SA13-QT

SERVICE MANUAL

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Ⅰ PRECAUTIONS

1. Avoid exposing the scale to high temperatures and damp conditions.
2. Keep the scale clean and avoid insects from entering the scale.
3. Avoid heavy objects impacting with the scale.
4. The load placed on the weigh pan must not exceed the maximum weighing capacity of the scale.
5. If the scale is not to be used for an extended period of time it is recommended that the scale is cleaned and stored in a plastic bag in dry conditions. A desiccant may be included.
6. Remove the plastic drip cover from the scale for best weighing accuracy.
7. We welcome any comments or suggestions that you may have about this product. Please contact your dealer.

Ⅱ PREPARING TO USE THE SCALE

1. Locate the scale on a firm level surface free from vibrations for accurate weight readings.
2. Adjust the four feet underneath the scale to ensure the “bubble level” is in the centre position.
3. Do not place the scale where the temperature changes dramatically or in a location where draft can affect the weighing. Example: Do not expose the scale directly to sunlight or air-conditioning units.
4. If possible connect the scale to an electric socket separate from other appliances to avoid interference.
5. Do not leave anything on the scale when it is not in use or when switching it on.
6. Please locate the goods in the centre of the weigh pan. It will ensure best accuracy of the weight.
7. It is recommended that the scale is warmed up for 15-20 minutes before use.
8. Recharge the internal battery, as appropriate, when low battery symbol is displayed. .
9. The overall dimensions of the goods being weighed should not exceed the dimension of the weigh pan**.**

Ⅲ FEATURES AND SPECIFICATIONS

Features:

- **Multi-function operation:** Fast weighing operation; Full range tare; Net / Gross weight display; Simple counting (pcs); Auto power-off; Hold function.
- **Weighing units:** gram (g) and ounce (oz).
- **Design and function:** Auto calibration; Large LCD display (digit height 18.5 x 8.5 mm); Gravity compensation; low battery warning indicator; Over-load protection.
- **Power source:** The power source can either be from AC / DC, internal rechargeable battery.

Options:

- Stainless steel weigh pan
- LED display backlight

Specifications:

Model	Capacity	Division	Resolution	Min. Cap.
SA13-QT-1.5	1.5 kg	0.5 g	1/3000	10 g
SA13-QT-3	3 kg	1g	1/3000	20 g
SA13-QT-6	6kg	2g	1/3000	40 g
SA13-QT-15	15 kg	5 g	1/3000	100 g
SA13-QT-30	30 kg	10 g	1/3000	200 g
SA13-QT-6-D	0～3kg 3～6kg	1g 2g	1/3000	20g
SA13-QT-30-D	0～15kg 15～30kg	5g 10g	1/3000	100g
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)			
Power Source	AC 220V (± 10%) + 6V/4A rechargeable battery			
Weigh pan Size	230 x 290 mm (Plastic weigh pan / Stainless steel weigh pan)			

Product Package:

- The scale
- An AC adapter
- User manual
- Please contact your supplier, if any of the items described above are missing.

Selectable Weight Units and Piece Unit:

Kilogram (kg)	1 g = 0.001 kg
Gram (g)	1 g = 1 g
Pound (lb)	1 g = 0.002204623 lb
Pound/Ounce (lb, oz)	1 g = 0.03527396 oz
Ounce (oz)	1 g = 0.03527396 oz
(GN)	1 g = 15.432358 GN
(dwt)	1 g = 0.6430149 dwt
(ct)	1 g = 5 ct
Piece (pcs)	

Error Messages:

E0 ⇒ The EEPROM memory is not working correctly.

E 1 ⇒ Zero is higher than the zero range when switching the scale on.

E2 ⇒ Zero is lower than the zero range when switching the scale on.

E4 ⇒ A/D value is unstable.

E5 ⇒ A/D value is lower than -31250.

E9 ⇒ A/D IC malfunction (cannot read A/D value). The load cell may not be connected to the scale correctly.

oF ⇒ A/D value is higher than +31250.

oL ⇒ The weight of the object is over the maximum capacity + 9 divisions.

ErrC ⇒ After calibration the displayed resolution is greater than the internal resolution.

ErrG ⇒ The gravity value is outside the range 9.772 ~ 9.829.

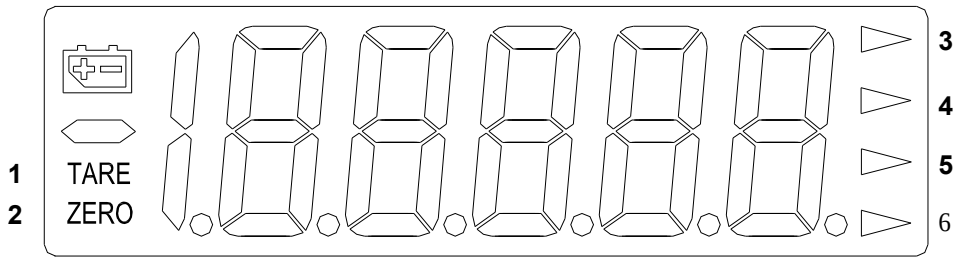
Err5 ⇒ Error setting.

----H ⇒ The weight value is higher than the zero range, when re-zeroing the scale.

----L ⇒ The weight value is below the zero range, when re-zeroing the scale.

Ⅳ DISPLAY EXPLANATION

LCD Display



Tare **:** "Tare" indication

Zero **:** "Zero" indication

► **3** **:** The 1st weighing unit indication.

► **4** **:** The 2nd weighing unit indication

► **5** **:** The 3rd weighing unit indication

► **6** **:** The 4th weighing unit indication.

: "Low Battery" indication.

V KEYBOARD FUNCTION

1. (OFF) : OFF key. The key used to switch the scale off.

2. [ON/ZERO] : On /Zero Key. To switch on the scale or to re-zero the display if the reading is not zero and there is no load on the weigh pan. (Zero range:±2% of scale capacity)

3. [TARE] : TARE key. Press the key to deduct the weight of a container.

- The tare key works when the weight value shown on the display is negative or over the full scale capacity.

4. [UNITS] : Units key. Press the key to select the desired weight units or count units (pcs).

