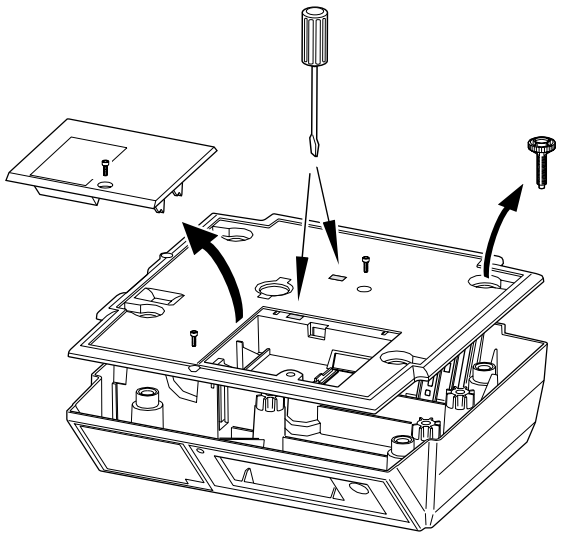
SALTER Brecknell

B220/S220 Parts Counter

Service Instructions

Table of Contents

Removing the covers



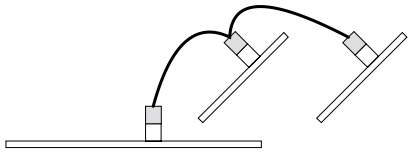
1. Disconnect the power supply from the scale.
2. Remove the weighplate.
3. Break the tamper seal.
4. Remove the screw (A) and remove the expansion board cover.
5. Remove the feet (and the springs if the scale is a 30kg machine).
6. Remove the screw (B) at the front edge of the scale.
7. Lever the clips holding the cover using a flat-bladed screwdriver.

NOTE: When replacing the cover, if either of the clips are damaged an M6 machine or self-tapping screw (C) can be used to hold the cover in place.

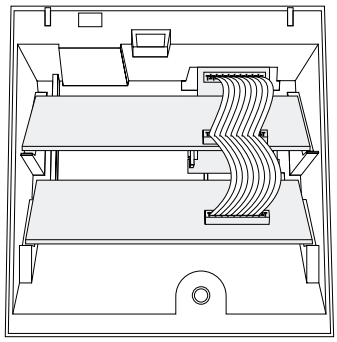
Installing expansion boards

Refer to the fitting instructions included with each expansion board for details on configuration settings.

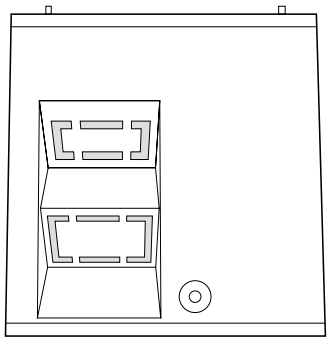
1. Connect the wiring loom to the expansion boards.



2. Remove the cover and place the boards in their correct slots.

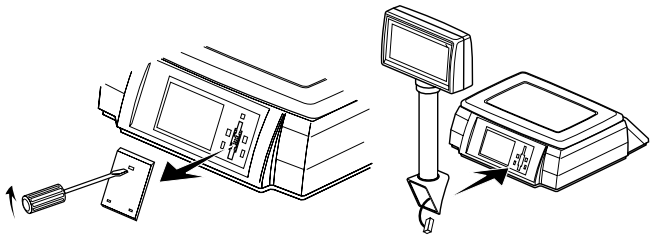


3. Break off the appropriate blanking plate and replace the cover.



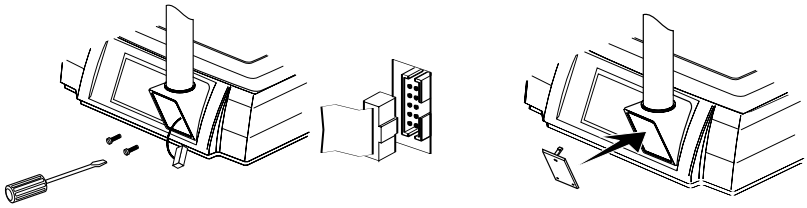
Installing a head-up display

1. Disconnect the scale from the mains power supply, or remove the battery pack.
2. Using a flat-bladed screwdriver, remove the blanking plate from the back of the scale.



3. Attach the display using the two slotted screws. Carefully insert the plug from the display into the socket at the back of the scale.

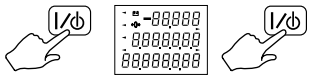
NOTE: Do not push the connector into the socket too hard as you may damage the socket.



