SHEKEL

SERVICE MANUAL
Healthweigh®

H611/H610
Digital Baby Scales

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TABLE OF CONTENTS

This Service Bulletin should be kept together with the Operating Manual. The Operating Manual should be referred to for dismantle and reassembly of the scales when replacing parts.

INTRODUCTION

This service manual contains the information needed to perform routine maintenance and service on the Baby scales. This service manual is intended for exclusive use by certified personnel. No responsibility can be taken if the manual is used by unauthorized persons.

Chapter 1 Introduction – information about service facilities, tools, test equipment, calibration masses and specifications.

Chapter 2 Diagnosis – a guide for troubleshooting problems and error code tables.

Chapter 3 Repair procedures – disassembly/assembly and replacement procedures.

Chapter 4 Testing – operational and performance tests.

Chapter 5 Drawings and Parts' lists – exploded view drawing and parts' list; electronics and electrical drawings.

SERVICE FACILITIES

In order to perform service on Healthweigh® Baby scales the service area must meet the following requirements:

- Should be temperature controlled and meet the specifications for temperature environmental requirements.
- Vibration free area.
- Area must be clean and air must not contain excessive dust particles.
- Stable and level work surface.
- Work area must not be exposed to direct sunlight or radiating heat sources.

CHAPTER 1 INTRODUCTION

TOOLS AND TEST EQUIPMENT REQUIRED

In order to service the Kern Baby scales, various tools and items are required in and are as follows:

Special Tools and Test Equipment List

- Alternate voltage Power Adapter, #UE15WCP-090050SPA Cat No. 165009
- Healthweigh® User Manual
- Deadweights 100-160 kg

Standard Tools and Test Equipment List

- Standard technicians' electronic tools
- DVM
- Masses totaling up to 220kg are required

SPECIFICATIONS

Specifications for the Baby scales are listed below. After service the Healthweigh® Baby scales must meet the specifications listed in the table. Prior to service it must be determined what specifications are not met.

H611-00-1/2/4 Capacity & Graduation	12 kg x 5 g (26 lb x 0.2 oz)
H610-00-1/2/4 Capacity & Graduation	0 - 2 kg x 1 g (0 - 5 lb x 0.05 oz) 2 - 6 kg x 5 g (5 - 12lb x 0.1 oz) 6 - 15Kg x 5g (12 - 30lb x 0.2 oz)
Power Requirements	Adaptor 230VAC-9VDC-50Hz / 120VAC–9VDC–50Hz
Environmental	Operating temperatures: 10°C to 35°C/ 50°F to 95°F Storage temperatures: 0°C to 50°C / 32°F to 122°F Humidity: 85%

CHAPTER 2 DIAGNOSIS

TROUBLESHOOTING

This section of the service manual specifies problems which can occur in the scales.

DIAGNOSTIC GUIDE

The diagnostic guide is designed to help locate the problem quickly and easily. First locate the symptom, then review the probable cause and remedy. The probable causes are listed with the most common cause first. If the first remedy does not fix the problem, proceed on to the next remedy. Before attempting to repair the scales, read the manual thoroughly to familiarize yourself with the components and operation of the scales. Do not carry out repair unless you are authorized to do so and fully understand the method of operation of the scales.

Diagnosis

1. Isolate and identify the symptom.
2. Refer to the diagnostic guide and locate the symptom.
3. Follow the suggested remedies in the order they appear.
4. Perform the indicated checks, or see the appropriate section of the manula.
5. Repair or replace the defective section of the scales.

NOTE:

If more than one symptom is observed, it is necessary to approach one area at a time, and also remember that the symptoms may be interrelated.

In the event that erratic or fluctuating weight readings are observed, it is necessary to isolate the problem to either the mechanical or electronic area of the scales. Conducting a repeatability test will easily identify whether the Load Cell is functioning correctly or whether the problem is due to an electronic malfunction.

CHAPTER 2 DIAGNOSIS

DIAGNOSTIC GUIDE

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Scale does not turn on when using rechargeable battery	Dead battery	Connect scale to power source Replace batteries
Scale does not turn on	Faulty electrical outlet	Use a different outlet
	Bad power supply	Replace adaptor
The display shows “LO Bat” message	The battery is low	Recharge the battery according to instructions
Questionable weight or the scale does not zero	External object interfering with the scale	Remove interfering object from the scale
	The display did not show ”0.0”kg/lb before weighing	Remove baby, zero the scale and begin weighing process again
	Scale is not placed on a stable surface	Make sure the scale is level using the spirit level on the platform and begin weighing process again.
	Scale is out of calibration	Check weight with known weight value
The display shows “STOP”	The load on the scale exceeds the capacity	Remove the excess weight and use the scale according to its limits
The display shows " ------" message	The load on the scale exceeds the capacity	Remove the excess weight and use the scale according to its limits
RS232 Not functioning (when equipped with RS232)	Improper Print Menu settings	Check all settings.
	RS232 defective	Replace PCB

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ERROR CODES

ERROR NO.	DEFINITION	CHECK/REPLACE
Err 2	Low saturation state (Low A/D)	The load cell is not connected properly. Check the cables, and mechanical connection. If the problem persists, replace the set of load cells
Err 3	High saturation state (High A/D)	See Err 2
Err 6	Unstable weight. Cannot calibrate	Check the load cell's mechanical surroundings and see that nothing touches it and that the cables are properly welded
Err 7	Mathematical error; division by zero. Cannot calculate calibration factor	Will show when trying to calibrate with no calibration weight.