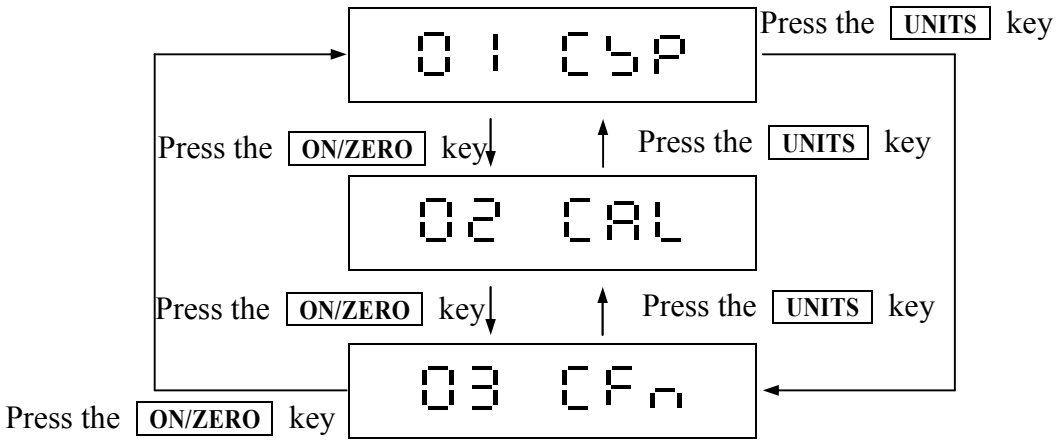
5. [NET/GROSS] : Gross /Net weight key

   Gross weight = Tare weight + Net weight

   (The key works only in the Tare mode)

Ⅵ SERVICE MODE ACCESS

- Set the jumper SWA1 on the main board to the ADJ position (EEPROM UNLOCKED). Press and hold the **TARE** key, followed by pressing the **ON/ZERO** key. Release the **ON/ZERO** key first and then the **TARE** key to enter the service mode; the display shows 01 CAP.
- Set the SWA1 jumper back to the LOCK position when service configuration is completed.
- If the SWA1 jumper is set to its LOCK position during calibration, the scale exits the service mode automatically.