4. Replace the blanking plate, and reconnect the power supply.

Status display

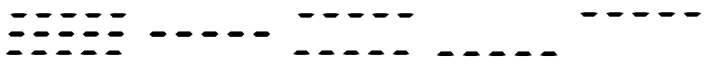
The status display shows some basic information about the scale. to view this information, press the display test key twice:



Top row	Middle row	Bottom row
0	Boot block product code	Boot block version number
1	Application block product code	Application block version number
2	Configuration block product code	Configuration block version number
3	Product configuration checksum status: 0 - OK 1 - Checksum failed	Product configuration edit counter
4	Mains/battery voltage	Blank
5	Secondary calibration counter	Blank
6	Cause of last reset: 0 - Power down 1 - Watchdog 2 - Clock monitor	Blank

If you need to contact your authorised service agent for advice, please make a note of all the settings shown.

Error messages



Temporary error | Weight unsteady | Balance failed | Under range | Over range

E5 Disconnect then reconnect the power supply.

E10 Battery failure - replace the batteries (do not use NiCad batteries).

E11 Power supply voltage too high. Make sure the correct power supply is being used (see page).

E15 Disconnect then reconnect the power supply.

E19 Software download tool error. Try downloading the application again.

E20 Disconnect then reconnect the power supply, if the error reappears, you will need to replace the load cell (see page).

E21 This could be caused by excessive vibration or an incorrect service calibration. Either adjust the filters (see page), or re-calibrate the scale (see page).

E30 Management/service mode not exited correctly. Re-enter service mode, select the value to be changed, change the value and go to the next branch or sub-branch to accept the change.

E35 An invalid configuration for the scale has been given in branch 5, re-enter the configurations (see page).

E36 An invalid capacity for the scale has been given in branch 5. Re-enter the configurations (see page).

E40 The weight used for user-calibration is unsteady, re-calibrate the scale.

E41 An incorrect weight is being used for user-calibration, use the correct weights

E42 User calibration is not available for this scale.

E100 Invalid PLU contents, re-program the PLU.

E101 Transaction failed.

E102 PLU write failed. The PLU has been protected in management mode.

E103 Tare failed, re-program the tare.

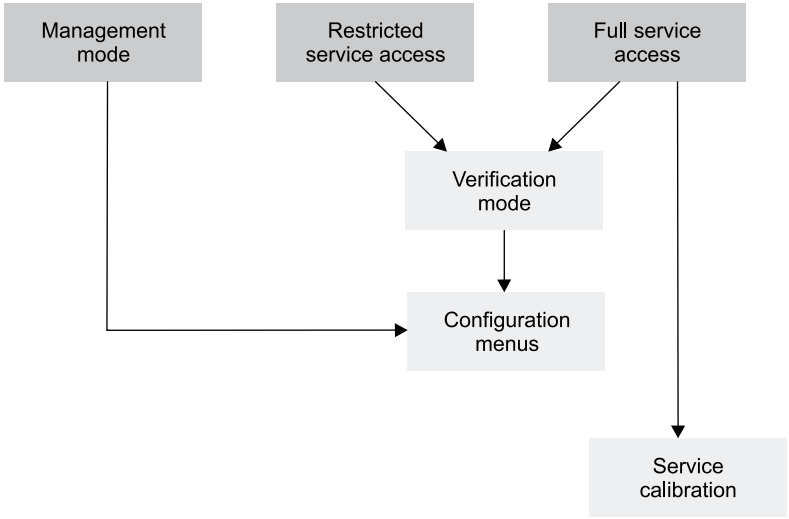
E110 The counting piece-weight is greater than 10% of the capacity of the scale.

E151 A change to the configuration has failed, reprogram the configuration.

E152 User does not have access to this item (in management mode).

Configuring the scale

There are three ways to configure the scale:

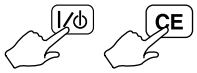


Management mode

This mode allows the user to configure a few branches of the scale. Because the configurations can be different for each scale, refer to the User Instructions for details on the branches available.

To enter management mode:

To exit management mode:

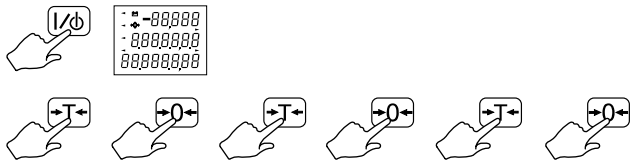


Restricted service access

This will allow you to see all of the scales configuration.

