BC

Counting Scale

Technical Manual

B14751600A
(5/98)

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1150 Dearborn Drive
Worthington, Ohio 43085
USA

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Type: Mentor (Parts Counting Scale)

Models: SCxx and BCxx (where xx defines the capacity of the scale from 5 to 60 kg)

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Waarnaar deze verklaring verwijst, aan de volende norm(en) of richtlijn(en) beantwoordt.
A cui si riferisce questa dichiarazione è conforme alla/e sequente/i norma/e o documento/i normativo/i.

CE Conformity / CE-Konformität / Conformité CE
90/384/EU Nonautomatic Balances and Scales / Nichteselbsttätige Waagen / Balances à Functionnement non automatique
EN45501:1992 Adopted European Standard / Norme Européenne Adoptée / Angenommene Europäische Norm
89/336/EU EMC Directive / EMU-Richtlinie / Directive concernant la CEM
EN55022, A 01.04.87 Emissions / Funkstörungen
EN50081-1 Immunity
73/23/EU Low Voltage / Niederspannung / basse tension
EN61010 el. Safety / el. Sicherheit / sécurité el.

Other Directives and Standards / Andere Richtlinien und Normen / Autres documents
corresponding to local requirements / entsprechend lokalen Anforderungen / correspondant aux exigences locales

UL	1950	el. Safety / el. Sicherheit / sécurité el. (if UL mark is applied)
CSA	C22.2 No. 950-M89	el. Safety / el. Sicherheit / sécurité el. (if cUL mark is applied)
FCC	Part 15, class A	Emissions / Funkstörungen (if FCC mark is applied)

Darrell Flocken, Manager - Weights & Measures
Office of Weights and Measures
Worthington, Ohio USA
~~January, 1995~~
September, 1996 (revised to include NAWI and LV Directives compliance.)

INTRODUCTION

This publication is provided solely as a guide for individuals who have received Technical Training in servicing the METTLER TOLEDO product on software version 1.9.

Information regarding METTLER TOLEDO Technical Training may be obtained by writing, calling, or faxing to:

METTLER TOLEDO
1150 Dearborn Drive
Worthington, Ohio 43085-6712
ph: (614) 438-4400
fax: (614) 438-4444

WARNING!

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, i.e., in accordance with the instructions manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

SOFTWARE VERSION

This manual properly describes the operation and functionality of the METTLER TOLEDO BC counting scale containing software part number F144258, version 2.0. The software version and part number are displayed during the power-up sequence of the scale.

METTLER TOLEDO RESERVES THE RIGHT TO MAKE REFINEMENTS OR CHANGES WITHOUT NOTICE.

PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.

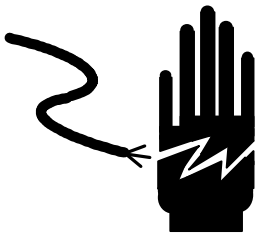
FOLLOW these instructions carefully.

SAVE this manual for future reference.

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

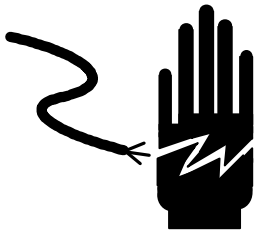
ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.



WARNING

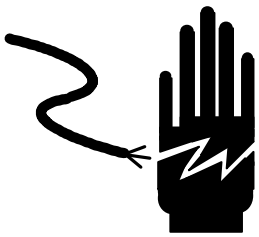
ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.



WARNING

FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD CONNECT TO PROPERLY GROUNDED OUTLET ONLY.

DO NOT REMOVE THE GROUND PRONG.



WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE REMOVING THE FUSE OR SERVICING.

CAUTION

BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTIONS ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT OR BODILY HARM.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

CONTENTS

1 Introduction 1-1
Model Identification 1-1
Specifications 1-2
Power Requirements 1-2
Standards Compliance 1-3
AC Power Line Voltage Variation 1-3
RFI Susceptibility 1-3
UL Listing 1-3
CSA Certification 1-3
Weights and Measures Approval 1-4
Parts and Optional Equipment 1-4

2 Installation Procedures 2-1
Selecting the Proper Location 2-1
Inspection and Contents Verification 2-1
Setup - BC05/BC15 2-2
Setup - BC30/BC60 2-4
Power-up Sequence 2-6

3 Operating Information 3-1
Mode and Scale State Definitions 3-1
BC Display Area 3-2
Display Symbols 3-3
BC Keypad 3-4
Function Keys 3-4
Reset to Factory Defaults 3-5
Motion Detection 3-5
Exiting Master Mode or Service Mode 3-6

4 Configuring Service Mode Parameters 4-1
Accessing Service Mode 4-1
Navigating in Service Mode 4-2
Test Program 4-3
Calibrate Program Block 4-3
Local Sub-block 4-4
Weights and Measures Program Block 4-5
Operator Access Sub-block 4-6
Country Sub-block 4-6
End Program Block 4-7

5 Configuring Master Mode Parameters 5-1
Accessing Master Mode 5-1
Navigating in Master Mode 5-1
User Program Block 5-3
1. Language Sub-block 5-3
2. Beeper Sub-block 5-4
3. Sleep Sub-block 5-4

