

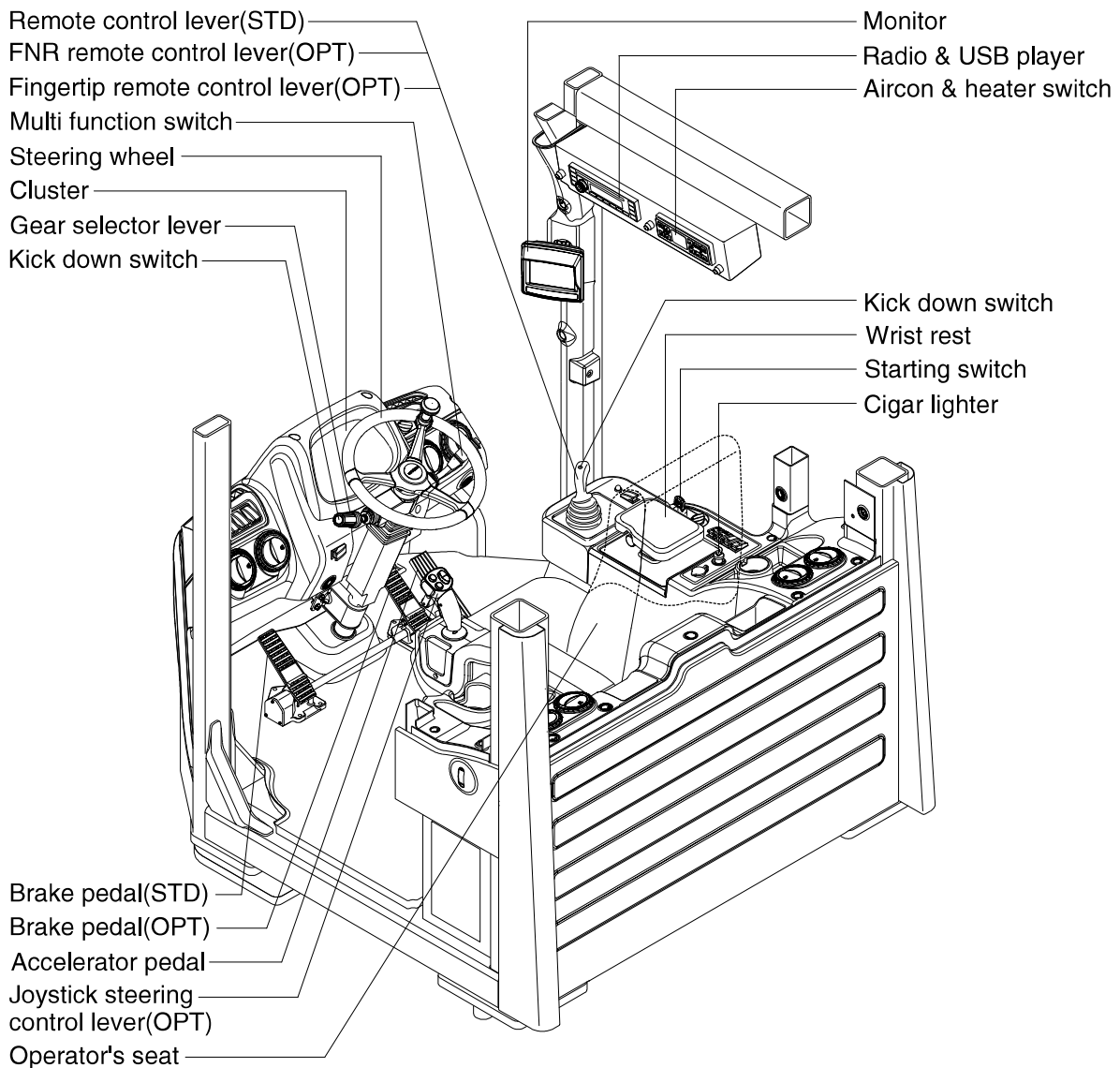
3. CONTROL DEVICES

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.



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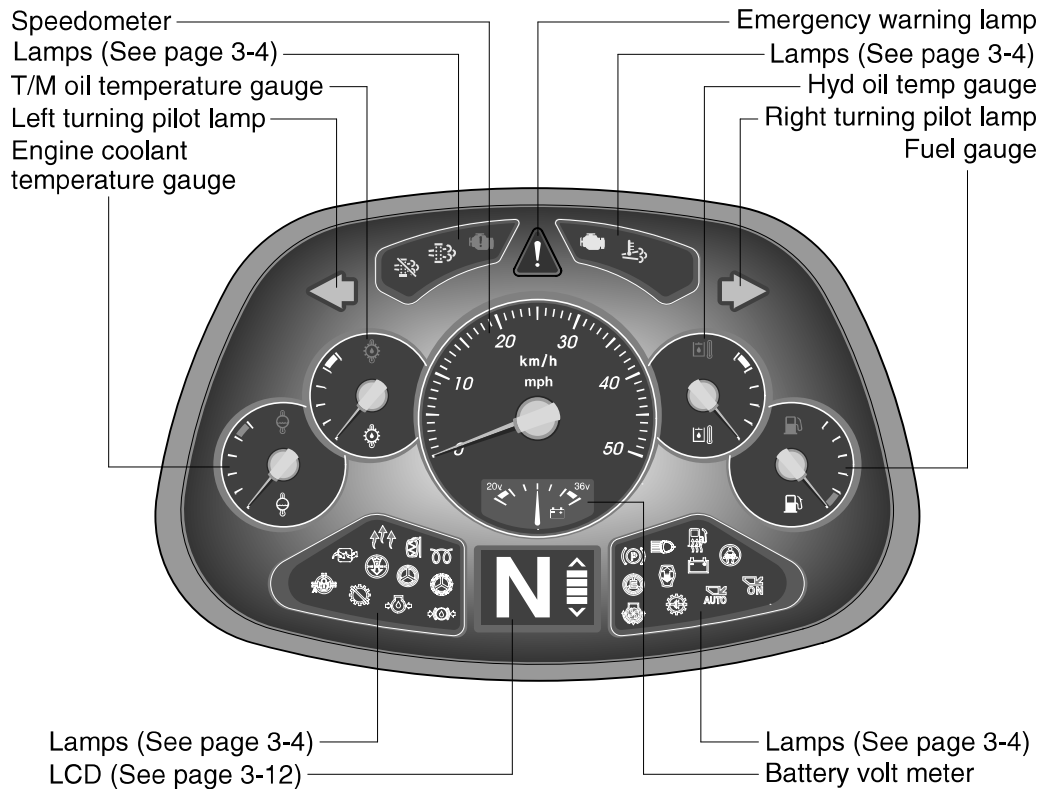
2. CLUSTER

1) STRUCTURE

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

- Gauges : Indicate operating status of the machine.
- Warning lamps : Indicate abnormality of the machine.
- Pilot lamps : Indicate operating status of the machine.
- LCD : Indicates selected the driving speed and direction.

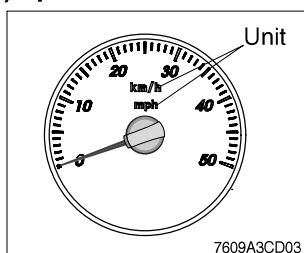
- ※ The cluster installed on this machine does not entirely guarantee the condition of the machine. Daily inspection should be performed according to chapter 6, MAINTENANCE.
- ※ When the cluster provides a warning immediately check the problem, and perform the required action.



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2) GAUGE

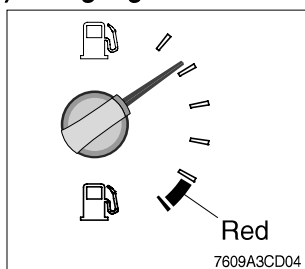
(1) Speedometer



7609A3CD03

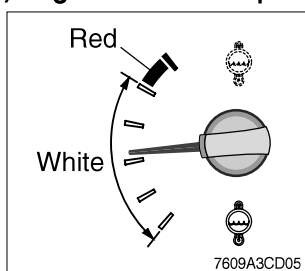
- ① The speedometer displays the speed of machine in mph and km/h.
- ※ The unit (km/h or mph) can be set by the display set up menu of the monitor and selected unit is displayed.
Refer to page 3-31.

(2) Fuel gauge



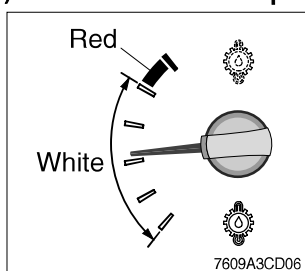
- ① This gauge indicates the amount of fuel in the fuel tank.
 - ② Fill the fuel when the indicator moves red range or  lamp blinks in red, refuel as soon as possible to avoid running out of fuel.
- ※ If the gauge indicates below red range even though the machine is on the normal condition, check the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

(3) Engine coolant temperature gauge



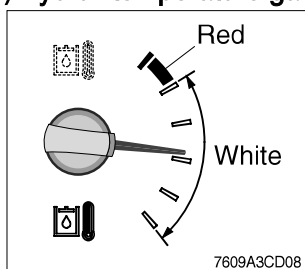
- ① This gauge indicates the temperature of coolant.
 - White range : 40~107°C (104~225°F)
 - Red range : Above 107°C (225°F)
- ② If the indicator is in the red range or  lamp blinks in red, turn OFF the engine and check the radiator and engine.

(4) Transmission oil temperature gauge



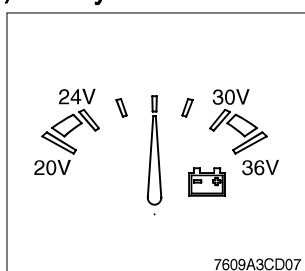
- ① This gauge indicates the temperature of transmission oil.
 - White range : 40~107°C (104~225°F)
 - Red range : Above 107°C (225°F)
- ② If the indicator is in the red range or  lamp blinks in red, it means the transmission is overheated. Be careful that the indicator does not move into the red range.

(5) Hyd oil temperature gauge



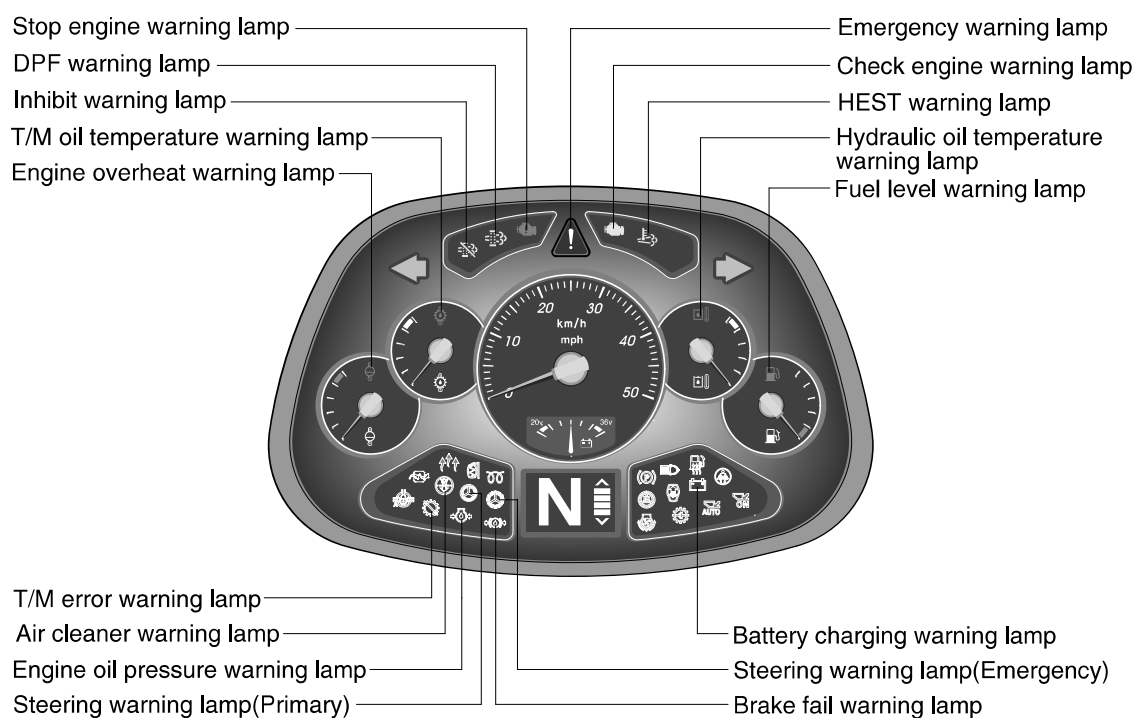
- ① This gauge indicates the temperature of hydraulic oil.
 - White range : 40~105°C (104~221°F)
 - Red range : Above 105°C (221°F)
- ② If the indicator is in the red range or  lamp blinks in red, reduce the load on the system.
- ③ If the gauge stays in the red range, stop the machine and check the cause of the problem.

(6) Battery volt meter



- ① This gauge indicates the voltage in the charging system when the engine is running.
- ② If the indicator is below 24V, it means that the electricity is being discharged. If the indicator is above 30V, an unusually high voltage may damage the alternator. Check the charging system in both cases.

3) WARNING LAMPS



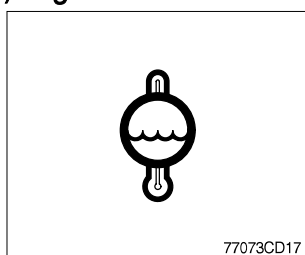
7609A3CD09

(1) Emergency warning lamp



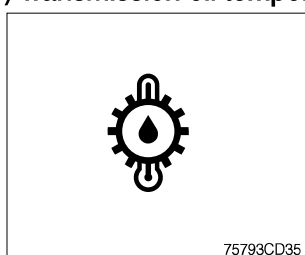
- ① This warning lamp blinks and the buzzer sounds when communication error occur between monitor and MCU.
- ② When this warning lamp blinks, machine must be checked and service immediately.

(2) Engine overheat warning lamp



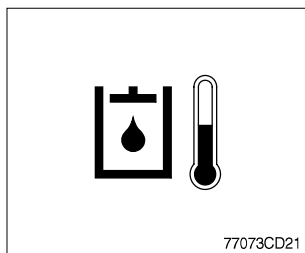
- ① This lamp is turned ON when the temperature of coolant is over the normal temperature (107°C, 225°F).
- ② Check the cooling system when the lamp is ON.

(3) Transmission oil temperature warning lamp



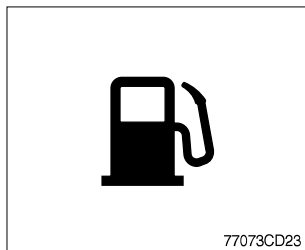
- ① This lamp informs the operator that transmission oil is above the specified temperature.
- ② When this lamp lights up during operation, stop the engine and check the machine.

(4) Hydraulic oil temperature warning lamp



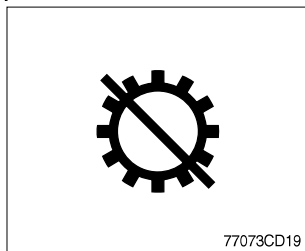
- ① This warning lamp operates and the buzzer sounds when the temperature of hydraulic oil is over 105°C (221°F).
- ② Check the hydraulic oil level when the lamp is turned ON.
- ③ Check for debris between oil cooler and radiator.

(5) Fuel level warning lamp



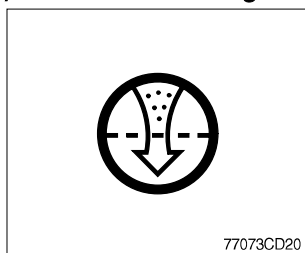
- ① This warning lamp lights ON when the fuel level is low. Refuel the machine as soon as possible.

(6) Transmission error warning lamp



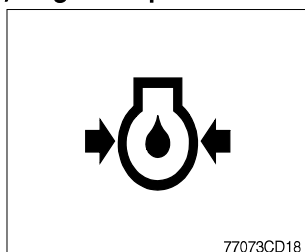
- ① This lamp lights ON and the LCD display show the error codes when an error occurs in the transmission.
 - ② Immediately pull the machine to a convenient stop. Stop the engine. Investigate the cause.
- ※ **Consult a HYUNDAI dealer to investigate the cause.**
 - ※ **Do not operate until the cause has been corrected.**

(7) Air cleaner warning lamp



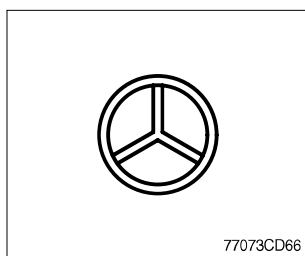
- ① This lamp lights ON when the filter of air cleaner is clogged.
 - ② When the air cleaner warning lamp is ON, clean the primary element.
- ※ **Replace the primary element after 4 times cleanings.**
 - ※ **The safety element should be replaced at the time the primary element is replaced.**

(8) Engine oil pressure warning lamp



- ① This lamp is comes ON after starting the engine because of the low engine oil pressure.
- ② If the lamp comes ON during engine operation, shut OFF engine immediately. Check engine oil level.

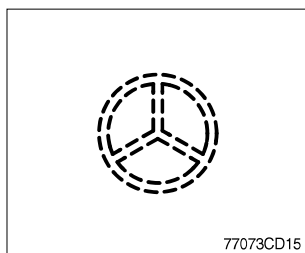
(9) Steering warning lamp



① Primary

This lamp indicates that the primary steering has failed. When the indicator comes on and the action alarm sounds, steer the machine immediately to a convenient location and stop the machine. Stop the engine and investigate the cause.

※ **Do not operate the machine until the cause has been corrected.**



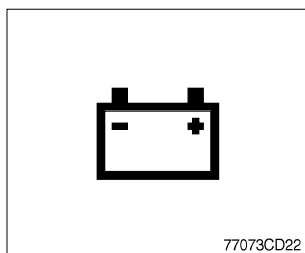
② Emergency

This lamp indicates the emergency steering system is active.

※ **Immediately pull the machine to a convenient stop and stop the engine.**

※ **The emergency steering system can be manually tested. Refer to page 3-37.**

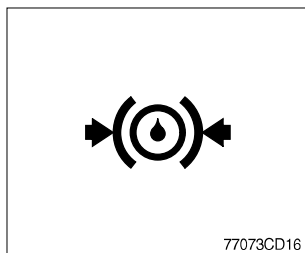
(10) Battery charging warning lamp



① This lamp is ON when key ON, it is turned OFF after starting the engine.

② Check the battery charging circuit when this lamp comes ON, during engine operation.

(11) Brake fail warning lamp

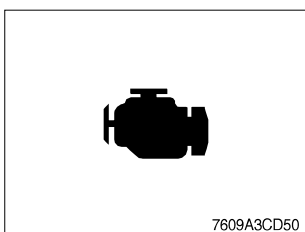


① The lamp lights ON when the oil pressure of service brake drops below the normal range.

② When the lamp is ON, stop the engine and check for its cause.

※ **Do not operate until any problems are corrected.**

(12) Check engine warning lamp



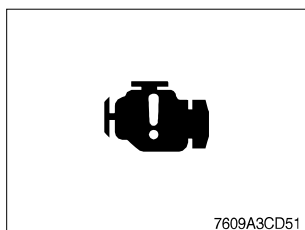
① This lamp lights ON and the buzzer sounds when the communication between MCU and engine ECM on the engine is abnormal, or if the cluster received any fault code from engine ECM.

② Check the communication line between them.

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

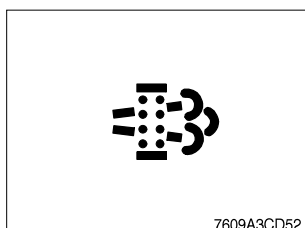
③ Also, this lamp lights ON when the level of DPF soot is high.