You will not be able to alter the branches that are marked as 'Full service access only', if you attempt to change these configurations you will see an error message (E 152).

To enter restricted service access:

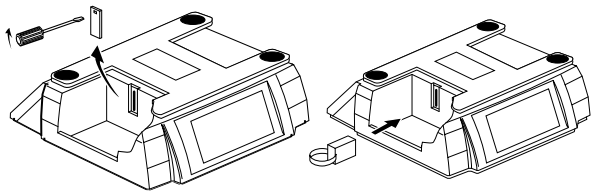


The scale will now be in verification mode (see below).

Full service access

This will give full access to the scales configuration.

1. Unplug the scale from the power supply.
2. Break the security seal and remove the blanking plate.

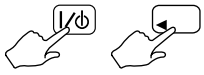


3. Plug the service tool (part number 18165-140) into the side of the scale.
4. Replace the weighplate and re-connect the power supply. The scale will now be in verification mode (see below).

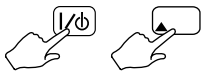
Verification mode

Verification mode will display the weight to four decimal places, and zero tracking will be disabled.

To go to the configuration menus:



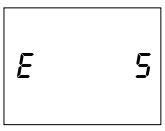
If you need to return to verification mode at any time, press:



Exiting from full or restricted service access

To exit:

Long Press

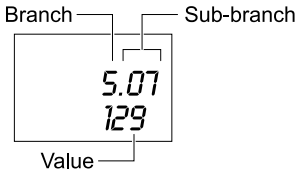


You will need to disconnect the power supply, (remove the service tool if you are in full service access) and reconnect the power supply.

NOTE: If you do not exit service mode correctly you will see an E 30 error message.

Navigating service mode

Each configuration setting consists of a value and a location, the location consists of a Branch number and a Sub-branch number.



For example:

Branch 5 = Weighing capacity
Sub-branch 05 = Primary
Capacity units Value 129 = lb

Function	Key
Go to the next branch.	▸ Long press
Go to the next sub-branch.	▸ Short press
Go to the previous branch. *	◂ Long press
Go to the previous sub-branch. *	◂ Short press
Go to branch 00.	CE Long press
Select value to be changed. Change the value. **Note:** After changing a value, you **must** go to the next branch or sub-branch to accept the change.	CE Short press Enter a value* or ▴ Short press
Increment the value X10.	▴ Long press
Exit service mode. If you are using the service tool, disconnect the power supply from the scale and remove the tool before reconnecting the scale to the power supply.	I/⏻ Long press E 5

* This key may not be available on some products.

Product configuration branches

NOTE: For older application block versions (0-5-0 or earlier) some branches or sub-branches are not available.

Branch 0 - Edit counter

Sub-branch	Value
00 - Default user mode	This counter is automatically incremented whenever the product configuration has been altered.

Branch 5 - Typical configurations

Full service access only.

NOTE: If you enter an incorrect value for these configurations you will see an E 30 or E35 error - re-enter the correct values.

	Sub-branch numbers												
Capacity	**00**	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**	**11**	**12**
6kgx1g	6000	0	0	0	3	1	0	0	0	0	0	0	100
6kgx0.2g	6000	0	0	1	4	1	0	0	0	0	0	0	100
12kgx2g	12000	0	0	1	3	1	0	0	0	0	0	0	100
15kgx2g	15000	0	0	1	3	1	0	0	0	0	0	0	100
15kgx0.5g	15000	0	0	2	4	1	0	0	0	0	0	0	100
30kgx1g	30000	0	0	0	3	1	0	0	0	0	0	0	100
30kgx5g	30000	0	0	2	3	1	0	0	0	0	0	0	100

Branch 6 - Weighing functionality

Full service access only.

