U *SER MANUAL*

iForks

cascade®
corporation

CONTENTS

OVERVIEW

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.
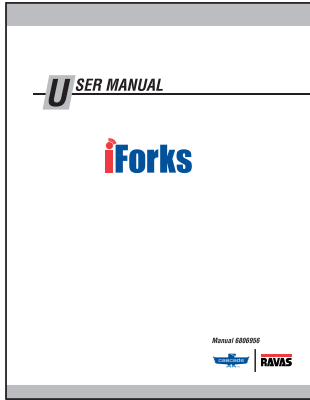
**Read through
user manual**
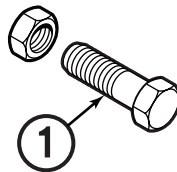
Review parts
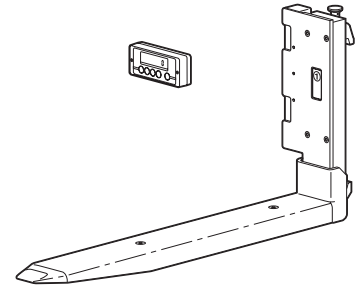
**Install iForks
system on truck**

Install batteries

Use system

**Recharge or
change batteries**

**Perform 2000 Hour
Maintenance**

FK0034.eps

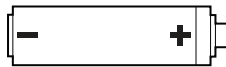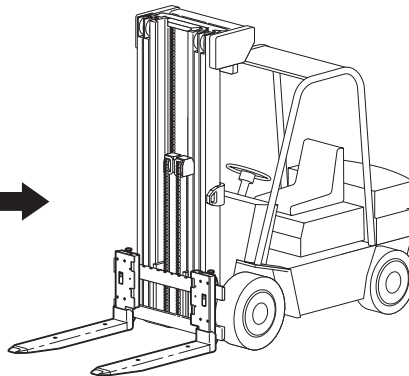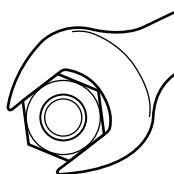# *W* *ARNINGS & SAFETY MEASURES*

When using the iFork, please observe carefully the instructions and guidelines contained in this manual. Always perform each step in sequence. If any of the instructions are not clear, contact Cascade RAVAS.
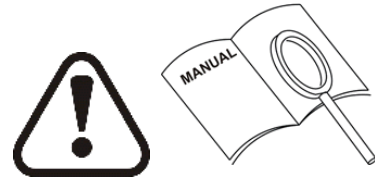
READ CAREFULLY

- All safety regulations that apply on the truck remain valid and unchanged.

- No weighing operations are allowed if any persons or objects are in the vicinity; around, under or close to the load.

- Cascade RAVAS is not responsible for any physical harm done to the operator because of the presence of the indicator in the cabin.

- Any modifications done to the system must be approved in writing from the supplier, prior to any work being completed.

- It is the sole responsibility of the purchaser to train their own employees in the proper use and maintenance of this equipment.

- Do not operate this unit unless you have been fully trained of its capabilities.

- Check the accuracy of the scale on a regular basis to prevent faulty readings.

- Only trained and authorized personnel are allowed to service the scale.

- Always follow the operating, maintenance and repair instructions of this truck and ask the supplier when in doubt.

- Cascade RAVAS is not responsible for errors that occur due to incorrect weighings or inaccurate scales.

CAUTION: Do not Pressure Wash

IP65

Min. 15°F (-10°C)   Max. 105°F (40°C)

0   0
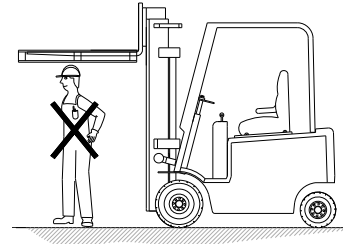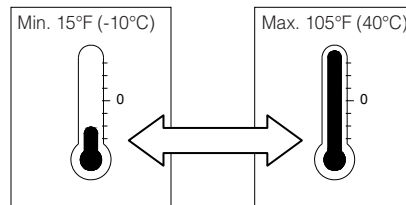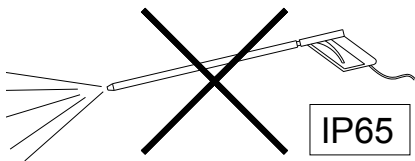
Should you have any further questions after reading this manual then you can contact Cascade RAVAS.

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

I *NSTALLATION*

1 Install iForks
IMPORTANT: Truck mast must be vertical.

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

C

C

B

FK0035.eps

IMPORTANT: If installing on fork positioner, contact cascade.

2 Lock iForks

FK0036.eps
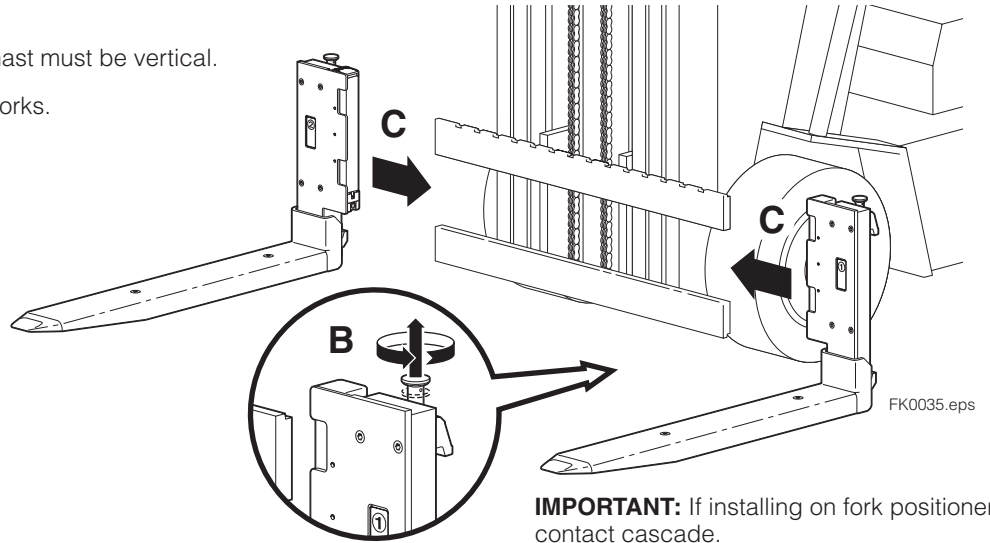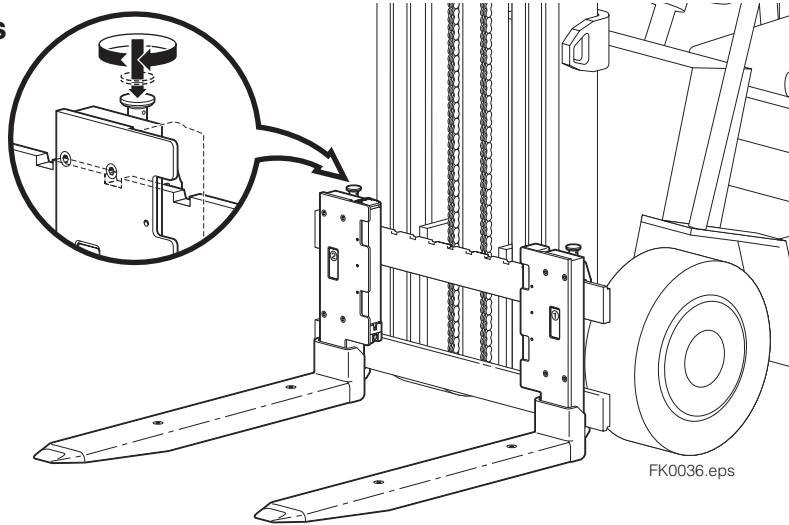
3 Install battery packs into the iForks
A Lift up battery holder locking clip.
B Position battery pack.
C Click into the battery holders.
D Secure the locking clips down.

A

B

D

C

FK0037.eps
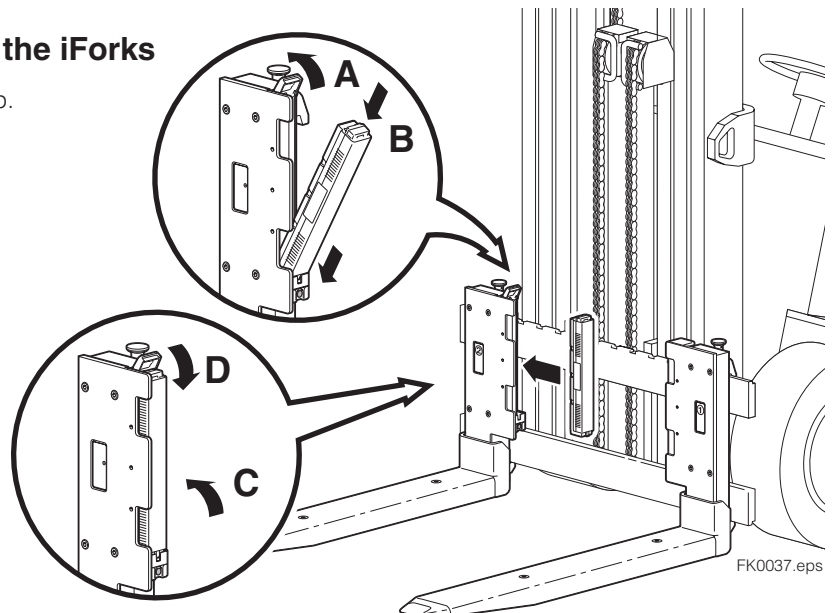
6 Locate and mount the display

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.