(13) Stop engine warning lamp



- ① If the lamp lights ON and the buzzer sounds, stop the engine immediately and check the engine.
 - ② Check the fault codes on the monitor.
- ※ Please contact your Hyundai service center or local dealer.

(14) DPF (Diesel particulate filter) warning lamp

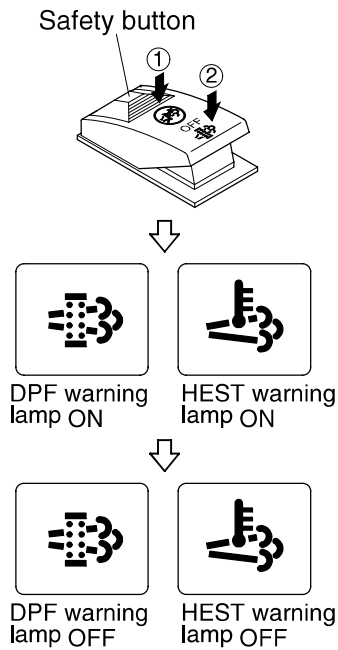


- ① This warning lamp lights ON or blinks when the regeneration is needed as table below.
- ※ Consequences of delaying regeneration
- Poor performance caused by increasing exhaust gas pressure.
 - Higher fuel consumption
 - Shorter filter lifetime

Condition	Warning lamp				Remedy
	DPF		Check engine	Stop engine	
	Automatic regeneration (unfunction)	Automatic regeneration (function)			
Normal	Off	Off	Off	Off	· Automatic regeneration
Soot low	On	Off	Off	Off	· Automatic or manual regeneration · When automatic regeneration start function DPF lamp automatically switched off
Soot midium	Blink	Off	Off	Off	· Initiate a manual regeneration as following page (When automatic regeneration did not work) · Engine power may be reduced automatically (soot medium)
Soot high	Blink	Off	On	Off	· Automatic regeneration did not work · Initiate a manual regeneration · Engine power and speed will be reduced automatically
Stop	Off	Off	Off	On	· Stop the engine immediatary. · Please contact your Hyundai service center or local dealer.

* Automatic regeneration start function depends on inside temperature of aftertreatment device.

※ Manual regeneration method of DPF



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※ Manual regeneration applies if the machine is in a fireproof area and there is no plan to turn off the machine during the regeneration.

① Stop and park the machine.

② Pull the safety button and push the switch to position ② to initiate the manual regeneration of DPF.

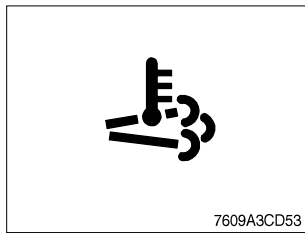
※ Refer to the page 3-39 for the switch operation.

※ The engine speed may increase to 950~1050 rpm and DPF regeneration begins and it will take approximately 20~30 minutes.

③ The DPF and HEST warning lamp will light ON during the regeneration function is operating.

④ The DPF and/or HEST warning lamp will light OFF when the regeneration function is completed.

(15) HEST (High exhaust system temperature) warning lamp



① This warning lamp indicates, when illuminated, that exhaust temperatures are high due to regeneration of the DPF.

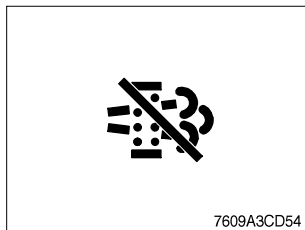
② The lamp will also illuminate during a manual regeneration.

③ When this lamp is illuminated, be sure the exhaust pipe outlet is not directed at any surface or material that can melt, burn, or explode.

⚠ When this lamp is illuminated, the exhaust gas temperature could reach 800°C [1500°F], which is hot enough to ignite or melt common materials, and to burn people.

※ The lamp does not signify the need for any kind of equipment or engine service; It merely alerts the equipment operator to high exhaust temperatures. It will be common for the lamp to illuminate on and off during normal equipment operation as the engine completes regeneration.

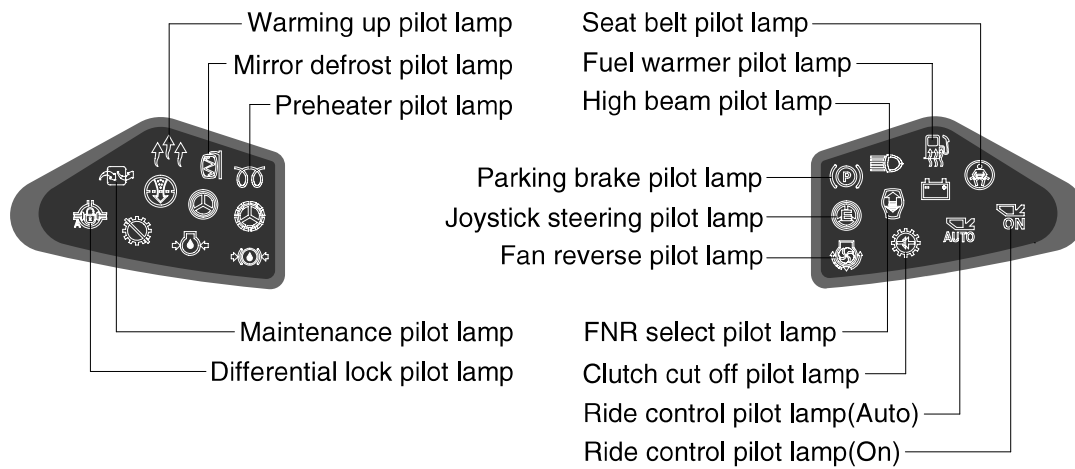
(16) DPF regeneration inhibit warning lamp



① This warning lamp indicates, when illuminated, the DPF switch is pushed inhibit position, therefore automatic and manual regeneration can not occur.

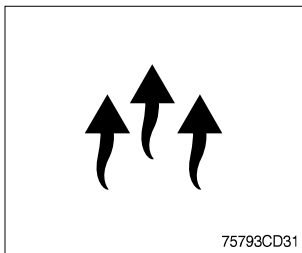
※ Refer to the page 3-39 for the DPF switch.

4) PILOT LAMPS



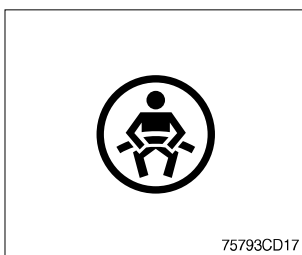
7609A3CD10

(1) Warming up pilot lamp



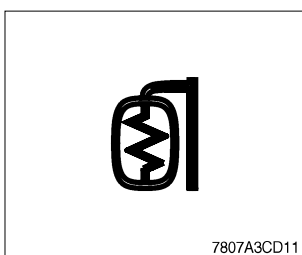
- ① This lamp is turned ON when the coolant temperature is below 30°C (86°F).
- ② The automatic warming up is cancelled when the engine coolant temperature is above 30°C, or when 10 minutes have passed since starting the engine.

(2) Seat belt pilot lamp



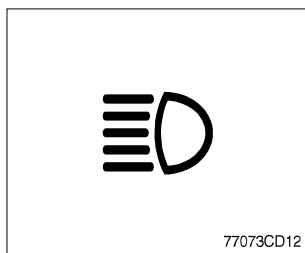
- ① This lamp lights ON for the first five seconds after starting the engine.

(3) Mirror defrost pilot lamp



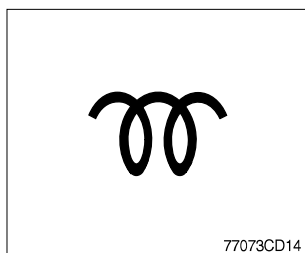
- ① This lamp comes ON when mirror defrost switch is pressed.
- ※ Refer to page 3-36 for details.

(4) High beam pilot lamp



- ① This lamp works when the illuminating direction is upward.
- ② This lamp comes ON when the dimmer switch is operated, e.g., when passing another vehicle.

(5) Preheat pilot lamp



- ① This lamp lights ON when start switch is turned clockwise to the ON position. Light will turn off after approximately 5~45 seconds, depending on engine temperature, indicating that preheating is completed.
- ② When the lamp goes out the operator should start cranking the engine.

※ Refer to page 4-5.

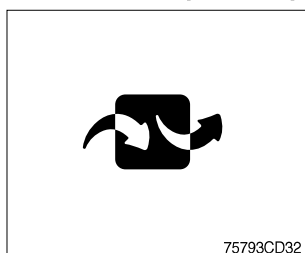
(6) Parking brake pilot lamp



- ① When the parking brake is actuated, the lamp lights ON.

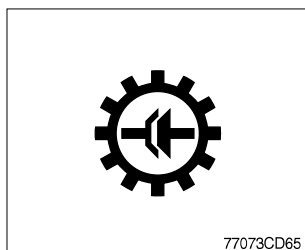
※ Check the lamp is OFF before driving.

(7) Maintenance pilot lamp



- 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 the monitor menu. Also, this lamp lights ON for 3 minutes when the start switch is ON position.

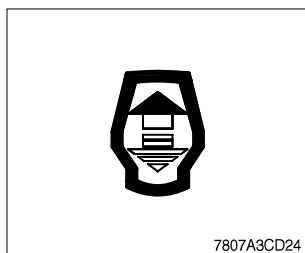
(8) Clutch cut off pilot lamp



- ① This lamp lights ON when clutch cut off mode switch is positioned L, M, H.

※ Refer to page 3-39.

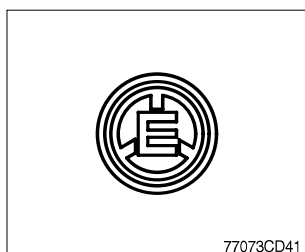
(9) FNR select pilot lamp (option)



- ① The lamp comes ON when FNR select button on the optional FNR remote control lever is pressed.

※ Refer to page 3-43.

(10) Joystick steering pilot lamp (option)



- ① This lamp lights ON when joystick steering is activated.
It is then possible to steer the machine and select gears from the armrest to the left of the operator's seat.

※ Refer to page 3-45.

(11) Ride control pilot lamp (option)



① **Auto ride control**

This lamp lights ON when push in the bottom of the ride control switch (auto position).

※ Refer to page 3-37.



② **Manual ride control**

This lamp lights ON when push in the top of the ride control switch (manual position)

※ Refer to page 3-37.

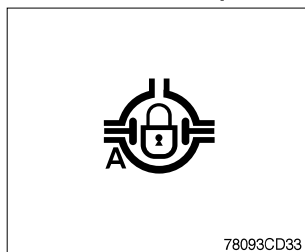
(12) Fan reverse pilot lamp



- ① This lamp lights ON when the fan control switch is pressed.

※ Refer to page 3-36.

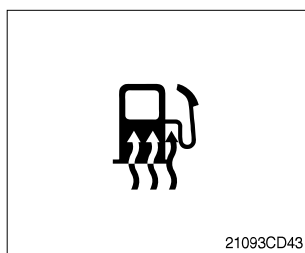
(13) Differential lock pilot lamp (option)



- ① This lamp lights ON when the differential lock function is operating.

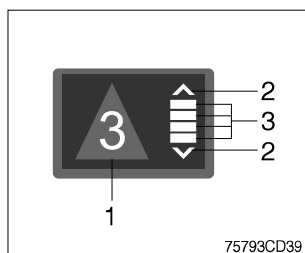
※ Refer to page 3-38.

(14) Fuel warmer pilot lamp



- 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 and the hydraulic oil temperature is above 45°C since the start switch was ON position.

5) LCD



- (1) The LCD can be used with the gear selector.

It indicates speed and driving direction.

No	Symbol	Meaning	Remark
1	△, ▽, □	Actual gear display	Forward, reverse, neutral
	1, 2, 3, 4, 5		Actual gear
	P		Parking brake mode active
2	▲, ▼	Forward, reverse	Automatic mode
3	≡	Gear range display	Automatic mode

3. MONITOR (5.7 inch touch screen)

- The monitor is adjustable.
 - Vertical : 14°
 - Horizontal : 30°



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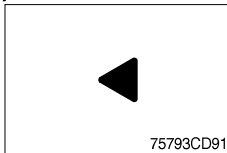
1) BUTTONS

(1) Menu button



- ① Main display to main menu, main menu to main display.
- ② AEB cancel or finish button in AEB.

(2) Left move button



- ① Move in menu (left, up).
- ② Decrease input value.

(3) Camera / ESC button



- ① Enter rear camera mode in main display.
- ② For other menu, this is used for cancellation (move to previous menu).
- ③ AEB cancel or finish button in AEB.

(4) Right move / Buzzer stop button



- ① Move in menu (right, down).
- ② Stop buzzer sound when sound is on.
- ③ Increase input value.

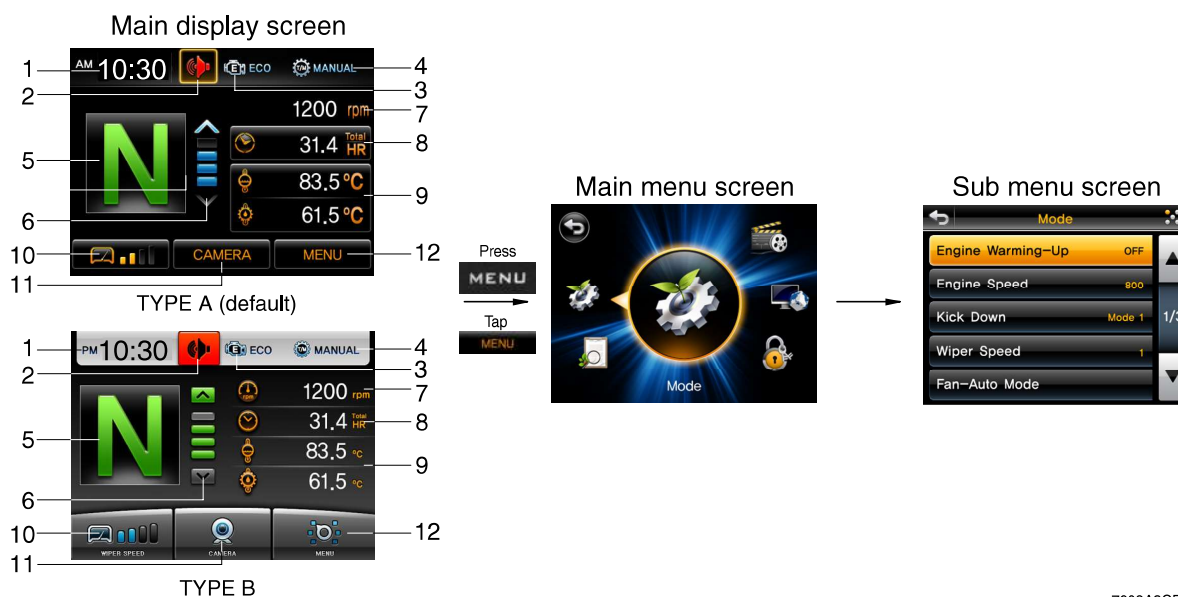
(5) Enter button



- ① Select menu (enter).
- ② AEB cancel or finish button in AEB.

2) MAIN MENU

- ※ You can select or set the menu by the select switch or touch screen.
- ※ Please refer to button, page 3-13 for selection and change of menu and input value.
- ※ Display type can be changed by operator. See page 3-31.

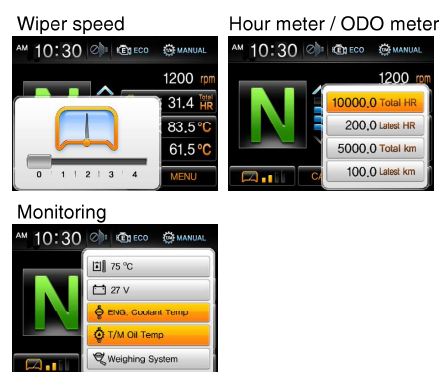


7609A3CD11

1 Clock	5 Actual gear	9 Machine monitoring
2 Buzzer	6 Select gear	10 Wiper speed
3 Engine mode	7 Engine rpm	11 Camera screen
4 Transmission mode	8 Hour meter, odometer	12 Menu

(1) Pop up and stop buzzer sound

- ① In main display, you can check the data and setup what you want by touching wiper speed, hour/ODO meter and monitoring window area.
- ② Pop up window will be closed in 3 seconds after touching the window or by pressing outside area of popup window.



7609A3CD55

- ③ When the buzzer sound is ON, the red icon will be activated. If you want to stop buzzer sound, just touch the icon.



7609A3CD59

(2) Warning

- ① Warning sign will be shown when the temperature of hydraulic oil, cooling water and transmission oil is not normal state (red icon will be shown at center of display and then move to assigned area).
- ② Case of warning sign
 - Above 105°C of hydraulic oil temperature
 - Above 107°C of cooling water temperature
 - Above 107°C of T/M oil temperature



7609A3M56

(3) Communication error

- ① MCU could not communicate with monitor over 10 seconds, error message will be show on the screen.



7609A3M57

3) MAIN & SUB MENU STRUCTURE

No	Main menu	Sub menu	Description
1	 Mode 7609A3CD12	Engine warming up Engine speed Kick down Wiper speed Fan-auto mode AEB Speed meter setting Boom/bucket angle Boom pressure Brake pedal sensor calibration	Engine warming up Engine speed Mode 1 (down/up), Mode 2 (down only) 4 steps Interval and time setting AEB setting Pulse setting Boom/bucket angle calibration Boom pressure calibration Brake pedal sensor calibration
2	 Monitoring 7609A3CD13	Fault code Machine monitoring Monitoring history	Active/logged fault (machine ECU, TCU, SCU) Hyd temp, Battery, Engine coolant temp T/M oil temp, Weighing system Hour meter, ODO meter
3	 Management 7609A3CD14	ESL system setting Maintenance Machine information Service contact Touch calibration Service menu	Machine security, Change password, Manage the smart key usage Replacement, Change cycle (oils and filters) Version, Machine information Check and change of contact information Calibrating the touch screen S/W update, Manage the smart key tag
4	 Display set up 7609A3CD15	Clock Brightness setting Display type Unit Rear camera Language	Clock Brightness setting (Manual/Automatic/Day time set) Type A, Type B Temp (°F/°C), Speed (km/h, mph), Weight (ton, lb), Pressure (bar, Mpa, kgf/m², psi) Reverse mode, Active camera, Display order 12 languages
5	 Multimedia 7609A3CD16	Audio player Video player	Play MP3, OGG, WMV Play AVI, WMV

(1) Function of sub menu icons

1 Previous step button (same as ESC function)

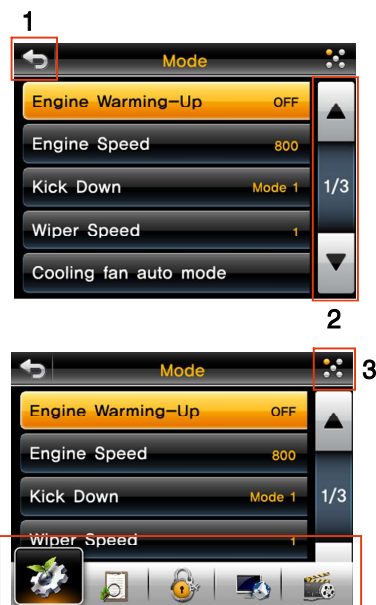
- Move to previous screen.
- Close pop up screen.

2 Scroll

- Display present page/total page.
- Move to page by using up / down arrow button.

3 Move to main menu

- Main menu icon is shown at the below of screen.
- You can choose the main menu directly.



7609A3CD30/31

(2) Mode

① Engine warming up



- Setting engine warming-up ON/OFF

② Engine speed



- Setting engine low idle rpm

③ Kick down



- Mode 1 (down/up) : Press kick down switch once, shift down and press switch again, shift up.
- Mode 2 (down only) : Press kick down switch every time, shift to lower gear respectively.

※ Refer to page 3-41.

