Product Guide

September 2016
Internal Use Only

Full Model Change for 1.0 to 3.5 ton Series Electric Powered 4-wheel Forklift

Introduction

7FB series of 1.0 to 3.5 ton electric powered 4-wheel forklift truck has been acclaimed as a high performance electric-powered forklift truck since the full model change in 1999, leading the transition from internal combustion truck to electric powered truck along with the increasing awareness concerning environment.

Introduction of the AC power system and SAS (System of Active Stability), TOYOTA's original features, established a solid foundation for 7FB series in the electric powered forklift market.
In addition, with its spacious footing space and the innovative design, 7FB series has contributed to lessen the mistaken impression that electric powered forklifts are inefficient and tiresome to get on and get off.

As the market of electric powered forklifts expands, there have been increasing numbers of new demands such as longer operating hours, durability, or ease of maintenance and battery exchange.
The social situation is also continuously changing with the technological innovations in the fields of the Internet, mobile networks and the next-generation power sources.

In order to meet the market demands and adjust to the changing situation, the new 8FB series was developed with the concept to improve its ergonomics, safety and operating time.
It also has new features for longer battery life, and improved water resistance.
The new 8FB series will continue to respond to various market needs, and it is certain that it will play a leading role for the future generation of the electric powered forklifts.

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* : Please refer to Spec Manual (released in November 2016) for the information.

Main Selling Points

● : Standard
❍ : Option

Concept	Function or Feature		New 8FB	Previous 7FB
Improved Energy Efficiency (Longer Operating Time)	AC Motor	Improved	● (New Motor)	●
	Motor Driver	Improved	● (New Driver)	●
	Controller System	Improved	● (New System)	●
Outstanding Stability & Safety	Operator Presence Sensing (OPS) System	Improved	●	●
	SAS(System of Active Stability) -ε [A41A]	Improved	❍ (New)*1	❍
	Orange Seat Belt [G43C]	New	❍	–
	Seat Belt Interlock System [K36B]	New	❍	–
	Blue Light [J44C]	New	❍	–
Outstanding Operability	Small-Diameter Steering Wheel	Improved	● (φ300mm)	● (φ360mm)
	Roomy Leg Space	Improved	●	●
	Assist Grip	Improved	● (Larger Size)	●
	Rear Pillar Assist Grip [L37A]	Improved	❍	❍
	Instrument Panel	Improved	● (Display Re-location)	●
	Multifunction Display	New	●	–
	Deluxe Multifunction Display [L26B]	New	❍	–
	Anti-rollback	Improved	●	●
	Slope Sensing Auto-Power Mode Selector [E09D]	New	❍	–
	PIN Code Entry System [L38B]	New	❍	–
	Shock Sensor [L39B]	New	❍	–
	Emergency Power Shut-down Button	New	●	–
	Battery Connector Handle	Improved	● (New Shape)	●
	Repositioned Charging Port	New	❍ *2	–
Longer Battery Life	Battery Fluid Level Warning	New	❍ *3	–
	Battery Protecting Function [D42B]	New	❍ *3	–
	Battery Shape (Better heat radiation)	Improved	❍ (New Shape)	❍
	Smart Charger	New	● *2	–
	Battery Data Logging (Functions are limited unless [C30E], [D00C] and [D42B] are selected.)	New	●	–
	Battery Fluid Top-up System with Reserver Tank [D44B]	New	❍	–
Outstanding Durability	Water-proof Performance	Improved	● (IPX4)	● (IPX3)
	LED Lights [J19S], [J19U], [J21D], [J24L], [J26A], [J26C]	New	❍	–

*1 : New functions (Automatic Turn-speed Control & Automatic Vehicle-speed Control) are adopted.

*2: Available when Battery Charger (On-truck type) [C30E] is selected.

*3 : Available when Optional Battery[D00C] is selected.

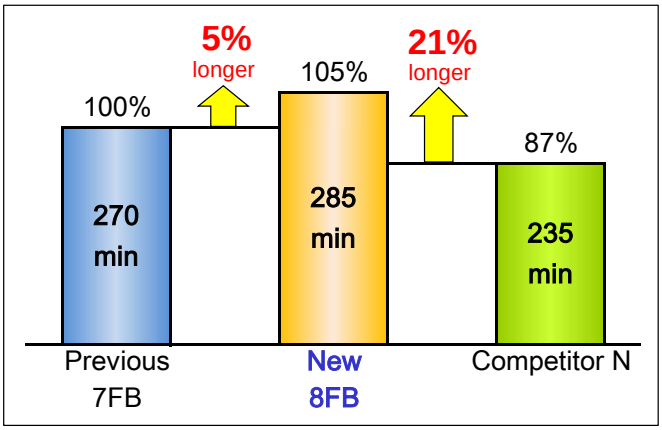
Concept & Selling Points

1. Improved Energy Efficiency (Longer Operating Time)

1) Improved AC Motor, Motor Driver and Brake Regeneration

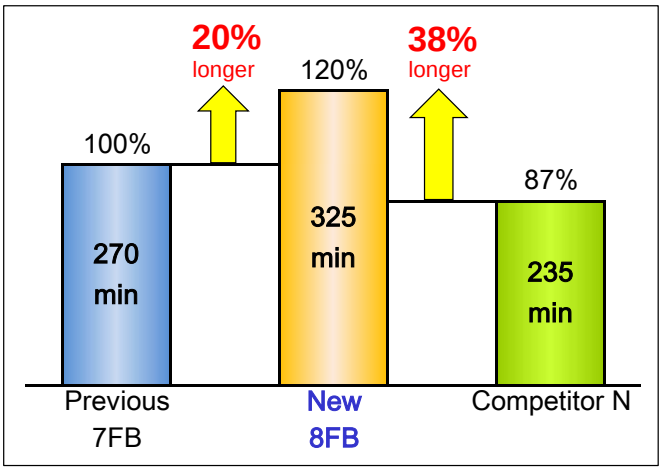
We achieved longer operating time by introducing the new AC motor, new motor driver and improved brake regeneration. The operating time with S mode is 20% longer than 7FB series for 3.0/J3.5 ton models, and 5% longer for 1.0-2.5 ton models.

Operating Time Comparison (1.5t model)



Test Condition
Operating Mode: S mode
Operating Cycle:
Toyota Standard Operating Cycle (92sec)
Truck Spec.: 1.5t
48V, 400AH/5h Battery
Pneumatic tires

Operating Time Comparison (3.0t model)

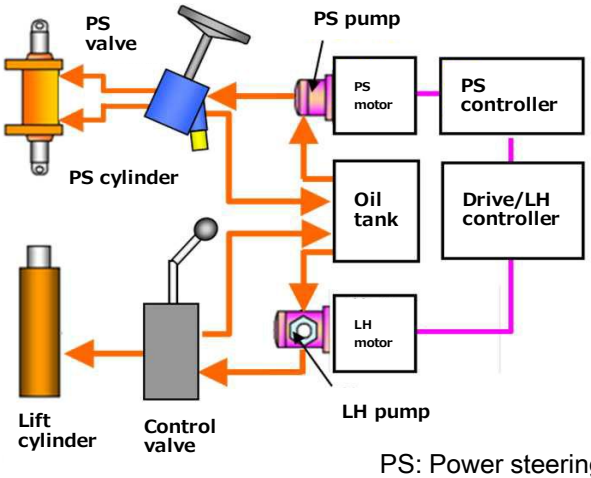


Test Condition
Operating Mode: S mode
Operating Cycle:
Toyota Standard Operating Cycle (98sec)
Truck Spec.: 3.0t
80V, 370AH/5h Battery
Pneumatic tires

2) Controller System

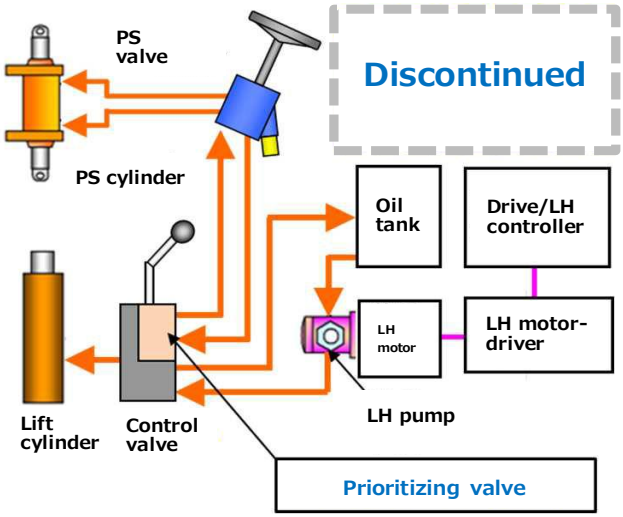
The new controller system for the 8FB series realizes even improved energy efficiency.

Current Controller System



PS: Power steering
LH: Load handling

New Controller System



Function		New/continued	Multifunction Display	Deluxe Multifunction Display [L26B]
Normal screen	Power meter	NEW	❍	❍
	Scheduled-maintenance hour warning indicator	NEW	❍	❍
	Menu lock indicator	NEW	❍	❍
	Battery fluid-level detection vehicle-performance restriction indicator	NEW	OPT Battery Protecting Function [D42B]	OPT Battery Protecting Function [D42B]
	Automatic vehicle-speed control indicator	NEW	OPT SAS (System of Active Stability) - ε [A41A]	❍
	Calendar and clock	-	❍	❍
	Wheel indicator	NEW	❍	❍
	Direction indicator	NEW	❍	❍
	Load weight indicator	NEW	-	❍
Multi-meter	Key switch on hour meter	-	❍	❍
	Lap hour meter	-	❍	❍
	Drive motor operation hour meter	-	❍	❍
	Pump motor operation hour meter	-	❍	❍
	Drive or Pump motor operation hour meter	-	❍	❍
	Seat switch on hour meter	NEW	❍	❍
	Odometer	-	❍	❍
	Trip meter	-	❍	❍
	Scheduled-maintenance hour meter	NEW	❍	❍
	Watt-hour meter	NEW	OPT Battery Protecting Function [D42B] and Battery Charger 200V/3P (On-Truck Type) [C30E]	OPT Battery Protecting Function [D42B] and Battery Charger 200V/3P (On-Truck Type) [C30E]
	Watt-hour meter QR code display	NEW	OPT Battery Protecting Function [D42B] and Battery Charger 200V/3P (On-Truck Type) [C30E]	OPT Battery Protecting Function [D42B] and Battery Charger 200V/3P (On-Truck Type) [C30E]
Warning Functions	Battery remaining-charge warning	-	❍	❍
	Battery over-discharge warning	-	❍	❍
	Battery fluid-level warning	-	OPT When Battery (Wet Cell) [D00C] and Battery Protecting Function [D42B]	OPT Battery (Wet Cell) [D00C] and Battery Protecting Function [D42B]

2. Outstanding Stability & Safety

1) Operator Presence Sencing System

- Return-to-neutral function is adopted on all load-handling levers, as an additional feature of OPS. Only when all load handling levers are in the neutral position, lock of load-handling operation can be released.

➡ **Makes sure that the operator is in a proper operating position when releasing lock of load-handling operation**

- A regenerative brake is introduced on travel OPS

➡ **Shorter braking distance after travel OPS is activated**

2) System of Active Stability (SAS) [A41A]

- 2 functions are newly adopted

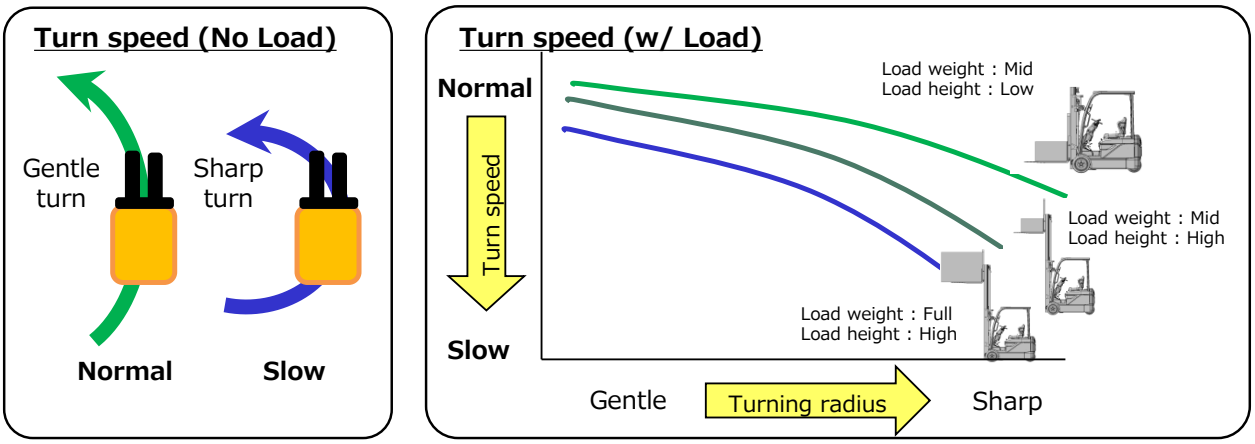
Previous functions
- Active Control Rear Stabilizer
- Active Mast Front-tilt Angle Control
- Active Mast Tilt Speed Control
- Automatic Fork-leveling Control
- Active Steering Synchronizer
- Key-OFF Lift Interlock

\+

New functions
- **Automatic Turn-speed Control**
- **Automatic Vehicle-speed Control**

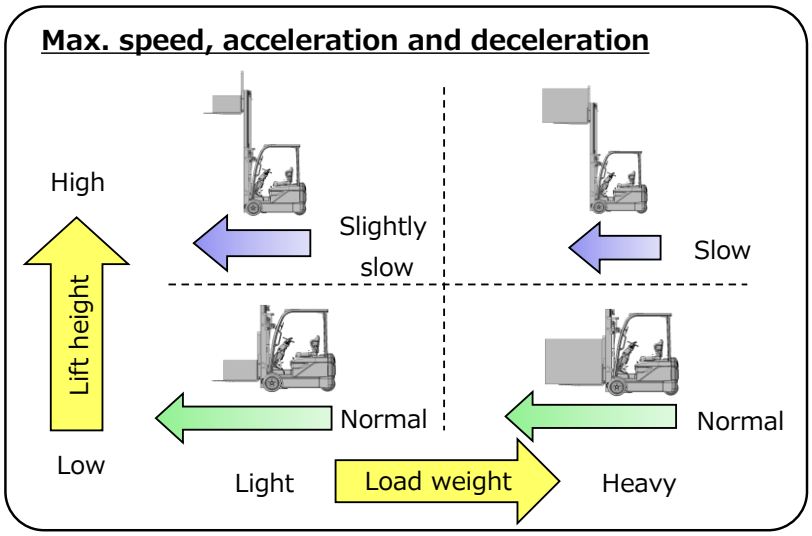
(1) Automatic Turn-speed Control

This function controls turning speed according to lift height, load weight and turning radius.



(2) Automatic Vehicle-speed Control

At high lift heights, vehicle's speed, acceleration, and deceleration are limited according to load weight, thereby helping to improve vehicle's travel stability.



3) Orange Seat Belt [G43C]
When this option is selected, the colour of the seat belt will be orange.

Easier to confirm if the seat belt is securely fastened

Note: On seats with Orange Seat Belt, the position of the seat belt buckle is 60mm higher than the standard seats.

4) Seat Belt Interlock System [K36B]
Travel power will be interrupted and load-handling operations will be stopped under any of the situations below:
- When the seat belt is unfastened
- When 2 seconds pass after an operator releases the seat belt.
- When a operator fastens the seat belt before getting properly seated

The vehicle's movement with this feature activated, is the same as when OPS is activated.

Makes sure that the seat belt is properly fastened

To release the seat belt interlock, please follow the procedures below:
- Put the direction lever back to neutral
- Release the load handling lever and the accelerator
- Unfasten the seat belt, and fasten it again

Note: When this option is selected, the color of the seat will be orange.

5) Blue Light (LED) [J44C]
LED Blue Light is adopted as an option. The bright blue spot light informs that the truck is approaching to the associates who are working near the truck.

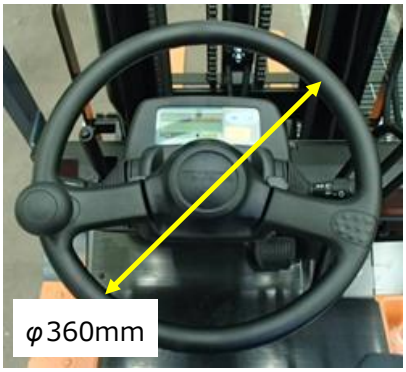
3. Outstanding Operability

1) Small-diameter Steering Wheel

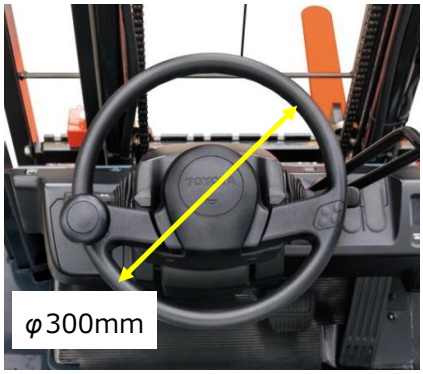
The diameter of the steering wheel has been reduced from 360 mm to 300 mm

Reduces operating fatigue

Current Steering Wheel



New Steering Wheel



2) Roomy Leg Space

Roomy Leg Space in the same size as 7FB series

Realizes outstanding comfort for operators

3) Large Assist Grip

Large assist grip is adopted as a standard feature

Easier entry/exit

4) Rear Pillar Assist Grip [L37A]

This grip assists operators' positions to be stable and secure the backward visibility when traveling backwards.

It also allows operators to blow the horn while holding the grip.

Reduces operating fatigue

Secures the backward visibility

5) Design Change of Instrument Panel

Current Instrument Panel

→

New Instrument Panel

Multifunction Display

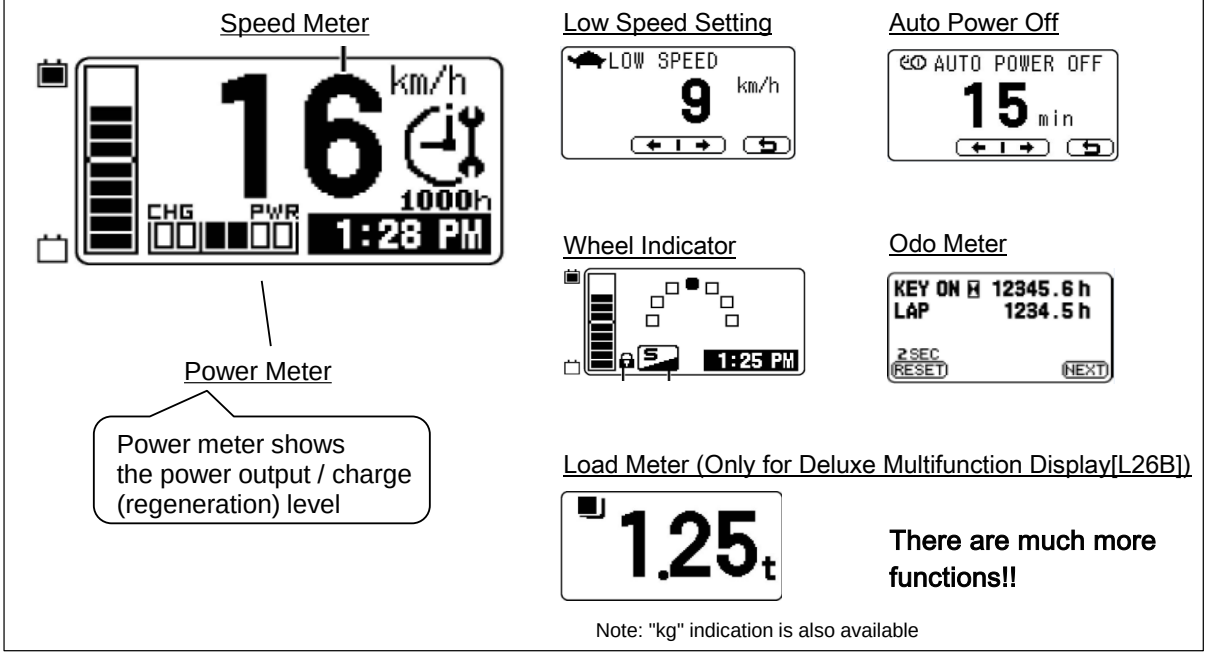
6) Multifunction Display (Standard equipment)

Deluxe Multifunction Display [L26B]

Multifunction Display is equipped as a standard feature with LED warning lights and a full dot-matrix liquid-crystal display

Easier to check on the condition of vehicles

Examples of the functions of Multifunction Display



7) Anti-Rollback

As with the previous 7FB series, Anti-rollback is adopted as a standard feature.
When the accelerator is released while on a slope, this feature limits the grade-descent speed to the fixed value, thereby preventing rollbacks of the vehicle.

For the new 8FB series, 2 points stated below are different from the previous 7FB series.

- Rollback speed : The speed becomes slower (0.5 - 4 km/h adjustable)
- The truck stops after releasing the accelerator for a while, and starts to rollback and gradually reaches the pre-set rollback speed

Improves the productivity and operability on slopes

8) Slope Sensing Auto-Power Mode Selector

This function detects the slope angle and automatically switches the driving performance to H mode.

Note: This function is suitable for customers usually operating with S or P mode, and would like to use H mode only when climbing up slopes. It does not make any difference in driving performance when the vehicle is already operated on H mode.

9) PIN Code Entry System

This feature prevents starting the truck until a registered personal identification number (PIN) code is entered. PIN codes for up to 100 persons can be registered.
The truck performance settings can be registered up to 10 sets. It enables restricting truck functioning and implementing preferred settings according to operators.

Prevent unauthorized person from using the forklift

10) Shock Sensor [L39B]

This feature detects the impact on the truck and informs operators / managers by warning indicator and warning alarm. It also records time and date of occurrence in the internal memory of Multifunction Display. Warnings can be cancelled only by a manager, therefore operators must report all such incidents to a manager

Reduce rough operations and costs of corrective maintenance

11) Emergency Power Shut-down Button

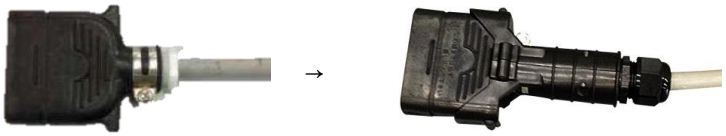
Emergency Power Shut-down Button is located on the right of instrument panel.

Secures safety even in the case of an emergency

12) Easier Battery Charging

New Battery Connector Handle

Current → New



Easier to plug in/out with longer grip

Repositioned Charging Port

When Battery Charger 200V/3P (On-Truck Type)[C30E] is installed, the position of the charging port will be on the left side of the vehicle, the same side as the entry/exit.

More convenient for operators when charging

4. Longer Battery Life

1) Battery Fluid-level Warning

When an optional Battery [D00C] is selected, fluid-level warning light on the display informs operators of the lack of battery fluid by warning light and warning alarm.
Fluid-level warning light on the display lights up even when a key is switched off.

Easy to notice the lack of battery fluid

2) Battery Protecting Function [D42B] (Optional Battery [D00C] must be selected.)

- Battery fluid-level warning + Performance limitation
- Battery fluid overheat warning + Performance limitation

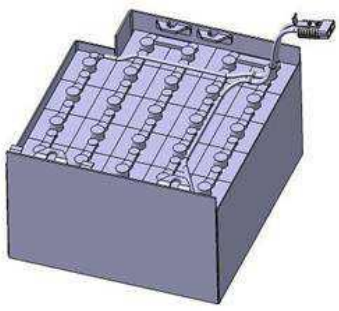
Acceleration, Max speed
Gradeability, Drawbar pull
will be limited

This function detects battery fluid level and battery temperature, and when detects low level battery fluid or high battery temperature, it warns with warning light and warning alarm.
If operators continue to use the truck with low battery fluid level or high battery temperature, the truck performance becomes limited.

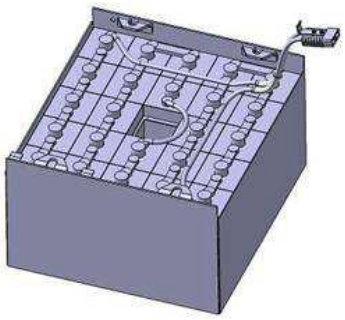
Keeps batteries from degradation

3) New Battery Shape [D00C]

Battery for 8FB series is in a special shape with a space in the center of the battery compartment, improving its heat radiation up to 8%.



Previous Battery



New Battery

Keeps the battery from over-heating and damage

4) Smart Charging System (Available only with Battery Charger 200V/3P (On-Truck Type)[C30E])

This feature uses the drive/load handling motors and the motor driver to control the volume of electric previous when charging. This stabilizes the charging amount, therefore prevents insufficient charging or overcharging.

Realizes logger life for the battery

Reduces the consumption of electricity for charging and amount/frequency of battery fluid top-up

5) Battery Data Logging

8FB series newly provides the battery data logging function of recording information as shown blow.

Information	Note
(1) Number of operating days	
(2) Key switch ON time	
(3) Time of battery fluid warning activated	Available when [D00C] and [D42B] are selected
(4) Remained battery level when charging starts	Available when [C30E] is selected
(5) Minimum remained battery level	

Such information allows you to grasp the usage status of the forklift.
Recorded information can be read on the manager setting menu or the service function of the Multifunction Display.

Easy access to the information about the battery

Enables to propose models and operation based on the customers' actual usage

6) Battery Fluid Top-up System with Reserver Tank [D44B]

The reserver tank on rear pillar of truck makes it easier for operators to top-up battery fluid with just a one twist of the tap.
Battery fluid will flow directly from the tank into Single Overall Electrolyte Filler Ports[D40A].

Easy to check the amount of battery fluid and top-up by operators

5. Outstanding Durability

1) High Water-proof Performance (IPX4)

The layout change of the controller and other electric parts improved the water resistance level.
Thereby, the new 8FB series successfully complies with International Protection Rating of IPX4.

8FB series can be operated at a wider range of worksites

2) LED lights (OPT)

- Long life time : Approx. 20,000 hours
- Low electricity consumption : 1/3 comparing to standard bulb type light
- Sufficient illumination range both vertical and horizontal

Reduces running and maintenance cost

<LED lights option line-up>

LED Head Lights & Front Combination Lights	J24L
LED Yellow Beacon On The Overhead Guard	J19S
LED Yellow Beacon On The Overhead Guard (Key-On Position)	J19U
LED Rear Combination Lights	J21D
LED Rear Working Light	J26A
LED Rear Working Light (Selective Lighting Condition)	J26C

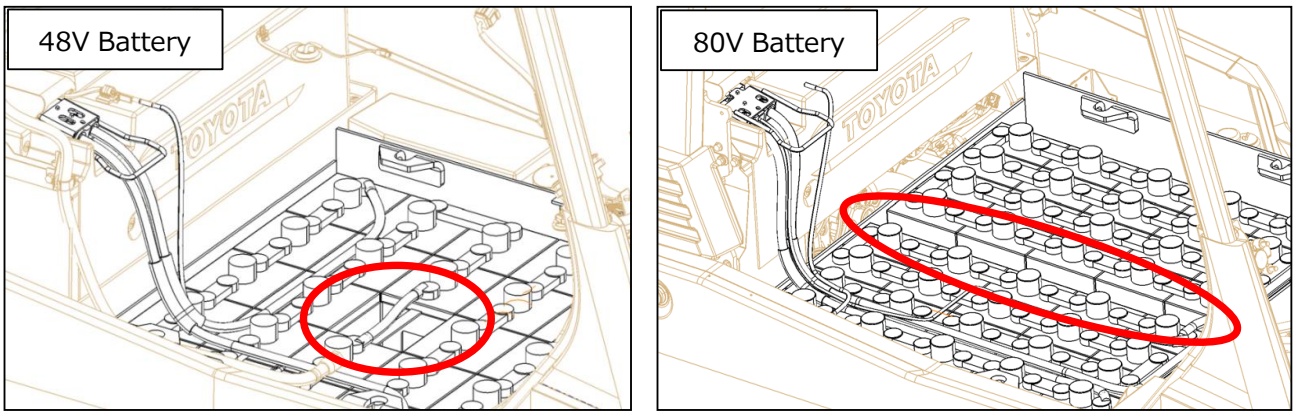
LED Head Lights

LED Rear Combination Lights / Yellow Beacon / Rear Working Light

Battery Shape and Interchangeability

The new 8FB series has a brand new shape for its battery, with a space in the middle of the battery compartment to improve heat radiation and prevent damage to the battery.

1. Battery Shape

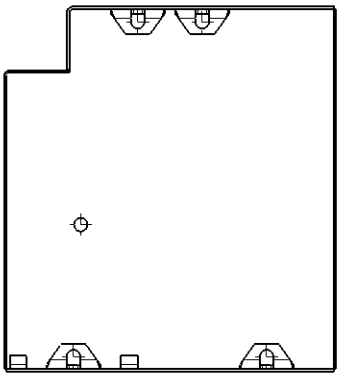


2. Battery Interchangeability

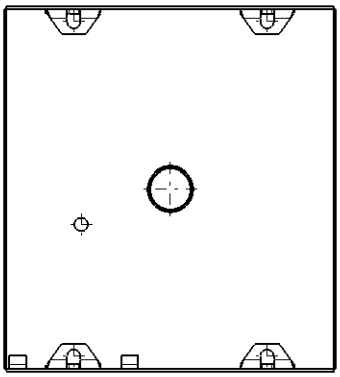
1) Background

The battery case for 8FB series is in a different shape from that of 7FB series, with some space in the center of the battery to prevent over-heating.

Previous Battery Shape



New Battery Shape



2) Battery Interchangeability

- 8FB battery can be mounted on 7FB series by changing the side cover on the right side of the truck into a side cover without step.
- 7FB battery can be mounted on 8FB series without any change of the side cover.

Note: 7FB series and 8FB series have different signals for battery fluid sensor, therefore it is required to adjust the settings of battery fluid sensor when interchanging batteries.

		Battery	
		7FB	8FB
Vehicle	7FB	○	○*1
	8FB	○*2	○

*1 Please deactivate the battery fluid warning function.
The side cover on the right side of the truck needs to be changed to a side cover without step.

*2 Please switch off the battery fluid/temperature unit settings through Multifunction display.
No change on the side cover is required.

Mast Interchangeability

1. Mast Interchangeability within 8FB series

All types of masts (V, FV and FSV masts) are interchangeable with any other model within model group.

○ : Interchangeable

Model group	Mast Type		
	V	FV	FSV
8FB/8FBL/8FBH 10-18	○	○	○
40-8FB15	○	○	○
8FB/8FBL/8FBH 20	○	○	○
8FB/8FBL/8FBH 25	○	○	○
40-8FB20	○	○	○
40-8FB25	○	○	○
8FB30	○	○	○
8FBJ35	○	○	○

2. Mast Interchangeability between 8FB and 7FB

All types of masts (V, FV and FSV masts) are interchangeable between the new 8FB series and the previous 7FB series with certain modifications on outer masts, lift cylinder and lift piping.

1) To equip the previous 7FB masts on the new 8FB series

Items	Changes	1t models		2t models		3t models	
		V, FV	FSV	V, FV	FSV	V, FV	FSV
Outer Masts	Change the tilt beam		○		○		○
Lift Cylinder	Adopt a lift cylinder without a flow regulator valve at the bottom	○		○		○	
	Change the hose between cylinders	○		○		○	
	Change the safety down valve	○	○	○	○	○	○
	Adjust the fitting	○		○		○	
	Remove the pressure sensor	○		○		○	
Lift Piping	Remove the flow regulator valve		○		○		○
	Adopt a pipe S/A		○				
	Remove the hose with pipes				○		○
	Remove the pressure sensor		○		○		○
	Change the lift pipe				○		○

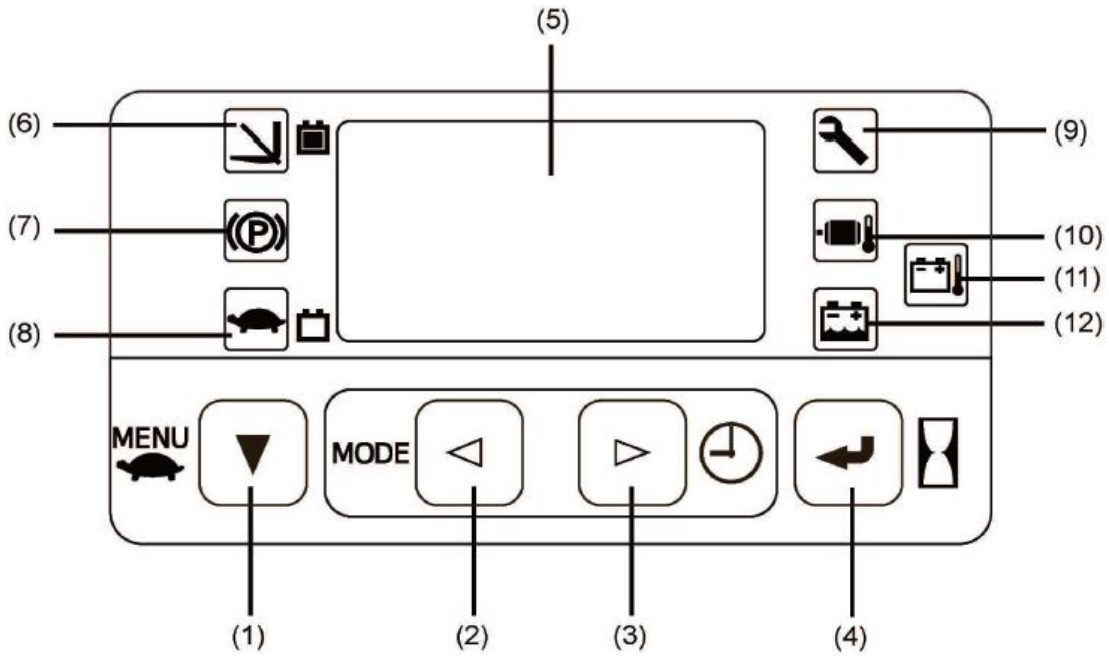
2) To equip the new 8FB masts on the previous 7FB series

Items	Changes	1t models		2t models		3t models	
		V, FV	FSV	V, FV	FSV	V, FV	FSV
Outer Masts	Change the tilt beam		○		○		○
Lift Cylinder	Adopt a lift cylinder with a flow regulator valve at the bottom	○		○		○	
	Change the hose between cylinders	○		○		○	
	Change the safety down valve	○	○	○	○	○	○
	Adjust the fitting	○		○		○	
	Adopt a pressure sensor	○		○		○	
Lift Piping	Adopt a flow regulator valve		○		○		○
	Remove the pipe S/A		○				
	Adopt a hose with pipes				○		○
	Adopt a pressure sensor		○		○		○
	Change the lift pipe				○		○

Multifunction Display

1. Overview

The multifunction display is a highly expressive graphical LCD display that is used to grasp various information easily. It provides functions to display and notify vehicle information, such as a battery charge indicator, and functions that operators (and managers) can use to set vehicle performance.
In addition, it provides service functions such as vehicle maintenance, feeling adjustment, and specification setting.
The protection level of the display itself (except connector and surrounding parts) is equivalent to IP42. When installed on a vehicle, the protection level is equivalent to IPX4.



No.	Title
(1)	Switch (1): Low speed setting switch/Down switch
(2)	Switch (2): Power select switch/Left switch
(3)	Switch (3): Calendar and clock select switch/Right switch
(4)	Switch (4): Meter mode select switch/Enter switch
(5)	Multi-screen display area
(6)	OPS indicator
(7)	Parking brake indicator
(8)	Low speed setting indicator
(9)	Spanner indicator
(10)	Overheat warning indicator:
(11)	Battery overheat warning indicator
(12)	Battery fluid-level warning indicator

Note: Use your fingers to press switches.
If a sharp pointed tool is used, the switch may be damaged.