Cabin Roof

OR

Side Rail

OR

Dashboard

Display

FK0038.eps
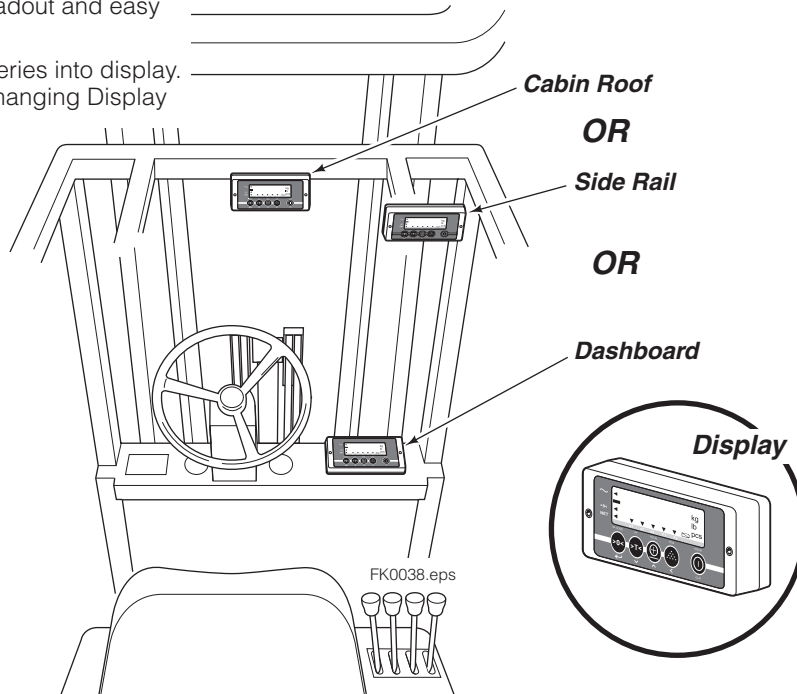
7 Install display bracket and support, if required

A Install bracket to display.

B Install bracket/display to the support.

B

A

FK0039.eps

S5

S13

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:

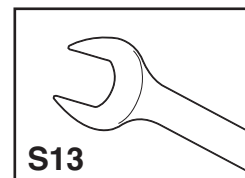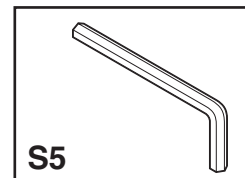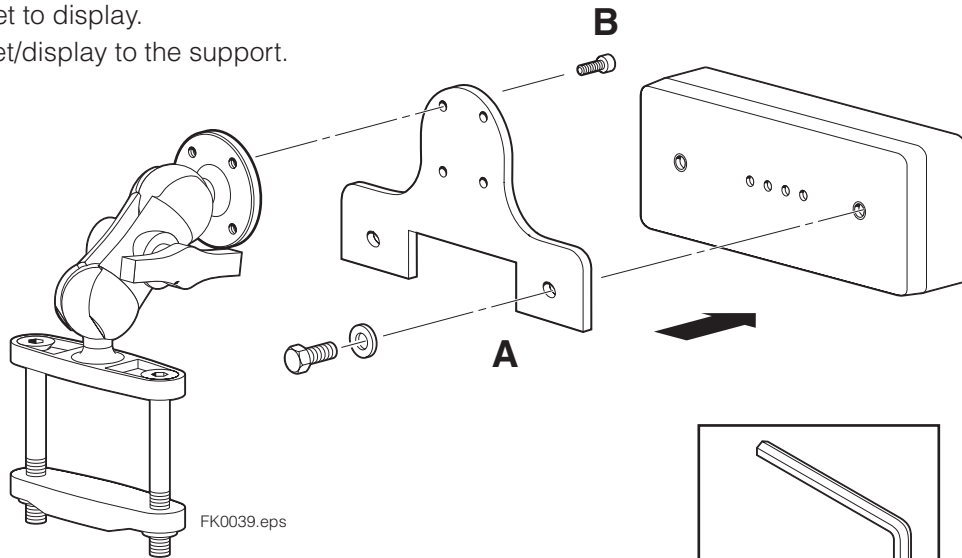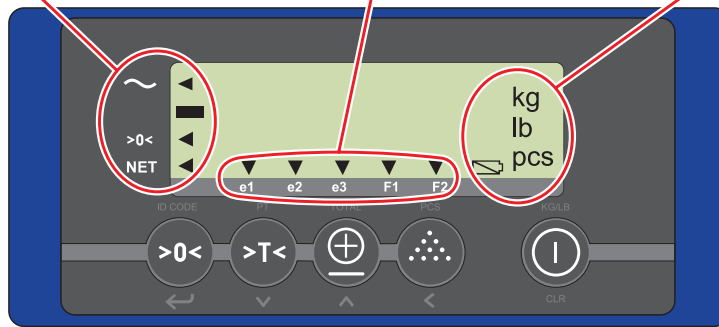**e1** Weight shown is in .44 lb (.2 kg) steps; only for weight that ranges 0-441 lb (0-200 kg).

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 Key Press	3 Second Key Press	Entry Mode
ID CODE >0< ↵	>0< Zero Setting - Manually zeros the display	ID CODE Code Entry - A 5-digit code useful for a weighing system connected to peripheral equipment for later processing.	↵ Enter (accept value)
PT >T< ∨	>T< Automatic Tare - Allows the tare weights to be reset to zero automatically. Added and subtracted weights can be determined.	PT Manual Tare - An entered tare weight at any moment.	∨ Decrease the value of the digit flashing
TOTAL ⊕ ∧	⊕ Weighed load is added to total weight. If printer is installed, a printout is made.	TOTAL Check subtotal and print total.	∧ Increase the value of the digit flashing
PCS ⁙ <	⁙ Sampling a piece weight - Determined an unknown piece weight by sampling a certain number of pieces. Standard sampling amount is 10 pieces.	PCS Enter a piece weight - The last used piece weight or an entered value.	< Shift to the next digit on the left
KG/LB ⏻ CLR	⏻ On/Off	KG/LB Toggle Units	CLR Clear entry

FK0040.eps

Display Menus
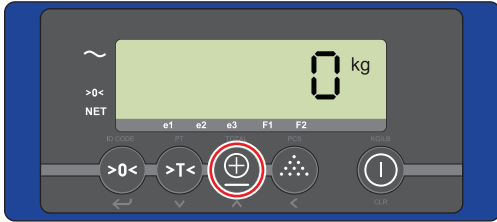
Weigh Mode

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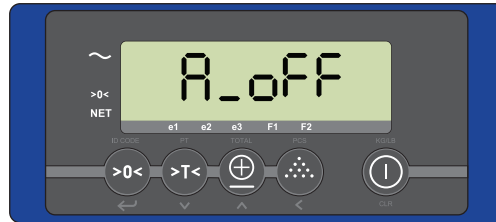
User Settings

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

FK0041.eps

Select Weight Type

2 *Wait 5 seconds to switch units*

FK0042.eps

1 *Hold for 3 seconds*

USING iFORKS

Dos & Don'ts

PRIOR TO WEIGHING

0 kg

Zero before each weighing if display does not automatically zero
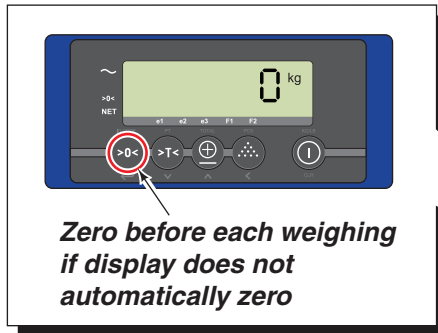
Verify iForks are free of obstacles prior to zeroing

Position to vertical

For legal trade:
NTEP – ±5% (3°) Horizontal
OIML – ±5° Horizontal

Level load to Horizontal

FK0043.eps

WEIGHING

Wait for display to zero

Wait 3-5 minutes before using forks
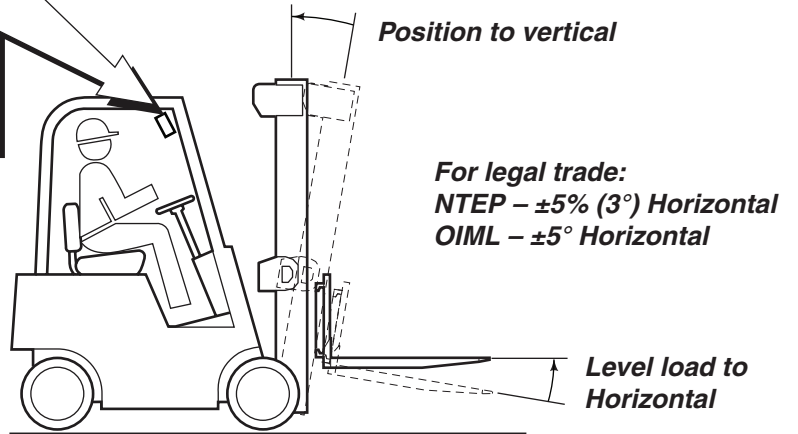
NTEP Temperature Range:
15° F (10° C) minimum
105°F (40° C) maximum