④ Wiper speed



- Setting wipe speed 1 to 4.

⑤ Fan-auto mode



- In auto position, select reverse interval or reverse time.
- Set reverse interval (30~300 min) or reverse time (30~300 sec).

※ Default : Interval (60 min), time (120 sec)

※ Refer to page 3-36, fan control switch.

※ Using button

- To change the value, press ◀ or ▶/⏏.
- To change the position (hour, minute), press ⌚.

⑥ AEB



- AEB mode controls the disk clearance of the transmission, automatically.
- To start AEB setting, press AEB bar (or ) for 3 seconds.
- To cancel AEB setting, press **MENU**, /ESC or .
- If "OK" in actual gear window, press **MENU**, /ESC or  to complete AEB setting.
- **Display during AEB mode**

Symbol	Meaning
ST	Start AEB
K1~K4, KV, KR	Calibrating clutch K1~K4, KV or KR respectively
OK*	Calibration for all clutches finished
Spanner and Kx*	Kx couldn't be calibrated, AEB finished
△E	Engine speed too low - Raise engine speed
▽E	Engine speed too high - Lower engine speed
△T	Transmission oil temperature too low - Heat up transmission
▽T	Transmission oil temperature too high - Cool down transmission
FO*	Output speed not zero
FN*	Shift lever not in neutral position
FP*	Parking brake not applied

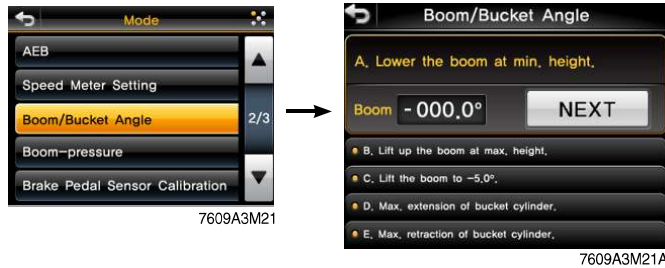
* : Transmission stays in neutral, you have to restart the TCU (starting switch off/on).

⑦ Speed meter setting



- Press speed meter setting bar (or ) for 3 seconds.
- ※ **Only for the service person. Do not adjust arbitrary.**
- ※ **Using button**
- To change the pulse value, press ◀ or ▶/⏏.
- To change the position, press .

⑧ Boom/bucket angle



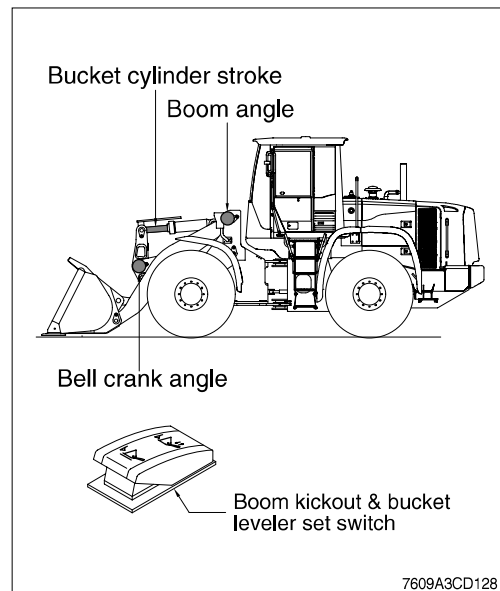
- Press NEXT button after following the instruction at each step.
- If correction is right, NEXT button will be activated, then go to next stage.
- After following each step correctly, the message "Calibration is done" will be shown. Press OK button, then process be ended.

※ Using button

- Using  instead of NEXT, OK button.

· Boom / Bucket angle calibration

- MCU get sensing signal from boom angle and bell crank angle and calculate bucket cylinder stroke and boom position angle from ground real time basis.
 - Boom angle position and bucket cylinder stroke is set by boom kickout & bucket leveler set switch in cab.
 - Individual setting position is done by lever (detent, release operation).
 - Angle sensor calibration is basically carried out before delivery of the machine.
- When angle sensor is replaced or actual value is different compared to setting value, this function can be done.

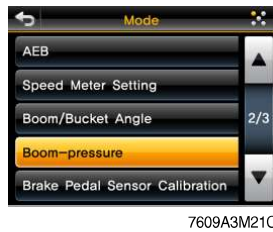


- The calibration must be carried out as follows :

- ① Lower the boom at maximum low position and press NEXT button or  (bucket must be max tilting position).
- ② Raise boom at maximum high position and press NEXT button (or ).
- ③ Position boom at -5° and press NEXT button (or ).
- ④ Retract bucket cylinder length (to minimum position) at -5° boom position and press NEXT button (or ).
- ⑤ Extend bucket cylinder length (to maximum position) at -5° boom position and press NEXT button (or ).
- ⑥ In case above steps are carried normally, "Calibration is done" message is shown. Then angle sensor calibration is finished.

※ **Boom down / boom up / bucket position setting** : Refer to page 4-22.

⑨ Boom-pressure



Display A

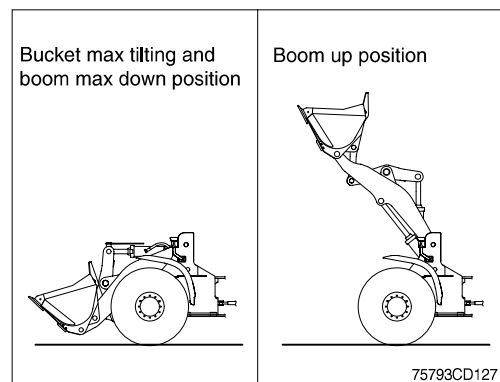
- Press START button after following the instruction.
- After a few minutes, "Calibration fail" or "Calibration success" message will be shown. Press OK button then process be ended.

※ **Using button** : Using instead of NEXT, confirm button.

· Boom pressure calibration

- It is used when bucket weight is changed or measured weight is inaccurate.
- The calibration must be carried out as follows :

- ① Increase hydraulic temperature (about 30~60°C).
- ② Select "Boom-pressure".
- ③ Roll-in the bucket at maximum range and lower the boom at minimum height.
- ④ Press START button.
- ⑤ Raise boom to maximum position. Boom up must be finished before stepping advance in "display A".
- ⑥ If it show "Calibration success" message in a moment, press OK button (or).

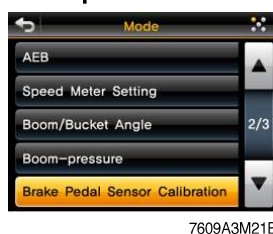


※ **Raise hydraulic temperature enough when checking work load / boom pressure sensor calibration (recommendation : about 30 ~ 60°C).**

※ **Check if pressure sensor or angle sensor is in normal condition for accurate work load algorism or pressure sensor calibration [pressure sensors at boom cylinder head area and rod area, boom angle sensor (CD-80), bell crank angle sensor (CD-81)].**

※ **Sensor error message during pressure sensor calibration : sensor need to be checked.**

⑩ Brake pedal sensor calibration



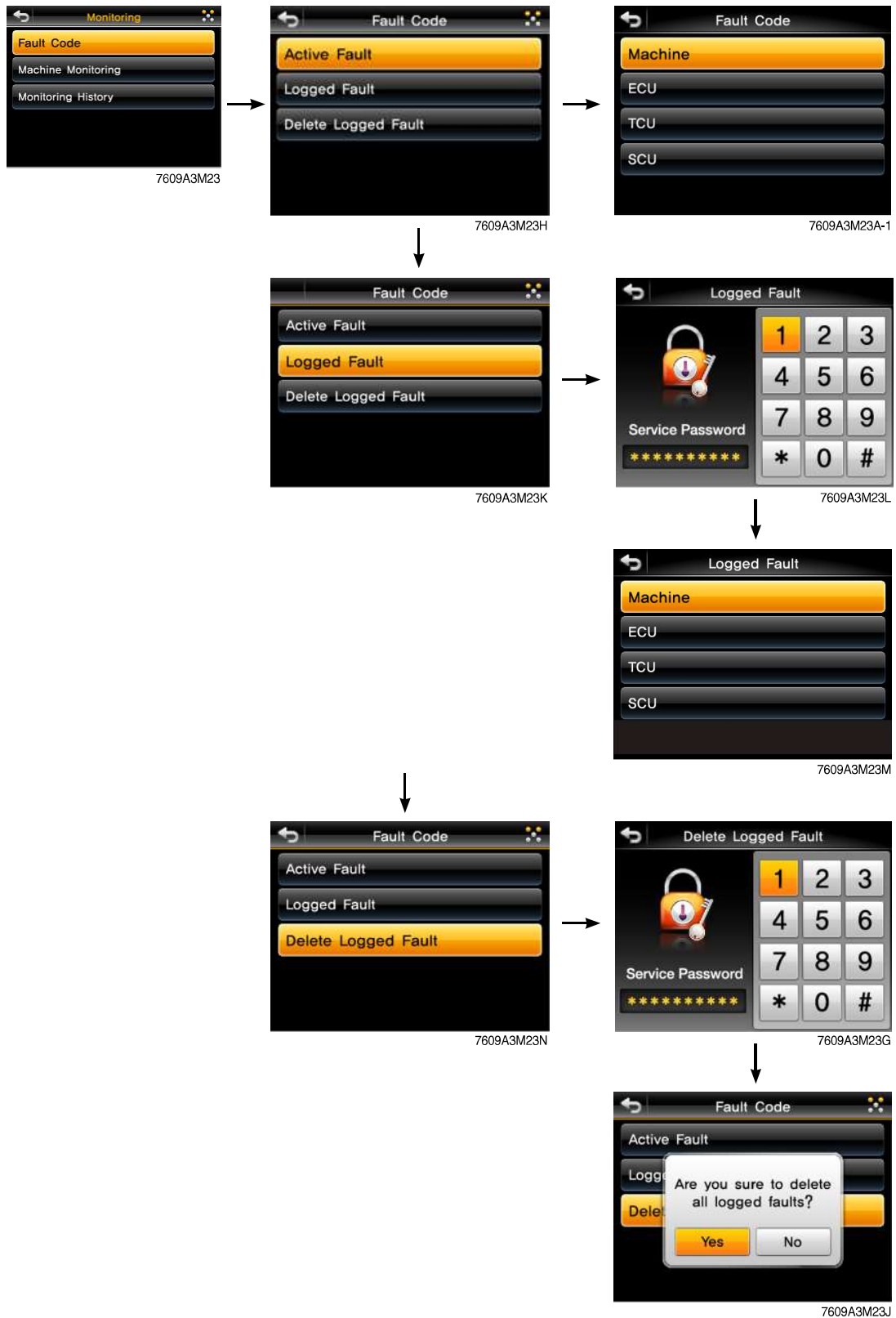
- Turn the engine OFF and turn the starting switch ON position.
- Press OK button, then calibration will be started.
- For cancel, press MENU button in main display.
- When it is finish (OK in actual gear window), press MENU button in main display.

※ **Using button** : For cancel or finish, press **MENU**, / **ESC** or .

※ When replacing the brake pedal or sensor, brake pedal sensor calibration must be started.

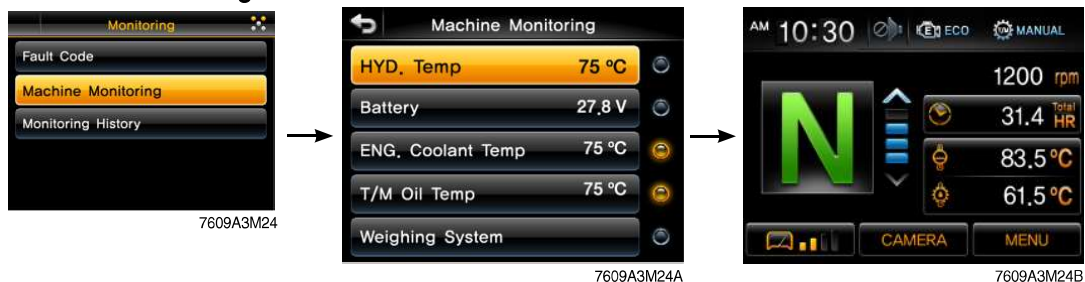
(3) Monitoring

① Fault code



- Monitor the fault code of the Machine/ECU/TCU/SCU.
- ※ **Not define** will be indicated in case of that there's no fault.
- ※ **SCU (opt)** : Only for SCU (Steering Control Unit) equipped machine.

② Machine monitoring



- Monitor the status of the machine.
- To display the item in main display, select the item by touch bar (or).
- The right icon shows selected status (ON/OFF).

※ Priority in the main display

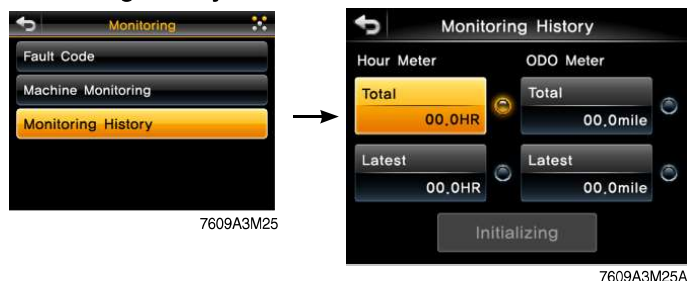


The example of the weighing system

- The priority of the weighing system is the highest.
- If the weighing system is selected, the other items are not available.
- To display the other items, the weighing system should not be selected.

※ **Weighing system** : see page 3-24.

③ Monitoring history

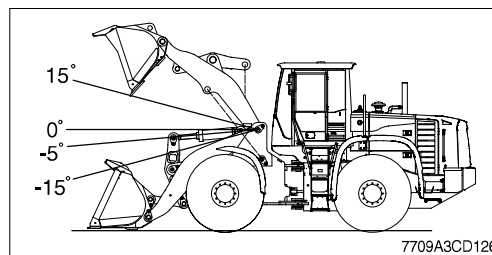


- **Hour meter / ODO meter**
- **Total**
 - Total working hour/total distance (this item cannot be initialized).
- **Latest**
 - Working hour/distance after reset.
 - If you select **Initializing**, working hour/distance start zero.
- To display the item in main display, select the item by touch bar (or .
- The right icon shows selected status (ON/OFF).

※ Weighing system

■ Principle

- The weight indication in bucket is calculated by measuring boom position and boom pressure.
 - ① The weight is '0.0 ton' when the boom is placed at below -15° .
 - ② The weight is indicated when the boom is placed at the range $(-5^{\circ} \rightarrow 15^{\circ})$.
 - ③ The weight is calculated when the boom is placed at above -5° and boom is lowered below -15° after dumping operation.
- In order to recheck weight, go to the ② after changing boom position (below -15°).
- Dump operation : It is checked by bucket cylinder's stroke change (below 250 mm).



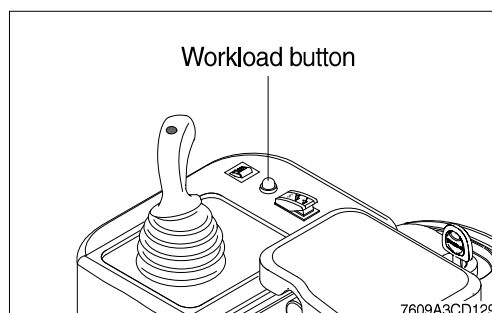
■ Monitor display

- When pressing workload button less than 2 seconds, the weight is shown sequence basis.
(main display 1 → 2 → 3 → 4 → 1)



	Work weight (today)
	Work weight (previous day)
	Total weight accumulated in memory A, B, C individually regardless of date
	Current weight

- Default accumulated value at memory A, B, C when pressing workload button more than 2 seconds (default : 0.0 ton).



(4) Management

① ESL system setting



· Machine security

- 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 : The password is required whenever the operator start engine.

Interval mode : The password is required when the operator start engine first. But the operator can restart the engine within the interval time without inputting the password.
The interval time can be set maximum 2 days.

· Interval time

- If set interval time to 5 minutes, ESL system is activated after 5 minutes.
- Therefore, the password does not need to restart engine within 5 minutes.

※ Default password : 00000 *

· Change password

- Input 5 to 10 digits and press *.



- **Manage to smart key usage (opt)**
 - Set the using or not of smart key.
 - If you using smart key, ESL function always be activated.



7609A3M26G



7609A3M26H

※ Using smart key

- Smart key icon (yellow) is on the screen.
- **Verification success**
Smart key icon color is changed to green, then changed to main display.
- **Verification failure**
Smart key icon color is changed to red, then changed to password input screen.



7609A3M50



7609A3M50B



7609A3M50A

Verification success



7609A3M50B



7609A3M50C

Verification failure

② Maintenance



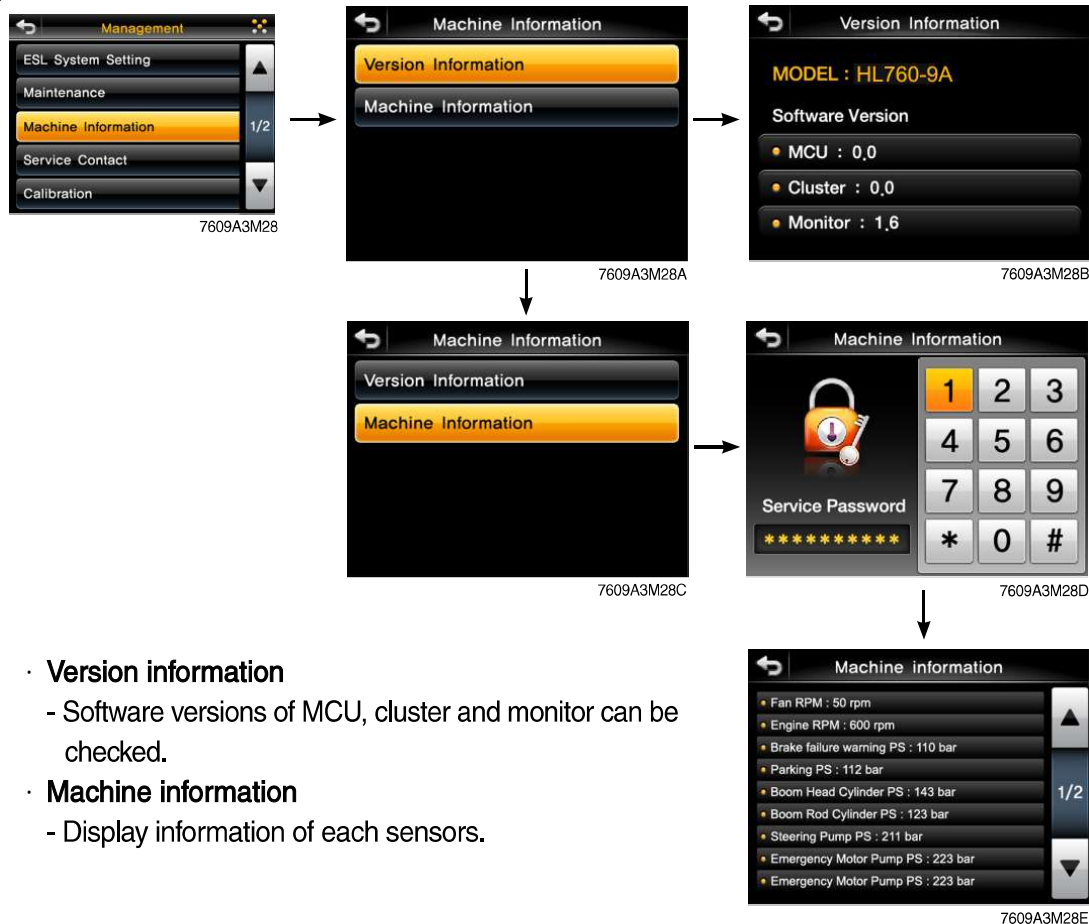
- Alarm : Warning
- Replacement : The elapsed time will be reset to zero.
- Change cycle : The change or replace cycle can be changed in the unit of 50 hours.
- To change cycle, press +/- button (◀ or ▶/⌂).
- Change or replace interval**

No	Item	Interval
1	Engine oil	500
2	Hydraulic oil	★ ¹ 2000 ★ ² 5000
3	Pilot line filter element	1000
4	Hydraulic oil return filter	1000
5	Engine oil filter	500
6	Fuel filter element	500
7	Fuel pre-filter	500
8	Hydraulic tank air breather	250
9	Radiator coolant	2000
10	Transmission oil and filter	1000
11	Axle oil (front and rear)	1500
12	Aircon & heater outer filter	1000
13	Air cleaner element (safety)	4000
14	Air cleaner element (primary)	4000
15	Crankcase ventilation filter	2000

★¹ : Conventional hydraulic oil

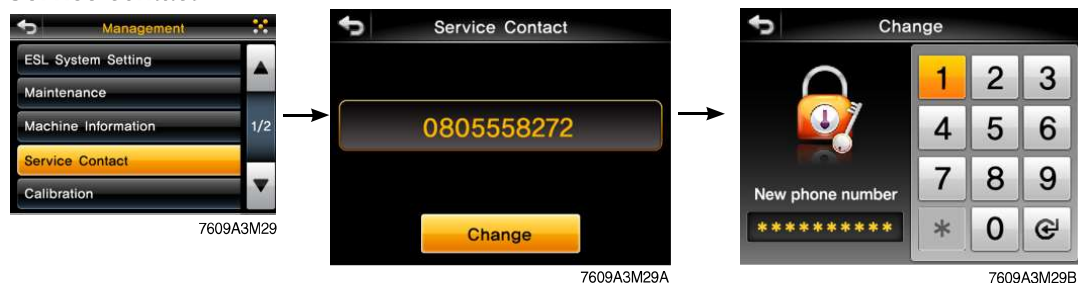
★² : Hyundai genuine long life hydraulic oil

③ Machine information



- **Version information**
 - Software versions of MCU, cluster and monitor can be checked.
- **Machine information**
 - Display information of each sensors.