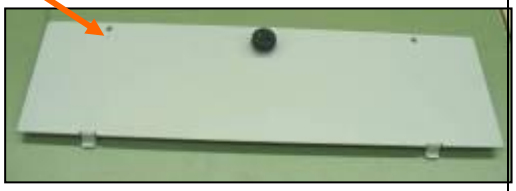
CHAPTER 3 REPAIR PROCEDURES

REPAIR PROCEDURES

This section of the manual contains assembly procedures. Please note that components inside the scale are delicate and need to be handled with care. It is imperative that the Load Cell should never be subjected to any excessive torque, stress or abrasion as damage may result.

1. Battery Replacement

1.1. Turn the baby scale base over and remove the cover by unscrewing two Philips M3X6 (401426) screws to expose the battery.



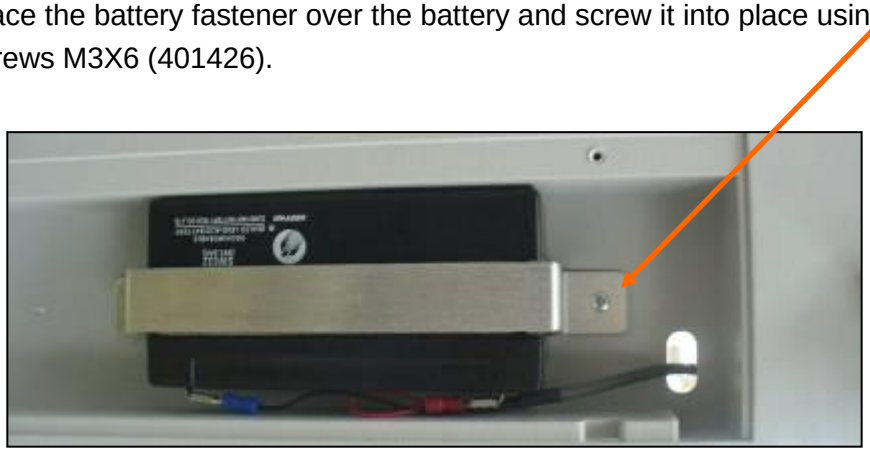
1.2. Disconnect the battery fastener from the battery housing and remove the empty battery.

1.3. Take a new 2.8AH 6V battery (414321). Remove the two shields at the end of the battery connects and connect the battery cable (203291) according to the relevant colors (red to red and blue to blue).

1.4. Take a rechargeable battery fastener (461822).

1.5. Place a battery in the battery housing, located on the base and place the battery cable into the relevant slot, shown in the image below.

1.6. Place the battery fastener over the battery and screw it into place using two Philips screws M3X6 (401426).



1.7. Put the cover back in place and fasten by screwing in two Philips M3X6 (401426) screws.

2. Replacing scale base legs

2.1. Turn the base over on to a flat surface.

2.2. Screw into the base 4 black rubber legs with stainless steel thread M6X17 (403005).

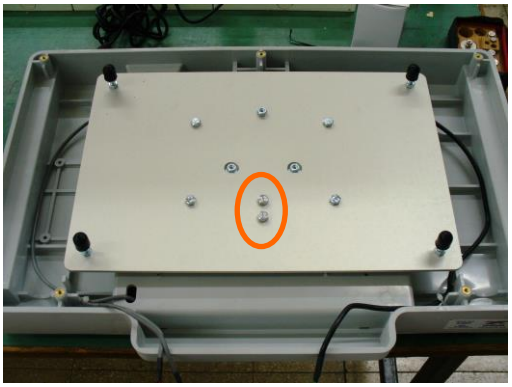
3. Load Cell Replacement

3.1. Remove the cover from the Baby Scale Base by unscrewing the five M5 X 10 screws.

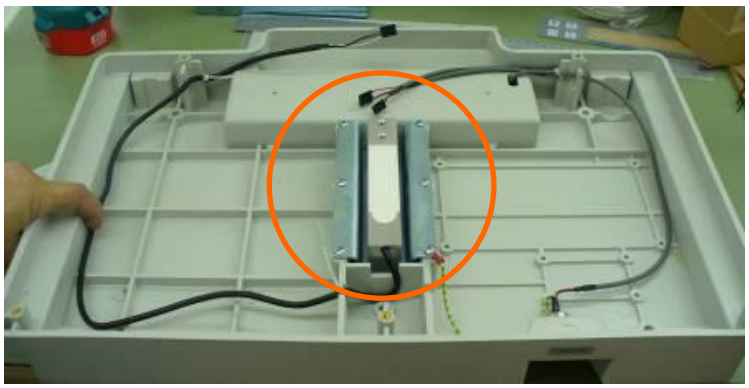
3.2. Remove the cover carefully so as not to cause damage to the Load Cell, battery and or power cables which are all situated underneath the indicator faceplate.

3.3. Disconnect the cables from the PCB.

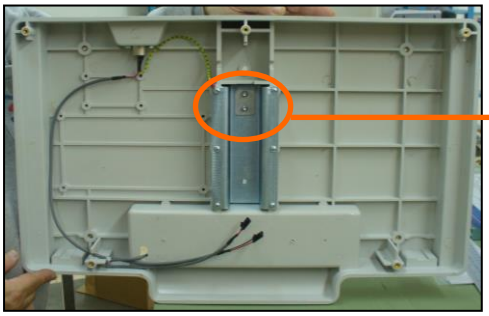
3.4. Undo the two load cell screws and remove the metal tray from the base housing to expose the load cell.