2. List of Functions

○ : Available
- : Not available
□: Available and can be set by operator
☆ : Available and can be set by operator (When the menu lock setting is "NO")
● : Available and can be set by manager (password-protected)

Function		New/continued	Multifunction Display	Deluxe Multifunction Display [L26B]
Startup screen	Date/Clock display	NEW	❍	❍
	Maximum speed limiter	NEW	❍	❍
	Over speed alarm	NEW	❍	❍
	Automatic vehicle-speed control	NEW	OPT SAS (System of Active Stability) - ε [A41A]	❍
	Shock Sensor [L39B]	NEW	OPT Shock Sensor [L39B]	OPT Shock Sensor [L39B]
	Front tilt angle control OFF	NEW	OPT SAS (System of Active Stability) - ε [A41A]	❍
	Automatic turn-speed control OFF	NEW	OPT SAS (System of Active Stability) - ε [A41A]	❍
General screen	OPS indicator	-	❍	❍
	Parking brake indicator	-	❍	❍
	Low speed setting indicator	-	❍	❍
	Diagnostic indicator	-	❍	❍
	Overheat warning indicator:	-	❍	❍
	Battery fluid overheat warning indicator	NEW	OPT Battery Protecting Function [D42B]	OPT Battery Protecting Function [D42B]
	Battery fluid-level warning indicator	-	OPT Battery (Wet Cell) [D00C] and Battery Protecting Function [D42B]	OPT Battery (Wet Cell) [D00C] and Battery Protecting Function [D42B]
	Battery capacity indicator	-	❍	❍
	Digital speedmeter	-	❍	❍
	Power select function indicator	-	❍ (ESPH and original)	❍ (ESPH and original)

Function		New/continued	Multifunction Display	Deluxe Multifunction Display [L26B]
Warning Functions	Battery overheat warning	NEW	OPT Battery Protecting Function [D42B]	OPT Battery Protecting Function [D42B]
	Overheat warning	-	❍	❍
	Low temperature warning	NEW	❍	❍
	Parking brake on warning	-	❍	❍
	Parking brake off warning	-	❍	❍
	OPS operating warning	-	❍	❍
	Return-to-neutral warning (travel OPS)	-	❍	❍
	Return-to-neutral warning (load-handling OPS)	NEW	❍	❍
	Return-to-neutral warning (key ON)	-	❍	❍
	Traveling and load handling warning during charging	-	OPT Battery Charger 200V/3P (On-Truck Type) [C30E]	OPT Battery Charger 200V/3P (On-Truck Type) [C30E]
	Diagnostic indication	-	❍	❍
	Over speed alarm	-	❍	❍
	Shock detection alarm	NEW	OPT Shock Sensor [L39B]	OPT Shock Sensor [L39B]
Setting Function	Clock setting	-	❑	❑
	Power select function	-	☆ (ESPH and original)	☆ (ESPH and original)
	Drive (traveling) power control	-	☆	☆
	Lift (load-handling) power control	-	☆	☆
	Low speed level setting	-	☆	☆
	Over speed alarm setting	-	☆	☆
	Maximum speed limit setting	-	★	★
	Scheduled-maintenance hour setting	NEW	★	★
	Auto power off setting	-	★	★
	Manager's secondary password setting	NEW	★	★
	Menu lock setting	NEW	★	★

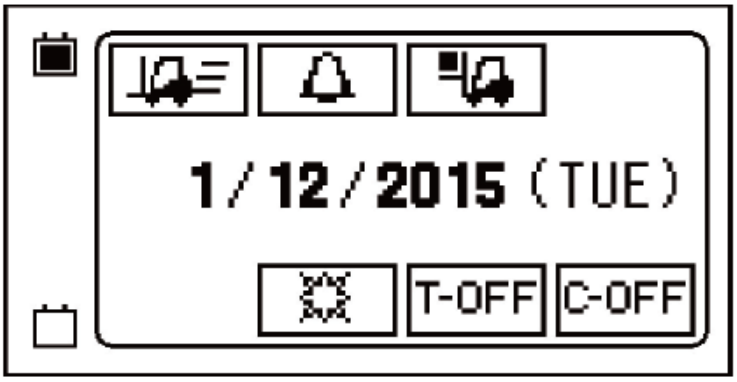
Function		New/continued	Multifunction Display	Deluxe Multifunction Display [L26B]
Setting Function	Operating day setting	NEW	★ OPT When Battery Charger 200V/3P (On-Truck Type) [C30E] is installed	★ OPT When Battery Charger 200V/3P (On-Truck Type) [C30E] is installed
	CO2 emission unit setting	NEW	★ OPT Battery Protecting Function [D42B] and when Battery Charger 200V/3P (On-Truck Type) [C30E] is installed	★ OPT Battery Protecting Function [D42B] and when Battery Charger 200V/3P (On-Truck Type) [C30E] is installed
	Charge data clear	NEW	❍	★
Shock Sensor	Shock detection record indication / QR code display	NEW	★ OPT Shock Sensor [L39B]	★ OPT Shock Sensor [L39B]
	Shock detection alarm cancellation	NEW		
	Shock detection level setting	NEW		
	Shock monitor	NEW		
PIN Code Entry System	PIN code registration and authentication	NEW	★ OPT PIN Code Entry System [L38B]	★ OPT PIN Code Entry System [L38B]
	Profile setting	NEW		
Battery data logging	Number of operating days	NEW	★	★
	Number of operating days QR code display	NEW	★	★
	Key ON time	NEW	★	★
	Key ON time QR code display	NEW	★	★
	Battery fluid-level warning time / QR code display	NEW	★ OPT Battery (Wet Cell) [D00C] and Battery Protecting Function [D42B]	★ OPT Battery (Wet Cell) [D00C] and Battery Protecting Function [D42B]
	Remaining battery at charging start time and minimum battery remaining capacity *1	NEW	★	★
	Remaining battery at charging start time and minimum battery remaining capacity QR code display *1	NEW	★	★
QR code	QR code continuous display	NEW	★	★

*1: Only the minimum battery level is displayed for models without the Battery Charger 200V/3P (On-Truck Type) [C30E].

3. Screen

1) Key-on Initial Screen

Turning the key switch on displays the Key-on Initial Screen for about two seconds.

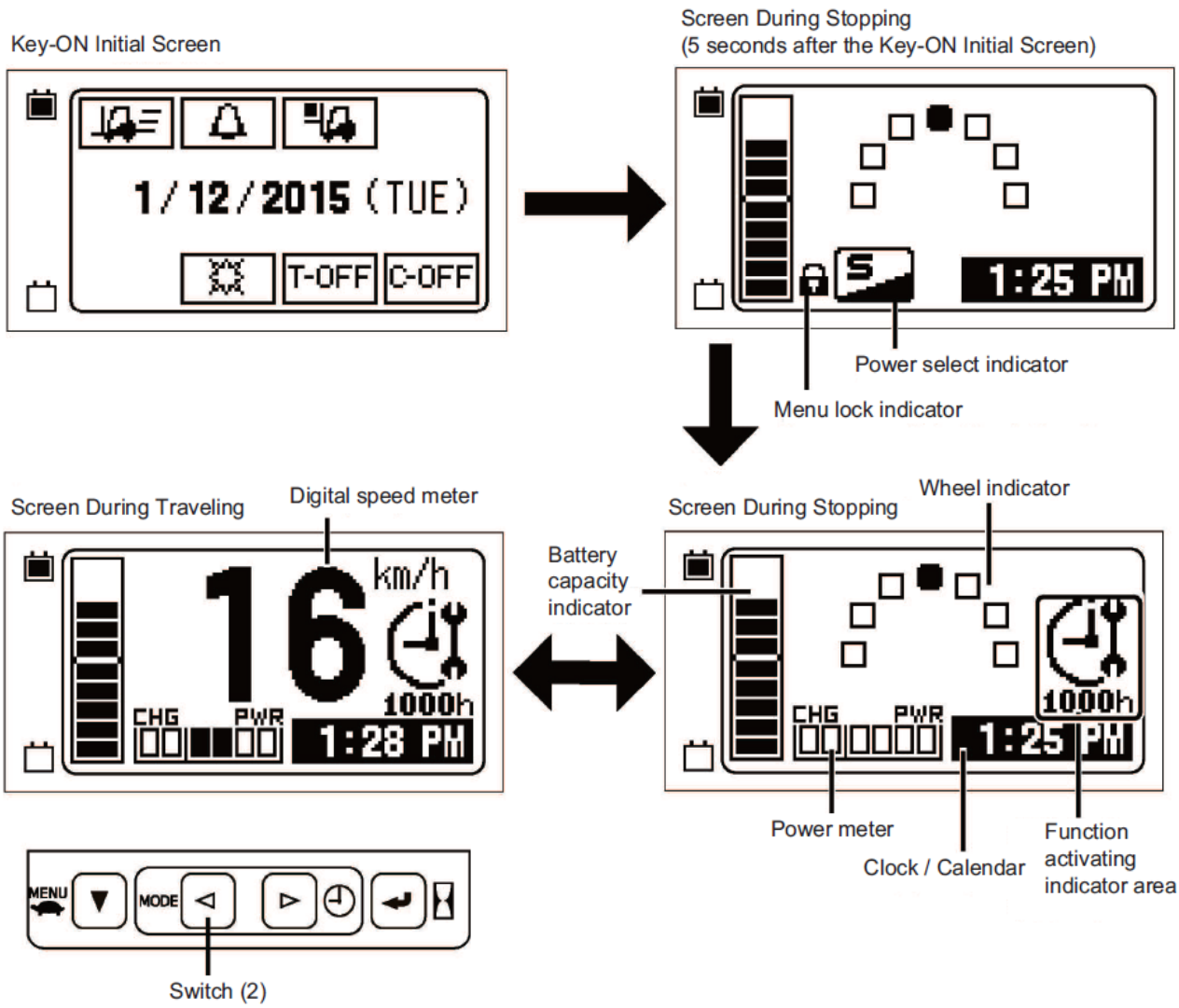


Item	Indication	Description
Date / Clock display	1/12/2015 (TUE)	The date is displayed.
Maximum speed limiter effective indicator		This indicator is displayed when the maximum speed limiter is activated.
Over speed alarm effective indicator		This indicator is displayed when the over speed alarm is activated.
Automatic vehicle-speed control effective indicator		This indicator is displayed when the automatic vehicle-speed control is activated in the SAS (System of Active
Shock Sensor effective indicator		This indicator is displayed when the Shock Sensor [L39B] is activated.
Front tilt angle control OFF indicator		This indicator is displayed when the front tilt angle control is disactivated in the SAS
Automatic turn-speed control OFF indicator		This indicator is displayed when the automatic turn-speed control is disactivated in the SAS (System of

2) Normal Screen

The normal screen is displayed after the initial screen.
Immediately after the initial screen, the previously selected power select mode, menu lock indicator *, and wheel indicator are displayed.
When five seconds pass after Key ON, the power select indicator and the menu lock indicator change to the power meter display. To check the previously selected power select mode while displaying the power meter, press switch (2). When the vehicle starts traveling, the wheel indicator changes to the speedmeter. When the vehicle is stopped, the wheel indicator is displayed again.

*: Displayed when menu lock is set to YES on manager setting menu.



Note: For vehicles with Australian Spec.[A20T], the speedmeter will not be indicated, as the wheel indicator is always displayed on the screen.

4. Details

1) Indicators

(1) OPS indicator (orange)

When the operator leaves the seat, this indicator lights up.

(2) Parking brake warning indicator (red)

The indicator lights up while the parking brake is operated.

(3) Low speed setting indicator (green)

This indicator lights up when switch (1) is pressed and low speed setting is turned on. When low speed setting is disactivated (OFF), the indicator does not light.
Low speed setting is available on both operator and manager setting screens. However, when on menu lock, it is only available on the manager setting screen.

(4) Diagnostic indicator (red)

This indicator flashes with audible warning sounds when an error occurs on the vehicle At the same time, an error code is displayed on the multi-screen display area.

(5) Overheat warning indicator (red)

This indicator lights up with audible warning sounds when the temperature of the controller or the drive/load handling motor rises abnormally.
At the same time, the overheated portion is displayed in the multiscreen display area.

(6) Battery overheat warning indicator (red)
(only for vehicles with Battery Protecting Function [D42B])

This indicator lights up with audible warning sounds, and at the same time performance is limited, when the fluid temperature of the battery rises to the specified temperature or more. This contributes to preventing loss of battery life caused by a rise of battery temperature.
Note that if this function disturbs your operation, you can disable it using service functions.
To adjust the battery overheat temperature, you can use the tuning function in the service functions.

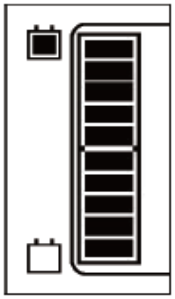
(7) Battery fluid-level warning indicator (red)
(only for vehicles with Battery (Wet Cell) [D00C])

If low battery fluid level is detected, the indicator lights on to notify the operator. In addition, if the low fluid level is detected at Key-ON, the audible warning sounds for few seconds. Even if low fluid level is detected at Key-OFF, a warning light flashes to prompt refilling of battery fluid.
For vehicles with Battery Protecting Function [D42B], when low fluid level continues for a certain period of time, the duration of the low fluid level is displayed on the multi-screen display area, and performance will be limited according to the duration.
This function prevents the vehicle from being used for a long time with low battery fluid level, and prompts the operator to refill the battery fluid.

2) Meters and indicators on the multi-screen display area

(1) Battery capacity indicator

The battery charge remaining is indicated in 10 stages.



(2) Speedmeter

Traveling speed is displayed in digital for every 1 km/h.

Note: For vehicles with Australian Spec. [A20T], the speedmeter is not displayed.

(3) Power select function indicator

On the normal screen, during displaying the power meter, press switch (2) to display the previously selected power select mode (E, S, P, H, or original). During displaying the power select indicator, the power select mode is changed every time switch (2) is pressed, as shown in the figure below.

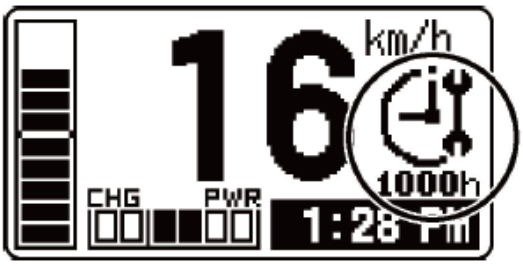
When switch (2) is not operated for a certain period time, the screen returns to the power meter display. When the H mode lock is set to YES, H cannot be selected. The H mode lock YES or NO can be switched with the option set of the service function.

If menu lock is set to YES on the manager setting menu, the power select mode cannot be changed.

(4) Power meter

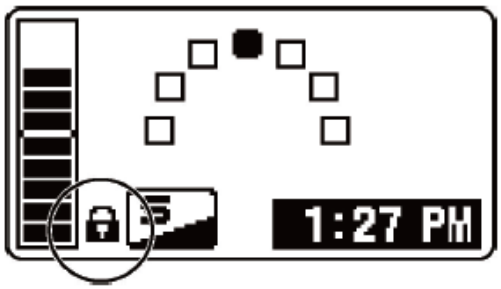
The energy output or charging to the battery is displayed in levels. This enables the operator to grasp operations with high energy consumption, such as a sudden increase in acceleration, facilitating vehicle operation conscious of energy consumption. While displaying the power meter, press switch (2) to switch to the power select indicator display.

(5) Scheduled-maintenance hour warning indicator



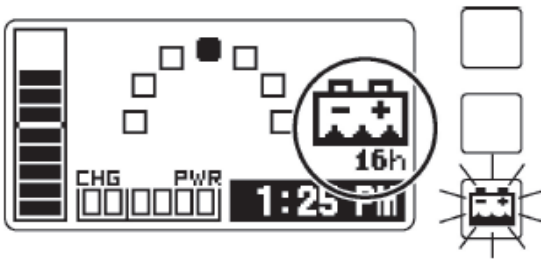
After preset scheduled-maintenance hour, this indicator is indicated.
In case exceeding the scheduledmaintenance hour, an audible warning also sounds for five second when the key switch is turned on. If the set time is reached during operation, the maintenance hour meter is displayed, but audible warning does not sound at this moment.

(6) Menu lock indicator



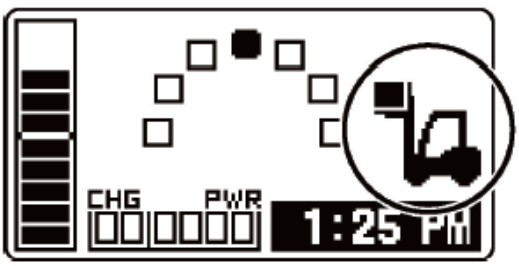
When switch (2) is pressed on the general screen, if the menu lock setting is YES, the menu lock indicator is displayed.
While the menu lock indicator is displayed, if someone tries to open the setting menu for operators, the indicator flashes to notify that the operation is disactivated.
For details on menu lock, refer to the MANAGER SETTING MENU section.

(7) Battery fluid level detecting performance restriction indicator
(only for vehicles with Battery Protecting Function [D42B])



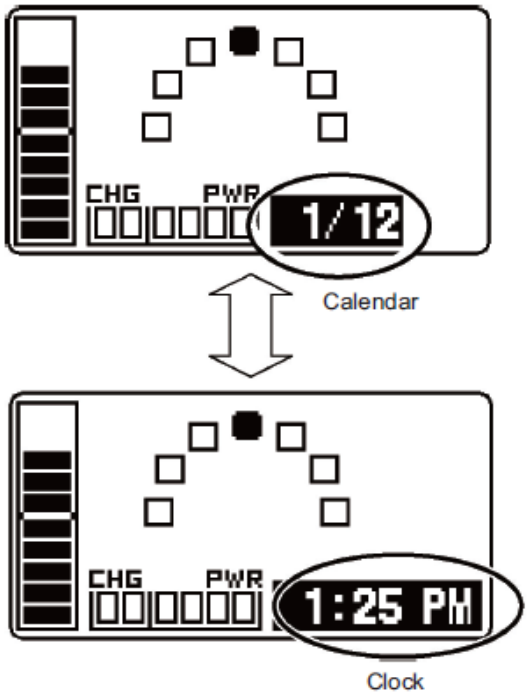
When low fluid level continues for a certain period of time, the battery fluid level detecting performance restriction indicator is displayed with the duration of low fluid level. The battery fluid-level warning indicator is kept lit.
For details, refer to the "BATTERY PROTECTING FUNCTION" section.

(8) Automatic vehicle-speed control indicator
(only for vehicles with SAS (System of Active Stability) - ε [A41A])



This indicator is displayed when automatic vehicle-speed control is activated, notifying the operator that automatic vehicle-speed control is operable.

(9) Calendar and clock

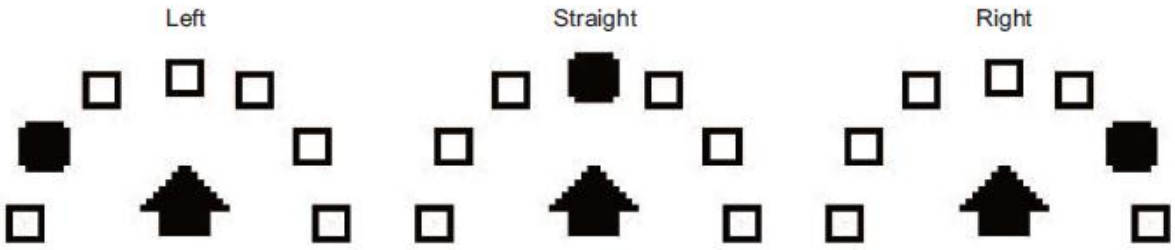


On the normal screen, press switch (3) to toggle between date and time.
The date display format is set to DD/MM/YYYY at the time of shipment.

(10) Wheel indicator

Indicates the traveling direction of the vehicle with the symbol ■.
When traveling speed is detected, the speedmeter is displayed.

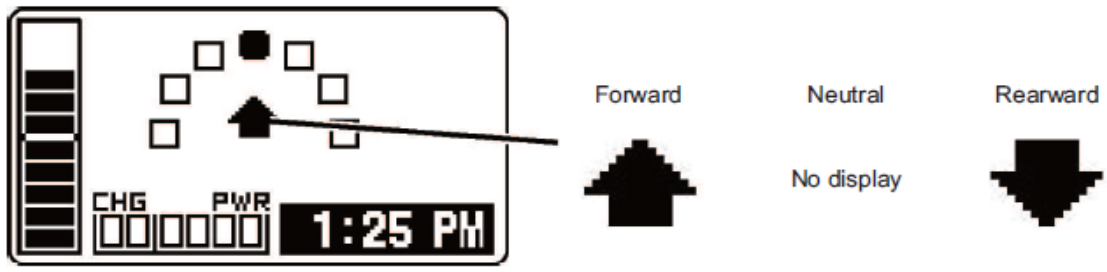
Note: For vehicles Australian Spec. [A20T], the speedmeter is not displayed even when the traveling speed is detected.



(11) Direction indicator

Displays the operation in the forward or reverse direction. When traveling speed is detected, the speedmeter is displayed.

Note: For vehicles Australian Spec. [A20T], the speedmeter is not displayed even when the traveling speed is detected.

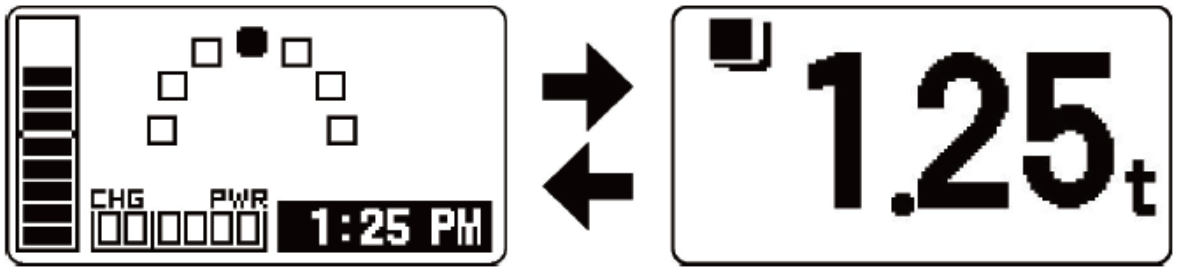


(12) Load meter (Deluxe Multifunction Display [L26B] only)

After stopping the lift lever operation, the weight of the load will be displayed instead of the normal screen. This enables the operator to know the rough weight of the load by 0.01 ton. 100 kg or below is displayed as 0.00 t.

It is displayed for approximately five seconds for each operation. Note that when traveling speed is detected, the load weight value is not displayed.

To adjust the time to display the load, you can use the tuning function in the service functions. The display unit can be switched to kg with the option set of the service function. For details, refer to sections in the "SERVICE FUNCTIONS" section.



Note: For vehicles Australian Spec. [A20T], the load meter is displayed beside the wheel indicator.

Note: This function is not available for business dealings and certification.
This load meter detects the lift cylinder pressure to facilitate measurement, so it should not be used to judge whether the overload value is near the allowable value.
When the lift is near the uppermost position, the relief may stop and cause residual pressure. This may result in displaying a larger value.
Load value may be incorrect in a low temperature environment, such as a refrigerator, where viscosity of the hydraulic oil is higher than usual.

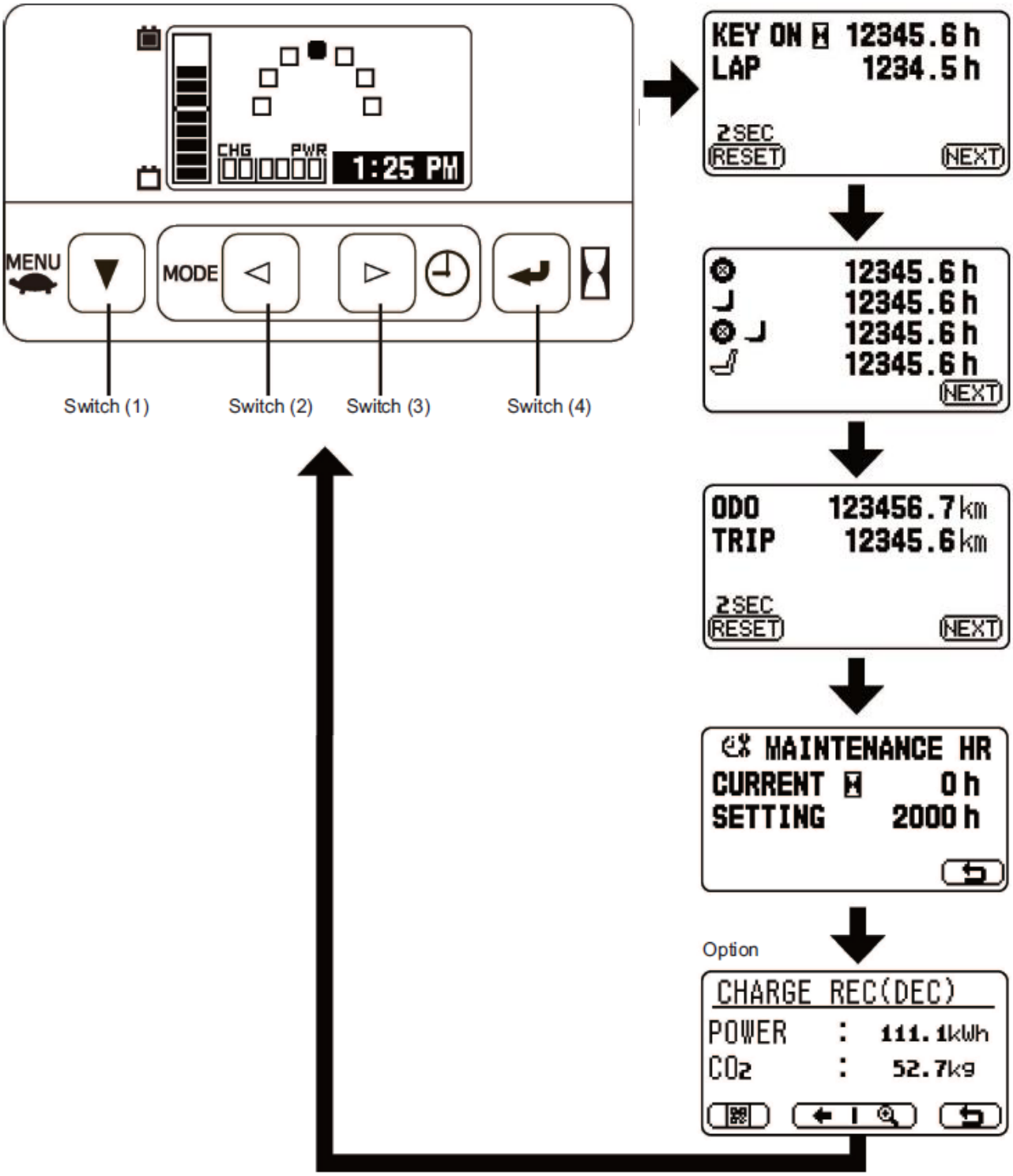
(13) High lift height warning screen

In the high lift position, the accuracy decreases due to mast deflection and cylinder friction. For this reason, we recommend the operator to measure in the low lift position using the following display.
Note: For vehicles with Australian Spec. [A20T], the high lift height warning is displayed beside the wheel indicator.

3) Hour meter

On the general screen, press switch (4) to move between screens in the following order: Key ON hour meter and lap time meter → Drive motor operation hour meter, Pump motor operation hour meter, Drive or pump motor operation hour meter → Seat switch on hour meter → odometer and trip meter → Scheduled-maintenance hour meter → normal screen.

Models with the Battery Protecting Function [D42B] and the on-truck charger display the watt-hour meter after the scheduled maintenance hour meter.



(1) Key switch ON hour meter
Integrates the time from key ON.
(For models with the PIN Code Entry System [L38B], the logon time is displayed.)

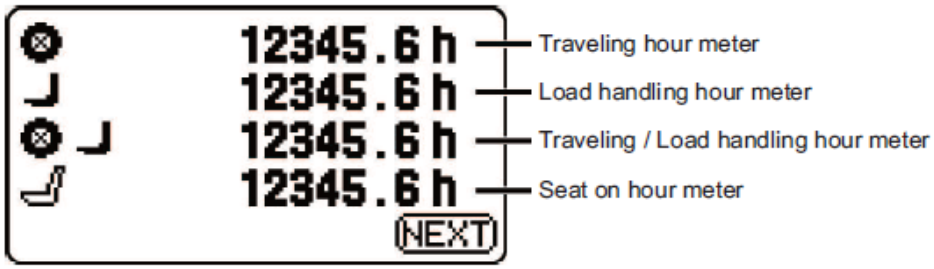
(2) Lap time meter
Integrates lap time during key ON.
(For models with the PIN Code Entry System [L38B], the logon time is displayed.)
Pressing switch (1) for 2 seconds or more will reset the lap time.

(3) Drive motor operation hour meter
Integrates the time in which the drive motor is power running or regenerative braking.
The time is not integrated while the drive motor is idle.

(4) Pump motor operation hour meter
Integrates the time in which the load handling motor is power running by load handling operations. The time is not integrated when the load handling motor is running only for power-steering.

(5) Drive or pump motor operation hour meter
Integrates the time in which the drive motor is or load handling motor is power running or regenerative braking.
The time is not integrated if the load handling motor is running only for power-steering while the drive motor is idle.

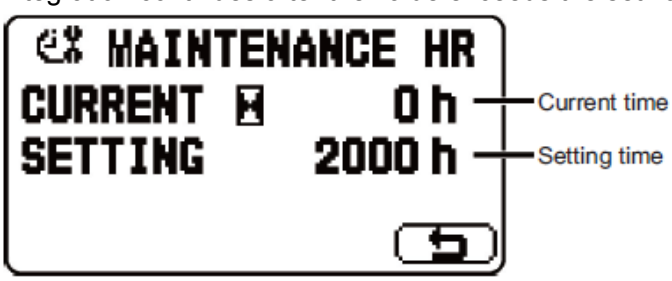
(6) Seat switch on hour meter
Integrates the time in which the key is ON and the operator is seated.



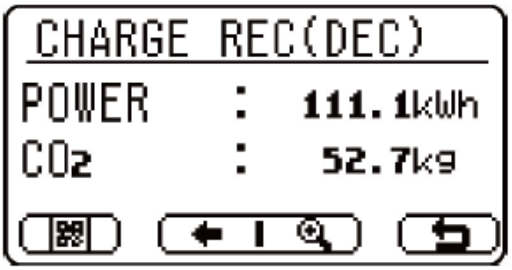
(7) Odometer
Displays accumulated traveling distance.
The unit set to km (kilometers) is default.

(8) Trip meter
This is a trip meter which can be reset.
Pressing switch (1) for 2 seconds or more will reset the meter.
The unit set to km (kilometers) is default.

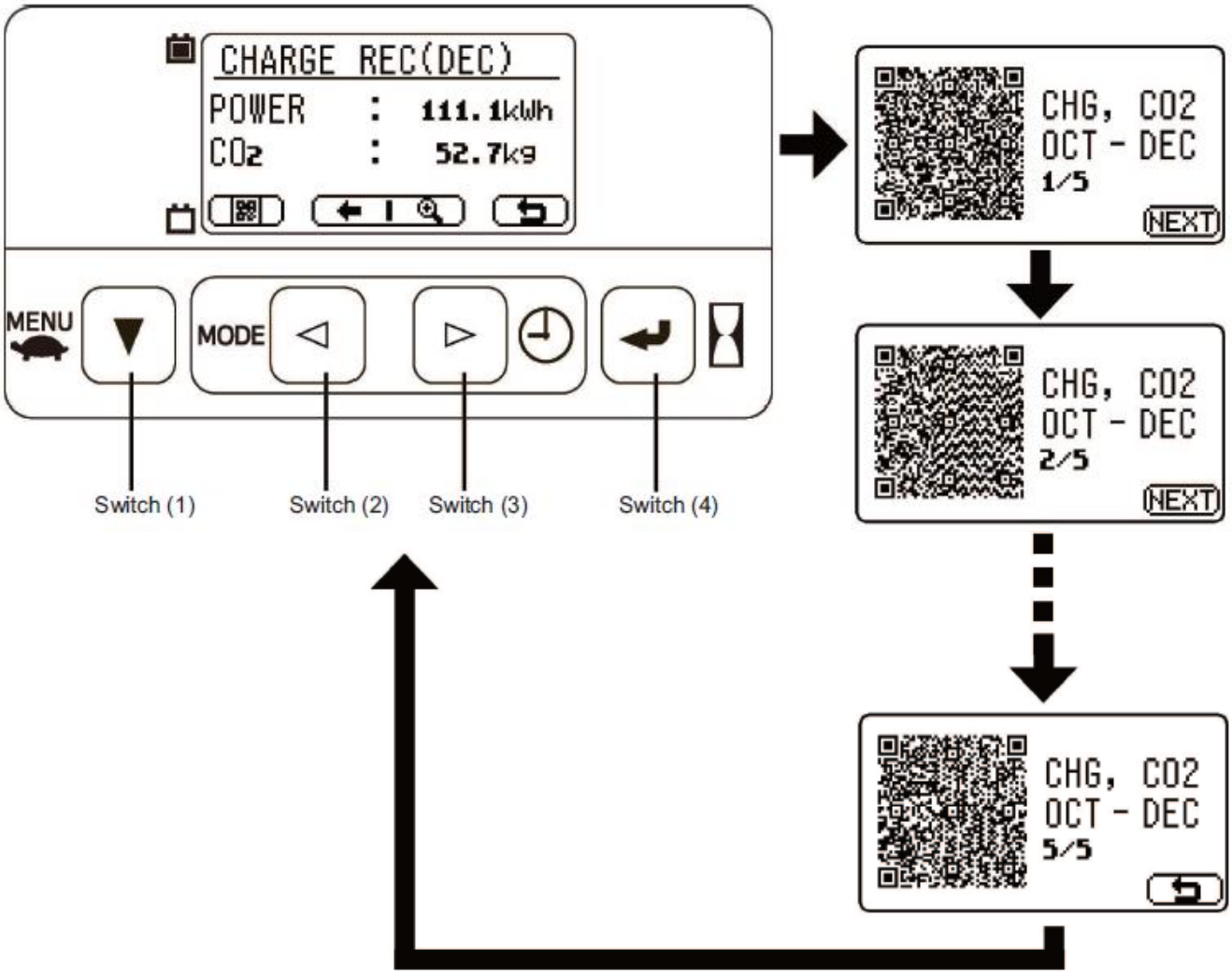
(9) Scheduled-maintenance hour meter
The elapsed time is integrated during key ON. (For vehicles with the PIN Code Entry System [L38B], the log-on time is integrated.)
Integration continues after the value exceeds the set value.



(10) Watt-hour meter (only for vehicles with Battery Protecting Function [D42B] and Battery Charger 200V/3P (On-Truck Type) [C30E])

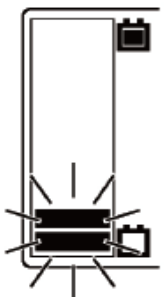


(11) Watt-hour meter QR code display (only for vehicles with Battery Protecting Function [D42B] and Battery Charger 200V/3P (On-Truck Type) [C30E])
On the watt-hour meter screen, press switch (1) to display the QR code.
Every time switch (4) is pressed, the next QR code is displayed up to five.

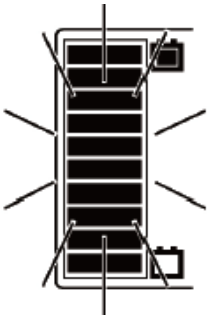


4) Warning Functions

(1) Battery remaining-charge warning
The battery level indicator flashes when the remaining battery level drops to or below the preset warning level. The audible warning sounds for five seconds when the operator turns the key switch from OFF to ON.



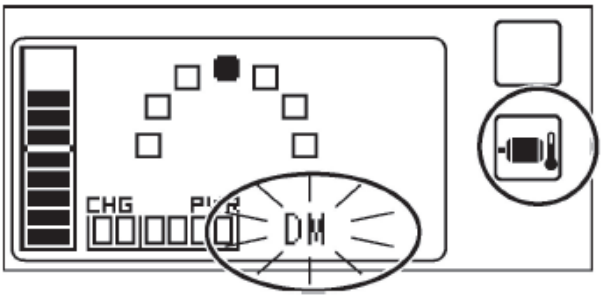
(2) Battery over discharge warning



If traveling or load handling is performed with the remaining battery level below the preset level, the entire battery capacity indicator flashes with alarm sounds to warn the operator of over discharge.
In addition, a vehicle performance is limited. As a result, it prompts the operator to charge as well as protect the battery.
In the 8FBE series, the limitation of load handling operation after the over discharge warning function activated are changed to protect the battery more actively. For details, refer to the table below. Also, the limitation mode can be selected using the service function on the display. For details on mode selection, refer to the "OPTION SET" section.

(3) Overheat warning

The overheat warning indicator lights up and audible warning sounds when the temperature of the drive motor, the pump motor, the main circuit, and the controller rises abnormally.
If an overheat warning occurs, the audible warning sounds for five seconds.
While the overheat error occurs, the audible warning continues to sound until it is resolved. No error code is displayed, but the issue is stored on the diagnosis memory.
The overheated portion is shown on the display.



Screen Display

C/R: Main controller
DCR: Drive motor driver, traveling main circuit
PCR: Pump motor driver, load handling main circuit
DM: Drive motor
PM : Pump motor
When in the overheat condition, vehicle performance will be limited.

(4) Low temperature warning

When the motor driver temperature is extremely low, the audible warning sounds.
If the low temperature warning occurs, the audible warning sounds for five seconds.
The low temperature portion is shown on the display.

Screen Display

COLD DCR: Drive motor driver
COLD PCR: Pump motor driver
When in a low temperature condition, vehicle performance will be limited.

(5) Parking brake ON warning

The audible warning sounds with the parking brake indicator lit when the vehicle starts without the parking brake released.

(6) Parking brake OFF warning
The audible warning sounds when the key switch is off (or Log off) or auto power off is activated with the parking brake released.
During Key ON, the audible waning sounds when the operator leaves the driver's seat for two seconds or more with the parking brake released.
(Only displayed on Deluxe Multifunction Display [L26B].)
It is not triggered before hour meter start.

(7) OPS operating warning
The audible warning sounds for approximately one second when the controller detects that the seat switch is turned off. The OPS indicator turns on to notify the operator beforehand that the OPS is operable.

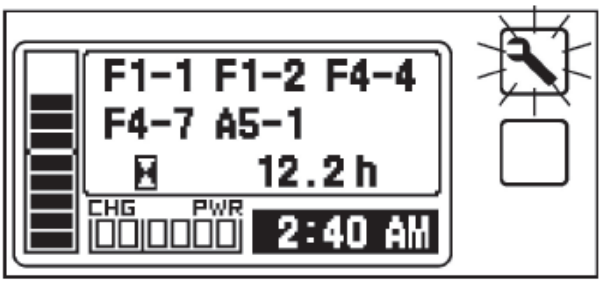
(8) Return-to-neutral warning (travel OPS)
The audible warning sounds to notify the operator that the vehicle remains disactivated until he/she is seated, the accelerator is released, and the direction lever is returned to neutral. (Only displayed on Deluxe Multifunction Display [L26B].)

