

# ***U*** ***SER MANUAL***

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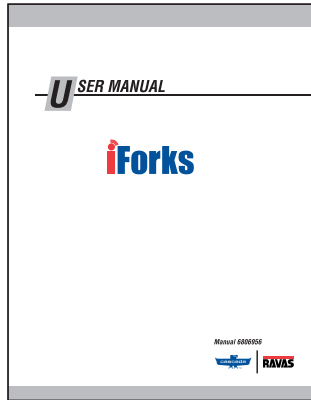
***Manual Number 6806956-R5***

**cascade<sup>®</sup>**  
**corporation**

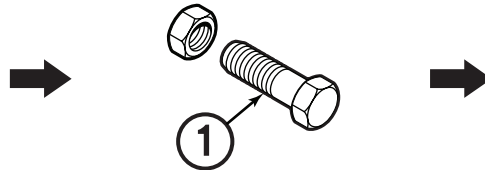
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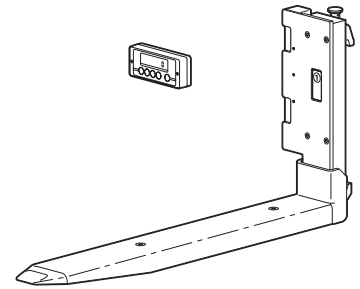
This manual describes the installation and use of the iForks. Read this manual carefully. The installer must be informed of the contents of this manual. Follow the contents of the manual precisely. Always do things in the correct order. This manual should be kept on a safe and dry place. In case of damage or loss the user may request a new copy of the manual from Cascade RAVAS.



***Read through  
user manual***



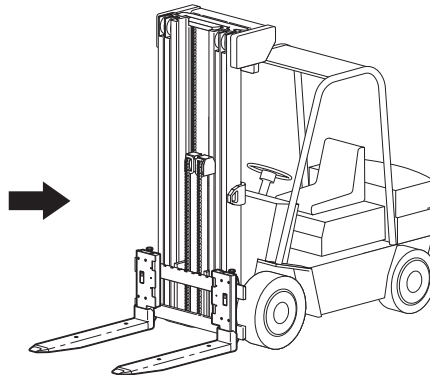
***Review parts***



***Install iForks  
system on truck***



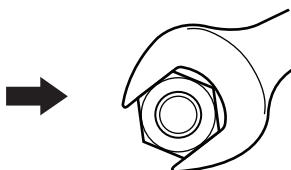
***Install batteries***



***Use system***



***Recharge or  
change batteries***



***Perform 2000 Hour  
Maintenance***

FK0034.eps

# WARNINGS & SAFETY MEASURES

When using iForks, carefully read the instructions and guidelines contained in this manual. Follow the steps shown to install the iForks system onto the truck. If any of the instructions are not clear, please contact Cascade RAVAS.

**IMPORTANT:** Field alterations may impair performance or capability and could result in loss of warranty. Consult Cascade RAVAS for any required modifications.

**No riders**



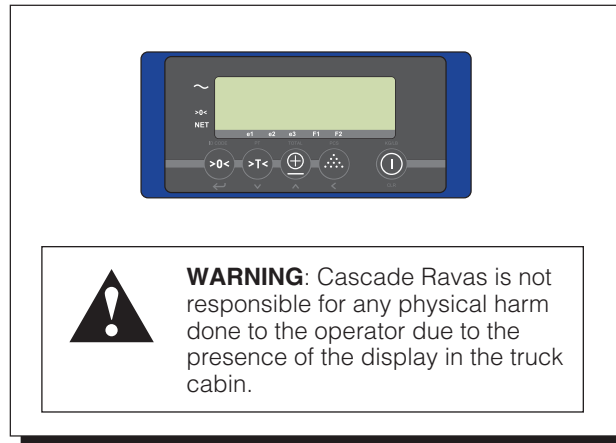
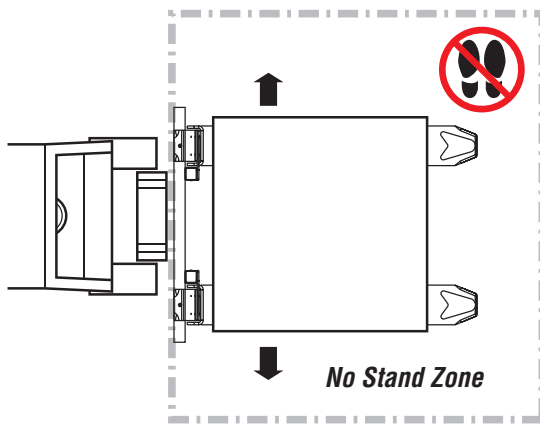
**No reaching through mast**



**No standing under load**



FK0112.eps



**WARNING:** Do not operate iForks unless you are a trained and authorized lift truck driver.

**IMPORTANT:** Cascade RAVAS is not responsible for errors that occur due to incorrect weighing or inaccurate scales. It is the responsibility of the purchaser to train their employees and to properly maintain iForks.

**IMPORTANT:** All safety regulations that apply to the truck remain valid and unchanged. Always follow the operating, maintenance and repair instructions for the truck.

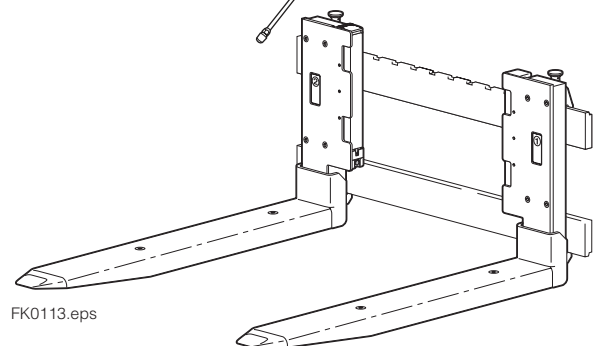
**IMPORTANT: Tampering or removing iForks NTEP Security wire or label will void NTEP Certification.**

**CAUTION:** High humidity and liquid applications can damage iForks. Verify iForks are pretreated with a coating to prevent rust and corrosion.

**CAUTION:** Environment and application can affect the iForks and how the system weighs. Verify that iForks suit proper conditions.



**No Pressure Wash**



FK0113.eps



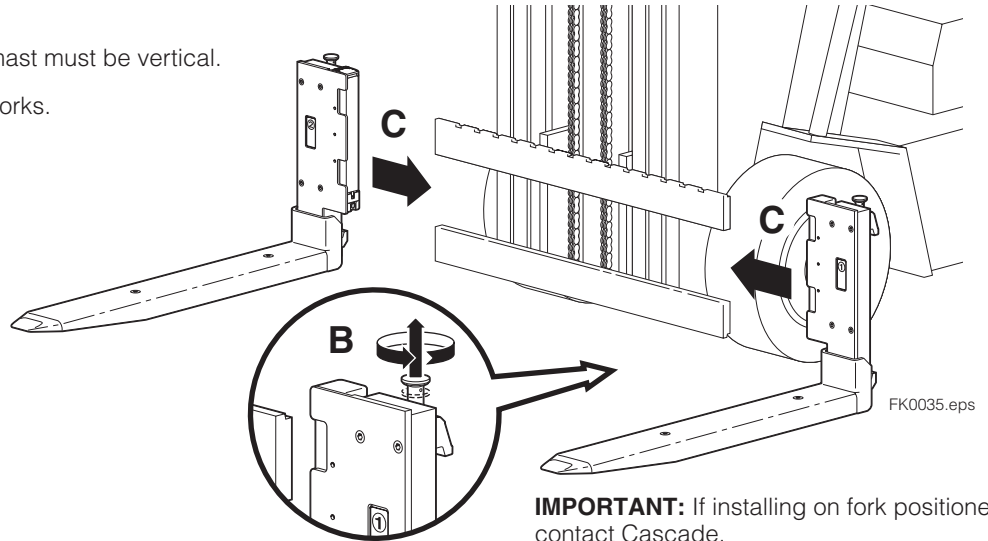
**Optimal Temperature Range:**  
**15° F (10° C) minimum**  
**105° F (40° C) maximum**

# INSTALLATION

## 1 Install iForks

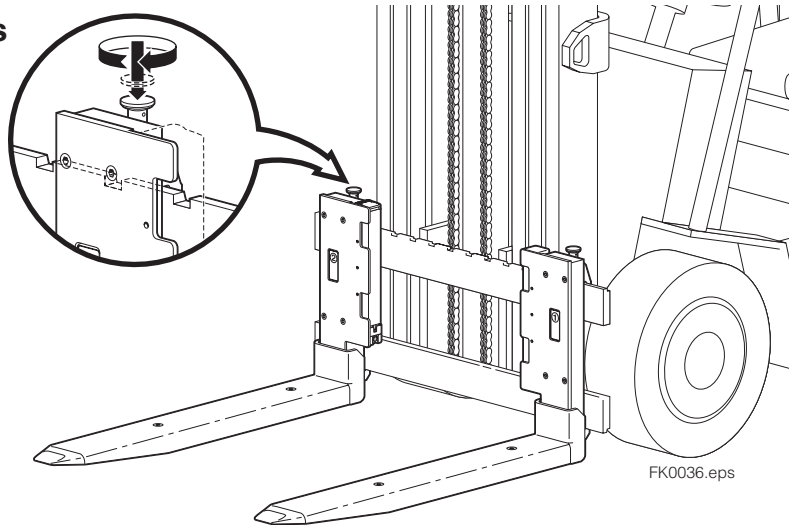
**IMPORTANT:** Truck mast must be vertical.

- A** Remove standard forks.
- B** Unlock iForks.
- C** Install iForks.



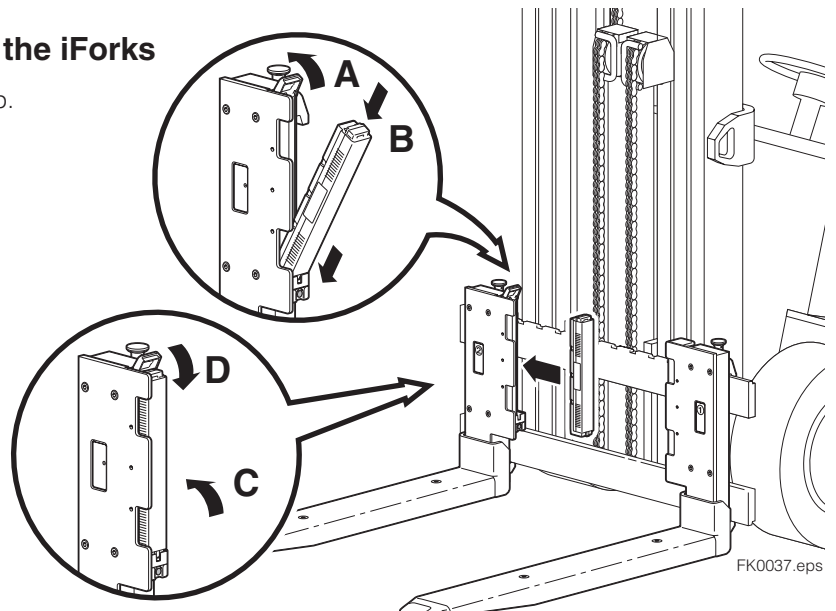
**IMPORTANT:** If installing on fork positioner, contact Cascade.

