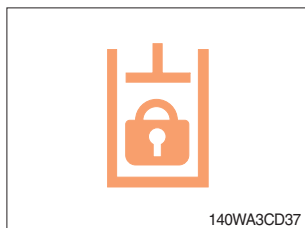
- ① Turning the start key switch to the ON position starts preheating in cold weather.
- ② Start the engine after this lamp goes OFF.
- ※ **Refer to page 4-4 for details.**

## (3) Maintenance pilot lamp



- ① This lamp lights up when consumable parts are in need of replacement. It means that the change or replacement interval of parts is 30 hours from the required change interval.
- ② Check the message in maintenance information of main menu. Also, this lamp lights up for 3 minutes when the start switch is switched to the ON position.

## (4) Manual safety lock pilot lamp



- ① This lamp lights up when the safety lever is set to the LOCK position.
- ※ **Refer to page 3-27 for the safety lever.**



## 5) SWITCHES

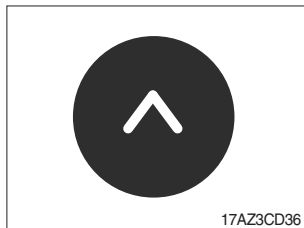
Sound short beep when each button is pressed.

### (1) Menu button



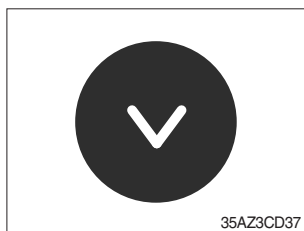
- ① Go into the menu screen.
- ※ Please refer to page 3-10.

### (2) Left/up/(+) button



- ① Move left in sub menu.
- ② Move up in menu list
- ③ Increase input value in menu

### (3) Right/down/(-) button



- ① Move right in sub menu.
- ② Move down in menu list
- ③ Decrease input value in menu

### (4) Enter and buzzer stop button



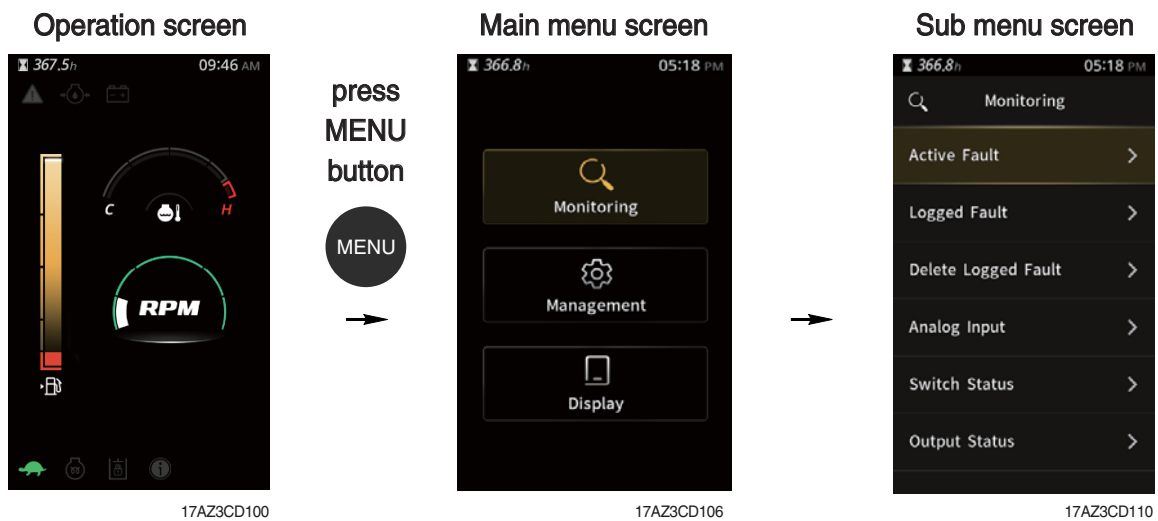
- ① Select menu (enter).
- ② Stop buzzer sound when press this button immediately.

### (5) ESC





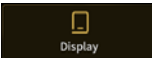
- ① Escape in the menu.

## 6) MAIN MENU



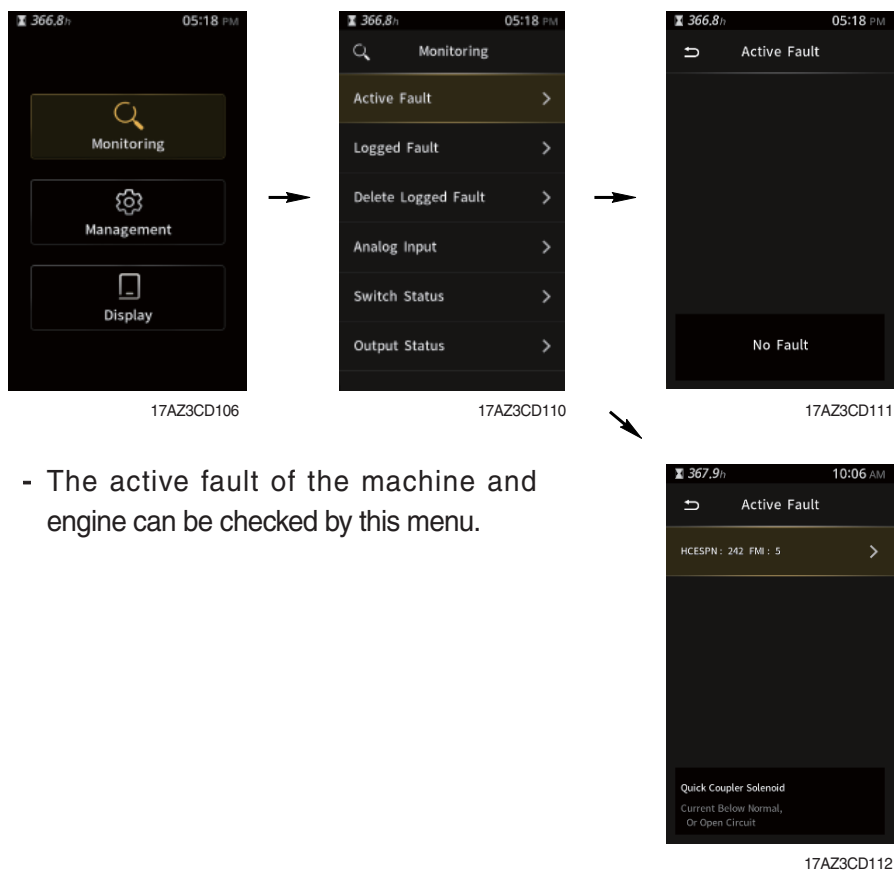
- ※ Please refer to the switches, page 3-9 for selection and change of menus and input values.
- ※ In the operation screen, press the menu button to access the sub-menu screen.