Sub-branch	Value
00 - **Zero indicator.** This determines when the gross zero indicator appears on the display.	0 - Gross zero appears when the range is between ±0.25 divisions. 1 - Gross zero appears when the range is between ±0.5 divisions.
01 - **Zero tracking.** This is used to account for minor weight changes over time. For example, when weighing in dusty environments.	0 - Disabled. 1 - Enabled.
02 - **Balance on power up.** When powered up, the scale determines if it is within its previous balance range, if it is, it looks at sub-branch 03. If it is not a balance failed indicator will appear. A typical example of an error is if the scale is powered up without the weighplate on the scale.	0 - Disabled. No test performed. 1 - -5 to 15%. 3 - -2 to 2%.
03 - **Automatic zero self balance.** If enabled, the scale will automatically perform a balance.	0 - Disabled. 1 - Enabled.
04 - **Dual capacity switching.**	0 - Allowed for all weight ranges. 1 - Only allowed at gross zero.
05 - **Weight return to zero.** When a weight has been removed from the scale, this determines how near to zero the scale must be before displaying the zero indicator.	0 - Gross zero division. 1 - Between 0 and 20 divisions.
06 - **Hysteresis.** This is used to prevent the weight display from flickering between the top of one weight increment and the bottom of the next.	0 - Disabled. 1 - Enabled.
07 - **Normal balance range.** This is percentage of the capacity that the zero can move away from the power up balance due to zero tracking, automatic or manual balance.	0 - 200 Primary capacity (%) multiplied by 2. For example, 200 = 100% 50 = 25%.
08 - **Filters.** If the scale is in an environment where there is vibration, for example in a mechanical workshop, filters can be applied so that the weight display remains steady. The stronger the filter the longer the display will take to display a weight.	0 - Default filter (3). 1 -8 1 = Slight filter, 8 = Strong filter.

Sub-branch	Value
09 - **Minimum test weight for customer calibration.** Not available.	0 - 200 Capacity (%) multiplied by 2.
10 - **Maximum correction from customer calibration.** Not available.	0 - 255 divisions.
11 - **Alternate Units.** This will convert the displayed weight into the selected units.	0 - Disable alternate units. 1 - USA decimal Pounds. 2 - Grams.
12 - **Weight steady.** The weight must remain within the given ± range for a set amount of time before the weight is displayed.	0 - ± 0.1 divisions. 1 - ± 0.25 divisions. 2 - ± 0.5 divisions. 3 - ± 1 divisions. 4 - ± 1.5 divisions. 5 - ± 2 divisions. 6 - ± 3 divisions. 7 - ± 5 divisions.
13 - **Tare increment.** This sets the tare value that can be accepted by the scale. For example, on a 15kg x 5g scale if the tare increment is set to 1, then the tare weight must be a multiple of 5g. If the tare weight is not a multiple, then the scale will not accept the tare.	0 - Allow any tare increment. 1 - Tare increment must be a multiple of the weight increment.
14 - **Automatic re-tare.** This sets the percentage of a tare within which subsequent tares will also be allowed without having to press the tare key. This is generally used where there is minor weight variation between containers. For example, cardboard boxes.	0 - Disable automatic re-tare. 1- 200 tare range (%) multiplied by 2. For example, 200 = 100% 50 = 25%

Branch 7 - Weighing limits

Full service access only.

Sub-branch	Value
00 - **Minimum weight.** This restricts the weight display so that it remains blank until the minimum weight has been exceeded.	0 - 65535 divisions. This is the minimum weight (shown on the overlay) divided by the minimum weight increment (e).
01 - **Under range limit.** If the scale is set to display negative values (Branch 9 sub-branch 00) the weight display remains blank until the negative weight has been exceeded.	0 - 65535 divisions.

Branch 08 - Gravity compensation

Full service access only.

Sub-branch	Value
00 - **Calibration gravity factor.** This is the gravity factor of the location where the scale has been calibrated..	As published by the support office of your national distributor. Minimum value = 975000 Maximum value = 985000 You must enter a six digit value as the gravity factors are automatically set to five decimal places.
01 - **Site gravity factor.** This is the gravity factor of the location where the scale is to be used.	

If the scale is to be calibrated and used in the same gravity zone, then both gravity factors should be set to 0.

If you intend to calibrate the scale and then send the scale to a different gravity zone, you must enter the calibration and site gravity factors.

If you do not know the site gravity factor, you must enter the calibration gravity factor and send a note with the scale stating that the site gravity factor is to be entered and needs to be re-verified and stamped before being sold to the customer.

NOTE: Once the calibration and site gravity factors have been entered, the scale may not weigh correctly until the scale is at the site.

Branch 09 - Weight display

Full service access only.

Sub-branch	Value
00 - **Blank net weight display.** This sets the display to either show a negative net weight or to blank the display when a tare is created and then removed from the scale.	0 - Negative net weight display. 1 - Blank net weight display.
01 - **Weight decimal marker type.**	0 - Comma. 1 - Decimal point.

Branch 19 - Bleeper functions

Sub-branch	Value
00 - **Bleep when below zero.**	0 - Disabled. 1 - Enabled.
01 - **Keyboard bleep.**	0 - Disabled. 1 - Enabled.
02 - **Target bleep.**	0 - Disabled. 1 - Enabled.
03 - **Error bleep.**	0 - Disabled. 1 - Enabled.
04 - **Bleeper volume.**	0 - Quiet. 1 - Loud.