④ Service contact



- The phone number of the service man can be checked and changed.

⑤ Touch calibration



- Calibration for coordinate of touch screen.
- Touch the + sign on the screen by turns, then "Completed" message will be shown.
- After process, the view is changed to the main menu by automatically.

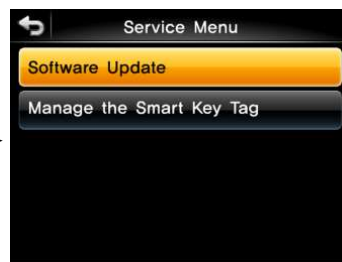
⑥ Service menu



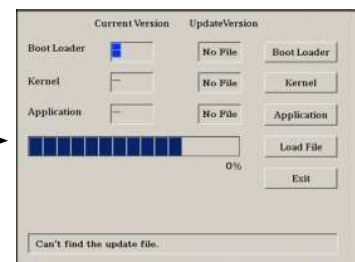
7609A3M30



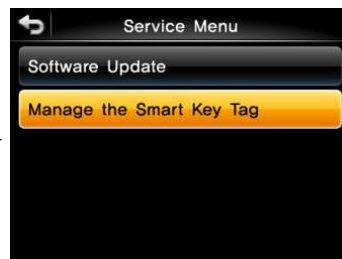
7609A3M30A



7609A3M30B



7609A3M30F



7609A3M30D

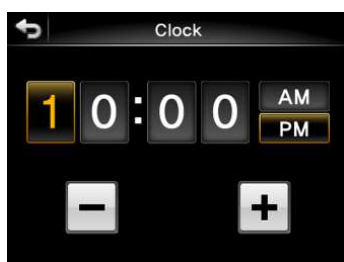


7609A3M30E

- **Software update**
 - Update file in USB memory.
- **Manage the smart key tag.**
 - Register or delete user tag.
 - When delete user tag, all user tag will be deleted.
 - Display the number of registered user tag.

(5) Display set up

① Clock

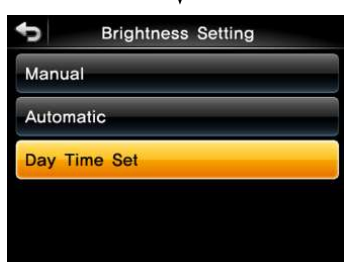
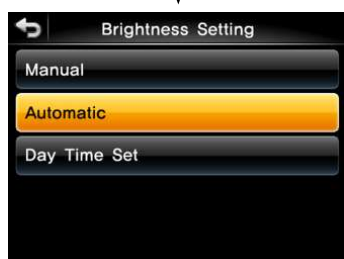
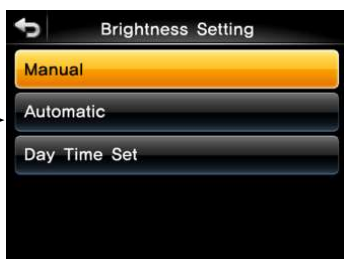


- Select number of digit, then input value using +/- button.

※ Using button

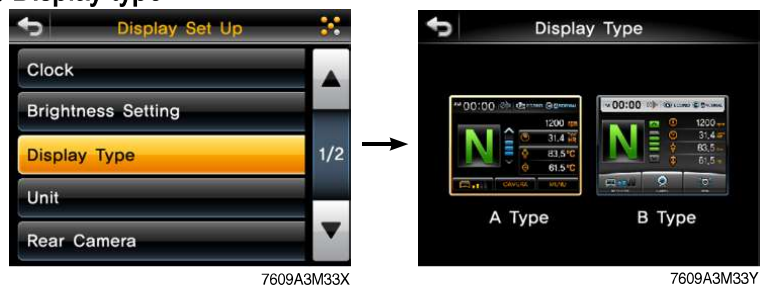
Change digit by ◀ or ▶/⌂, input next digit by Ⓞ.

② Brightness setting

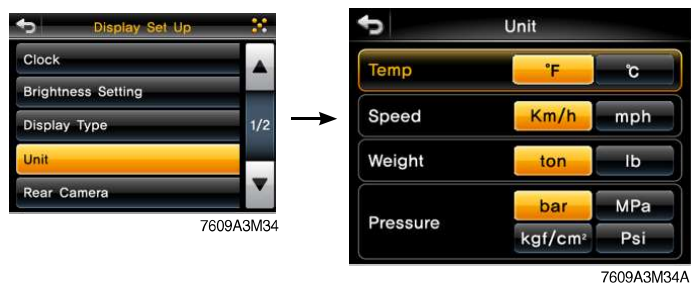


- **Manual**
 - Manual setting for LCD brightness.
- **Automatic**
 - Automatic control of LCD brightness as set level of day/night.
- **Setting day time**
 - Set the time for daylight.
 - If you set the time for daylight, the rest time will be night.
- ※ **Using button**
 - Changing brightness by ◀ or ▶/⌂, input data by Ⓞ.

③ Display type



④ Unit

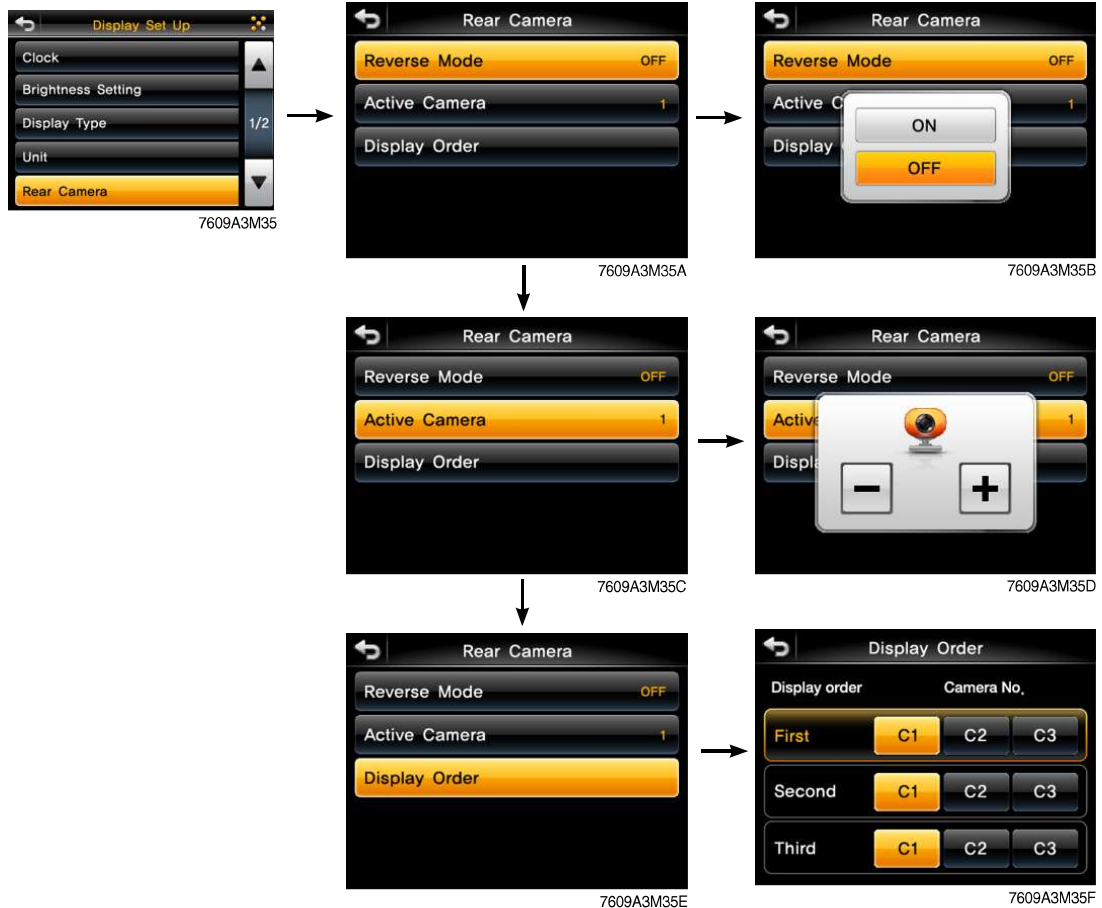


- Temperature : °C ↔ °F
- Speed : km/h ↔ mph
- Weight : ton ↔ lb
- Pressure : bar ↔ Mpa ↔ kgf/m² ↔ psi

※ Using button

- Move to other item by .

⑤ Rear camera



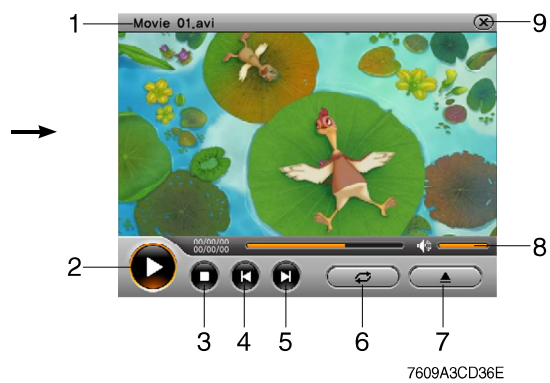
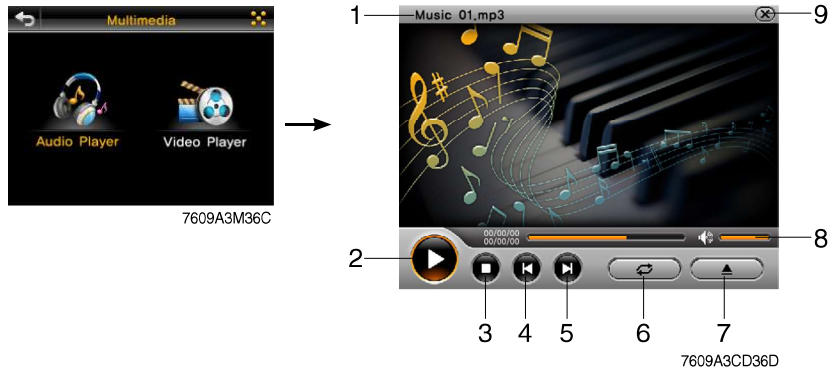
- **Reverse mode**
 - If transmission engages the reverse gear (R1~R3), the camera mode is displayed automatically in main display.
- **Active camera**
 - Three cameras can be installed on the machine.
- **Display order**
 - Set the channel sequence of each camera.
- If the camera was not equipped, this menu is not useful.
- In main display, if the /ESC button is pushed, the first ordered display camera will be viewed.

⑥ Language



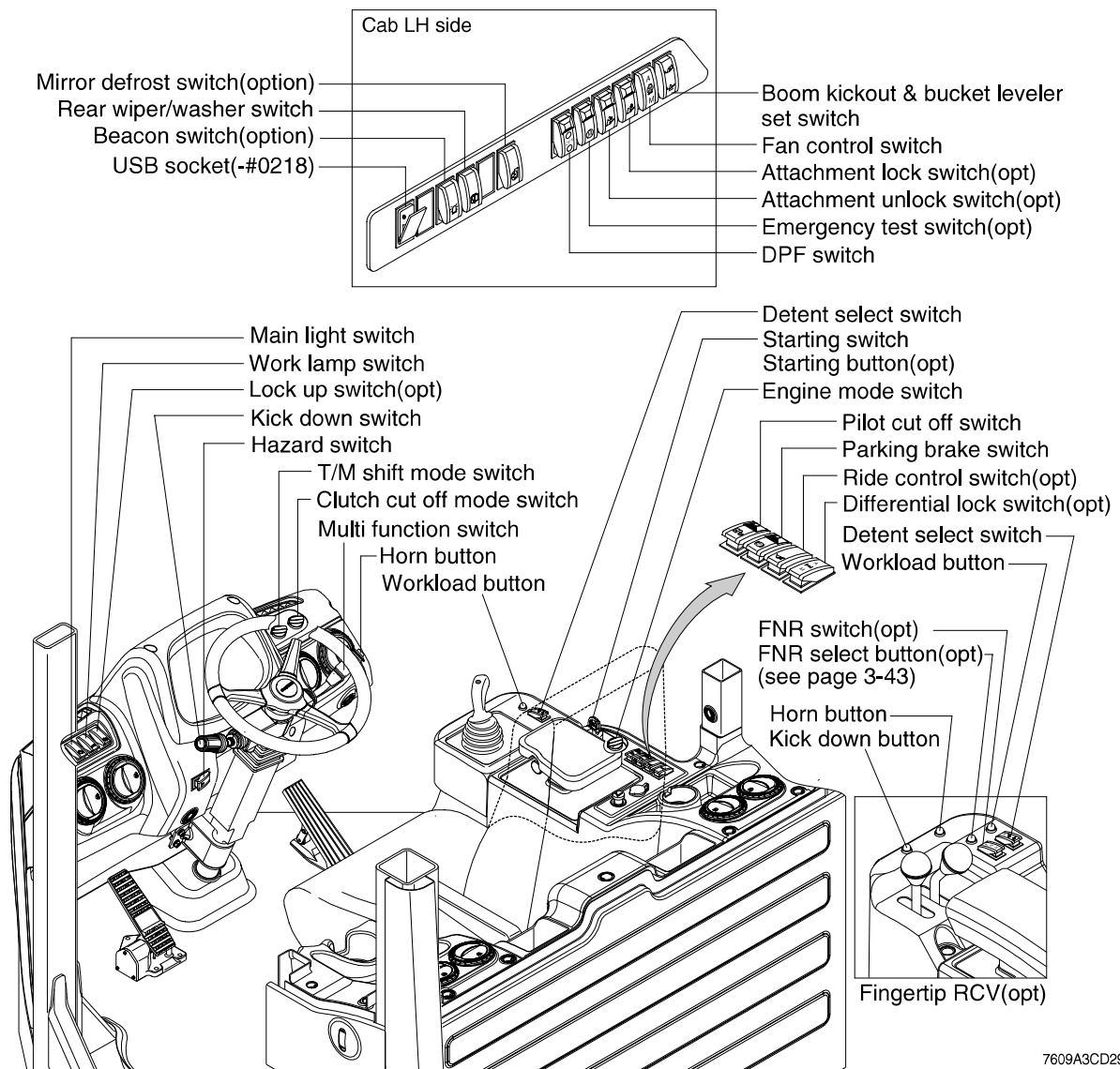
- User can select preferable language and all display are changed the selected language.
- 18 multi-language available.

(6) Multimedia



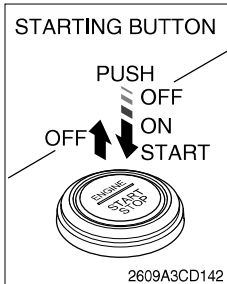
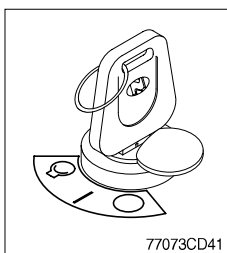
- | | | | |
|---|-----------------------|---|------------------------|
| 1 | File name of playing | 6 | Repeat |
| 2 | Play | 7 | Open file (USB memory) |
| 3 | Stop | 8 | Volume |
| 4 | Previous song (movie) | 9 | Close player |
| 5 | Next song (movie) | | |

4. SWITCHES



7609A3CD29

1) STARTING SWITCH & STARTING BUTTON (OPT)



Starting button with smart key tag (opt)

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

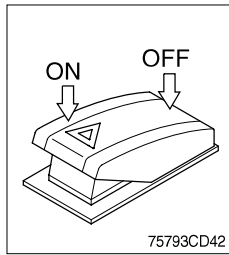
- ○ (OFF) : None of electrical circuits activate.
- | (ON) : All the systems of machine operate.
- ⦿ (START) : Use when starting the engine.

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.

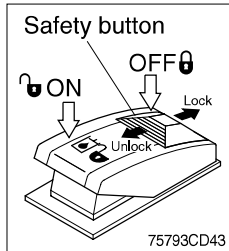
※ Key must be in the ON position with engine running maintain electrical and hydraulic function and prevent serious machine damage.

2) HAZARD SWITCH



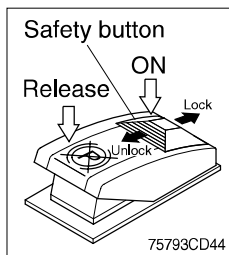
- (1) Use for parking, or loading the machine.
 - (2) Both turn signal lights will flash simultaneously.
- ※ If the switch is left ON for a long time, the battery may be discharged.

3) PILOT CUT OFF SWITCH



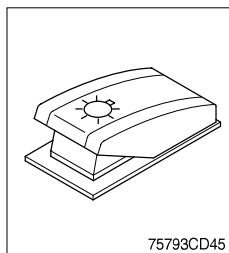
- (1) When the switch is pressed to OFF position, the hydraulic pilot line will be cut off, so the work equipment will not operate.
 - (2) Press the ON position in order to unlock the hydraulic pilot line.
- ※ This switch can be set to ON or OFF position only when the safety button is pulled to the unlock position.

4) PARKING BRAKE SWITCH



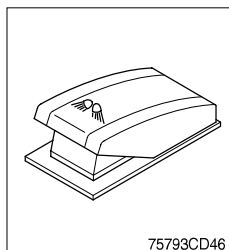
- (1) When the switch is pressed to ON position, the parking brake will start to operate and the cluster warning lamp will come ON.
 - (2) Press the release position in order to disengage the parking brake.
- ※ When operating the gear selector lever, be sure to release the parking brake. If the machine is operated with the parking brake engaged, the brake will overheat and may cause the brake system to go out of order.
- ※ This switch can be set to ON or Release position only when the safety button is pulled to the unlock position.