### (1) Structure

No	Main menu	Sub menu	Description
1	 <b>Monitoring</b> 17AZ3CD103	Active fault Logged fault Delete logged fault Analog input Switch status  Output status	Active fault Logged fault Delete logged fault Coolant temp., Battery volt, Engine speed Safety lever, Quick coupler 1, Quick coupler 2, Travel speed Quick coupler solenoid, Start limit relay, Buzzer
2	 <b>Manage</b> 35AZ3CD104	Operating hours Maintenance ESL mode Change password Machine information A/S phone number	A day's operating hours Elapse, Interval, Replacement etc. Disabled, Enable (Always), Enable (Interval) Change password Machine, Engine, Cluster A/S phone number, A/S phone number change
3	 <b>Display set</b> 17AZ3CD105	Clock adjust Brightness Unit Language	12 hours, 24 hours Manual, Auto Temperature Korean, English, Turkish, etc (total 12 languages)

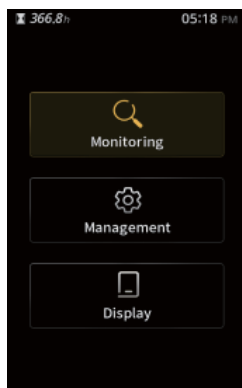
## (2) Monitoring

### ① Active fault

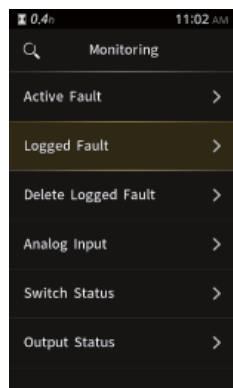


- The active fault of the machine and engine can be checked by this menu.

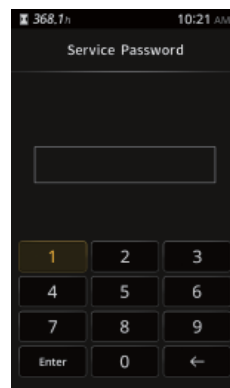
## ② Logged fault



17AZ3CD106



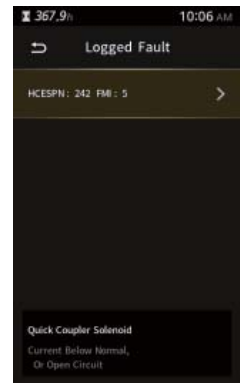
17AZ3CD113



17AZ3CD114



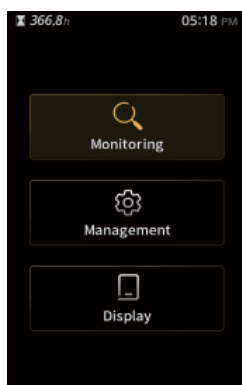
17AZ3CD115



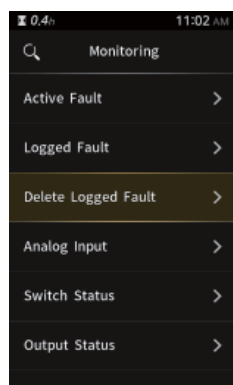
17AZ3CD116

- The logged fault of the machine and engine can be checked by this menu.
- This menu can be used only HCE service man.

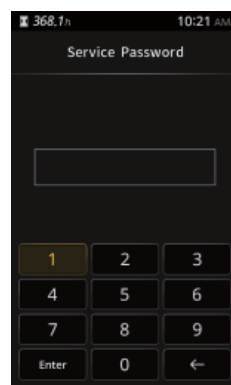
### ③ Delete logged fault



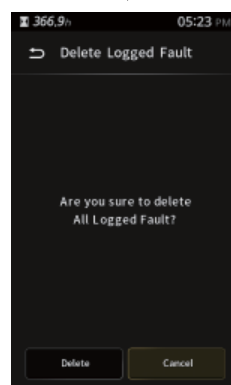
17AZ3CD106



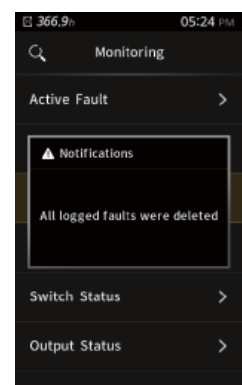
17AZ3CD117



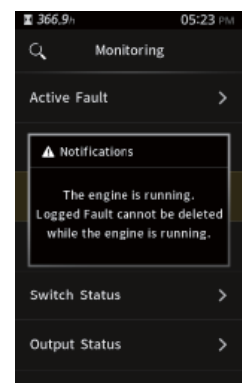
17AZ3CD118



17AZ3CD119



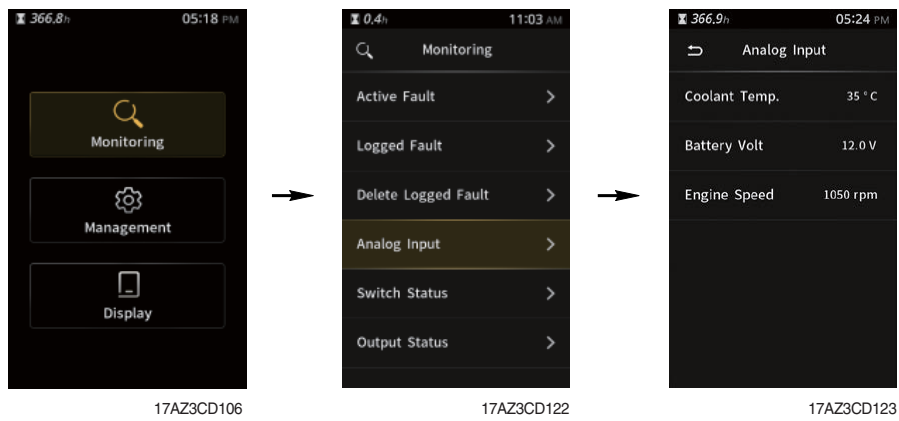
17AZ3CD120



17AZ3CD121

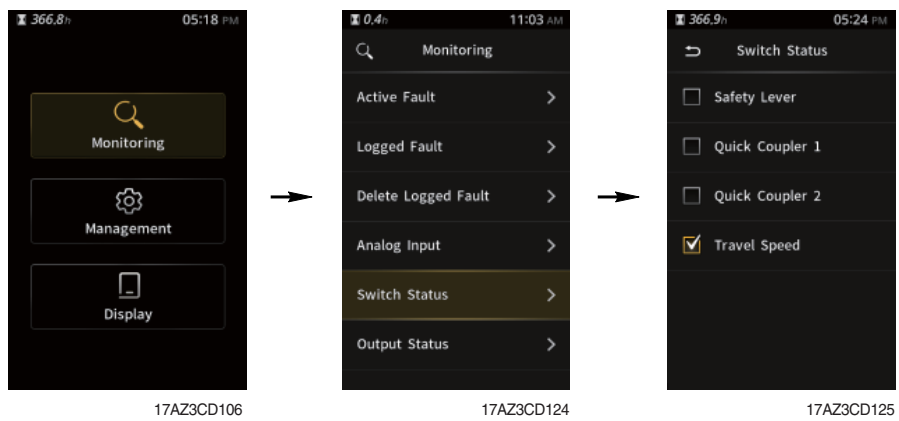
- The logged fault of the machine and engine can be deleted by this menu.  
(It is possible under the engine stop conditions)

#### ④ Analog input



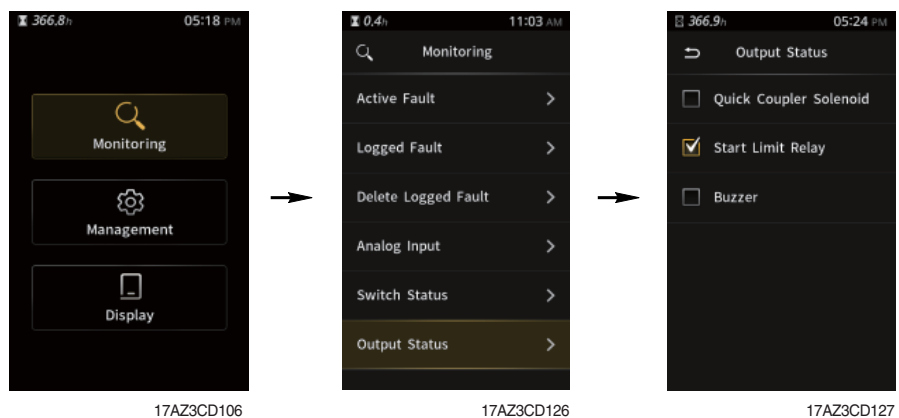
- The machine status such as the engine speed, coolant temperature, battery voltage can be checked by this menu.