Center load on forks and pallet, load must be flat
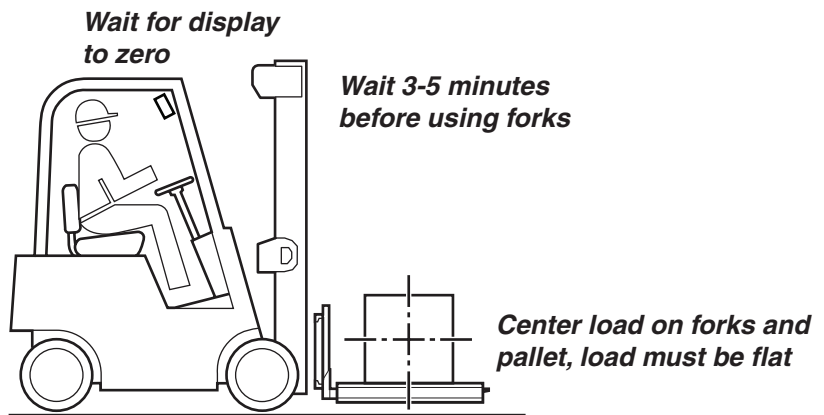
FK0044.eps
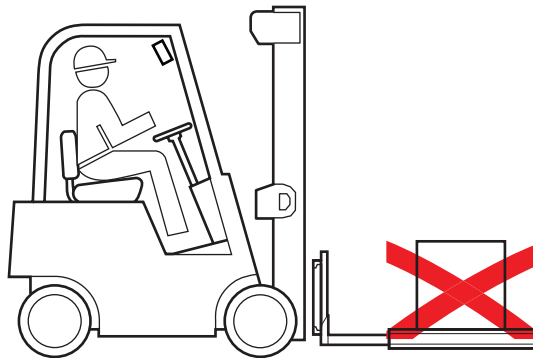
FK0045.eps
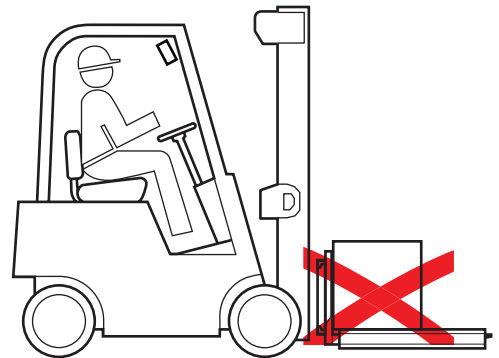
FK0046.eps

USING iFORKS

Weighing a Load – Basic

To weigh a load:

2 Press the on/off key. Wait 5 seconds.
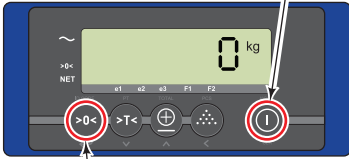
3 Display will zero. If necessary, zero manually.

IMPORTANT:
- If front face or bottom of iForks touches the load or pallet, it will not weigh correctly.
- Unstable weight readings indicate debris between fork and fork shoe.

1 Press the blue button on each battery pack

FK0047.eps

5 Weigh load. Before next weighing, check zero point.

4 Position load on forks, raise forks

1000 kg

FK0048.eps

Weighing a Load - Net/Tare/Gross Weight

FK0049.eps
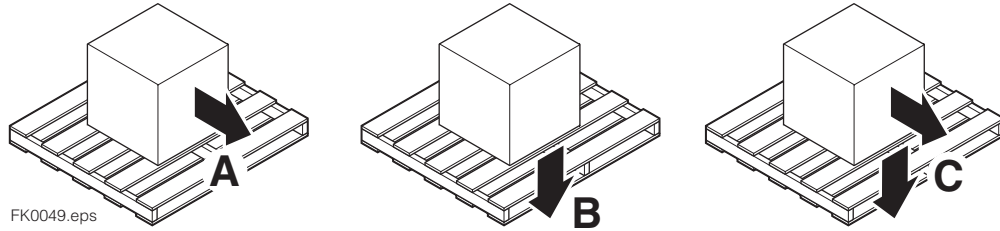
Net (A) + Tare (B) = Gross (C)

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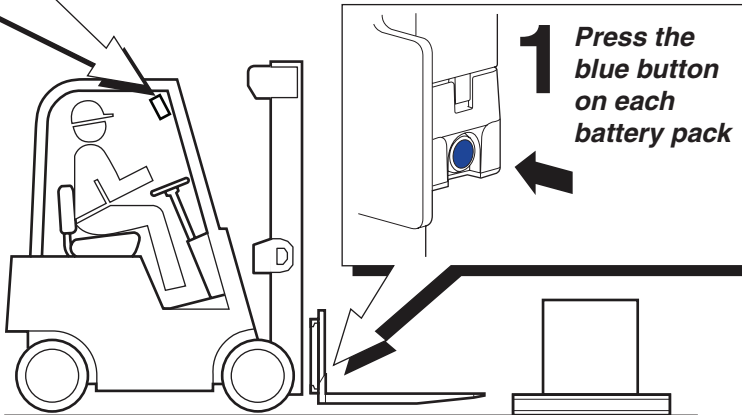
NOTE: Display must be in basic weighing mode prior to performing the following steps (press on/off button for 3 seconds).

Weight of pallet

2 *Press the tare button*

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

1 *Lift pallet*

FK0050.eps

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

Gross Weight (Pallet + Load Weight)

NET arrow goes away

5 *Press the tare button*

4 *Weigh load*

1000 kg

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).

Gross weight

2 **Hold Tare button for 3 seconds**

FK0052.eps

1000 kg

Unladen load (Example: Pallet weight = 25kg)

1 **Lift pallet and load**

3 **Enter in TARE weight (weight must be known)**

A

C

D **B**

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

B (≫T≪) **OR** (⊕)
ˇ   ˄
Decrease   Increase
the value   the value

C (⦂⦂⦂)
<
Shift to the next
digit on the left

D (≫0≪)
↵
Accept the value

FK0053.eps

4 **NET arrow will show** **NET weight will show**

1000 kg

NOTE: Pressing the Tare button again will show the gross weight

FK0054.eps

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

No load, the value is zero

0 kg

Pallet only

FK0055.eps

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

No pallet and load, the value will be negative

25 kg

Forks only

FK0056.eps

Weighing a Load - Add to the Total & Reset

To add a series of load weights and total:

Press to add to total

Display will show "Added"

Display will return to weighing mode

250 kg

NOTE: For each load to be weighed and added, repeat. No weight can be recorded twice while adding until the display returns to weighing mode.

FK0057.eps
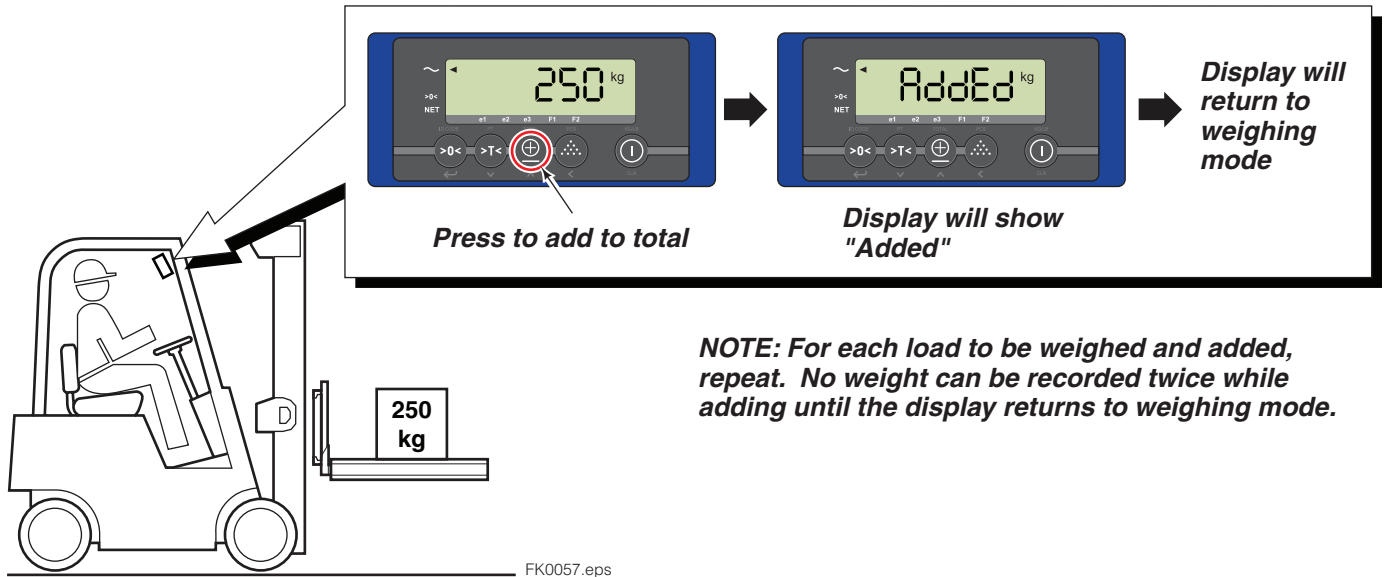
During the next 3 seconds, the following flashes:

Hold for 3 seconds

Number of items weighed
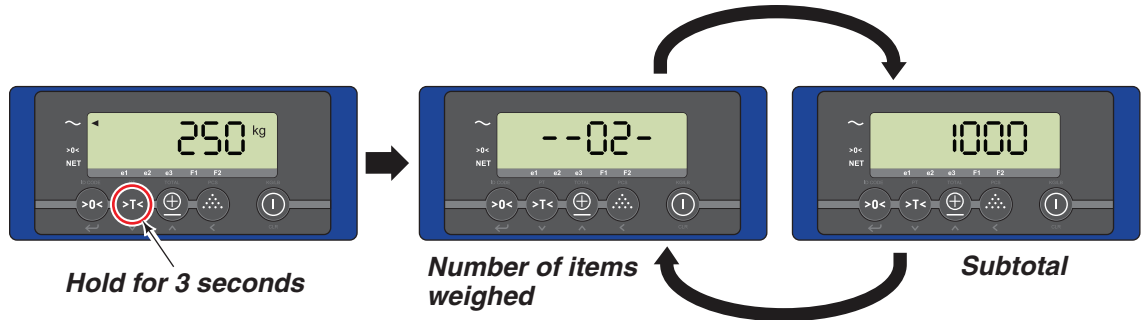
Subtotal

If one of the buttons is pressed during flashing:

TOTAL

Total is reset

KG/LB

CLR

For printer option, total is printed and total is reset
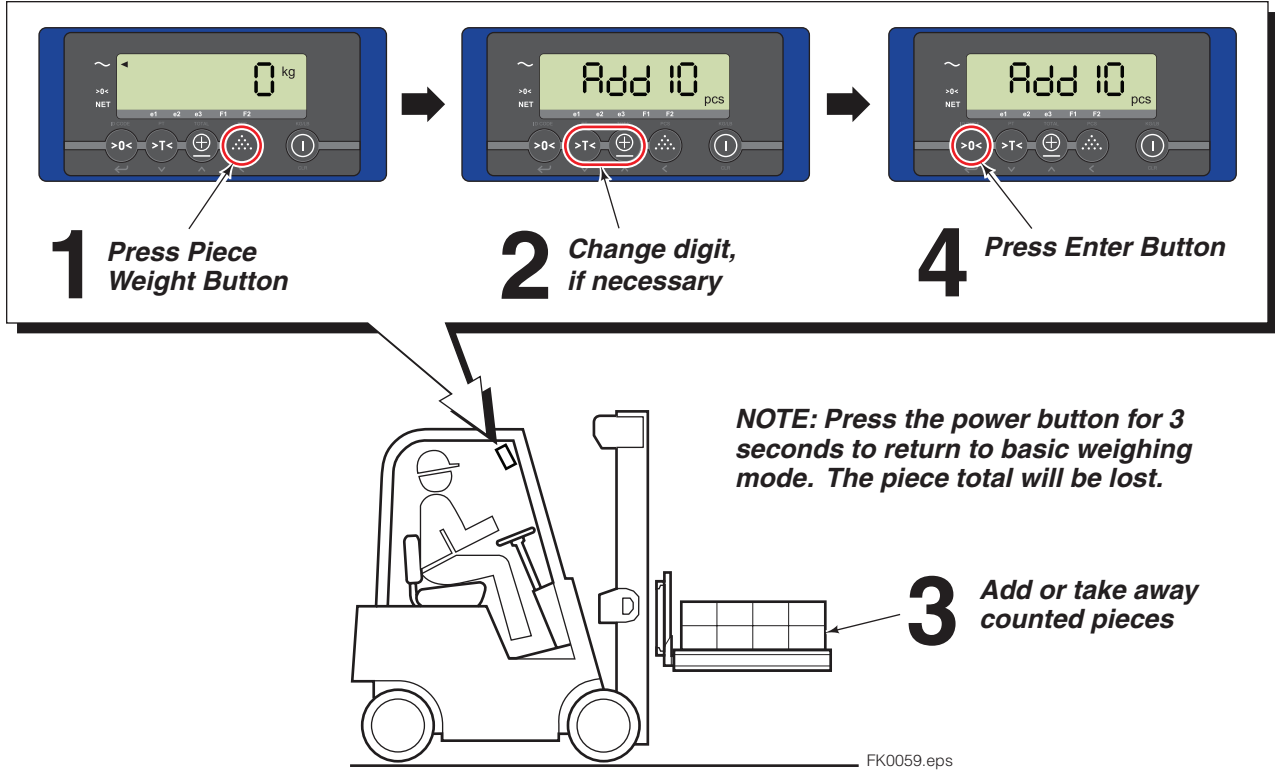
NOTE: If no button is pressed during the flashing, the subtotal stays in memory, and the system returns to the weighing mode after 60 seconds.
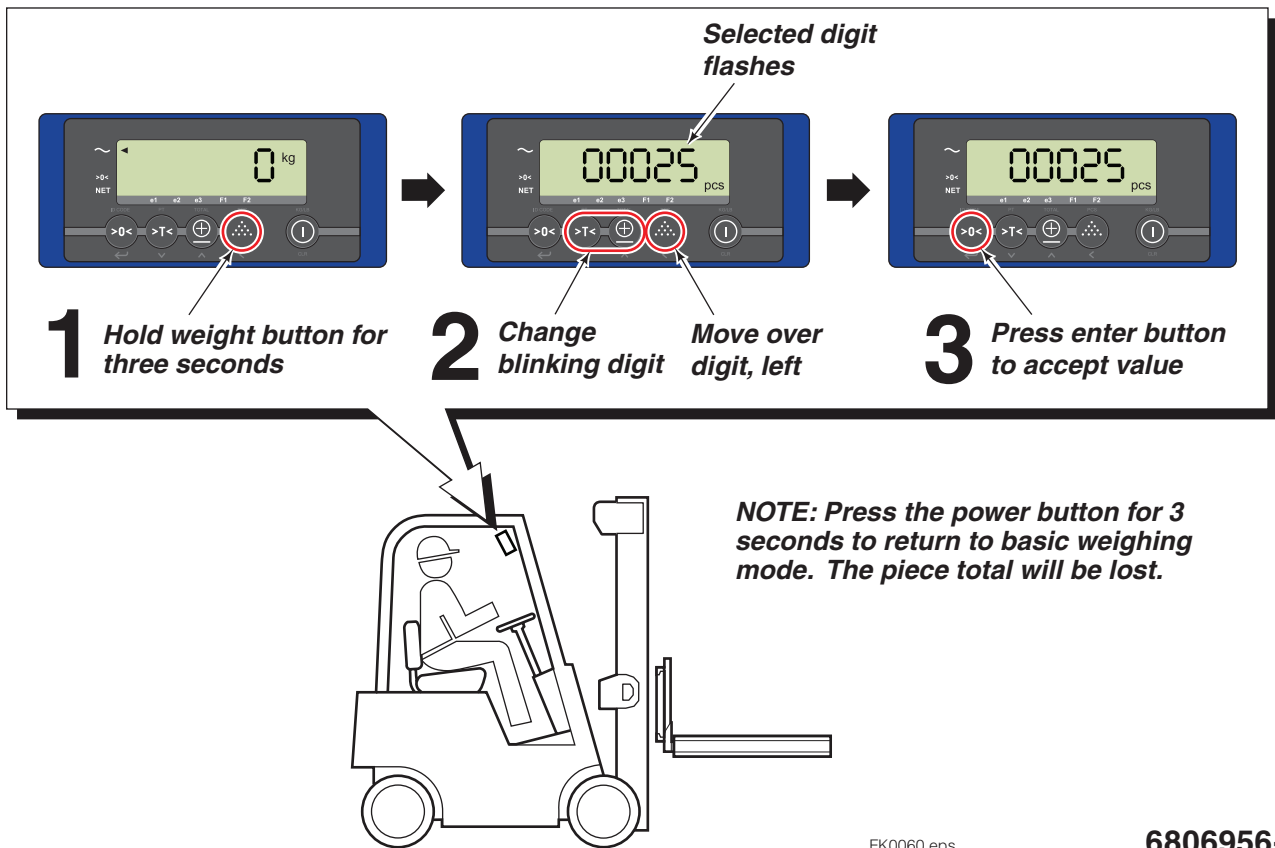
FK0058.eps

Piece Counting:

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).
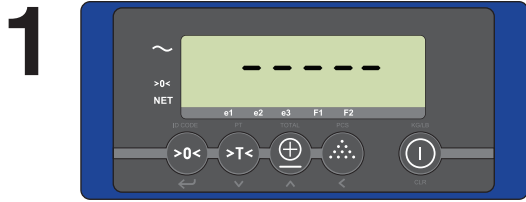
NOTE: Piece counting is not NTEP approved.