## 2 Lock iForks



## 3 Install battery packs into the iForks

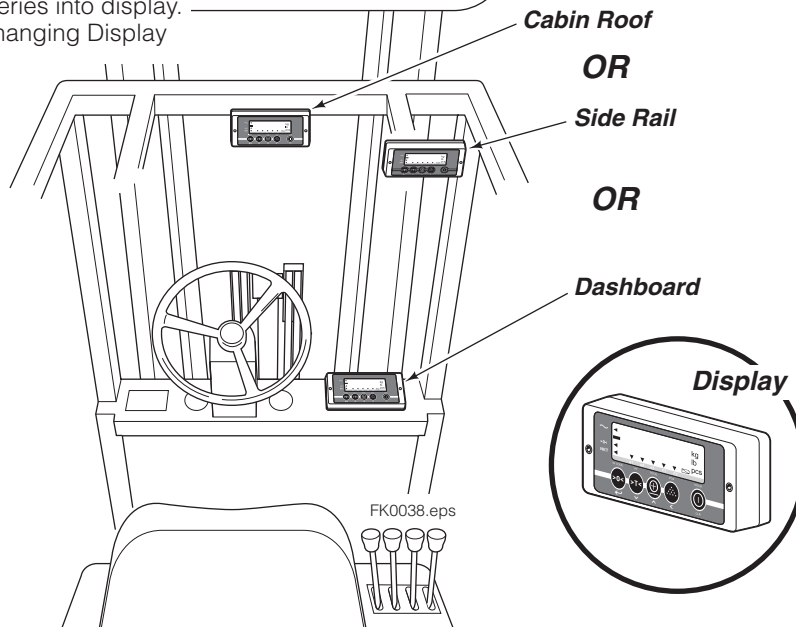
- A** Lift up battery holder locking clip.
- B** Position battery pack.
- C** Click into the battery holders.
- D** Secure the locking clips down.



## 6 Locate and mount the display

Find a suitable location for readout and easy access to display.

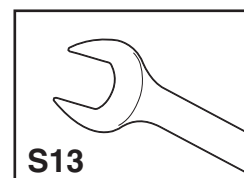
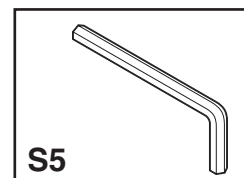
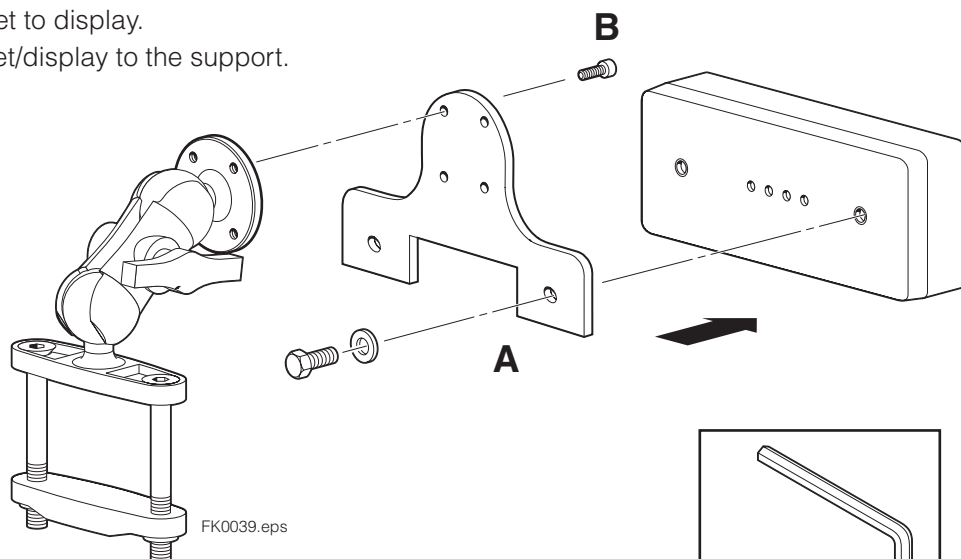
**NOTE:** If required, install batteries into display. Refer to Batteries Section, "Changing Display Batteries", page 17.



## 7 Install display bracket and support, if required

**A** Install bracket to display.

**B** Install bracket/display to the support.



# USING DISPLAY

## Functions

### Left of Display

When ◀ appears:

- ~ The weighing system (including load) is stable
- >0< The weight shown is within the zero range
- NET The display is showing the net weight

When ■ appears, the weight shown is negative

### Middle of Display


When ▼ appears:

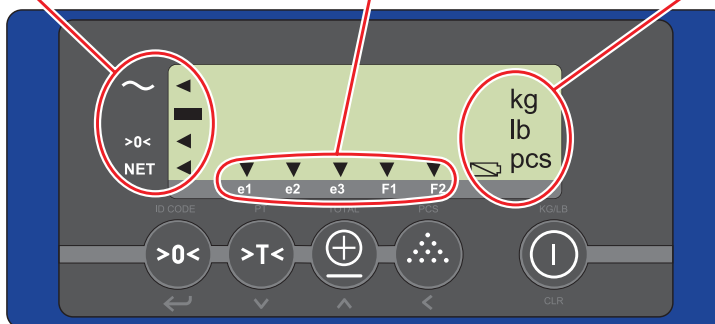
- e1** Weight shown is in .44 lb (.2 kg) steps; only for weight that ranges 0-441 lb (0-200 kg).
- e2** Weight shown is in 1.1 lb (.5 kg) steps; only for weight that ranges 441-1102 lb (200-500 kg).
- e3** Weight shown is in 2.2 lb (1 kg) steps; only for weight that ranges 1102-4850 lb (500-2200 kg).
- F1** Fork 1 relay setpoint 1 is activated.
- F2** Fork 2 relay setpoint 2 is activated.















**NOTE:** Smaller loads are weighed with higher accuracy. Example: If an original load with **e2** range selected is removed, and a smaller load qualified for **e1** range, the **e2** range will remain selected until the forks are zeroed.

### Right of Display

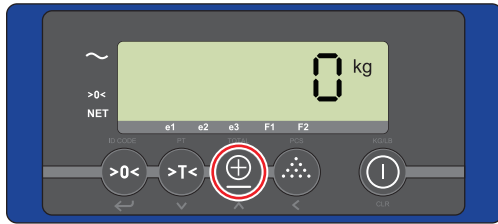
When the following appears:

- kg** Weight shown is in kilograms
- lb** Weight shown is in pounds
- pcs** Amount displayed is the number of pieces on the scale
-  Low battery indicator



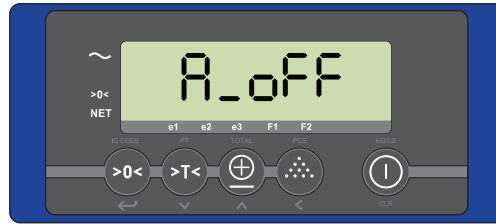
| Display Button  | Short Button Press  | 3 Second Button Press  | Entry Mode   |
|---|---|--|--|
| <b>ID CODE</b><br> |  Zero Setting - Manually zeros the display   | <b>ID CODE</b><br>Code Entry - A 5-digit code useful for a weighing system connected to peripheral equipment for later processing. |  Enter (accept value)                     |
| <b>PT</b><br>      |  Automatic Tare - Allows the tare weights to be reset to zero automatically. Added and subtracted weights can be determined.                 | <b>PT</b><br>Manual Tare - An entered tare weight at any moment.   |  Decrease the value of the digit flashing |
| <b>TOTAL</b><br>   |  Weighed load is added to total weight. If printer is installed, a printout is made.   | <b>TOTAL</b><br>Check subtotal and print total.  |  Increase the value of the digit flashing |
| <b>PCS</b><br>     |  Sampling a piece weight - Determined an unknown piece weight by sampling a certain number of pieces. Standard sampling amount is 10 pieces. | <b>PCS</b><br>Enter a piece weight - The last used piece weight or an entered value.   |  Shift to the next digit on the left      |
| <b>KG/LB</b><br>   |  On/Off  | <b>KG/LB</b><br>Toggle Units   | <b>CLR</b><br>Clear entry  |

### Display Menus



#### Weigh Mode

Options:  
 Net/Tare/Gross (Auto/Manual Tare)  
 Add weight/Subtotal weight/Total weight  
 Piece weight  
 Toggle units  
 Manual zero  
 On/off

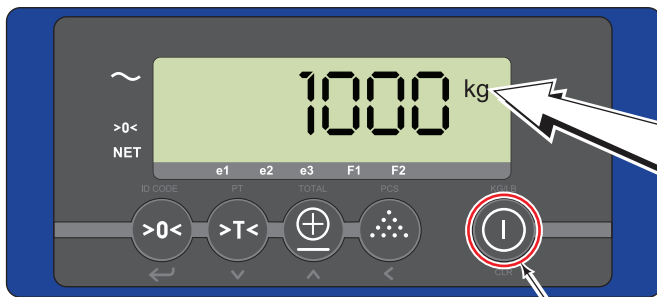


#### User Settings

Auto shut-off time  
 Light intensity  
 Deactivate/Activate Com Port 1  
 Deactivate/Activate Com Port 2  
 Alibi Memory