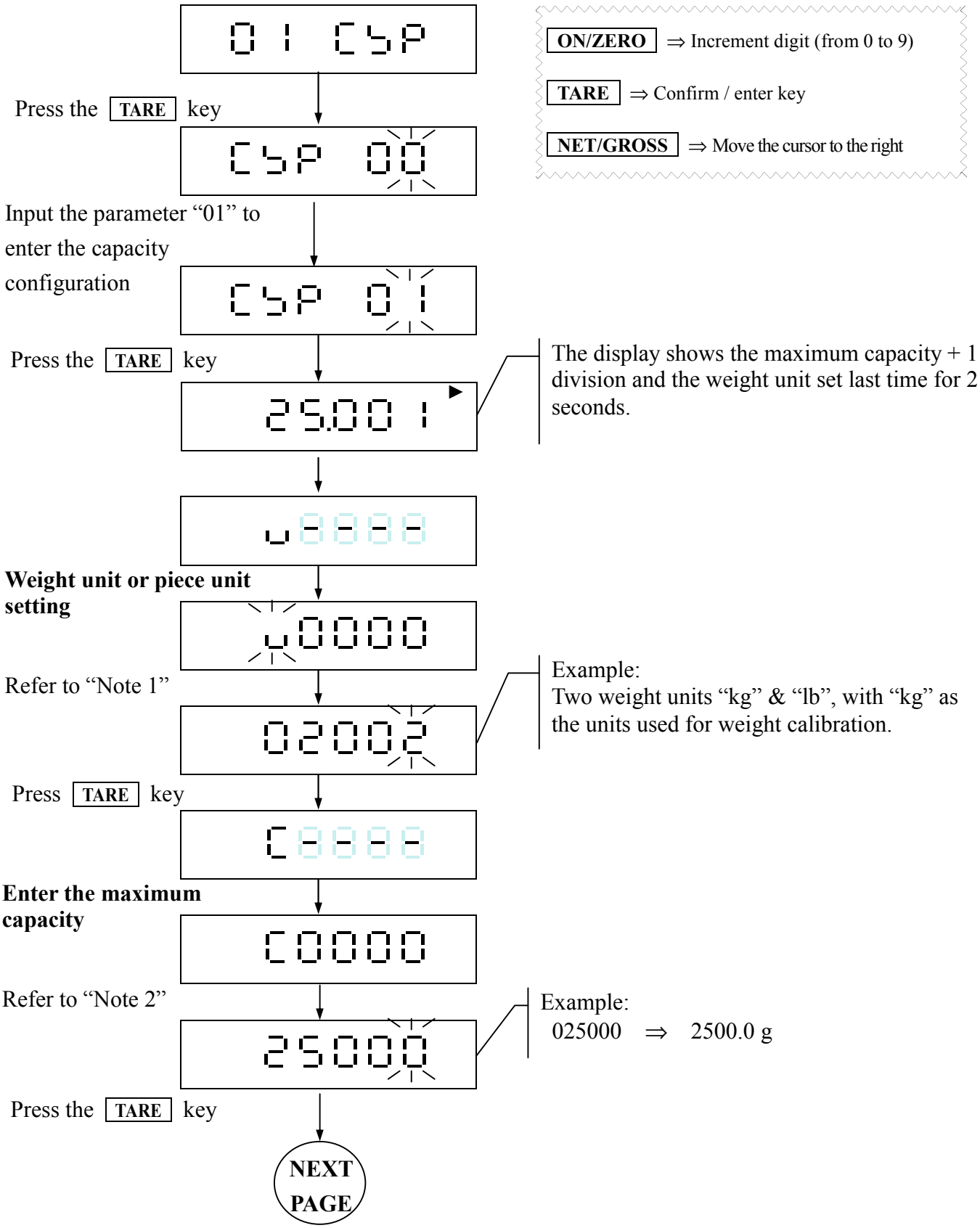


01 CAP ⇒ Capacity Configuration

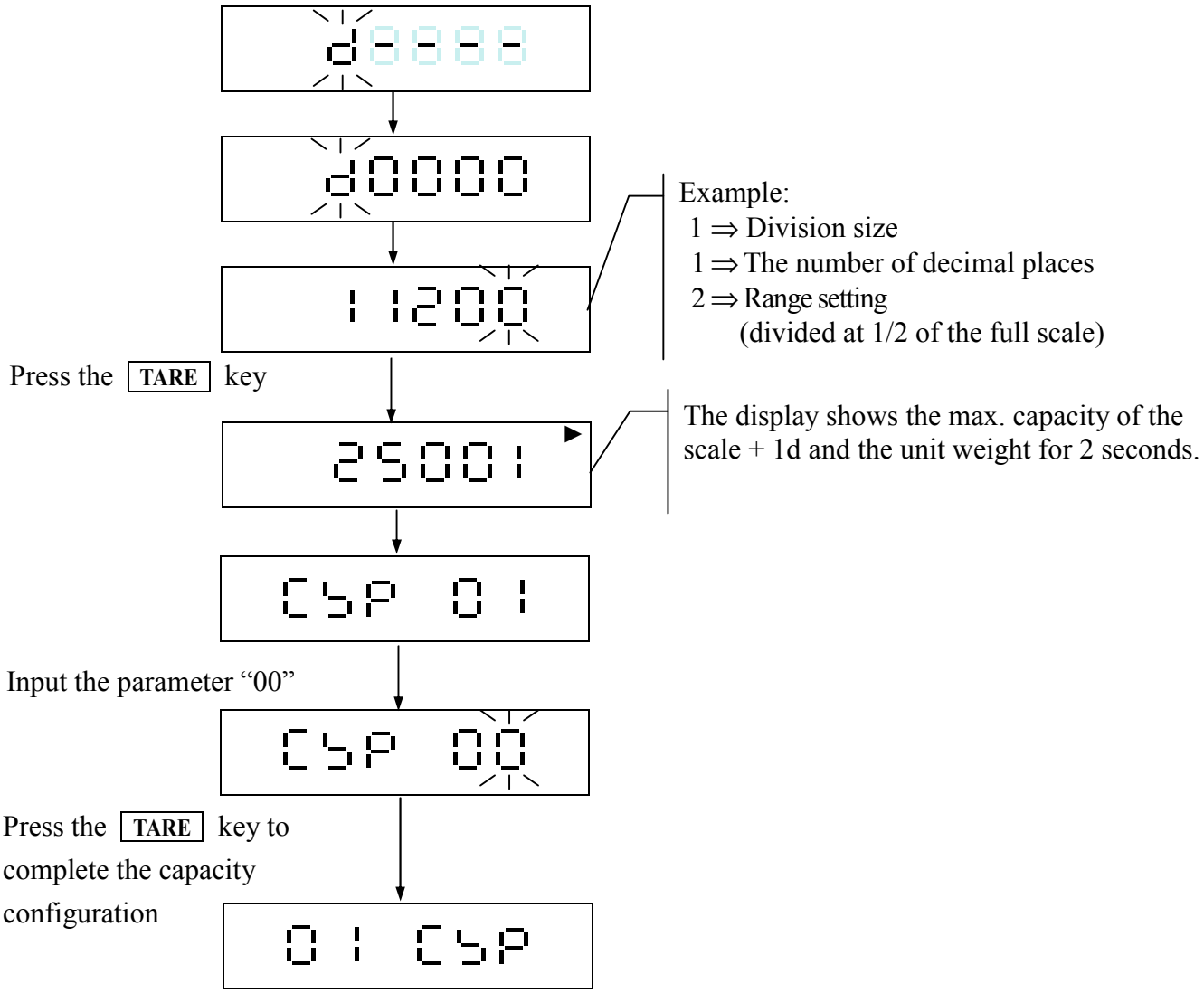
02 CAL ⇒ Weight Calibration

03 CFn ⇒ Function Settings

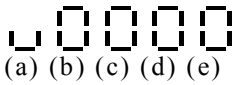
i. Capacity Configuration 01 CAP



Refer to “Note 3”



NOTE 1 The users can set up the different weight units in various orders according to their preference, and the amount of the chosen weight units can be up to 4.


(a) (b) (c) (d) (e)

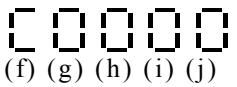
(a) ⇒ The first weight unit (only "kg" or "g" are available to choose from.
Select either 0 or 1
(b) ⇒ The second weight unit (select one of the parameters listed below)
(c) ⇒ The third weight unit (select one of the parameters listed below)
(d) ⇒ The fourth weight unit (select one of the parameters listed below)
(e) ⇒ The amount of the weight units selected (select one of parameters 1 ~ 4)

Available units:

0 ⇒ kg	4 ⇒ lb / oz	7 ⇒ dwt (only for the scale with the maximum capacity 30kg)
1 ⇒ g	5 ⇒ oz	8 ⇒ ct (only for the scale with the maximum capacity 3kg)
2 ⇒ lb	6 ⇒GN (only for the scale with the maximum capacity 3kg)	9 ⇒ pcs

For example:
The scale will operate with dual units "g"& "lb", i.e. two weight units. NOTE the scale is calibrated using "g" units.

NOTE 2 Enter the maximum capacity of the scale, total 5 digits

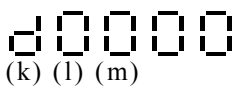

(f) (g) (h) (i) (j)

For example:

1500.0 g ⇒ Key in 15000

2500.0 g ⇒ Key in 25000

NOTE 3 Set the division size and decimal point position to determine the display resolution


(k) (l) (m)

(k) ⇒ Division size (select 1, 2, or 5)

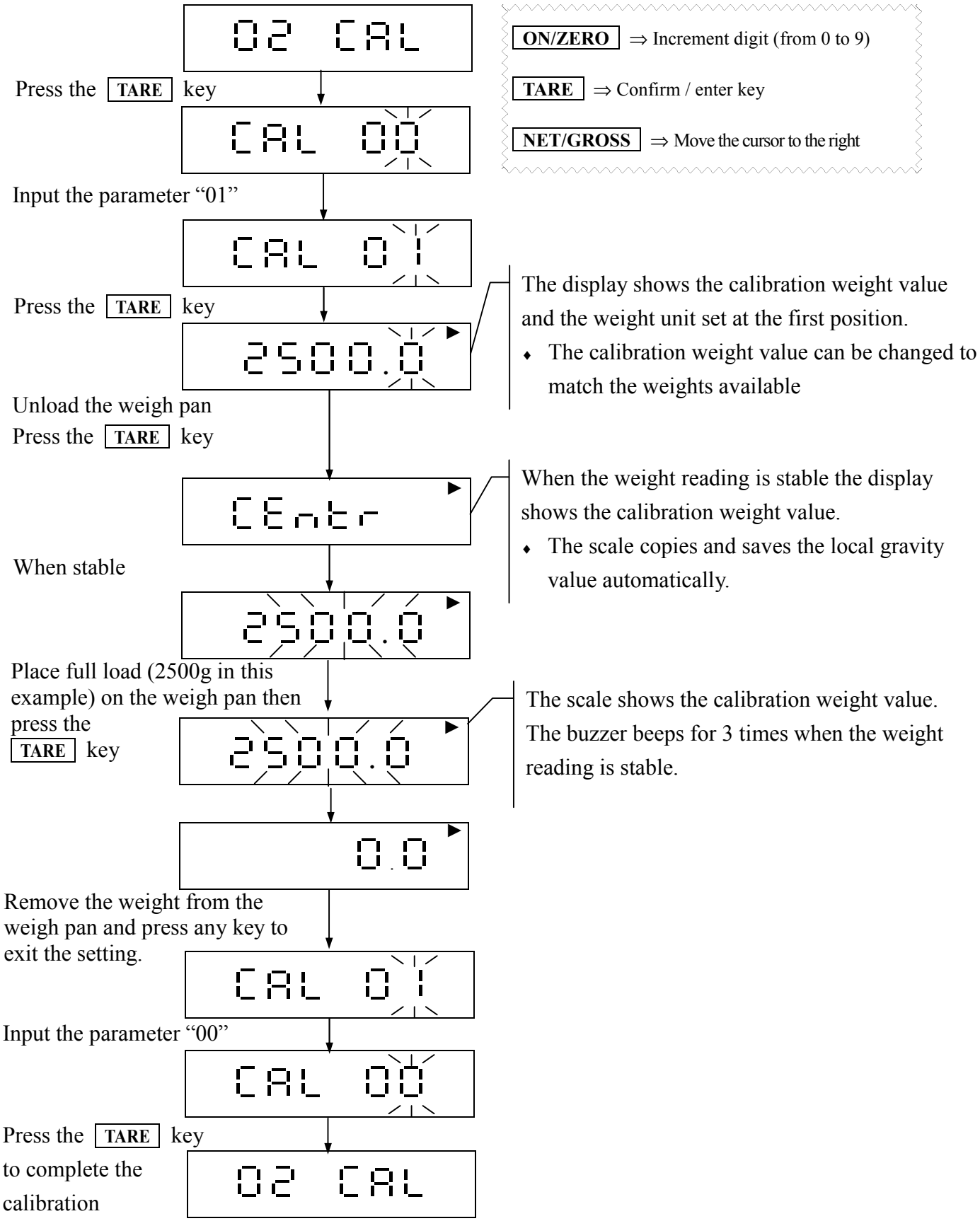
(l) ⇒ The number of decimal places (0 ~ 5)