#### ⑤ Switch status



- The switch input status can be checked by this menu.

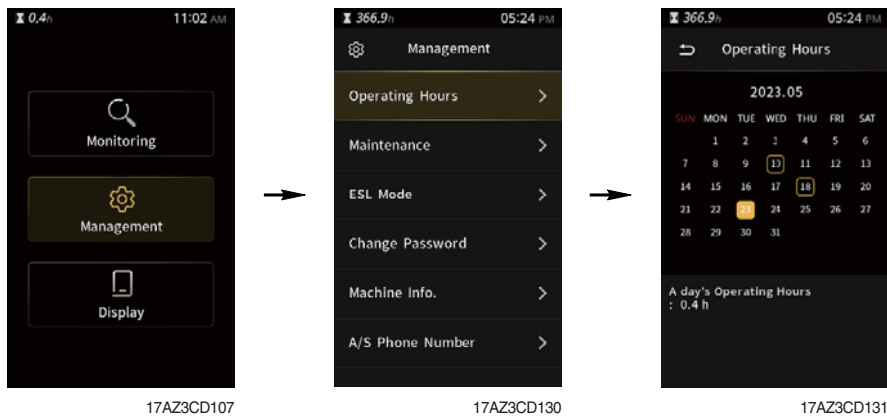
#### ⑥ Output status



- The output status can be confirmed by this menu.

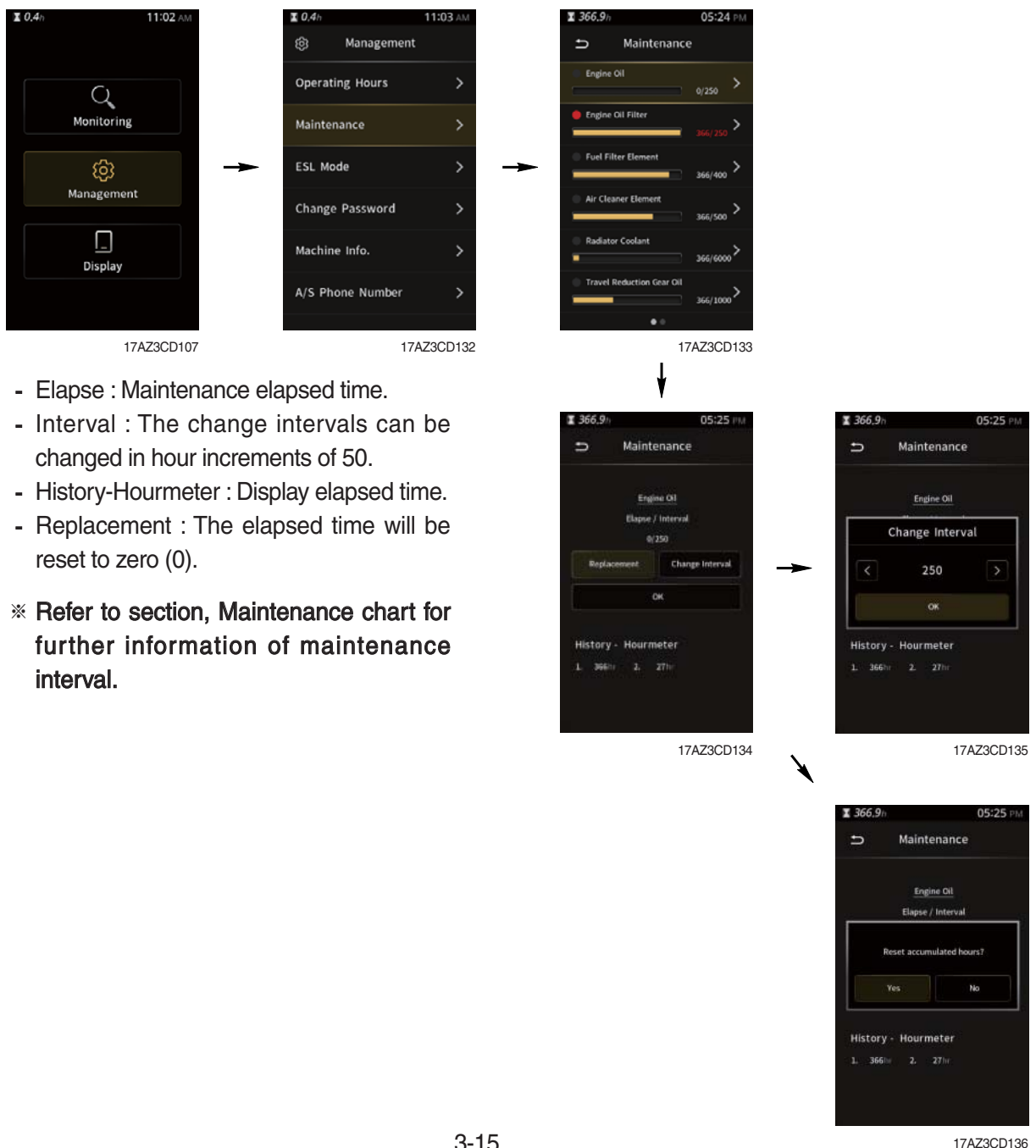
### (3) Manage

#### ① Operating hours



- You can check the operating hours by this menu.