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### Select Weight Type



FK0042.eps

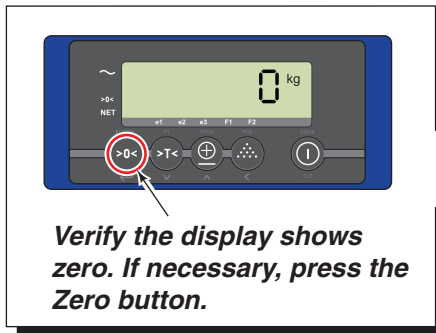




FK0085.eps

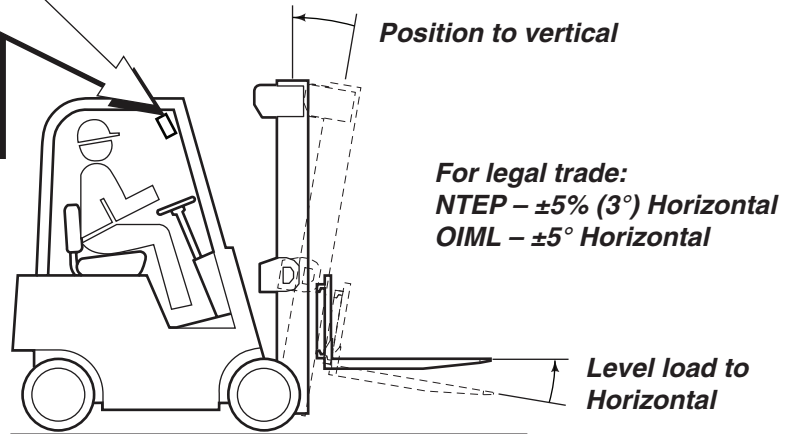
| Display Error Message | Meaning  | Out of error mode                            |
|-----------------------|--|--|
| Err01                 | Load cell signal is unstable                                     | Automatic                                    |
| Err02                 | Overload on full scale   | Automatic after removing weight              |
| Err03                 | Gross negative. This action is not allowed                       | Automatic                                    |
| Err04                 | Out of zero range  | Press any key                                |
| Err05                 | Sampling accuracy too low  | Press any key                                |
| Err06                 | Input signal too high  | Automatic after correcting input             |
| Err08                 | Calibration out of range (negative)                              | Automatic                                    |
| Err09                 | Calibration out of range (signal too low)                        | Automatic                                    |
| Err10                 | Calibration count 2nd(3rd) point lower than count 1st(2nd) point | Automatic                                    |
| Err14                 | Setpoint value 2 < setpoint value 1. This is not allowed         | Automatic                                    |
| Err97                 | Legal for trade version: not allowed action                      | Contact Cascade                              |
| Err98                 | Calibration point must be higher than previous one               | Automatic                                    |
| Err99                 | Action only allowed in startup units                             | Automatic                                    |
| ErrF1                 | Problem with fork 1 (no communication)                           | Restart indicator. Restart forks & indicator |
| ErrF2                 | Problem with fork 2 (no communication)                           | Restart indicator. Restart forks & indicator |
| -----                 | Load cell signal negative  | Lift up the forks from the ground            |
| L - _                 | Forks are out of level (only legal for trade version)            | Put the forks into horizontal position       |
| ErrCS                 | Problem with correction sensor                                   | Contact the Cascade Service department       |

### PRIOR TO WEIGHING



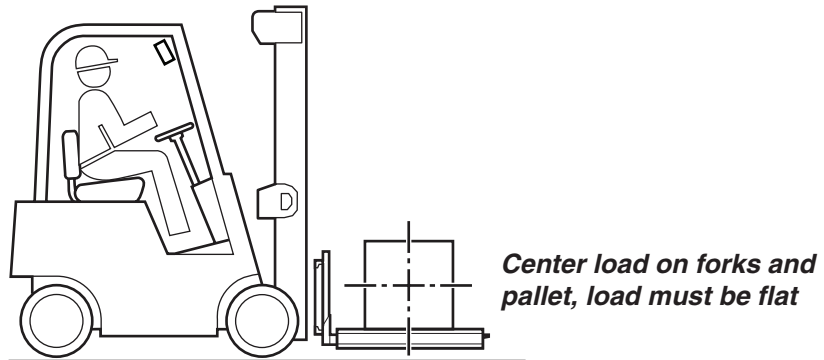
**Optimal Temperature Range:**  
 15° F (10° C) minimum  
 105° F (40° C) maximum

Verify iForks are free of obstacles prior to zeroing

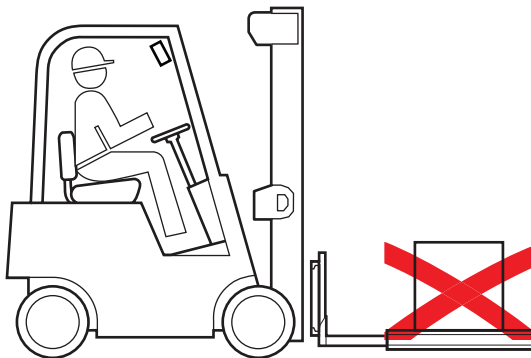


FK0043.eps

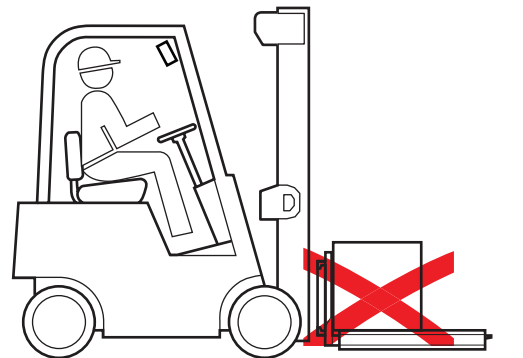
### HANDLING LOADS



FK0044.eps



FK0045.eps

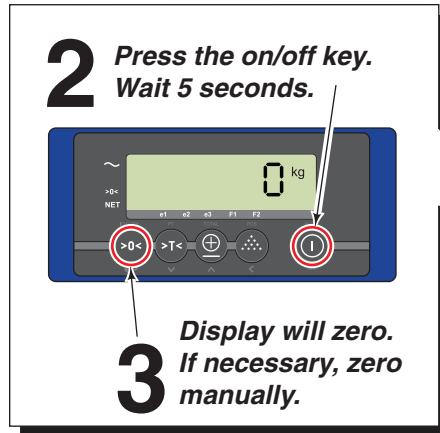


FK0046.eps

# USING iFORKS

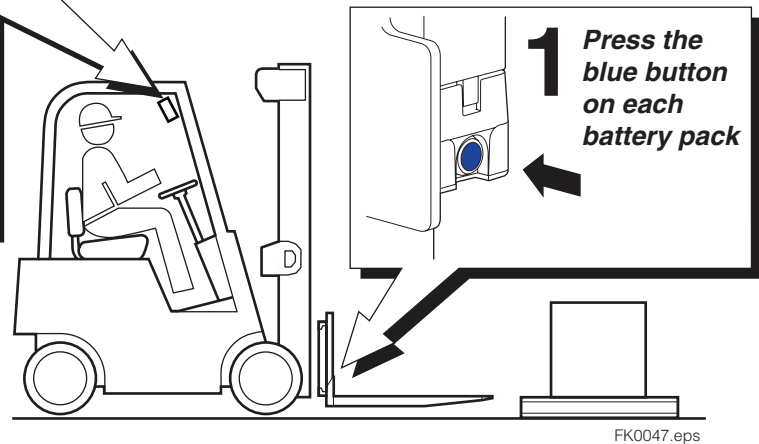
## Weighing a Load – Basic

To weigh a load:



### IMPORTANT:

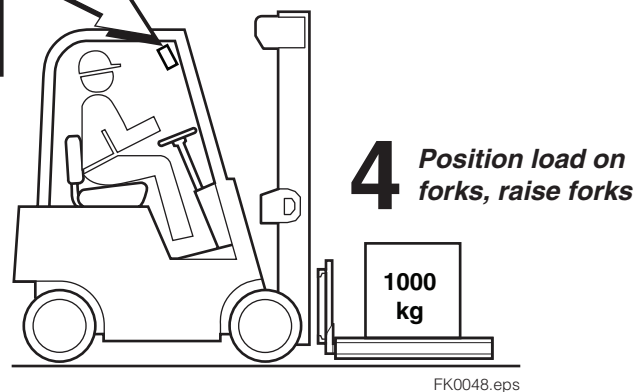
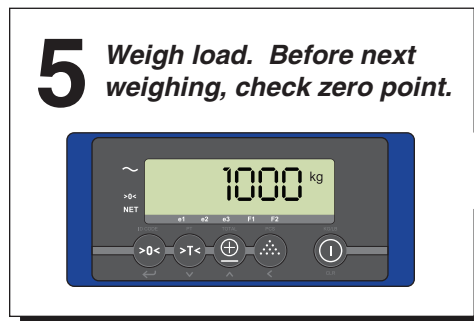
- At initial daily start up, allow 3-5 minutes for iForks system to warm up before weighing loads.
- If front face or bottom of iForks touches the load or pallet, it will not weigh correctly.
- Unstable weight readings indicate debris (ie. wood chips) between fork and fork shoe.
- If weighing liquids, more time is needed for display to show a steady weight.

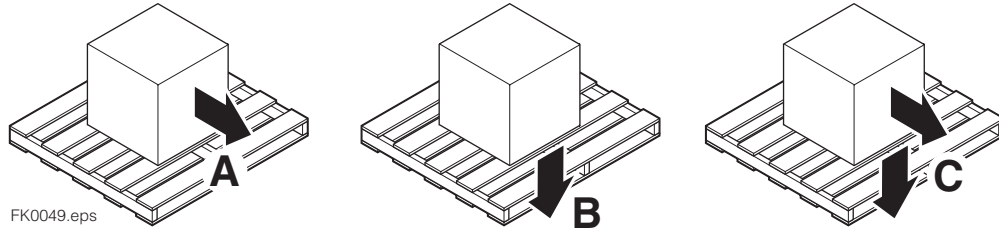


**IMPORTANT:** The display will show weight in graduations as follows:

| iFork Capacity                  | Display Graduation       |
|---------------------------------|--------------------------|
| 5000 lb. (2268 kg) – NTEP       | 5 lb. (kg not available) |
| 5000 lb. (2268 kg) – Non-NTEP   | 2 lb. (1 kg)             |
| 6000 lb. (2722 kg) – Non-NTEP   | 5 lb. (2 kg)             |
| 10,000 lb. (4536 kg) – Non-NTEP | 10 lb. (5 kg)            |

For example, on 5000 lb fork capacity iForks with a 35.5 lb. load, the display will show 36 lb. (Non-NTEP) or 35 lb. (NTEP).





$$\text{Net (A)} + \text{Tare (B)} = \text{Gross (C)}$$

**NET** – The weight of the load to weigh

**TARE** – The weight of an unladen load that is not included (pallet, bin, etc).

**GROSS** – The weight of the load and unladen load weights combined.

### Net Weighing: Automatic Tare

To weigh a load but disregard part of the load with an **unknown** weight (example: pallet):

**NOTE:** Display must be in basic weighing mode prior to performing the following steps (press on/off button for 3 seconds).