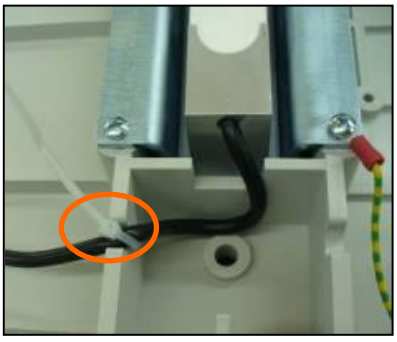
3.5. Undo the two hex load cell screws and remove the metal tray from the base housing to expose the load cell.

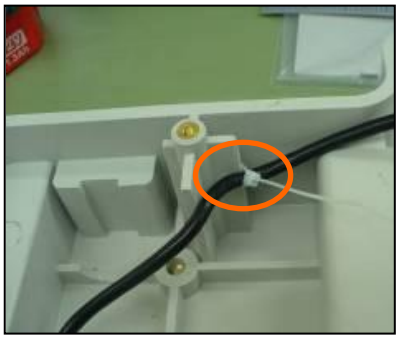


3.6. Turn the base on its side and unscrew two allen screws M6X16 (400659) releasing two washers M6 (404075) and the metal spacer of 2mm (590320)) from the lower Load Cell housing, keep for reassembly.

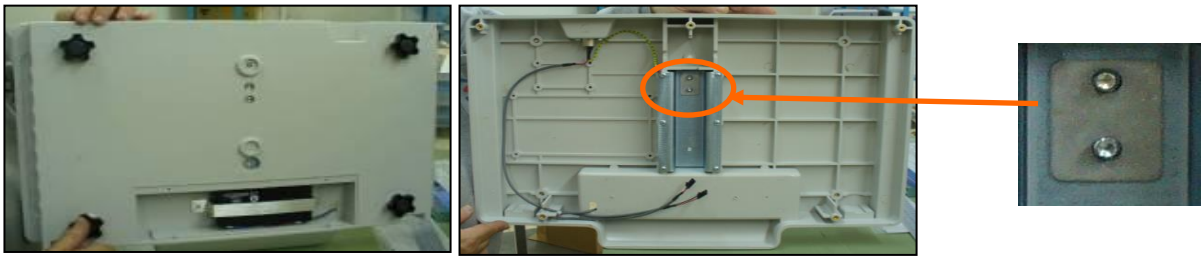


3.7. Cut the cable fasteners which connect the load cell to the housing

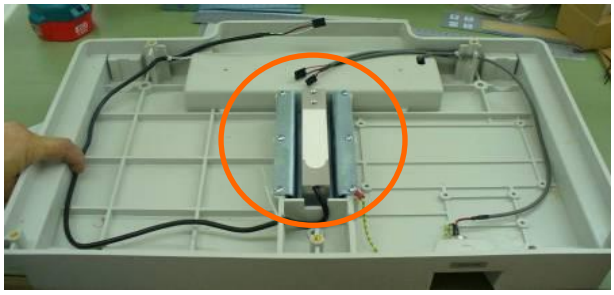




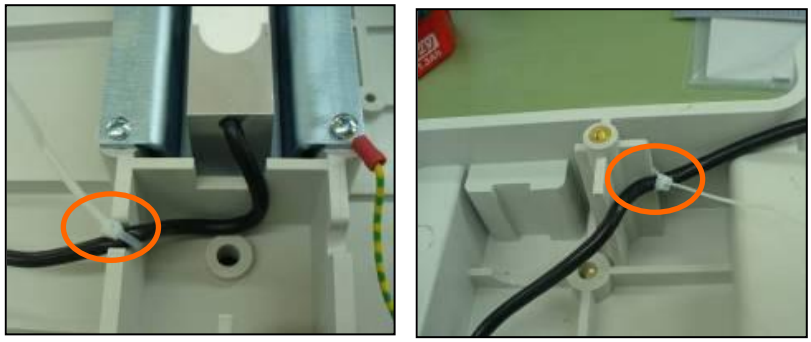
3.8. Place the new Load Cell into the housing and screw in using the screws used in the previous stage, **do not tighten the screws**. Put back the metal spacer.



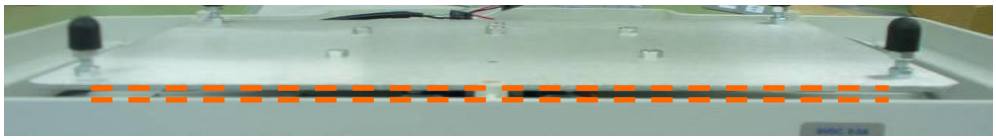
3.9. Ensure that the Load Cell is placed parallel to its housing and tighten the base Load cell screws using a torque gauge at 13 NM.

