SF/SG SERIES

SF-6KA / SF-15KA / SF-30KA
SF-6KB / SF-15KB / SF-30KB
SF-6KC / SF-15KC / SF-30KC
SG-6KA / SG-15KA / SG-30KA

PRICE COMPUTING SCALES

CALIBRATION MANUAL

A&D

A&D Company, Limited

CONTENTS

1. INTRODUCTION

This manual describes how to calibrate the SF/SG series price computing scales and how to set various functions.

2. NOTES ON CALIBRATION

The SF/SG series price computing scales have been calibrated at a factory located in an area with a gravitational acceleration of 9.798 m/s². If the scale is used in an area where the gravitational acceleration differs by more than 0.002 m/s² from the value above, calibration is required.

There are two calibration modes: zero calibration and span calibration.
Usually span calibration is performed using a calibration mass. In case that a calibration mass is not available, you can enter your local gravitational acceleration value instead to minimize errors due to the difference in gravitational acceleration.
Zero calibration can be performed independently.

•Where to locate the CAL key:
Remove the weighing pan and locate the cover on the center right. Opening the cover reveals the CAL key inside.
Press the CAL key so that the scale is in calibration mode. Replace the weighing pan.

The CAL key is located under this cover.
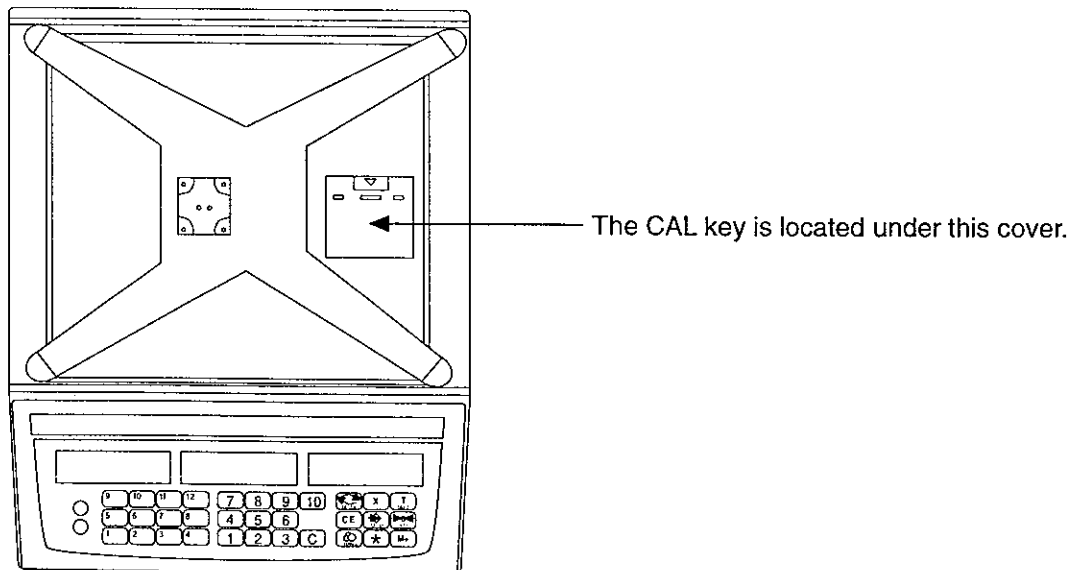
Fig.2-1 The CAL key location

3. CALIBRATION

3-1. Entering the calibration mode

While the scale is in weighing mode, press the CAL key. The weight and price display is turned off and the unit price display shows "CAL ", indicating the scale is now in calibration mode.

1. To return to the previous state (weighing mode) without calibration, press the C key.

2. To calibrate, press the $*$ key. The unit price display shows "$G\ 9.XXX$", where "$9.XXX$" is the preset gravitational acceleration value.
   To change the value, proceed to "3-4. Setting the gravitational acceleration".
   To perform zero calibration, proceed to the next section.

3-2. Zero calibration

Performs zero calibration. This can be performed independently of span calibration.

1. With the gravitational acceleration being displayed in the unit price display, press the C key. "$CAL\ 0$" appears in the unit price display, indicating the scale is in zero calibration mode. When the weight value has stabilized, the stable indicator illuminates. The stable indicator is a solid triangle ($\blacktriangledown$ for the fluorescent type display) or a circle (O for the LC display) on the left of the unit price display.
   To cancel calibration, press the C key. "$CAL\ End$" appears.