**Weight of pallet**

**2** Press the tare button

**1** Lift pallet

**3** Arrow will appear next "NET" and display will set to zero

**4** Net value will show (Load weight only)

**4** Weigh load

**Gross Weight (Pallet + Load Weight)**

**5** Press the tare button

NET arrow goes away

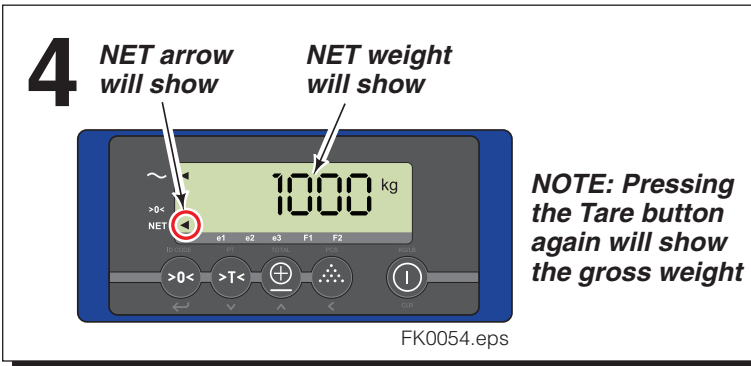
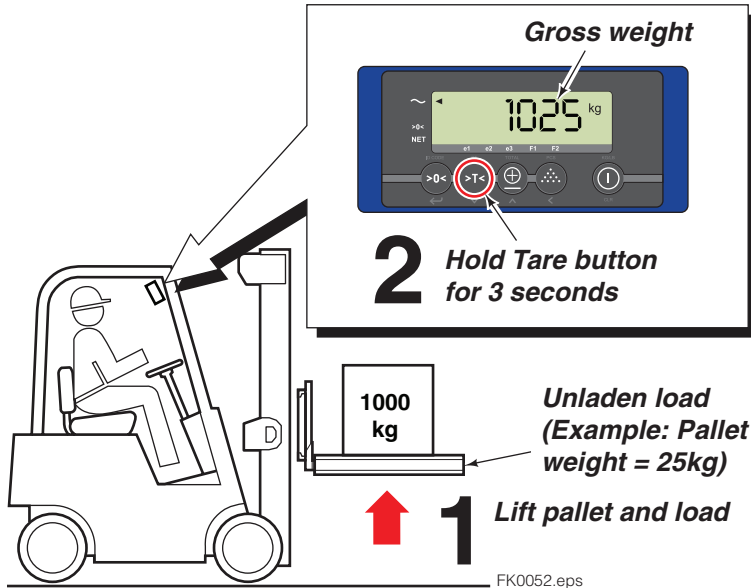
FK0050.eps

FK0051.eps

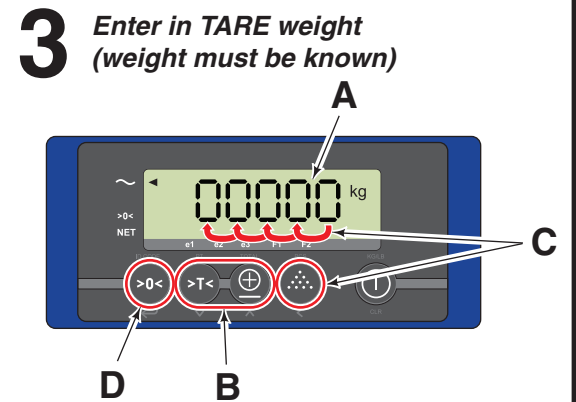
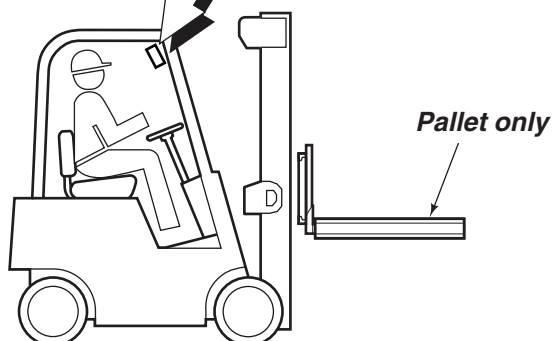
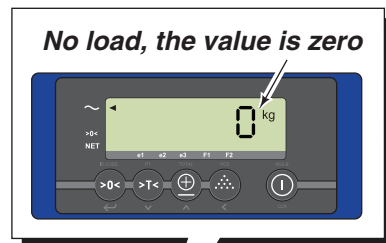
### Net Weighing: Manual Tare

To weigh a load but disregard part of the load with a **known** weight (example: pallet):

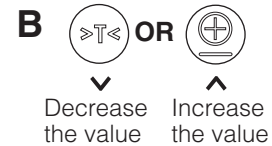
**NOTE:** Display must be in basic weighing mode prior to performing the following steps (press power button for 3 seconds).



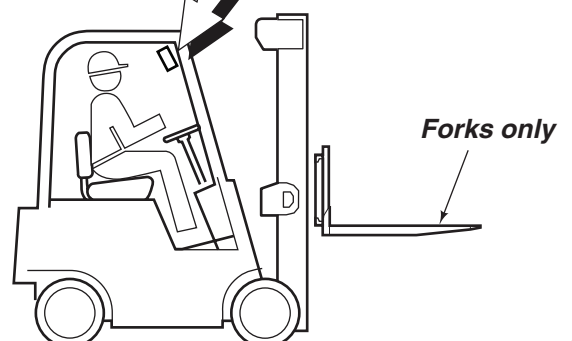
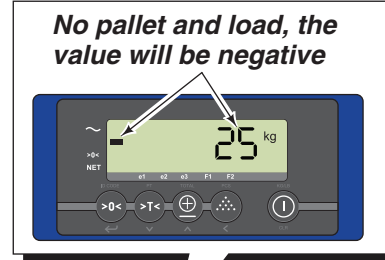
When no load is on the pallet (tare weight entered):



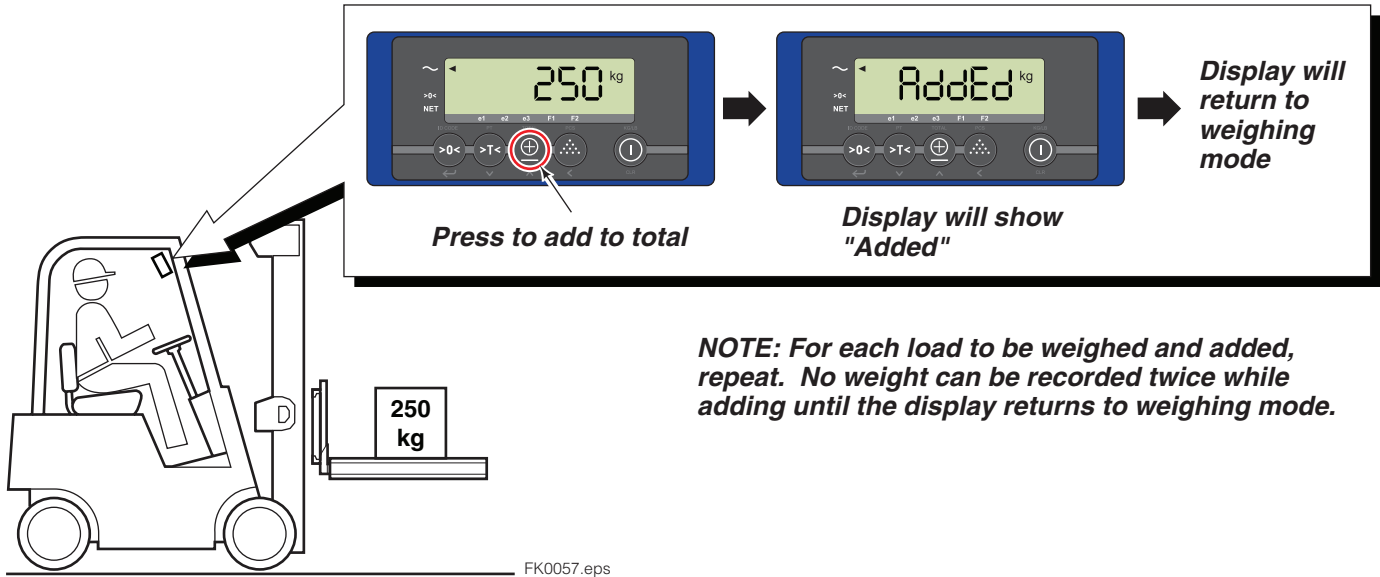
For flashing digit, while in entry mode, pressing buttons:



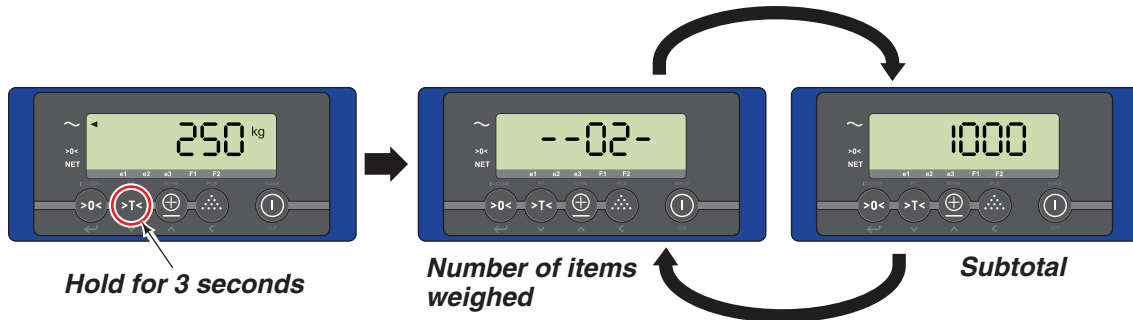
When no load and pallet on forks (tare weight entered):



To add a series of load weights and total:



During the next 3 seconds, the following flashes:



If one of the buttons is pressed during flashing:



**Total is reset**



**For printer option, total is printed and total is reset**

**NOTE:** If no button is pressed during the flashing, the subtotal stays in memory, and the system returns to the weighing mode after 60 seconds.

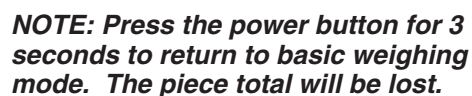
FK0058.eps

To determine an unknown weight by sampling a number of pieces. The number of pieces taken from or placed on the iForks determines the accuracy of the sampling. The standard sampling amount is 10 pieces (95 pieces maximum).