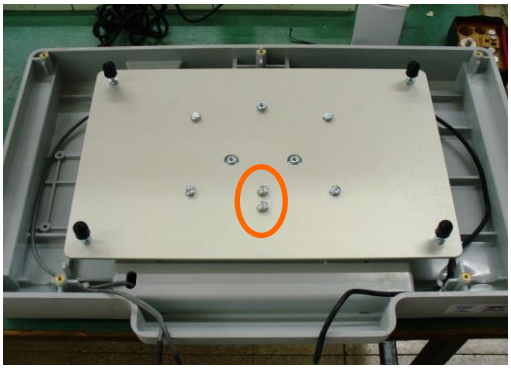


3.10. Fasten plastic fasteners to attach the LC cable to the housing.

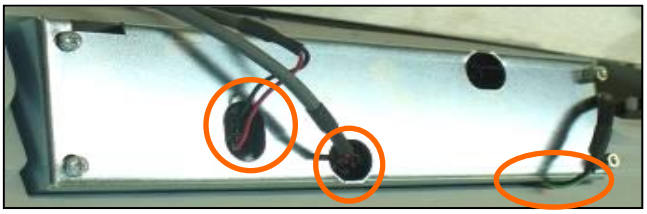


3.11. Reassemble the metal tray. Ensure that the metal spacer is in place between the tray and the load cell. Screw in the two hex screws with washers, tighten with torque gauge at 13 NM. Ensure that the tray is parallel to the housing ribs.





3.12. Attach the LC, battery and power cable to the PCB through the RFI box.



3.13. Places back the plastic cover. Take care not to pinch the cables between the base and the cover.

3.14. Screw in the five M5x10 screws and place back the plastic covers on to of them

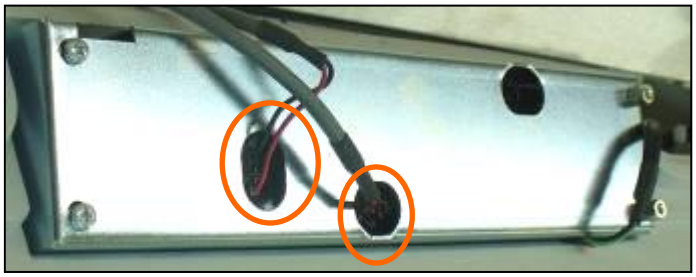
3.15. Calibrate the scale with the load cell.

4. PCB Replacement

4.1. Remove the cover from the Baby Scale Base by unscrewing the five M5 X 10 screws.

4.2. Remove the cover carefully so as not to cause damage to the Load Cell, battery and or power cables which are all situated underneath the indicator faceplate.

4.3. Disconnect the cables from the PCB.



4.4. Remove the RFI box by opening the seal and unscrewing the screws.

4.5. Disconnect the load cell cable from the PCB.

4.6. Remove the damage PCB by unscrewing the six screws (four spacers and 2 philips)

4.7. Take a FALCON board (213887) and screw into the board 4 spacer male female M3X18 screws (404427), these screws are screwed into the four corners of the board and two Phillips M3X6 screws (401426) as in the image are screwed in.

4.8. Reconnect the load cell cable to the PCB

4.9. Attach back the RFI to the PCB, Make sure the load cell cable is not pinch between the RFI box and the PCB.

4.10. Reconnect the battery cable, Power cable to the PCB

4.11. Place back the cover and Screw back the five screws, places back the screws cover

4.12. Place back the tray and calibrate the scale

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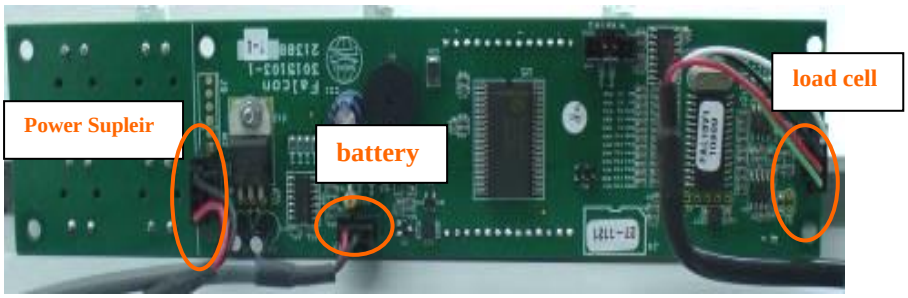
5. Limiting screws alignment

Note – any replacement of the metal tray carrying the weight will be followed by alignment of the limiting screws in the new assemble metal tray.

5.1. Follow steps 3.1 to 3.4 and remove the damage metal tray
5.2. Place and assemble the new metal tray (step 3.11).
5.3. Screw in two Alen screws M6X12 (400916), one in the top part of the base and the other in the bottom, close with an M6 nut (403415)
5.4. Screw in two Alen screws M6X12 (400916), one in the top right of the base and the other in the top left close with an M6 nut (403415)

The following steps are intended to ease the limiting screws alignment process

5.5. Take apart the PCB from its house (steps 4.2-4.6) and reconnect to the battery cable.
5.6. Turn the indicator on and calibrate the scales.

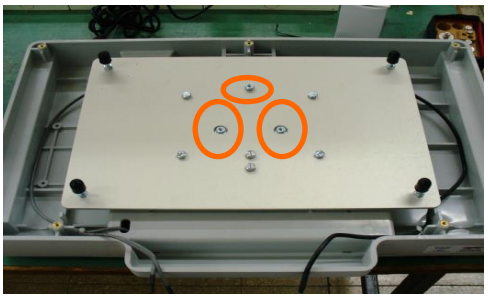


5.7. Go into Test mode on the software program.
5.8. Place dead weights of 15 kg on the side that is closed to the front of the scales, on the board display 15 kg will appear, tightening the lower screw until 14 kg appears on the indicator and close with a nut.

5.9. Place the 15 kg dead weight on the backhand side of the scales on the scale indicator 15kg will appear, tighten the upper screw until 14kg appears on the indicator and close the nut.