5) MAIN LIGHT SWITCH



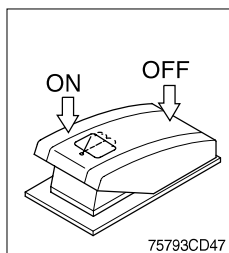
- (1) This switch is used to operate the clearance lamp and head light by two steps.
 - **First step** : Clearance lamp and cluster illumination lamp come ON. Also, all indicator lamp of switches come ON.
 - **Second step** : Head light comes ON.

6) WORK LAMP SWITCH



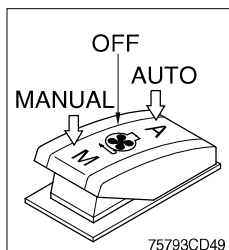
- (1) This switch is used to operate the front and rear work lamps by two steps.
 - **First step** : Front work lamp located on the cab comes ON.
 - **Second step** : Rear work lamp located on the cowl comes ON.

7) REAR WIPER AND WASHER SWITCH



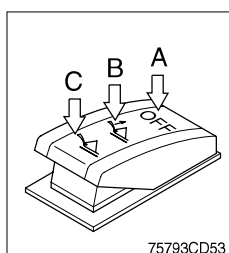
- (1) The switch use to operates the rear wiper and washer by two step.
 - **First step** : The rear wiper operates.
 - **Second step** : The washer liquid is sprayed and the rear wiper is operated only while pressing. If release the switch, return to the first step position.

8) FAN CONTROL SWITCH



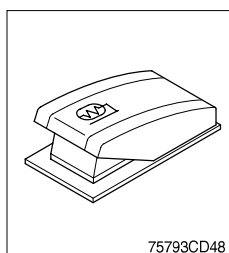
- (1) This switch use to control the cooling fan.
- (2) This switch has three positions.
 - **AUTO** : The fan automatically work in reverse according to set up interval and time.
※ Refer to page 3-18.
 - **OFF** : Only forward rotation is possible.
 - **MANUAL** : The fan rotates reverse only while pressing this position. If release the switch, return to the OFF position.
- (3) On pressing the switch, the indicator lamp is turned ON.

9) DETENT SELECT SWITCH



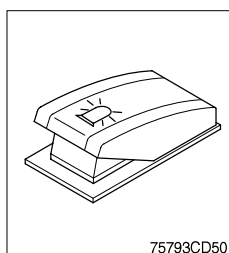
- (1) This switch is used to select the detent functions.
- (2) This switch has three positions.
 - **A** : Detent functions are not operated.
 - **B** : Only boom detent function is operated.
 - **C** : Boom and bucket detent functions are operated.

10) MIRROR DEFROST SWITCH (option)



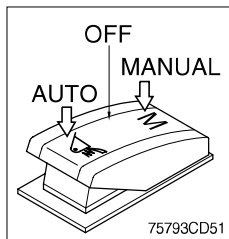
- (1) If the mirror defrost switch is pressed in condition of key ON, it operates for 15 minutes. After 15 minutes, the defrost function stops automatically.
- (2) One more pressing the switch in operation also stops defrost function.
- (3) On pressing the switch, the indicator lamp is turned ON.

11) BEACON SWITCH (option)



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

12) RIDE CONTROL SWITCH (option)



(1) AUTO

Press in the bottom of the ride control switch in order to turn on the automatic ride control. The automatic ride control automatically turns on when the travel speed exceeds a preset speed of approximately 7 km/h. The automatic ride control automatically shuts off during low speed travel (below 7 km/h).

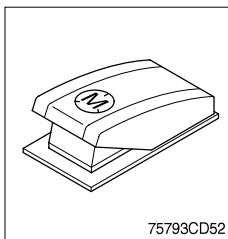
(2) MANUAL

Press in the top of the ride control switch in order to turn on the system for ride control regardless speed. The ride control will smooth the ride of the machine during travel.

(3) OFF

Press the ride control switch to the middle position in order to turn off the system for the ride control.

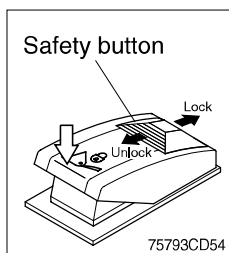
13) EMERGENCY TEST SWITCH (option)



(1) The emergency steering system can be manually tested. Push the switch in order to determine if the emergency steering and the emergency steering lamp are functional.

(2) When the switch is pressed, the emergency steering pump motor will run. The emergency steering lamp will light. If the emergency steering lamp does not light, do not operate the machine.

14) ATTACHMENT LOCK SWITCH (option)



(1) Press this switch in order to engage the quick coupler pins.

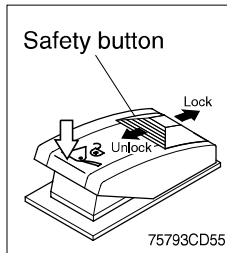
(2) If this switch is pressed for 5 seconds, the quick coupler pins move in the engaged position.
If the switch is released, the quick coupler pins will remain in the engaged position.

※ **This switch can be pressed only when the safety button is pulled to the unlock position.**

※ **Check for engagement as followings.**

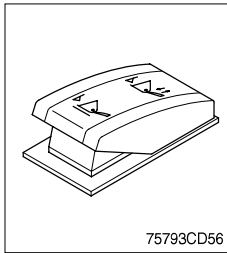
- ① Put down pressure on the attachment.
- ② Back up the machine and make sure that there is no movement between the quick coupler and attachment.

15) ATTACHMENT UNLOCK SWITCH (option)



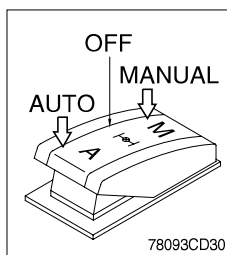
- (1) Press this switch in order to disengage the quick coupler pins.
 - (2) If this switch is pressed for 5 seconds, the quick coupler pins move in the disengaged position.
If the switch is released, the quick coupler pins will remain in the disengaged position.
- ※ **This switch can be pressed only when the safety button is pulled to the unlock position.**

16) BOOM KICK OUT AND BUCKET LEVELER SET SWITCH



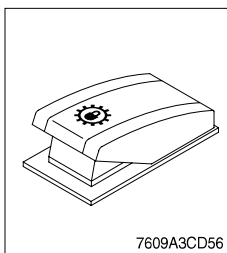
- (1) Press this switch in order to set the boom kickout and bucket leverer.
- ※ **Refer to page 4-22.**

17) DIFFERENTIAL LOCK SWITCH (option)



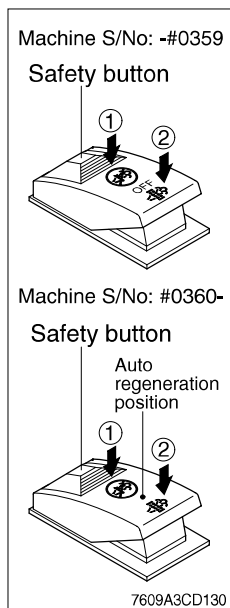
- (1) This switch is used to apply differential lock.
The differential lock gives equal power to both rear wheels and is used in conditions when traction is poor.
 - (2) **Manual mode**
Press the **M** of the switch for the manual mode of the differential lock function. You press the switch, the differential lock will engage immediately and differential lock pilot lamp lights ON.
 - (3) **Auto mode**
Press the **A** of the switch for auto mode of the differential lock function. If you press the switch, the axle differential lock will automatically engage when the differential function is used.
- ※ **While the axle differential lock function is operating, the differential lock pilot lamp lights ON.**
- ※ **Refer to page 3-12.**

18) LOCK UP SWITCH (option)



- (1) If you press the switch, the lock-up clutch on the torque converter will automatically activate according to load.
- (2) **Lock-up clutch**
To prevent power loss in the torque converter, the pump rotor and turbine rotor on the torque converter lock together through a direct lock-up clutch.

19) DPF (diesel particulate filter) SWITCH



(1) This switch is used to select the regeneration function of the DPF.

(2) Inhibit position (①)

- ① The inhibit position disallows any automatic or manual regeneration of the DPF.
- ② This may be used by operator to prevent regeneration when the machine is operating in a hazardous environment is concerned about high temperature.
- ③ It is strongly recommended that the this position is only activated when high temperatures may cause a hazardous condition.

(3) OFF position (auto regeneration position)

This position will initiate a automatic regeneration of the DPF.

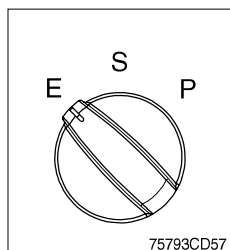
(4) Manual regeneration position (②)

- ① This position will only initiate a manual regeneration of the DPF when the machine is in non-mission condition, engine must run at low idle speed and DPF soot levels are high enough to allow regeneration.
- ② HEST lamp will be illuminated during the entire regeneration.
- ※ Refer to the page 3-8 for details.

※ This switch can be move to the manual regeneration position (②) only when the safety button is pulled to backward.

※ Also, this switch return to the OFF position when released the manual regeneration position (②).

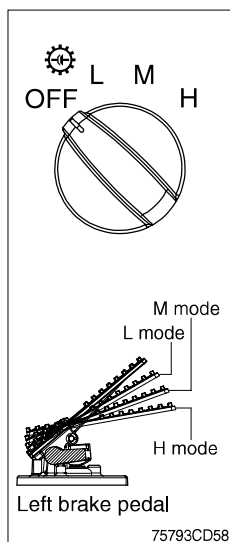
20) ENGINE MODE SWITCH



(1) The operator can adjust the machine's performance with this dial switch.

- P (Power) : Maximum power output for hard digging operation or hill climb.
- S (Standard) : General digging and loading operation.
- E (Econo) : Maximum fuel efficiency for general loading.

21) CLUTCH CUT OFF MODE SWITCH



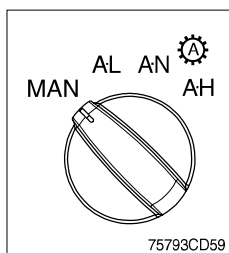
(1) Four modes are available for operator's preference and job condition.

- OFF : The clutch cut off function is disable.
- L (Low) : The clutch is disengaged early for short-distance and rapid loading.
- M (Medium) : The clutch is disengaged normally for general digging and loading operation.
- H (High) : The clutch is disengaged lately for slope ground.

(2) The clutch cut off functions of the left brake pedal depend on the position of the left brake pedal and the position of the clutch cut off mode switch.

Positions for clutch cut off function			
Clutch cut off mode switch	L	M	H
Left brake pedal	L, M, H	M, H	H

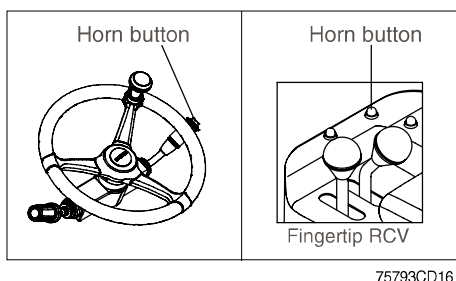
22) TRANSMISSION SHIFT MODE SWITCH



(1) Four modes are available for operator's preference and job condition.

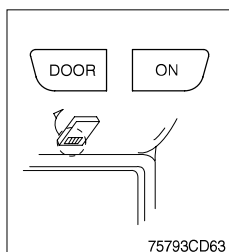
- MAN (Manual) : Machine is operated by selected gear on lever.
- AL (Auto Light) : Automatic shifting point is fast for long-distance transportation and fuel efficiency.
- AN (Auto Normal) : Automatic shifting point is normal without automatic kick-down to 1st gear for general digging and loading operation.
- AH (Auto Heavy) : Automatic shifting point is normal with automatic kick-down to 1st gear for more powerful operation.

23) HORN BUTTON



(1) If you press the button on the top of the multi-function switch, the horn will sound.

24) CAB LAMP SWITCH



(1) This switch turns ON the cab room lamp.

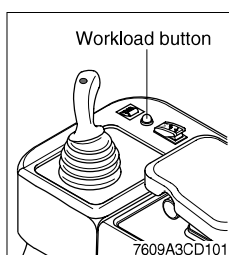
① DOOR

The lamp comes ON when the door is opened.
When the door is closed the lamp is OFF.

② ON

This switch is used to turn the lamp ON or OFF.

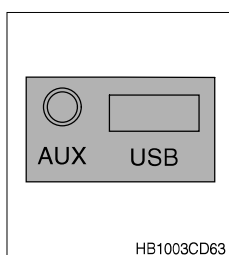
25) WORKLOAD BUTTON



(1) Press the button in order to set "Total" display at zero.

※ See page 3-24, weighing system.

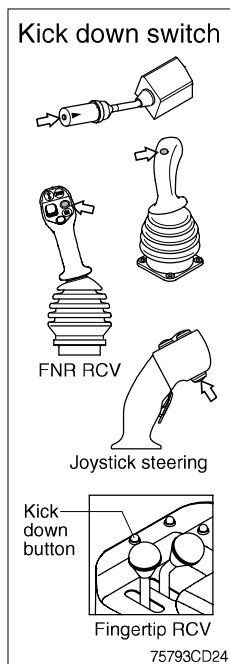
26) USB SOCKET (machine serial No. : -#0218)



(1) MP3 files are played when a USB device is connected to the USB port.

(2) In addition, the AUX port enables headphone and other devices.

27) KICK DOWN SWITCH



(1) Manual mode

It is effective 2nd speed to 1st speed only and recover to 2nd speed quickly when push the switch one more time.

(2) Automatic mode

① Mode 1 (down/up)

It shifts down quickly from current gear to one step lower speed by pushing the switch and recover to current speed quickly when push the switch one more time.

② Mode 2 (down)

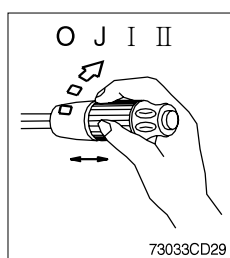
It shifts down from current gear to one step lower speed when push the switch every time.

The kick down function is released in only 1st speed.

※ Refer to page 3-18 for the kick down setting.

※ The normal autoshift function continues after the kick down switch is released.

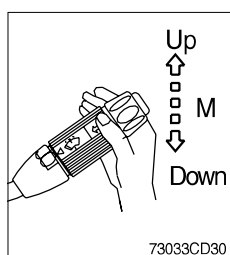
28) MULTI FUNCTION SWITCH



(1) Front wiper and washer switch

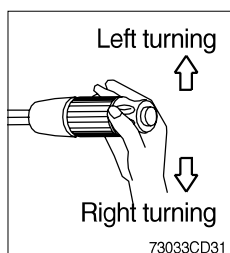
- ① When the switch is in J position, the wiper moves intermittently.
- ② When placed in I or II position, the wiper moves continuously.
- ③ If you push the grip of the lever, washer liquid will be sprayed and the wiper will be activated 2-3 times.

※ Check the quantity of washer liquid in the tank. If the level of the washer liquid is LOW, add the washer liquid (in cold, winter days) or water. The capacity of the tank is 1 liter.



(2) Dimmer switch

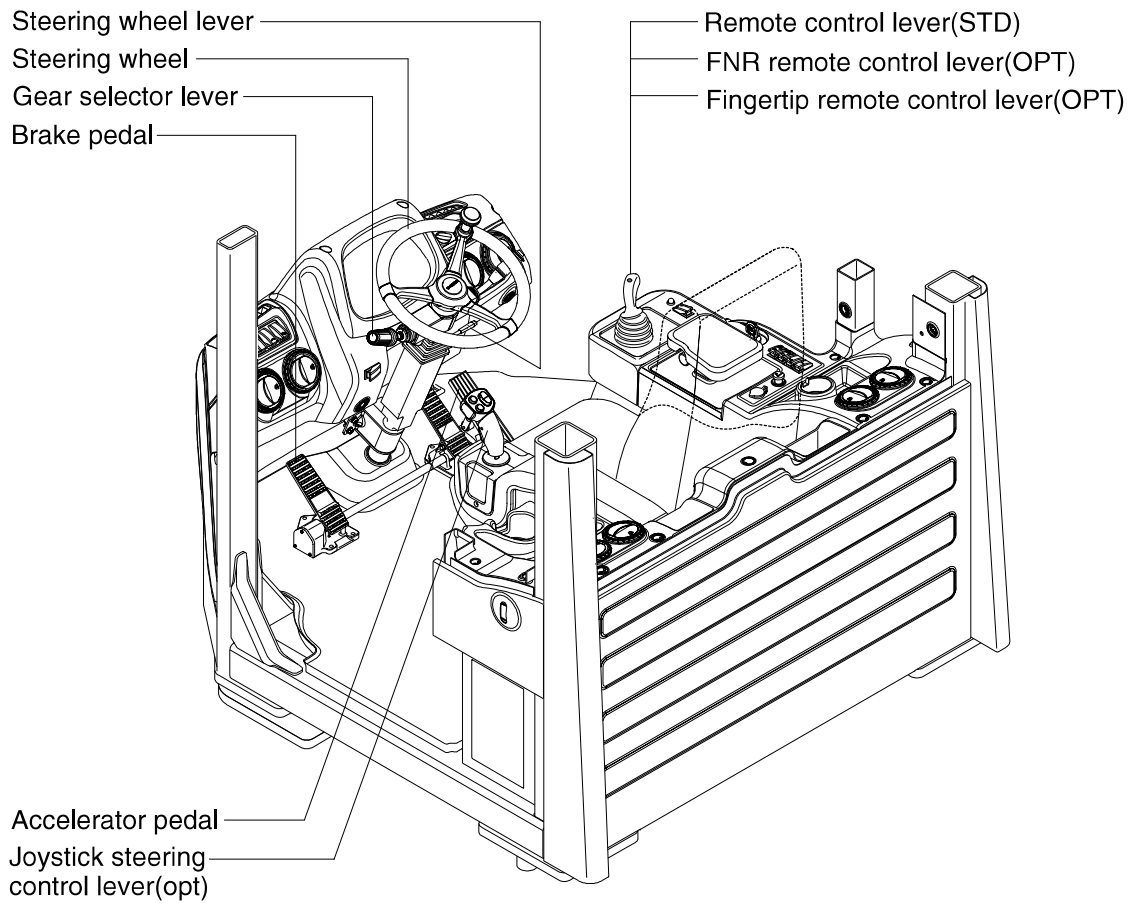
- ① This switch is used to turn the head lights direction.
- ② Switch positions
 - Up : To flash for passing
 - Middle : Head lights low beam ON
 - Down : Head lights high beam ON
- ③ If you release the switch when it's in up position, the switch will return to middle.



(3) Turning switch

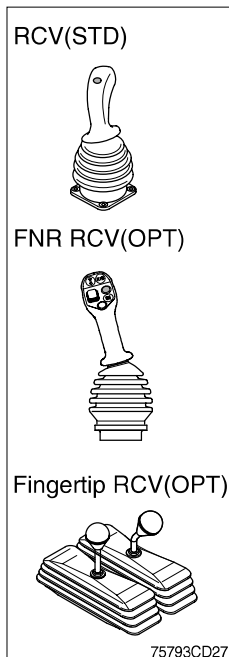
- ① This switch is used to warn or signal the turning direction of the machine to other vehicles or equipment.
- ② Push the lever up for turning left, pull the lever down for turning right.

5. CONTROL DEVICE



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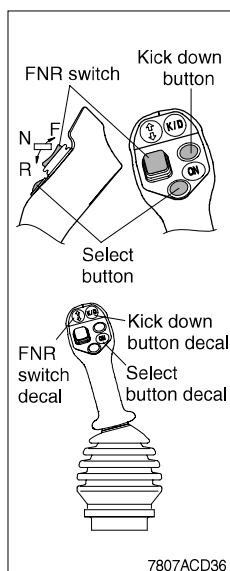
1) REMOTE CONTROL LEVER



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- (1) These joystick are used to control the boom and the bucket.
- (2) Refer to operation of working device in chapter 4 at page 4-9.

2) FNR REMOTE CONTROL LEVER (option)



(1) This switch is used for forward and backward drive.