Scale Program Block 5-5
1. Units Sub-block 5-6
2. Zero Sub-block 5-6
3. Motion Sub-block 5-8
4. Filter Sub-block 5-8
Tare Program Block 5-9
1. Tare Mode Sub-block 5-9
2. Tare Interlock Sub-block 5-10
3. Chain Tare Sub-block 5-10
4. Auto Clear Tare Sub-block 5-10
5. Auto Tare Sub-block 5-11
Sample Program Block 5-12
1. Pcs/Unit Sub-block 5-13
2. Sample Mode Sub-block 5-13
3. Minimum Sample Sub-block 5-14
4. Percent Accuracy Sub-block 5-14
5. Average Piece Weight Enhancement Sub-block 5-15
6. Auto Clear APW Sub-block 5-15
Count Program Block 5-16
1. Mode Sub-block 5-16
2. Sign Sub-block 5-17
Data Program Block 5-18
1. Data Program Sub-block 5-18
Interface Program Block 5-20
1. Ports Sub-block 5-21
End Program Block 5-24

6 Service and Maintenance 6-1
Cleaning and Regular Maintenance 6-1
Troubleshooting 6-1
Display and Error Messages 6-2
Diagnostic Tests 6-4
Replacing the BC05/BC15 Load Cell 6-4
Removing the Load Cell 6-4
Installing the Load Cell 6-7
Reassembling the Unit 6-7
Replacing the BC30 and BC60 Load Cell 6-8
Removing the Load Cell 6-8
Installing the Load Cell 6-9
Reassembling the Unit 6-10
BC05/BC15 Wiring Diagram 6-11
BC30/BC60 Wiring Diagram 6-12

7 Parts and Accessories 7-1
BC05/BC15 7-2
BC30/BC60 Counting Scale 7-4
BC30/BC60 Counting Scale Chassis 7-6
BC30/BC60 Keyboard 7-8
Optional Accessories 7-10
Battery Kit BC05/BC15 7-10

Battery Kit BC30/BC60 7-11
Optional Accessories 7-12

8 Appendices 8-1
Appendix 1: Data Interface 8-1
Serial Port Connections 8-2
Data Format - Print Mode 8-2
Single Line Output 8-2
Multiple Line Output 8-2
Multi Line Format Example: 8-3
Data Format - Host Mode 8-3
Data Format - Remote Weight and Remote Count Mode 8-4
Appendix 2: Scale Build Determination 8-6
Appendix 3: Master Mode Default Values 8-8

1 Introduction

Introduction

The BC counting scale is an easy-to-use, high performance industrial counting scale that accurately and dependably counts parts of all shapes and sizes. Designed for use in normal industrial environments, it features an easy-to-learn counting system and simple keypad.

This technical manual provides information for installing, servicing, and troubleshooting the BC counting scale. Detailed operating instructions are provided in the **BC Counting Scale User's Guide** (A15031400A). Please read it thoroughly and familiarize yourself with all safety requirements. Service procedures must be performed by authorized personnel only.

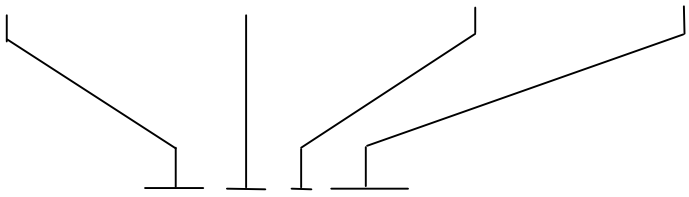
If you discover a problem with this documentation, please complete the **Publication Evaluation Form** found in the back. For additional information, please contact your authorized Mettler Toledo representative.

Model Identification

The BC scale is available in two sizes (small and large) and in four capacities, and is configured for the market in which it will be used at the time of ordering. Refer to the following chart to confirm the model number of the BC counting scale with which you are working. The example below shows a 15kg capacity scale with the battery option for the USA market.

Model Number Configuration

Scale Type	Capacity	Battery Option	Market
BC - Basic Counting	05 5kg / 10 lb 15 15 kg / 37.5 lb 30 30 kg / 60 lb 60 60 kg / 120 lb	Blank - None B - Battery	000 to 999 Market Code per Mettler Toledo Specifications



BC 15 B 000

Specifications

The BC counting scale conforms to and operates best within the specifications that follow.

MODEL	BC05	BC15	BC30	BC60
Capacity/Division (kg)	5 x 0.0005	15 x 0.002	30 x 0.005	60 x 0.01
Capacity/Division (lb)	10 x 0.001	37.5 x 0.005	60 x 0.01	120 x 0.02
Scale Dimensions (W x D x H)	310 mm x 375 mm x 135 mm 12.2 in x 14.8 in x 5.3 in		350 mm x 300 mm x 135 mm 13.8 in x 11.8 in x 5.3 in	
Platter Dimensions (W x D)	305 mm x 215 mm 12.0 in x 8.5 in		350 mm x 300 mm 13.8 in x 11.8 in	
Actual Weight	5 kg/11 lb		11 kg/24 lb	
Shipping Weight	8 kg/17 lb		14 kg/30 lb	
Operating Temperature	10°C to 40°C (50°F to 104°F) 10 to 90% humidity, non-condensing			
Storage Temperature	-20°C to 70°C (-4°F to 158°F) 10 to 90% humidity, non-condensing			
Power	24 VDC @ 250mA - 120, 220, or 240 VAC adapter included			
Construction	Die cast aluminum base, high impact plastic cover			
Two Liquid Crystal Displays	Left - Seven 18 mm/0.7 in high seven-segment digits Right - Eight 13 mm/0.5 in high dot matrix characters			
Internal Resolution	1 million divisions at scale capacity			
Display Resolution	From 3,000d to 100,000d - selectable			
Weighing Units	Pounds, kilograms, and grams			
Serial Data I/O	Bi-directional RS2332C, 300 - 19,200 baud			

Power Requirements

An external 24 VDC, 250 mA (21.0 to 30 VDC, 150mA nominal) power supply provides power to the BC scale.