5.10. Repeat the procedure for the right limiting screw. Placing the weight on the far right of the tray. Lock the right limiting screw for 14 kg

5.11. Repeat the procedure for the left limiting screw. Lock the left limiting screw for 14 kg.



5.12. Turn off the indicator.

5.13. Disconnect the battery cable.

5.14. Reassemble the PCB into it house, steps 4.7 till 4.12

6. replacing the Plastic tray holder

6.1. follow step 3.1 and 3.2 .

6.2. remove the damage tray leg and replace with a new one.

6.3. follow steps 3.13 and 3.14

End of chapter 3 – Repair Procedures

CHAPTER 4 TESTING AND CALIBRATION PROCEDURE

Important: Scales with OIML Class III compliance have a seal to prevent any unauthorized person performing calibration. Please note the Scales have been calibrated in accordance to your local gravitational force. If the scales are moved into another geographical area please check with your dealer if the same gravitational force applies.
To Calibrate Non Class III scales please refer to the table below. The calibration sequence is conducted as follows:

The calibration procedure is performed using a known dead weight in either kg's or lbs		
	To turn on the scales > Press the **On-Off** key	ON-OFF
	Press the **Reweigh** and **Zero** keys simultaneously and hold	REWEIGH + ZERO
	until the LCD displays **LOAd** = x.xxx kg (the default is 5.000kg; 11.000lb)	LOAd — x.xxkg x.xxxlb
	This default value can be changed as follows: Press on the Zero key until the right digit begins to roll up. When it reaches the required value release the key. By pressing twice on the Zero key the cursor will move over to the left digit. Keep the Zero key depressed and the digit will roll up until the required value is achieved.	ZERO
	Press the **Reweigh** key and the LCD will display **CLEAr** Remove all weights (objects) from the weigh platform.	REWEIGH — CLEAr
	Press the **Reweigh** key and the LCD will display a hyphenated line representing **Zero** calibration	REWEIGH — ----------
	Wait until **PUT** x.xxxkg (x.xxxlb) appears on the LCD display	PUT — 5.000kg 11.000lb
	Place the calibration weight equal to the value appearing on the display on the weighing platform	Place calibration weight on scale
	Press the **Reweigh** button and release, the display will show **CAL** and will conduct calibration calculation.	REWEIGH — CAL
	FACTOR = x.xxxxxx will appear on the LCD display	FACTOR — X.XXXXX
	Press the **Reweigh** key and **SAVE** will appear on the LCD display	REWEIGH — SAVE
	Press **Reweigh** again and **dOnE** will appear on the LCD display	REWEIGH — dOnE
	Note: If Zero is pressed at this stage the calibration sequence is completely cancelled	
	StArt appears on the LCD display and the scale returns to regular weighing mode.	StArt
	Remove the calibration weight from the scale and wait until the 0.000 Zero appears on the LCD.	Remove weight from the scale — 0.000
	Note: To cancel the sequence at any time during the calibration process push on the **Reweigh** and **Zero** keys simultaneously	

CHAPTER 5 DRAWINGS AND PARTS LISTS

This section of the service manual contains exploded view and parts lists. The exploded view drawing is designed to identify the parts which can be serviced in the field

Note: In all cases where a part is replaced, the scale must be thoroughly checked after the replacement is made. The scale must meet the parameters of all applicable specifications in this manual.

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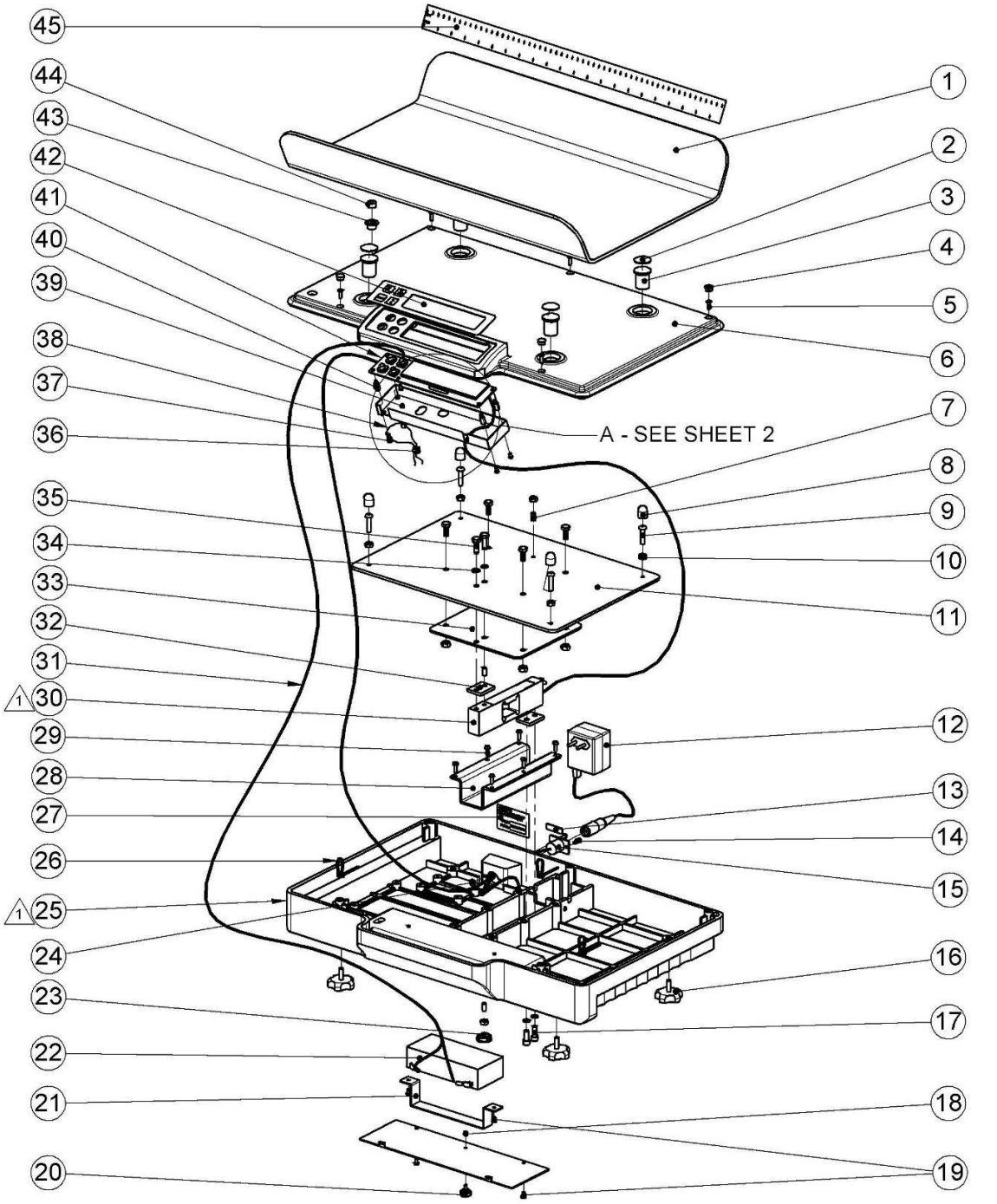
Exploded view of scale H611-00