(9) Return-to-neutral warning (load-handling OPS)
The audible warning sounds to notify the operator that manual handling remains disactivated until he/she is seated and all the load handling levers are returned to neutral position. (Only displayed on Deluxe Multifunction Display [L26B].)

(10) Return-to-neutral warning (key-on)
During key switch ON, the audible warning sounds to notify the operator that the vehicle remains disactivated until the accelerator is released and the direction lever is returned to neutral. (Only displayed on Deluxe Multifunction Display [L26B].)

(11) Travel/Load-handling warning during charging
(only for vehicles with Battery Charger 200V/3P(On-Truck Type) [C30E])
If an accelerator operation or load handling operation is performed with the AC plug inserted, the audible warning sounds to notify the operator, stopping the traveling/ load handling operation. (Only displayed on Deluxe Multifunction Display [L26B].)

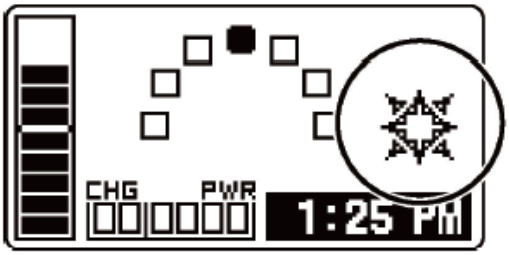
(12) Diagnostic indication
When diagnosis is activated, the diagnostic indicator comes on and flashes on the screen and the audible warning sounds to warn the operator that any error has occurred on the vehicle.
At the same time, a maximum of six diagnostic code(s) indicating the error portion(s) will appear on the display at the time.



(13) Over speed alarm

When the speed exceeds the set value, the speedmeter flashes and audible warning sounds to notify the operator of excessive speed.
Unlike the low speed setting, speed will not be limited even if it exceeds the set speed.
This setting is available on both operator setting and manager setting menu screens. However, when the menu lock is effective, the operator setting screen is not displayed for an operator. It is only available on the manager setting menu screen.
In this case, the manager need to disable the menu lock using the manager setting menu or make a setting on the manager setting menu.

(14) Shock detection alarm (only for vehicles with Shock Sensor [L39B])



When the impact exceeds the set value, the shock detection indicator is displayed with audible warning. The shock detection indicator keeps being displayed until it is reset on the manager setting menu.

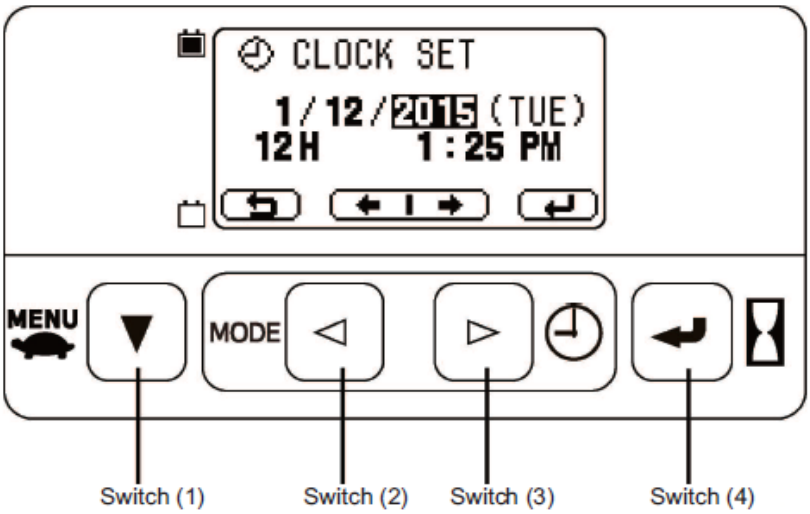
5) Setting Function

(1) Clock setting

The clock (year, month, day, hour, minute) set and display format (12 hours / 24 hours) can be changed by this function.
Press switch (3) on the general screen for two seconds or more to display the clock setting menu screen.

Funcion of the switches on the clock setting screen

Switch (1): Cancel the setting and return to the normal screen.
Switch (2): Increase the selected (flashing) value.
Switch (3): Decrease the selected (flashing) value.
Switch (4): Set the selected (flashing) value and move to the next item.



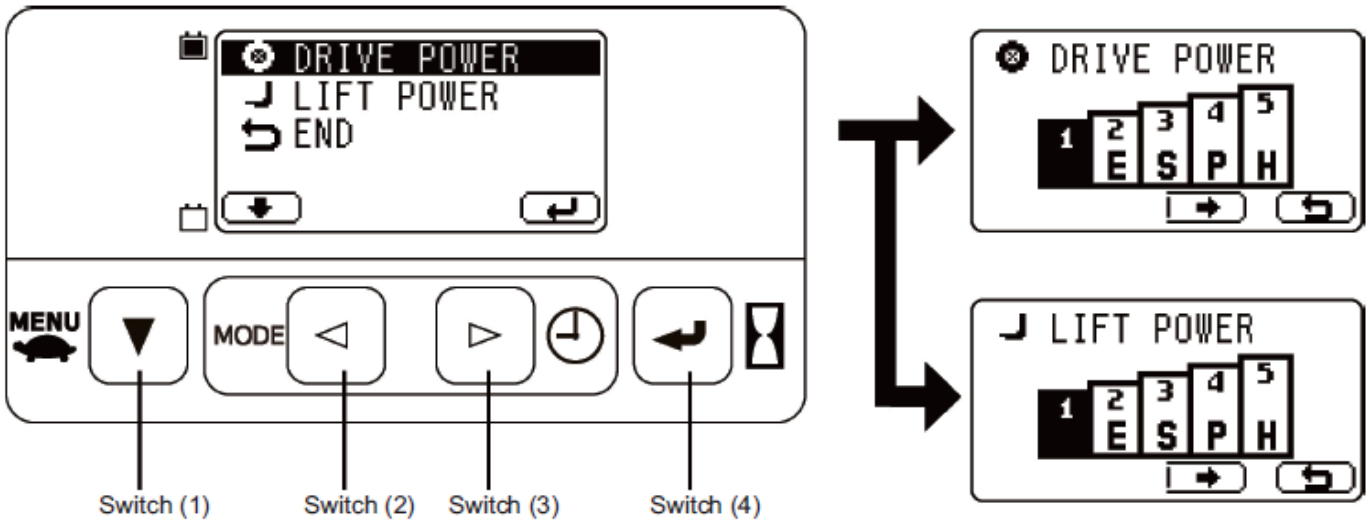
The date display format is set to DD/MM/YYYY at the time of shipment.

(2) Power select function setting

On the normal screen, press switch (2) for two seconds or more to display the power select menu screen. (If the menu lock is set to YES using the manager setting menu, the power select menu screen will not be displayed.)

The power level can be set each for travel and load handling when the original mode of the power select function is selected.

The PIN Code Entry System [L38B] can be set using the profile setting function. (This screen is not displayed.)

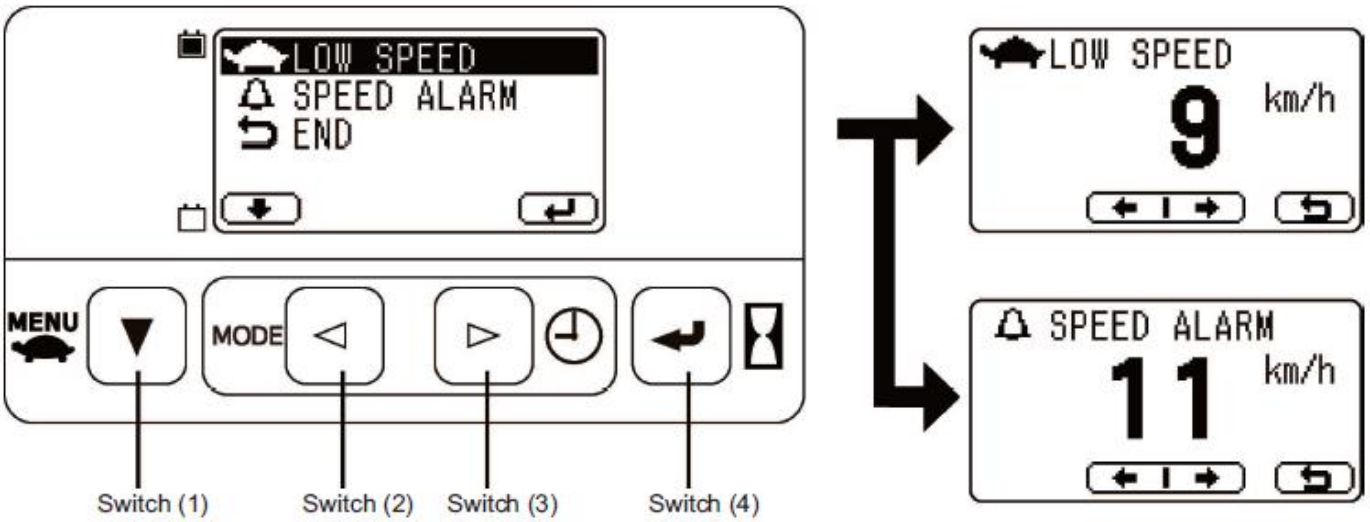


On the power select menu screen, select DRIVE POWER to display the traveling power control setting screen and LIFT POWER to display the load handling power control setting screen.
Switch (2): Decrease the level.
Switch (3): Increase the level.
Switch (4): To the power select menu screen

(3) Operator setting menu

On the normal screen, press switch (1) for two seconds or more to display the operator setting menu screen. If the menu lock is set to YES using the manager setting menu, the setting menu screen will not be displayed. In this case, the manager need to disable the menu lock using the manager function or make a setting on the manager menu.
For PIN Code Entry System [L38B], the setting menu screens are not displayed.

Select an item with switch (1), and press switch (4) to display each setting screen.



Low speed level setting

This sets the level of the low speed setting.

Switch (2): Decrease traveling speed.

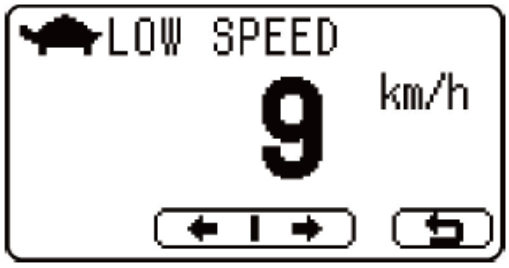
Switch (3): Increase traveling speed.

Switch (4): To the menu screen

The value can be set in a range between 2 to 20 km/h in 1 km/h steps.

When an operator tries to set the value to 20 km/h or more, the low speed will be disactivated. In this case, OFF is displayed.

For the vehicle with PIN Code Entry System [L38B], this setting can be operated using the profile setting function. (This screen is not displayed.)



Over speed alarm setting

This sets the vehicle speed which the over speed alarm will be actuated.

Switch (2): Decrease traveling speed.

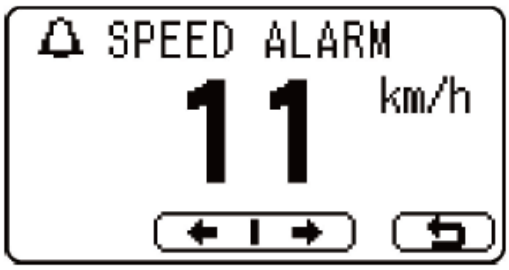
Switch (3): Increase traveling speed.

Switch (4): To the menu screen

The value can be set in a range between 5 to 20 km/h in 1 km/h steps.

When an operator tries to set the value to 20 km/h or more, the over speed alarm setting will be disactivated. In this case, OFF is displayed.

For the vehicles with PIN Code Entry System [L38B], this setting can be operated using the profile setting function. (This screen is not displayed.)



6) Manager Setting Menu

Managers can set the following items.

Manager setting menus are password-protected so that the operators cannot change the functions.

(1) Manager menu list

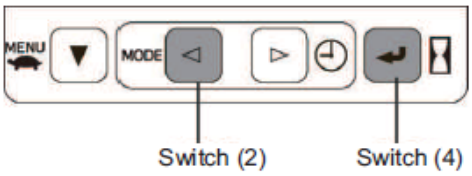
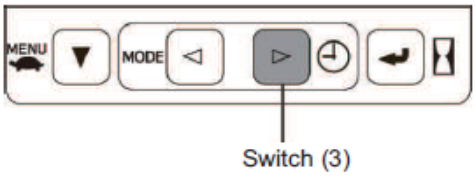
Setting menu	Setting screen
Power select function setting menu	Power select setting *
	Drive (travel) power setting *
	Lift (load-handling) power setting *
Traveling setting menu (no setting for vehicles with PIN Code Entry System [L38B])	Low speed setting *
	Travel speed limit setting
	Over speed alarm setting *
Load handling setting menu (only for vehicles with the Deluxe Multifunction Display [L26B])	Load meter zero point adjustment

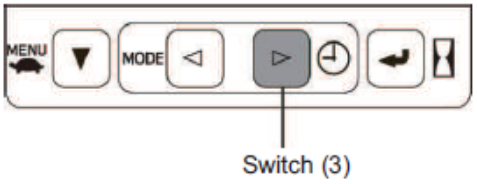
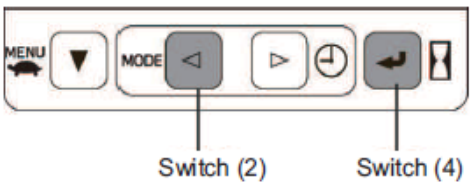
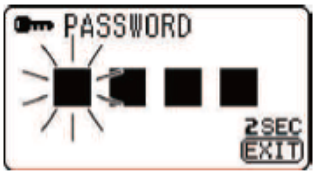
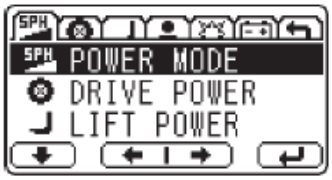
Setting menu	Setting screen
Vehicle control setting menu	Scheduled-maintenance hour setting
	Auto power off setting
	Manager's secondary password setting
	Menu lock setting
	Operating day setting (for vehicles with Battery Charger 200V/3P (On-Truck Type) [C30E])
	CO2 emission unit setting (for vehicles with Battery Protecting Function [D42B] and theBattery Charger 200V/3P (On-Truck Type) [C30E])
	QR code continuous display
	Charge data clear
Shock sensor setting menu (only for vehicles with Shock Sensor [L39B])	Shock detection record indication
	Shock detection record indication / QR code display
	Shock detection warning clear
	Shock measurement and shock sensor warning setting
	Shock memory clear
Battery data logging menu	Number of operating days check
	Number of operating days / QR code display
	Key ON time
	Key ON time / QR code display
	Battery fluid-level warning time / QR code display (when Battery (Wet Cell) [D00C] or Battery Protecting Function [D42B] is selected)
	Battery level when starting charging and minimum battery level check (Only the minimum battery level displayed for vehicles without Battery Charger 200V/3P (On-Truck Type) [C30E])
PIN Code Entry System (only for vehicles with PIN Code Entry System [L38B])	PIN code registration
	Profile number allocation selection change
	Delete PIN number
	Profile setting
	Initial PIN code change

* Can be used by operators when the menu lock setting is off.

(2) Entry procedure

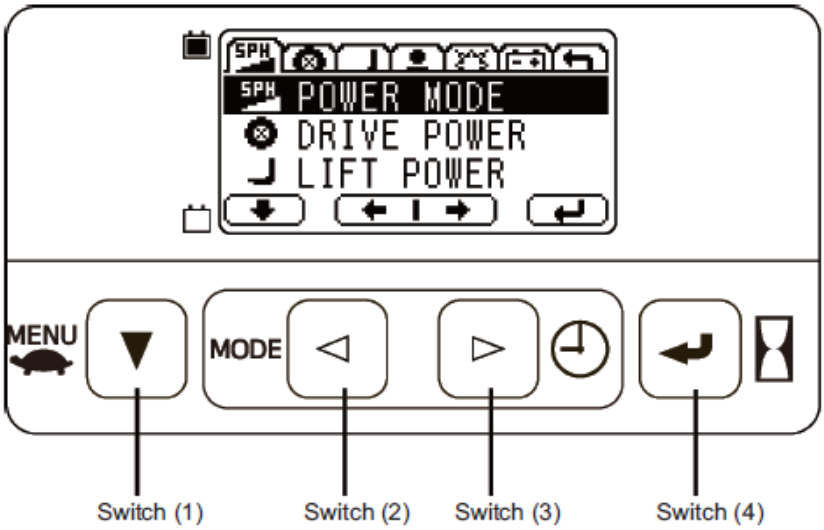
If an operation error occurs during entry operation, turn the ignition key switch OFF and reenter from the beginning.

Display	Operation	Vehicle
	Press switch (2) and switch (4) at the same time for two seconds or more.	When the switches are pressed, a short beep sounds. After two seconds, another short beep sounds.
	Press switch (3) within 10 seconds.	A short beep sounds.

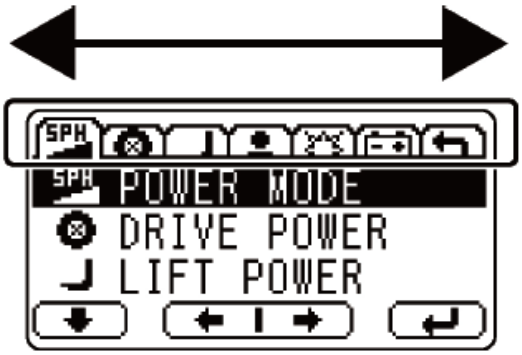
Display	Operation	Vehicle
	Press switch (3) within 10 seconds.	A short beep sounds.
	Within 10 seconds, press switch (2) and switch (4) at the same time for two seconds or more.	When the switches are pressed, a short beep sounds. After two seconds, another short beep sounds.
	When manager's secondary password is set: A password entry screen is displayed. Enter the manager password. When not set: This screen is not displayed.	
	The manager menu screen is automatically displayed.	

(3) Operating procedure for the menu screen

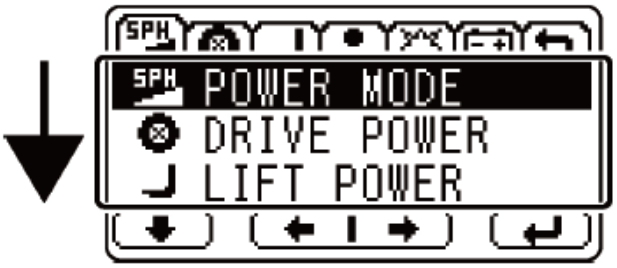
Enter the password on the normal screen to display the MANAGER MENU screen.



Press switch (2) or switch (3) to select a menu tab to display the setting items.

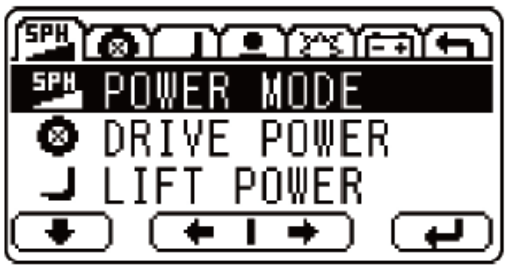


Press switch (1) to select the setting item and press switch (4) to display the setting screen or the menu screen.



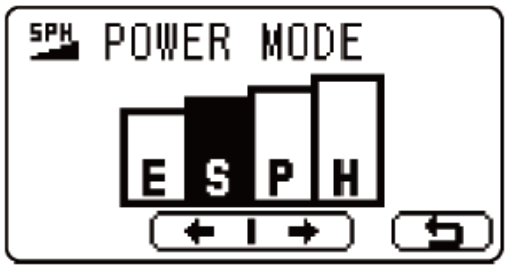
Select the Return tab on the menu screen, and press switch (4) to return to the normal screen.

(4) Power control setting menu
(no setting for models with the PIN Code Entry System [L38B])



This is the menu screen to set traveling and load handling power control.

Power select function setting menu

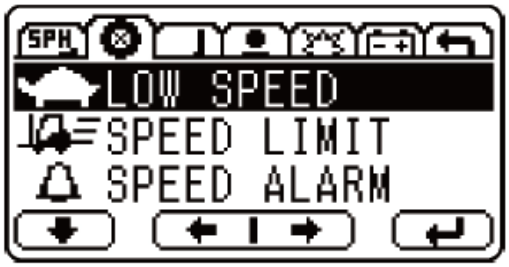


The display and selection status of the power select mode (E, S, P, H, or original) is changed every time switch (2) or switch (3) is pressed on the power select screen.
This function is the same as the operator setting function.
While the original mode is selected, all display colors of E, S, P, and H are highlighted.
When the H mode lock is set to YES, H cannot be selected.
The H mode lock YES/NO can be switched with the option set of the service function.
For details, refer to sections in the SERVICE FUNCTIONS section.

Traveling/load handling power control level setting screen

The traveling and load handling power in the original mode can be set to one of five levels. This function is the same as the operator setting function. For details, refer to the "OPERATOR SETTING MENU" section.

(5) Traveling setting menu
(no setting for models with the PIN Code Entry System [L38B])



This is the menu screen to set functions related to traveling.

Low speed level setting menu

You can change the speed limit value of the low speed setting function.
This function is the same as the operator setting function. For details, refer to the "OPERATOR SETTING MENU" section.

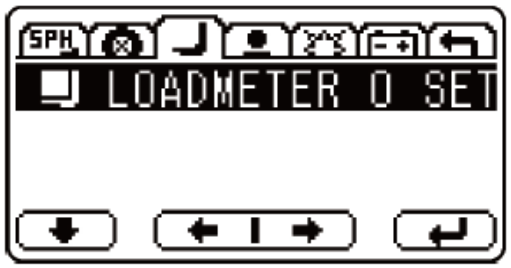
Travel speed limit level setting menu

You can change the speed limit value of the maximum speed limit function.
Switch (2): Decrease setting speed.
Switch (3): Increase setting speed.
Switch (4): To the menu screen
The value can be set in a range between 2 to 20 km/h (1.9 to 12.4 mph) in 1 km/h (0.6 mph) steps.
When the value is set to 20 km/h (12.4 mph) or more, the maximum speed limit will be disactivated. In this case, OFF is displayed.

Over speed alarm setting menu

You can change the speed value at which the over speed alarm function alarms.
This function is the same as the operator setting function. For details, refer to the "OPERATOR SETTING MENU" section.

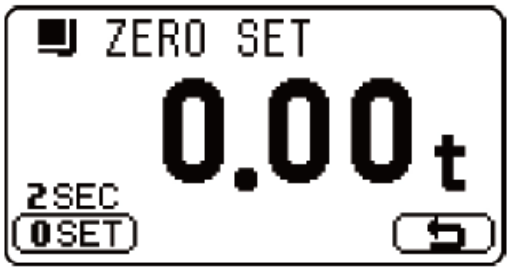
(6) Load meter zero point adjustment menu
(only for vehcles with Deluxe Multifunction Display [L26B])

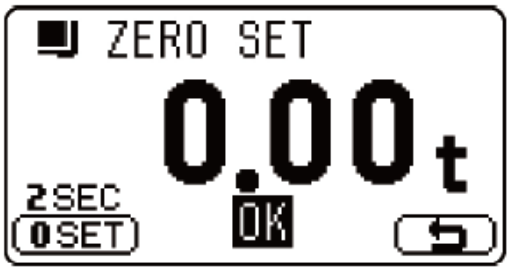


This is the menu screen to set functions to adjust point 0 in the load meter.

V mast

Stops traveling or load handling, makes the mast almost vertical, and lifts the folk up to approximately 500 mm from the ground.
Pressing switch (1) for two seconds or more will reset the display value to 0.
In this case, OK is displayed. Switch (4): To the menu screen

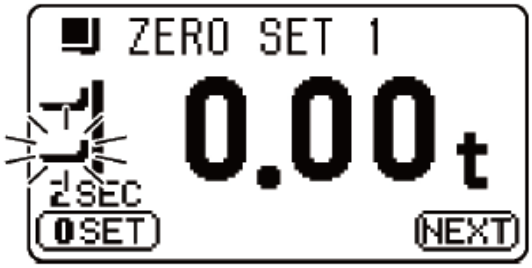


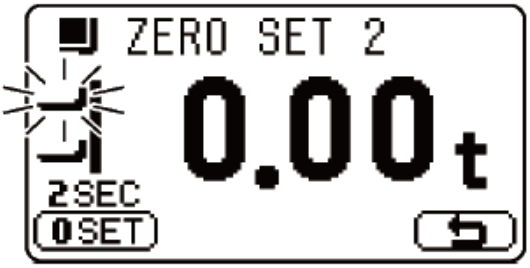


FV mast, FSV mast

Low lift height (ZERO SET 1): This is the same as ZERO SET for V mast.

High lift height (ZERO SET 2):
Stops traveling or load handling, makes the mast almost vertical, and lifts the rear cylinder up to approximately 100 mm.
Pressing switch (1) for two seconds or more will reset the display value to 0.
In this case, OK is displayed. Switch (4): To the menu screen

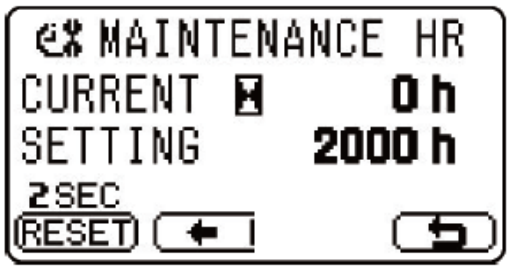




(7) Management setting menu

These are the menu screens to set functions related to vehicle control.

Scheduled-maintenance hour meter setting screen



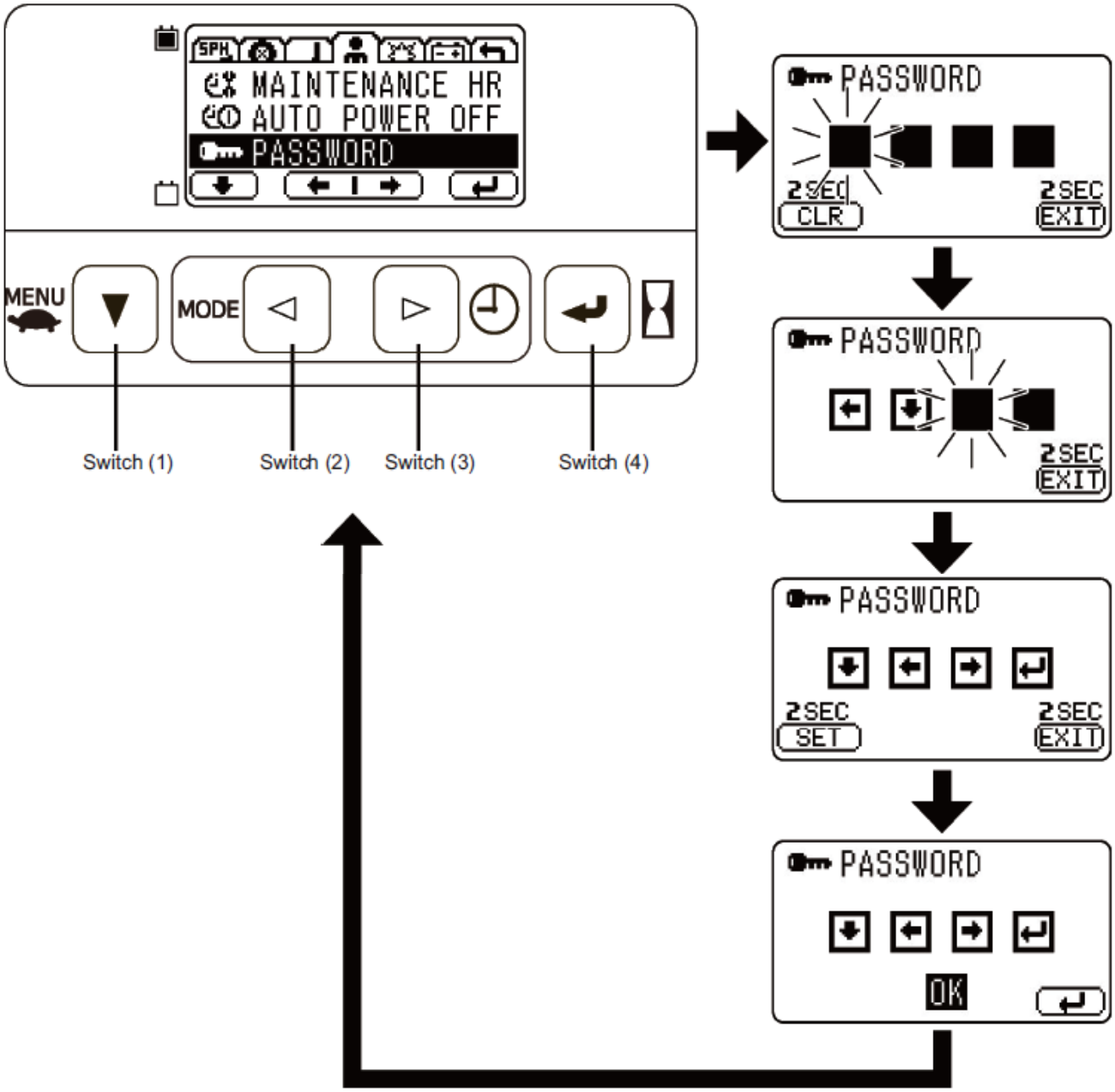
Time for maintenance hour meter is set. Possible values are 10 to 2400 hours, where 10 to 200 hours are available in steps of 10 hours and 200 to 2400 hours in steps of 50 hours.
Switch (2): Decrease the set time.
Switch (3): Increase the set time.
Switch (4): To the menu screen
Pressing switch (1) for two seconds or more will reset the previous value to 0. (The set value is maintained even after this reset procedure.)
When the set time is 10 hours and switch (2) is pressed to decrease the set time, the maintenance hour meter is set to OFF. When OFF, the time that has passed will be accumulated, but maintenance indicator and buzzer notifications will not be provided anymore.

Auto power off time setting menu

You can change the interval at which the auto power off function is operated.
Switch (2): Decrease the set time.
Switch (3): Increase the set time.
Switch (4): To the menu screen
The time can be set to a value in a range between 2 to 60 minutes in 1 minute steps. Select OFF after 60 minutes to disable the auto power off function.

Manager's secondary password setting menu

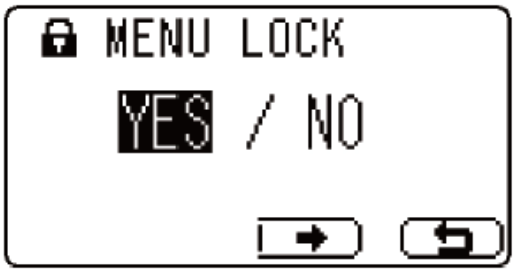
A manager can register a secondary password.
Enter a password using switches (1) to (4), then press and hold switch (1) for two seconds to register the password.
Press switch (4) for two seconds to return to the menu screen.
A manager must manage his/her secondary password so he/she would not forget it.
If forgotten, a service person can clear the value using the service function.



Manager's secondary password setting clear

On the Manager's secondary password setting screen, press switch (1) for two seconds or more to clear the password.
Press switch (4) for two seconds to return to the menu screen.

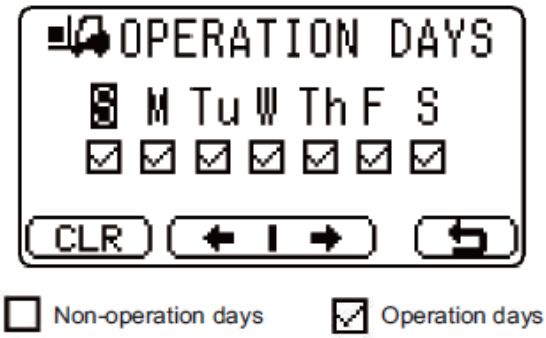
Menu lock setting menu



This screen enables the operator to limit a change of a set value.
When set to YES, the following limitations will be applied.
Operator setting menu screen: Hidden
Power select setting screen: Hidden
Switching power mode: Not possible
Switch (2): Select YES.
Switch (3): Select NO.
Switch (4): To the menu screen

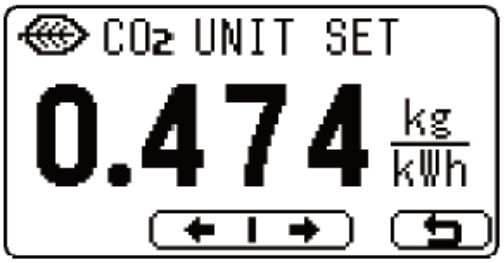
The menu lock setting condition differs depending on the menu lock setting of the "option setting" menu.
• When the menu lock specification setting is set to A
The menu unlock setting (NO) is in effect until the key is turned OFF. The setting is set to YES at key OFF.
• When the menu lock specification setting is set to B (setting at the time of shipment)
The menu unlock setting (NO) is in effect until a user changes the setting to YES again on the setting screen.
It is not locked before hour meter start

Operating day setting
(only for vehicles with Battery Charger 200V/3P (On-Truck Type) [C30E])



You can set the operating day.
Switch (1): Set or reset the operating day.
Switch (2): Move the day to set to the left.
Switch (3): Move the day to set to the right.
Switch (4): To the menu screen
Setting the operating day allows automatic equalizing charge to perform on a holiday.
For details, refer to the "BATTERY CHARGER 200V/3P (ON-TRUCK TYPE) [C30E]" section.

CO2 emission unit setting (only for vehicles with Battery Protecting Function [D42B] and the Battery Charger 200V/3P (On-Truck Type) [C30E])



You can change the CO2 emission coefficient.
Switch (2): Decrease the set value.
Switch (3): Increase the set value.
Switch (4): To the menu screen
The value can be set in a range between 0.001 to 2.000 kg/kWh in 0.001 kg/kWh steps. If "-.---" before 0.001 kg/kWh is selected, the amount of CO2 emission is not displayed.
The CO2 emission unit must be set in the unit of kg/kWh according to the situation in each country.

QR continuous display

This displays each QR code continuously.
This is useful when retrieving all QR codes because you do not need to move between the menus. Switch (4): Display the next QR code.

Shock memories QR codes
(With Shock Sensor [L39B] only)

Operation day QR codes

Key switch on time QR codes

Watt-hour meter QR codes
(With Battery Protecting Function [D42B] and Battery Charger 200V/3P (On-Truck Type) [C30E] only)

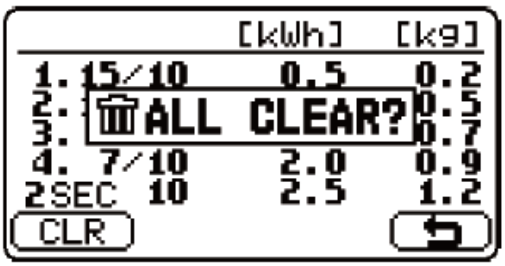
Battery fiuid-level warning time QR codes
(With Battery (Wet Cell) [D00C] or
Battery Protecting Function [D42B] only)

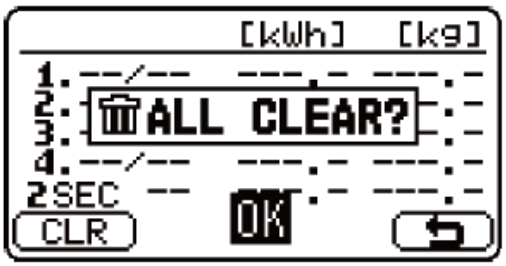
Capacity at start of charging / Minimum battery capacity QR codes

Charge data clear

You can delete the charge data record.

Press switch (1) for two seconds or more to delete the watt-hour meter record and battery data logging and display OK.





If the charge data is deleted, monthly charge amount for three month is displayed as 0 kWh and daily charge amount for the latest 30 days is displayed as "-".

(8) Shock sensor setting menu (only for vehicles with Shock Sensor [L39B])

This is the menu screen to set functions related to shock sensor.

The QR code display function of impact record data is added to the new model.

7) Battery data logging function

The 8FB series newly provides the battery data logging function of recording battery operation and charge information as a function of Multifunction Display. Such information allows you to grasp the customer's usage status of the forklift. Recorded information can be read on the manager setting menu or the service function of the Multifunction Display.

Battery data logging records the following data for a month, up to one year.

Screen	Data classification	Content
Manager Setting Menu *1	Vehicle operation status	Displays the number of operating days and the Key ON time for a month.
	Battery maintenance state *2	Displays the time in which battery is out of fluid for a month.
	Charge status	Displays ththe remaining battery at charging start time *3 and minimum battery remaining capacity for a month.
Service Functions	Battery usage state	Displays the battery discharge amount, the battery fluid temperature *2, and the number of charges by the Battery Charger 200V/3P (On-Truck Type) [C30E] for a month.

*1 Data displayed on the manager setting menus can also be checked in the service functions.

*2 Only when Battery (Wet Cell) [D00C] is installed.