The BC scale can also be powered by a rechargeable NiCad, 7.2 VDC, 4.3 amp-hour battery pack battery for portable applications. An internal option board converts the battery voltage to a nominal 24 VDC (for the load cell), and charges the battery when using the appropriate 1.0 amp heavy duty AC power supply. The battery supports a minimum of 6.5 hours continuous stand alone operation and is capable of at least 500 charge/discharge cycles.

Standards Compliance

AC Power Line Voltage Variation

The BC meets NIST HB-44, Canadian Gazette Part 1, and OIML-SP7/SP2 line voltage variation specifications as listed in the following table:

AC Power Line Voltages						
Line Voltage Variation Specification	AC Line Voltage			Line Frequency in Hz (± 2%)		
	Minimum	Nominal	Maximum	Minimum	Nominal	Maximum
NIST HB-44	100	120	132	59.5	60	60.5
Canadian	108	120	132	58.8	60	61.2
OIML-SP7/SP2	102 187 204	120 220 240	132 242 264	58.8 49.0 49.0	60 50 50	61.2 51 51

RFI Susceptibility

The BC counting scale meets USA, Canadian, VDE 0871 Class A requirements for RFI susceptibility as listed in the following table with a maximum of one display increment of change when calibrated for recommended builds.

Radio Interference Frequency	Field Strength
26-1000 MHz	3 volts/meter

UL Listing

The BC counting scale is designed to meet UL specification E87297 (24 VDC 250 mA) for transformers.

CSA Certification

The BC counting scale is designed to meet CSA standard LR57562.

Weights and Measures Approval

The BC counting scale meets or exceeds requirements for Class III, 10,000e NTEP division accuracy requirements in accordance with the National Institute of Standards and Technology (NIST) Handbook 44. A Certificate of Conformance 98-026 has been issued under the National Type Evaluation Program (NTEP) of the National Conference on Weights and Measure.

The BC counting scale was submitted for approval to the Canadian Weights and Measures Laboratories in Canada. After evaluation, the BC counting scale was found to meet and/or exceed requirements for Class III, 10,000d rating and approval AM-5223 was issued by statutory authority of the Minister of Industry, Science and Technology of Canada.

The BC counting scale was submitted for approval to the Nederlands Meetindtituut (NMi) in The Netherlands. After evaluation, the BC counting scale was found to meet and/or exceed the requirements for a Class III, 6000 division weighing instrument. EC type-approval certificate T2850 was issued by the NMi in accordance to Council Directive 90/384/EEC on Non-Automatic Weighing Instruments.

Parts and Optional Equipment

When ordering parts, refer to the parts list in Chapter 7 of this manual. The following optional equipment may be factory-installed or ordered as a separate kit for installation at a later time. Detailed instructions are included with each kit for installation by qualified personnel. Please contact your local METTLER TOLEDO representative.

NiCad Battery Option (0919-0045 and 0919-0049)

Two battery options - one for the smaller and one for the larger BC counting scale, allow the BC counting scale to operate when not connected to an AC power outlet. Both use a "pack" of NiCad batteries, which allows multiple recharging, and are attached to the bottom of the scale. The battery pack provides 7.2 volts of power to operate the BC counting scale (without a remote second scale) up to 6.5 hours without recharging. To recharge the pack, plug the BC counting scale into an AC power source for approximately 14 hours.

Extra NiCad Battery (0919-0046)

This kit consists of the NiCad battery only. It can be installed to operate the BC counting scale while the original battery is being recharged externally.

Heavy Duty 1.0 Amp Power Supply (0919-0047)

The power supply is required when the battery option is used with the BC scale. It supplies additional power to recharge a battery via the scale. This power supply is designed for 120/240VAC with U.S. line cord.

External Battery Charger (0919-0051)

This 120VAC charging device recharges a NiCad battery pack external to the scale while a fresh battery pack is installed for longer operating time.

Heavy Duty 1.0 Amp Power Supply (0919-0052)

This power supply is required when the battery option is used with the BC scale. It supplies additional power to recharge a battery via the scale. This power supply is designed for 120/240VAC input with U.K. line.

Heavy Duty 1.0 Amp Power Supply (0919-0053)

This power supply is required when the battery option is used with the BC scale. It supplies additional power to recharge a battery via the scale. This power supply is designed for 120/240VAC input with European line cord.

Heavy Duty 1.0 Amp Power Supply (0919-0054)

This power supply is required when the battery option is used with the BC scale. It supplies additional power to recharge a battery via the scale. This power supply is designed for 120/240VAC input with Australian line cord.

Keyboard/Display Stand (0992-0001)

This metal stand supports the keyboard/display of the BC30 or BC60 to make it easier to view and use in certain situations. The stand may be used alone or with the attachment bracket below (0992-0002).

Stand Attachment Bracket (0992-0002)

The bracket attaches the keyboard/display stand (described above but not included) to the base of the BC30 and BC60 scale to make each an integral system that can be easily moved.

Sealing Kit (0992-0003)

The sealing kit contains all required hardware to prevent unauthorized access to the scale weighing parameters. This is only required when "sealing" the BC counting scale for approved applications. Hardware for both large and small models is included.

Software Upgrade Kit (0992-0004).

This kit contains new firmware for the BC to upgrade an older unit to the latest functionality. THIS KIT REQUIRES INSTALLATION BY A TRAINED SERVICE TECHNICIAN.