VER.	DCO. No.	ECO. No.	DESCRIPTION	DATE	APPROVED	SIGN
1	---	0515	LOAD CELL (ITEM 30) & BASE (ITEM25) CHANGED	17/04/08	OFFER	



DWG NO.	TITLE: DIGITAL BABY SCALE
BC3308 VER 1	MODEL NO: H611-00

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Parts list for models of scale H611-00;

ITEM	DESCRIPTION	QTY.	CAT. No.
1	BABY SCALE 2 SIDED TRAY	1	461007
1A	BABY SCALE 4 SIDED TRAY	1	461061
1B	BABY SCALE TRAY ABS WHITE ACRYL	1	461066
2	DOUBLE SIDE GLUE Ø24	4	251877
3	TRAY CARRIER	4	463924
4	SCREW COVER CAP	4	464111
5	CROSS RECESSED COUNTERSUNK HEAD SCREW NC8X1/2"	5	401473
6	SCALE COVER GRAY RAL 7047 WITH SPIRIT LEVEL EYE HOLE	1	---
7	HEX. SOCKET SET SCREW M6X12 ST.ST.	3	400916
8	RUBBER SHOCK ABSORBER 77SW000402	4	464102
9	HEX SOCKET BUTTON HEAD SCREW M6X25	4	401464
10	NUT M6 D934	10	403415
11	TRAY SUPPORT	1	503740
12	ADAPTER UNIT No.UE15WCP-090050SPA	1	165009
12A	ADAPTER UNIT 9Vdc 120Vac	1	165006
13	POWER SUPPLY INLET LABEL 9 VDC. 0.5 A	1	251867
14	PAN CROSS HEAD SCREW NC6X7/16"	2	401455
15	ADAPTER - MAIN BOARD CABLE	1	203311
16	ROSETTE LEG HEAD SCREW M6X17	4	403005
17	HEX. SOCKET HEAD CAP SCREW M6X16	2	400659
18	PREVAILING TORQUE NUT M3 DIN 985	1	403605
19	PAN CROSS HEAD SCREW M3X6	8	401426
20	HANDLE 16XM3X7	1	403012
21	RECHARGEABLE BATTERY 6V HOLDER	1	461822
22	RECHARGEABLE BATTERY 6V	1	414321
23	PLASTIC PLUG Ø20 mm	1	407422
24	STEEL KEPS NUT NC6 06NK 6-32	2	403701
25	NEONATAL SCALE BASE ASSY	1	530859
26	WHITE CABLE TIE 10 cm CV100	3	407606
27	MODEL LABEL C-III TC6979	1	251919
28	LOAD CELL BASE	1	503720
29	PAN CROSS HEAD SCREW NC8X1/2"	6	401474
30	LOAD CELL 1042, 15kg	1	234027
31	CABLE CHARGER BATTERY<->MAIN BOARD	1	203291
32	ELEVATION SHIM 2X25X34	2	590320
33	SUPPORT PLATE	1	503730
34	LOCK WASHER M6	4	404075
35	HEX. HEAD SCREW M6X16	6	400053
36	WEIGHTS & MEASUREMENTS SEAL	1	409909
37	STAND OFF M3 WITH HOLE FOR SEALING	2	404426
38	WIRE FOR SEAL	30mm	409908
39	FALCON BOARD COVER	1	462629
40	STAND OFF M3X18	4	404427
41	FALCON BOARD CHARGER BATTERY	1	213887
42	FACEPLATE BABY SCALE	1	256011
43	BASE FOR SPIRIT LEVEL EYE B-D12W	1	408802
44	SPIRIT LEVEL EYE BV-D12W	1	408803
45	MEASURING STICK		255002