Branch 20 - Power saving

Sub-branch	Value
00 - **Backlight timeout.** This is the length of time between the last scale activity and the backlight being activated.	0 - Permanently off.1 - 5 seconds. 2 - 1 minute. 3 - 5 minutes. 4 - Permanently on.
01 - **Sleep timeout.** This is the length of time between the last scale activity and the scale going into 'SLEEP' mode.	0 - No sleep timeout. 1 - 1 minute. 2 - 5 minutes. 3 - 30 minutes.

Branch 29 - Key press duration

Sub-branch	Value
00 - **'Long' key press duration.**	1 - 255 milliseconds X10 (E.g. 200 = 2sec).

Branch 60 - Tares

Sub-branch	Value
NOTE: See also, branch 6 sub-branch 13 - tare increment, and branch 6 sub-branch 14 - automatic re-tare.	
00 - **Manual balance whilst tare active.**	0 - Manual balance disabled whilst any tare is active. 1 - Manual balance clears the tare after a successful balance.
01 - **Minimum piece weight.**	Weight in grams.
02 - **Minimum sample size.**	Weight in grams.
03 - **Item count thousands separator.**	0 - Disabled. 1 - Enabled.
04 - **Keyboard entered (graduated) tare.**	0 - Disabled. 1 - Enabled.
05 - **Cumulative tare.**	0 - Disabled. 1 - Enabled.
06 - **Stored tare.**	0 - Disabled. 1 - Enabled.

Branch 100 - PLUs

The branch number for a PLU = 100 plus the PLU number

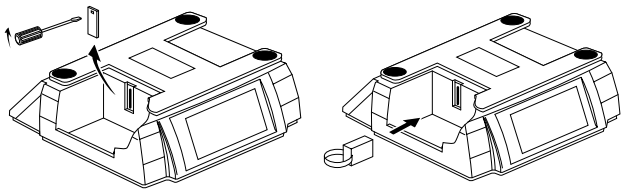
For example, PLU 5 = 105, PLU 19 = 119

Sub-branch	Value
00 - **Write protect.**	0 - Write enabled. 1 - Write protected.
01 - **Piece weight.**	Weight in grams.
02 - **Stored tare.**	Weight in grams.

Calibration

You will only be allowed to calibrate the scale when using full service access.

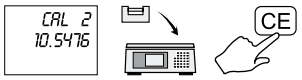
1. Unplug the scale from the power supply.



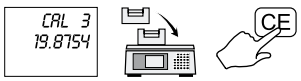
2. Break the tamper seal, remove the blanking plate and plug the service tool into the side of the scale.
3. Replace the weighplate and re-connect the power supply.
4. Check that the gravity factors are correct (see page 12).
5. Place a full load on the scale and remove it several times in order to 'exercise the scale'.
6. Enter calibration mode:

7. Make sure there is no load on the scale.

8. Place a half load on the scale.



9. Place a full load on the scale.



10. Remove half the load.

11. Remove all the load.

12. The calibration procedure is now complete.
13. Disconnect the scale from the power supply.
14. Remove the service tool from the side of the scale and reconnect the power supply.

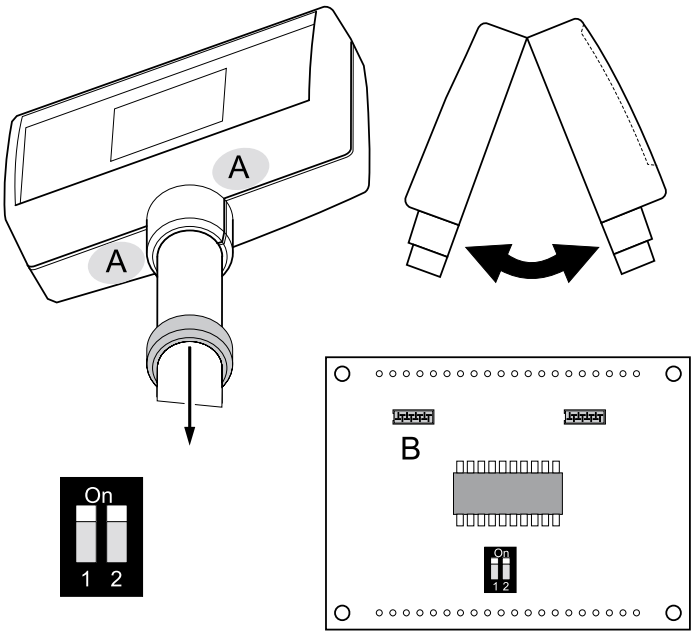
Aborting calibration

If you attempt to abandon the calibration procedure you will see:

You must start the calibration procedure again.