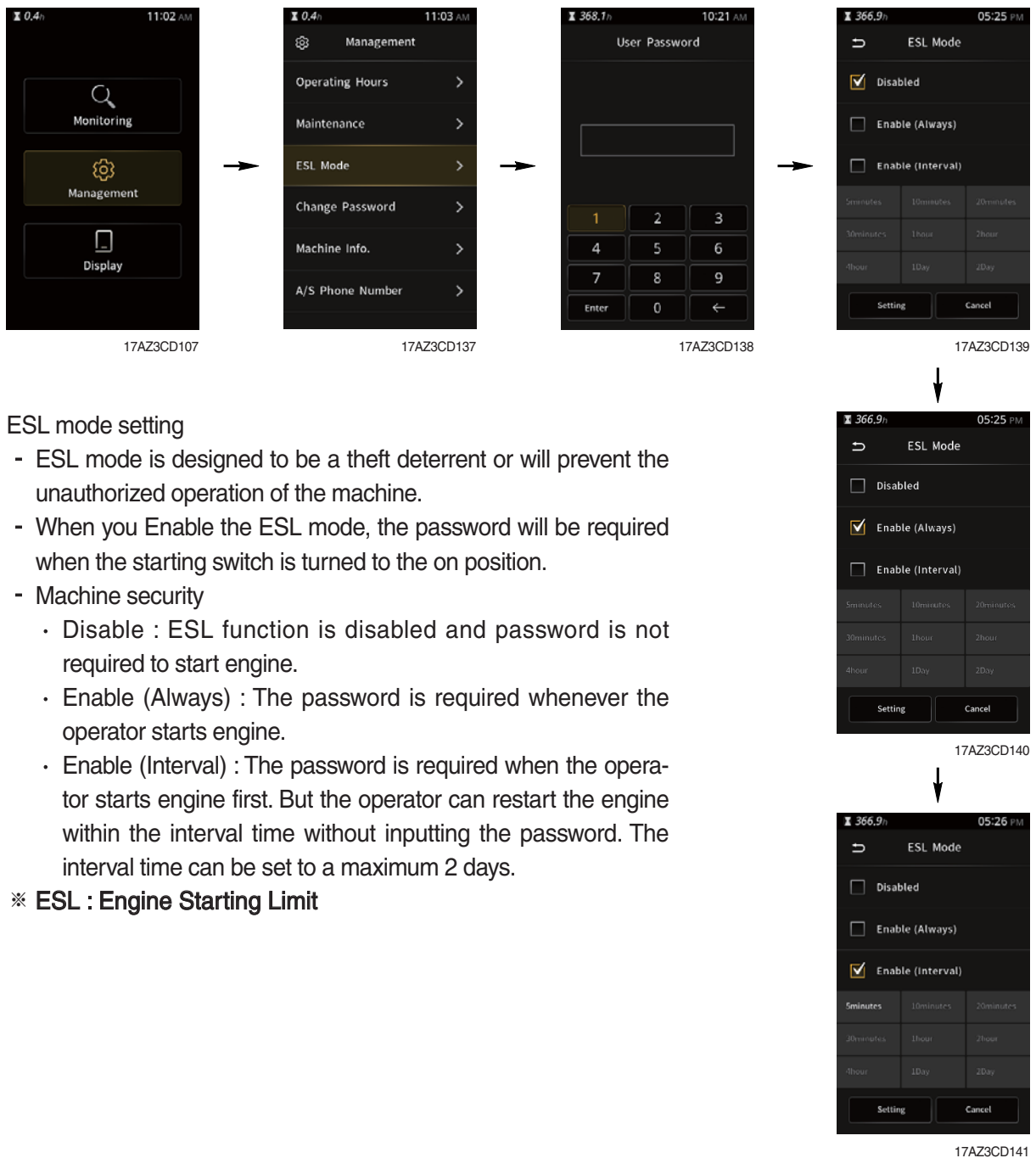
#### ② Maintenance



- Elapse : Maintenance elapsed time.
- Interval : The change intervals can be changed in hour increments of 50.
- History-Hourmeter : Display elapsed time.
- Replacement : The elapsed time will be reset to zero (0).

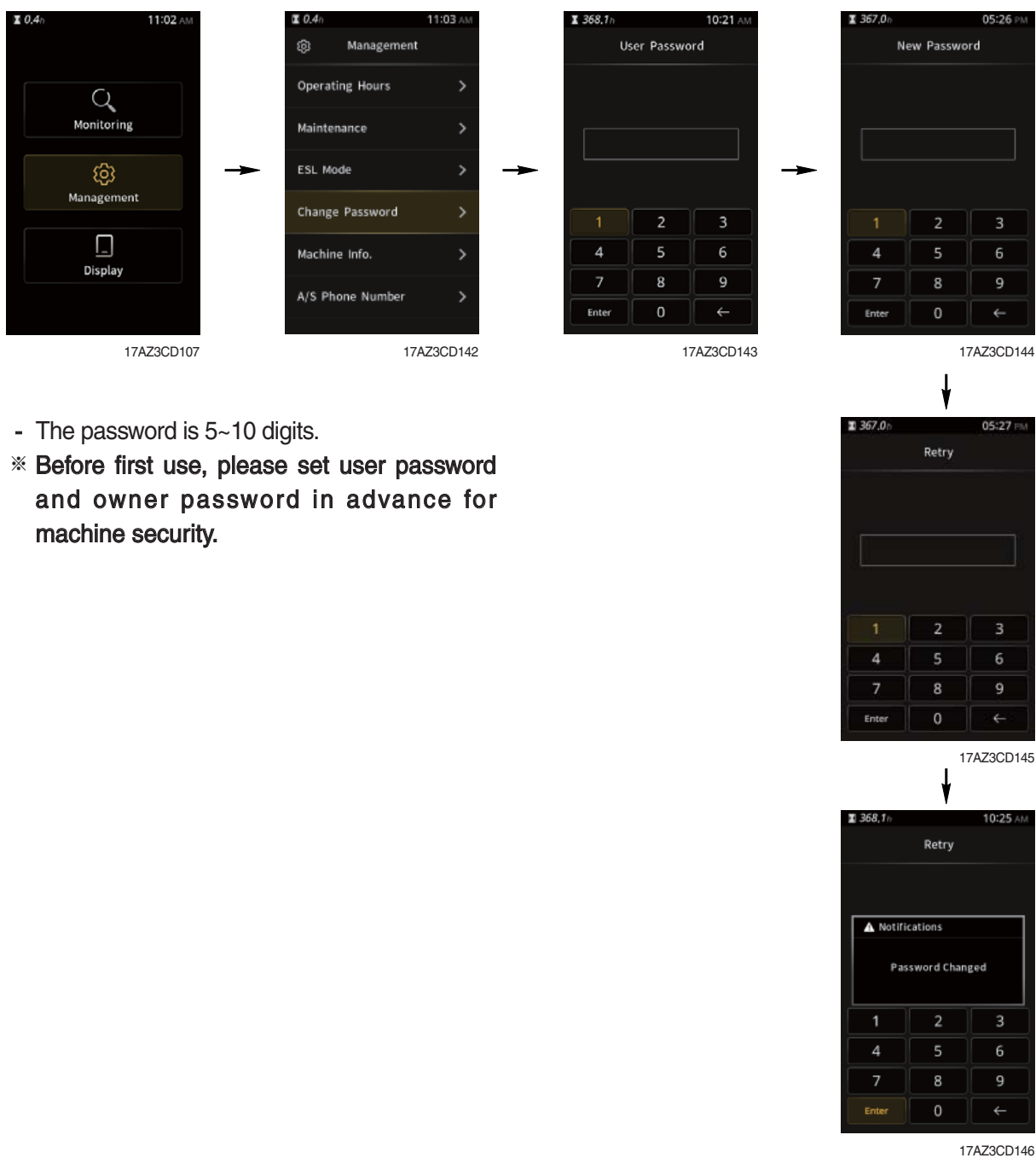
※ Refer to section, Maintenance chart for further information of maintenance interval.