RS-232 Interface Cable (0900-0255)

This 20-foot (6 m) long cable provides bi-directional RS-232 interface between the BC counting scale and a serial device such as a printer that utilizes a 25 pin female serial connector.

RS-232 Interface Cable (0900-0278)

This 15-foot (5 m) long cable provides bi-directional RS-232 interface between the BC counting scale and a serial device such as a computer that utilizes a 9 pin male serial connector.

RS-232 Interface Cable (0900-0279)

This 15-foot (5 m) long cable provides bi-directional RS-232 interface between the BC counting scale and a serial device such as a computer that utilizes a 25 pin male serial connector.

Roller Ball Top Platter (0906-0161)

This platter contains 14 roller balls and is designed to allow the operator to easily move containers onto the base of the BC30 or BC60 scales.

2 Installation Procedures

Selecting the Proper Location

Before installing the BC counting scale, identify the best location for the equipment. The proper environment enhances the operation and longevity of the scale. Keep in mind the following sources of scale error:

- Vibration—Vibration diminishes the scale's ability to measure accurately. Electrical machinery can cause inaccurate, non-repeatable readings. The scale may read inaccurately if not balanced properly.
- Air Currents—Moving air can cause the scale to read an additional force (additional weight) and have the same affect as vibration.
- Cold Circuitry—Scales at temperatures lower than room temperature can read inaccurately as the scale measures the change in resistance of the strain gauges when weight is applied to the scale. Let the scale warm-up approximately 30 minutes before using it.
- Electrical Influences—Fluctuations in the electrical power supply can affect performance and possibly damage the load cell. The scale should be set apart from equipment that generates electrical noise. "Clean" power should be used at all times to avoid damage.
- Friction—A scale cannot measure accurately if an object is rubbing or pressing against the platter.
- Moisture/Humidity— Refer to the temperature and humidity specifications in Chapter 1 of this manual.

Inspection and Contents Verification

Inspect the package containing the BC counting scale before beginning installation. If the shipping container is damaged, check for internal damage and file a freight claim with the carrier if necessary.

Next, verify that all components are included. If any components are missing or damaged, please contact your authorized Mettler Toledo representative. Package contents for the BC05 or BC15 include:

- Scale
- Scale Platter

- User's Guide
- Technical Manual
- Power Supply
- Packing Material
- Operator Card
- Allen Wrench (BC05 models only)

Package contents for the BC30 or BC60 include:

- BC Counting Scale Remote Keyboard/Display Unit
- Scale Base
- Scale Platter
- User's Guide
- Technical Manual
- Power Supply
- Packing Material
- Operator Card

Setup - BC05/BC15

The BC counting scale is assembled at the factory according to ordering specifications. If you need to install components other than those installed at the factory, please refer to the instructions included with those options. To setup the BC counting scale:

1. If you have not already done so, remove the BC counting scale from its container by grasping the bottom front and the back of the unit and pulling up out of the box. Remove the packing material from each side of the scale.
2. Set the unit on a sturdy, level surface and remove the platter (P/N 140826 00A). Remove the shipping insert under the platter and the piece of paper.
3. Completely remove the shipping screw (BC05 only) using the allen wrench provided. Store the screw with the allen wrench for later use.

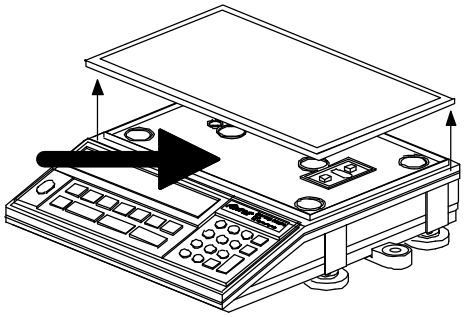


Figure 2-a: Shipping Screw

4. Level the scale by turning the adjustable feet on the bottom of the unit. The bubble indicator is centered in the circle when the BC counting scale is level (see figures 2-b and 2-c). The feet must be adjusted so the scale does not rock.

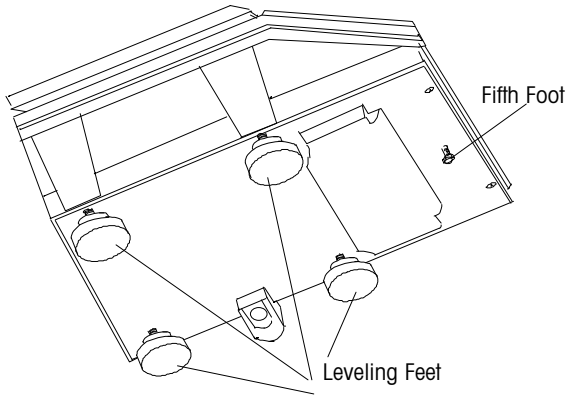


Figure 2-b: BC Feet (Bottom View)

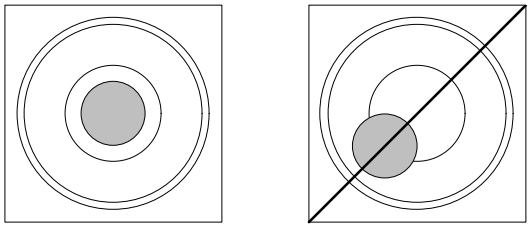
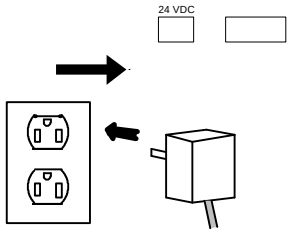
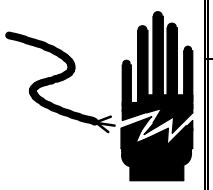


Figure 2-c: Level Indicator

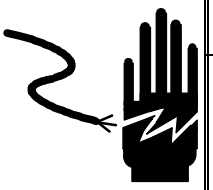
5. When the BC counting scale is level, carefully unscrew the front (fifth) foot until it is resting evenly on the surface.
6. Unpack the power supply and plug it into the back of the scale. Plug the line cord into a properly grounded AC power outlet. You can press ON/OFF to power the scale down until you are ready to test or use it.