2. Verify that nothing is placed on the weighing pan and the stable indicator is on.

3. Press the $*$key. "$------$" appears for about two seconds in the unit price display. After the scale acquires the zero point data, "$CAL\ XX$" appears.
   If zero calibration failed, "$Err\ 4$" appears for about two seconds and the unit price display returns to "$CAL\ 0$".
   If the weight value exceeds the weighing capacity or is unstable, the $*$ key will be disabled.

4. To finish calibration without span calibration, press the C key. "$CAL\ End$" appears.

5. To perform span calibration, proceed to the next section.

3-3. Span calibration

Performs span calibration using a calibration mass.
The unit price display shows "$CAL\ XX$" when zero calibration is performed. In place of XX, the weighing capacity of the scale appears, e.g. 30 for the scale with a weighing capacity of 30 kg.
To cancel span calibration, press the C key. "$CAL\ End$" appears.

1. Place a calibration mass equivalent to the value displayed in place of XX on the center of the weighing pan and wait for the stable indicator to illuminate.
   The stable indicator is a solid triangle (▼ for the fluorescent type display) or a circle (O for the LC display) on the left of the unit price display.

2. Press the ✳ key. "- - - - - -" appears for about two seconds in the unit price display. After the scale acquires the weight value of the calibration mass, "*CAL End*" appears. Calibration is completed.
   If span calibration failed, "*Err 5*" appears for about two seconds and the unit price display returns to "*CAL XX*".
   If the weight value exceeds the weighing capacity or is unstable, the ✳ key will be disabled.

   Note) Generally for span calibration, the calibration mass equivalent to the weighing capacity is used. If such masses are not available, a mass with a smaller value can be used. To do so, change the XX value by pressing the CHANGE key. Each time the CHANGE key is pressed, the value changes as follows:

Weighing capacity		
30 kg:	30 → 20 → 10 → 30 →
15 kg:	15 → 10 → 5 → 15 →
6 kg:	6 → 4 → 2 → 6 →

3-4. Setting the gravitational acceleration

As described above, a calibration mass is used for span calibration. If a mass is not available, errors due to the difference in the gravitational acceleration can be minimized by setting the local value of gravitational acceleration.

1. While the scale is in weighing mode, press the CAL key. The weight and price display is turned off and the unit price display will show "*CAL*", indicating the scale is now in calibration mode.
   Press the ✳ key to show "*G 9.XXX*" in the unit price display.

2. Use the numeric keys to enter the local value of gravitational acceleration with a maximum four digits.
   The range is between 9.835 m/s² and 9.770 m/s².

3. Press the ✳ key to confirm the setting. "- - - - - -" appears for about two seconds in the unit price display and then "*CAL 0*" to enter the zero calibration mode.
   To finish the operation without calibration, press the C key. "*CAL End*" appears.
   If the entered value is beyond the range, "*Err 3*" appears for about two seconds and the display returns to "*G 9.XXX*".

3-5. Quitting calibration

When calibration is completed or canceled, "*CAL End*" appears. Press the C key to return to normal weighing mode.

4. FUNCTION LIST

4-1. Functions

There are three function setting types: For factory adjustment, for dealers to meet the user's demands, and for the user to set optionally. They are called "A" function, "C" function, and "F" function respectively. If the scale is sealed for commercial use, "A" and "C" functions are not available to be changed.

1. "F" function (User function)
To enter the user function mode, while holding down the ZERO key, turn on the power switch. For detail about the user function mode, see the instruction manual.

2. "A" and "C" functions
To set the "A" and "C" functions, the scale should be in the factory setting mode first. While holding down the STANDBY/OPERATE and PLU 10 keys, turn the power switch on. Release all the keys. Then, while holding down the PLU 1 key, press the STANDBY/OPERATE key. The scale is in the factory setting mode and "5Et , nG" appears in the unit price display.
With "5Et , nG" displayed, hold down the numeric 2 key and press the CAL key to be in "A" function setting mode. "A I-" appears in the unit price display.
Hold down the numeric 3 key and press the CAL key to be in "C" function setting mode. "C I-" appears in the unit price display.

The setting operation is as follows:

Numeric keys: Enters a function number and a data number (Up to two digits).