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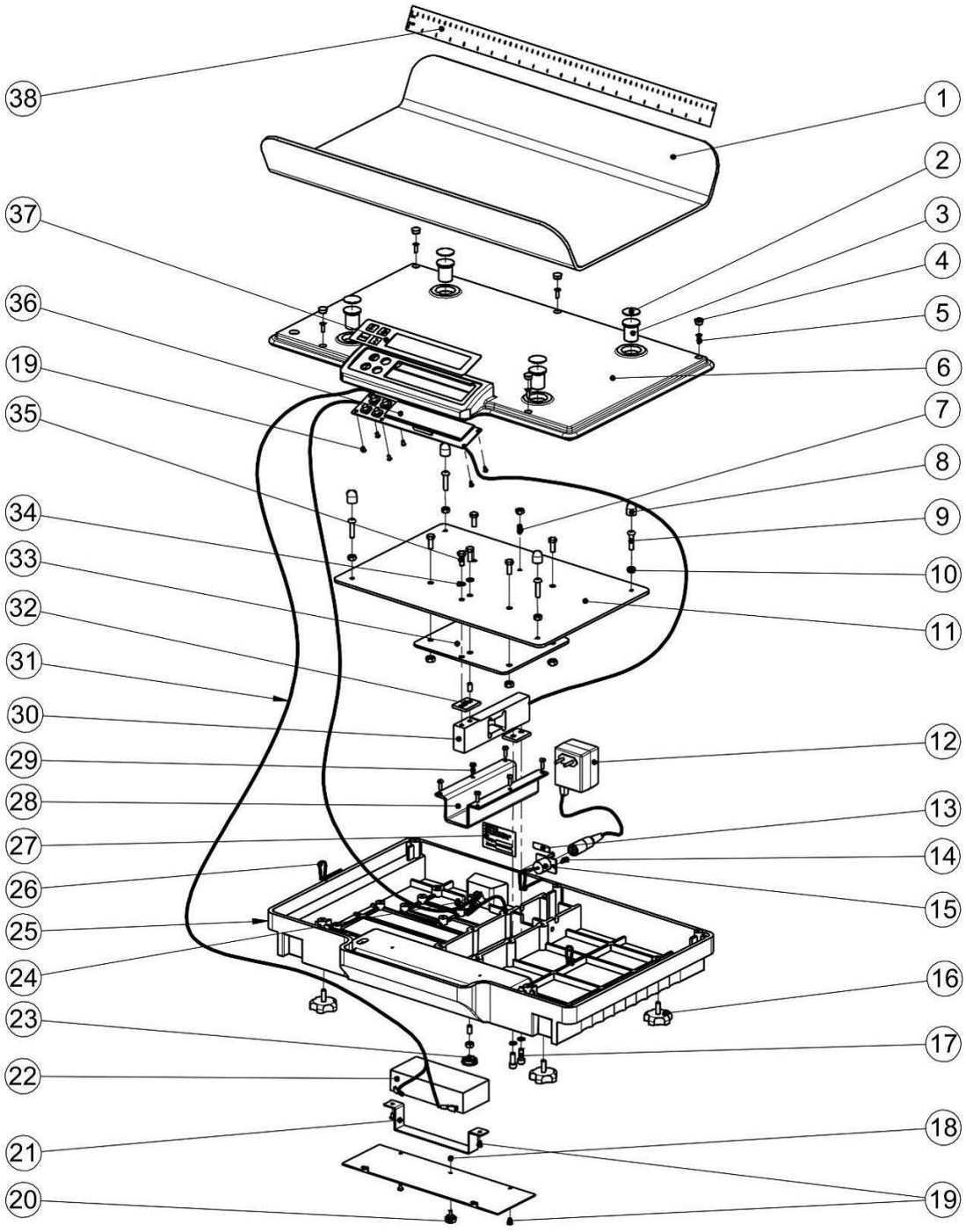
Exploded view of scale H610-00