WARNING!

AC power sources must have proper short circuit and over current protection in accordance with local and national electrical regulations. Failure to provide this may result in bodily injury and/or property damage.



CAUTION!

If the battery option has been installed, the larger 1.0 Amp DC power supply must be used. Do not use the standard 250mA DC power supply .

Setup - BC30/BC60

1. If you have not already done so, remove the BC counting scale from the box and set it on a sturdy, level surface.
1. Insert the remote keyboard/display jack into the BC counting scale base at the location marked "KYBD."

Note the orientation of the connector, clip should be down

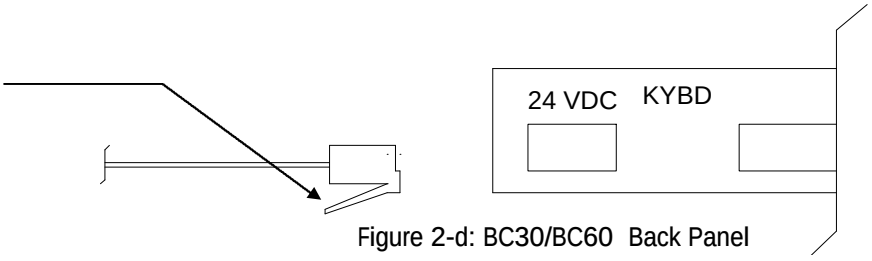


Figure 2-d: BC30/BC60 Back Panel

3. Level the scale by turning the adjustable feet on the bottom of base. The bubble indicator will be centered in the circle when the BC counting scale is level (see figures 2-e and 2-f). The feet must be adjusted so the scale base does not rock.

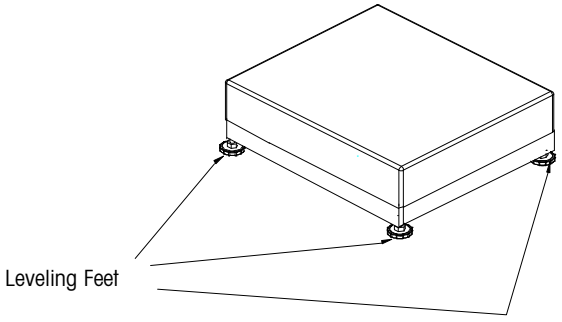


Figure 2-e: Large BC Leveling Feet

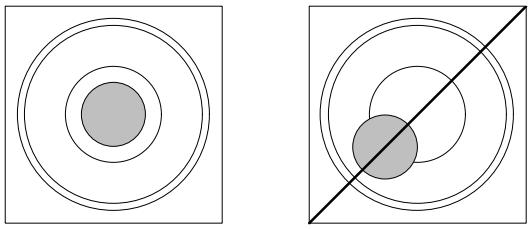
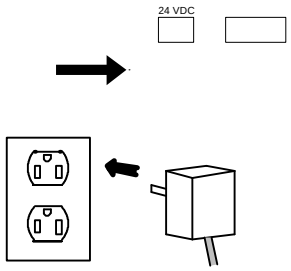
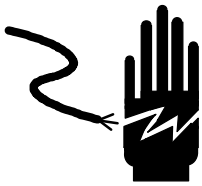


Figure 2-f: Level Indicator

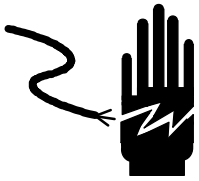
4. Insert the AC wall power supply into the 24 VDC jack on the BC counting scale base. Plug the line cord into a **properly grounded** AC power outlet. You can press the ON/OFF key to power the scale down until you are ready to test or use it.





⚠ WARNING!

AC power sources must have proper short circuit and over current protection in accordance with local and national electrical regulations. Failure to provide this may result in bodily injury and/or property damage.



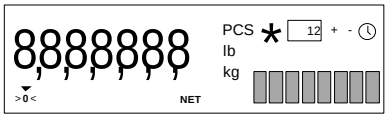
⚠ CAUTION!

If the battery option has been installed, the larger 1.0 Amp DC power supply P/N 14605500A or A14664800A must be used. Do not use the standard 250mA DC power supply P/N 14083200A, 14806900A or 14912100A if the battery is installed.

Power-up Sequence

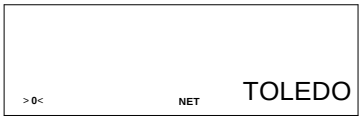
The BC counting scale goes through a power-up sequence each time power is applied. The scale performs a diagnostic test on its ROM and RAM, then proceeds to normal operating mode. The power-up sequence is as follows:

The platter must be on the scale during power-up to capture zero. If the platter is not on the scale or if there is additional weight on the scale, an error may be displayed.



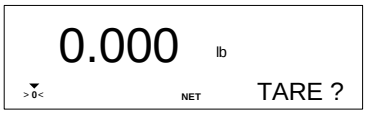
All segments lit.

Company name Mettler-Toledo is sequentially displayed.



Model name is shown.

The software version and part number is shown.



The power-up sequence is complete and the BC scale is ready for use.