*3 Displayed only when Battery Charger 200V/3P (On-Truck Type) [C30E] is installed

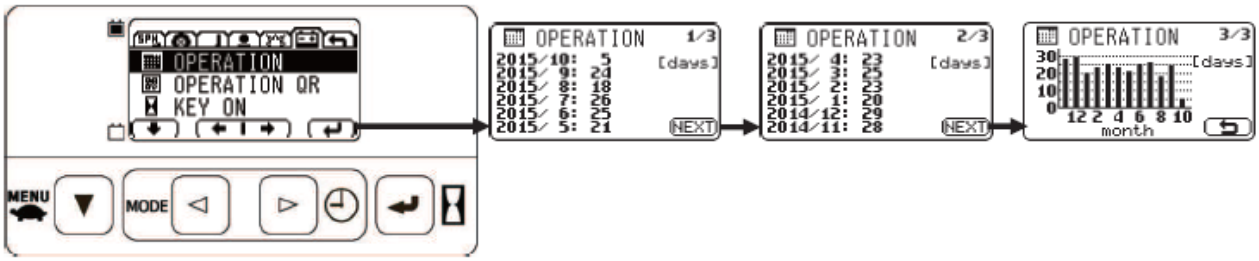
(1) Manager Setting Menu

Enter the manager password on the normal screen to display the battery data logging menu for managers. The data for the past 12 months at the maximum are displayed, handling the duration from 0:00 on the first of the previous month to 24:00 on the last day of the month as one month.

Vehicle operation status

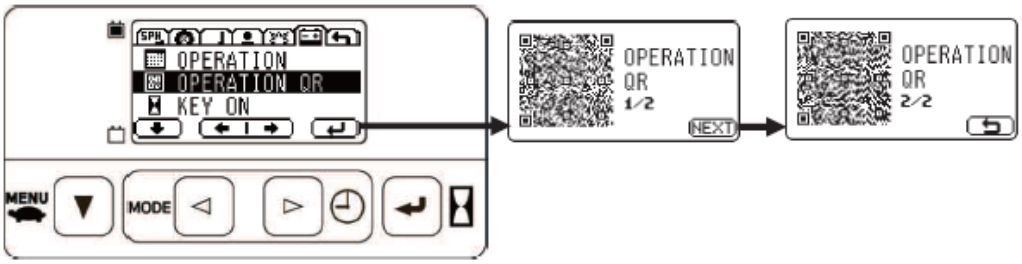
a) Number of operating days

Displays the number of days when traveling or load handling with Key ON for a month.



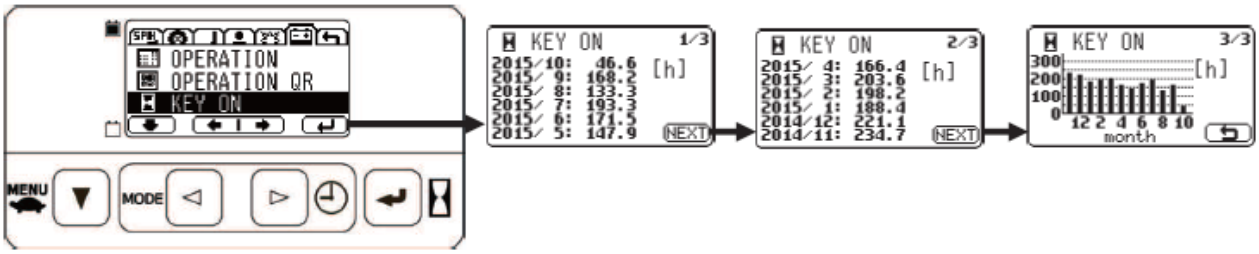
b) Number of operating days (QR code display)

Displays the number of operating days in QR code.



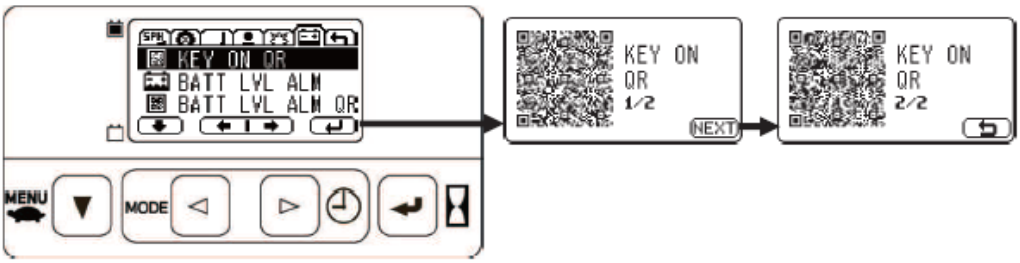
c) Key ON time

Displays the Key ON time for a month. You can grasp the trends throughout the year. You can calculate an "average Key ON time per day" from the number of operating days and Key ON time. In addition, you can calculate a "rate of operations" from the average Key ON time per day and the operating hours.



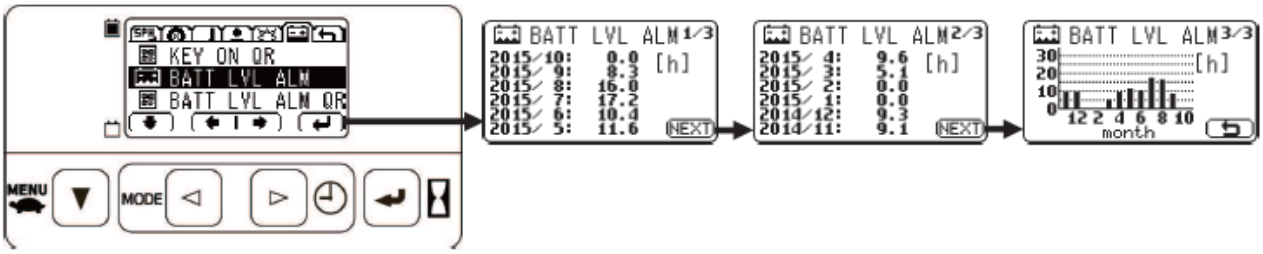
d) Key ON time (QR code display)

Displays the Key ON time in QR code.



Battery maintenance state

a) Battery fluid-level warning time (only for vehicles with Battery (Wet Cell) [D00C])
Displays the total integrated time from detecting that the battery is out of fluid to refill for a month. The time in which battery is out of fluid is integrated even during Key OFF.

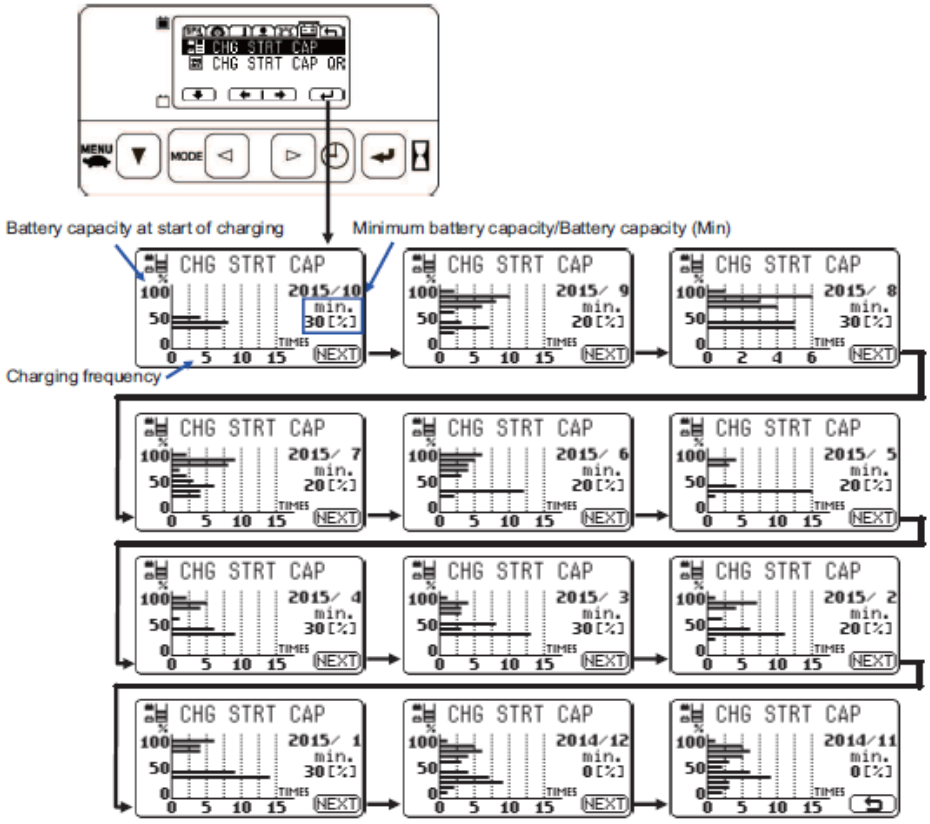


b) Battery fluid-level warning time (QR code display)
(only for vehicles with Battery (Wet Cell) [D00C])
Displays the battery fluid-level warning time in QR code.

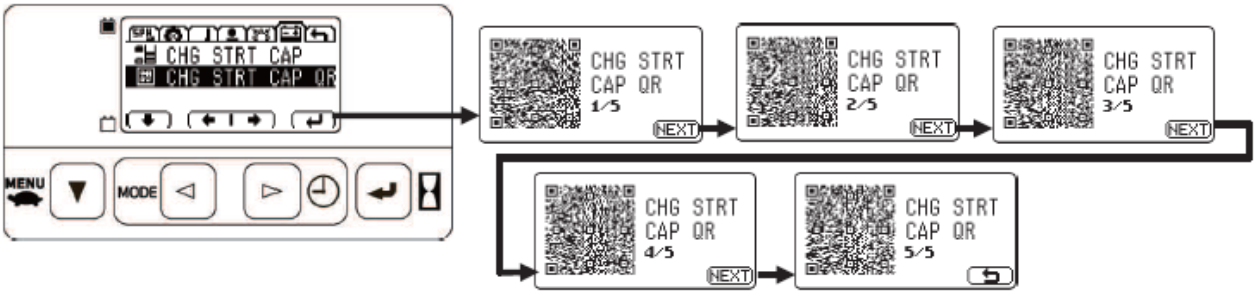
Charge status

a) Remaining battery at charging start time
(only for vehicles with Battery Charger 200V/3P (On-Truck Type) [C30E])
Displays the remaining battery level when starting charging by Battery Charger 200V/3P (On-Truck Type) [C30E] for a month in frequency distribution. You can grasp the charge trends, like charge from deep discharge or auxiliary charge is frequent.

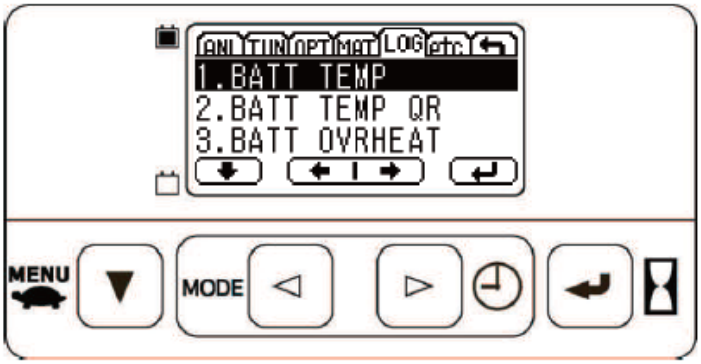
b) Minimum battery remaining capacity
Displays the minimum battery remaining capacity recorded for a month.



c) Remaining battery at charging start time and minimum battery remaining capacity QR code display (Remaining battery at charging start time is displayed only for vehicles with Battery Charger 200V/3P (On-Truck Type) [C30E])
Displays the battery remaining level when starting charging by Battery Charger 200V/3P (On-Truck Type) [C30E] and the minimum battery remaining capacity in QR code.



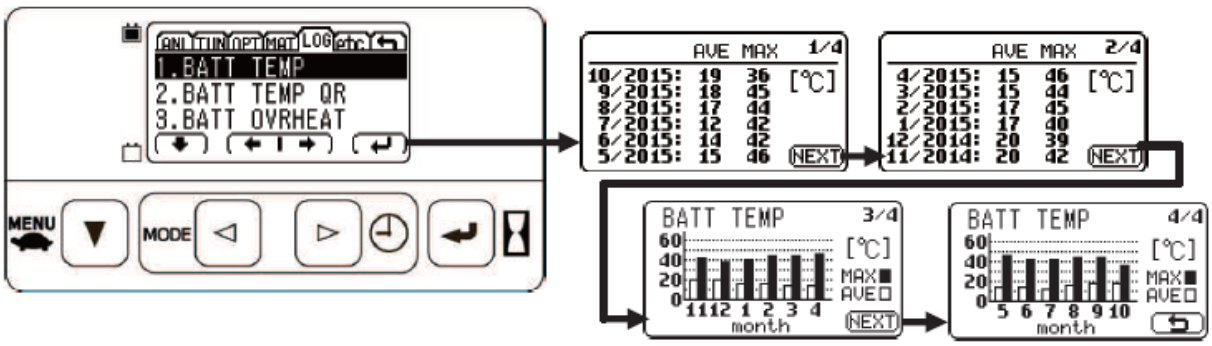
(2) Service functions
Enter the service password on the normal screen to display the battery data logging menu for services. The data for the past 1 year at the maximum are displayed, handling the duration from 0:00 on the first of the previous month to 24:00 on the last day of the month as one month.



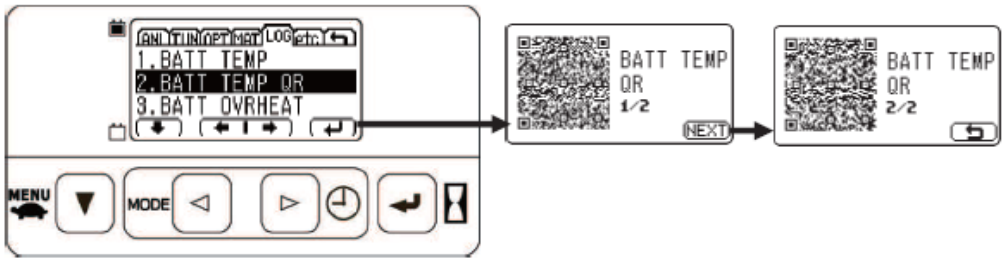
Battery usage state

a) Average battery fluid temperature (only for vehicles with Battery (Wet Cell) [D00C])
Displays the average battery fluid temperature for a month.
If the battery temperature is constantly high, check the customer's usage status of the battery. The temperature can be affected by seasonal factors, but there is still a possibility that the battery charging method or cooling time is not appropriate.

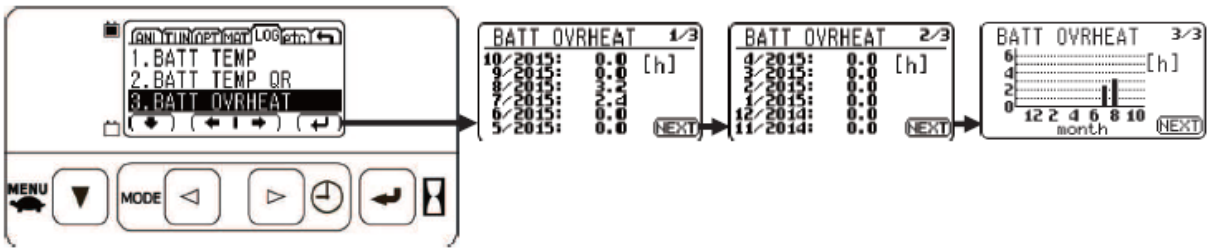
b) Highest battery fluid temperature (only for vehicles with Battery (Wet Cell) [D00C])
Displays the highest battery fluid temperature for a month.
If the temperature is below zero, a bar graph is not displayed.



c) Battery fluid temperature (QR code display)
(only for vehicles with Battery (Wet Cell) [D00C])
Displays the average battery fluid temperature and the highest battery fluid temperature in QR code.

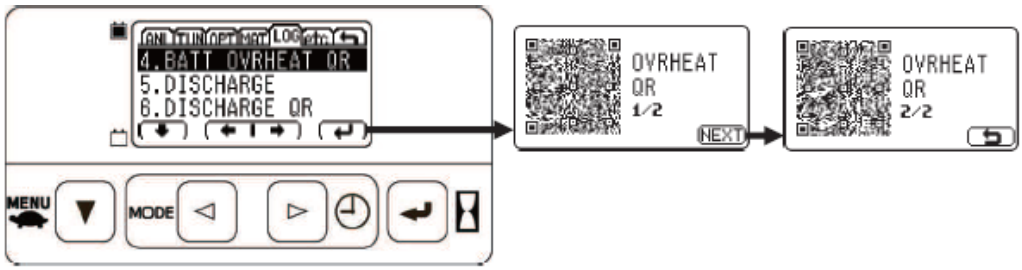


d) Battery overheat warning time
(only for vehicles with Battery (Wet Cell) [D00C] and the Battery Protecting Function [D42B])
Displays the total integrated time in which vehicle performance is limited due to battery overheat for a month. To adjust the battery overheat temperature, you can use the display tuning function. In the tuning level at the time of shipment, a battery temperature of approximately 60°C or more is treated as overheat.

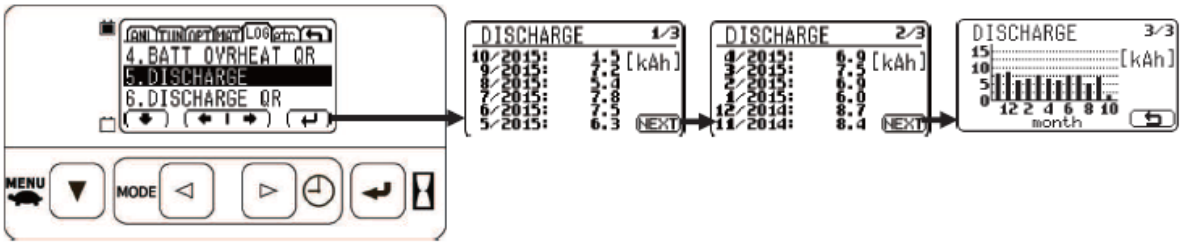


If the battery temperature is constantly high, check the customer's usage status of the battery. The temperature can be affected by seasonal factors, but there is still a possibility that the battery charging method or cooling time is not appropriate.

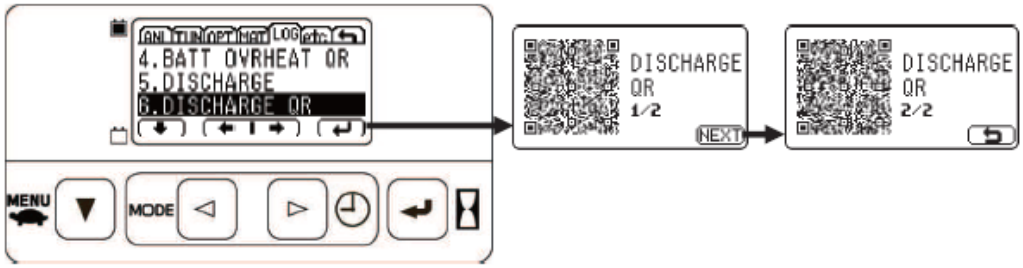
e) Battery overheat warning time (QR code display)
Displays the total integrated time in which the battery is overheated for a month in QR code.



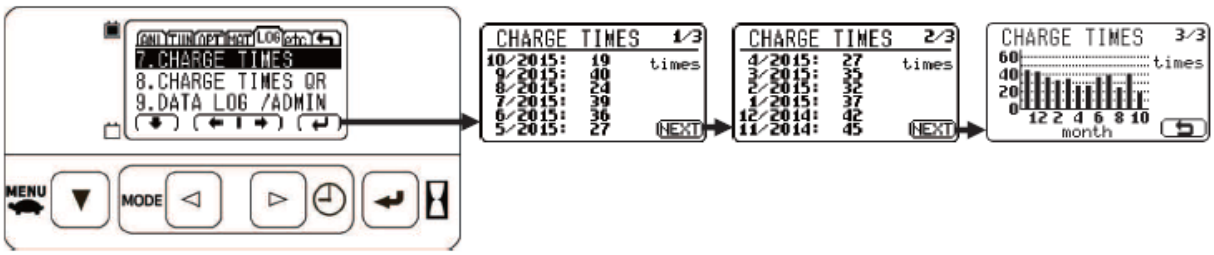
f) Battery discharge amount
Displays the total battery discharge amount for a month.
You can calculate an "average discharge amount per day" from the battery discharge amount and the number of operating days. By comparing the average discharge amount per day with the battery capacity, you can check if the appropriate battery capacity is configured for the customer's operation.



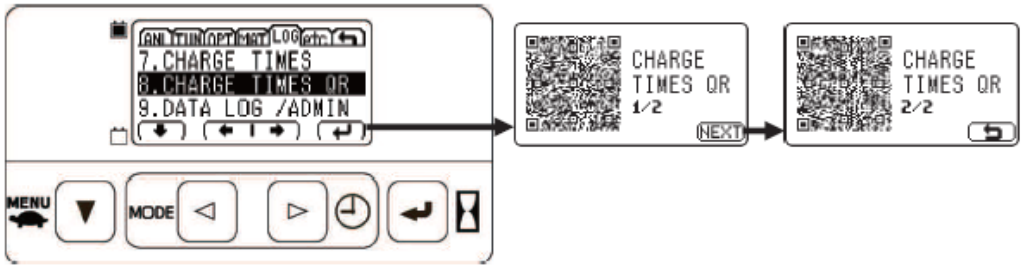
g) Battery discharge amount (QR code display)
Displays the total battery discharge amount for a month in QR code.



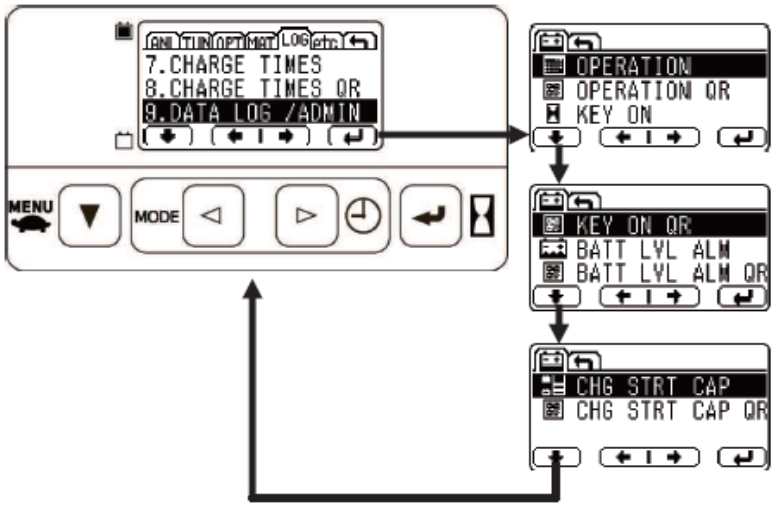
h) Number of charges (only for vehicles with Battery Charger 200V/3P (On-Truck Type) [C30E])
Displays the number of charges by Battery Charger 200V/3P (On-Truck Type) [C30E] for a month. You can calculate an "average number of charges per day" from the number of charges and the number of operating days. If the number of charges per day is high, check the battery remaining level when starting charging as well.



i) Number of charges (QR code display) (only for vehicles with Battery Charger 200V/3P (On-Truck Type) [C30E])
Displays the number of charges in QR code.



j) Manager setting menu data
Data displayed on the manager setting menus can be checked in the service functions.

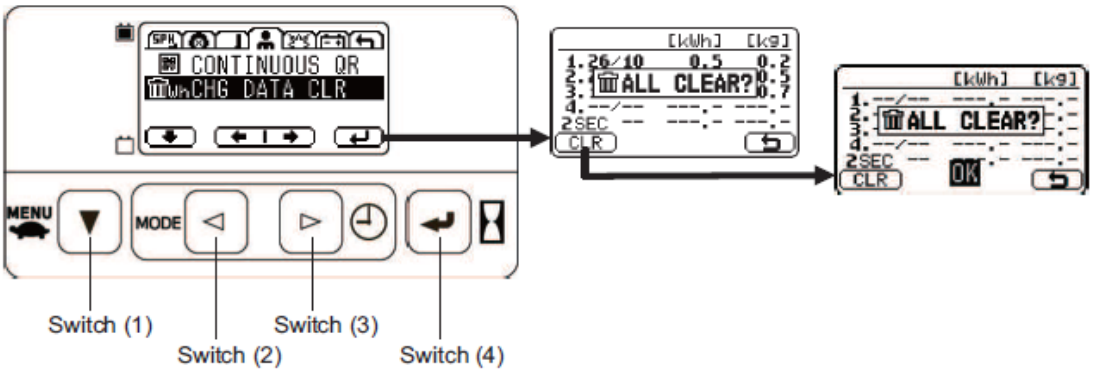


(3) Logged data clear

Recorded data can be reset (cleared) using the manager function to provide for possible change of owners who use the forklift on a rental basis or on other occasions.

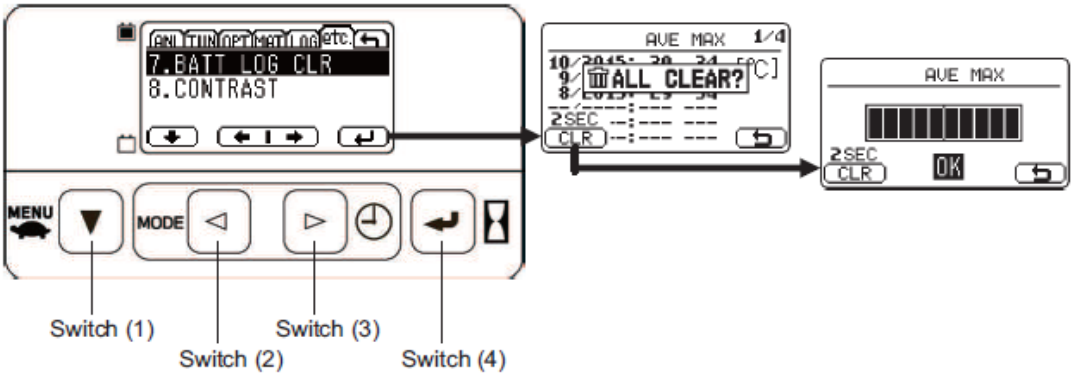
Manager setting menu data clear

Enter the manager password on the normal screen to display the manager menu screen.
Press switch (2) or switch (3) on the manager menu screen to select a menu tab.
The battery data log for managers can be deleted by pressing switch (1) for two seconds or more on the "CHG DATA CLR" screen.



Service function data clear

Enter the service password on the normal screen to display the sevice menu screen.
Press switch (2) or switch (3) on the service menu screen to select a menu tab.
The battery data log for services can be deleted by pressing switch (1) for two seconds or more on the "BATT LOG CLR" screen.



Cautions

- When the battery data logging for managers is reset, the watt-hour meter data of Battery Protecting Function [D42B] is reset at the same time. For details, refer to the "BATTERY PROTECTING FUNCTION" section.
- The battery data log for managers cannot be reset by resetting the battery data logging for services.
- Be careful that data, once reset, cannot be restored.
- Performing the hour meter start using the service function does not clear the data.

Battery data logging disabling

The battery data logging function can be disactivated with the option set of the service menu. Disabling operation should be operated by a service engineer of a dealer according to the customer's requests.
Note: If it is ineffective, the data will not be recorded.

8) Service Functions

Multifunction Display is equipped with service functions to enable the service staff to maintain the vehicle and define specifications.
The service functions are password-protected to prevent important internal data from being damaged due to erroneous use by a customer.
Note: Do not disclose the password to customers.

1) Analyzer function

The analyzer function supports operations for inspecting/investigating faulty section by using communication between each controller and the display.
By switching the display to analyzer mode, operative conditions of the sensor actuator that is used for traveling, load handling and OPS function, or the error information detected by the controller are shown. This is very useful for checking operative condition of each function and saving time for repairing when some trouble occurs.
Full utilization of the analyzer function helps quick and easy servicing.

2) Tuning

You can use this menu to make fine adjustment of the traveling and load handling control features. (No setting for models with PIN Code Entry System [L38B])
75 tuning items are provided including spares.

3) Option set

The option set function is used to adjust the controller and display specifications according to the options equipped on the vehicle.
(No setting for models with PIN Code Entry System [L38B])

4) Matching

Used for readjusting the sensor signal voltage values associated with the standard vehicle condition.

5) Battery data logging

Displays battery management information.
For details, refer to the "BATTERY DATA LOGGING" section.

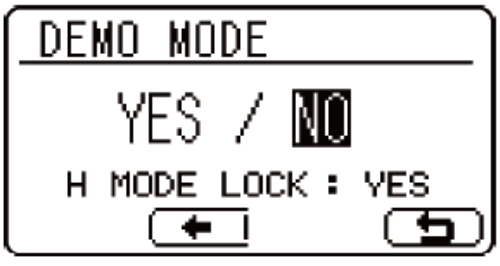
6) Others

(1) Hour meter start

Starts multi-meter count.
When performing a meter start operation, the setting conditions are displayed for checking the H mode lock setting.

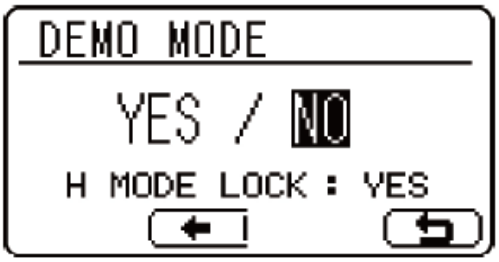
Note:
- Once the hour meter is started, it cannot be reverted to the state at the time of shipment.
- This screen is not displayed after meter start.

(2) Demonstration mode



Enables load handling operations during traveling prior to the startup of the meter.
The H mode lock setting conditions are displayed in a similar way with the meter start screen. This can be checked during the demo mode setting.

(2) Demonstration mode



Enables load handling operations during traveling prior to the startup of the meter.
The H mode lock setting conditions are displayed in a similar way with the meter start screen. This can be checked during the demo mode setting.
While demo mode is set, DEMO is displayed on the key ON hour meter screen.

Note:
- The demo mode screen is not displayed after meter start.

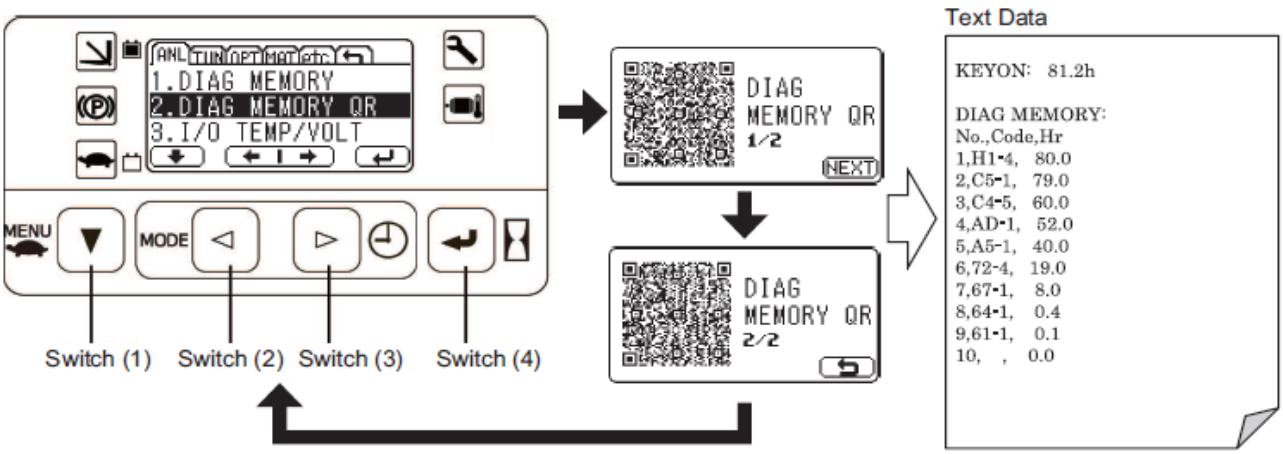
(3) Secondary service password

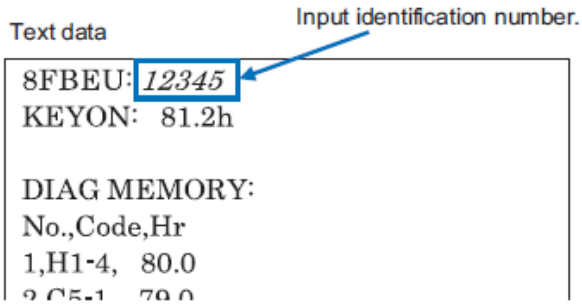
When necessary, service personnel can set a secondary password to protect service functions. This setting prevents operators from using service functions incorrectly.
After this setting, entry of a secondary password is necessary to use a service function.
Only the ones who know the set password can clear the secondary password.

Note:
- Set a secondary password only when necessary.
- If a secondary password is lost, the display must be replaced.
- To prevent loss of secondary password, which causes the service functions to be inaccessible, manage the password at organization level (such as distributor or dealer).
- When the vehicle leaves your management, such as being sold, clear the secondary password.

9) QR Code Display Function

Displays information of diagnosis memory, impact record, watt-hour, and battery data log in multiple QR codes for each item.
Managers can retrieve a large amount of data saved in the vehicle by reading this QR code.





QR code is a type of two dimensional barcode and read by a corresponding barcode reader, cell phone, or smartphone application.

Data is divided and saved into multiple QR codes. If a reader supports coupling mode, when all QR codes are read, divided data will be automatically coupled.

Entering an identification number (such as vehicle number or unit number) before saving read data allows you to easily manage the data.
You can create a table or graph from read data using spreadsheet software.

Note:

- For operations and specifications of a reader, contact the manufacturer of the reader.
- QR codes may not be correctly read depending on the reader. QR codes may be hard to read depending on the brightness around the vehicle or the reflection of a light source.
- QR code is a registered trademark of Denso Wave Incorporated.

Standard Equipments

Item		Model	
		8FB	7FB
Electrical System	Drive AC Motor	❍ New motor	❍
	Load Handling AC Motor	❍ New motor	❍
	Power Meter	❍	-
	Emergency Power Shut-Down	❍ Button on the Instrument Panel	❍ Lever beside the seat
	Battery Connector Handle	❍ New shape	❍
	Multifunction Display	❍	-
	Power Select function	❍	❍
	Power keep function	❍	❍
Chassis	Operator Presenece Sensing System (OPS)	❍	❍
	ORS Seat	❍	❍
	Dual-Action Parking Brake	❍	❍
Body	Side Step On the Right Side	-	❍
	Overhead Guard Sheet	❍	❍
	Memory Tilt Steering Colunm	❍	❍
	Floor Mat	❍	❍
	Fully Hydraulic Power Steering	❍	❍
	Storage area	❍	❍
	Document clip	❍	❍
	Assist Grip	❍	❍
	Electric Horn	❍	❍
	Head Light	❍	❍
Load Handling	Wide Visible Mast (V3000mm)	❍	❍
	Backrest (Angled Lower Stay)	❍	❍
	Easy Down System (V mast)	❍	❍

Operating Time Comparison (S mode)

Model	Battery Capacity		Operating time	
	Voltage (V)	AH/5h	New 8FB	Current 7FB
8FB10	48	330	3h 50m	3h 40m
		400	4h 55m	4h 40m
		485	6h 15m	5h 55m
8FBH10		545	7h 05m	6h 45m
8FB14		330	3h 45m	3h 35m
		400	4h 50m	4h 35m
		485	6h 05m	5h 45m
8FBH14		545	6h 55m	6h 35m
8FB15		400	4h 45m	4h 30m
		485	5h 50m	5h 30m
8FBH15		545	6h 35m	6h 15m
8FB18		400	4h 25m	4h 10m
		485	5h 35m	5h 20m
8FBH18		545	6h 25m	6h 05m
8FB20		450	4h 15m	4h 00m
		565	5h 35m	5h 20m
		600	6h 00m	5h 40m
8FBH20		730	7h 35m	7h 10m
8FB25		565	5h 00m	4h 45m
		600	5h 25m	5h 10m
8FBH25		730	6h 50m	6h 30m
8FB30	80	370	5h 25m	4h 30m
		470	7h 10m	6h 00m
8FBJ35		370	5h 00m	4h 10m
		470	6h 35m	5h 35m
40-8FB15	48	600	6h 35m	6h 15m
		730	7h 55m	7h 30m
40-8FB20		845	8h 40m	7h 50m
40-8FB25		845	8h 05m	7h 20m

Note: The applied operating cycle: Toyota Standard 30m Operating Cycle.
Operating time of P mode: approx. 90% of S mode
Operating time of H mode: approx. 70% of S mode
Operating time of E mode: approx. 120% of S mode

Energy Consumption

Energy Consumption of 1t Models

Model	Tested Load	Energy Consumption
8FB10	1000 kg	3.6 kWh/h
8FBH10		3.6 kWh/h
8FB14	1350 kg	3.8 kWh/h
8FBH14		3.8 kWh/h
8FB15	1500 kg	3.9 kWh/h
8FBH15		4.0 kWh/h
8FB18	1750 kg	4.2 kWh/h
8FBH18		4.3 kWh/h
40-8FB15	1500 kg	4.3 kWh/h

Note: The energy consumption is measured by VDI Operating Cycle (60 sec.) and may include tolerances of +-10%.

Energy Consumption of 2-3t Models

Model	Tested Load	Energy Consumption
8FB20	2000 kg	4.1 kWh/h
8FBH20		4.2 kWh/h
8FB25	2500 kg	4.5 kWh/h
8FBH25		4.6 kWh/h
8FB30	3000 kg	5.0 kWh/h
8FBJ35	3500 kg	5.5 kWh/h
40-8FB20	2000 kg	4.2 kWh/h
40-8FB25	2500 kg	4.6 kWh/h

Note: The energy consumption is measured by VDI Operating Cycle (80 sec.) and may include tolerances of +-10%.