For example: 15.000 kg ⇒ enter 3
1500.0 g ⇒ enter 1

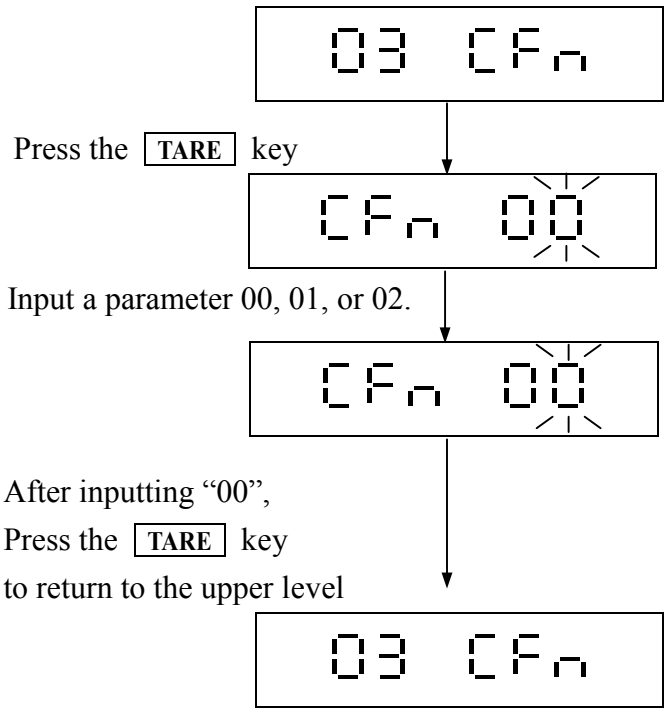
(m) ⇒ range setting (select one of parameters 0, 1, or 2)

For example: 0 &1 ⇒ full range, 2 ⇒ dual range(divided at 1/2 of the full scale)

ii. Weight Calibration 02 CAL



iii. Function Settings 03 CFn



ON/ZERO ⇒ Increment digit (from 0 to 9)

TARE ⇒ Confirm / enter key

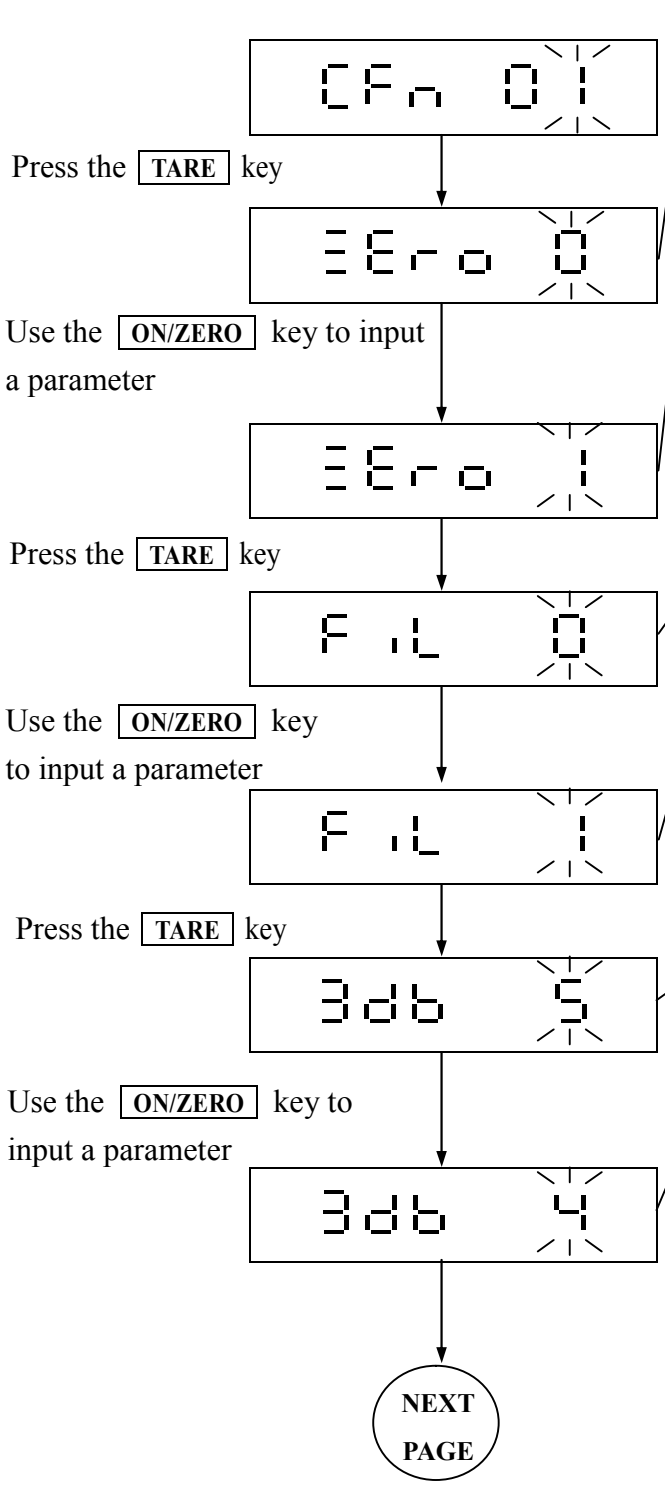
NET/GROSS ⇒ Move the cursor to the right