Replacing a head-up display

1. Slide the collar down the column.
2. Gripping the headup display firmly, press hard at the two points marked A, and break open the covers:

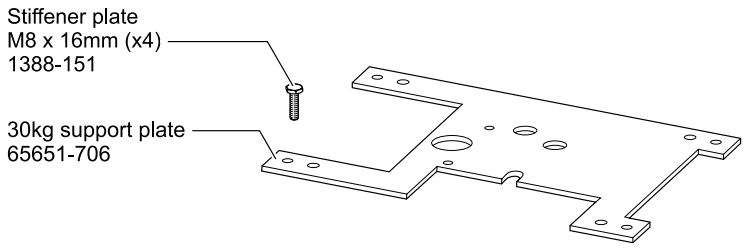


3. Disconnect and remove the damaged display.
4. For the new display, make sure that both dip-switches are in the ON position.
5. Fit the new display, making sure that the loom is connected to socket 'B'.
6. Snap the covers together and re-fit the collar.

30kg scales

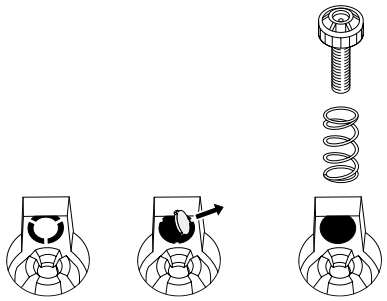
For 30kg scales, a stiffener plate must be used.