### ③ ESL mode





#### ④ Change password

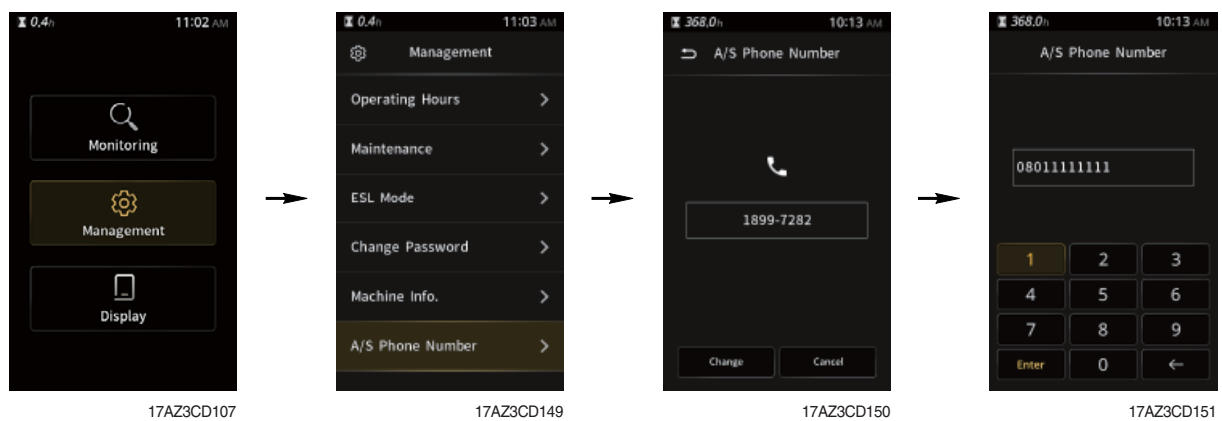


## ⑤ Machine information



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

## ⑥ A/S phone number



- The A/S phone number can be checked and changed.

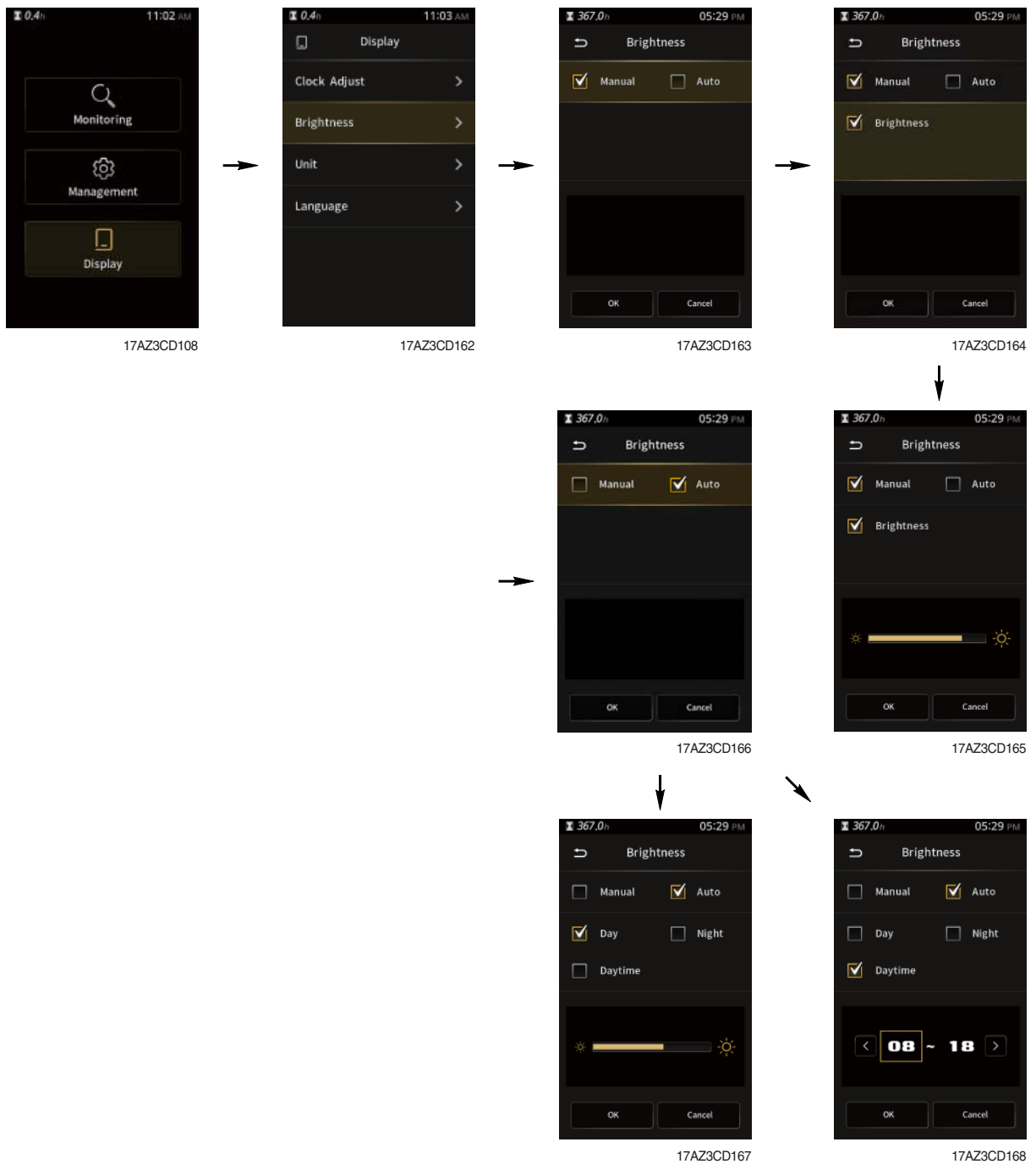
#### (4) Display set

##### ① Clock adjust



- Set the time (12 hours or 24 hours)

## ② Brightness



- Manual : Manual setting for LCD brightness.
- Automatic : Automatic control of LCD brightness as set level of Day/Night.
- Setting day time : Set the time for daylight.

(in figure, black area represents night time while orange shows day time)