※ **Gear range can be selected by gear selector lever.**

(2) Select button

① If the select button is pressed, the indication lamp on the cluster will be ON and this FNR switch will start to operate.

※ **When the engine is running, the machine is on standstill(0 speed), parking brake is released, gear selector lever is in the neutral position, you can use this function after pressing the select button.**

(3) FNR switch

- F : Forward drive
- N : Neutral
- R : Reverse drive

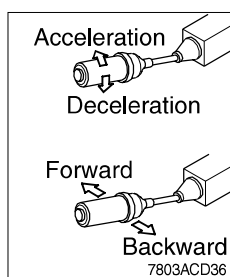
① If the upper side of this switch is pushed, the machine moves forward.

② If the down side of this switch is pushed, the machine moves backward.

③ This function is automatically released when the engine is stopped, parking brake is ON or gear selector lever is out of neutral.

(4) Kick down button : Refer to page 3-41.

3) GEAR SELECTOR LEVER

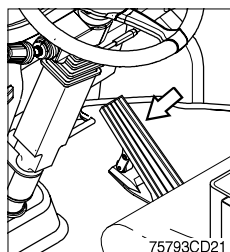


(1) This lever is used for gear selection, forward 4 stages and reverse 3 stages.

(2) If you push the gear selector lever, the machine moves forward, but if pull the gear selector lever, the machine moves backward.

(3) If you turn the gear selector lever forward, the machine increases the speed, but if you turn the gear selector lever backward, the machine reduces the speed.

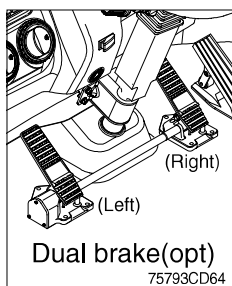
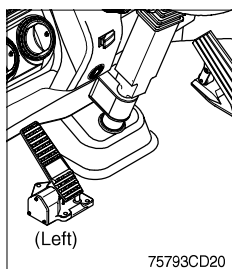
4) ACCELERATOR PEDAL



(1) This pedal controls the engine speed. The engine speed will increase in proportion to the degree of force applied to this pedal.

(2) Unless this pedal is pressed, the machine will run at low idling.

5) BRAKE PEDAL



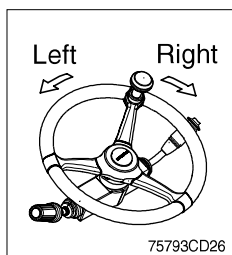
(1) Left brake pedal (service brake + clutch cut off function)

- ① If the pedal is pushed down, this will generate braking force and bring the machine to a stop.
- ② If the power train operation is to be cut off, set the clutch cut off mode switch to ON (L, M, H) and press the pedal.
- ⚠ **Even if the brake is applied while clutch cut off mode switch is OFF, power train will not cut off.**
- ※ **Do not operate the machine with foot the brake pedal unnecessarily, or bring premature wear of brake disc.**
- ③ Clutch cut off function : Refer to page 3-39.

(2) Right brake pedal (service brake function only)

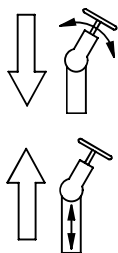
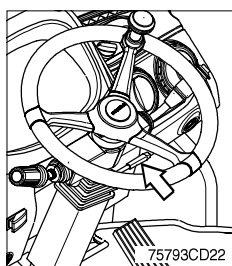
This pedal functions as service brake only.

6) STEERING WHEEL



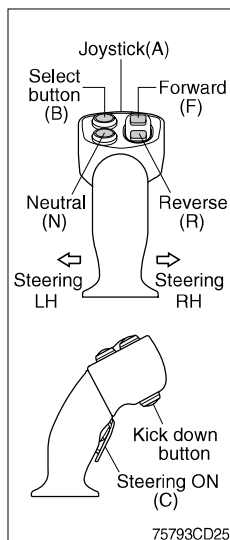
- (1) Two multi-motion cylinders in the center of the machine will operate the steering function.
- (2) If the steering wheel is turned to left, the machine will move to the left and turn it to the right, the machine will move to the right.

7) STEERING WHEEL LEVER



- (1) By pulling down the lever, the wheel is adjustable to tilt.
 - Tilting : 40°
- (2) By pulling up the lever, the wheel is adjustable to telescope.
 - Telescoping : 80 mm

8) JOYSTICK STEERING CONTROL LEVER (option)



(1) The system has the following functions concentrated to a collapsible arm rest : steering, forward / reverse selection and kickdown function.

(2) This means that during normal loading work, the operator does not need to touch the steering wheel.

(3) The joystick steering pilot lamp on the cluster will be ON when the lever steering is activated.

▲ As a safety precaution, the joystick steering is functioned while pressing the steering ON button (C).

▲ When operating on a public road, the steering wheel should always be used and the joystick steering be disconnected. Also when operating at high speeds (above 20 km/h) on a work site, always use the steering wheel.

(4) Joystick (A)

① Activate the lever-controlled steering by pushing in the steering ON button (C).

The steering wheel works as usual, even if the joystick steering is activated.

② The joystick steering pilot lamp  on the cluster will be ON when the steering ON button (C) is pushed.

(5) Forward/reverse selection button

F : Forward drive

N : Neutral

R : Reverse drive

① To be able to operate the forward/reverse selection and kick-down button the system must first be activated using select button (B).

※ The ordinary gear selector control should be in neutral.

② When this function is engaged, it is possible to operate the forward-reverse selection. If the ordinary gear selector control is activated at the same time as the joystick steering is activated, the ordinary gear selector control overrides any selection made by the joystick steering.

To reactivate the joystick steering, the ordinary gear selector control must first be moved to neutral and the system again be activated.

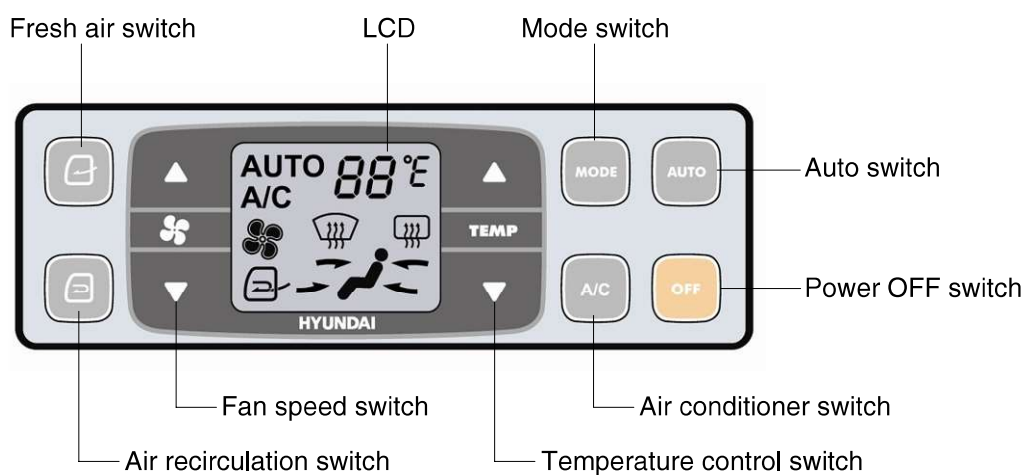
③ The FNR select pilot lamp  on the cluster will be ON when the forward / reverse selection is activated.

(6) Kick-down button : Refer to page 3-41.

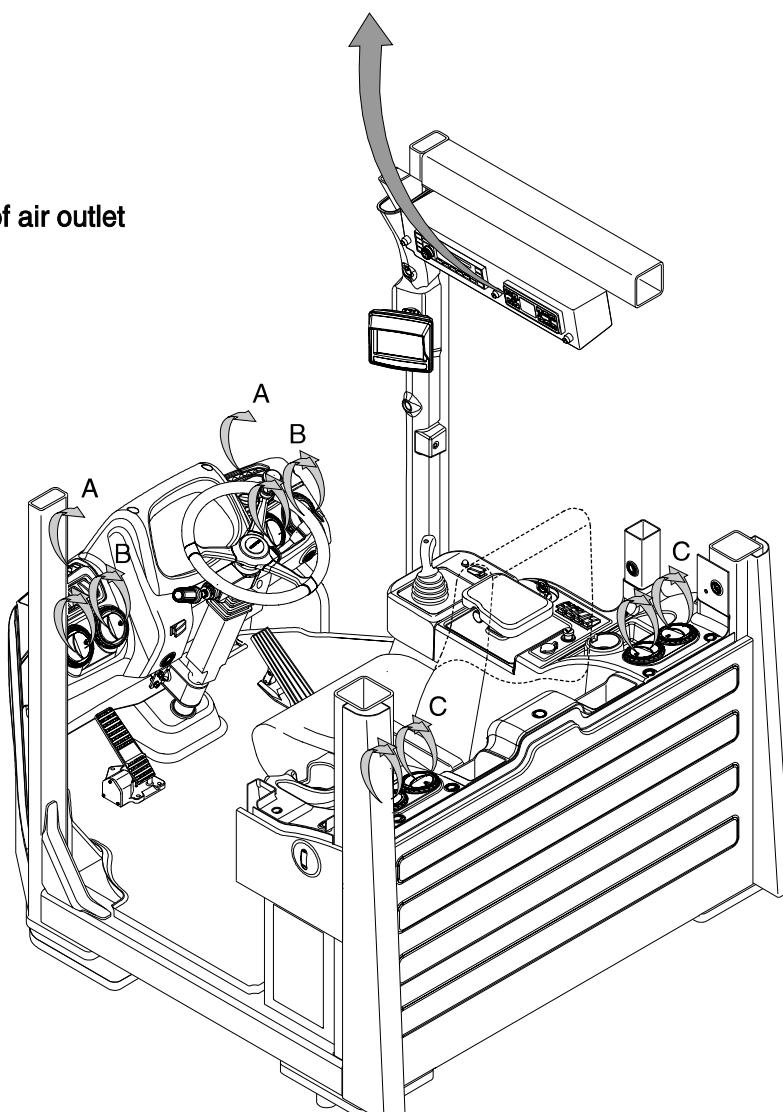
6. AIR CONDITIONER AND HEATER

■ FULL AUTO AIR CONDITIONER AND HEATER

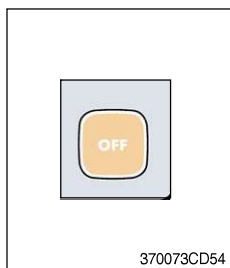
Full auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.



· Location of air outlet



1) POWER OFF SWITCH

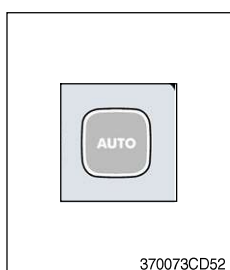


- (1) This switch makes the system and the LCD OFF.
Just before the power OFF, set values are stored.

(2) Default setting values

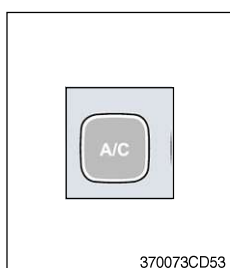
Function	Air conditioner	In/outlet	LCD	Temperature	Mode
Value	OFF	Inlet	OFF	Previous sw OFF	Previous sw OFF

2) AUTO SWITCH



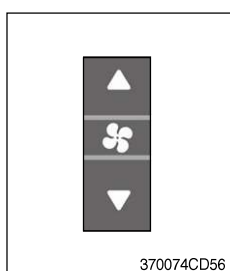
- (1) Turn the starting switch to ON position, LCD lights ON.
Auto air conditioner and heater system automatically keeps the optimum condition in accordance with operator's temperature configuration sensing ambient and cabin inside temperature.
- (2) This switch can restart system after system OFF.

3) AIR CONDITIONER SWITCH (compressor switch)



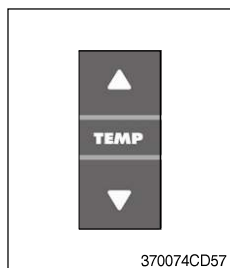
- (1) This switch turns the compressor and the LCD ON.
- (2) In accordance with the temperature sensed by duct (evaporator) sensor, compressor turns ON or OFF automatically.
- ※ **Air conditioner operates to remove vapor and drains water through a drain hose. Water can be sprayed into the cab in case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

4) FAN SPEED SWITCH



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

5) TEMPERATURE CONTROL SWITCH



(1) Setting temperature indication

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

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

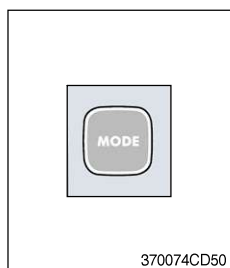
(3) The max cool or the max warm position operates as following table.

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

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

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

6) MODE SWITCH



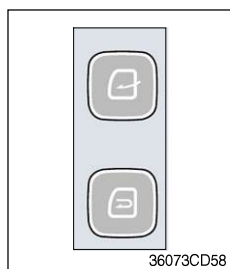
(1) Operating this switch, it beeps and displays symbol of each mode in order. (Human → Human/Rear → Human/Def → Def/Rear)

Mode switch		Human	Human/Rear	Human/Def	Def/Rear
Outlet	A			●	●
	B	●	●	●	
	C		●		●

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

(3) When this switch ON, the system operates with previous configuration.

7) FRESH AIR/AIR RECIRCULATION SWITCH



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

① **Fresh air** ()

Inhaling air from the outside.

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

② **Air recirculation** ()

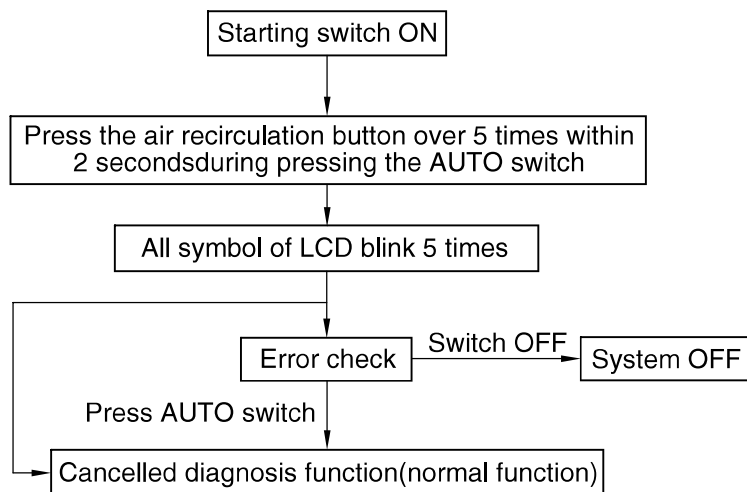
It recycles the heated or cooled air to increase the energy efficiency.

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

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

8) SELF DIAGNOSIS FUNCTION

(1) Procedure



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(2) Error check

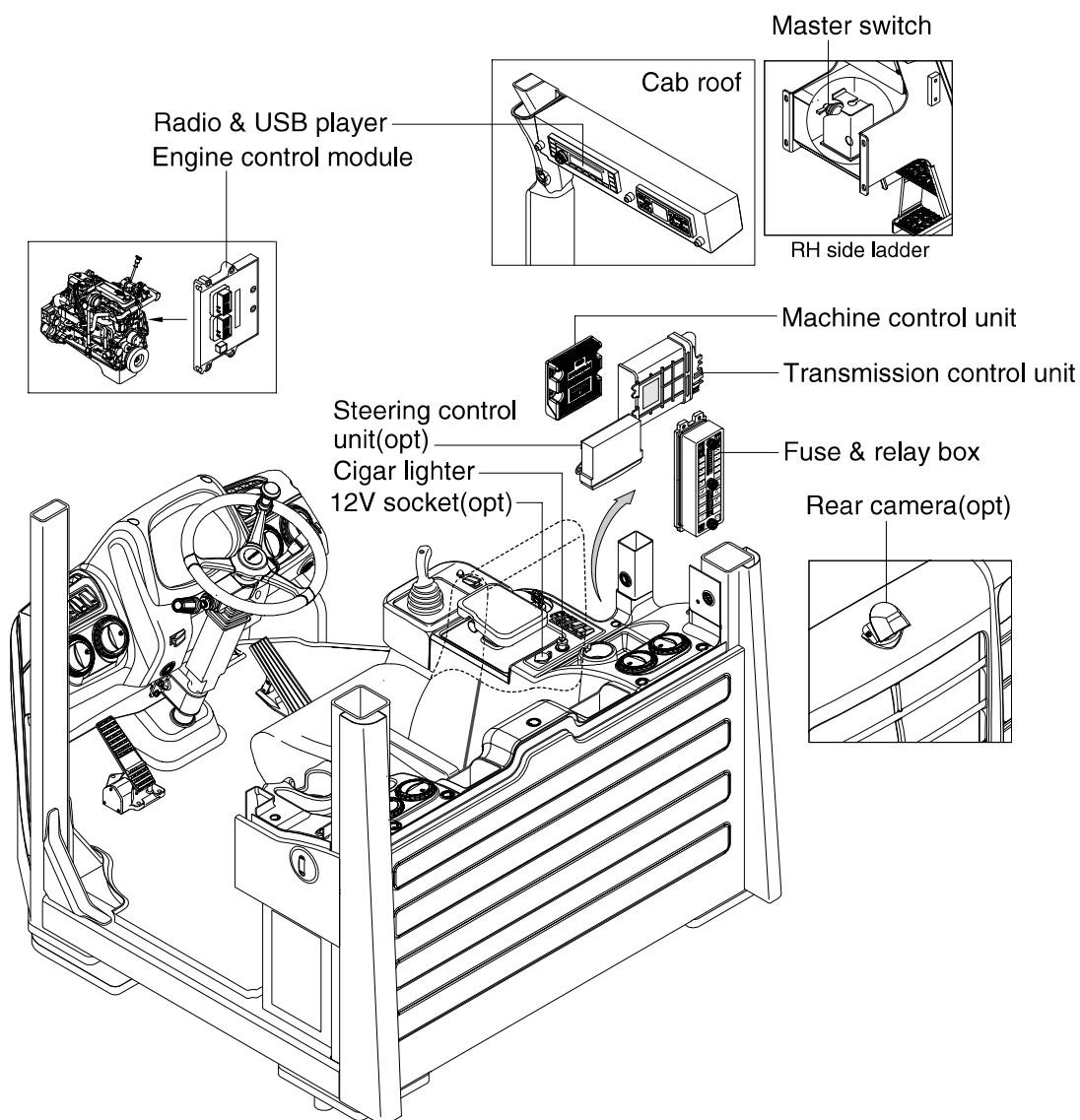
- The corresponding error code flickers on the setup temperature display panel, the other symbol will turn OFF.
- Error code flickers every 0.5 second.
- If error code is more than two, each code flickers 2 times in sequence.
- Error code

Error code	Description	Error code	Description
11	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

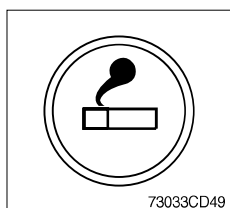
Error description	Fail safe function
Cabin inside sensor (11)	25°C alternate value control
Ambient sensor (12)	20°C alternate value control
Duct (evaporator) sensor (14)	1°C alternate value control
Temp actuator (15)	If opening amount is 0 %, the alternate value is 0 %
	If not, the alternate value is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

7. OTHERS



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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

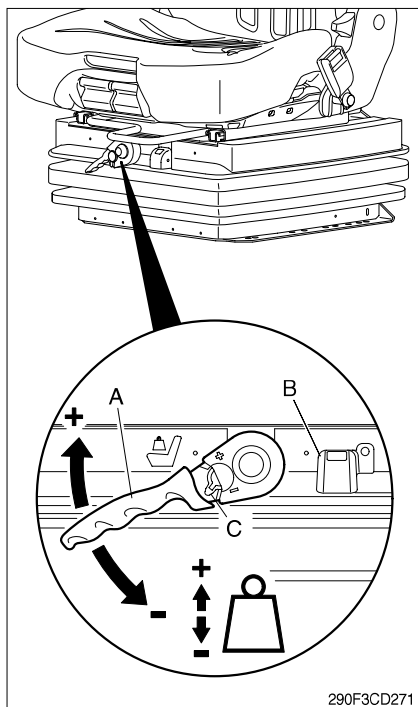
Use cigar lighter socket when you need emergency power.
Do not use the lighter exceeding 24 V, 100 W.