3 Operating Information

The following sections provide information on the features of the BC counting scale that is needed to configure the system parameters in Service Mode and to set the operating parameters in Master Mode.

Mode and Scale State Definitions

This manual refers to various scale modes and operating states. They differ depending on the scale function and/or setup procedure desired.

- Master Mode—Master Mode is the mode in which operating parameters (details pertaining to the scale functions such as selected weight units and audible beep configuration) are configured.
- Service Mode—Service Mode is the mode in which scale and system parameters are configured, and in which the BC counting scale is calibrated.
- Weigh Mode—In Weigh Mode, the scale can display gross weight (non-zero) or net weight (negative or positive). Negative net weight is displayed when a container is tared then removed from the scale.
- Count Mode—In Count Mode, the BC scale counts items on the platter.
- Dependent Mode—In Dependent Mode, counting and sampling actions are guided by prompts. You can configure the sequence in Master Mode.
- Independent Mode—In Independent Mode, counting and sampling actions are not guided by the BC counting scale. The specific counting sequence is determined by the user, providing greater application flexibility.
- Home State—In Independent Mode, Home State is indicated by the scale displaying gross weight. In Dependent mode, home state is indicated by the scale displaying the first prompt in a defined sequence of prompts.
- Prior State—Prior State refers to the scale state immediately before the current scale state (outside of Master Mode and Service Mode). The CLEAR key returns you to the Prior State regardless of current state. For example, if you just tared a container (0.0 net weight and/or tare weight displayed), you can return to the previous state (gross weight) by pressing CLEAR.
- Gross Weight—The full weight on the scale which includes tare weight (a container or similar device) and net weight (weight of item or product only).
- Tare Weight—The weight of a container that is typically subtracted from the gross weight so an accurate net weight is displayed.
- Net Weight—The remaining weight on the scale after a tare value is subtracted from the gross weight.

BC Display Area

The BC counting scale has two display areas where scale data and operational messages are presented. These are pictured below:

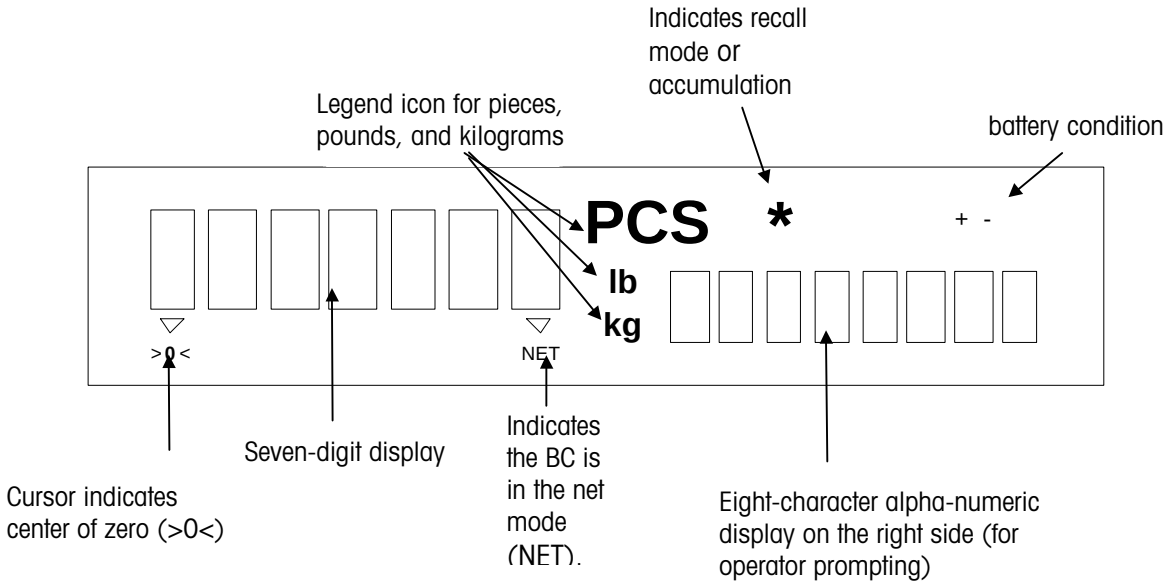


Figure 3-a Sample Display**Error! Switch argument not specified.**

The left display is comprised of seven characters with seven segments, and is used primarily for numbers. In Master Mode and Service Mode, alphanumeric prompts are displayed here. Because the left display area is confined to seven segments per character, alphanumeric prompts may appear with upper and lower case characters, or a character or prompt may not be displayed as expected. For example, the letter "m" appears as an "n", the letter "v" appears as "u", the letter "e" appears as "E". These occurrences are intentional. They do not indicate a display error or affect the operation of your BC counting scale.

A full description of the BC scale's program block structure is given in Chapter 4 (Service Mode) and Chapter 5 (Master Mode).

The right display area is composed of eight dot matrix characters and is used primarily for alphanumeric prompts and responses.

In Master Mode or Service Mode, the left display area tells you where you are within the program block structure. The right display area indicates the current parameter. Triangular cursors at the bottom of the left display area indicate graphically your position within Master Mode or Service Mode:

- One Cursor—indicates a program block ▽
- Two Cursors—indicate a sub-block ▽▽
- Three Cursors—indicate a parameter within a sub-block ▽▽▽

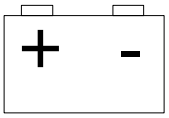
For example, if the display reads [Master Tare], you are in Master Mode and about to access the Tare program block. The BC counting scale displays one arrow when you access the program block. If the display reads [Tare Mode],

you are in the Tare program block and about to configure the Mode parameter. The BC counting scale displays two arrows indicating you have accessed the Tare sub-block.