1 *Press Piece Weight Button*

2 *Change digit, if necessary*

4 *Press Enter Button*

NOTE: Press the power button for 3 seconds to return to basic weighing mode. The piece total will be lost.

3 *Add or take away counted pieces*

FK0059.eps

Enter a Piece Weight (known weight):

Selected digit flashes

1 *Hold weight button for three seconds*

2 *Change blinking digit* / *Move over digit, left*

3 *Press enter button to accept value*

NOTE: Press the power button for 3 seconds to return to basic weighing mode. The piece total will be lost.
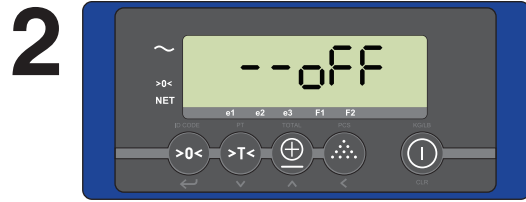
FK0060.eps
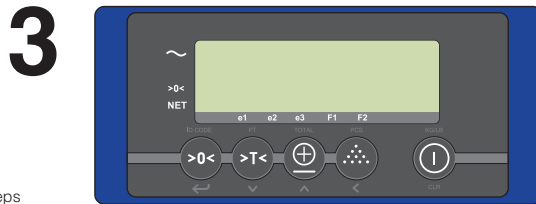**6806956-R3**

After 2 minutes of no action:

1

On the indicator: Countdown Screen Shows

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

2

After 20 seconds, off screen will appear

3

FK0061.eps

Indicator screen will be blank

4

*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.
FULL BATTERY	Blink Time Interval
Working Mode	Once every 1.5 sec.
Sleep Mode	Once every 4 sec.
LOW BATTERY	
Working Mode	Twice every 10 sec.
Sleep Mode	Twice every 10 sec.

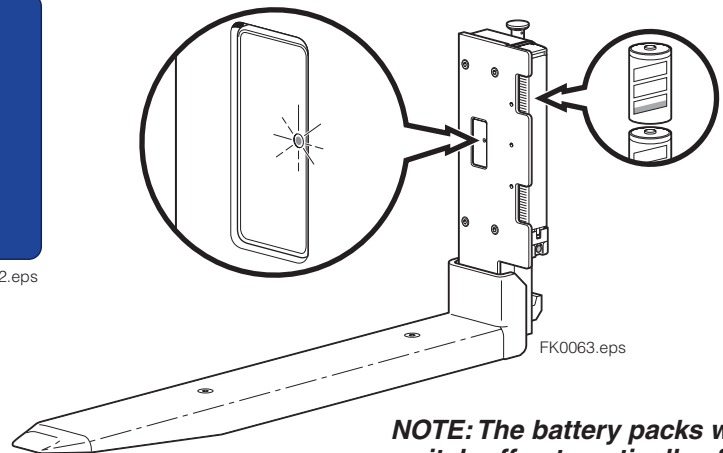***The display will show when there is a low battery on the iforks:***

Arrows for fork will blink:
F1 = Fork 1
F2 = Fork 2
F1 & F2 = Fork 1 & Fork 2

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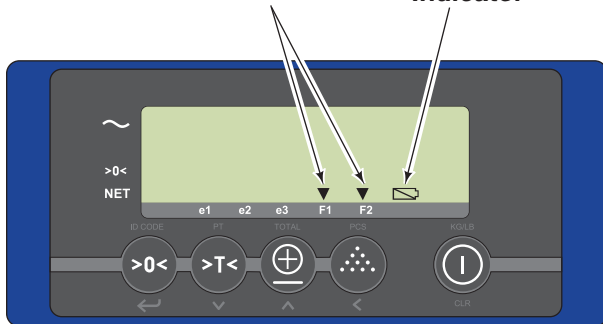
Low Battery Indicator:
The blue LED on the related fork will start blinking (2 times every 10 seconds)

FK0062.eps

FK0063.eps

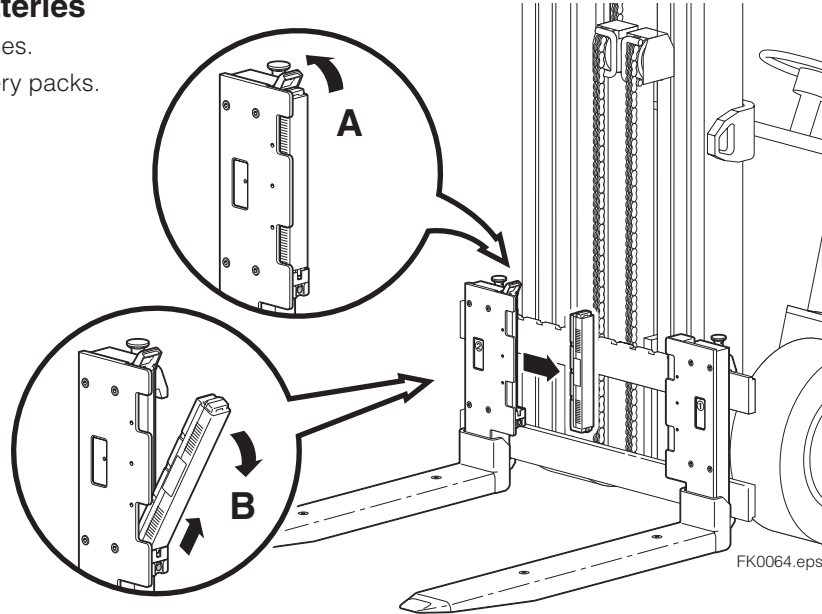***NOTE: The battery packs will switch off automatically after 10 minutes of low battery.***

To change batteries on iForks, perform the following:

1 Remove batteries
A Unlock batteries.
B Remove battery packs.

FK0064.eps

2 Remove D-Cells from battery packs
A Remove the capscrews.
B Remove top housing of battery pack.
C Remove batteries.

FK0065.eps
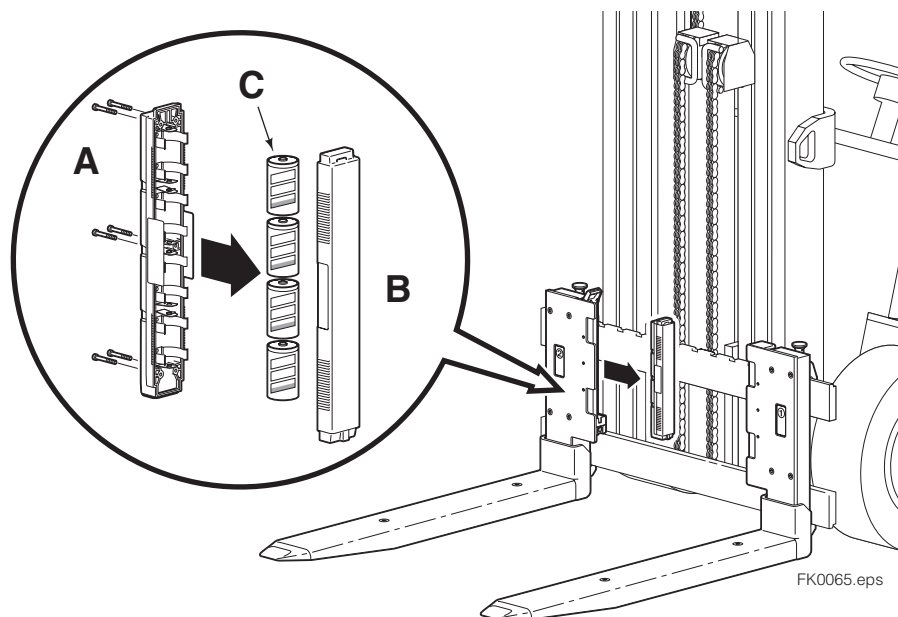
3 **Install battery packs in iForks**

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.

FK0066.eps
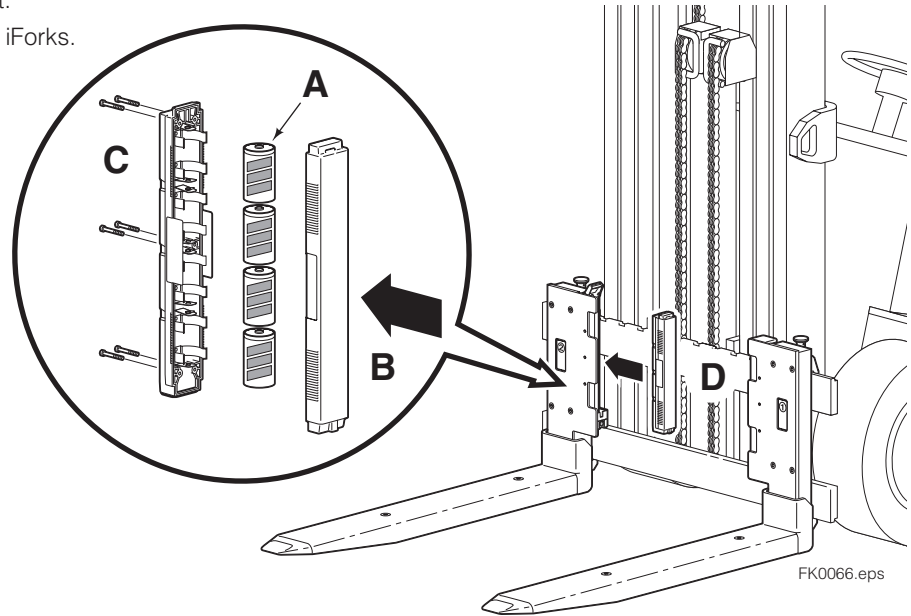
**4** **Charge battery packs, if equipped with rechargeable batteries**

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 adapters into the main voltage. Red LED on charger will light.