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.

- ▲ 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.

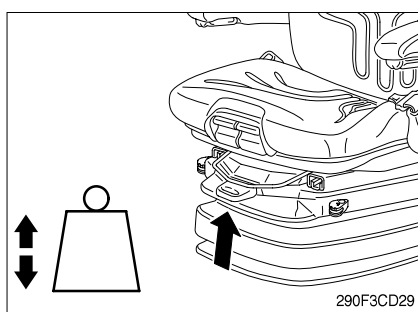
(1) Weight and height adjustment



With socket wrench (A) :

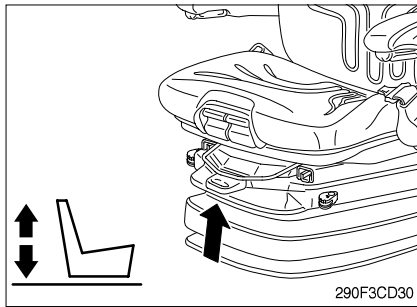
- ① The seat has to be adjusted for the operator's weight and height by tilting the handle (+) up or down (-) with the operator not sitting on the seat.
- ② The rotational direction is reversed by toggling the ratchet with the switch (C).
- ③ The operator's weight and the seat height are adjusted correctly when the green marking is completely visible in the indicator window (B) for weight and height.
- ④ The height can be adjusted individually as long as the green marking is visible.

Weight adjustment (AIR SUSPENSION, OPT)



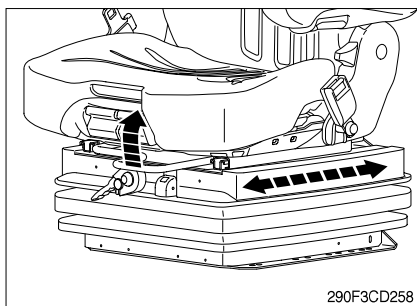
- ① The seat should be adjusted for the operator's weight by briefly pulling the actuator lever of the automatic weight and height adjuster (arrow) with the machine at a standstill and the operator's sitting on the seat.
The operator must sit absolutely still during adjustment.
- ※ Before adjusting the weight, adjust shock absorbers to the position "soft".
 - ※ To prevent damage to the health, the setting for the operator's weight must be checked and adjusted before the machine is operated.

Height adjustment (AIR SUSPENSION, OPT)



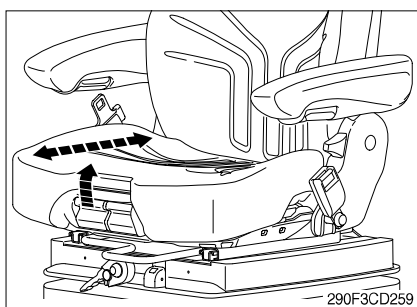
- ① The seat height can be set pneumatically and is continuously adjustable.
 - ② The seat height can be altered by pulling or pressing the actuator lever fully out or in (arrow). If the adjustment reaches the top or bottom endstop, the height is adjusted automatically in order to guarantee a minimum spring travel.
- ※ **Before adjusting the weight, adjust shock absorbers to the position "soft".**
 - ※ **In order to avoid damage, do not operate compressor for more than 1 minute.**

(2) Fore/after adjustment



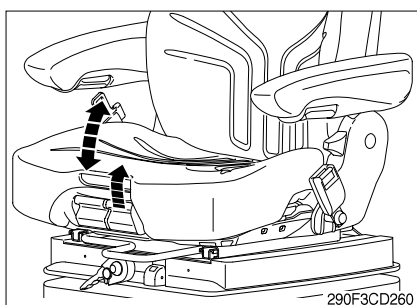
- ① The fore/after adjustment is released by lifting the locking lever.
- ⚠ **Do not operate the locking lever while operating.**
 - ※ **After the adjustment, the locking lever must latch into the desired position with an audible click. It should not be possible to move the operator's seat into another position when it is locked.**
 - ※ **Do not lift the locking lever with your leg or calf.**

(3) Seat depth adjustment



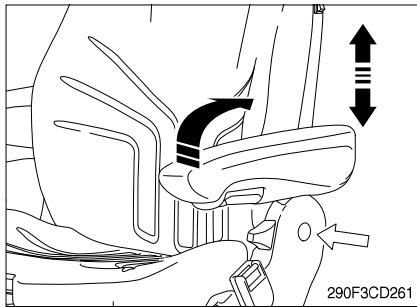
- ① The depth of the seat pan can be individually adjusted.
- ② To adjust the depth of the seat cushion, pull the right handle upwards. By moving the seat pan backwards or forwards the desired seating position can be reached.

(4) Seat pan angle adjustment



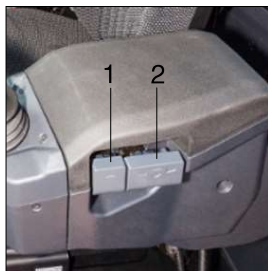
- ① The angle of the seat pan can be individually adjusted.
- ② To adjust the angle of the seat pan, pull the left handle upwards. By exerting pressure on or off the front or rear part of the seat pan it can be moved to the desired angle position.

(5) Armrest (LH)



- ① The armrests can be folded up if required and the height can be individually adjusted.
- ② To adjust the armrest for height, separate the round cap (see arrow) from the cover and loosen the hexagon nut (size 13 mm) behind it adjust the armrests to the desired position (5 steps) and tighten the nut again (25 Nm). Replace the cap onto the nut.

Armrest (LH, RH)



1. Tilt lever



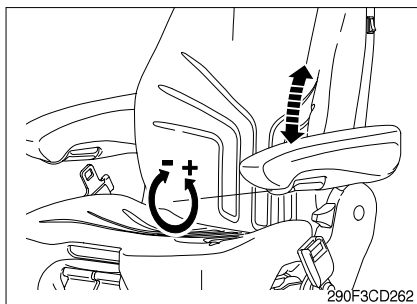
Pull up and hold to tilt armrest maximum 70 degrees.

2. Adjust lever



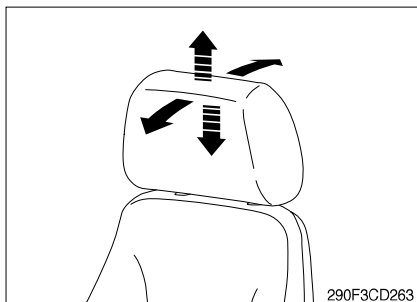
Pull up, hold and slide forward or rearward or up or down.

(6) Armrest adjustment



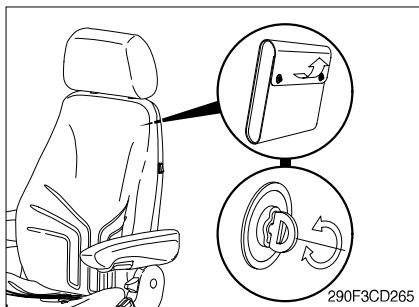
- ① The inclination of the armrest can be modified by turning the adjustment knob.
- ② When turning the knob to the outside (+), the front part of the armrest will be lifted; when turning the knob to the inside (-), it will be lowered.

(7) Headrest



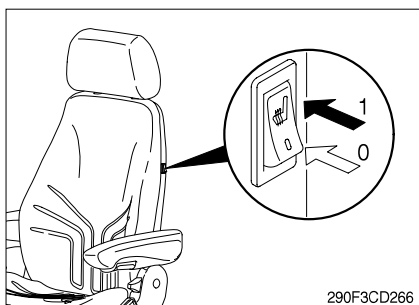
- ① The headrest can be individually adjusted for height by pulling it upward over the various increments up the end stop.
- ② By pushing forwards or rearwards the angle of the headrest can be adjusted individually.
- ③ To remove the headrest, pull it over the end stop.

(8) Document box



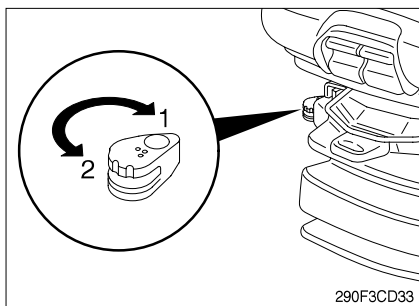
- ① The document box is placed on the rear side of the backrest.
- ② To open the document box, first twist the turn lock closures 90° to the left or the right and then fold the cover of the document box upwards.

(9) Seat heater switch



- ① The seat heater can be turned on/off by pressing the switch.

(10) Absorber

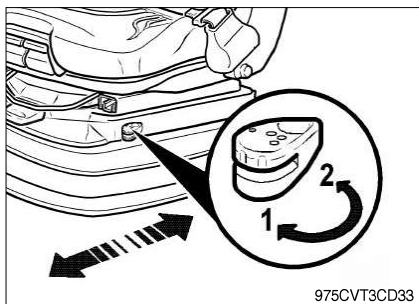


- ① The absorber setting of the seat can be varied to suit the on and off-road working conditions. The cushioning effect can be individually adjusted for this purpose.

Turn the lever to the desired position and release.

- 1 Soft
- 2 Hard

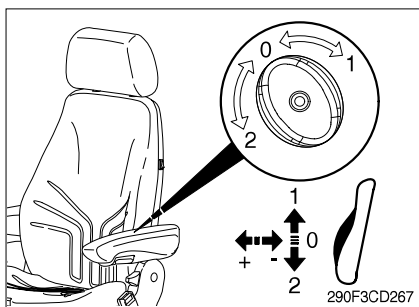
(11) Fore/aft isolator



- ① It is useful to activate the fore/aft isolator. This means that shock impacts in the driving direction can be better absorbed by the seat.

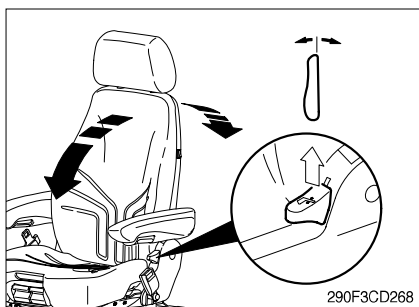
- 1 Fore/aft isolator off
- 2 Fore/aft isolator on

(12) Lumbar support



- ① By turning the adjustment knob to the left (2) or right (1), both the height and curvature of the backrest cushion can be individually adjusted.
- ② This increases both the seating comfort and the performance of the operator.

(13) Backrest adjustment



- ① Pull up the locking lever to release the backrest catch. When releasing the backrest, do not load the backrest by pressing against it.
 - ② By exerting pressure on or off the front or rear part of the seat pan it can be moved to the desired position. Release the locking lever to lock the backrest.
- ※ It should not be possible to move the backrest into another position after it has been locked.

(14) Maintenance

Dirt can impair the function of the seat, so make sure you keep your seat clean.

Upholstery does not need to be removed from the seat frame for cleaning.

▲ Take care with the backrest - it may jerk forward and cause injury. When cleaning the backrest cushion, the backrest must be held in place when operating the backrest lever.

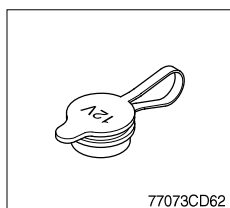
※ Do not clean the seat with a pressure washer.

During cleaning, the upholstery must not be soaked through.

Use standard commercially available upholstery or plastics cleaning agent.

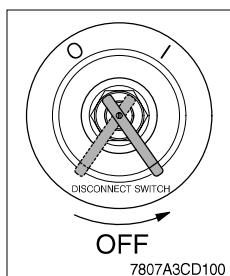
Test first for compatibility on a small, concealed area.

3) 12V SOCKET (option)



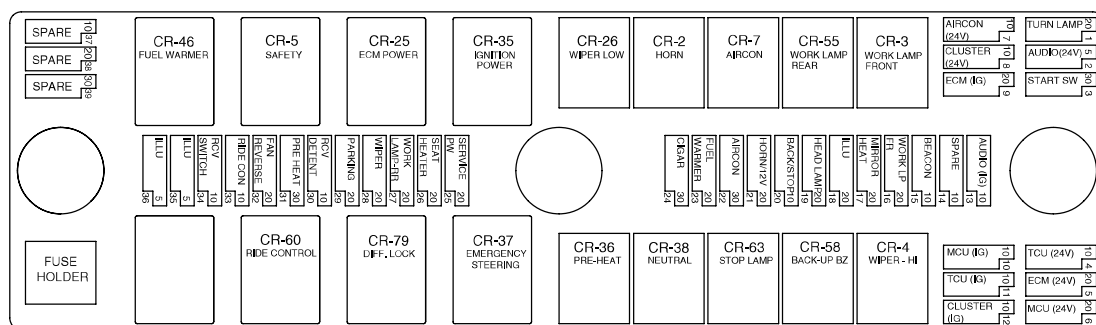
- (1) Utilize the power of 12 V as your need and do not exceed power of 12 V, 30 W.

4) 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.

5) FUSE & RELAY BOX



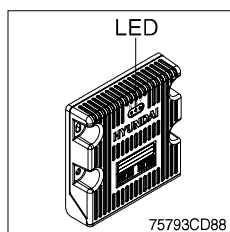
75793CD107

- (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.

6) MACHINE CONTROL UNIT (MCU)



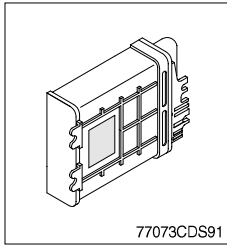
- (1) It consists of electronic parts and controls all lamps and buzzers on cluster in accordance with signals transmitted from the switches, the ECM, TCU, the engine and the hydraulic pressure sensors.

- (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 (24V, GND) of controller is disconnected · Check the fuse

G : green, R : red, Y : yellow

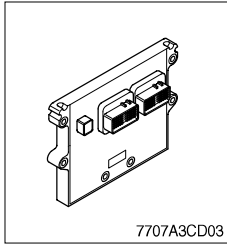
7) TRANSMISSION CONTROL UNIT (TCU)



(1) The control unit is shifting the required speeds fully-automatically under consideration of the following criteria.

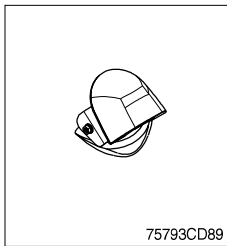
- Gear selector lever position
- Driving speed
- Load level

8) ENGINE CONTROL MODULE (ECM)



(1) The engine control module (ECM) is the control center of the engine system.

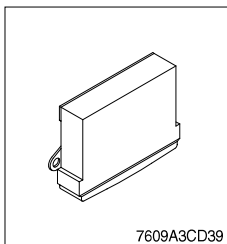
9) REAR CAMERA (option)



(1) The rear camera is available as a option.

※ Refer to page 3-32.

10) STEERING CONTROL UNIT (SCU, option)



(1) The steering control unit (SCU) is the control center of the joystick steering system.

※ Refer to page 3-45.

11) RADIO AND USB PLAYER (+BLUETOOTH)

■Type A



75793CD62-1

■FRONT PANEL PRESENTATION

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

■Type B



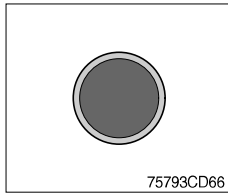
75793CD62-2

■FRONT PANEL PRESENTATION

- | | | | | | |
|---|--|--|----|--|---|
| 1 | | Audio selection button | 10 | | Preset memory button 6 |
| | | Audio selection knob | | | Directory up |
| 2 | | Power and volume button | 11 | | Aux function |
| 3 | | Mode button
(select RADIO / USB / AUX) | 12 | | Preset scan (PS)
Best station memory (BSM) |
| 4 | | UP / DOWN tuning button | 13 | | Audio mute button |
| 5 | | Preset memory button 1
DISP ID3 v2 display | 14 | | AM / FM button (radio) |
| 6 | | Preset memory button 2
SCN File scan | 15 | | Send |
| 7 | | Preset memory button 3
RPT Repeat play selector | 16 | | End |
| 8 | | Preset memory button 4
RDM Random play selector | 17 | | MIC (microphone) |
| 9 | | Preset memory button 5
D- Directory down | 18 | | Aux connector |

■GENERAL

(1) Power and volume button



① Power ON/OFF button

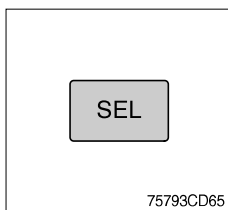
Press power button to turn the unit ON or OFF shortly.

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

② Volume up / down control

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

(2) Sound function selection button (audio selection)



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

·Type A

BASS → TREBLE → BAL → BEEP → LOUD → EQ → VOLUME



·Type B

BASS → TREBLE → BAL → LOUD → EQ



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

② Bass control

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

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

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

③ Treble control

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

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

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

④ Balance control

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

Within 5 seconds of choosing the balance mode, turn power button (type A) or selection knob (type B) right / left to adjust the balance as desired.

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

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

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

⑤ Beep control (type A only)

To adjust the beep mode, first select the beep mode by pressing the select button  until BEEP indication appears on the LCD display. The beep mode will be shown on the LCD display from BEEP 2ND, BEEP OFF and BEEP ON by turning power button right / left.

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

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

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

⑥ Loud control

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

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

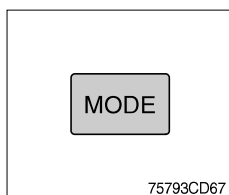
To select the loudness feature, press SEL button until LOUD ON or LOUD OFF is displayed, then turn power button (type A) or selection knob (type B) left or right to activate or deactivate loudness.

⑦ Equalizer (EQ)

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

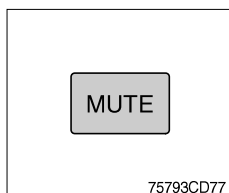
To select the desired curve, first select the EQ mode by pressing SEL button until the "EQ OFF" indication appears on the display panel. Within 5 seconds of choosing the EQ mode, turn power and volume button (type A) or selection knob (type B) to select an equalizer curve as desired.

(3) Mode button



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

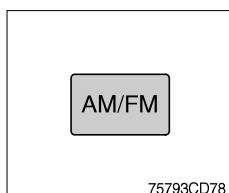
(4) Audio mute button



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

■ RADIO

(1) AM / FM / LW band selector

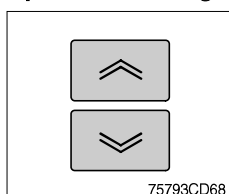


- ① Each time this button is pressed, the radio button is changed. Each time this button is pressed, LCD displays each band as follows :

FM1 → FM2 → FM3 → AM → LW

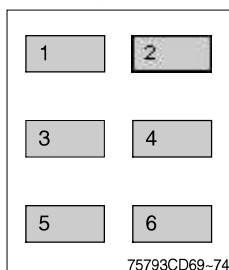
※ LW band is only available for Europe.

(2) Up / down tuning



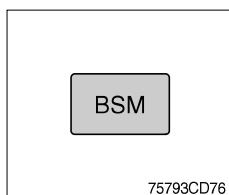
- ① To automatically select a radio station, momentarily press the up tune seek button  or down tune seek button  for less than 3 seconds to search for the closest radio station. To manually select a radio station, press the up tuning & down tuning button for longer than 3 seconds. The radio frequency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

(3) Station pre-set button



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

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



① Pre-set scan (PS)

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

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

② Best station memory (BSM)

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

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

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

■USB PLAYER

(1) USB function

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

· Use of USB socket

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

· Use of USB /AUX cable (option)

·Type A



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

·Type B



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① **USB function**

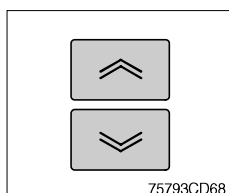
- a. Connect a USB device if you want to listen to MP3 file in a USB device.
- b. It will automatically play MP3 file in the USB device and the LCD display will show “READING USB”.