Difference of Option and Attachment Availability from 7FB Series

1. Newly Adopted Option List

Page	OPT	Code	New	Previous
-	Key-less Ignition Switch	D29A	●	-
59	Battery Protecting Function	D42B	●	-
64	Battery Fluid Top-up System with Reserver Tank	D44B	●	-
*	12V Power Supply	D59B	●	-
*	Wire Harness For Accessories	D61B	●	-
65	Slope Sensing Auto-Power Mode Selecter	E09D	●	-
6	Orange Seat Belt	G43C	●	-
*	Front Windshield w/ Wiper and Washer	H02D	●	-
-	Low Height Headguard (2200mm)	H35A	●	-
-	Panoramic Mirror	J10J	●	-
*	Yellow Beacon On The Overhead Guard (Key-On Position)	J19E	●	-
*	LED Yellow Beacon On The Overhead Guard (Key-On Position)	J19U	●	-
*	LED Rear Combination Lights	J21D	●	-
*	LED Rear Working Light (Selective Lighting Condition)	J26C	●	-
6	Blue Light (Selective Lighting Condition)	J44C	●	-
6	Seat Belt Interlock System	K36B	●	-
15	Deluxe Multifunction Display	L26B	●	-
66	PIN Code Entry System	L38B	●	-
79	Shock Sensor	L39B	●	-
84	CAN System for Telematics	L39C	●	-
84	Telematics	L39D	●	-
*	Clamp Release Interlock 3rd Lever	Q15A	●	-
*	Clamp Release Interlock 4th Lever	Q15B	●	-
-	Clamp Release Interlock 3rd/4th Lever	Q15D	●	-

* : For details of the option, please refer to Product Guide for 8FBE series.

2. Discontinued Option List

OPT	Code	New	Previous	Reason of Discontinuation
U.S.A. Spec.	A20A	-	●	A
Canadian Spec.	A20P	-	●	A
Unit Indication, inch/lbs	A95A	-	●	A
Battery 48V (Dry Cell)	D00Q	-	●	B
Battery 80V (Dry Cell)	D00R	-	●	B
Spare Battery (Dry Cell)	D20J	-	●	B
Battery Connector Cable	D55A	-	●	C
Front Windshield w/ Wiper	H02H	-	●	C
Strobo Light Wire Harness	J16A	-	●	C
Rear Combination Lights	J21A	-	●	C
Smart Alarm Harness	K21J	-	●	C
W/o OPS Buzzer	K25N	-	●	C
Multifunction Display (All Round Type)	L09B	-	●	C
Digital Multifunction Display (All Round Type w/ Load Meter)	L09C	-	●	C
Wide Visible Mast (SV)	M00C	-	●	B
High Load Backrest For Attachment	M45A	-	●	C
Name Plate (German)	S31D	-	●	A
Name Plate (Dutch)	S31I	-	●	A
Name Plate (Danish)	S31J	-	●	A
Name Plate (Italian)	S31L	-	●	A
Name Plate (Greek)	S31M	-	●	A
Name Plate (Swedish)	S31O	-	●	A
Name Plate (Norwagian)	S31P	-	●	A
Name Plate (Finnish)	S31Q	-	●	A
Name Plate (Hungarian)	S31R	-	●	A
Name Plate (Czech)	S31S	-	●	A
Name Plate (Polish)	S31T	-	●	A
Name Plate (Slovak)	S31U	-	●	A
Name Plate (Estonian)	S31W	-	●	A
Name Plate (Latvian)	S31X	-	●	A
Name Plate (Lithuanian)	S31Y	-	●	A
Name Plate (Turkish)	S34A	-	●	A

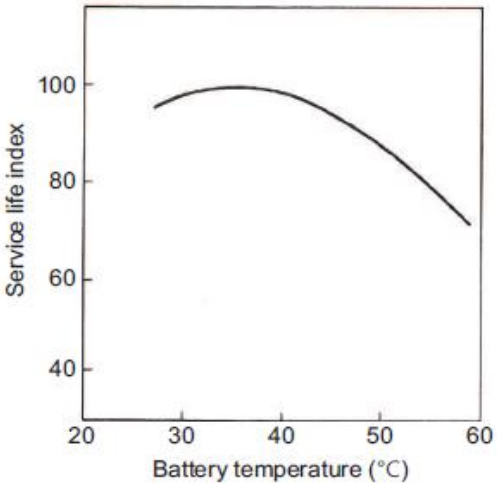
A: Discontinuation of the export destination
B: Small amount of order
C: Became standard for 8FB series, or the OPT code has been changed

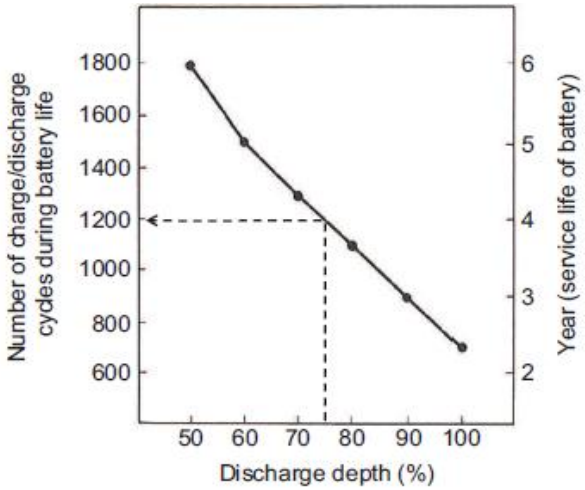
Details of the Newly Adopted Main Options

1. Battery Protecting Function [D42B]

The following are three typical factors that can shorten the service life of battery.

- Repeated deep discharge
- Use while battery-fluid temperature is high
- Use while the battery-fluid level is low





This function detects such state of battery by the battery fluid level and temperature sensor, and warns and limits vehicle performance according to the state of the battery.
(For deep discharge of the battery, the protection is provided by the battery over-discharge warning which is installed as standard.)

Note: This option is available only when Battery (Wet Cell) [D00C] is specified.

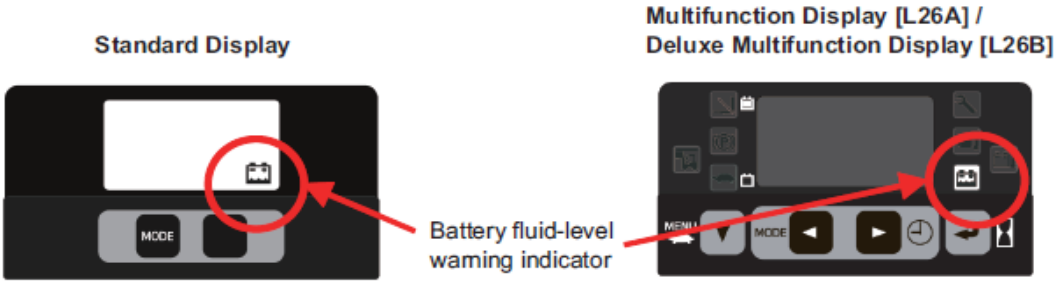
Function		Overview
Battery over-discharge	Warning	When battery remaining charge level reaches warning level and a operator attempt the load handling or traveling operation, the visible warning is shown and audible alarm sounds to notify the operator.
	Vehicle performance limitation	This function limit travel and load-handling performance. For details, please refer to the page 11 of structure section.
Battery-fluid level	Warning	When the battery-fluid level is lower than warning level, the battery fluid level warning indicator on the display lights up and an audible warning sounds to notify the operator.
	Vehicle performance limitation	This function accumulates the time of continuous use of the forklift while the fluid level is low, and when the time exceeds a preset time, performance of the vehicle is limited according to the usage time.
Battery-fluid overheat	Warning	When the battery-fluid temperature reaches the warning level, the battery fluid overheat warning indicator lights up and an audible warning sounds to notify the operator.
	Vehicle performance limitation	When the battery-fluid temperature reaches the warning level, performance of the vehicle is limited according to the rise in the fluid temperature.
Watt-hour meter		This meter displays the energy consumption and CO2 emission at the time of charge on the display. Data can also be displayed in QR code.

Note: Watt-hour meter is equipped only with Deluxe Multifunction Display and Battery Charger 200V/3P (On-Truck Type) [C30E].

1) Battery fluid-level warning

(1) Warning display

When the battery fluid-level sensor detects that the level is lower than warning level, the battery level warning indicator on the display lights up and an audible warning sounds to notify the operator. This warning indicator flashes even if the key is off.



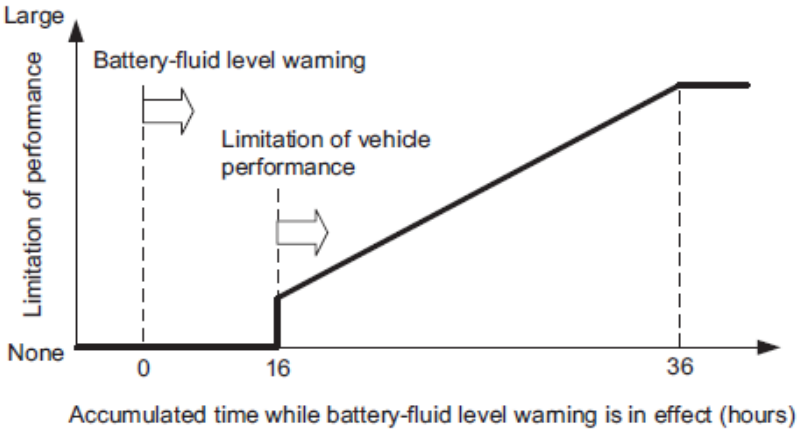
(2) Performance limitation

This function accumulates the time of continuous use of the forklift while a battery fluid-level warning is in effect, and when this time exceeds a preset time, the function limits the performance of the vehicle according to the usage time. The time during the key switch is turned off is not reflected to the accumulation. The accumulated time will be reset when the battery fluid-level is cleared by refilling the fluid.

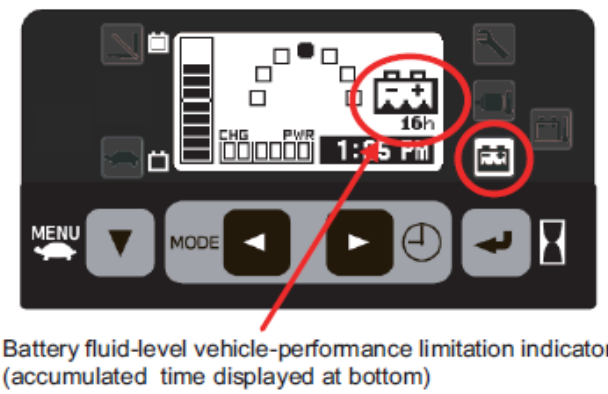
Since vehicle performance is limited by restricting drive motor output, the maximum speed, acceleration, gradeability, and drawbar pull will be reduced.

Depending on the loaded conditions, the effect of performance limitation might be bigger. The forklift may not ascend grades depending on the angle of the slope.

If you continue to use forklift, performance becomes progressively more limited. Therefore, refill the battery-fluid as promptly as possible if a battery fluid-level warning occurs.



On the Multifunction Display and Deluxe Multifunction Display [L26B], the battery fluid-level warning indicator remains illuminated and the battery fluid-level vehicle-performance limitation indicator also lights up, and an audible warning (repeated beep) sounds for five seconds to notify the operator.

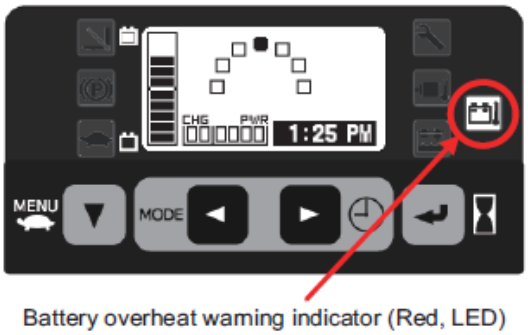


2) Battery fluid overheat warning

(1) Warning display

When the temperature of the battery-fluid exceeds the warning temperature (approximately 60°C), the battery overheat warning indicator on the display lights up and an audible warning (repeated beep) sounds for five seconds to notify the operator. If the key is switched to "on" while the fluid temperature is at or above the warning temperature, the indicator lights up and an audible warning (repeated beep) sounds for five seconds. When the fluid temperature falls below the release temperature (approximately 57 °C), the warning is canceled.

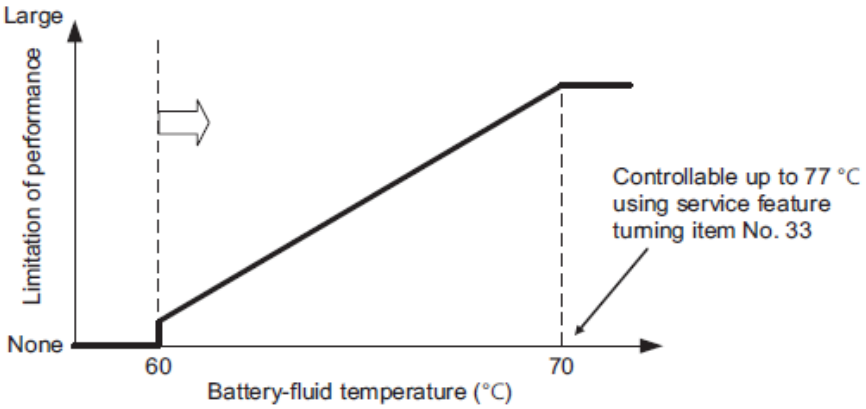
The warning temperature can be adjusted by tuning of the service feature from 50 °C to 66 °C. When the turning level is set at "level 1", the warning temperature is approx. 50 °C. Please note that the set level is approximate temeperature, and the feature does not warn at the set temperature exactly.



(2) Performance limitation

Along with the battery-fluid overheat warning, vehicle performance is limited, thereby preventing further rise in battery-fluid temperature. Performance of the vehicle is limited according to the rise in battery-fluid temperature, and if the temperature continues to rise while limitation is in effect, performance becomes progressively more limited.

In the same way as for performance limitation based on battery-fluid level, vehicle performance is limited by restricting drive motor output. So maximum speed, acceleration, gradeability, and drawbar pull are reduced. In addition to temperature rise due to operation itself, the temperature of the battery-fluid is greatly affected by temperature rise due to charging. If temperature is high at the start of forklift operation, or if the temperature has already reached to the warning temperature, performance is limited from the start of operations.



To reduce the influence of temperature rise due to charging, please note the following points.

- The temperature of the battery immediately after charging becomes high. After charging, allow some time before using the battery.
- Charging after deep discharge takes a long time, and the fluid temperature also becomes high. The time until the forklift is operated also tends to be too short, resulting in operation while temperature is high. For this reason as well, avoid deep discharge.
- Equalizing charging takes a longer time, and the fluid temperature also becomes high. When performing equalizing charging, carry out the procedure not on the day before forklift operation, but two or more days before, thereby allowing enough time for the fluid temperature to decline.

3) Set the battery protecting function to Ineffective
In cases where the battery protecting function disturb forklift operation, the respective features can be ineffective as shown in the chart below.

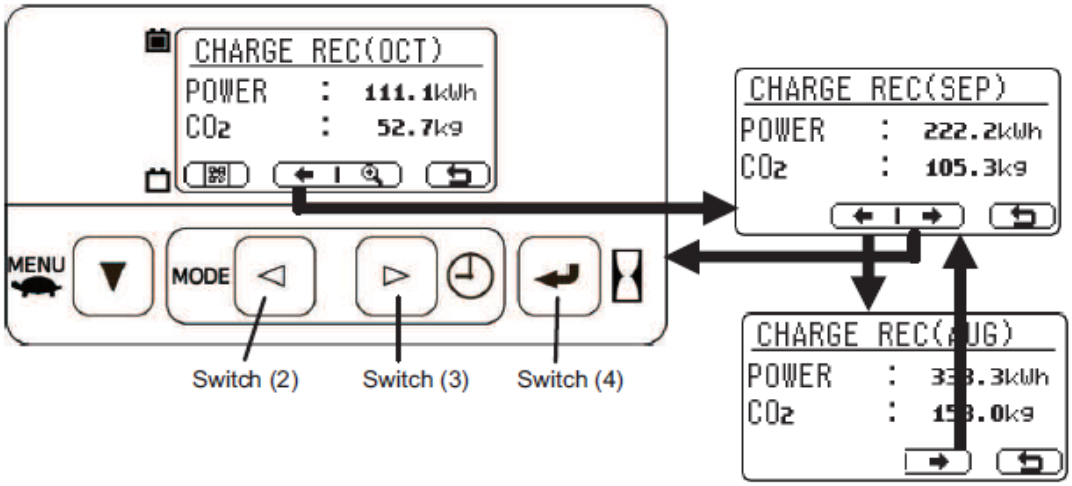
○: Effective / ×: Ineffective

Status	Possible disablement settings	Battery-fluid level		Battery-fluid overheat	
		Warning	Perform-ance limita-tion	Warning	Perform-ance limita-tion
Set only some features to ineffective (Set the performance limitation to ineffective)	Set the performance limitation based on battery-fluid overheat to ineffective	○	○	×	
	Set the performance limitation based on battery-fluid level to ineffective	○	×	○	
	Set the performance limitations based on battery-fluid level and overheat to ineffective	○	×	×	
	Set the battery-fluid level warning to ineffective	×		○	
Set all features to ineffective	Set for non installation of the battery-fluid level and temperature sensors modules	×			

Switching between effective and ineffective can be accomplished by using a service feature on the display that is protected by the service password, please make the setting by service staff.

4) Watt-hour meter
It displays the energy consumption and CO2 emission at the time of battery charge to contribute to energy management.

(1) Monthly integral energy consumption/CO2 emission display
- The monthly integral energy consumption is displayed on the same series of screen as other hour meters.
- The data for the past three months at the maximum are displayed. It considers one month from 0:00 on the first day of the month, until 24:00 of the last day of the month.
- The CO2 emission is calculated and displayed together with the integral energy consumption. The CO2 emission unit can be set on the manager setting menu screen.



Switch (2): Display the last monthly integral energy consumption/CO2 emission.
Switch (3): Display the daily integral energy consumption/CO2 emission while the latest monthly integral energy consumption/CO2 emission is displayed. On other screens, the monthly integral energy consumption/CO2 emission in the next month is displayed.
Switch (4): Return to the general screen.

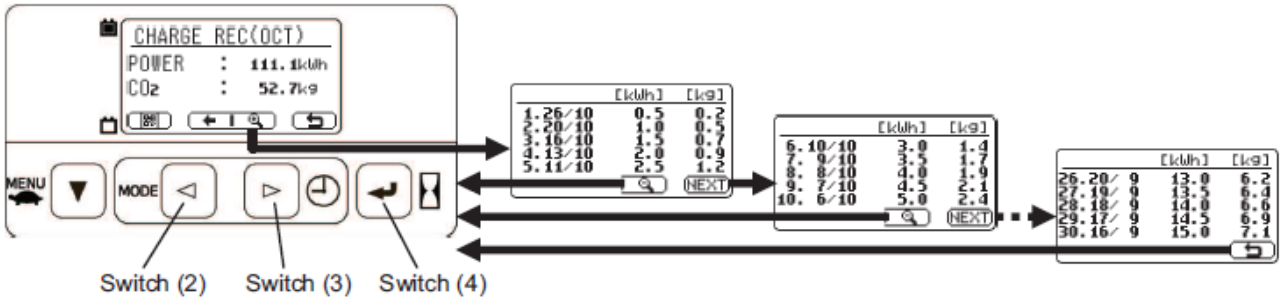
(2) Daily integral energy consumption/CO2 emission display

On the previous monthly integral energy consumption display screen, press switch (3) to display the daily integral energy consumption.

The data from 0:00 to 24:00 is handled as one day, showing the data for five days per screen and for 30 days at the maximum.

If 24:00 is passed during charge, the data is added up as that of the next day. No data is displayed for days when charge is not performed. (Dates for no-data days are skipped.)

The CO2 emission is displayed in the same way as for the monthly integral energy consumption.



Switch (3): Return to the integral energy consumption/CO2 emission display screen.

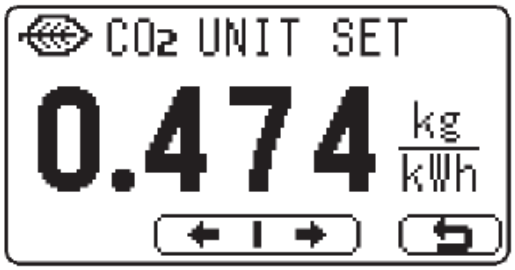
Switch (4): Display the data for the next five days when the switch is pressed on the daily integral energy consumption/CO2 emission display screen. While the data for the 26th to 30th days is displayed, press the switch to return to the integral energy consumption/CO2 emission display screen.

(3) CO2 emission unit setting

Using the manager setting menu, you can set the CO2 emission unit to be used as the basic unit for 'calculating the CO2 emission.

Although there is no setting (displaying"-.----") at the moment of factory shipping, make this setting to calculate and display the CO2 emission from the previous energy consumption data.

The CO2 emission coefficient must be set in the unit of kg/kWh according to the situation in each country.



(4) Integral energy consumption data reset

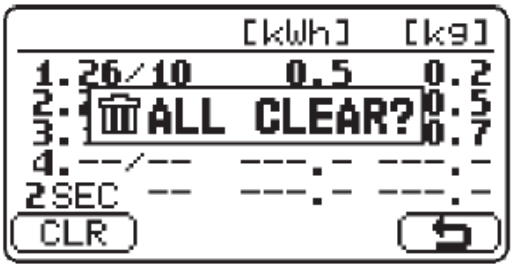
The watt-hour meter data can be reset (cleared) using the manager setting menu to provide for possible change of owners on a rental basis or on other occasions.

The data to be reset includes the monthly integral energy consumption, daily integral energy consumption, and CO2 emissions. At the same time, the battery data log, which is displayed on the manager setting menu, will be reset as well.

Note that the CO2 emission unit will not be cleared by resetting.. It must be set again according to the customer who uses the forklift.

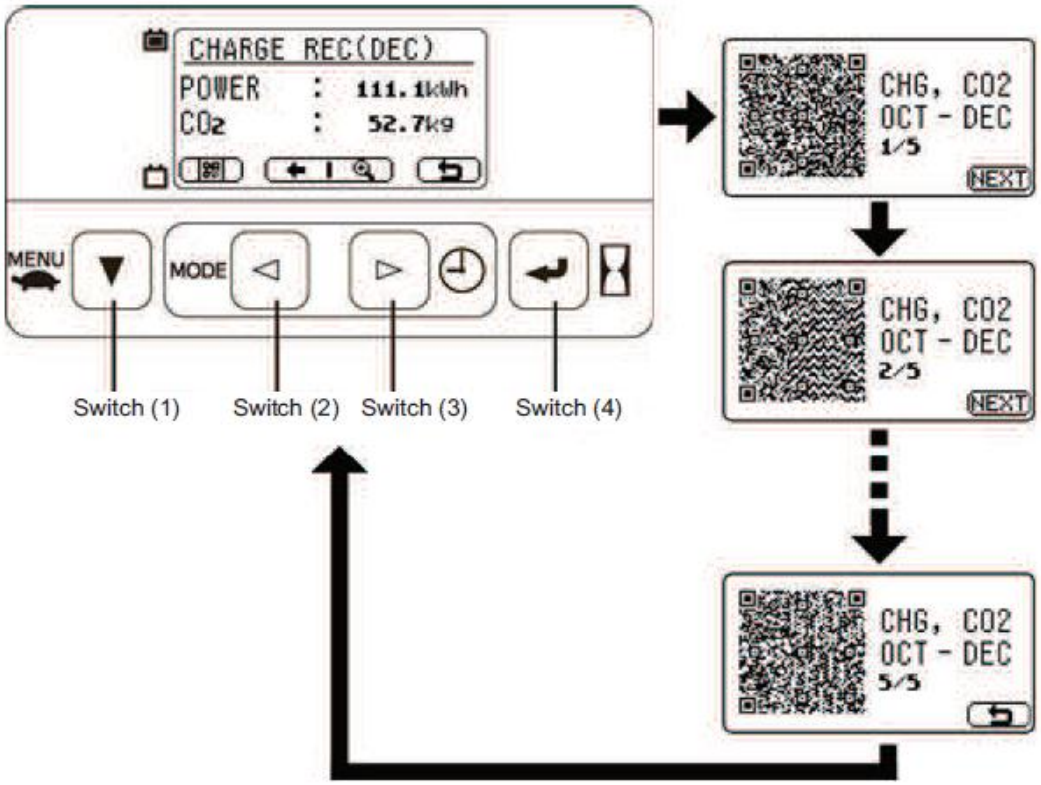
Data, once reset, cannot be restored.

Performing the hour meter start using the service function does not clear the data.



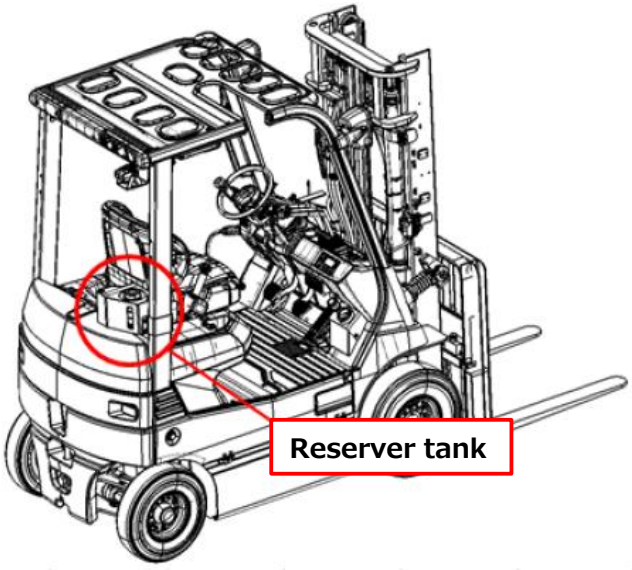
(5) Watt-hour meter QR code display

On the watt-hour meter screen, press switch (1) to display the QR code. Every time switch (4) is pressed, the next QR code is displayed up to five. Reading the QR code allows you to easily retrieve watt-hour meter data stored in the vehicle.

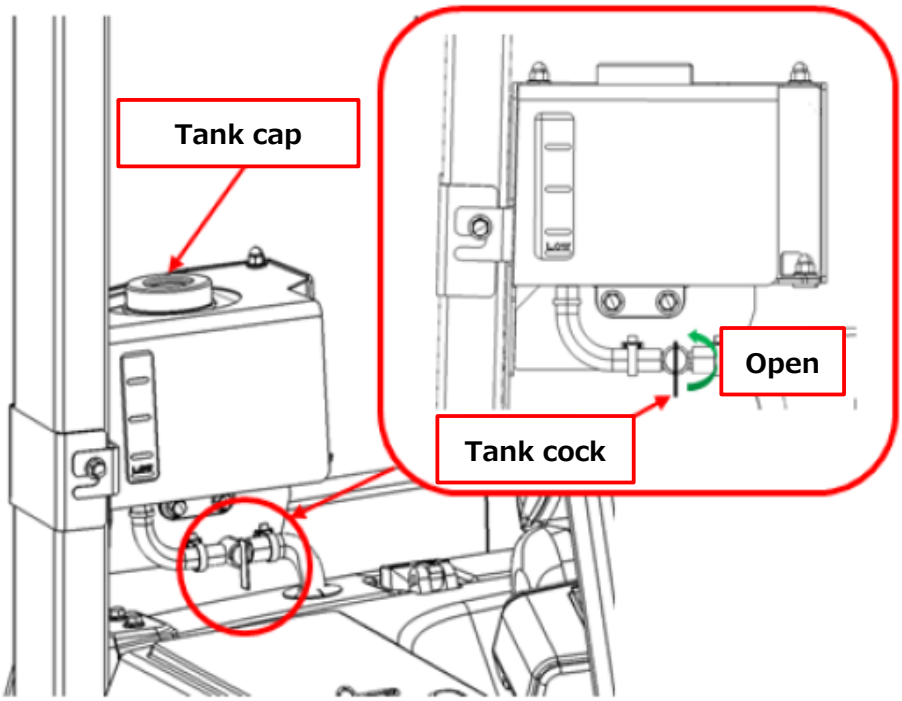


2. Battery Fluid Top-up System with Reserver Tank [D44B]

4 litres reserver tank is installed on the counterweight to realize the easy top up of battery fluid.



1) How to use
   - Fill the tank by opening the tank cap on top of the tank and pour in battery fluid
   - During pre-operation inspection, open the tank cock and top up battery fluid
   - Please make sure to close the tank cock after the top up



2) Caution
   - Tank cap should be closed at any time other than when filling the tank. Impurities in the tank may cause malfunction
   - Make sure to close the tank cock after the top up. If the tank cock is open during operation, it will lead to leak out of battery fluid
   - The tank can hold up to 4 litres of battery fluid. Please note that 4 litres is not enough when the battery is completely out of battery fluid.

3. Slope Sensing Auto-Power Mode Selector

This function detects the slope angle with a sensor and automatically switches the power mode to H-mode (High Power Mode), resulting in faster driving and better gradeability on slopes. Recommended for customers usually operating vehicles on S-mode or P-mode, and willing to improve the vehicle ability only on slopes.

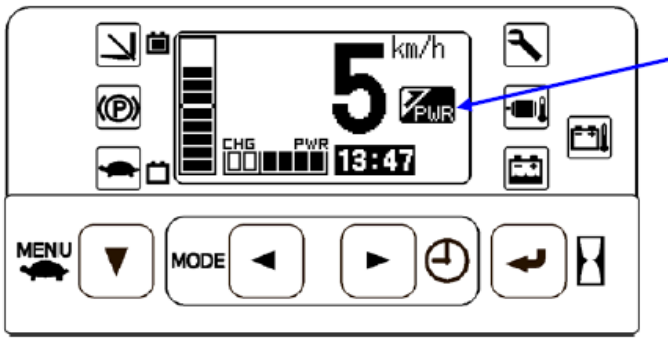
1) How to function

   This function is activated when the vehicle is set to a power mode other than H-mode, and either of the following occurs:
   - The vehicle starts climbing straight up a slope with full acceleration
   - Detects if the slope is over the set angle when stopping the vehicle

   Auto H-mode is automatically switched off when either of the following occurs:
   - The vehicle makes turns
   - Detects if the slope is under the set angle

   Set angle can be changed on the sevice function of Multifunction Display, within the range of 2 degrees to 9 degrees. The initial value is set to 3 degrees.

When the Slope Sensing Auto-Power Mode Selector is activated, the indicator shows up on Multifunction Display.



2) Caution
- This feature is not effective if the customer is already using vehicles with H-mode.
- Speed difference between H-mode and S-mode might become smaller if the slope angle is extremely steep, and close to the limit of the vehicle's climbing ability
- This feature can also be activated in case of crossing over steps or immideate acceleration
- The angle of vehicles may change according to the operating situation. Please adjust the set angles occasionally.

4. Seat Belt Interlock System [K36B]

Travel power will be interrupted and load-handling operations will be stopped under any of the situations below:
- When the seat belt is unfastened
- When a operator leaves the seat for more than 2 seconds
- When a operator fastens the seat belt before getting properly seated

The vehicle's movement with this feature activated, is the same as when OPS is activated.

To release the seat belt interlock, please follow the prosedures below:
- Put the direction lever back to neutral
- Release the load handling lever and and the accelerator
- Unfasten the seat belt, and fasten it again

Note: When this option is selected, the color of the seat will be orange only.

5. PIN Code Entry System [L38B]

Due to the newly developed PIN Code Entry System [L38B], an operator only with PIN number (Personal Identification Number) registered can activate the vehicle. This feature contributes to preventing unauthorized use by non-permitted personnel. This function allows you to register ten different vehicle settings called "profiles" and assign one of the ten PIN settings to each PIN number. A PIN number can be entered via the numeric keypad above Multifunction Display [L26A]. This allows the manager to limit various vehicle performances for safety management and each operator to adjust the settings according to his/her preferences. The numeric keypad has a protection class (IP code) equivalent to IP55.
Note: This function is not an antitheft device.

Ten-key pad

1) Basic Specifications

(1) PIN code for operator

Up to 100 PIN code for operators can be registered.
PIN code in four to eight digits can be registered.
(The system distinguishes, for example, "30588" and "030588".)

(2) Initial PIN number

An undeletable "initial PIN code" has been registered on this system to prepare for an emergency. The initial value of the initial PIN code is "99999999" and can be changed to other arbitrary code in eight digits. The use of the initial value without change is not recommended for security reasons. The manager must change the initial PIN code and manage the new PIN code so that it is not forgotten. If this number is forgotten, no one can log in in the worst case.

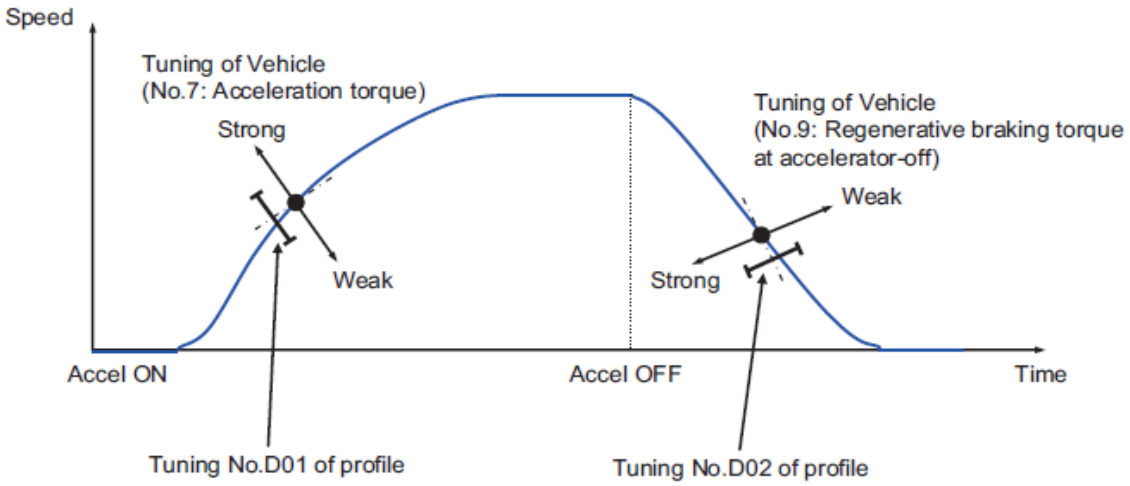
Note: Note that the initial code "99999999" and modified initial PIN code cannot be registered as the PIN code for an operator.

(3) Profile

The manager setting menu allows you to register ten profiles with numbers 0 - 9. Additionally, you can assign one profile to each of the registered PIN code. The available setting items in each profile and the differences from the vehicle without PIN Code Entry System are as follows:

Item	Vehicle equipped with PIN Code Entry System	Vehicle without PIN Code Entry System
Power select function	Can be set for each profile. Can be changed on the profile setting menu of the manager setting menu.	[Standard display] One setting can be specified for each vehicle. Only H, P, and S modes are available. E and original modes cannot be selected. [Multifunction Display [L26A/B]] One setting can be specified for each vehicle. H, P, S, E, and original modes are available for selection. Can be changed on the normal screen and power select function setting menu.
Low speed setting	Can be set for each profile. Can be changed on the profile setting menu of the manager setting menu.	[Standard display] Not available [Multifunction Display [L26A/B]] One setting can be specified for each vehicle. Can be changed on the operator menu.
Travel speed limit	Can be set for each profile. Can be changed on the profile setting menu of the manager setting menu.	[Standard display] One setting can be specified for each vehicle. Can be changed on the service menu of the service function. [Multifunction Display [L26A/B]] One setting can be specified for each vehicle. Can be changed on the manager menu of the manager setting menu.
Over speed alarm	Can be set for each profile. Can be changed on the profile setting menu of the manager setting menu.	[Standard display] Not available [Multifunction Display [L26A]] One setting can be specified for each vehicle. Can be changed on the operator menu.
Tuning	One set of tuning items can be specified for each vehicle. Can be changed on the tuning menu of the service function. Additionally, specific tuning items can be set for each profile. Can be changed on the profile setting menu of the manager setting menu.	One set of tuning items can be specified for each vehicle. Can be changed on the tuning menu of the service function.

The tuning items that can be set in a profile are those selected from the tuning items available for the vehicle. Therefore, the same items are tuned by both the profile setting and the service feature. As shown in the figure below, the tuning range is limited to a certain scope centered around the settings that can be made by the tuning function of the service function of the display.



Since the tuning items available for the vehicle are used as the basis, the tuning level of the profile setting is changed if the turning level of the service feature is changed.

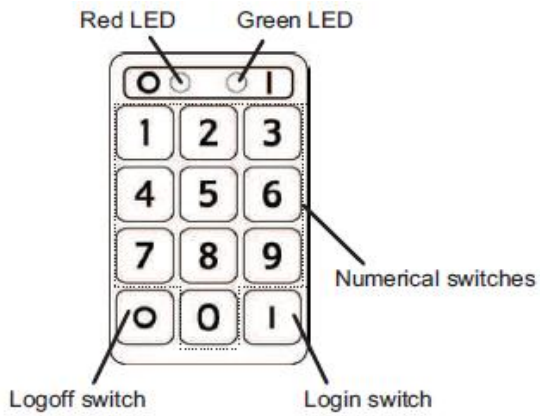
2) Basic Specifications

(1) Login operation

Before the vehicle is started, the numeric keypad is in the waiting state, and the red and green LEDs are OFF.

Login procedure

- Enter the PIN code.
- Press the login switch.