CFn 00 ⇒ Return to the upper menu level

CFn 01 ⇒ Environment settings

CFn 02 ⇒ Buzzer type

1. Environment Settings CFn 01



Returning to zero point setting

Displays the current setting

Returning to zero point setting

Use the **ON/ZERO** key to input a parameter

Default setting = 0

0 ⇒ show all	5 ⇒ cover 5 d
1 ⇒ cover 1 d	6 ⇒ cover 6 d
2 ⇒ cover 2 d	7 ⇒ cover 7 d
3 ⇒ cover 3 d	8 ⇒ cover 8 d
4 ⇒ cover 4 d	9 ⇒ cover 9 d

- The function is active when the weight value is over **1/3 of full capacity**

Digital switch &stable range parameter setting

Displays the current setting

Digital switch &stable range parameter setting

Use the **ON/ZERO** key to input a parameter

Default setting = 0

Parameter 0 ~ 9 ,

The greater the figure, the more stable the displayed weight will be

Filter parameter setting

Displays the current setting

Filter parameter setting

Use the **ON/ZERO** key to input a parameter

Default setting = 5

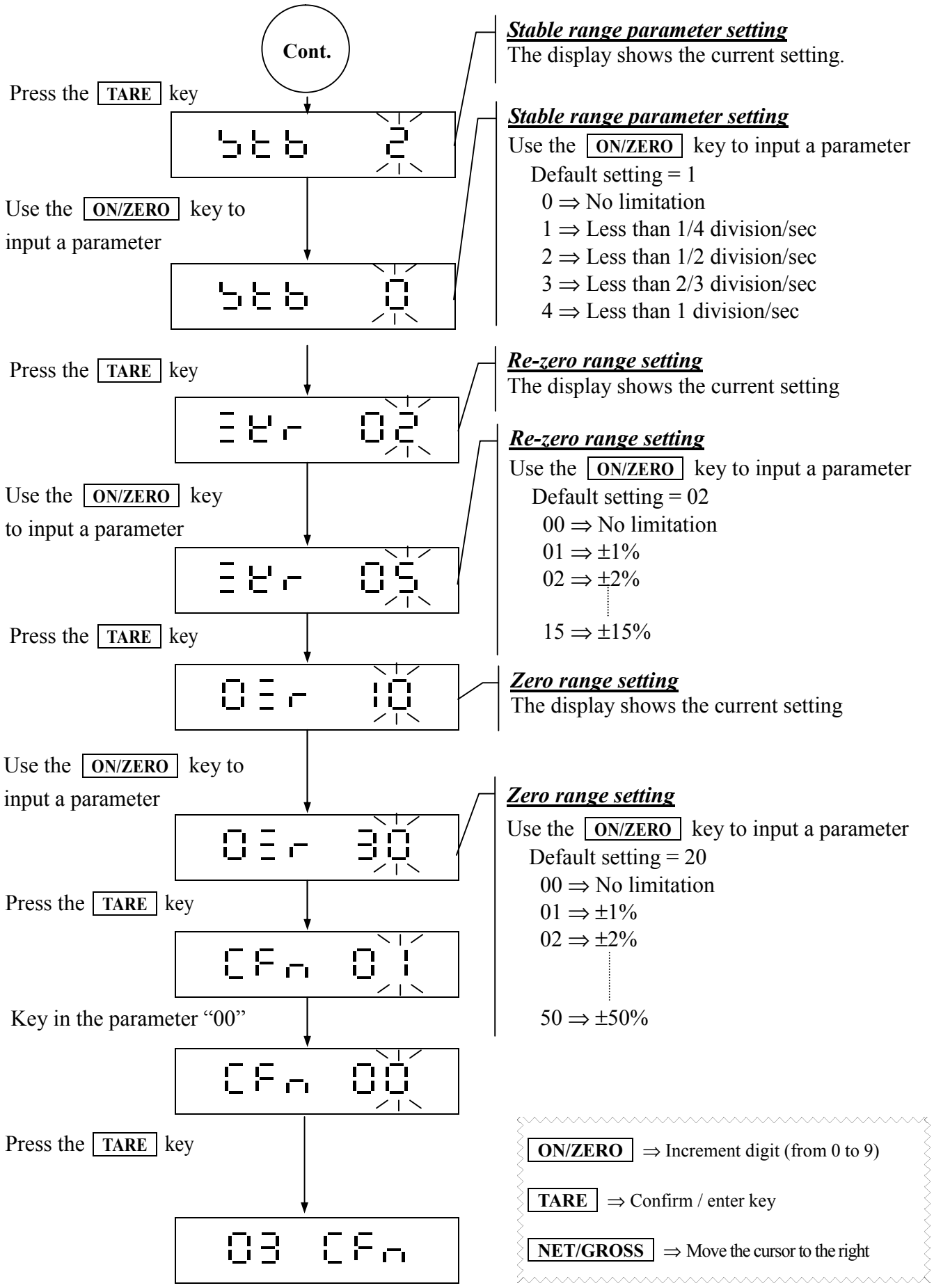
Parameter 0 ~ 9,

The greater the figure, the faster the filter will react. Consequently, the weight may be less stable.