**1** Press Piece Weight Button

**2** Change digit, if necessary

**4** Press Enter Button



### 3 Add or take away counted pieces

FK0059.eps

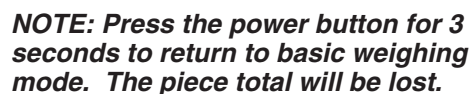
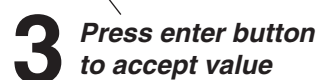
**1** Hold weight button for three seconds

**2** Change blinking digit

Selected digit flashes

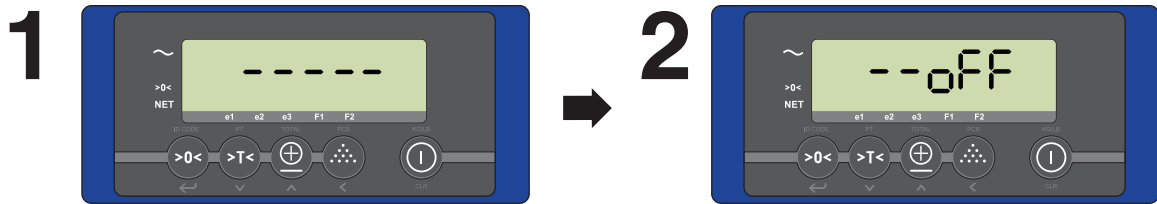
Move over digit, left

**3** Press enter button to accept value



# AUTO SHUT-OFF

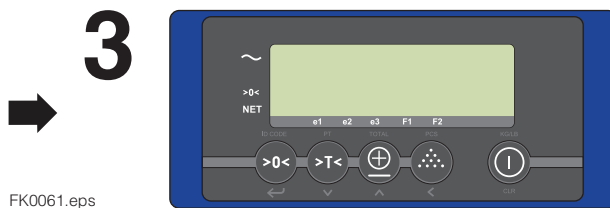
After 2 minutes of no action:



*On the indicator: Countdown  
Screen Shows*

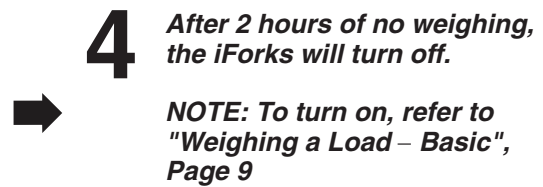
*Press any key to cancel auto  
shut-off and return to weighing  
mode.*

*After 20 seconds, off screen  
will appear*



FK0061.eps

*Indicator screen will be blank*



*After 2 hours of no weighing,  
the iForks will turn off.*

*NOTE: To turn on, refer to  
"Weighing a Load – Basic",  
Page 9*



| FUNCTIONALITY BLUE LED'S |  |
|--------------------------|--|
| DURING POWERING ON       | ON for 5 sec.                              |
| <b>FULL BATTERY</b>      |  |
| Working Mode             | Blink Time Interval<br>Once every 1.5 sec. |
| Sleep Mode               | Once every 4 sec.                          |
| <b>LOW BATTERY</b>       |  |
| Working Mode             | Twice every 10 sec.                        |
| Sleep Mode               | Twice every 10 sec.                        |

**IMPORTANT:** For three shift applications, change batteries every morning.

**NOTE:** Battery life will last up to 80 hours if the system is set at factory settings.

**The display will show when there is a low battery on the iforks:**

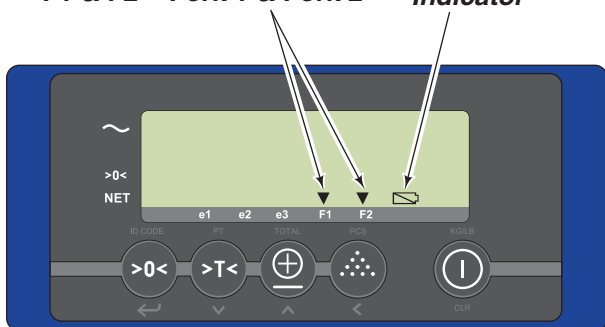
**Arrows for fork will blink:**

**F1 = Fork 1**

**F2 = Fork 2**

**F1 & F2 = Fork 1 & Fork 2**

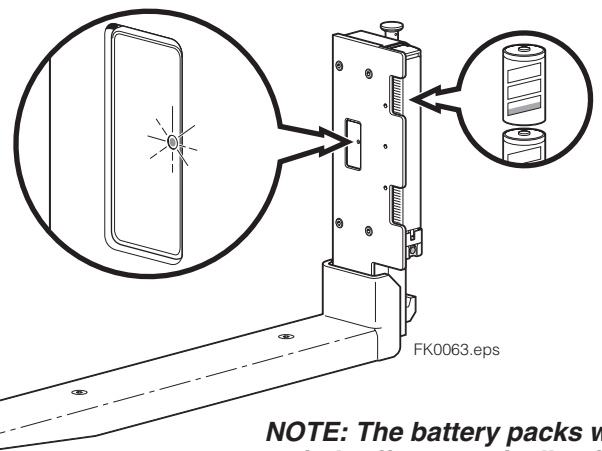
**Low Battery Indicator**



FK0062.eps

**Low Battery Indicator:**

The blue LED on the related fork will start blinking (2 times every 10 seconds)



FK0063.eps

**NOTE:** The battery packs will switch off automatically after 10 minutes of low battery.

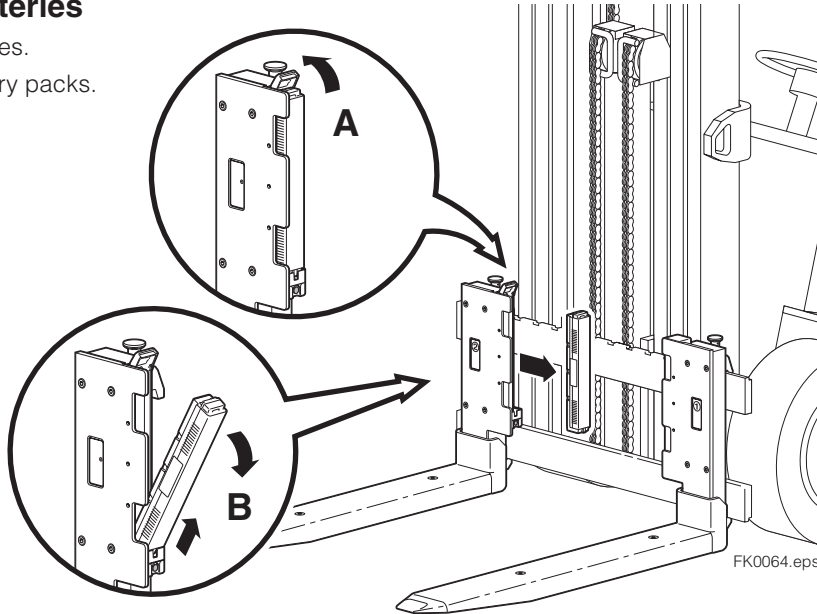
# BATTERIES

## Changing iFork Battery Packs

To change batteries on iForks, perform the following:

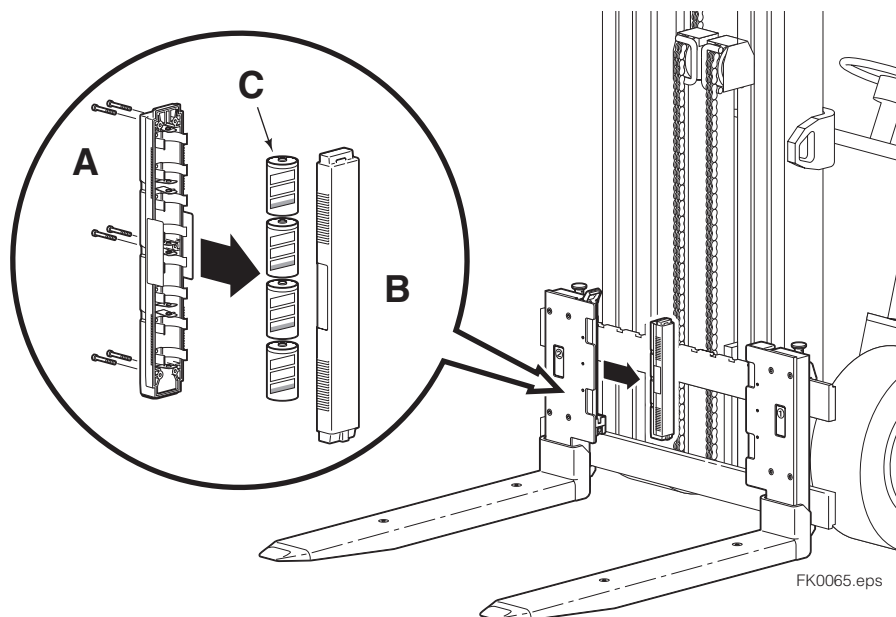
### 1 Remove batteries

- A Unlock batteries.
- B Remove battery packs.



### 2 Remove D-Cells from battery packs

- A Remove the capscrews.
- B Remove top housing of battery pack.
- C Remove batteries.



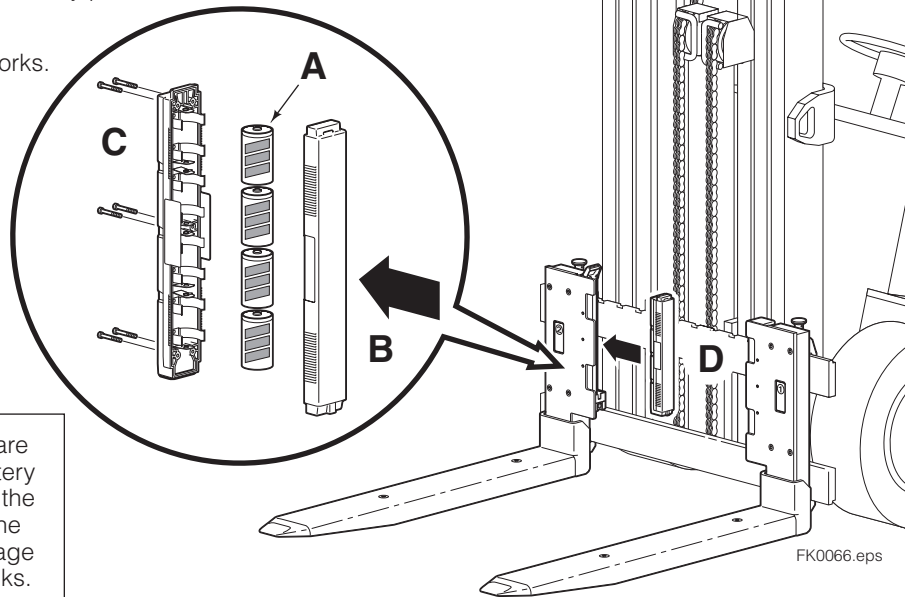
# BATTERIES

## Changing iFork Battery Packs (Continued)

### 3 Install battery packs in iForks

- A** Install four batteries in each battery pack.
- B** Replace the top housing of the battery pack.
- C** Install capscrews finger tight.
- D** Install battery packs into the iForks.

**CAUTION:** When installing battery packs, place batteries into casing. Shoving or hitting battery into the packs will cause damage to the casing.



**WARNING:** Alkaline batteries are not rechargeable. Alkaline battery packs are not compatible with the charger. Tampering with Alkaline battery packs can cause damage to the charger and battery packs.