Stiffener plate

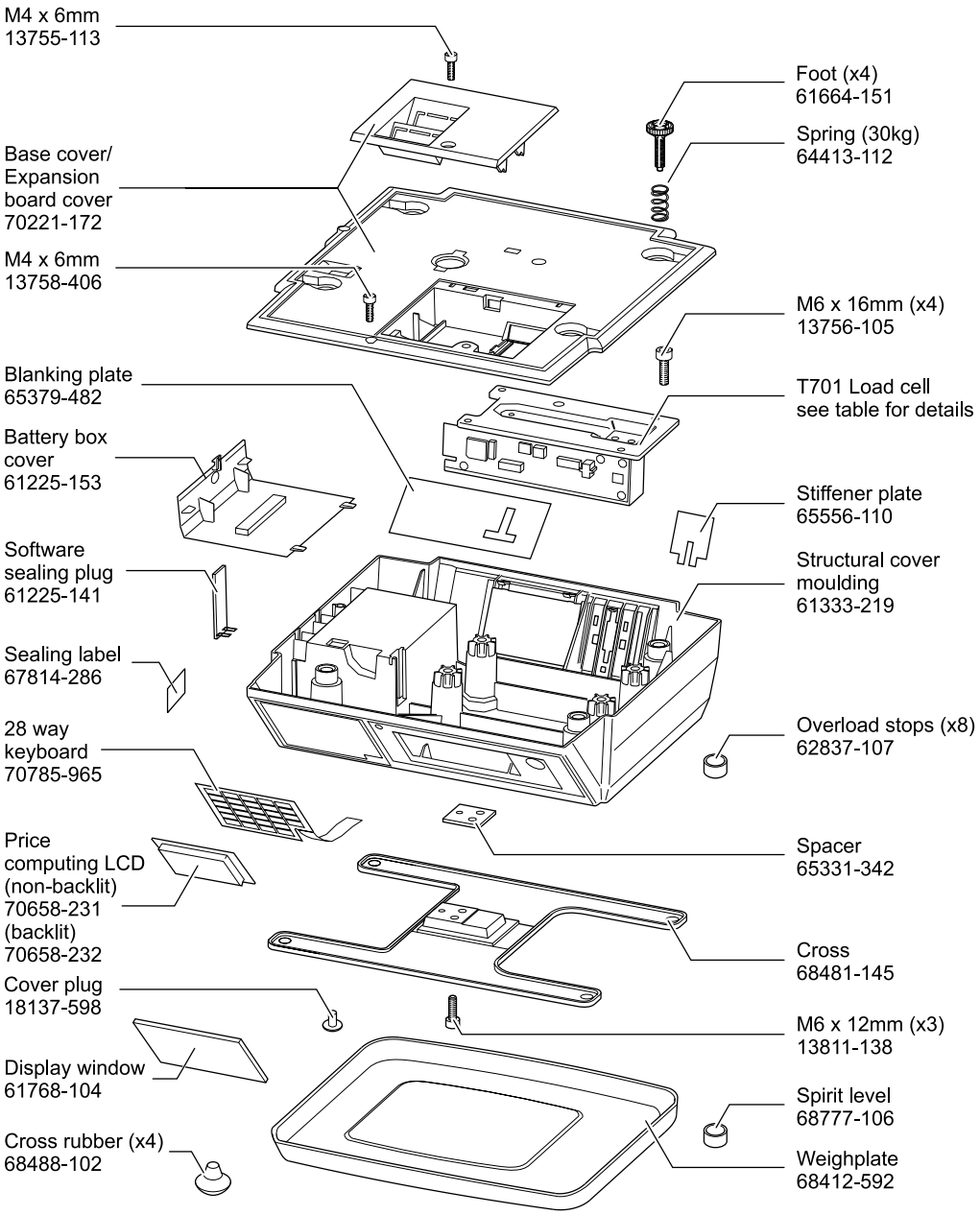


Base covers

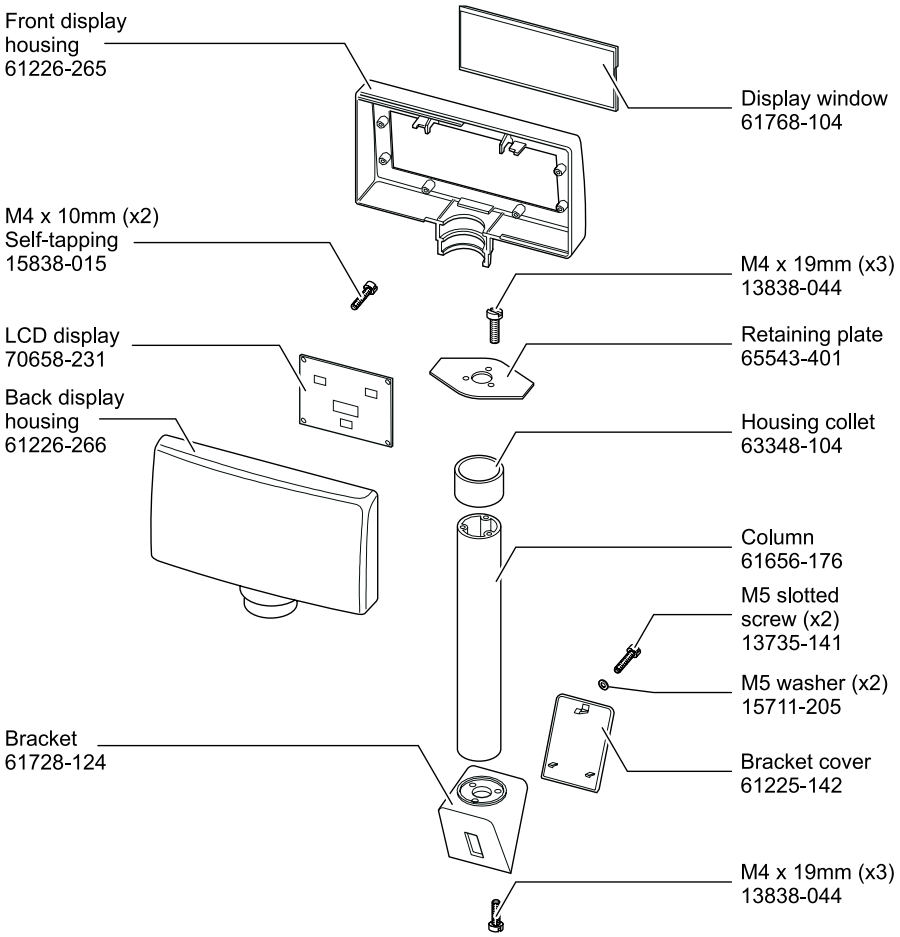
If you need to replace a damaged base cover, break off all four cut-outs from the new cover before replacing.