### ③ Unit



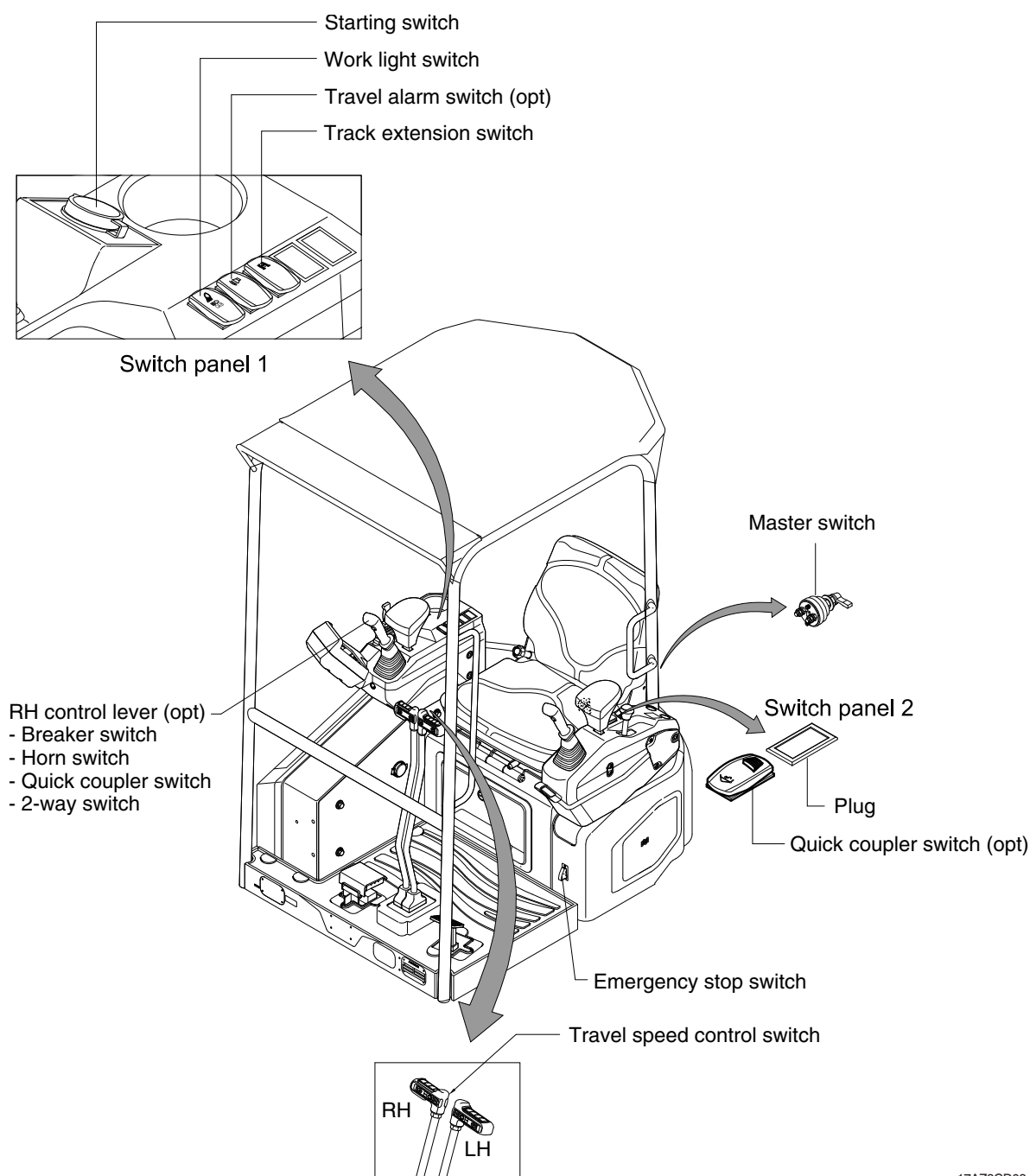
- Temperature : °C ↔ °F

### ④ Language



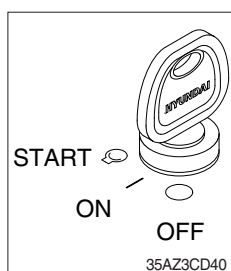
- User can select preferable language and all displays are changed to the selected language (한국어, English, Turkish, etc ; total 12 languages).

### 3. SWITCHES



17AZ3CD03

#### 1) STARTING SWITCH

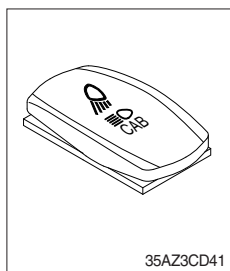


(1) There are three positions, OFF, ON and START.

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

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

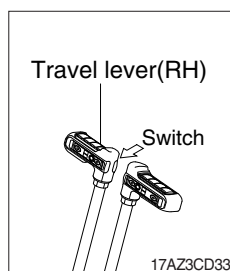
## 2) WORK LIGHT SWITCH



(1) This switch use to operates the switch illumination lamp and work light by two step.

- First step : Light switch illumination lamp comes ON.
- Second step : Work light comes ON.

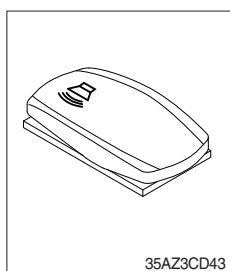
## 3) TRAVEL SPEED CONTROL SWITCH



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

(2) The travel speed pilot lamp lights ON on the cluster.

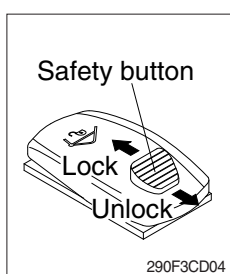
## 4) TRAVEL ALARM SWITCH (option)



(1) This switch is the signal to alarm surroundings when the machine travels to forward and backward.

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

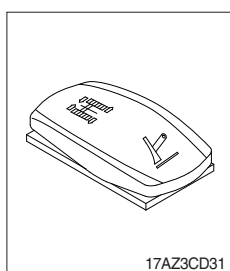
## 5) QUICK COUPLER SWITCH (option)



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

※ Refer to the page 8-6 for details.

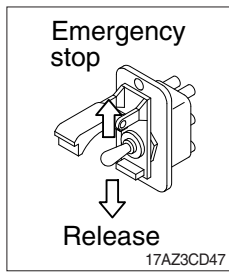
## 6) TRACK EXTENSION SWITCH



(1) This switch is used to select the track operation.

※ Refer to the page for 3-27 details.

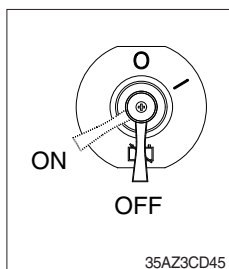
## 7) EMERGENCY STOP SWITCH



- (1) This switch is used to emergency stop the engine.
- (2) When the users control the emergency switch, the switch should not be maintained on "EMERGENCY STOP" position more than 10 seconds in order to avoid its failure.
- (3) The users remind that it should be turned back to original "RELEASE" position within 10 seconds.

※ **Be sure to keep the emergency switch on the release position when restart the engine.**

## 8) MASTER SWITCH

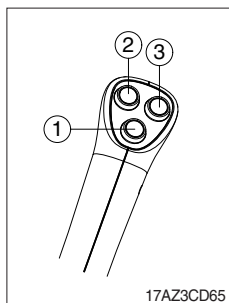


- (1) This switch is used to shut off the entire electrical system.
  - I : The battery remains connected to the electrical system.
  - O : The battery is disconnected to the electrical system.

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

## 9) LH RCV LEVER SWITCH

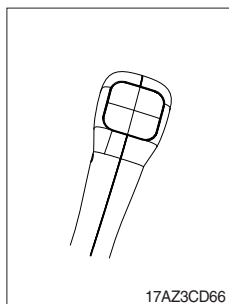
### (1) Without proportional type



The switches on the LH RCV lever are function as below.

- ① None
- ② None
- ③ None

### (2) With proportional type (option)

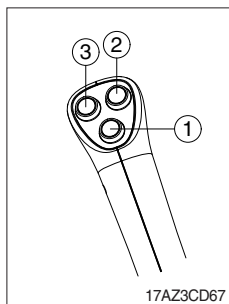


There is no switch on the LH RCV lever.



## 10) RH RCV LEVER SWITCH

### (1) Without proportional type



The switches on the RH RCV lever are function as below.

① **Horn switch**

When this switch is pressed, the horn will sound.