### 4 Charge battery packs, if equipped with rechargeable batteries

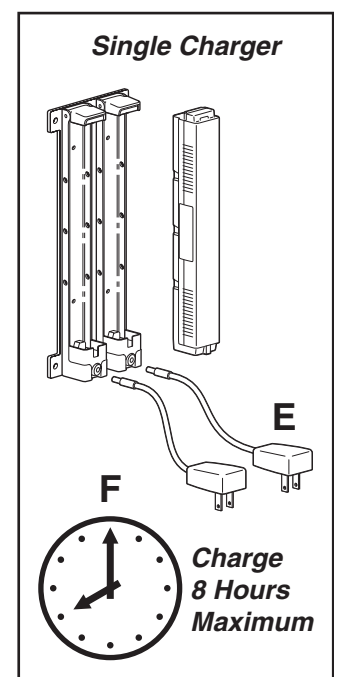
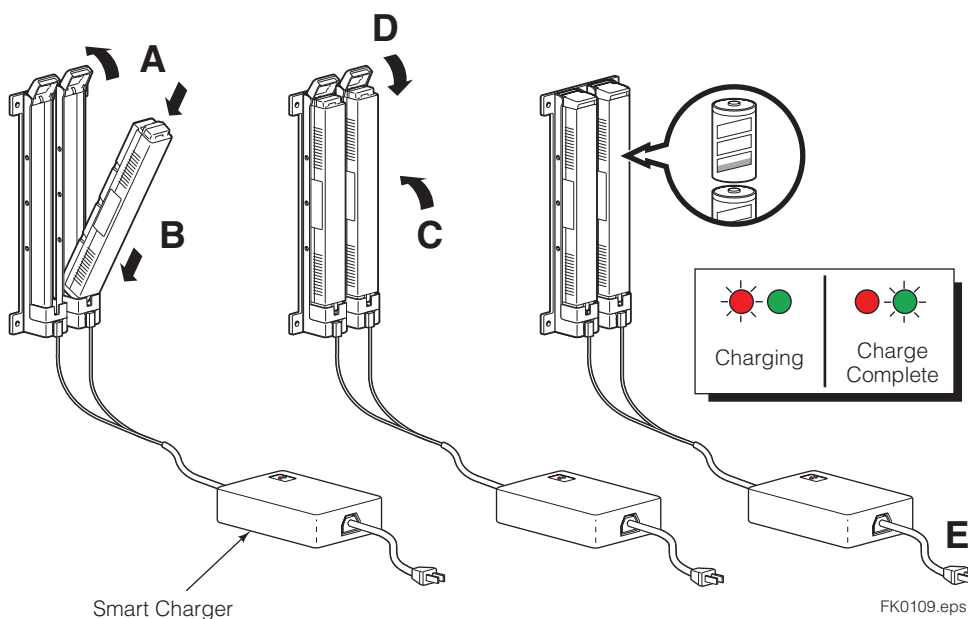
**NOTE:** Rechargeable batteries are NiMH with a charge capacity of 10,000 mAh.

- A** Lift up locking clips of charger module.
- B** Position the battery packs into charger.
- C** Click batteries into charger.
- D** Push locking clips down.

**E** Plug the charger(s) into 110V source. The red LED(s) on charger(s) will light.

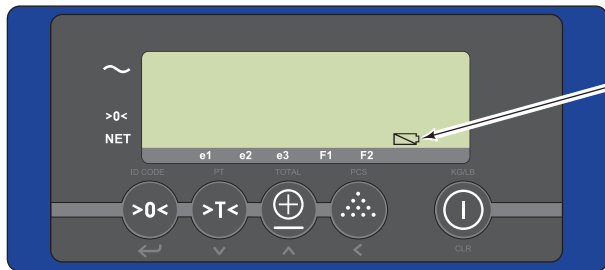
**F** If using single chargers, charge for 8 hours. Red LED will stay on after batteries are fully charged.

**IMPORTANT:** When using single charger, do not charge for more than 8 hours. The charger does not shut off and will damage the charger. The red LEDs will remain illuminated.



# BATTERIES

## Changing Display Batteries (if equipped)



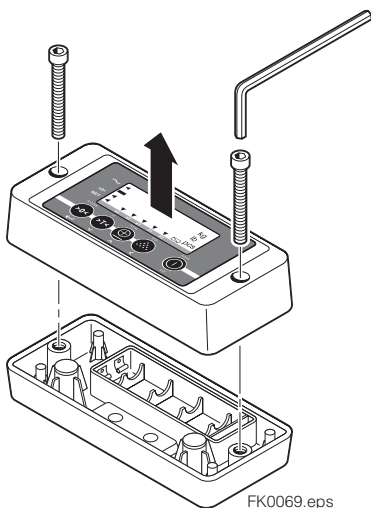
FK0068.eps

Low battery indicator  
will flash

**NOTE:** Based on usage, display  
battery life is variable.

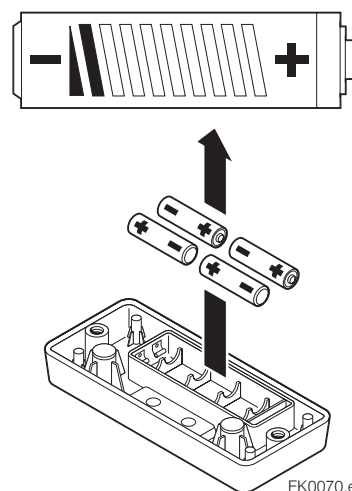
The display is equipped with four AA batteries.

- 1 Remove capscrews from display lid using M5 allen wrench



FK0069.eps

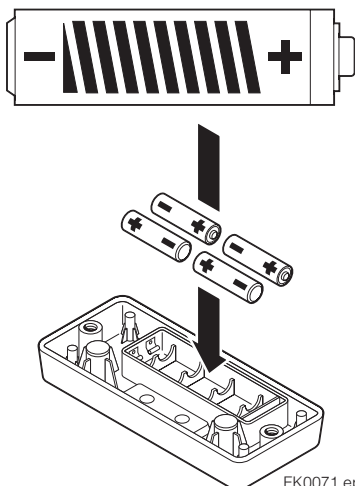
- 2 Open display and remove old batteries



FK0070.eps

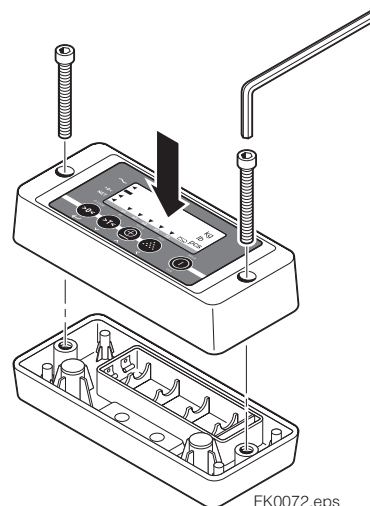
- 3 Install new batteries.

**NOTE:** Check the position and polarity of batteries.



FK0071.eps

- 4 Install display lid and tighten capscrews



FK0072.eps

# DISPLAY OPTIONS

## User Settings

### 1 Enter user settings

Multiple screens will flash

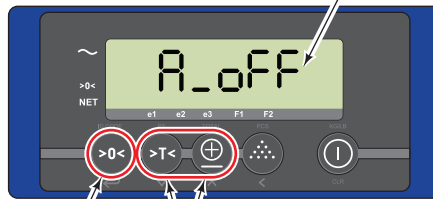


FK0073.eps

Hold for 10 seconds

### 2 Choose a menu option

User Settings Menu Mode



Select menu option

Scroll through menu options:

Auto Shut-Off Time (Display)

Light Intensity

Deactivate/Activate Com Port 1 (Bluetooth board)

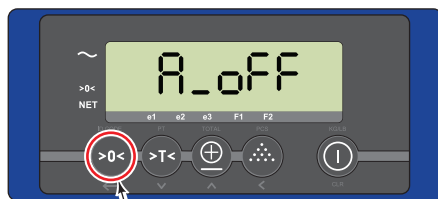
Deactivate/Activate Com Port 2 (Printer board)

Alibi Memory

### 3 Continue to desired submenu (see next page)

### 4 Exit menu

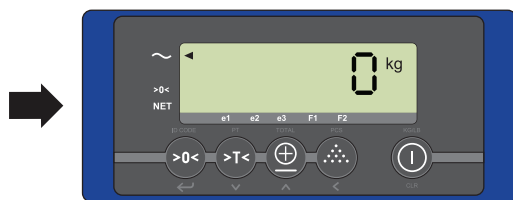
Exit & Save:



Hold for 3 seconds



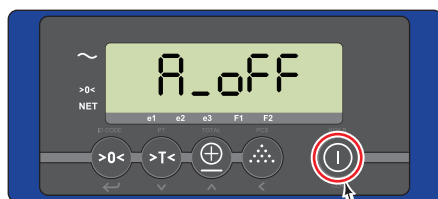
Changes are being saved



Weigh Mode

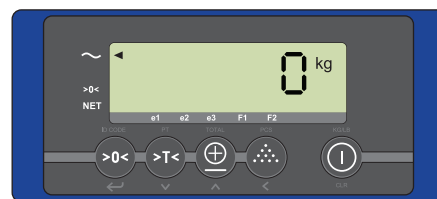
OR

Exit without Saving:



FK0074.eps

Press CLR button



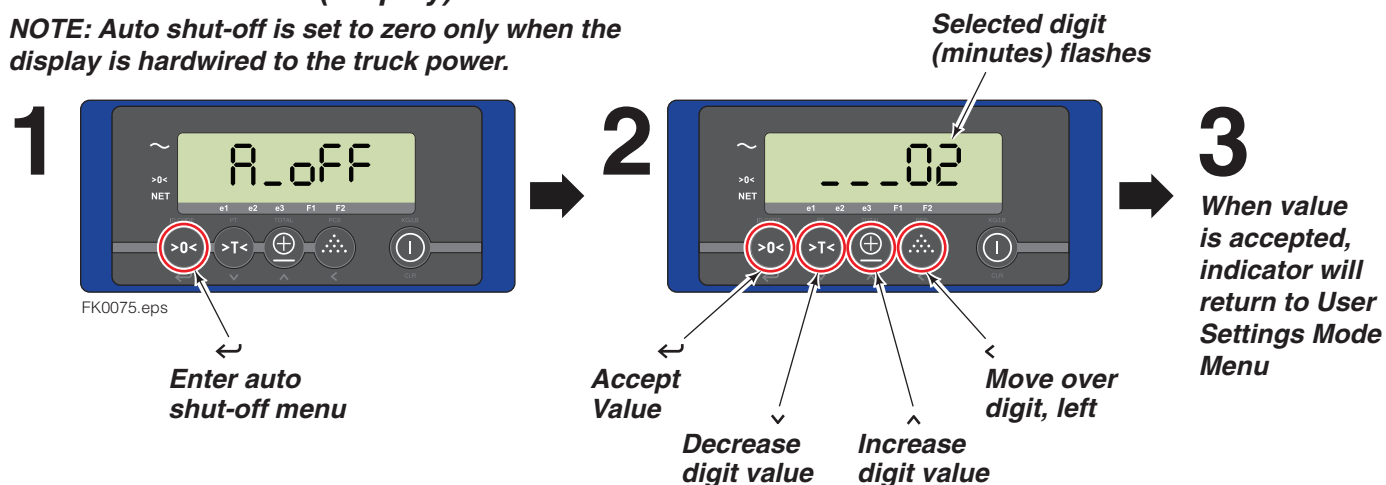
Weigh Mode

# DISPLAY OPTIONS

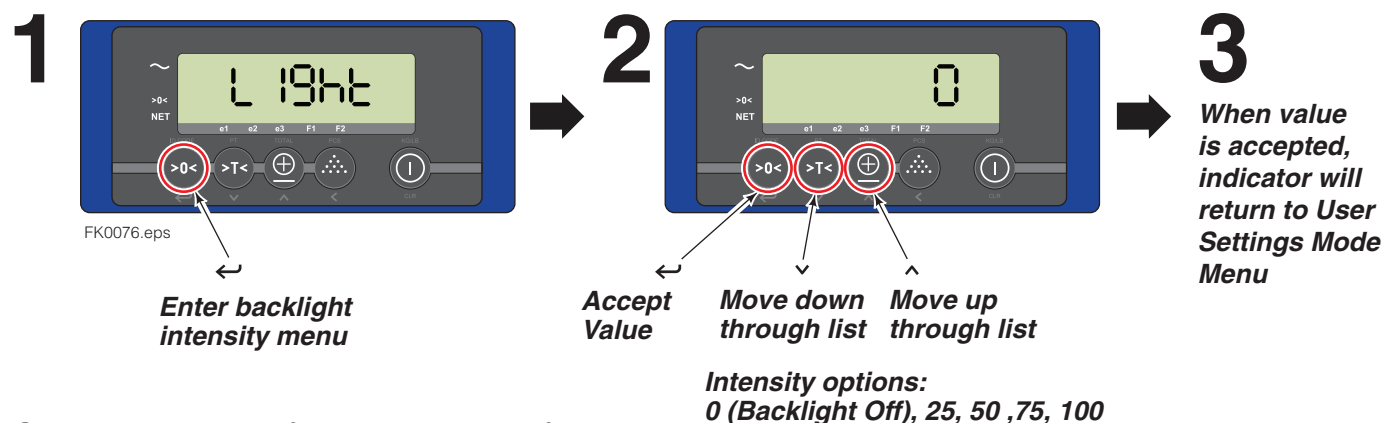
## User Settings – Submenus

### Auto Shut-Off Menu (Display)

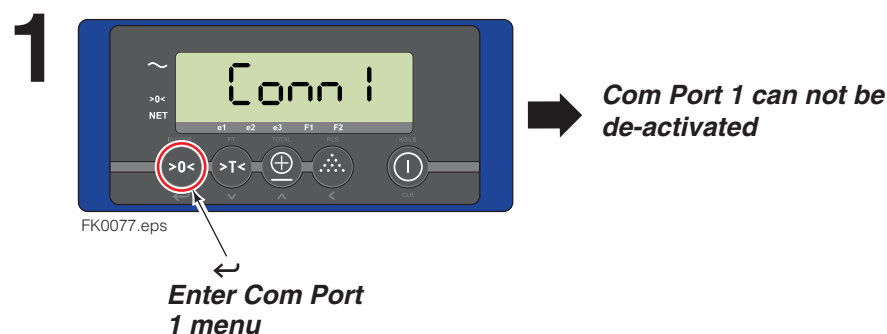
**NOTE:** Auto shut-off is set to zero only when the display is hardwired to the truck power.



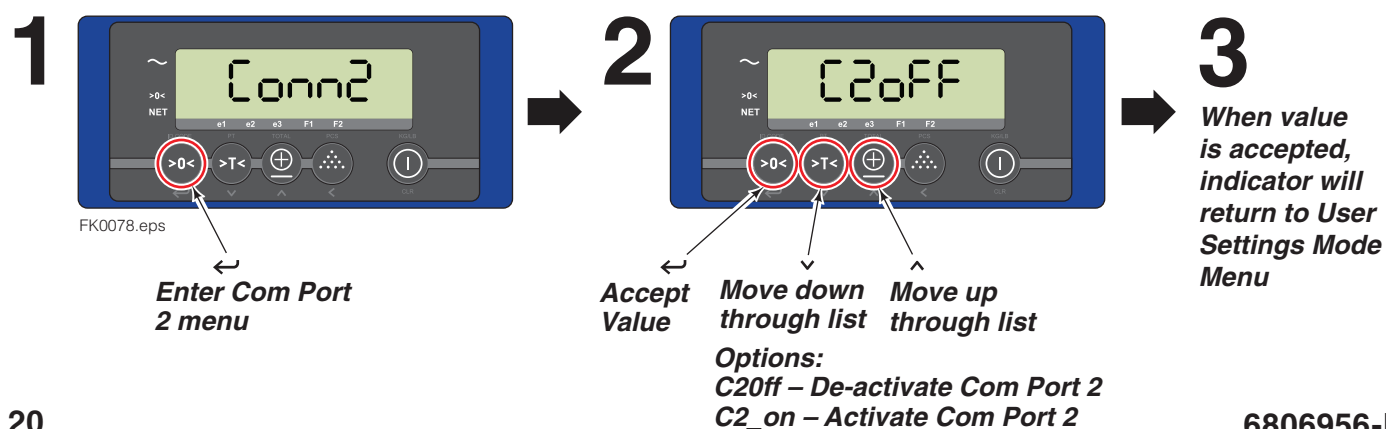
### Backlight Intensity Menu



### Com Port 1 Menu (Bluetooth Board)



### Com Port 2 Menu (Printer Board)



# DISPLAY OPTIONS

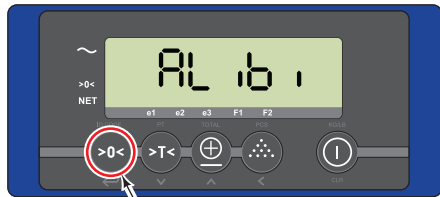
## User Settings – Submenus (Continued)

### Alibi Memory

This option is only active for forks that require NTEP or OIML certification. The memory (1 Mb capacity) stores every weight, date, time and an Alibi reference number. This data can be used for dispute. Once memory is full, the oldest data will be overwritten first.

**2** Use Entry Mode to look up alibi number information

Enter alibi number (based on printout or PC data)



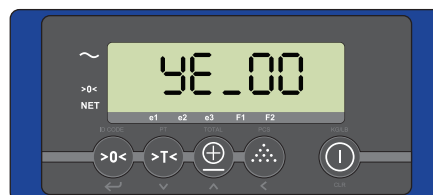
**1** Enter Alibi Menu



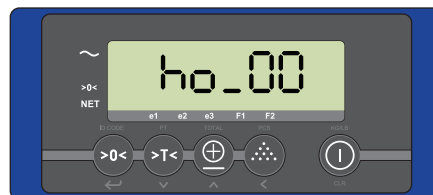
Date Setting: Day



Date Setting: Month



Date Setting: Year



Time Setting: Hour



Time Setting: Minute



**Entry Mode Guide**

**C** **A** **B**

For flashing digit, while in entry mode, pressing buttons:

|                                     |                    |    |                    |
|-------------------------------------|--------------------|----|--------------------|
| <b>A</b>                            |                    | OR |                    |
|                                     | Decrease the Value |    | Increase the Value |
| <b>B</b>                            |                    |    | <b>C</b>           |
| Shift to the next digit on the left |                    |    | Accept the value   |

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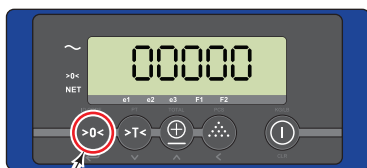
# **D**ISPLAY OPTIONS

## User Settings – Submenus (Continued)

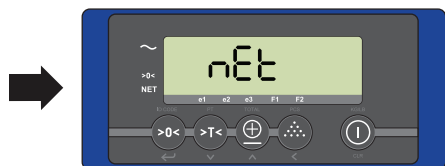
### Alibi Memory (Continued)



"Gross" shows for 5 seconds



Gross weight will show  
Press enter zero key to move  
onto next information menu

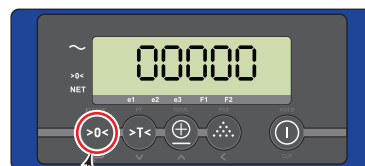


"Net" shows for 5 seconds

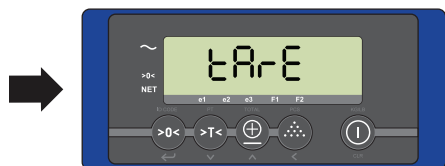
OR



"Net\_C" shows for 5 seconds



Net: weight is measured  
Net\_C: Weight is calculated  
Press enter zero key to move  
onto next information menu

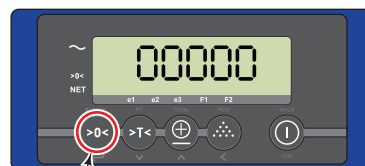


"Tare" shows for 5 seconds

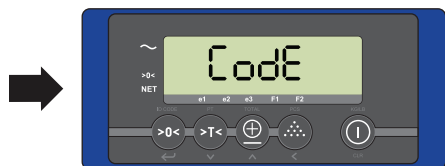
OR



"Ptare" shows for 5 seconds



Tare: Weight is measured  
Ptare: Weight is keyed in  
Press enter zero key to move  
onto next information menu



"Code" shows for 5 seconds



Code will show.  
If no code was used  
'0' will show.



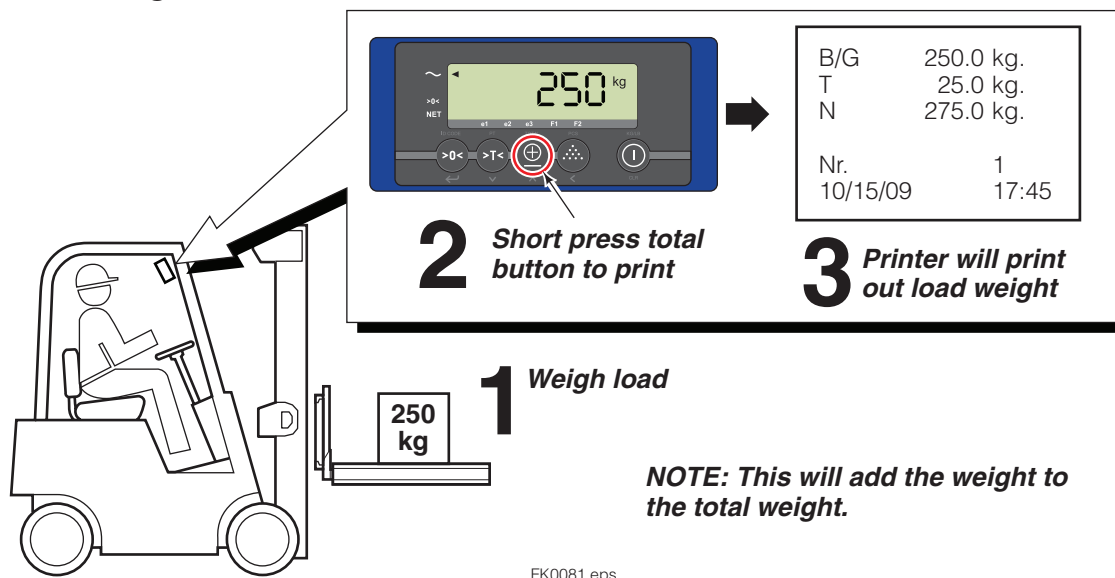
Arrow: Search  
for another  
weighing  
CLR: Return  
to the normal  
weighing mode