✻ key: Confirms the function number or data number entered.
When the existing function number is entered, "AXX-YY" or "CXX-YY" (XX=function number, YY=data currently saved) appears.
If a non-existing function number is entered, "Err I" appears for about two seconds and the display returns to the previous state.
When the correct data number is entered, the next function number appears to be set.
If a non-existing data number is entered, "Err 2" appears for about two seconds and the display returns to the previous state.

C key: Clears the number entered with the numeric keys and returns to the previous display.

MEM key: Stores the setting into EEPROM (memory) and terminates the function setting mode and displays "5Et , nG".

To finish the factory setting mode, with "5Et , nG" displayed, turn the power switch off.

The following function tables describe each function.
Note that the functions, A6, C9, C16 and F3=4 or 5 are available only for the software versions 2.01 or later.

4-2. F functions

		Function		Default
No.	Item	Data No.	Description	
F1	Auto display off	0	Yes	1
		1	No	
F2	Changing the setting of unit price cancellation near zero	0	Yes	0 See note below.
		1	Not to clear	
		2	Clear	
F3	Output mode	0	Key trigger mode:Output format 1	5
		1	Key trigger mode:Output format 2	
		2	Command mode	
		3	Stream mode	
		4	Key trigger mode:Output format 3 with delay time	
		5	Key trigger mode:Output format 3	
F4	Baud rate	0	600 bps	2
		1	1200 bps	
		2	2400 bps	
		3	4800 bps	
		4	9600 bps	
F5	Parity bit	0	7 bits (Even)	0
		1	8 bits (None)	

Note:
Function to select whether or not to cancel the unit price automatically when the object to be weighed is removed from the pan.
If F2=0 is selected, "Clear the unit price" is enabled upon power-on.
Pressing the CHANGE key will give you the option to select whether or not to clear the unit price automatically.

4-3. A functions

No.	Item	Data No.	Description	Remarks
		Function		
A1	Weighing capacity	0	6 kg	Depends on the scale type.
		1	15 kg	
		2	30 kg	
		3	15 lb	
		4	30 lb	
		5	60 lb	
A2 A3	Decimal point position (A2) Price display (A3) Unit price display	0	None	The same setting for A2 and A3. The default is 2.
		1	10^1	
		2	10^2	
		3	10^3	
		4	10^4	
A4	Decimal point type	0	.	The default is 0.
		1	,	
A5	Factory setting	1		Fixed to 1.
A6	Scale type	0	SF-A/B, SG	Depends on the scale type.
		1	SF-C	
A7	Factory setting	0		Fixed to 0.

4-4. C functions

No.	Item	Data No.	Description	Remarks
C1	Tare range	0	Weighing capacity	The default is 0.
		1	2/3 of weighing capacity	
		2	1/2 of weighing capacity	
C2	When a tare weight has been set, enter a new tare weight of a lower value.	0	Allowed	The default is 1.
		1	Prohibited	
C3	Preset tare function	0	Yes	The default is 1.
		1	No	
C4	Tare computation	0	Internal count	The default is 0.
		1	Display count	
C5	Price computation	0	Round down	The default is 1.
		1	Round off	
C6	Zero range	0	2% of weighing capacity	ZERO key effective range The default is 0.
		1	5% of weighing capacity	
		2	20% of weighing capacity	
C7	Zero range upon power-on	0	10% of weighing capacity	The default is 0.
		1	50% of weighing capacity	
C8	Unit price setting	0	Per 100 g	The default is 1.
		1	Per 1 kg	
C9	Currency setting	0	$ (24h)	Used with F3=4 or 5. The default is 0.
		1	¥ (5Ch)	
		2	W (57h)	
		3	£ (23h)	
C10	Zero tracking function	0	ON	The default is 0.
		1	OFF	
C11	Motion detecting condition	0	1 d/1 sec	The default is 2.
		1	1 d/0.5 sec	
		2	1 d/0.25 sec	
		3	0.5 d/1 sec	
		4	0.5 d/0.5 sec	
		5	0.5 d/0.25 sec	
C12	The ZERO key during tare operation	0	Enabled(Clears tare)	The default is 0.
		1	Enabled(Same tare)	
		2	Disabled	
C13	In the change display, clear TOTAL using the MODE key.	0	Clear	The default is 0.
		1	Not cleared	
C14	During tare operation, display the zero point at GROSS ZERO.	0	Display	The default is 0.
		1	Not displayed	
C15	Factory setting	0		Fixed to 0.
C16	Totaling function	0	Yes	Depends on the country.
		1	No	