F Charge for 8 hours. Red LED will stay on after batteries are fully charged.

8 Hours

FK0067.eps
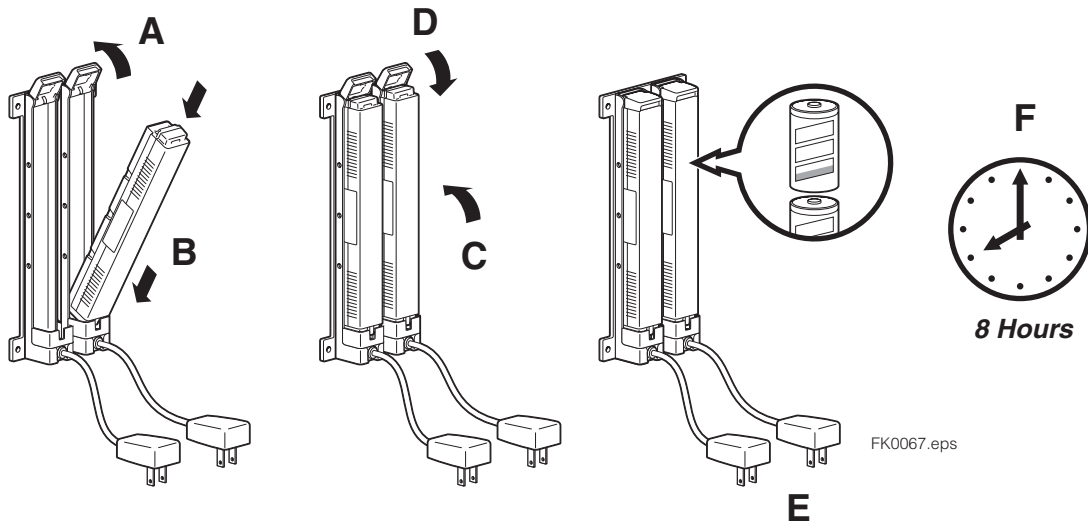
BATTERIES

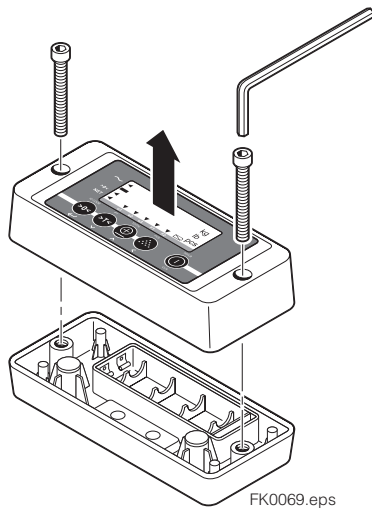## *Changing Display Batteries (if equipped)*
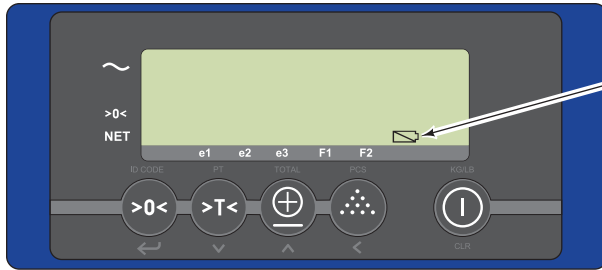
FK0068.eps

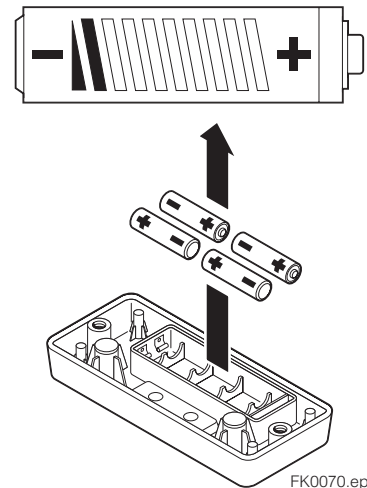*Low battery indicator will flash*

The display is equipped with four AA batteries.

1 Remove capscrews from display lid using M5 allen wrench

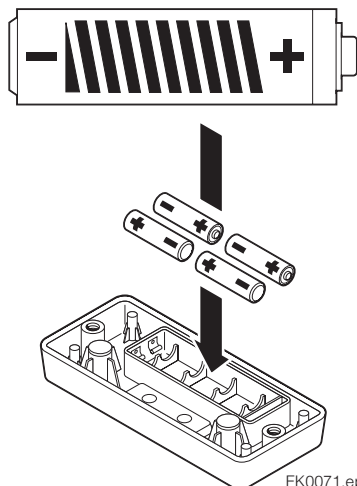
FK0069.eps

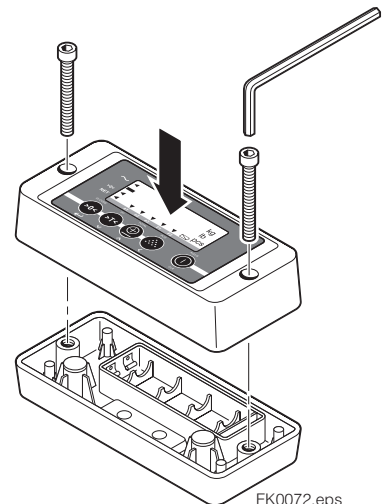**2** Open display and remove old batteries

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

D ISPLAY OPTIONS

User Settings

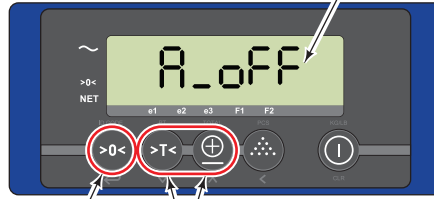**1** **Enter user settings**

*Multiple screens
will flash*

```
1025 kg
```

FK0073.eps

Hold for 10 seconds

2 **Choose a menu option**

*User Settings
Menu Mode*

```
A_oFF
```

*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:

```
A_oFF
```

Hold for 3 seconds

```
SEt__
```
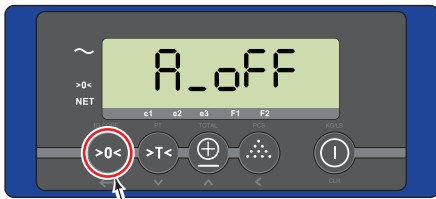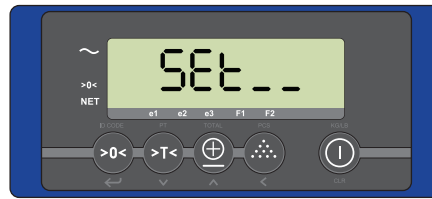
Changes are being saved

```
0 kg
```

Weigh Mode

OR

Exit without Saving:

```
A_oFF
```

FK0074.eps

Press CLR button

```
0 kg
```
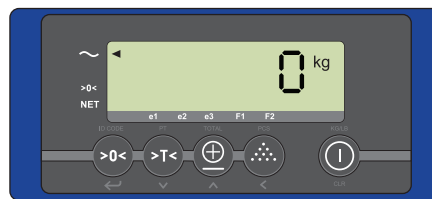
Weigh Mode