The left and right display areas are also used to provide feedback when an error occurs. For example, if you press TARE when that keystroke is not valid, the BC counting scale will display an error in the left area and a descriptive message such as "Bad Entry" in the right. Most errors clear automatically in 2 seconds. Others will require pressing the CLEAR key.

Display Symbols

The secondary display area contains special symbols to inform you of certain scale operational conditions. Descriptions of these symbols follow:



Battery—If the scale receives a low-battery signal, the unit beeps and flashes the battery annunciator. The annunciator flashes the warning for two minutes, then clears the display of all metrological data and displays [Power Failure].

If it receives a low-battery signal on power-up, the unit goes directly to Sleep mode and flashes the battery annunciator. You must apply AC power and wait until the symbol stops flashing. When the annunciator is no longer flashing, you can press the ON/OFF key and operate the scale a while longer. The BC counting scale remains in Sleep mode as long as the battery annunciator is flashing regardless of whether you press ON/OFF.

If the battery symbol continues to flash more than five minutes, the battery may be damaged and require replacement. Remove the battery pack and operate the BC counting scale from a standard AC outlet.

12

Scale Select—The scale select symbol is not functional on the BC scale.

*

Accumulator—The accumulator symbol flashes once when an addition or subtraction accumulation has been successfully completed. In Master Mode, the asterisk (same symbol) indicates a factory default selection. This symbol will also light while in the recall mode.

PCS

Piece Count—The PCS legend indicates the BC scale is in count mode and the current display is piece count.

lb
kg

Weight Unit—The lb and kg legends indicate weight units. When you switch weight units, the BC scale automatically lights the appropriate legends. If the selected weight unit is grams, the letter "g" is displayed in the right alphanumeric display area.

Power-up—You will see a clock annunciator when the BC counting scale goes through its power-up sequence. This annunciator is currently not used.

BC Keypad

The English version of the BC scale comes with a standard 9-key keypad as shown below. The keypad consists of an ON/OFF key and 8 function keys.

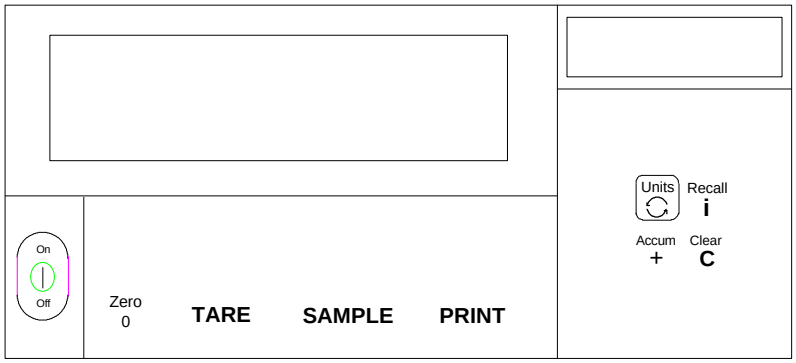


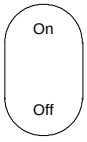
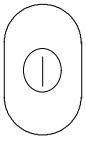
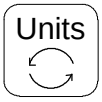
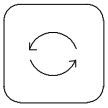
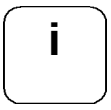
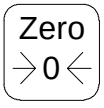
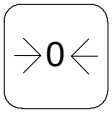
Figure 3-a

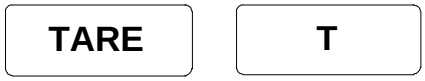
2

Some BC counting scale units may be equipped with an International (graphical) keypad. The following Function Key descriptions illustrate both.

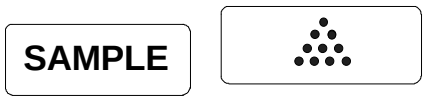
Function Keys

The BC counting scale's function keys and their descriptions are given below. The operation the key performs may depend on how the scale is configured and what operating mode it is in.

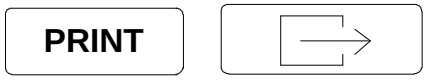
English	International	
		ON/OFF—turns the BC scale on and off. Turning the unit off preserves battery life if the BC is operating on battery power. The BC scale displays [Sleep] when power is off. The scale goes through the power-up sequence each time power is reapplied.
		UNITS—switches between the primary and alternate weight unit as selected in Master mode.
		RECALL—recalls stored data. Depending on the Master mode configuration, this key toggles through a series of data related to the transaction. The RECALL key is used also to initiate a printout of Master mode and Service mode parameter configurations when it is held depressed for approximately four seconds then released.
		ACCUM PLUS—adds weight and count values to accumulators.
		ZERO—zeros the scale. In Master mode and Service mode, the ZERO key is used to return to the previous program block. ZERO also clears the accumulators when they are displayed in the recall mode.



TARE—tares container weight in weigh or count mode. In Master Mode and Service Mode, the TARE key scrolls forward to the next selection.



SAMPLE—lets you enter fixed or variable sample quantities in count mode. In Master Mode and Service Mode, the SAMPLE key scrolls backward to the previous selection within the current program block. Also used to initiate an APW enhancement cycle if enabled.



PRINT—sends data to a printer or host (if attached to I/O port 1). When depressed for 7 seconds, PRINT allows access to Master Mode. In Master Mode and Service Mode, PRINT also accepts the displayed parameter and advances to the next step in the program block.

CLEAR—removes error messages from the display area (if the message is not self-clearing), clears single characters in data entry mode, and clears data values stored in the accumulators (when auto clear accumulators (when auto clear accumulators is turned on). Also exits the count mode and returns the scale to the home state.