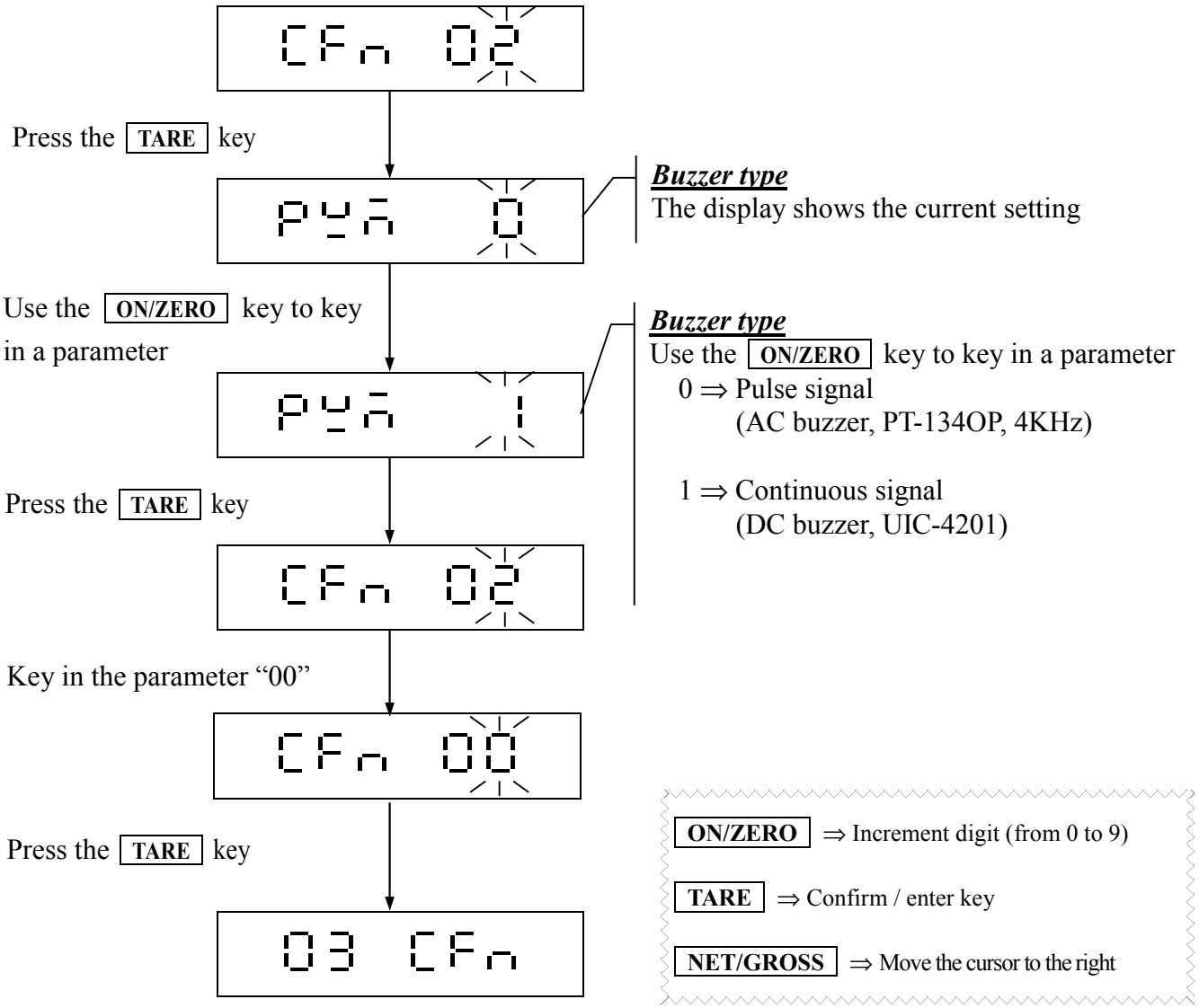
ON/ZERO ⇒ Increment digit (from 0 to 9)

TARE ⇒ Confirm / enter key

NET/GROSS ⇒ Move the cursor to the right


Cont.
Press the TARE key
Use the ON/ZERO key to input a parameter
Press the TARE key
Use the ON/ZERO key to input a parameter
Press the TARE key
Use the ON/ZERO key to input a parameter
Press the TARE key
Key in the parameter "00"
Press the TARE key
03 CFn
Stable range parameter setting
The display shows the current setting.
Stable range parameter setting
Use the ON/ZERO key to input a parameter
Default setting = 1
0 ⇒ No limitation
1 ⇒ Less than 1/4 division/sec
2 ⇒ Less than 1/2 division/sec
3 ⇒ Less than 2/3 division/sec
4 ⇒ Less than 1 division/sec
Re-zero range setting
The display shows the current setting
Re-zero range setting
Use the ON/ZERO key to input a parameter
Default setting = 02
00 ⇒ No limitation
01 ⇒ ±1%
02 ⇒ ±2%
15 ⇒ ±15%
Zero range setting
The display shows the current setting
Zero range setting
Use the ON/ZERO key to input a parameter
Default setting = 20
00 ⇒ No limitation
01 ⇒ ±1%
02 ⇒ ±2%
50 ⇒ ±50%
ON/ZERO ⇒ Increment digit (from 0 to 9)
TARE ⇒ Confirm / enter key
NET/GROSS ⇒ Move the cursor to the right

2. Buzzer type CFn 02



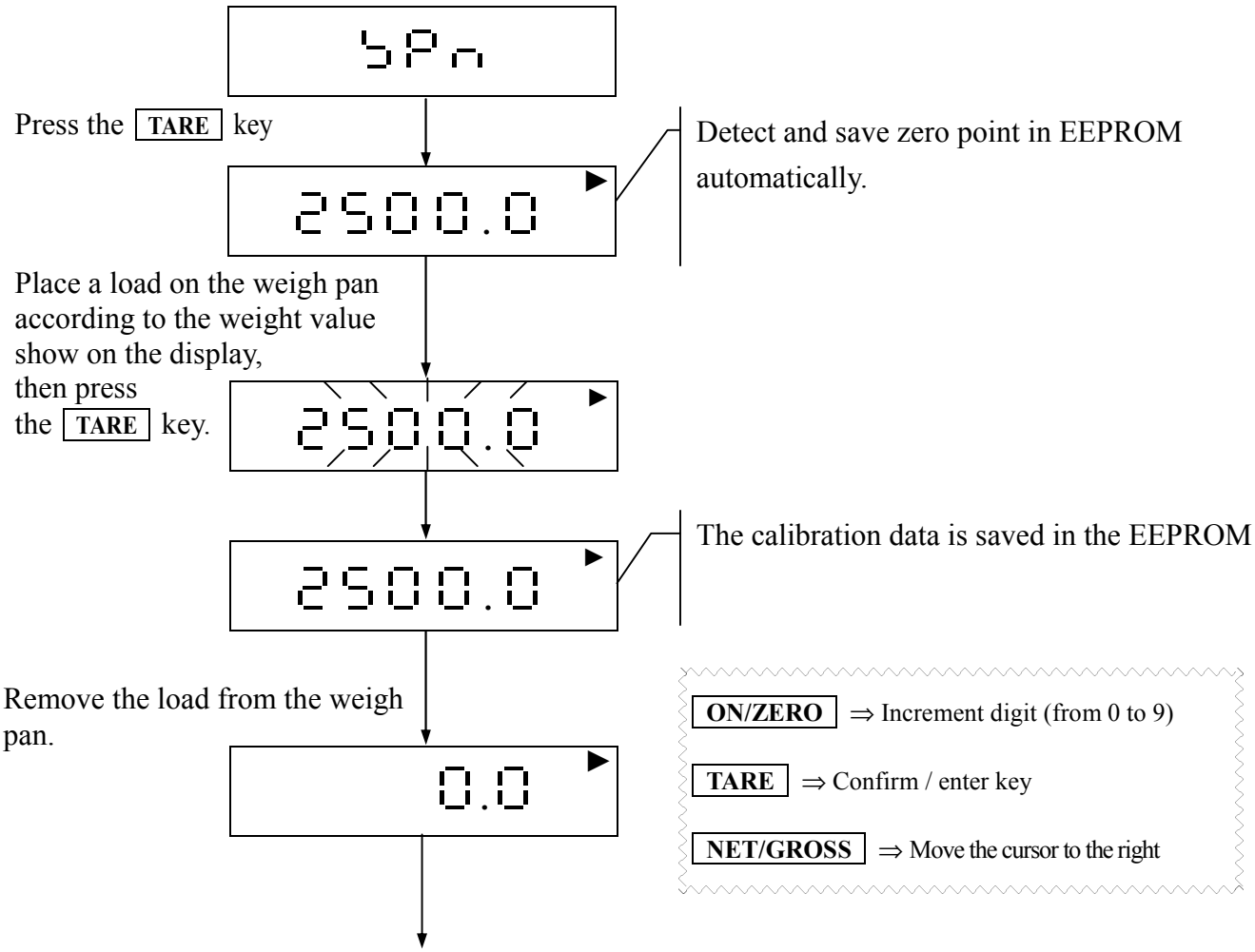
iv. Span calibration SPn

- Set the jumper SWA1 on the main board to the ADJ position (EEPROM UNLOCKED).