D ISPLAY OPTIONS

User Settings – Submenus

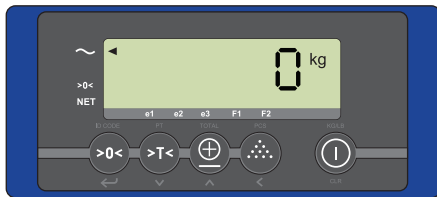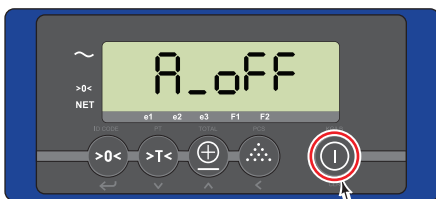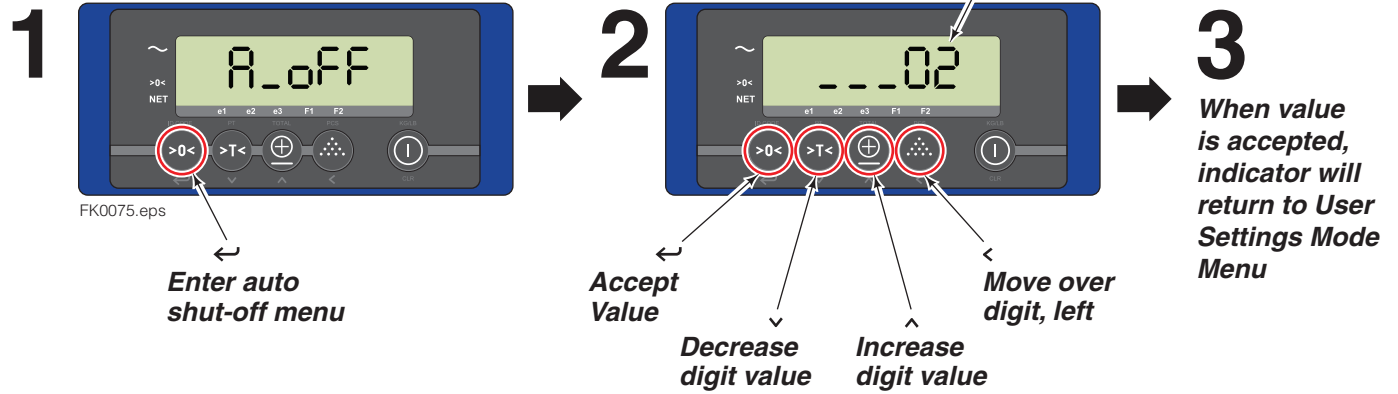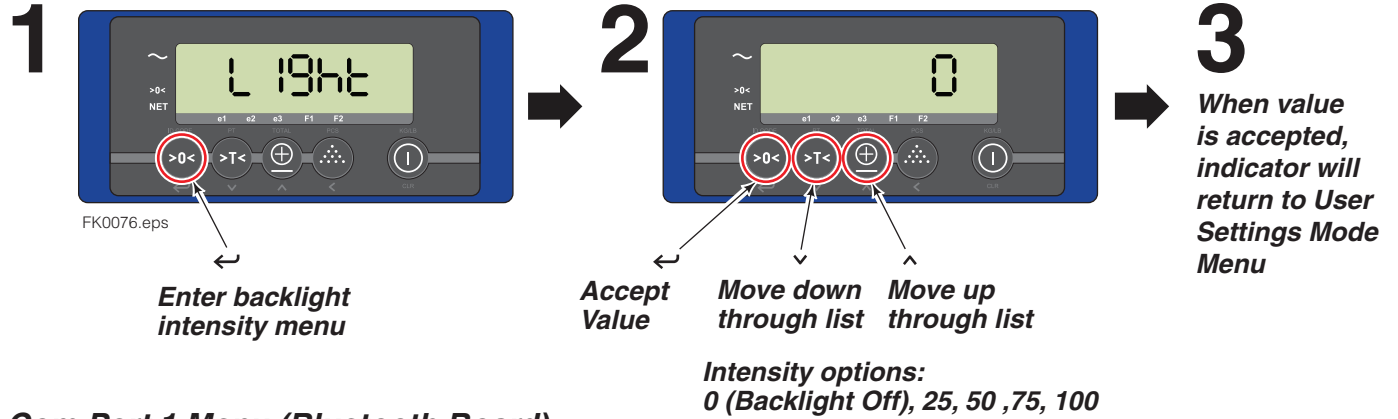### Auto Shut-Off Menu (Display)

NOTE: Auto shut-iff can be set to 0 only when the display is hardwired to the truck power.

1
> A_oFF

FK0075.eps

↵
Enter auto shut-off menu

2

Selected digit (minutes) flashes

> ___02

↵
Accept Value

Decrease digit value

Increase digit value

Move over digit, left

3
When value is accepted, indicator will return to User Settings Mode Menu

Backlight Intensity Menu

1
> L 19ht

FK0076.eps

↵
Enter backlight intensity menu

2
> 0

↵
Accept Value

Move down through list

Move up through list

Intensity options: 0 (Backlight Off), 25, 50 ,75, 100

3
When value is accepted, indicator will return to User Settings Mode Menu

Com Port 1 Menu (Bluetooth Board)

1
> Conn1

FK0077.eps

↵
Enter Com Port 1 menu

Com Port 1 can not be de-activated
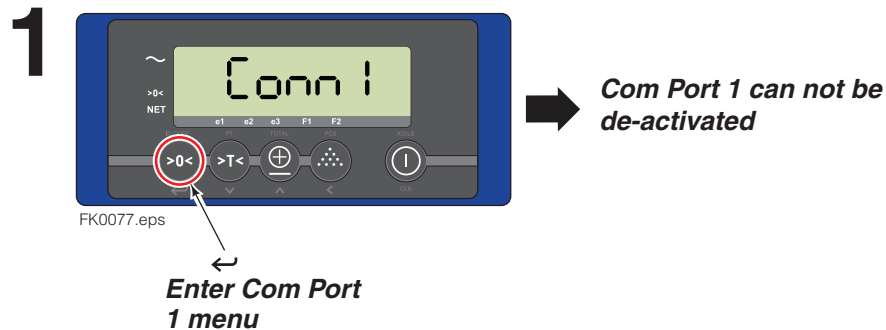
Com Port 2 Menu (Printer Board)

1
> Conn2

FK0078.eps

↵
Enter Com Port 2 menu

2
> C2oFF

↵
Accept Value

Move down through list

Move up through list

Options: C20ff – De-activate Com Port 2 C2_on – Activate Com Port 2

3
When value is accepted, indicator will return to User Settings Mode Menu

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.
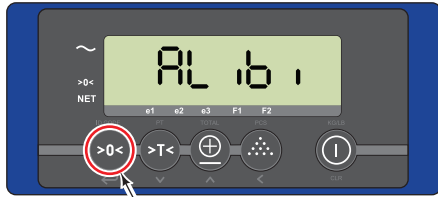

1 *Enter Alibi Menu*

Entry Mode Guide

C   A   B

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

A (>T<) **OR** (⊕)
⌄ Decrease the Value
⌃ Increase the Value

B (⠿)
< Shift to the next digit on the left

C (>0<)
↩ Accept the value

FK0079.eps

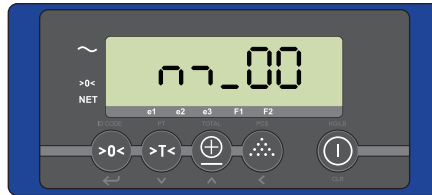**2** *Use Entry Mode to look up alibi number information*

Enter alibi number (based on printout or PC data)

Date Setting: Day

Date Setting: Month
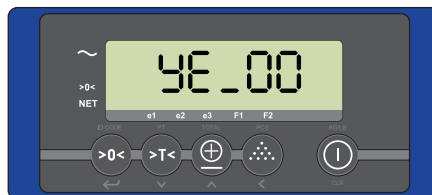
Date Setting: Year

Time Setting: Hour

Time Setting: Minute

Alibi Memory (Continued)

"Gross" shows for 5 seconds
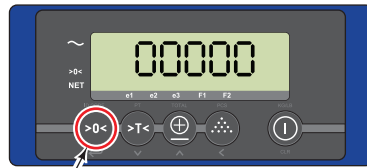
Gross weight will show

Press enter zero key to move onto next information menu
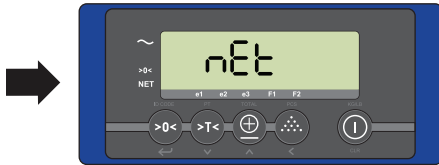
"Net" shows for 5 seconds

OR

"Net_C" shows for 5 seconds
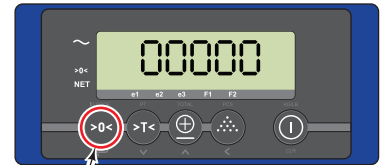
Net: weight is measured
Net_C: Weight is calculated

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

FK0080.eps

Code will show.
If no code was used
"0" will show.
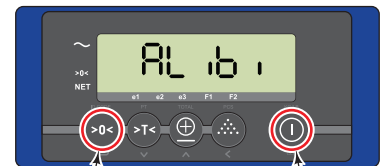
Arrow: Search for another weighing

CLR: Return to the normal weighing mode

PRINTER OPTION

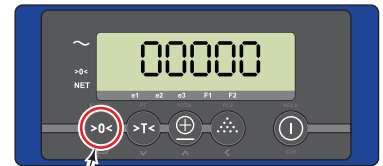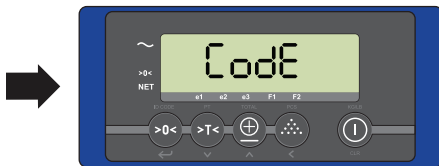**NOTE:** For troubleshooting, refer to iForks service manual.

Print Weight

B/G	250.0 kg.
T	25.0 kg.
N	275.0 kg.
Nr.	1
10/15/09	17:45

2 *Press total button to print*

3 *Printer will print out load weight*

1 *Weigh load*

250 kg

NOTE: This will add the weight to the total weight.