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

② **AUX function**

- a. If you want to listen to music of a external audio device, connect a external audio device through AUX cable.
- b. Change AUX mode by pressing MODE button.
If audio file of Audio device is playing, you can listen to music through speaker.

(2) **File selection & cue / review button**



① **File selection function**

This button is used to select file up / down.

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

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

② **Cue / review functions**

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

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

(3) MP3 directory / file searching

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

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

Turn right / left the power button (type A) or selection knob (type B) to search the directory. Press the button when you find the wanted directory.

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

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

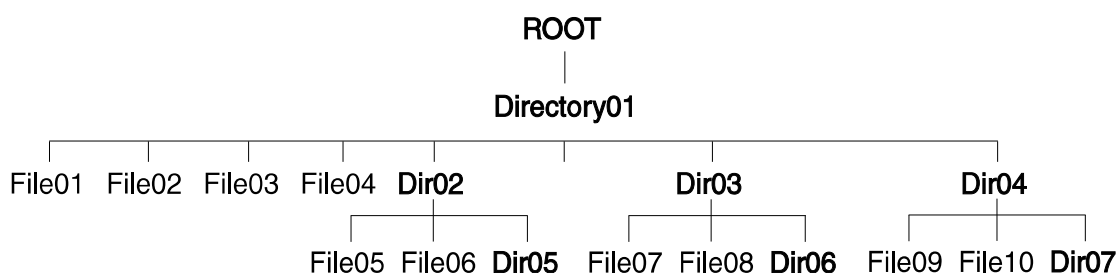
·Method 2 : ROOT → Dir01 → Dir02 → Dir05 → Dir03 → Dir06 → Dir04 → Dir07

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

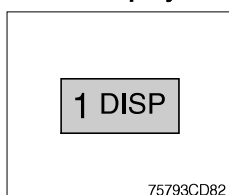
For instance, the file search changes in Dir01 as follows.

File01 → File02 → File03 → File04

※ MP3 directory / file configuration



(4) ID3 v2 display

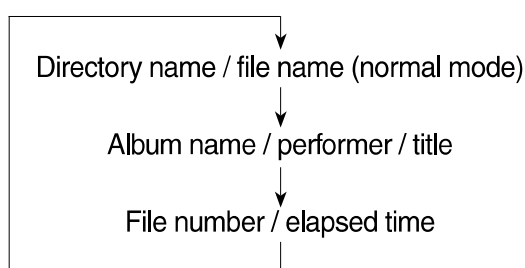


- ① Disp button is used to change the display information.

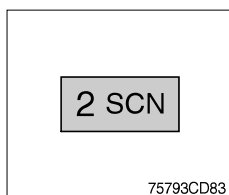
While playing an MP3 file, you can change the file information shown on the LCD display.

Each time you press DISP (display), the display changes to show the following.

※ If the MP3 disc does not have any ID3 information, the display will show NO ID3 on LCD display.



(5) File scan (SCN)



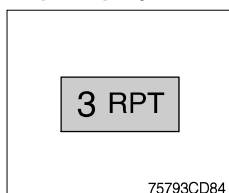
- ① During USB play, press SCN button to play the first 10 seconds of each file on the whole file on the USB (SCN mark will appear on the LCD display).

When a desired file is reached, press the SCN button again to cancel the function.

The unit will then play the selected file.

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

(6) Repeat play selector (RPT)

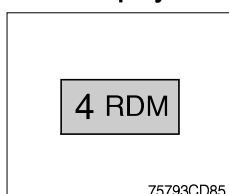


- ① During USB play, press RPT button to play the selected file repeatedly (RPT will appear on the LCD display).

Play of the file will continue to repeat until this button is pressed again and the RPT disappears from the LCD display.

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

(7) Random play selector (RDM)

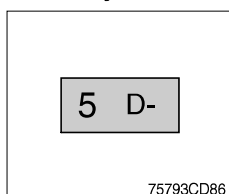


- ① During USB play, press RDM button to play the files on the USB in a random shuffled order (RDM will appear on the LCD display). The file select function will also select file in the random order instead of the normal process.

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

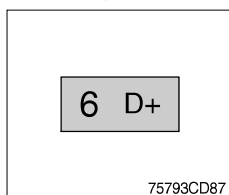
- ※ In case of MP3 file, when the random button is pressed and held longer than 2 seconds, the RDM mark will blink on the LCD display and play all files in directory randomly until the directory random mode is cancelled by pressing the random button again or by activating the scan or repeat functions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

(8) Directory down



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

(9) Directory up



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

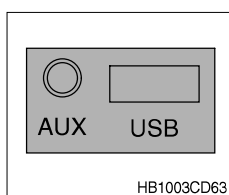
※ If the MP3 file does not have a directory, the unit play MP3 at 10-file intervals.

※ If any MP3 file does not exist in USB, this button can not operate.

■AUX PLAYER

(1) Aux function

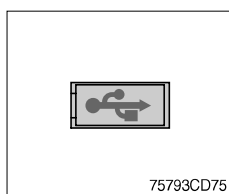
- Use of USB socket (machine serial No. : -#0218)



① If you want to listen to music of a external audio device, connect a external audio device into the USB port.

② Press mode button to change a current mode for AUX. If audio file of audio device is playing, you can listen to music through speaker.

- Use of USB/AUX cable (option)



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

② Press mode button to change a current mode for AUX. If audio file of audio device is playing, you can listen to music through speaker.

■BLUETOOTH

(1) Introduce

The bluetooth radio supports bluetooth wireless technology. Bluetooth technology provides a wireless link between a bluetooth mobile phone or bluetooth music player and the hyundai bluetooth radio.

The bluetooth radio features a hands-free system so that you may talk on the telephone without taking your eyes off the road or your hands off the wheel. A microphone built into the front of the radio receives your voice and the calling party can be heard through the speakers.

Additionally, a bluetooth music player can be wirelessly connected to be the bluetooth radio and playback music tracks in high quality sound through the speakers. Many bluetooth mobile phones include a music player and can provide both hands-free calling and music playback.

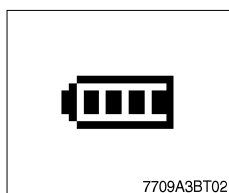
Check your mobile phone owner's manual for details.

- ※ When the starting switch is in the ON position, the bluetooth radio is on standby to connect with your mobile phone even if the radio is switched off. The machine battery may therefore become drained if the ignition switch remains in the ON position for an extended period of time.
- ※ Bluetooth technology uses low power radio transmission to connect to your bluetooth mobile phone or bluetooth music player. As radio signal strength reduces over distance, the quality of sound performance during phone calls and music playback may become poor if the distance between the radio and device widens. It is recommended that the mobile phone or music player is kept inside the cab for best results.
- ※ As a bluetooth wireless connection can extend to 10 meters, your bluetooth device may automatically connect to the bluetooth radio even if the device is not in the machine.
- ※ The bluetooth radio uses the latest digital noise & echo suppression system to provide the best sound clarity with little or no distortion, but in some conditions there may be some echo and noise experienced. It is recommended to keep the car windows closed during hands-free calls for best results.



① Bluetooth indicator

The bluetooth logo is displayed when a bluetooth device is connected, and not displayed, when no bluetooth device is connected. If the bluetooth mobile phone is connected but the connection is not of satisfactory quality, the bluetooth logo is not displayed.



② Battery strength indicator

This is an indication of your mobile phone battery condition. If your mobile phone is not able to transmit battery condition level, the indicator is not displayed.



③ Single level indicator

This is an indication of the mobile phone network signal strength in your current location. If your mobile phone is not able to transmit signal level, the indicator is not displayed.

(2) Bluetooth function

① Pairing a bluetooth mobile phone or music player

A bluetooth connection must first be established between your bluetooth mobile phone or bluetooth music player and the bluetooth radio. The first step to connecting the bluetooth radio and bluetooth device is to introduce or "Pair" the bluetooth radio and bluetooth device together.

It is recommended that you have the instruction manual for your bluetooth mobile phone or music player with you during the pairing process described below to understand how to set your device to pair with the bluetooth radio.

※ It is recommended that all other bluetooth devices other than mobile phones are switched off during the registration or pairing process.

a. Connection method

- a) Press SEND button for 2 seconds in any mode, **PAIRING** appears on the bluetooth radio display.
- b) Browse your mobile phone or music player menu to find the **SETTINGS** or **CONNECTIVITY** section to find the bluetooth connection section.
- c) Find the command that may be called search for bluetooth device or discovery mode so that your bluetooth device can locate all the bluetooth devices within range that may be connected.
- d) After the search is complete, **HFI AUDIO** should appear on your mobile phone or music player screen.
- e) Select **CONNECT** or **SELECT** on your mobile phone or music player.
- f) The mobile phone or music player should now prompt you to enter a PIN code. Enter 0000 into your bluetooth device and select OK.
- g) The mobile phone or music player should confirm that it has established a new paired connection with the bluetooth radio.
- h) The connecting process is now complete.
- i) If the connecting process is successful, the bluetooth logo appears on the radio display and paired phone name (e.g. Samsung or LG) and **CONNECTED** appear on the display for 2 seconds.
- j) Your bluetooth device is now ready for use with the bluetooth radio.
- k) If the pairing failed, **FAIL** appears on the bluetooth radio display.

※ (a) The bluetooth radio allows a maximum of 6 bluetooth devices to be paired.

- (b) Bluetooth technology only allows one phone to be connected to your bluetooth radio at one time.
- (c) If a bluetooth music player is to be connected together with a mobile phone, refer to the page 3-67, PLAYING MUSIC USING BLUETOOTH AUDIO.
- (d) Bluetooth connection with a mobile phone is normally established using the Hands-Free Profile (HFP). However, in some cases, the connection may use Head Set Profile (HSP) and some functions may not be available.
- (e) As each mobile phone or music player brand and model has a different menu structure and control names, you may need to refer to the user manual of your bluetooth device for the correct procedure to connect to another bluetooth device.
- (f) Once the bluetooth pairing is complete, automatic connection between mobile phone and the bluetooth radio is possible whenever the starting switch is switched ON.
The mobile phone must be set to automatically connect to the bluetooth radio to allow this automatic connection.

- (g) The bluetooth radio will give connection priority to the last connected mobile phone.
- (h) It is recommended that all other bluetooth devices other than mobile phones are switched off during the registration or pairing process.

② Disconnecting a bluetooth device

If you need to disconnect your bluetooth mobile phone or music player with the bluetooth radio, follow the steps below.

- a. Press END button for 2 seconds in any mode.
- b. When the bluetooth connection is lost, bluetooth logo disappears and the previously connected device name (e.g. Samsung or LG) and **DISCONNECTED** appear on the display.

③ Select a bluetooth device

The bluetooth radio can pair up to 6 bluetooth devices. A previously paired mobile phone or music player can be selected for connection using the method described below. Refer to the table 2-1 for examples.

Preset No.	Bluetooth device name (for example)
1	Samsung
2	LG
3	Apple
4	Motorola
5	EMPTY
6	EMPTY

Table 2-1

- a. Press SEND button, to select **BLUETOOTH** mode.
- b. Press SEL button. **SELECT PHONE** will appear on the display.
- c. Turn power button (type A) or selection knob (type B), until **SELECT PHONE** is displayed.
- d. When **SELECT PHONE** appears on the display, press SEL button.
- e. Press the preset button to display the name of the bluetooth device name of the mobile phones or music players previously paired. You may also turn power button (type A) or selection knob (type B) to display the paired devices.
 - Each time you turn power button (type A) or selection knob (type B), the LCD displays as follows :

SAMSUNG → LG → APPLE → MOTOROLA → BACK


- f. If the bluetooth mobile phone name is Samsung as in the example of table 2-1, then **Samsung** appears on the display. When preset button  is pressed or power button (type A) or selection knob (type B) is turned 1 click to the right.
- g. Once the name of the bluetooth device you wish to connect is displayed, in this example **Samsung**, press SEL button to have the Samsung device connected.
- h. If the connection is successful, the bluetooth logo appears on the display and paired phone name **Samsung** and **CONNECTED** appears on the display for 2 seconds.

④ Deleting a previously paired bluetooth device

If you no longer need to use a paired bluetooth device with the bluetooth radio, it can be deleted.

It is from the registration assignment for another mobile phone.

Refer to the example of paired devices shown table 2-1.

- a. Press SEND button, to select **BLUETOOTH** mode.
- b. Press SEL button and **SELECT PHONE** appears on the display.
- c. Turn power button (type A) or selection knob (type B), until **DELETE PHONE** is displayed.
- d. When **DELETE PHONE** appears on the display, press SEL button.
- e. Press the preset button to display the name of the bluetooth device name of the mobile phones or music players previously paired. You may also turn power button (type A) or selection knob (type B) to display the paired devices.
- f. Once the name of the bluetooth device you wish to delete is displayed, in this example **Samsung**, press SEL button to have the Samsung device deleted.
- g. The display will then show **DELETE NO** or if knob power button (type A) or selection knob (type B) is turned, **DELETE OK** on the display.
- h. To confirm your wish to delete the selected device, when **DELETE OK** appears on the display press SEL button.
- i. If the bluetooth device being deleted (in this example) was connected, the display will show previous paired phone name "Samsung" and DISCONNECTED.
- j. In the example above, the number of paired devices is now reduced to 3, leaving 3 vacant memory locations for additional devices. Table 2-2 shows the example.

Preset No.	Bluetooth device name (for example)
1	LG
2	Apple
3	Motorola
4	EMPTY
5	EMPTY
6	EMPTY

Table 2-2

⑤ Basic telephone operation

a. Using the bluetooth radio for hands-free calls

- a) When an **INCOMING** call arrives at the bluetooth radio via your connected bluetooth mobile phone, **INCOMING CALL** appears on the display for 3 seconds then the calling telephone number is shown.
 - b) Press SEND button to answer the **INCOMING** call. **HANDSFREE** appears on the display.
 - c) To end the call, press END button and the call will end and **END CALL** is displayed.
 - d) If you wish to reject an **INCOMING** call, press END button.
 - e) To make an **OUTGOING** call use the keypad of the connected bluetooth mobile phone to enter a number and press the **OFF-HOOK** (SEND) button on your mobile phone.
 - f) **OUTGOING CALL** is displayed on the bluetooth radio and the call continues in hands-free mode.
 - g) The call can be ended by pressing END button the **ON-HOOK** (END) button of the connected mobile phone.
- ※ Some mobile phones may not reject an **INCOMING** call using the action of d) above. In this case, press the **ON-HOOK** button on the connected mobile phone to reject.

b. Last call number redials

Select **BLUETOOTH** mode by pressing SEND button. To making a call to the last dialed number, press SEND button again. **OUTGOING CALL** appears on the radio display for 1 second.

- ※ Some mobile phones may require an additional press of SEND button to start the last number redial call.

c. Switching to private (headset) mode during a call

During an INCOMING or OUTGOING call started in hands-free mode, it is possible to switch to the private call mode using the mobile phone handset to speak and to hear the calling party in private.

- a) Press SEND button during the conversation ; **PRIVATE** appears on the display.
- b) To switch back to hands-free mode using the bluetooth radio, press SEND button again during the private conversation ; **HANDSFREE** is shown on the display and hands-free call operation continues.

- ※ The above switching function may cause disconnection of the bluetooth link between the bluetooth radio and some mobile phones.

If SEND button is pressed during the private conversation, the bluetooth connection will return automatically.

(3) Function of bluetooth audio player

① Playing music using bluetooth audio

The bluetooth radio supports the bluetooth profile Audio Advanced Distribution Profile (A2DP). If your mobile phone or music player supports this profile then it is possible to listen to music tracks located on your bluetooth device through the bluetooth radio and speakers.

Additionally, the bluetooth radio supports the Audio Video Remote Control Profile (AVRCP).

If your bluetooth mobile phone or music player supports this profile then it is possible to advance to the next track or replay previous tracks on using the buttons on the front of the bluetooth radio your machine.

- a. Press MODE button until **BT AUDIO** is displayed.
 - b. When **BT AUDIO** appears on the display, select the music player feature on your bluetooth device. And then bluetooth device play automatically to begin playback.
 - c. To pauses the bluetooth audio playback, press SEL button for 2 seconds. Press the knob again for 2 seconds to resume playback.
 - d. Press buttons (⏮, ⏭) advance to the next or previous music track.
- ※ (a) Check your bluetooth device owner's manual for details of how to play music tracks via an external bluetooth audio system such as the bluetooth radio.
 - (b) Some bluetooth mobile phones cannot play music at all or may play music tracks in low-quality audio through the bluetooth radio.
 - (c) Some mobile phones require additional pairing to allow bluetooth audio playback.
 - (d) Information about songs (ID3) (e.g. the elapsed playing time, song titles, song index, etc.) playing using bluetooth audio profile cannot be displayed on this bluetooth radio.

② Connecting a bluetooth music player and mobile phone simultaneously

It is possible to connect a bluetooth mobile phone and a separate bluetooth music player to the bluetooth radio at the same time. Phone calls can be sent and received using the hands-free feature while music is playing using the bluetooth audio feature.

(4) Bluetooth setting

① Setting the automatic call answer feature

If this function is selected, the bluetooth radio automatically answers all INCOMING calls.

This feature enhances safety as the driver does not need to take their hands from the steering wheel to accept an INCOMING call.

Note that this feature cannot be set at different settings for each of the paired mobile phones.

- a. Press SEND button to select BLUETOOTH mode.
- b. Turn power button (type A) or selection knob (type B) until **SETTINGS** is displayed.
- c. Press SEL button until **AUTO ANSWERING** is displayed.
- d. Press SEL button and turn power button (type A) or selection knob (type B). The LCD then displays as follows :

ANSWER OFF → ANSWER 5 SEC → ANSWER 10 SEC → RETURN
↑

- ANSWER OFF = Automatic answer function is not active.
- ANSWER 5 SEC = Automatic answers all INCOMING calls after a 5 second delay.
- ANSWER 10 SEC = Automatic answers all INCOMING calls after a 10 second delay.
- RETURN = Return to previous menu.

- e. After making your selection, press SEL button to store the selection.
- f. **SETTINGS** is then displayed for adjustment if required.
- g. If you do not wish to adjust any further bluetooth settings, press END button to return to the last selected mode.

② Setting calling voice volume

This function is to set the level of the mobile phone's calling voice volume to be heard through the bluetooth radio and speakers.

- a. Follow steps a. to c. of above setting below ①.
- b. When **VOICE VOLUME** appears on the display, press SEL button to display the current level of the calling voice. Turn power button (type A) or selection knob (type B) right or left to adjust the calling voice volume as desired. This is the level the calling voice volume will be set to each time the bluetooth radio is used after the stating switch is turned off and then on again.
- c. After making your selection, press SEL button to store the selection.
- d. **SETTINGS** is then displayed for adjustment if required.
- e. If you do not wish to adjust any further bluetooth settings, press END button to return to the last selected mode.

③ Setting the ring volume

This function is to set the level of the mobile phones ring tone volume to be heard through the bluetooth radio and speakers.

- a. After making your selection, press SEL button to store the selection.
- b. When **RING VOLUME** appears on the display, press the SEL button to display the current level of the ring tone. Turn power button (type A) or selection knob (type B) right or left to adjust the ring tone volume as desired. This is the level the ringer volume will be set to each time the bluetooth radio is used after the starting switch is turned off and then on again.
- c. After making your selection, press SEL button to store the selection.
- d. The press END button to return to the last selected mode.