FK0080.eps

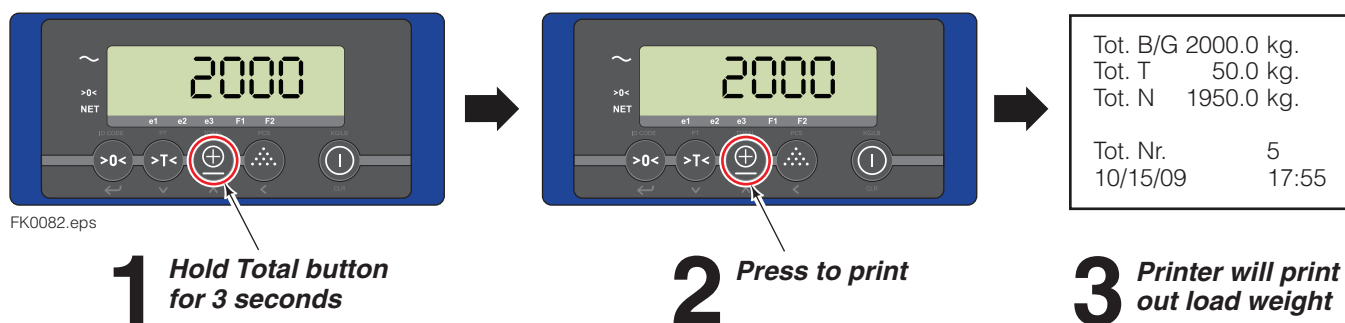


**NOTE:** For troubleshooting, refer to iForks service manual.

## Print Weight



## Print Total Weight



## Change Time & Date Printout

**2** Change current settings (shown in entry mode guide). To accept current settings, press the enter button.



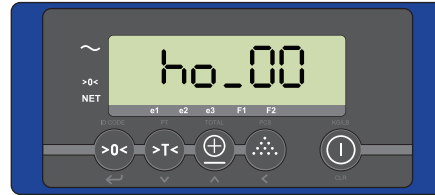
**1** Hold for 6 seconds

**Entry Mode Guide**

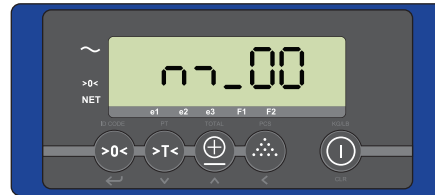
For flashing digit, while in entry mode, pressing buttons:

|          |  |
|----------|--|
| <b>A</b> | OR   |
|          | Decrease the value      Increase the value |
| <b>B</b> |  |
|          | Shift to the next digit on the left        |
| <b>C</b> |  |
|          | Accept the value                           |

FK0083.eps



*Time Setting: Hour*



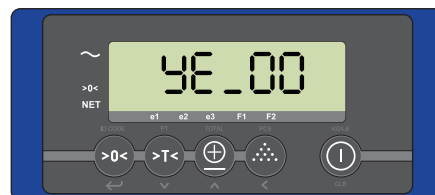
*Time Setting: Minute*



*Date Setting: Day*



*Date Setting: Month*



*Date Setting: Year*

**IMPORTANT:** Only trained and authorized personnel are allowed to service iForks. Other maintenance procedures are the sole responsibility of the purchaser.

**IMPORTANT:** To prevent weighing inaccuracies, the end user is responsible to check accuracy on a regular basis at intervals that best fit their application and requirements. Development of a periodic schedule will prevent faulty readings. Cascade recommends a **minimum** interval of every 12 months or 2000 hours, whichever comes first.

## 100-Hour

Every time the lift truck is serviced or every 100 hours of truck operation, whichever comes first, complete the following maintenance procedures:

- Check for debris between fork and fork shoe (ie. wood chips).
- Check for pinched wires at bottom of batteries.
- Tighten fork shoe capscrews after initial 100 hours of service. Tighten to a torque of 83 ft.-lbs. (112 Nm).

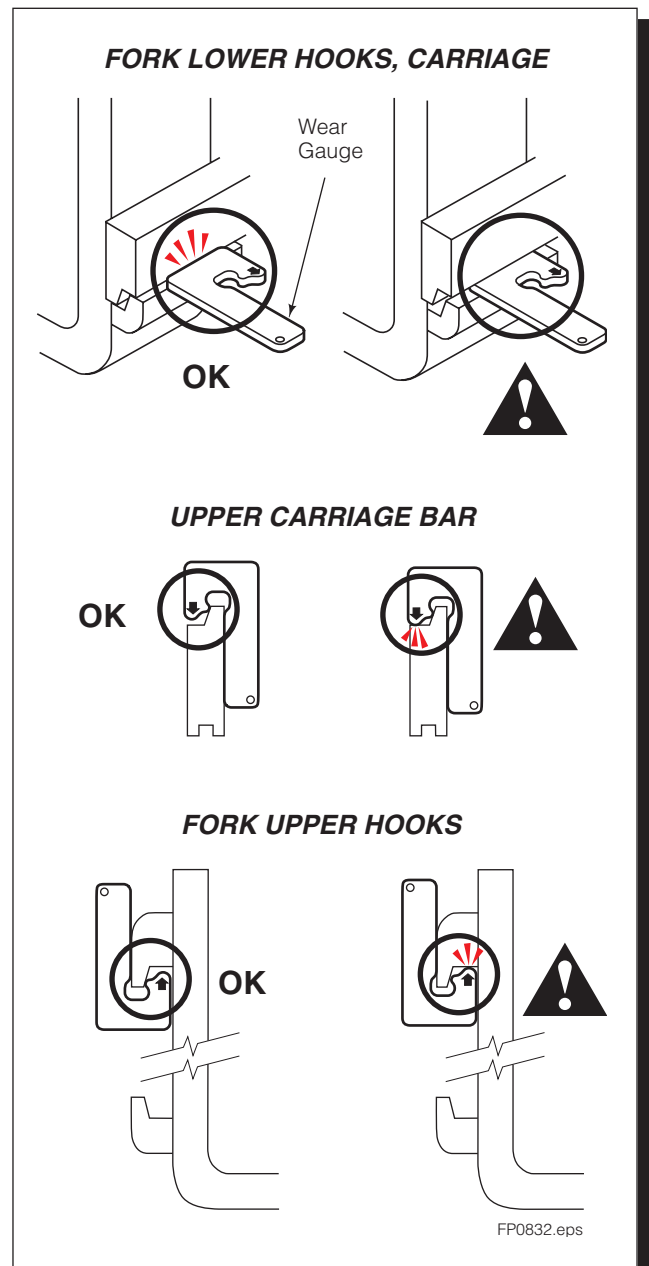
## 2000-Hour

After 2000 hours of truck operation, forks in use shall be inspected at intervals of not more than 12 months (for single shift operations) or whenever any defect or permanent deformation is detected. Severe applications will require more frequent inspection.

### Inspect fork hooks and carriage bar clearance

**NOTE:** Use go/no-go Wear Gauge Part No. 209560 (Class II) or 209561 (Class III).

- Inspect the fork lower hooks and carriage bar. If the gauge fits between the carriage bar and lower hook, repair or replacement is needed.
- Inspect the upper carriage bar. If the gauge arrow touches the carriage bar, repair or replacement is needed.
- Inspect the fork upper hooks. If the gauge arrow touches the hook, repair or replacement is needed.

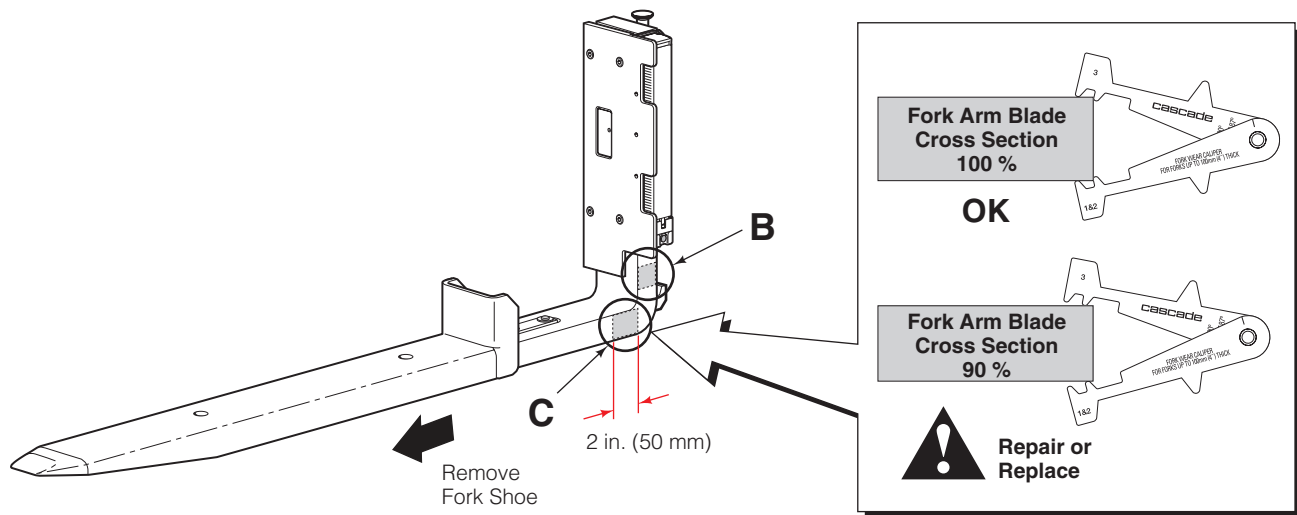


## 2000-Hour (Continued)

### Inspect forks

**NOTE:** Use fork calipers on forks up to and including 4 in. (100 mm) thick. Fork calipers indicate a 10% wear factor if the calipers can pass over the blade cross-section.

- A** Remove fork shoe from forks. For reassembly, tighten capscrews to a torque of 80 ft.-lbs. (108 Nm).
- B** Measure the fork shank thickness with the caliper outer teeth approximately 2 in. (50 mm) above top of blade. Hold this setting for step C.
- C** Position the caliper inner teeth on the fork arm blade approximately 2 in. (50 mm) out from the face of the shank.
  - If the inside teeth of the caliper hit the fork, it has less than 10% wear and requires no replacement.
  - If the inside teeth of the caliper pass over the fork freely, the fork must be taken out of service. The fork has 10% wear and 20% reduction in capacity.



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Visit us online at [www.cascorp.com](http://www.cascorp.com)

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