FK0081.eps

Print Total Weight

FK0082.eps

1 *Hold Total button for 3 seconds*

2 *Press to print*

Tot. B/G	2000.0 kg.
Tot. T	50.0 kg.
Tot. N	1950.0 kg.
Tot. Nr.	5
10/15/09	17:55
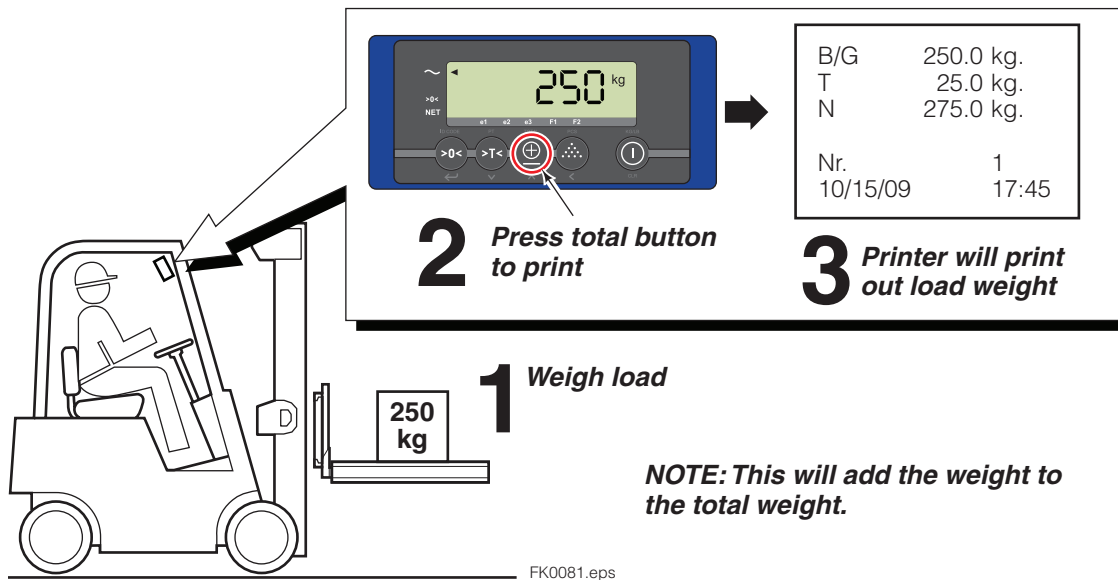
3 *Printer will print out load weight*

Change Time & Date Printout

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

250

1 *Hold for 6 seconds*

ho_00 — *Time Setting: Hour*

n7_00 — *Time Setting: Minute*

dA_00 — *Date Setting: Day*

n7_00 — *Date Setting: Month*

YE_00 — *Date Setting: Year*

Entry Mode Guide

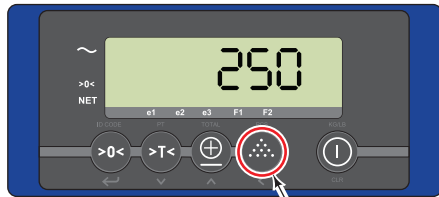**ho_00** kg

C   A   B

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

A (>T<) **OR** (⊕)

∨ Decrease the value   ∧ Increase the value

B (⊙)   **C** (>0<)

< Shift to the next digit on the left   ↵ Accept the value

FK0083.eps

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.

- 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).

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

B Inspect the upper carriage bar. If the gauge arrow touches the carriage bar, repair or replacement is needed.

C Inspect the fork upper hooks. If the gauge arrow touches the hook, repair or replacement is needed.

FORK LOWER HOOKS, CARRIAGE

Wear Gauge

OK

UPPER CARRIAGE BAR

OK

FORK UPPER HOOKS

OK

FP0832.eps
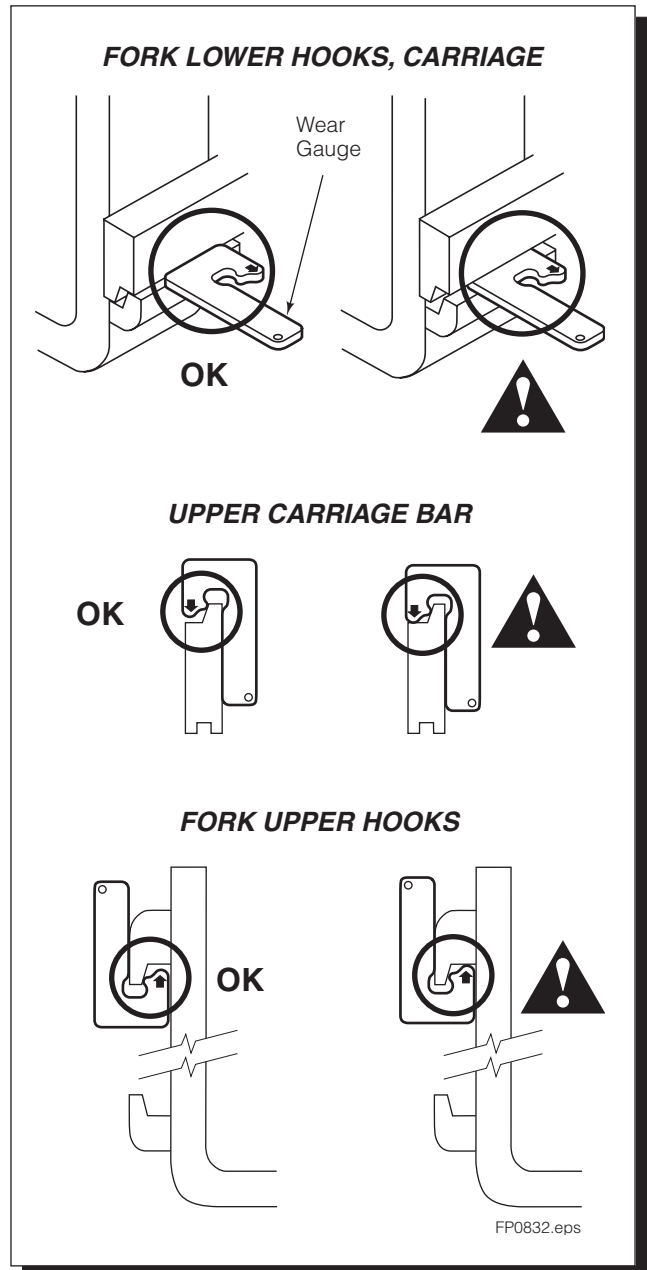
2000-Hour (Continued)

Inspect forks

**NOTE:** Use fork calipers on fork up to and including 4 in. (100 mm) thick. Fork calipers indicates a 10% wear factor would be when calipers are applied to the blade cross-section.

A Remove fork shoe from forks. For reassembly, tighten 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.

B

C

2 in. (50 mm)

Remove
Fork Shoe

Fork Arm Blade Cross Section 100 %

OK

Fork Arm Blade Cross Section 90 %

Repair or Replace
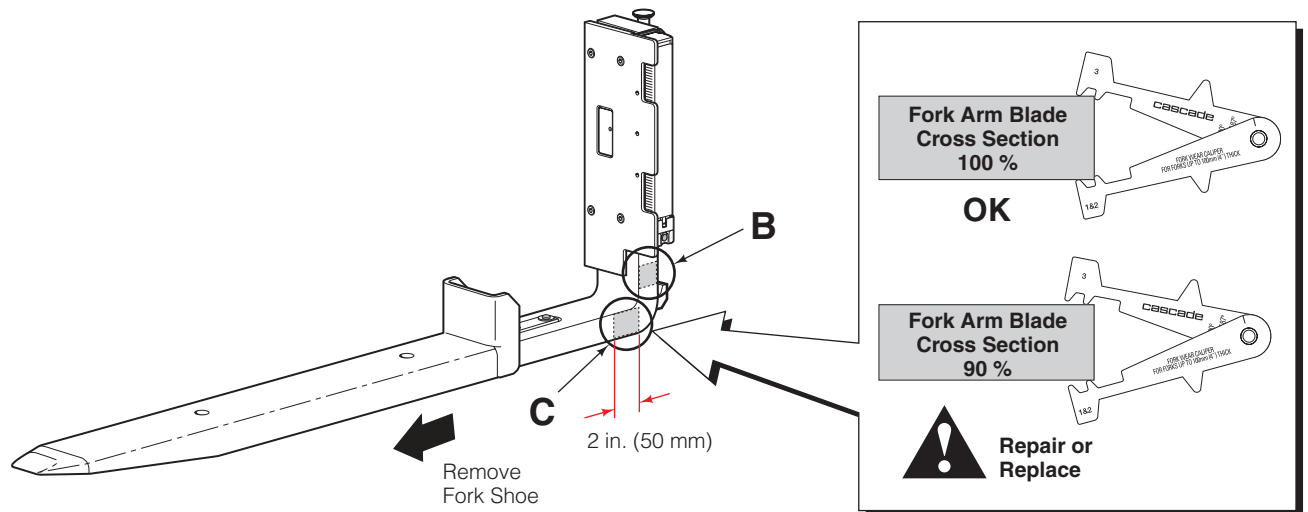
FK0088.eps

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