When pressing the numeric keypad, it responds to the operation by briefly lighting the green LED and briefly beeping.
You can perform this operation on both the vehicles equipped with the key switch and with Key-less Ignition Switch [D29A], regardless of the key switch ON/OFF settings.
If the entered PIN code is successfully authenticated, the buzzer sounds short beeps (indicating OK). If, then, the key switch already has been turned to ON, the green LED lights and the vehicle starts.
If the key switch is set to OFF, the system waits for you to turn the key switch ON for ten seconds while blinking the green LED.
If ten seconds elapse before the key switch is turned ON, the authentication is canceled and the LED turns OFF.

When the vehicle is started, the profile settings assigned to the PIN code are loaded, and the vehicle starts to operate according to these settings.
If the entered PIN code cannot be authenticated, the buzzer sounds a beep (NG) and the system returns to the logoff status.

Note:
- If you press the logoff switch before you finish the login operation, the entered number is reset.
- If you press the login switch after entering nine digits or more, the system never authenticates the entered PIN code.
- If ten seconds or more elapse before you finish the login operation, the entered number is reset.

(2) Logoff operation

After the vehicle is started, press the logoff switch to bring the vehicle to the log-off status. At this time, the green LED turns OFF, the red LED turns ON for one second, and the buzzer sounds briefly. You can turn OFF only the key switch without pressing the logoff switch to bring the system to the key-ON standby mode. Also when the auto power off time elapses without any operation, the vehicle automatically turns into the key-ON standby mode.
In the key-ON standby mode, the green LED blinks, and you only need to turn the key switch ON (or OFF and ON if using auto power off) to start the vehicle without needing to perform login operation. The waiting time can be set to 0, 5, 10, or 30 seconds, and in the range between 1 - 60 minutes (by the minute) using the manager setting menu.
(The initial value is 0 second.)

(3) Protection against password breaking

The PIN Code Entry System [L38B] is equipped with the function of protection against password breaking. This function operate as below according to the number of entering wrong PIN codes.
1 - 4: The buzzer sounds for one second and the red LED turns ON.
During this operation, the entry of a new PIN code is prohibited.
5 - 10: The buzzer sounds for five seconds and the red LED turns ON.
During this operation, the entry of a new PIN code is prohibited.
11 - 20: The buzzer sounds for one minute and the red LED turns ON.
During this operation, the entry of a new PIN code is prohibited.
When the count reaches 20 times, the system is sent into the lock mode.
If the operator performs the login operation in this mode, the red and green LEDs blink at the same time, and the buzzer sounds continuous beeping for five seconds.
To reset this mode to perform authentication, login with the initial PIN code is required (alternatively, you can disconnect the battery plug to reset this mode).
Before the lock mode, logging in with one of correct operator PIN codes resets the number of entering wrong PIN code.

Note:
- If the logoff switch is pressed before the completion of the login operation by pressing the login switch, the number of entering wrong PIN codes is not counted.

(4) Operation on factory default setting

In the factory-default setting, you can send the system into login status simply by pressing the login switch. This setting is available to provide efficient and simple login until the vehicle is delivered to the customer. This factory-default setting is disactivated after the vehicle is delivered to the customer and the "hour meter start" operation is performed.
Additionally, two preset PIN codes are provided so that the PIN Code Entry System operation can be inspected even in the factory-default settings.

Inspection on login authentication operation

If you enter the pre-registered PIN code "12345" or "67890" and press the login switch, the vehicle can be started.
Check both the PIN codes to inspect the authentication operation and the numeric key recognition.

Inspection on login non-authentication operation

If you enter a PIN codes other than the "12345", "67890", and "99999999" and then press the login switch, the vehicle is not started even in the factory-default settings. This allows you to inspect the login non-authentication operation.

Note:

- Once the "hour meter start" operation is performed, the factory-default settings cannot be restored.

3) Setting function

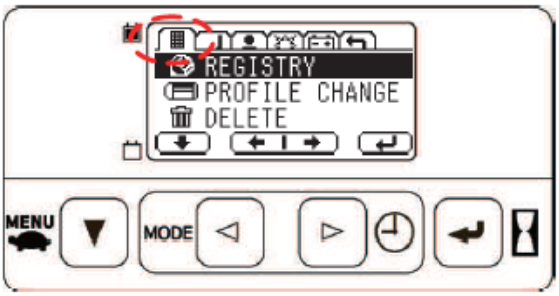
(1) Introduction

Enter the manager password after login to use the setting menu of "PIN Code Entry System" equipped in the Multifunction Display [L26A/B].
For details of the manager password, refer to the "Multifunction Display [L26A/B]" section.

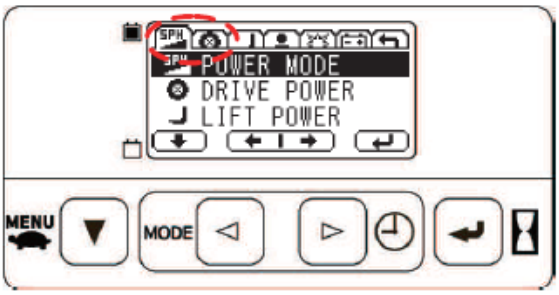
On the vehicle equipped with the PIN Code Entry System [L38B], power select function setting and the travel function setting menus are set on the profile setting menu. Therefore, they have a different manager setting screen from the vehicle without the PIN Code Entry System.

Manager setting menu initial screen

W/ PIN Code Entry System [L38B]

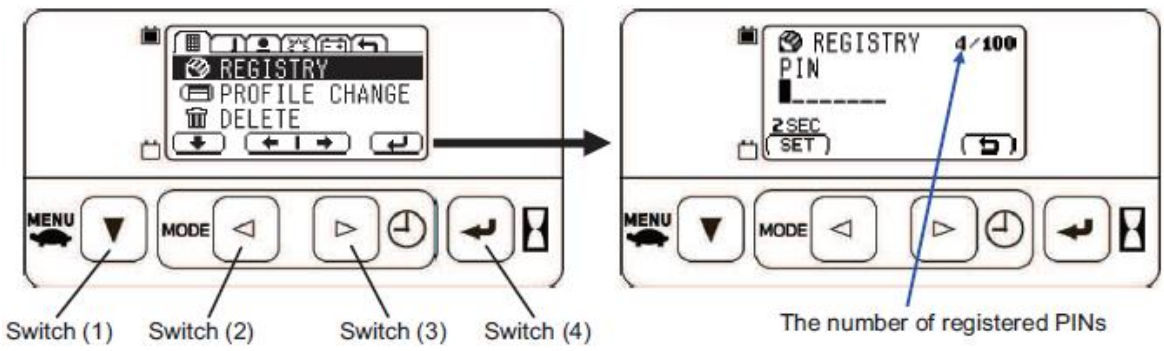


Standard Spec. (w/o PIN Code Entry System [L38B])

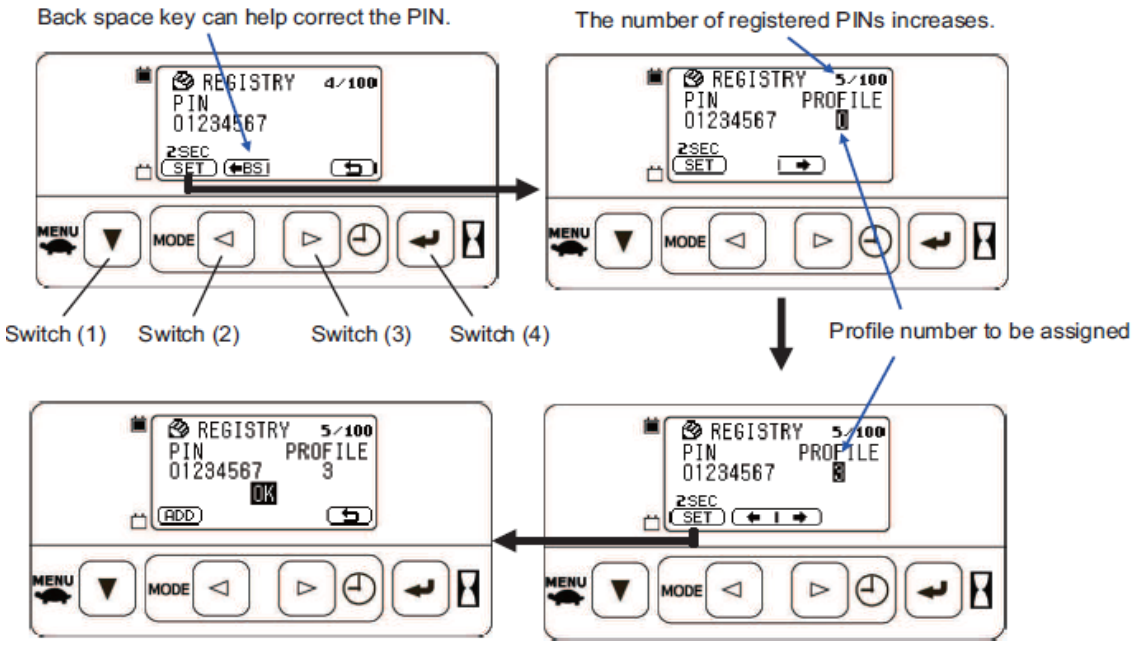


(2) Registering a PIN code for operator

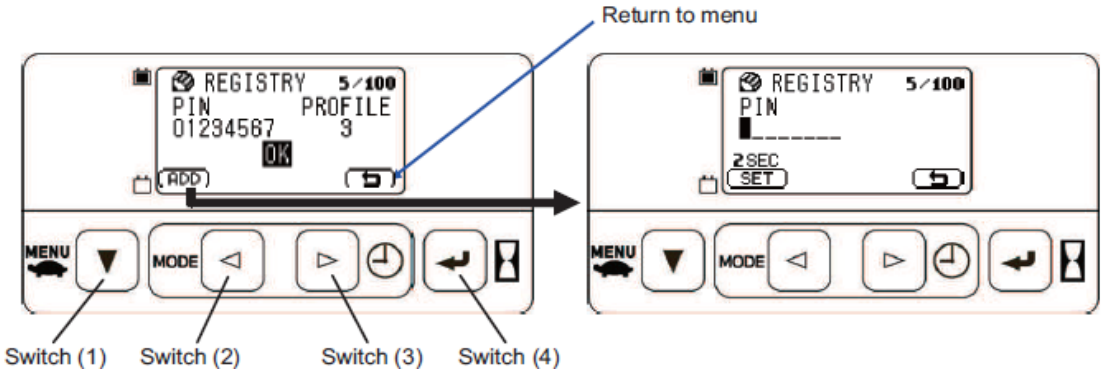
On the [REGISTRY] screen of the manager setting menu, you can register a new PIN code. To display this screen, use Switches (1) and (4) on the PINCode Entry System menu screen and select the [REGISTRY] menu.



Use the numeric keypad to enter a new PIN code and keep pressing Switch (1) [SET] for two seconds to register it. While a PIN number is being entered, Switch (2) can be used as the backspace key. Next, the screen waits for the allocation of the profile number. You can select a profile number to be allocated using the numeric keypad or Switches (2) and (3). Finally, press down Switch (1) [SET] for two seconds to complete assignment.

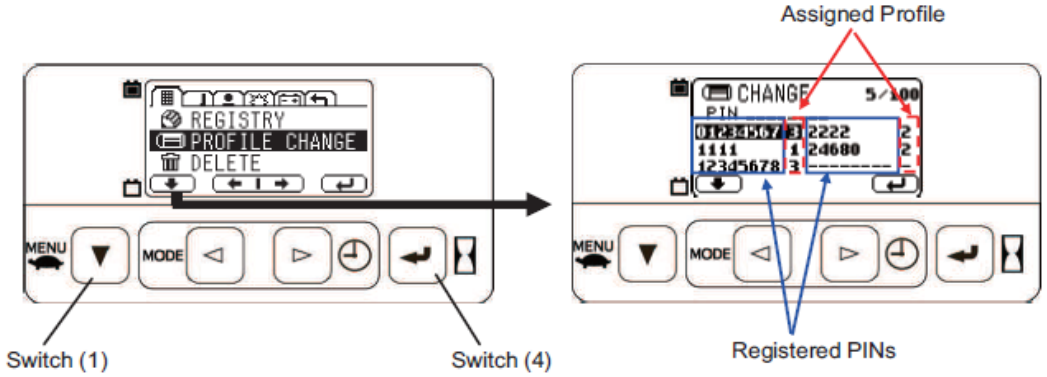


After you complete registering a PIN number, press Switch (1) [ADD] to return to the PIN code registration screen. This allows you to continue registering PIN code.
After pressing Switch (4), you return to the menu screen.

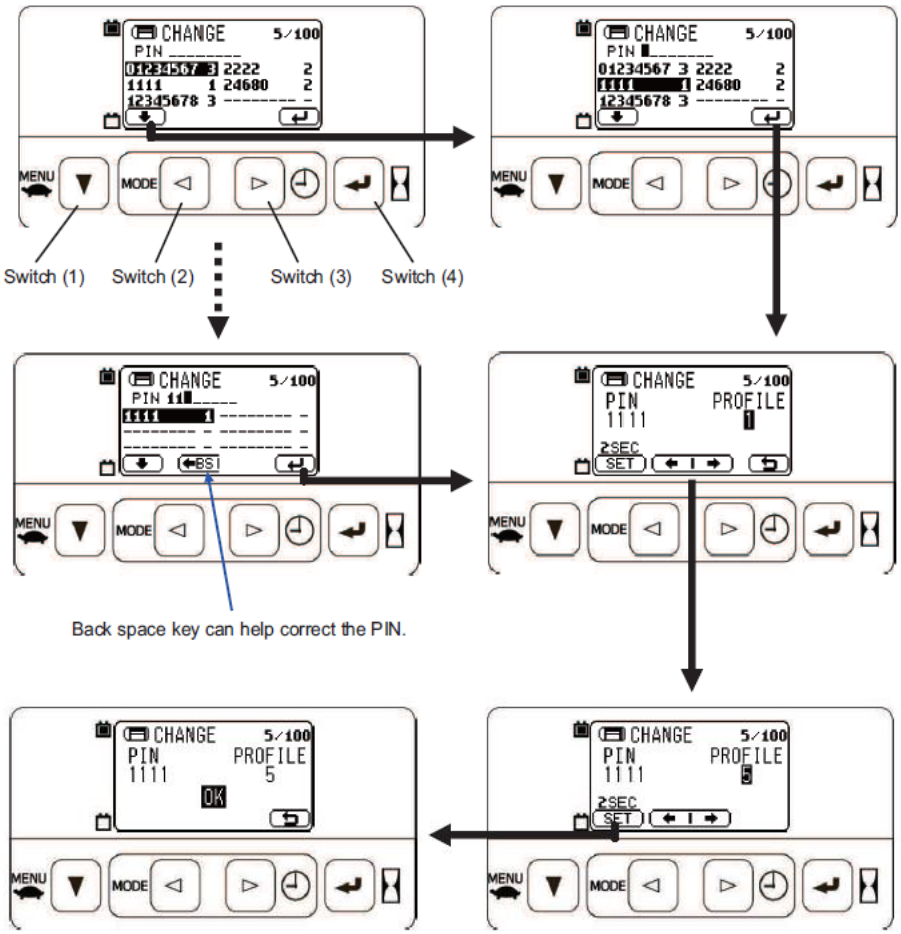


(3) Changing the profile allocation

On the [PROFILE CHANGE] screen of the manager setting menu, you can change the allocation of a profile number to a registered PIN code.
To display this screen, use Switches (1) and (4) on the PIN Code Entry System menu screen and select the [PROFILE CHANGE] menu.



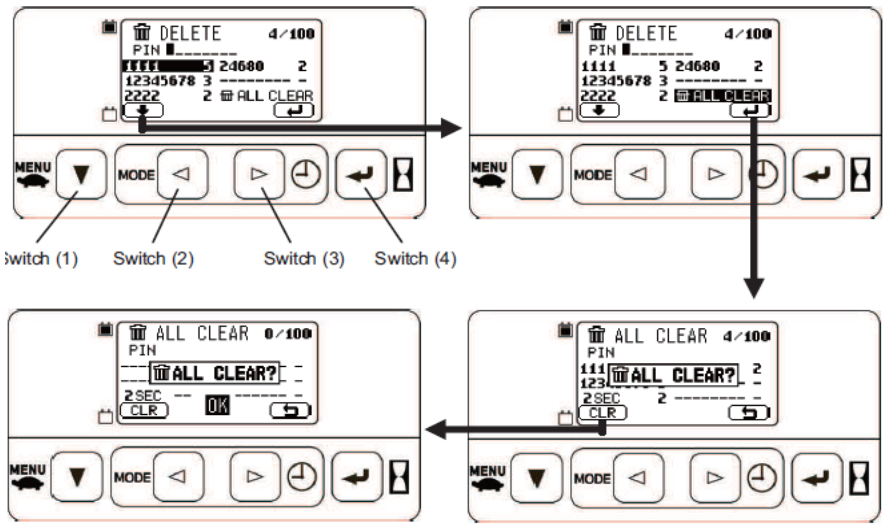
Select a PIN code to which you want to reassign a profile number using Switch (1).
At this time, you can enter a PIN code directly using the numeric keypad to narrow down and select the PIN code. After selecting a PIN code, press Switch (4) to go to the profile number assignment screen. Change the profile number either using the numeric keypad or Switches (2) and (3) and keep pressing Switch (1) [SET] for two seconds to complete allocation.



(4) Deleting a PIN code for operator

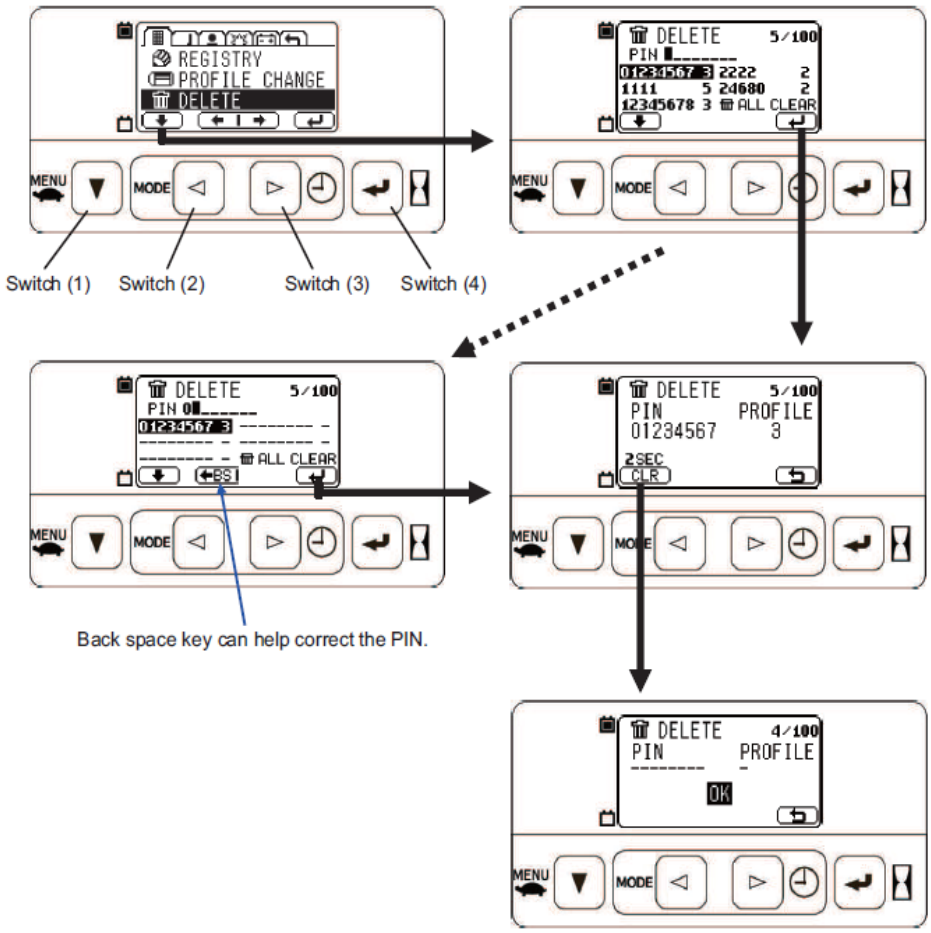
Deleting all the PIN codes

On the [DELETE] screen, you can delete all the PIN codes for operators except the initial PIN code at the same time.
Use Switch (1) to select [ALL CLEAR] and press Switch (4) to go to the PIN code all deletion standby screen.
On this screen, keep pressing Switch (1) [CLR] for two seconds to delete all the PIN code except the initial PIN code.



Deleting a selected PIN code

Select a PIN code that you want to delete using Switch (1). You can also enter a PIN code directly using the numeric keypad to narrow down and select the PIN code.
After selecting a PIN code, press Switch (4) to go to the deletion standby screen.
Finally, keep pressing Switch (1) [CLR] for two seconds, and the system deletes the selected PIN code.



(5) Profile setting

On the [PROFILE SETTING] screen of the manager setting menu, you can set various parameters for each profile.
To display this screen, use Switches (1) and (4) on the PIN Code Entry System menu screen and select the [PROFILE SETTING] menu.

Selecting the profile number

On the [PROFILE SETTING] screen of the manager setting menu, you can set various parameters for each profile.
To display this screen, use Switches (1) and (4) on the PIN Code Entry System menu screen and select the [PROFILE SETTING] menu.

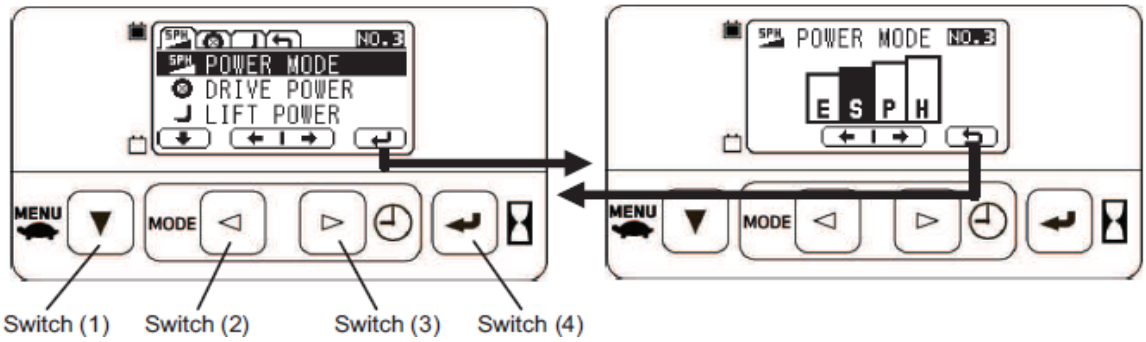
Power select function setting

Using the manager setting menu, you can edit the power select function setting with the selected profile number.
The power select function setting screen becomes the initial screen after you select the profile number of a profile to be edited. After you switch to another screen, use Switches (2) and (3) to select this screen.

Note:

- If the H mode lock is set to [YES], the H mode cannot be selected in any of the following three power control settings.

a) Power mode
The initial power mode after login can be set to one of E, S, P, H, and original modes.
To display this screen, use Switches (1) and (4) and select [POWER MODE]. For setting instructions, refer to the MULTIFUNCTION DISPLAY POWER SELECT FUNCTION section.



b) Traveling and load handling power setting
The traveling and load handling power setting levels in the original mode can be set to one of five levels. To display this screen, use Switches (1) and (4) and select [DRIVE POWER] or [LIFT POWER]. For setting instructions, refer to the "MULTIFUNCTION DISPLAY MANAGER SETTING MENU" section.

Traveling function setting

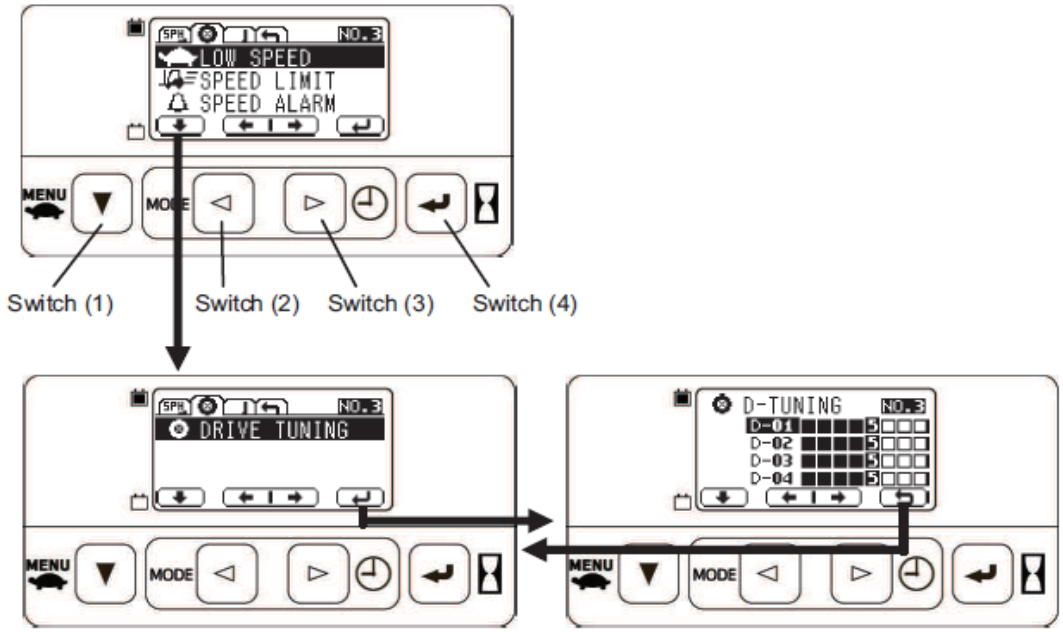
Using the manager setting menu, you can edit the traveling function setting with the selected profile number.
To display the traveling function setting screen, select the profile number of a profile to be edited and select it using Switches (2) and (3).

a) Low speed setting
You can change the speed limit value of the low speed setting function.
On a model not equipped with PIN Code Entry System, the operator can change this setting using the menu for operator. On a model equipped with PIN Code Entry System, you can make this setting using this profile setting only.
For setting instructions, refer to the "MULTIFUNCTION DISPLAY MANAGER SETTING MENU" section.

b) Travel speed limit setting
You can change the speed limit value of the travel speed limit function.
On both the vehicles equipped and not equipped with PIN Code Entry System, you can make this setting using the manager setting menu. To display this screen, use Switches (1) and (4) and select [SPEED LIMIT].
For setting instructions, refer to the "MULTIFUNCTION DISPLAY MANAGER SETTING MENU" section.

c) Over speed alarm setting
You can set the vehicle speed which the over speed alarm will be actuated.
On the vehicle not equipped with PIN Code Entry System, the operator can change this setting using the menu for operator. On the vehicle equipped with PIN Code Entry System, you can make this setting using this profile setting only.
For setting instructions, refer to the "MULTIFUNCTION DISPLAY MANAGER SETTING MENU" section.

d) Traveling function tuning
You can tune the traveling function regarding four items.
To display this screen, use Switches (1) and (4) and select [DRIVE TUNING].
On the traveling function tuning screen, press Switch (1) to select an item.
Additionally, press Switch (2) to decrease the tuning value of the selected item and Switch (3) to increase it.



Load handling setting

Using the manager setting menu, you can edit the load handling function setting with the selected profile number.

To display the traveling function setting screen, select a profile number to be select it using Switches (2) and (3).

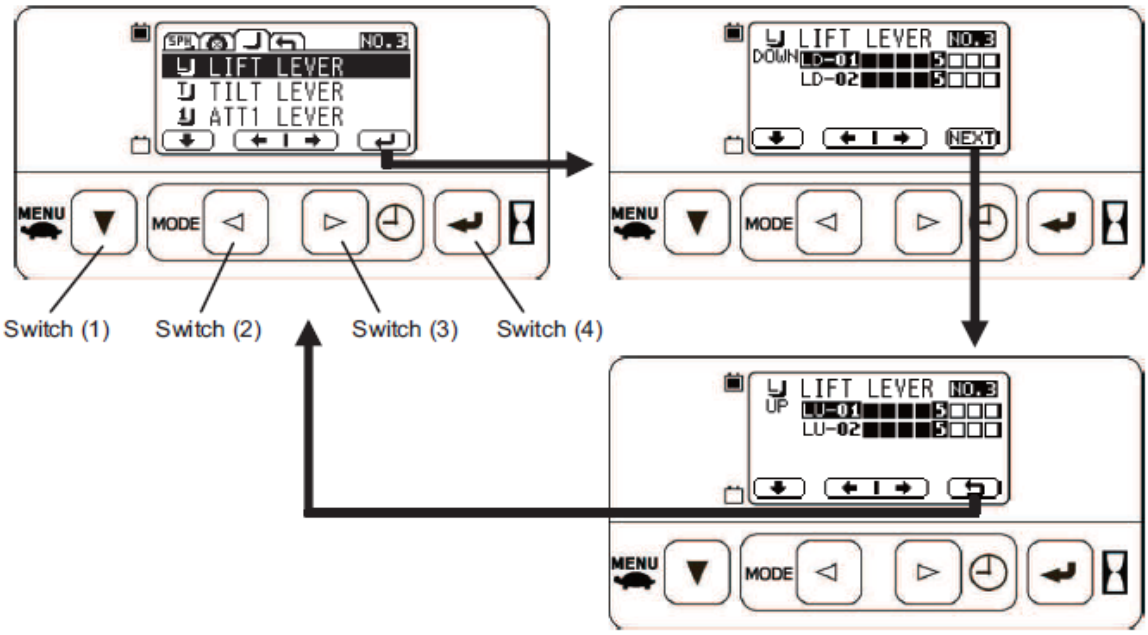
a) Lift lever tuning

This function enables tuning on two items in each of the lift up and lowering operations.

First, to display the screen for lift lowering operation, use Switches (1) and (4) to select the [LIFT LEVER] menu.

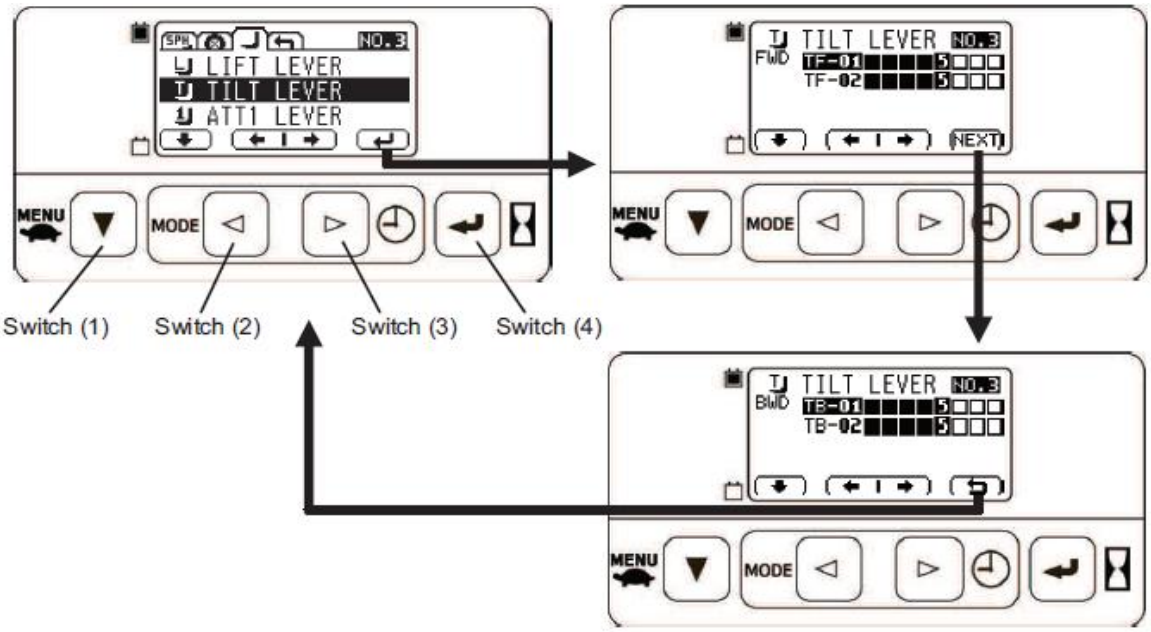
Next, on the screen for lift lowering operation, press Switch (4) [NEXT] to display the screen for liftup operation.

On each of these screens, press Switch (1) to select an item. Additionally, press Switch (2) to decrease the tuning value of the selected item and Switch (3) to increase it.



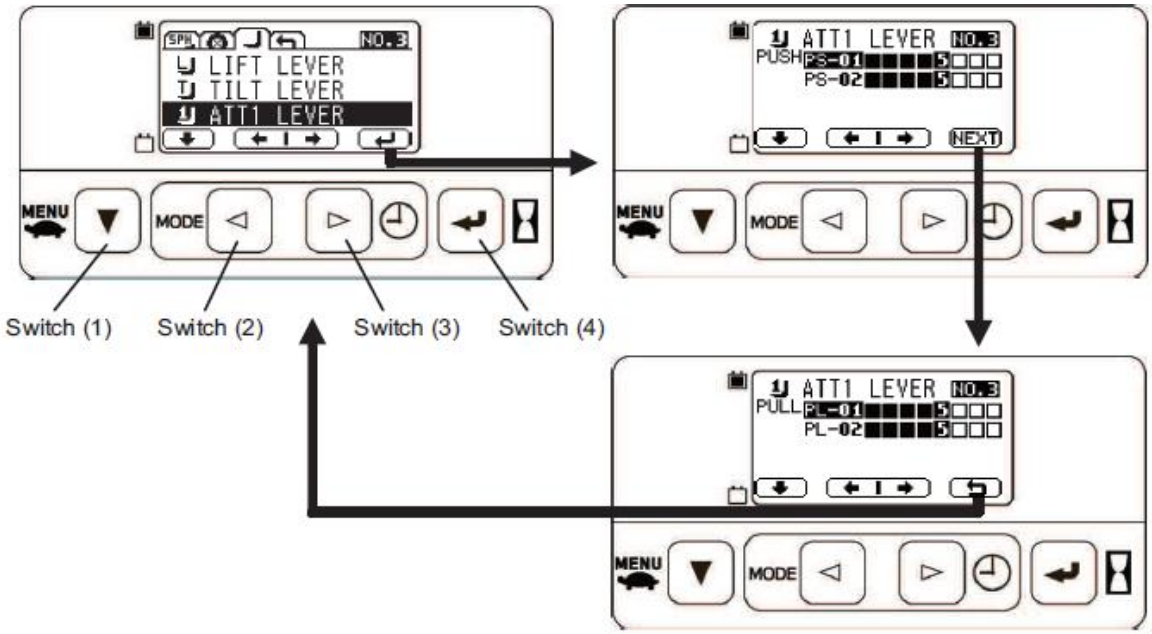
b) Tilt lever tuning

This function enables tuning on two items in each of the front and rear tilt operations.
First, to display the screen for front tilt operation, use Switches (1) and (4) to select the [TILT LEVER] menu.
Next, on the screen for front tilt operation, press Switch (4) [NEXT] to display the screen for rear tilt operation.
On each of these screens, press Switch (1) to select an item. Additionally, press Switch (2) to decrease the tuning value of the selected item and Switch (3) to increase it.



c) Attachment (1) lever tuning

This function enables tuning on two items in each of the attachment (1) lever front and rear tilt operations.
First, to display the screen for attachment (1) lever front tilt operation, use Switches (1) and (4) to select the [ATT1 LEVER] menu.
Next, on the screen for attachment (1) lever front tilt operation, press Switch (4) [NEXT] to display the screen for attachment (1) lever rear tilt operation.
On each of these screens, press Switch (1) to select an item. Additionally, press Switch (2) to decrease the tuning value of the selected item and Switch (3) to increase it.



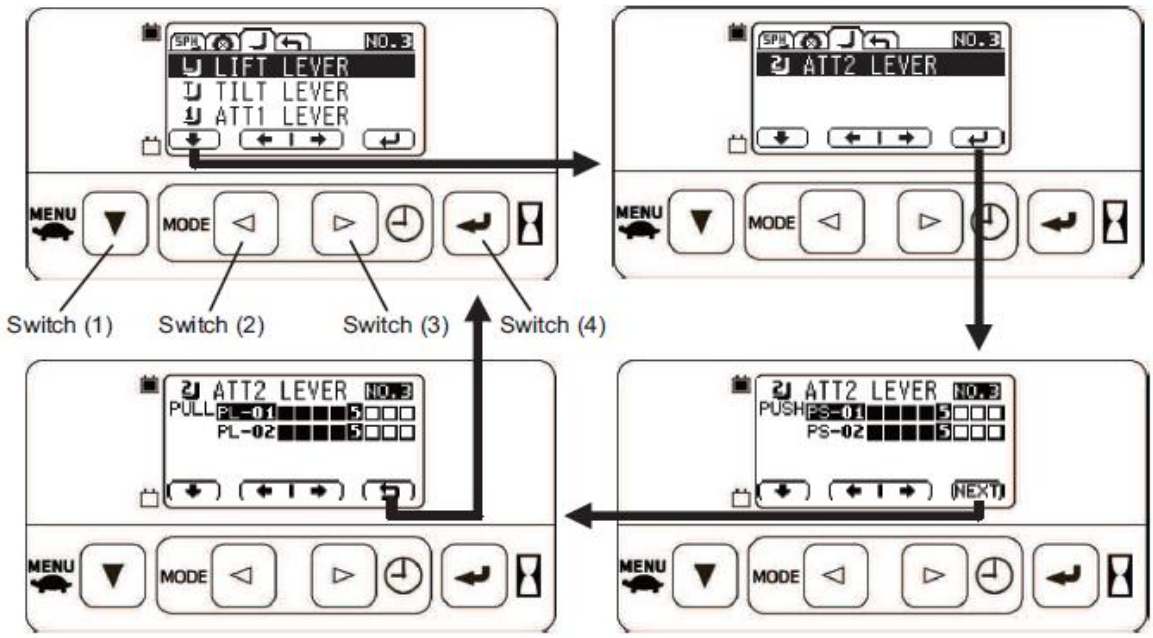
d) Attachment (2) lever tuning

For the vehicle equipped with the 4-way hydraulic control valve, this function enables tuning on two items in each of the attachment (2) lever front and rear tilt operations.