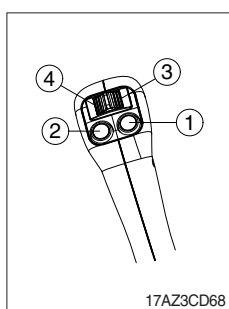
② **None**

③ **Quick coupler switch**

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

※ **Refer to page 8-10.**

### (2) With proportional type (option)



The switches on the RH RCV lever are function as below.

① **Horn switch**

When this switch is pressed, the horn will sound.

② **Quick coupler switch**

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

※ **Refer to page 8-10.**

③ **Breaker switch (One way flow)**

When this switch is pressed, the breaker will only operate when the breaker operation mode is selected.

※ **Refer to page 4-27.**

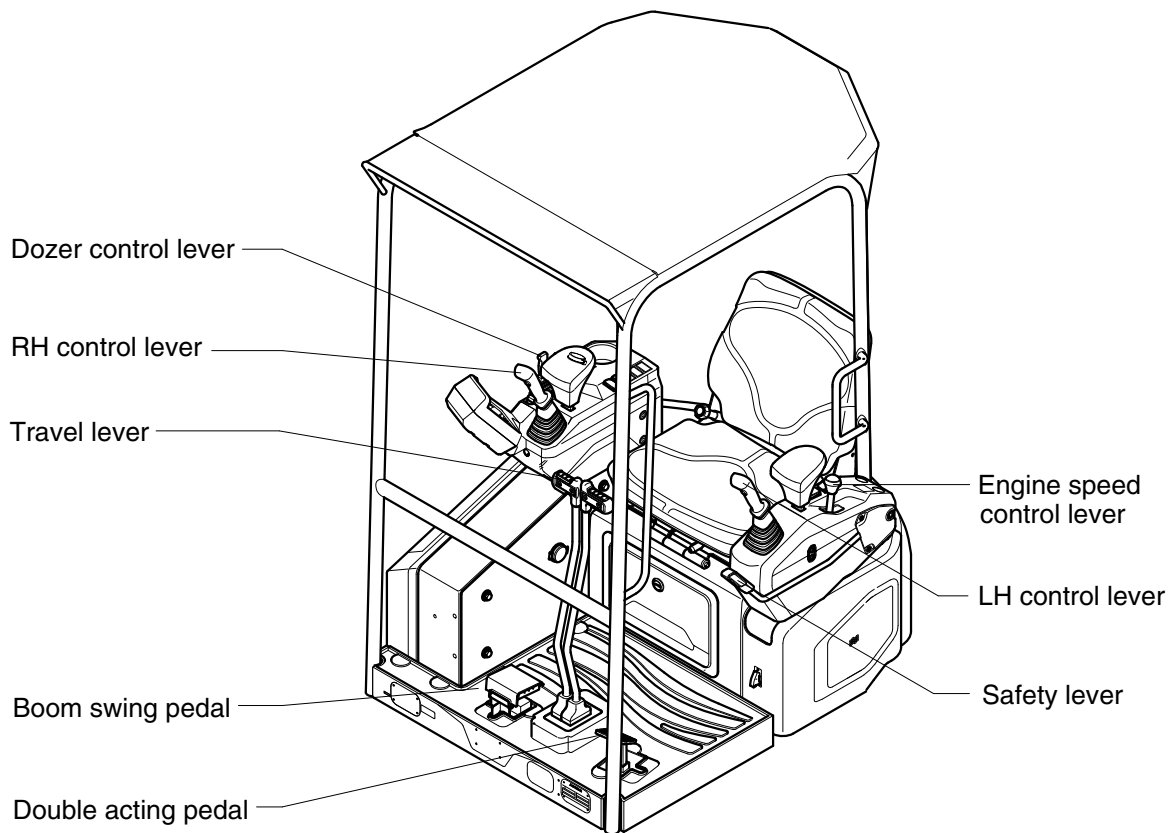
④ **2-way release switch (Two way flow)**

This switch is used to release for the shear.

④ **2-way clamp switch (Two way flow)**

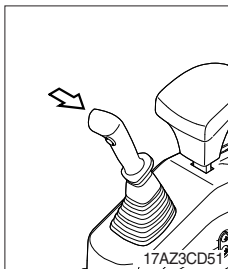
This switch is used to clamp for the shear.

## 4. LEVERS AND PEDALS



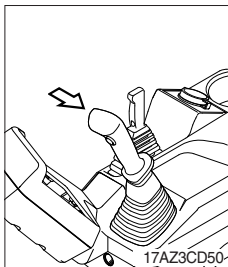
17AZ3CD05

### 1) LH CONTROL LEVER



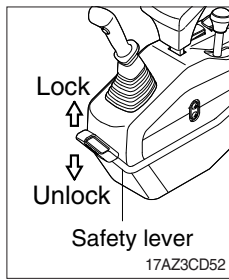
- (1) This joystick is used to control the swing and the arm.
- (2) Refer to operation of working device in chapter 4 for details.

### 2) RH CONTROL LEVER



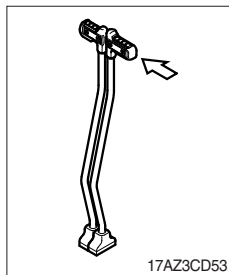
- (1) This joystick is used to control the boom and the bucket.
  - (2) Refer to operation of working device in chapter 4 for details.
  - (3) The breaker switch, horn switch, quick coupler switch and 2-way switch are installed on the control lever.
- ※ Refer to page 3-25 for details of the switch function.

### 3) SAFETY LEVER



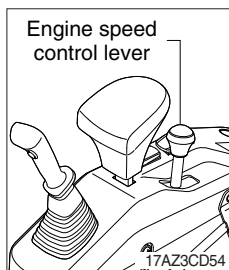
- (1) All control levers are disabled from operation by locating the lever to lock position as shown.
  - ※ **Be sure to raise the lever to LOCK position when leaving from operator's seat.**
- (2) By pushing lever to UNLOCK position, machine is operational.
  - ※ **Do not use the safety lever for handle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

### 4) TRAVEL LEVER



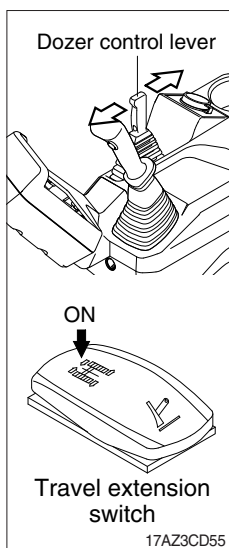
- (1) This lever is used to move the machine forward or backward.
- (2) If left side lever is pushed or pulled, left track will move.  
If right side lever is pushed or pulled, right track will move.
- (3) Refer to traveling of machine in chapter 4 for details.

### 5) ENGINE SPEED CONTROL LEVER



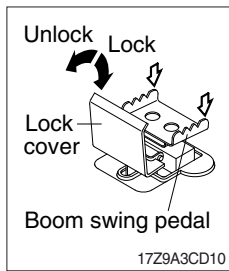
- (1) This lever is used to increase or decrease the rotation speed of engine.
- (2) Move the lever backward to increase engine RPM. Move the lever forward to decrease engine RPM.
- (3) When stopping the engine, move the engine speed control lever forward completely and turn key OFF.