DWG NO.	TITLE: DIGITAL BABY SCALE WAIST-LEVEL
BC3309	MODEL NO: H610-00

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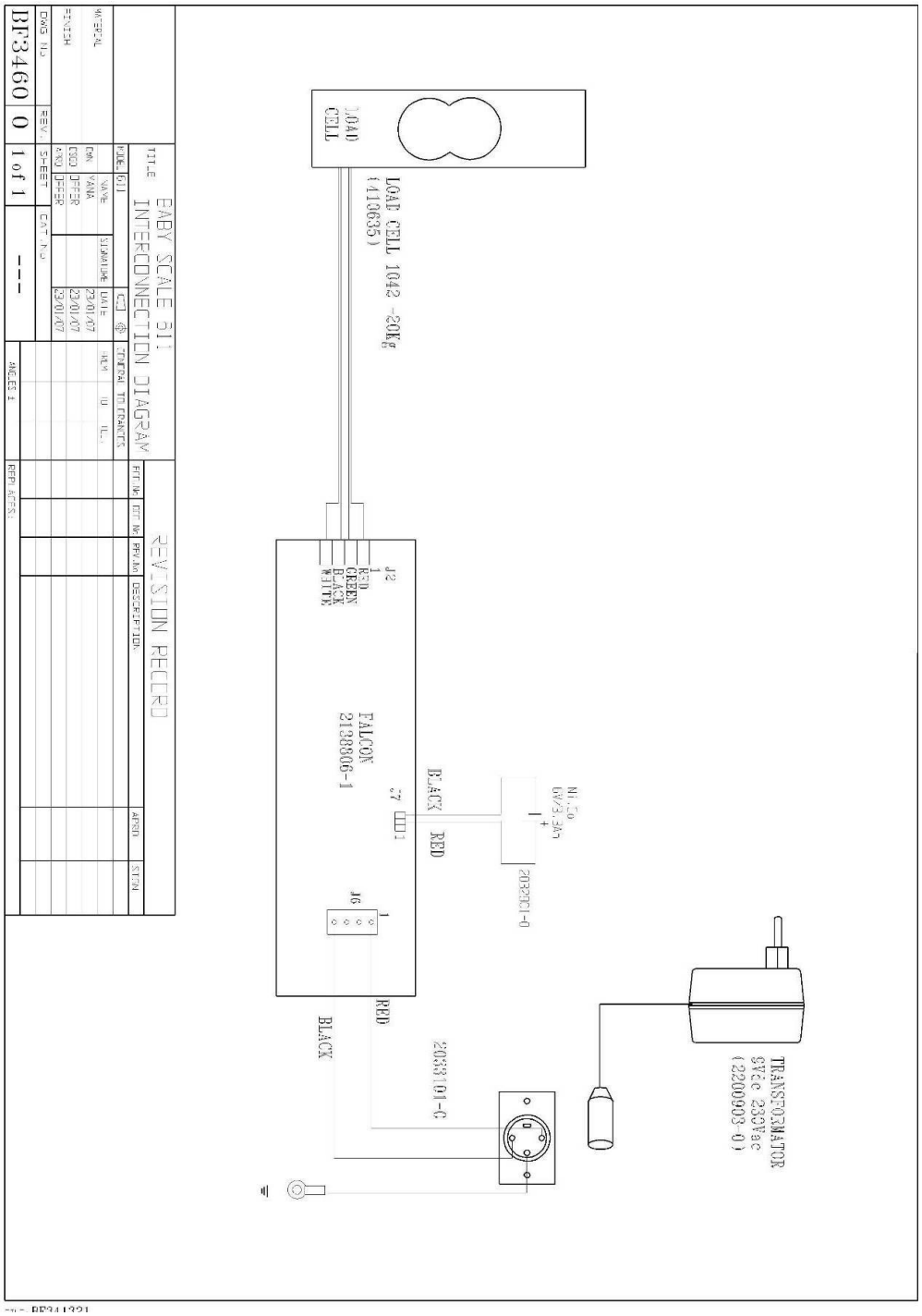
Parts list for models H610-00

ITEM	DESCRIPTION	QTY.	CAT.No.
1	BABY SCALE 2 SIDED TRAY	1	461007
1A	BABY SCALE 4 SIDED TRAY	1	461061
1B	BABY SCALE TRAY ABS WHITE ACRYL	1	461066
2	DOUBLE SIDE GLUE Ø24	4	251877
3	TRAY CARRIER	4	463924
4	SCREW COVER CAP	4	464111
5	CROSS RECESSED COUNTERSUNK HEAD SCREW NC8X1/2"	5	401473
6	SCALE COVER GRAY RAL 7047	1	530860
7	HEX. SOCKET SET SCREW M6X12 ST.ST.	3	400916
8	RUBBER SHOCK ABSORBER 77SW000402	4	464102
9	HEX SOCKET BUTTON HEAD SCREW M6X25	4	401464
10	NUT M6 D934	10	403415
11	TRAY SUPPORT	1	503740
12	ADAPTER UNIT No.UE15WCP-090050SPA	1	165009
13	POWER SUPPLY INLET LABEL 9 VDC. 0.5 A	1	251867
14	PAN CROSS HEAD SCREW NC6X7/16"	2	401455
15	ADAPTER - MAIN BOARD CABLE	1	203311
16	ROSETTE LEG HEAD SCREW M6X17	4	403005
17	HEX. SOCKET HEAD CAP SCREW M6X16	2	400659
18	PREVAILING TORQUE NUT M3 DIN 985	1	403605
19	PAN CROSS HEAD SCREW M3X6	10	401426
20	HANDLE 16XM3X7	1	403012
21	RECHARGEABLE BATTERY 6V HOLDER	1	461822
22	RECHARGEABLE BATTERY 6V	1	414321
23	PLASTIC PLUG Ø20 mm	1	407422
24	STEEL KEPS NUT NC6 06NK 6-32	2	403701
25	SCALE BASE GRAY RAL 7047	1	530859
26	WHITE CABLE TIE 10 cm CV100	3	407606
27	MODEL LABEL FOR BABY SCALE 610 RICE LAKE	1	251940
28	LOAD CELL BASE	1	503720
29	PAN CROSS HEAD SCREW NC8X1/2"	6	401474
30	LOAD CELL 108TA - 20KG	1	300929
31	CABLE CHARGER BATTERY<->MAIN BOARD	1	203291
32	ELEVATION SHIM 2X25X34	2	590320
33	SUPPORT PLATE	1	503730
34	LOCK WASHER M6	4	404075
35	HEX. HEAD SCREW M6X16	6	400053
36	FALCON BOARD CHARGER BATTERY	1	213887
37	FACEPLATE BABY SCALE KERN	1	256019
38	MEASURING STICK	1	255002


BABY SCALE 311
INTERCONNECTION DIAGRAM
REVISION RECORD
BF3460 0
LOAD CELL
LOAD CELL 1042 -20kg
(410635)
J2
RED
GREEN
BLACK
WHITE
FALCON
2198806-1
J7
J6
BLACK
RED
RED
BLACK
2033101-C
TRANSFORMATOR
9Vac 230Vac
(220093-0)