  Press the **ON/ZERO** key to enter the SPAN calibration mode;

  the display shows SPn .

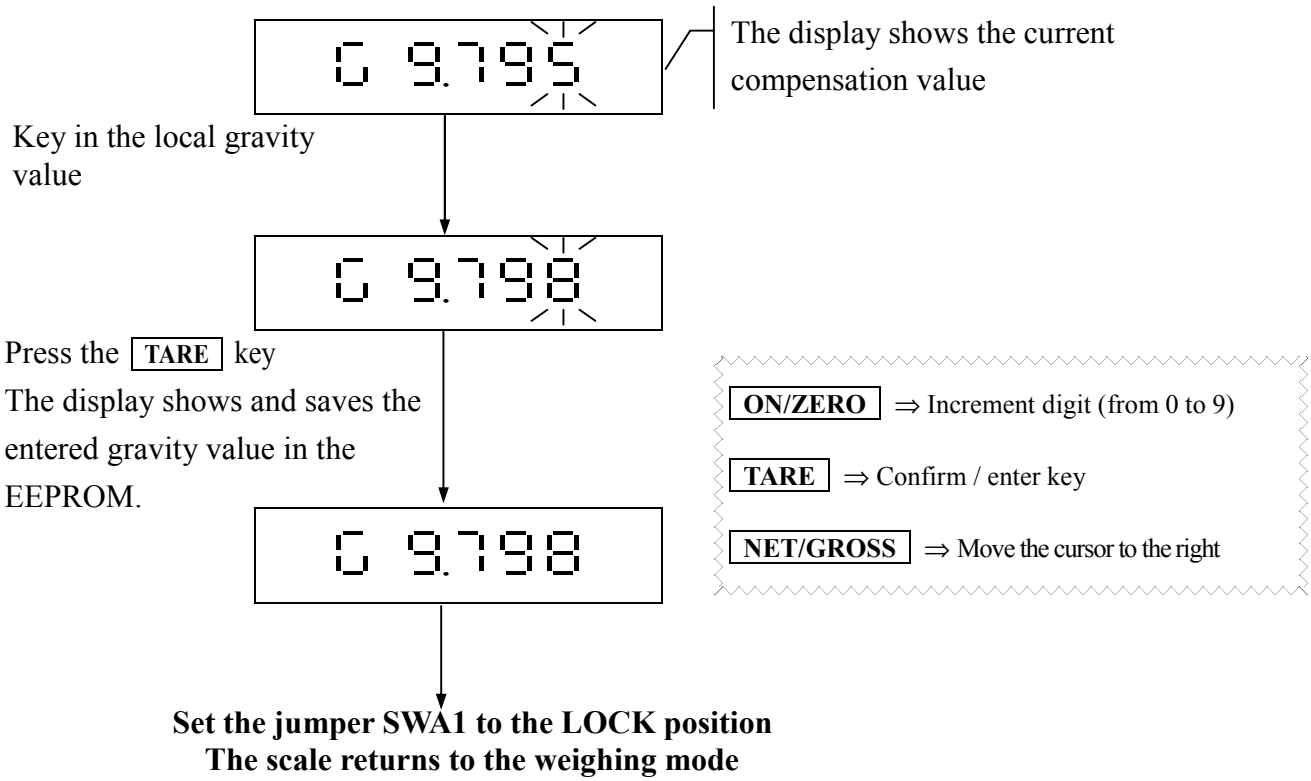
- Set the jumper SWA1 back to the LOCK position, after completing the calibration.
- If the jumper SWA1 is set back to the LOCK position during calibration, the scale exits the service mode automatically.



Set the jumper SWA1 to the LOCK position.
The scale returns to the weighing mode.

v. Gravity Compensation

Set the jumper SWA1 on the main board to the ADJ position. Press the **ON/ZERO** key to switch on the scale, and press the **ON/ZERO** key again before the display resets back to zero. The scale enters the gravity compensation mode.



- The gravity value must lie between those at the Equator and the Polar Regions.