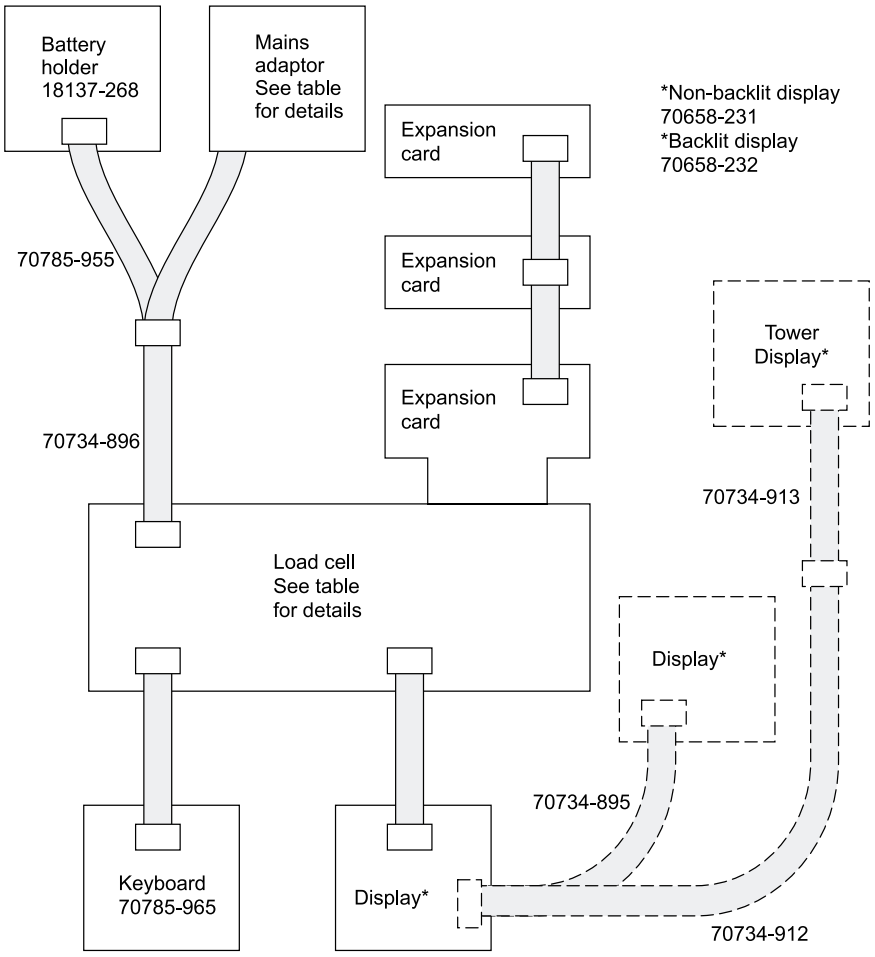
Illustrated parts list



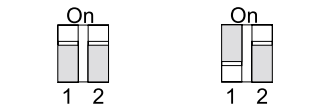
Head-up display



Wiring Diagram



Display board settings



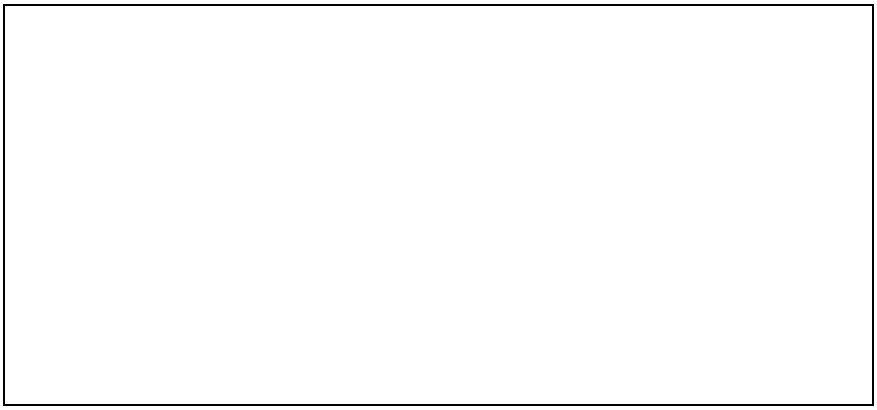
Power supplies

COUNTRY	P/N	NOTE
UK	70682-256	Low current
UK	70682-259	High current
USA	70682-257	Low current
USA	70682-260	High current
Europe	70682-258	Low current
Europe	70682-261	High current

Load cells

COUNTRY	P/N	NOTE
Blank	70718-623	Blank 15 kg - No software
Blank	70718-385	Blank 30 kg - No software

Index



SALTER Brecknell

PO Box 9533, Smethwick
West Midlands, B66 2TE
Tel UK: 0870 444 6132 Fax UK: 0121 623 6629
Email: sales@salterbrecknell.co.uk Tel Int: +44 (0)121 623 6675 Fax Int: +44 (0)121 623 6629