First, to display the screen for attachment (2) lever front tilt operation, use Switches (1) and (4) to select the [ATT2 LEVER] menu.

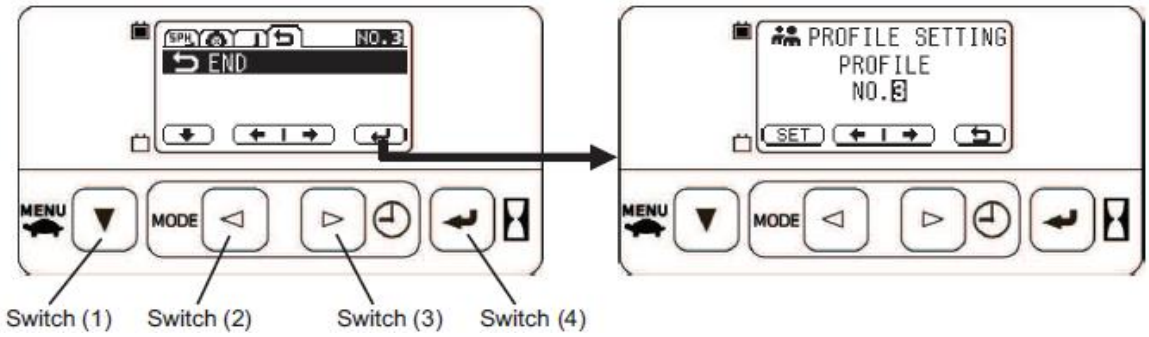
Next, on the screen for attachment (2) lever front tilt operation, press Switch (4) [NEXT] to display the screen for attachment (2) lever rear tilt operation.

On each of these screens, press Switch (1) to select an item. Additionally, press Switch (2) to decrease the tuning value of the selected item and Switch (3) to increase it.



e) Finishing profile setting

To select the END screen, select a profile number to be edited, then use Switches (2) and (3) to select it. To return to the profile screen, press Switch (4).



(6) Changing the initial PIN code

Using the manager setting menu, you can change the undeletable initial PIN code for emergency use on the [INITIAL PIN] screen.

To display this screen, use Switches (1) and (4) on the PIN Code Entry System menu screen and select the [INITIAL PIN] menu.

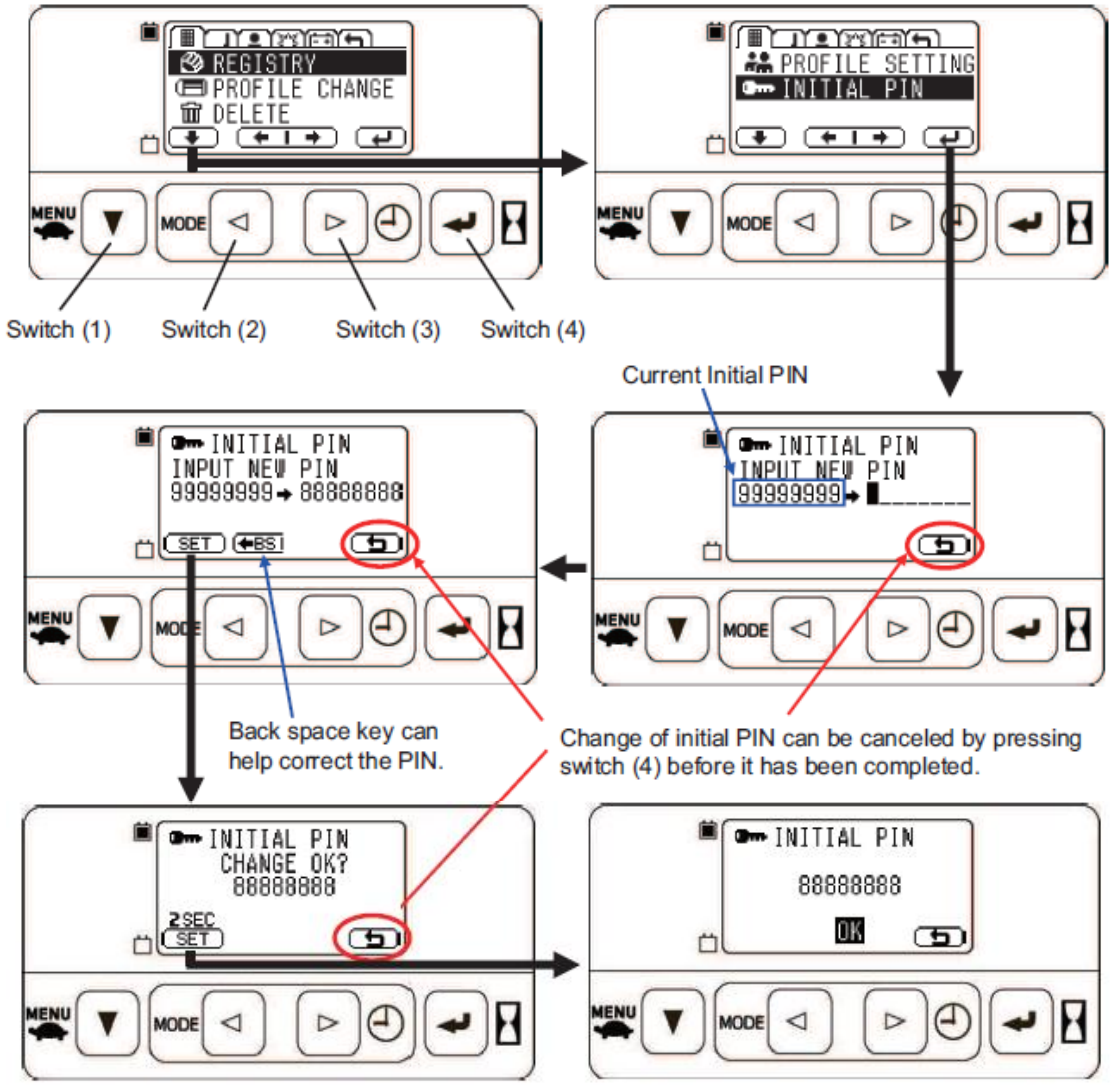
Enter a new PIN code using the numeric keypad. While a PIN code is being entered, Switch (2) can be used as the backspace key.

If you enter eight digits, [SET] is displayed on Switch (1). In this state, press Switch (1) [SET] to confirm the entered initial PIN code and go to the recheck screen.

Finally, keep pressing Switch (1) [SET] for two seconds to set the new initial PIN code.

Before it is finally set, you can cancel the change by pressing Switch (4).

A manager must manage his/her the changed initial PIN code so he/she would not forget it.

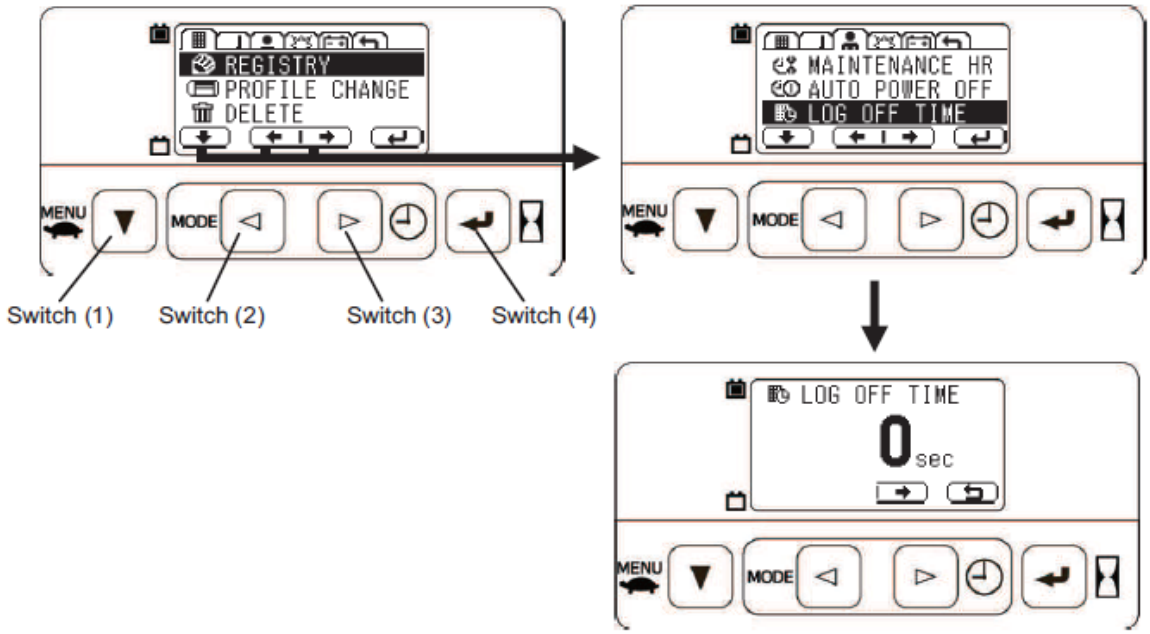


(7) Logoff time setting

After the vehicle is started, you can turn OFF only the key switch without pressing the logoff switch to bring the system to the key-ON standby mode. If you turn the key switch ON within the time specified, you can start the vehicle without login operation.

To display the logoff time setting screen, use Switches (1), (2), (3) and (4) on the PIN Code Entry System menu screen and select the [LOG OFF TIME] menu.

The time can be set to 0, 5, 10, or 30 seconds, and in the range between 1 - 60 minutes (by the minute). (The initial value is 0 second.)



(8) Demonstration mode

All the setting functions are disactivated before the vehicle is delivered to the customer and the "hour meter start" operation is completed.

To perform demonstration by using all the functions of the PIN Code Entry System temporarily, it is recommended to enable the [DEMO MODE] of the vehicle in the service function of Multifunction Display [L26A/B].

Even if you set the [DEMO MODE] to NO, all the PIN code and profile data registered during the demonstration mode are retained.

In addition, when you perform the "hour meter start" operation or enable the [DEMO MODE] again, these values become effective again.

6. Shock Sensor

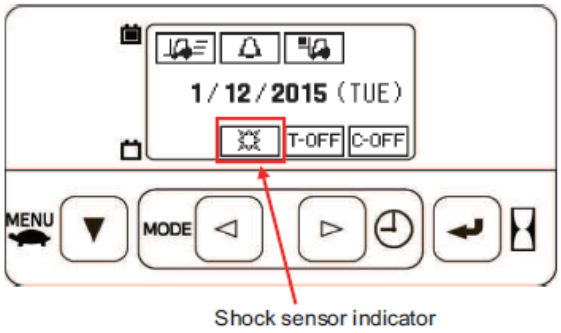
Shock Sensor has been newly developed and now available as an option.
This function detects the excessive shock on the vehicle, and warns by the audible alarm and records the time and the date of occurrence in memories. The alarm can be released only operators need to report to the manager of the excessive shock in order to release the alert. This procedure contributes to discourage overly harsh operation.

By combining with the PIN Code Entry System [L38B] to store the PIN code (authentication code, operator number) of shock detection time and the date into the internal memory, you can more easily identify the operator who caused the excessive shock.

Note:

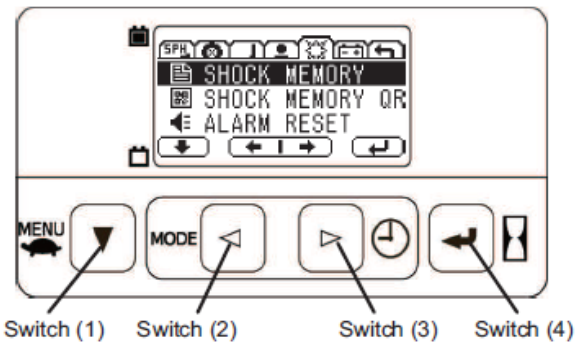
- The strength of shock depends on the object which the vehicle collide with. Therefore, not all the shock can be perfectly detected.
- The detecting (warning) level can be adjusted by the manager setting menu. - Please set the level according to the operation and conditions, so as not to detect the shock which occurs during the usual operation.
- Not all the detected records means the collision. Please investigate with consideration that the recorded shock might occur in the usual operation too.

1) Key-ON Initial Screen



The shock sensor effective indicator appears at the key-on initial screen of Multifunction Display [L26A] to notify the shock sensor is effective.

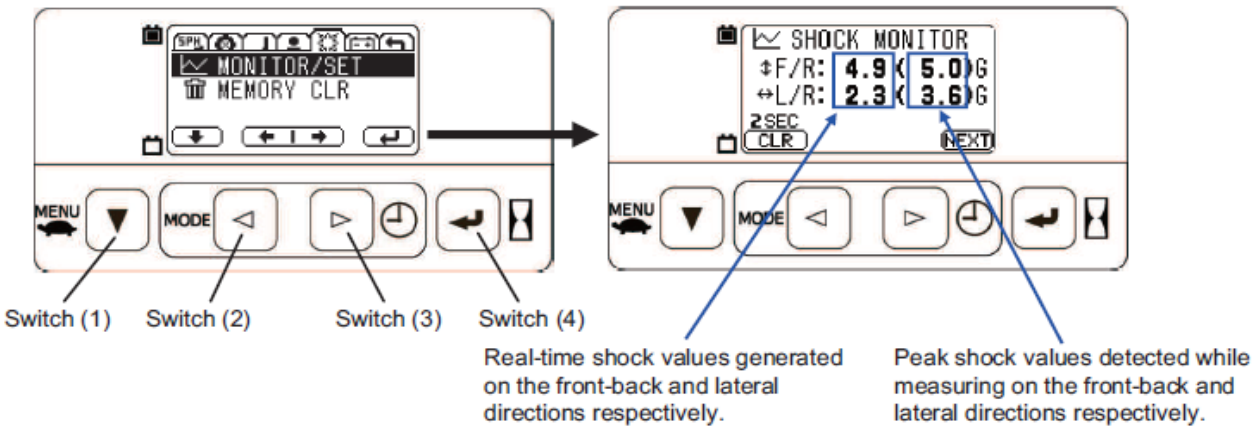
2) Settings



Enter the manager password to use Shock Sensor [L39B] menu included in Multifunction Display [L26A]. For details of the manager setting menu, refer to the Multifunction Display [L26A] section. To select this menu, enter the manager password and press Switches (2) and (3) to select it.

(1) Shock measurement feature

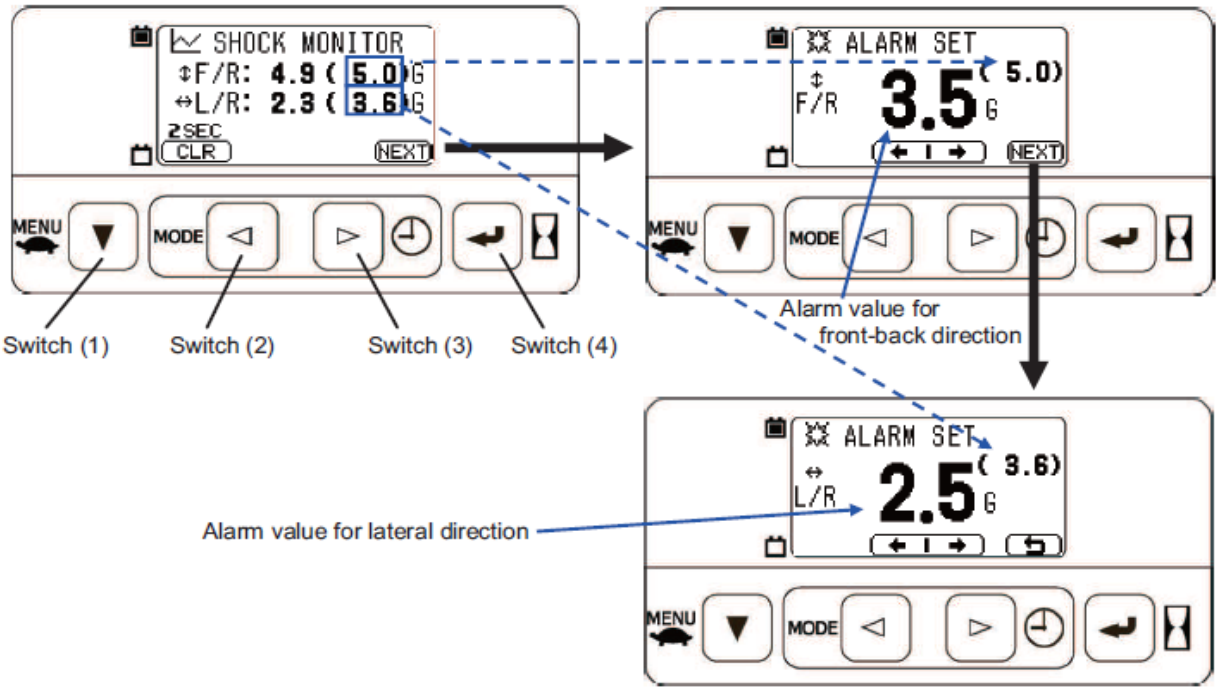
By measuring the shock value and the detected peak shock values while measuring by the shock monitor, you can determine and set appropriate shock detection values.
To display this screen, use Switches (1) and (4) and select the [MONITOR/SET] menu.
To zero clear the detected peak detection value, keep pressing Switch (1) [CLR] for two seconds or enter this screen again.



Note that the measurement values are not perfectly accord with acceleration of shock occurring on vehicles.

(2) Shock sensor warning setting

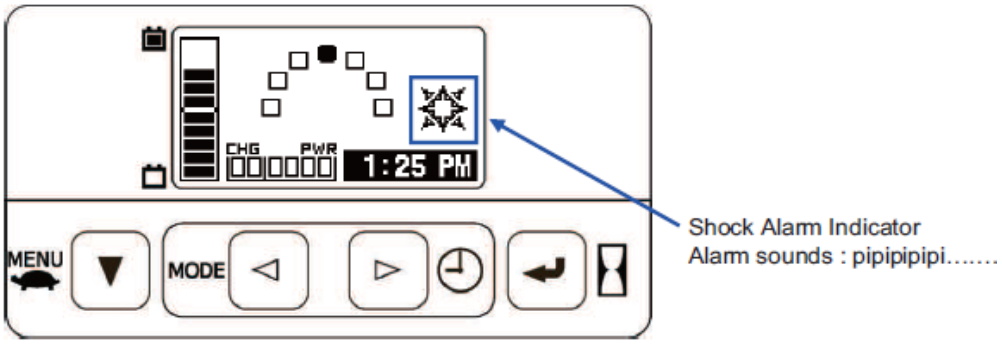
You can set shock sensor values in each of longitudinal and lateral directions based on the peak shock value detected by the shock monitor. Setting optimal values reduces false detections during normal operation and increases the possibility to detect actual crashes.
Press Switch (4) [NEXT] on the shock monitor screen to display the screen for setting values in longitudinal direction, and press Switch (4) again to display the screen for setting in lateral direction. You can set shock detection values using Switches (2) and (3) in the range between 1.0 G - 15.0 G (by 0.1 G).



It is important to set the shock detection values carefully considering the detected peak shock value and actual operation at the time.

3) Shock Detection and Warning Operation

In the case shock exceeds the shock detection value set in either of the longitudinal or lateral direction, the shock detection indicator appears and the alarm sounds to warn the operator.



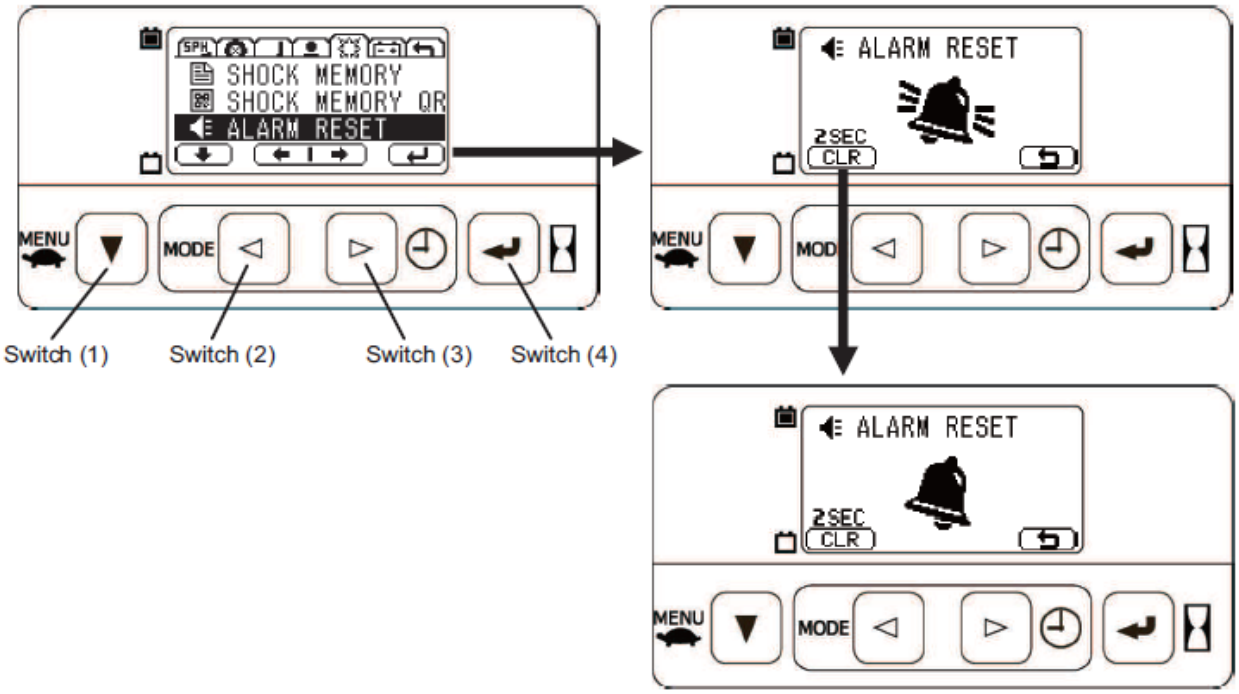
Even if once the operator turns the key-switch to off or disconnect the battery connector, the alarm will resume when the key-switch turns on and battery is connected.
The detected shock value and the date and the time of shock occurrence is recorded by Multifunction Display. On the vehicle with PIN Code Entry System [L38B], the PIN code is also recorded.

Note:

- The shock detecting, alarm and recording function is ineffective before the hour meter being started.

4) Shock Detection Warning Clear

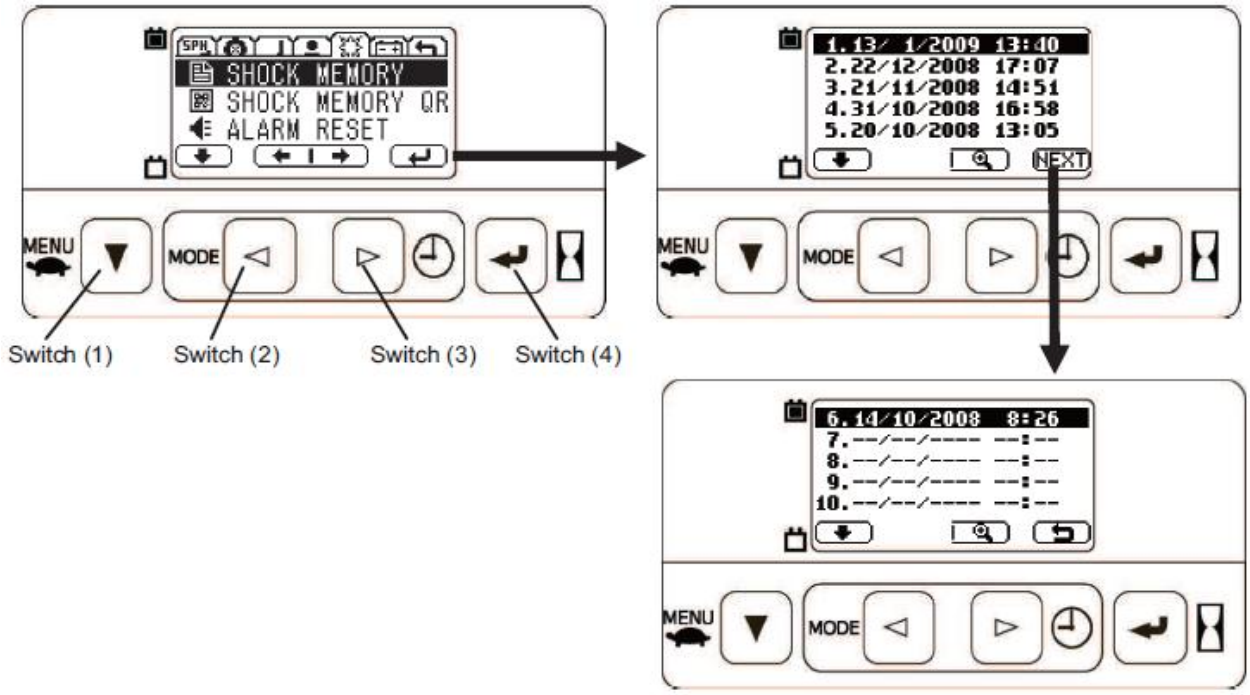
The alarm can be released by alarm reset screen of the manager setting menu.
To display this screen, use Switches (1) and (4) on the shock sensor menu to select the [ALARM RESET] menu. To reset the alarm, press Switch (1) [CLR] for two seconds.



5) Shock Detection Record Indication

(1) Shock memory

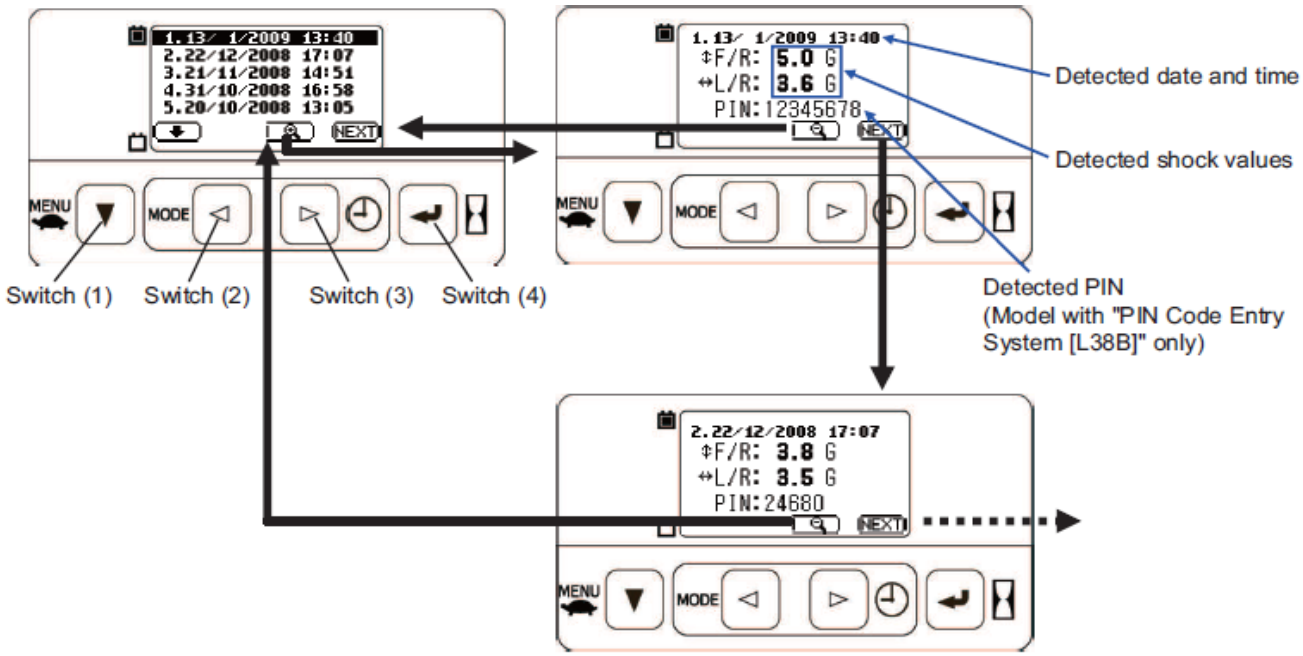
The information of the detected shock can be checked at the [SHOCK MEMORY] screen of the manager setting menu. To display this screen, use Switches (1) and (4) on the shock sensor menu to select the [SHOCK MEMORY] menu.
On the initial screen, shock record memories No.1 - 5 are displayed.
On the same screen, shock record memories No.6 - 10 will appear by pressing Switch (4).



Up to ten shock records can be stored.
After all the ten memories are used, the most recent shock record will overwrite the oldest record.

(2) Detailed data of the shock memory

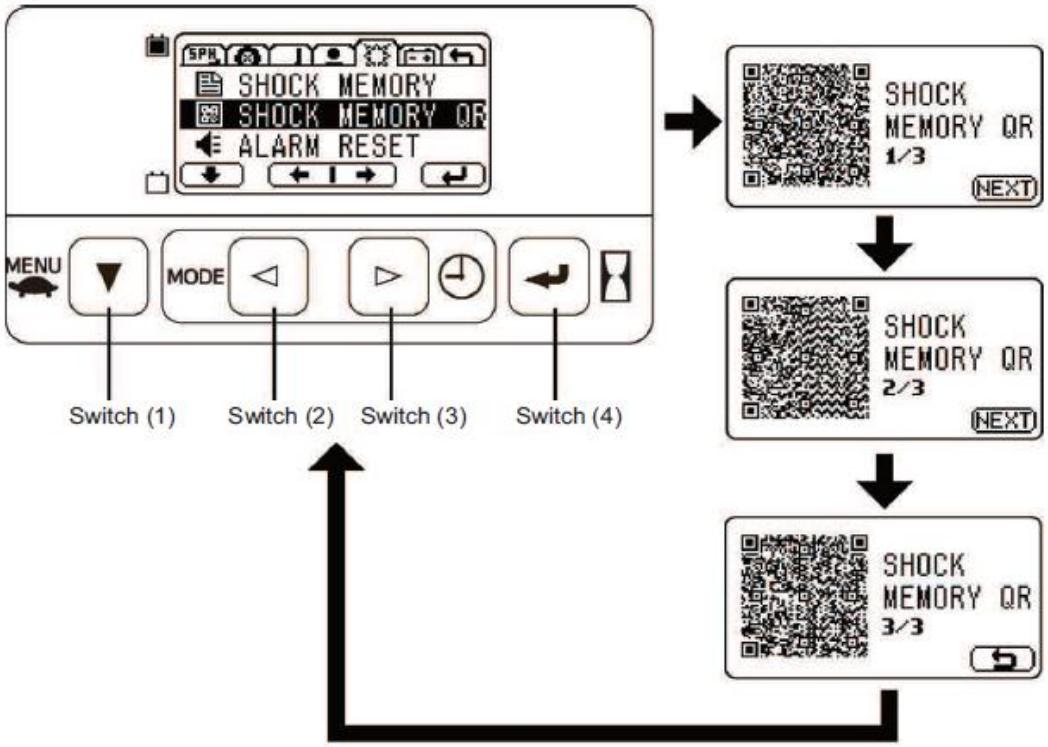
On the manager setting menu shock memory list screen, the manager can check the detailed mamory list by pressing Switch (3) [Loupe + (plus)] on the memory to be thoroughly checked. On this shock record data screen, the detection date and time and detected shock values in longitudinal and lateral directions will appear. For models with PIN Code Entry System [L38B], the PIN code is also displayed. These data ensures safe operation and better operator management. On the shock memory list screen, press Switch (4) [NEXT] to check the next memory, and press Switch (2) [Loupe - (minus)] to return to the original damage record list screen.



(3) Shock record QR code display

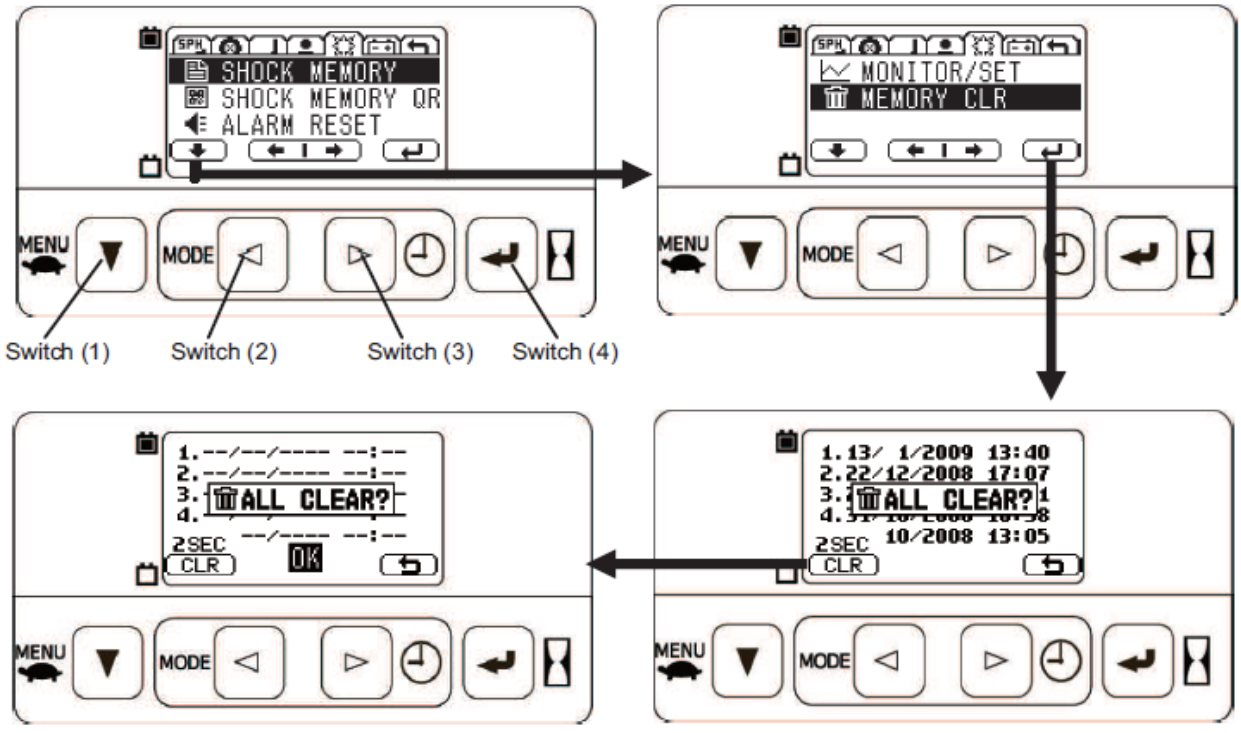
To display the QR code, press Switch (4) on the [SHOCK MEMORY QR] screen of the manager setting menu. Every time Switch (4) is pressed, each of subsequent QR codes is displayed. Three QR codes will appear in total.

By using the QR code, you can easily take the shock record data stored on the forklift.



6) Deleting Shock Memory

Stored shock memories can be deleted on the [MEMORY CLR] screen of the manager setting menu. To display this screen, use Switches (1) and (4) on the shock sensor menu to select the [MEMORY CLR] menu. To delete records from the memory, press Switch (1) [CLR] for two seconds.



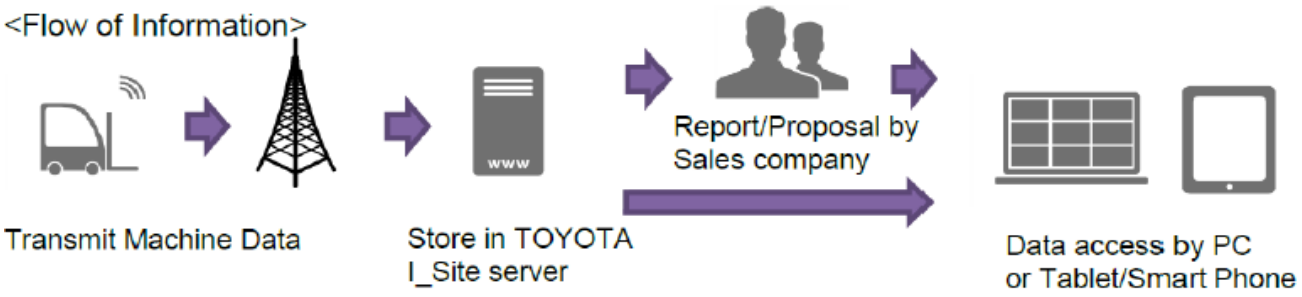
7. Toyota I Site [L39C], [L39D],[L39E]

Telematics(*) for forklift :

Transmit the data of utilization by machine/driver, shock and battery condition etc. to TOYOTA I_Site server using electric device and visualize on PCs and tablets/smart phone.