  Gravity value at the equator $G_E = 9.7803184558$ m/sec^2

  Gravity value at the polar region $G_P = 9.8321772792$ m/sec^2

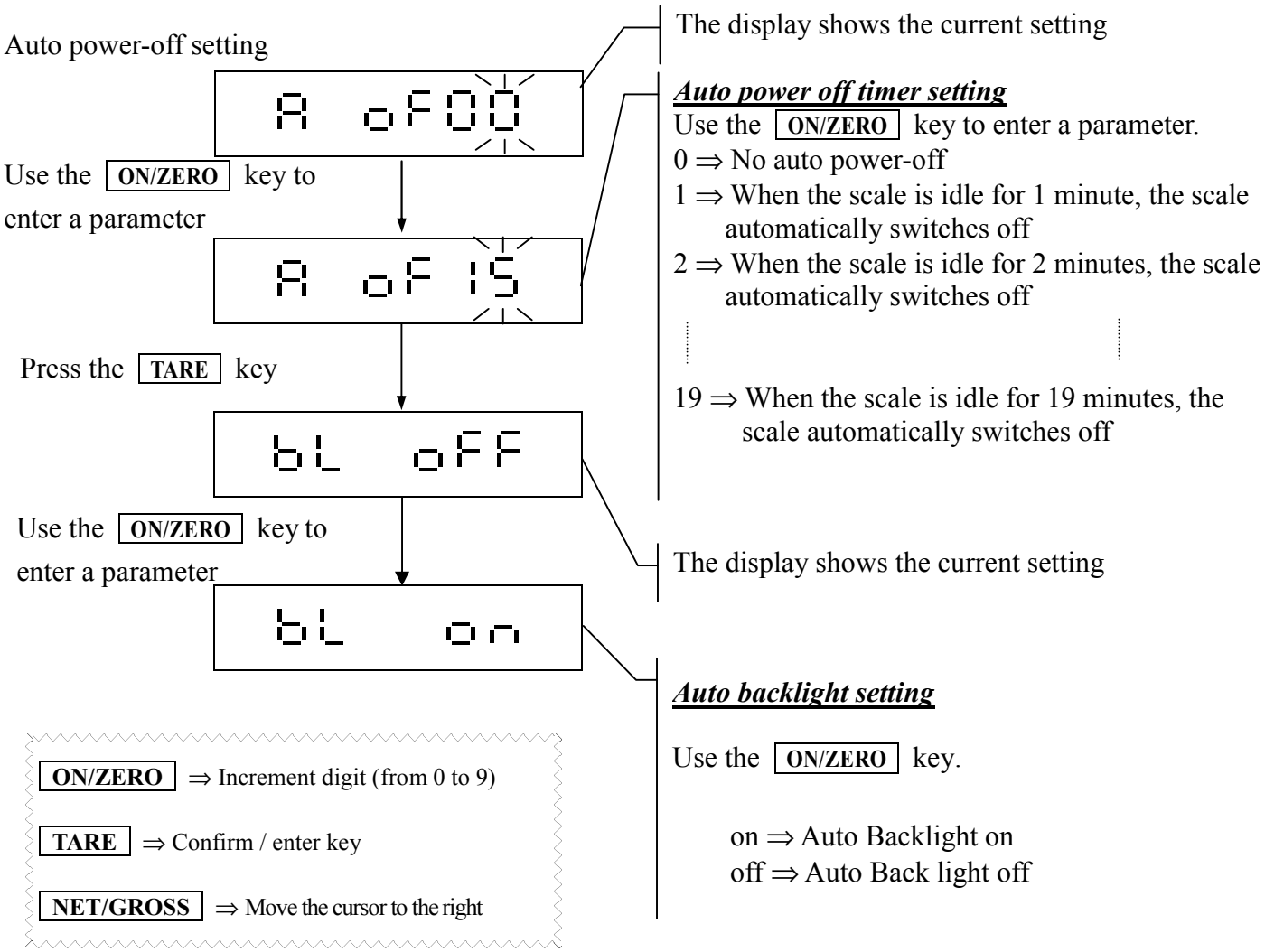
  Taipei: 9.78914 m/sec^2 Shanghai: 9.79585 m/sec^2

- The display shows error message Err G, when the gravity value is NOT within the range 9.772~9.829.

Ⅶ ADVANCED FUNCTIONS

i. Auto Power off and Backlight Settings

Switch on the scale; press the **ON/ZERO** and then the **NET/GROSS** keys to enter the advanced functions mode. The display shows A oF00



Automatic Power-off Function

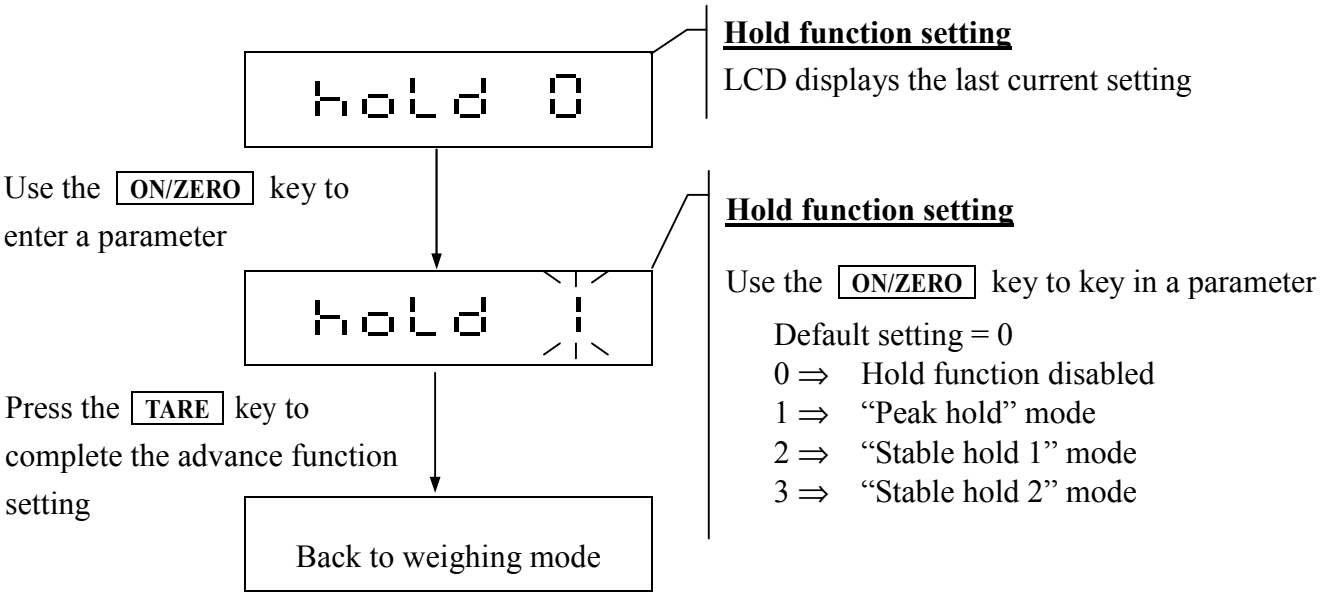
When the weight on weigh pan is less than 10d or remains steady for the set time, the scale will automatically switch off.

- Automatic power-off is not functional, when using AC adaptor as the power source. Therefore, auto power-off is **ONLY** active, when using dry batteries as the power source.

Auto Backlight Function

When the weight is over 10d, the backlight is on. After the weight is stable for 10 seconds or when the scale returns to zero, the backlight switches off.

ii. Hold Function Setting



ON/ZERO ⇒ Increment digit (from 0 to 9)

TARE ⇒ Confirm / enter key

NET/GROSS ⇒ Move the cursor to the right

hoLd 0 = Hold function disabled.

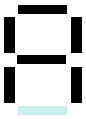
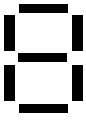
hoLd 1 = **"Peak hold" mode**
The scale shows the maximum weight value detected from the continuously changing weight values. Press any key to exit the hold function.

hoLd 2 = **"Stable hold 1" mode**
After the scale is stable, the display shows the current weight value. Press any key to exit the hold function.

hoLd 3 = **"Stable hold 2" mode**
After the scale is stable, the display shows the current weight value. Re-zero the scale to exit the hold function.

Ⅷ APPENDIX

Displayed digits:

Digit	Display	Character	Display	Character	Display
0		A		N	
1		B		O	
2		C		P	
3		D		Q	
4		E		R	
5		F		S	
6		G		T	
7		H		U	
8		I		V	
9		J		W	
		K		X	
		L		Y	
		M		Z	