### 6) DOZER CONTROL LEVER



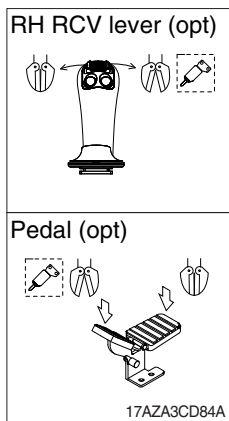
- (1) This lever is used to operate the dozer blade or crawler.
- (2) Travel extension switch : OFF  
The lever is pushed forward, the dozer blade will be going down.  
The lever is pulled back, the dozer blade will be going up.
- (3) Travel extension switch : ON  
The lever is pushed forward, the track extend out the maximum length.  
The lever is pulled back, the track retract to the minimum one.
  - ※ **Refer to the page 3-23 for the travel extension switch.**

## 7) BOOM SWING PEDAL



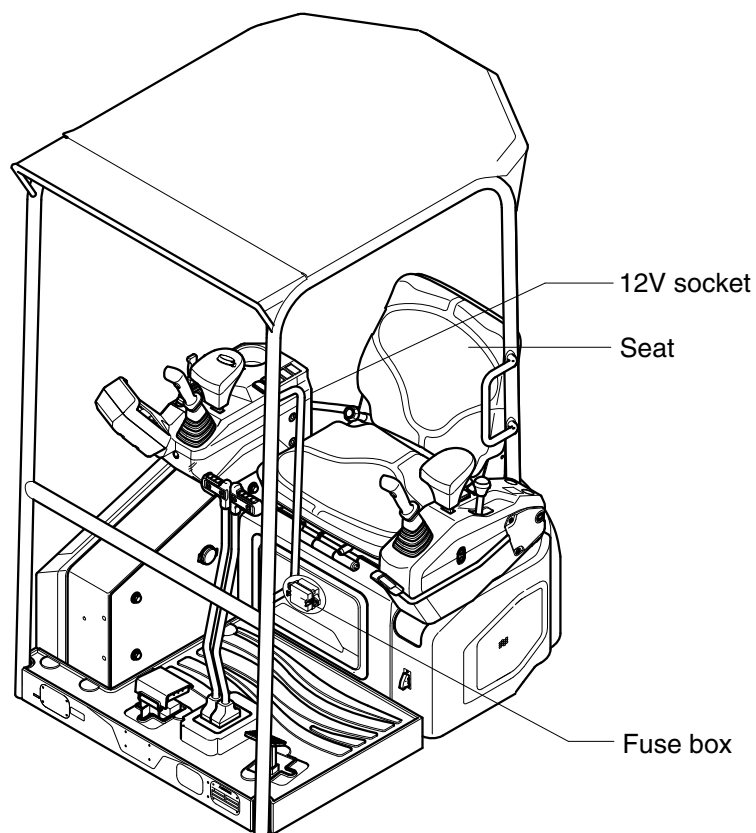
- (1) This pedal is used to swing the boom to the right or left direction.
- (2) Move the lock cover to unlock position by foot.
- (3) The pedal is pressed to left side, boom will swing to the left direction.  
The pedal is pressed to right side, boom will swing to the right direction.

## 8) DOUBLE ACTING SWITCH AND PEDAL (option)



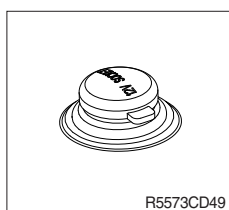
- (1) This switch or pedal is used to operate the breaker or shear if equipped.
  - ※ This switch applies to single or double action hydraulic attachment circuit.
  - ※ This pedal applies to single or double action hydraulic attachment circuit.
  - ※ Refer to page 4-27.

## 5. OTHERS



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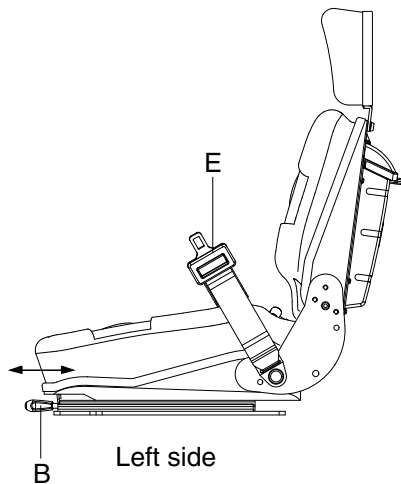
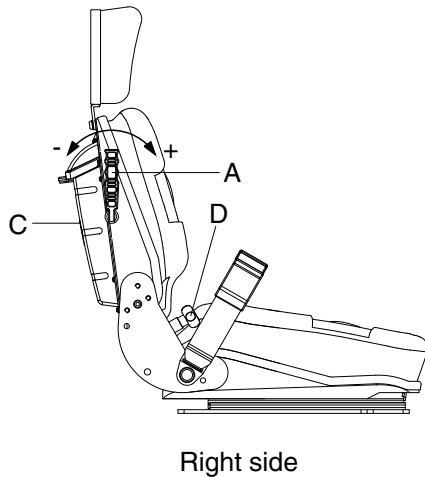
### 1) 12V SOCKET (option)



(1) Utilize the power of 12V as your need and do not exceed power of 12V, 120W.

## 2) SEAT

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



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### (1) Weight adjustment (A)

※ Make the adjustment while the operator is seated, so that the seat is loaded.

#### **Mechanical suspension incorporated in the seat-back**

Turn the lever situated on the right side of the seat-back. Correct adjustment is reached when the seat height is taken to half the travel stroke of the suspension.

### (2) Longitudinal adjustment (B)

Move the adjustment lever on the left guide of the seat to unlock the guides.

When adjustment is completed, ensure that the lever "clicks" and locks the guides. Check that the seat does not move longitudinally.

### (3) Document holder pocket (C)

Rigid pocket with upper cover open the pocket by lifting the cover upwards.

### (4) Inclination of the seatback (D)

For tilting back seats, press the lever on the lower right near the seat to free the seatback. With your back resting against the seatback, move the seatback to the desired position, release the lever and accompany it up to the first perceptible click. Then check that the seatback is locked.

### (5) Safety belt (E)

Static safety belt adjust the length based on the operator's abdominal size while he is resting against the seatback and keeping the safety belt adherent to the lower part of the abdomen on the thigh side. While keeping the tang perpendicular to the belt, shorten if by pulling part (free end) and lengthen if by pulling part.

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

⚠ Fail to wear a seat belt during the machine operation may result in serious injury or death in the event of an accident or machine overturn.

### 3) FUSE BOX

TRAVEL ALARM EXT. V/V	20A	20	B+	20A
GLOW	10A	SPARE 04I B1	START SIGNAL	10A
EPPR SOL	10A	10	HORN	10A
FUEL FEED ALT	10A	SPARE 04I B1	POWER OUTLET	20A
TRAVEL SOL	5A	5	WORK LAMP CANIN ILLUMI	20A
FUSE PULLER		SPARE 04I B1	Q/C SOL SAFETY SOL	10A
			KEY ON IG	20A

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(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.

※ **When replacing a fuse or relay, always use one of the same capacity.**

▲ **Before replacing a fuse or relay, be sure to turn OFF the starting switch.**