(*): the technology of sending, receiving and storing information via telecommunication devices in conjunction with affecting control on remote objects

<Flow of Information>



- Store Customers' data to TOYOTA I_Site server
- Customers can access utilization by PC or Tablet/Smart Phone (No need to install new application.)
- Make report/proposal by sales company

1) Sales Points of TOYOTA I_Site

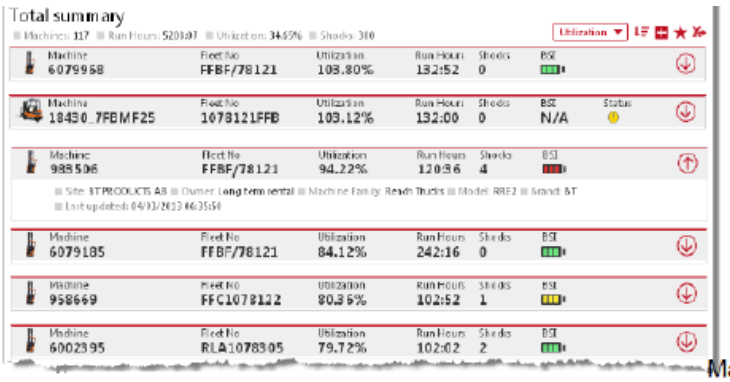
Items	Sales Points	Improvement
Utilization	Visualize utilization time of key-on, lifting, traveling, operating rate etc. by machine, driver, site.	Productivity, Cost Reduction
Battery Management	Visualize data of battery charge/discharge.	Cost Reduction
Shock	Data of frequency and level of shocks by using sensor.	Safety, コスト削減
Operator Access	Select driver by machine using PIN※ code ※PIN(Personal Identification Number)	Safety, Cost Reduction
Pre Ope Check	Safety check of machine before operation	Safety

2) TOYOTA I_Site Function Outline

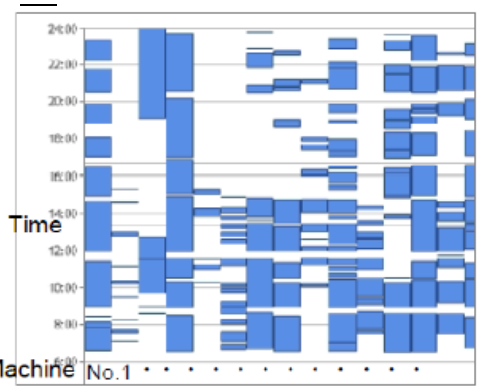
(1) Utilization

Visualize utilization of key-on, lifting, traveling by machine, driver, site etc.

Utilization by machine



Utilization graph by machine



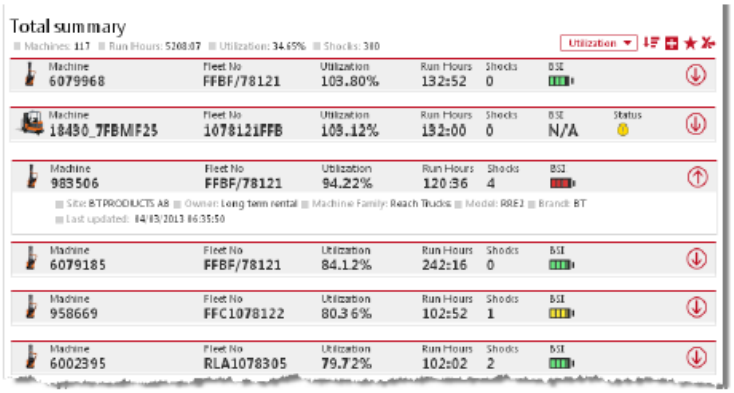
i)Productivity : Efficient utilization of machines, drivers

ii) Cost Reduction : Machine management, Driver management

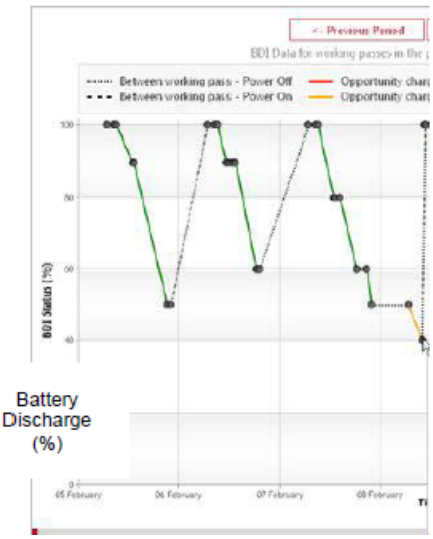
(2) Battery Monitoring

Visualize battery charge/discharge

Battery status



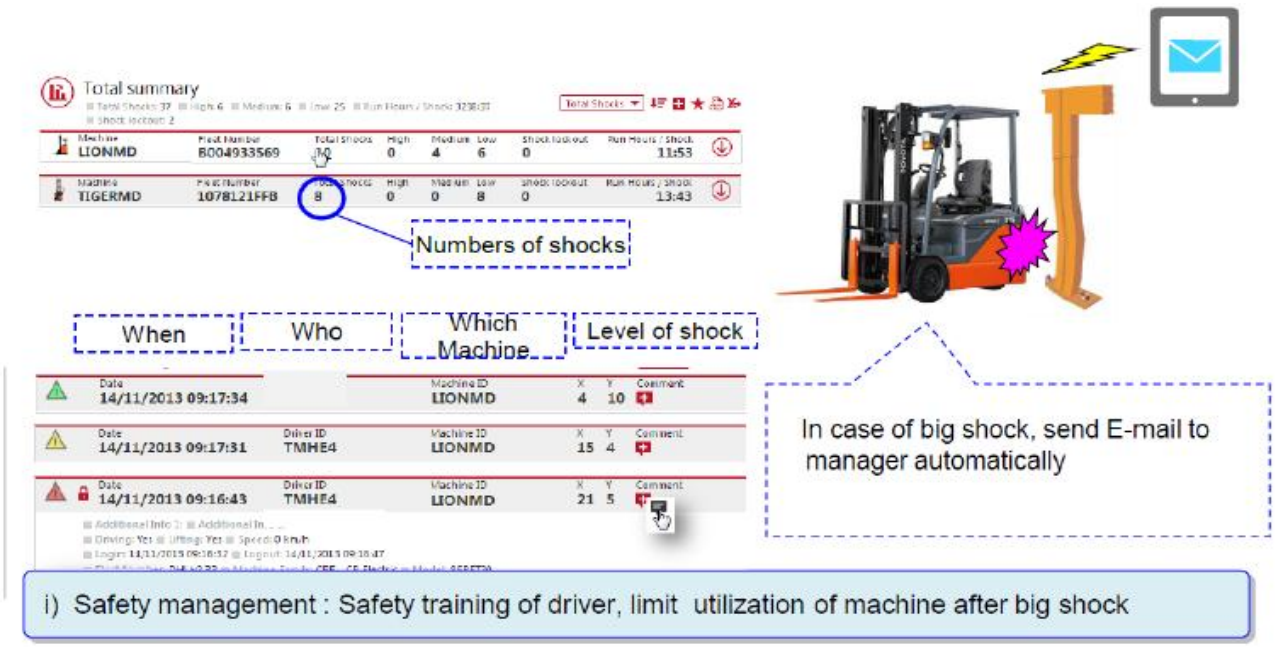
Battery charge/discharge graph



i) Cost Reduction : Efficient utilization of battery (battery charge timing)

(3) Shock Reports

Data of shock frequency and level using sensor

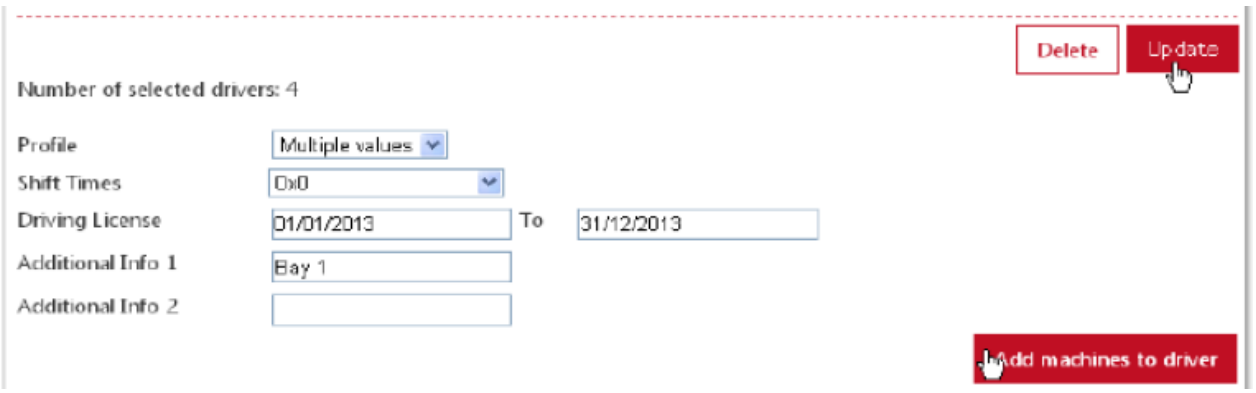


(4) Driver Access

Limit driver to machine by using PIN code access

Able to set machine performance according to the level of driver's skill

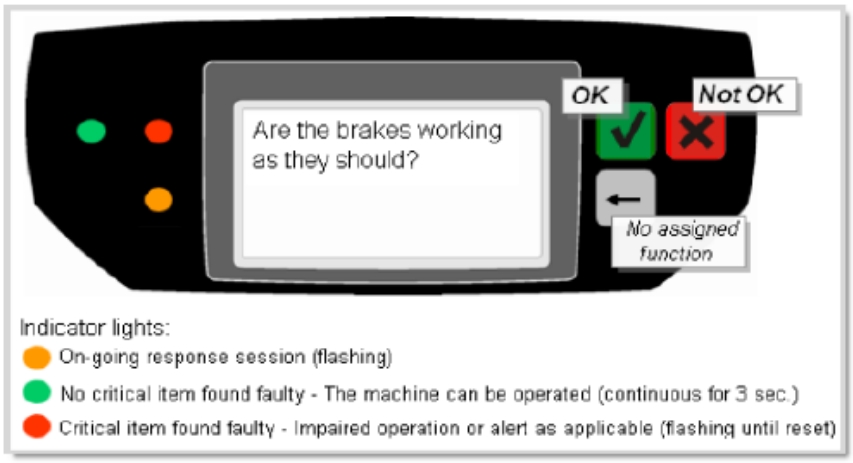
Driver details



(5) Pre Operational Check

Pre Operational Check (POC) on Display

The Pre-Operational Check (Pre-Op Check or POC) feature is based on checklists for the control of the machine condition. The lists are created by means of the Toyota I_Site web interface and transmitted to an on-board panel. The checklist has to be completed directly after machine log-on. The completed checklist is communicated back to the web site for follow-up. If a control response indicates hazardous operation, the machine operation will be impaired or an alert triggered as applicable.



Pre Operational Check (POC) Result

Click [Results] in the left navigation column to get to the dialogue window.
The performed safety checks during the selected time period are listed in chronological order.

3) Action Items to start Sales to Customers

(1) Sales to Customers

Need to check the communication environment of customers

- TOYOTA I_Site use telecommunication of 3G/GPRS.
- Please check service area of telephone company.

Explain to customers about telephone/server charge

(2) Preparation of activating I_Site

Prepare special service tool to activate telephone communication

- TruckCom software installation to PC
- Castor USB
- PC-CAN cable

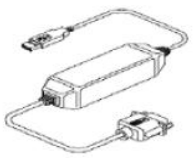
You can order caster USB and cable thorough parts dept.

Distributors need to inform customer site and truck information to the person in charge in TMHI AB.
(Details will be informed to each Dist. later when new customer request I_Site option.)

Register drivers information to I_Site.
(Register at least one operator on I_Site WEB)

Activate data by multi function display.
(Change using multi function display and activate these functions)
Start data collecting before hour meter start.

Activate using Special Service Tool.
Start telephone communication.



<Castor-USB, P/N 09250-82110-71>

<PC-CAN cable, P/N 09561-12640-71>

(3) Register customer operator information

Access to TOYOTA I_Site web

<TOYOTA I_Site URL> https://toyota-isite.eu

Input User Name and Password and Log on

Select [Manage Site]

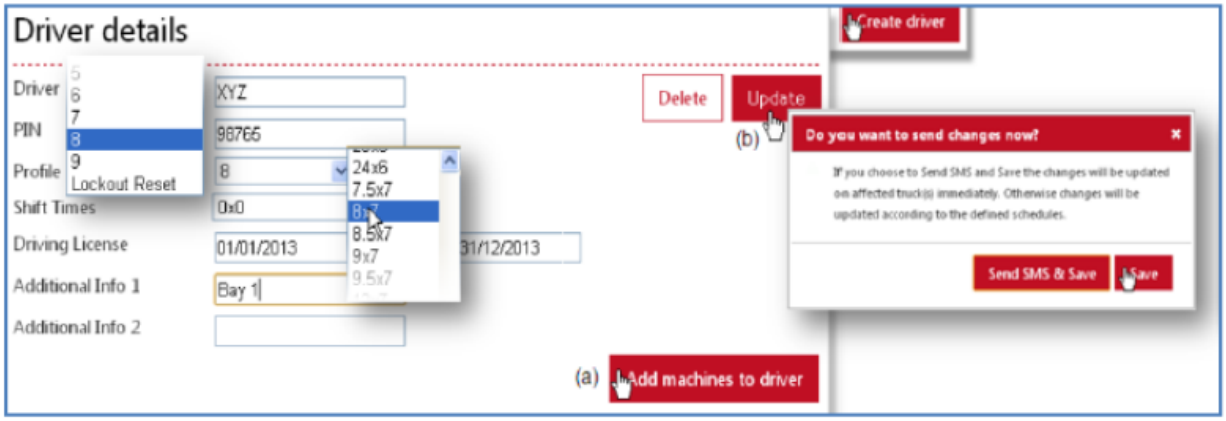
Create Drivers

Select Create Driver

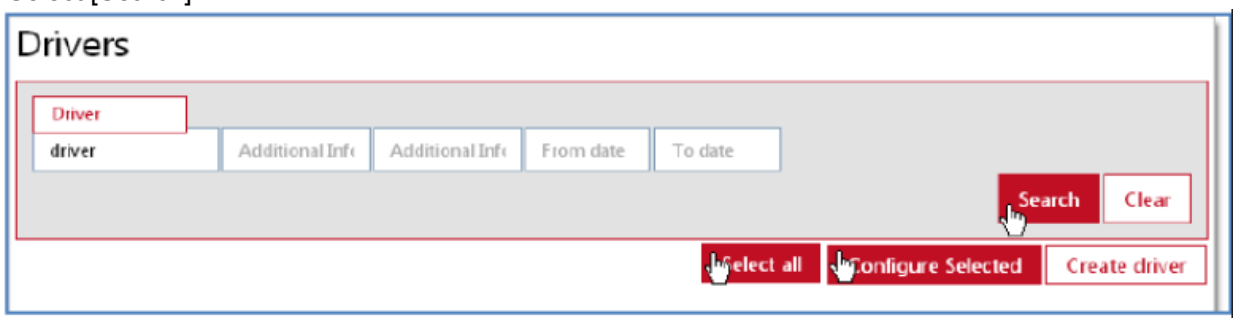
Input Driver name, PIN code(5digit numbers) and select create drivers

Select profile No. from drop down list
Select [Operating hours per day X Days] from Shift Times drop down list.

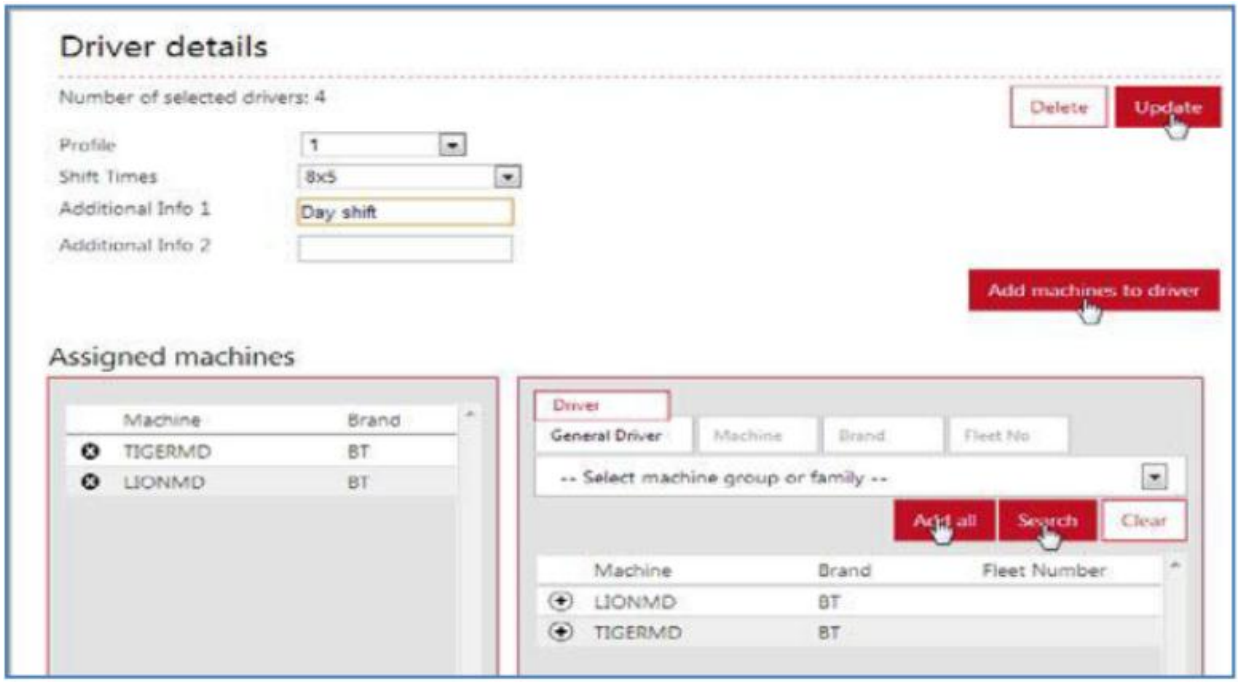
Select [Add machine to driver]



Select [Search]



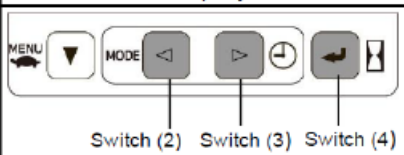
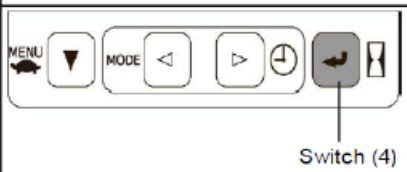
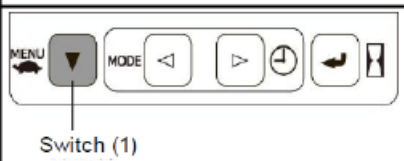
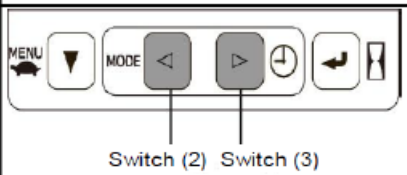
Select [+] (Select add machines to driver) or [Add all]



Check driver to add machines and select [update], then [save]

(4) Data setting (Activate)

Input Service Password

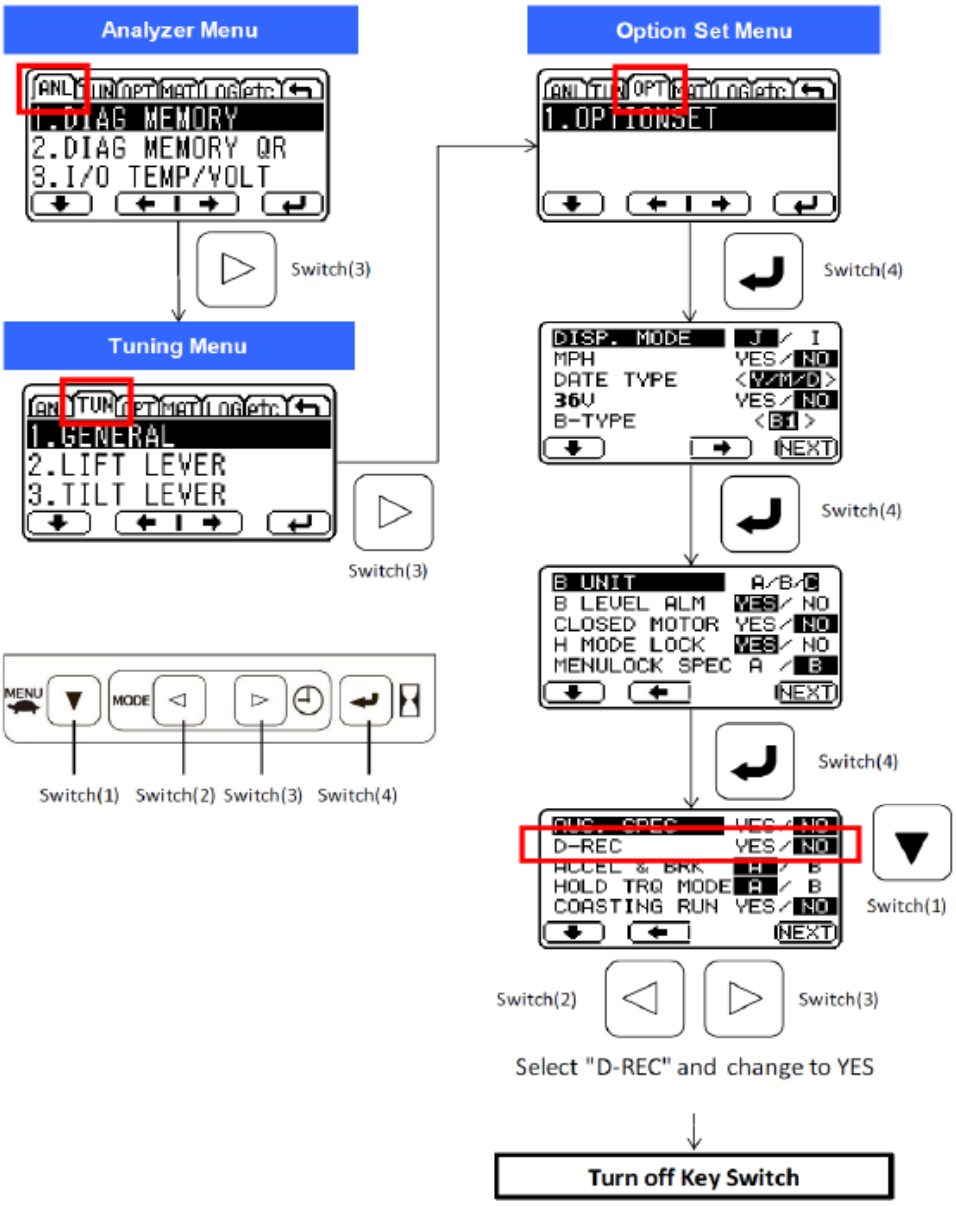
Step	Display	Procedure	Machine
1		Press Switch (2), (3) and Switch (4) at the same time for more than 2 seconds.	When pressing the switches, a short beep sounds, and after 2 seconds another short beep sounds.
2		Press Switch (4) within 10 seconds.	A short beep sounds.
3		Press Switch (1) within 10 seconds.	A short beep sounds.
4		Within 10 seconds, press Switch (2) and (3) at the same time for more than 2 seconds.	When pressing the switches, a short beep sounds, and after 2 seconds repeated short beep sounds.

5		Service function initial screen displayed for 5 seconds.
6		ANALYZER MENU screen is automatically displayed.

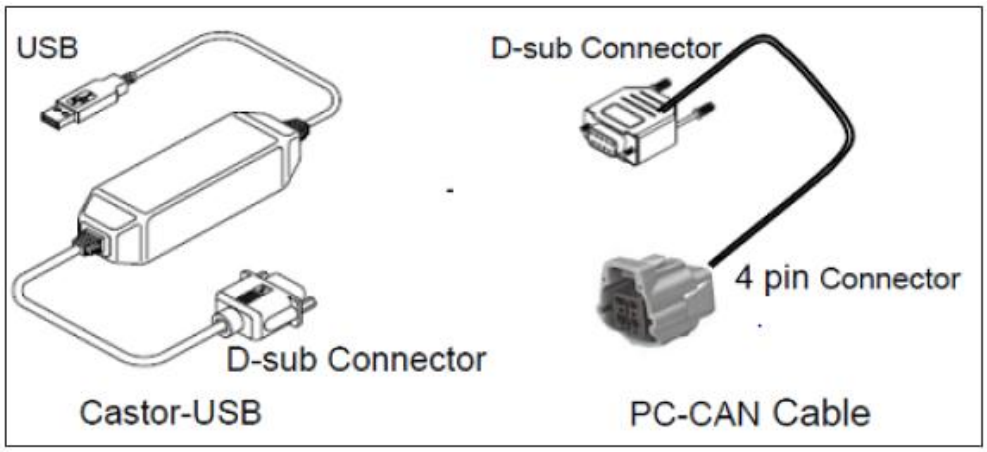
- Always operate the display switches with a finger-tips. If a sharp pointed tools is used, the switch may be damaged.
- If an operation error occurs during entry operation, turn the key switch OFF and re-enter from the beginning. If the SERVICE MENU cannot be displayed after several attempts, the system may be faulty.
- Don't tell the service password to customers.

D-REC Change

If T-site is needed to be effictive, please select Yes on D-REC.

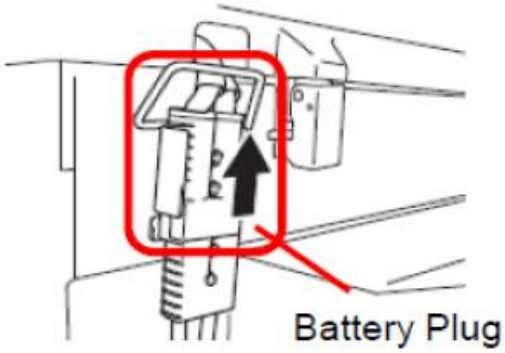


(5) Activate communication line
PC with TruckCom software installed
Castor USB・ PC-CAN cable
(Castor-USB・ PC-CAN cable is available as SST)

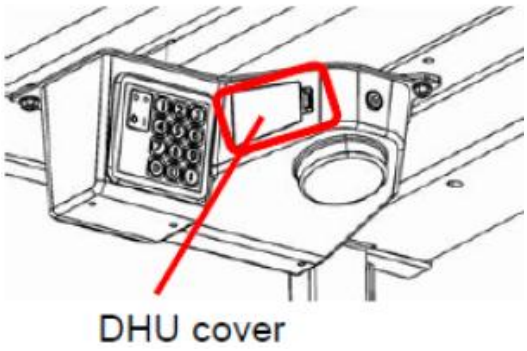


Connect Castor-USB to USB port of PC

Key switch off and remove battery plug



Remove cover of DHU box under the rear OHG
(DHU : Data Handling Unit)



Remove connector cap of service connector

Connect 4 pin connector of PC-CAN cable to service connector of DHU

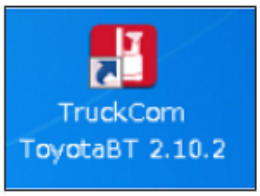
Connect D-sub connector of Castor-USB to D sub connector of PC-CAN cable

Connect battery plug

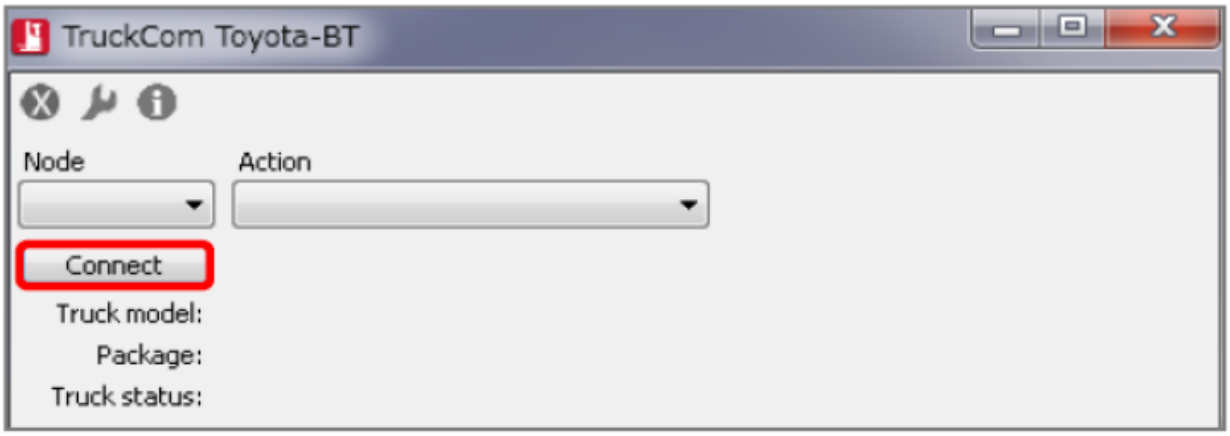
Key switch [On]

Sit on the seat

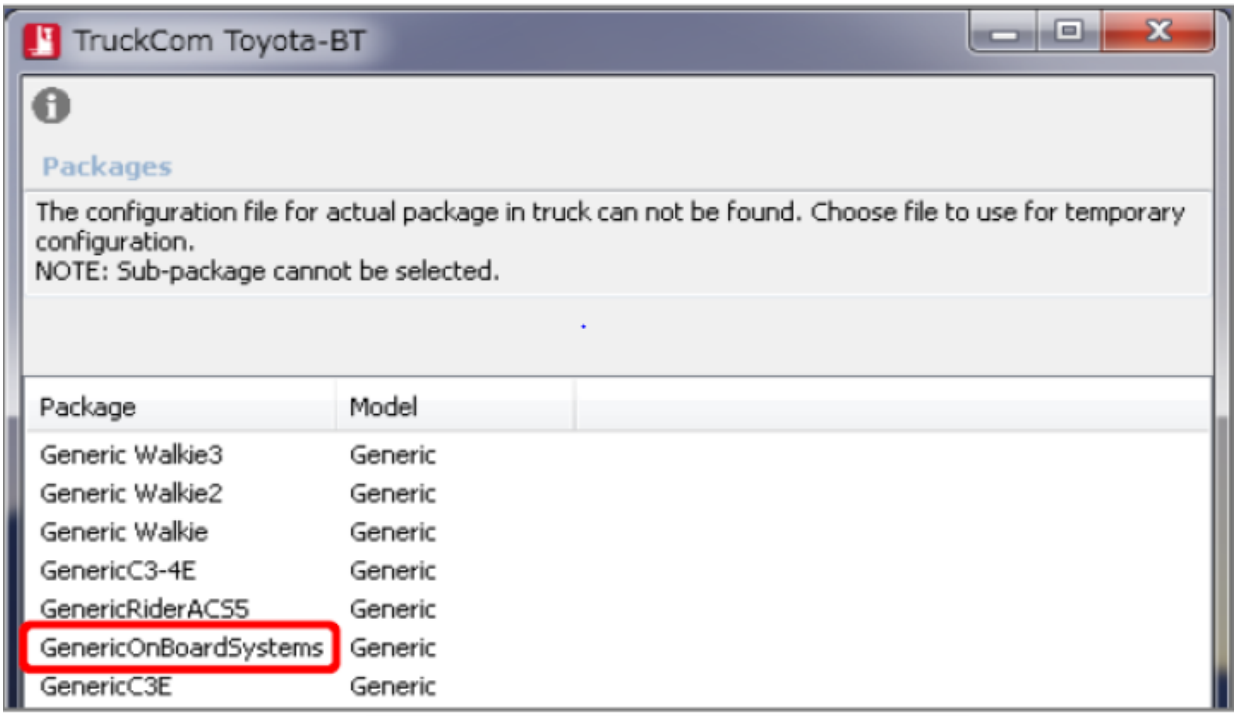
Start TruckCom [ToyotaBT Ver x.xx.x]
Double click the following icon on desktop



Click [Connect] and start communicating

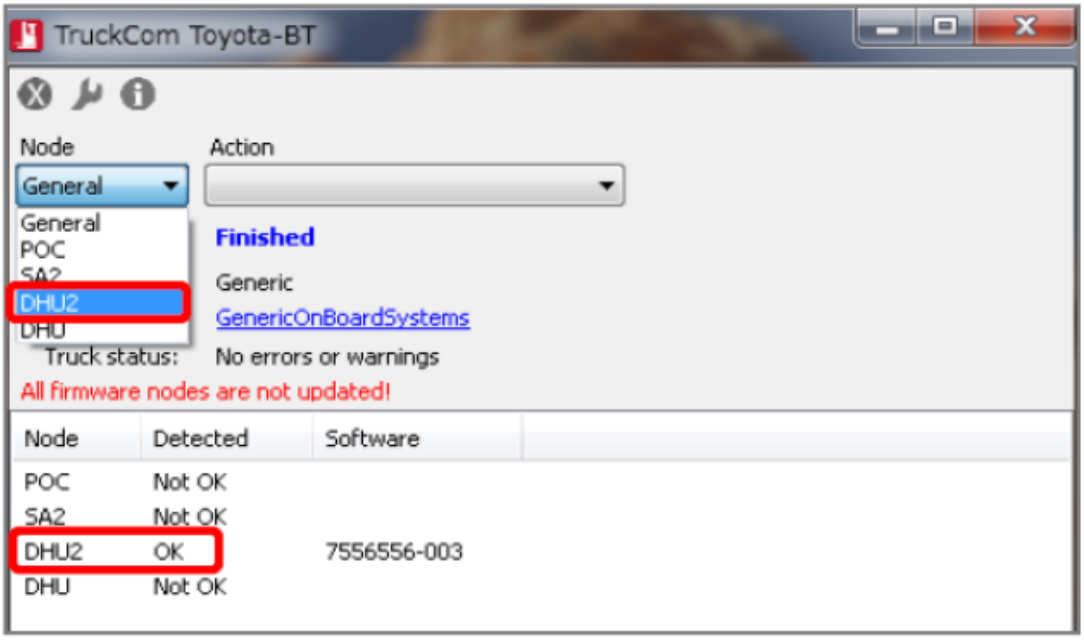


Select [GenericOnBoardSystems] from the list



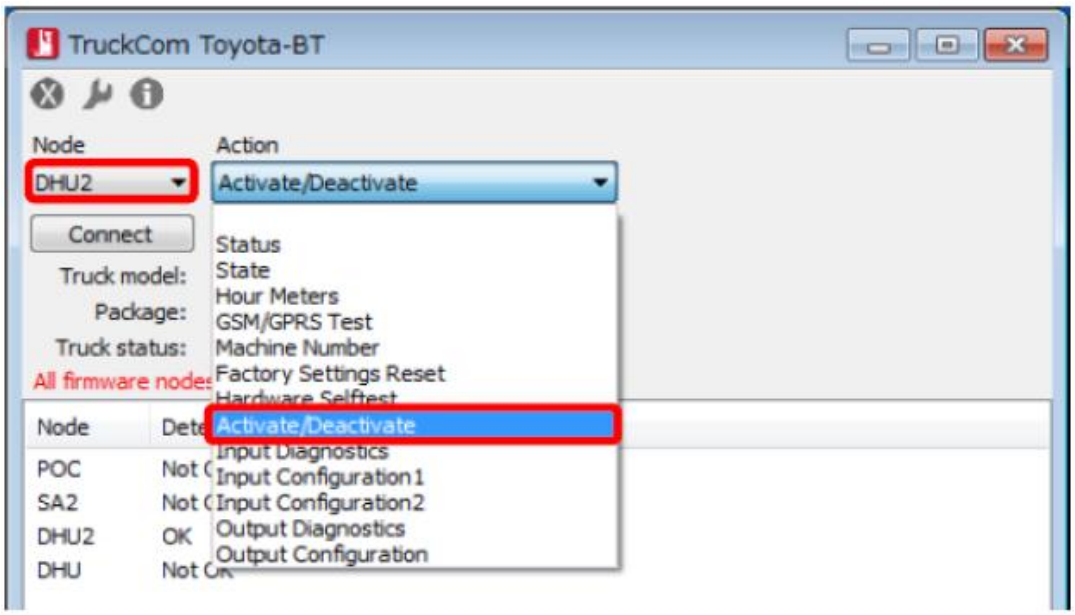
Check if [DHU2 OK] is appeared on the screen

Select [DHU2] from the Node list(Connection completed)

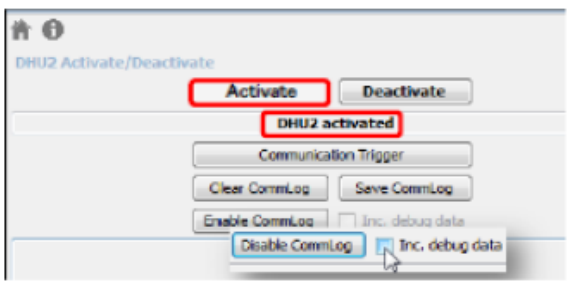


Check Node is [DHU2]

Select [Activate/Deactivate] from Action list



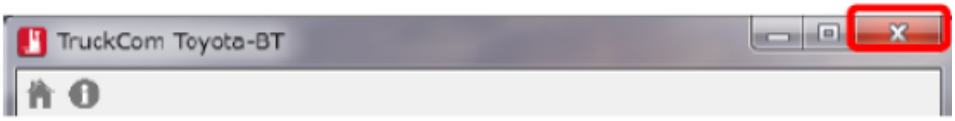
Check Activate button and select [Activate] (*)
(If [DHU2 activated] is appeared, activate completed)



(*) If Activate button does not appear, the electric wave situation might be bad.
In such case, use PIN 11111 and move machine to other location with better wave condition.

Click [X] of upper right corner and finish connection

Click [X] again and close TruckCom.



Key switch on and enter PIN, then log on
(Check lighting of display and no error)

Key switch off and remove battery plug

Remove Castor-USB and PC-CAN cable

Install connector cap and cover of DHU