Reset to Factory Defaults

As you are working in Master Mode, the factory default parameter selection is marked with an asterisk (*) accumulator symbol.

To reset all Master Mode programming parameters to the original factory values:

- Enter Master Mode. Depress the PRINT key for 7 seconds until [******] is shown.
- Press CLEAR. The [END? —SAVE] prompt is displayed.
- Press TARE twice to display [END? —DEFAULT], then press PRINT.

The BC scale remains in Master Mode. You can return to any program block.

Motion Detection

If you attempt to perform a function command when the scale is in motion and tare interlock is enabled, the scale display becomes blank. The BC executes the function command only when a no-motion condition exists.

The BC counting scale prohibits some scale functions if motion is detected on the scale. If you attempt to perform a function command (tare, clear, sample, or print) while the scale is in motion, the BC counting scale stores the command and executes it when a no-motion condition exists. With Tare Interlock OFF, the Pcs, lb, and kg symbols blank to indicate motion on the scale. When the platter is stable, these indicators are illuminated.

Exiting Master Mode or Service Mode

You can exit Master or Service Mode at any time and save or abort the parameters. To exit:

1. Press CLEAR. The [End? —SAVE] prompt is displayed.
2. If desired, press TARE to display [End?, ABORT].
3. Press PRINT to select the appropriate action.

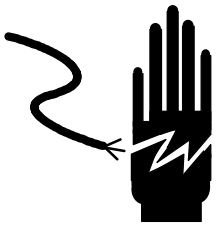
If you select:

- Save—the configuration parameters are saved before you exit.
- Abort—the parameters are not saved and revert to their previous values.

The BC displays the message "Updating" upon exit even if you selected Abort.

4 Configuring Service Mode Parameters

Service mode lets you set the parameters for scale and system setup and calibration.



⚠ WARNING!

PERMIT ONLY QUALIFIED PERSONNEL TO PROGRAM OR SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY INJURY.

Accessing Service Mode

To access Service mode:

- Carefully remove the platter from the scale.
- Press the recessed service access button located slightly right of center (see figure 4-a and 4-b) with a non-conducting probe. Do not use a metal tool as it may damage sensitive components. Hold down the access button until the display shows [********] on the lower right display, then release.

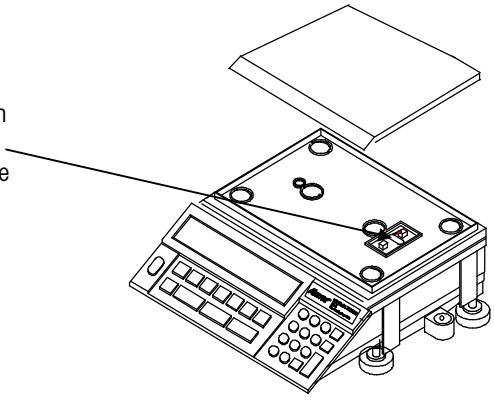


Figure 4-a
Service Mode Access - Small BC

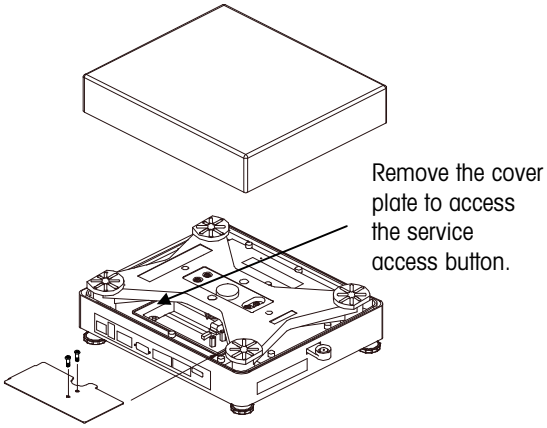


Figure 4-b
Service Mode Access - Large BC

When Service mode is accessed, the BC counting scale displays [Service] in the left display followed by [TEST] in the right display.

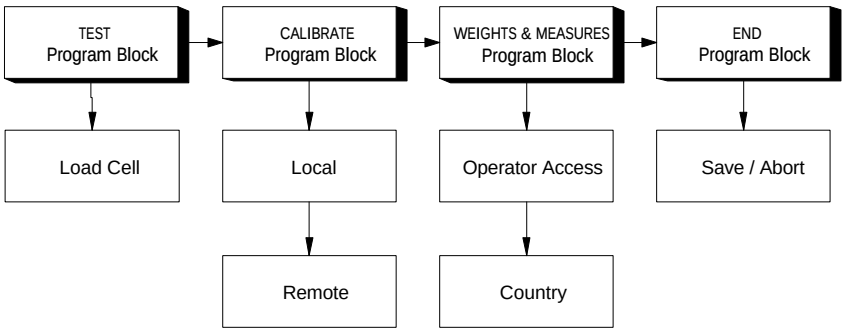
3. Replace the platter.

Navigating in Service Mode

English	International	
TARE	T	TARE—Advances you through a list of options (moves through to the right). Use the TARE key to scroll through program blocks, sub-blocks, and options within sub-blocks.
PRINT	→	PRINT—Accepts the displayed option (moves down through the various modes). Use PRINT to access program blocks and sub-blocks and to accept displayed options.
Zero →0←	→0←	ZERO—Returns you to the beginning of a program block.
SAMPLE	⁂	SAMPLE—Returns you to the previous location. Use SAMPLE to back through items in a list, sub-blocks, or program blocks.

The following diagram gives an overview of the Service Mode program blocks and sub-blocks:

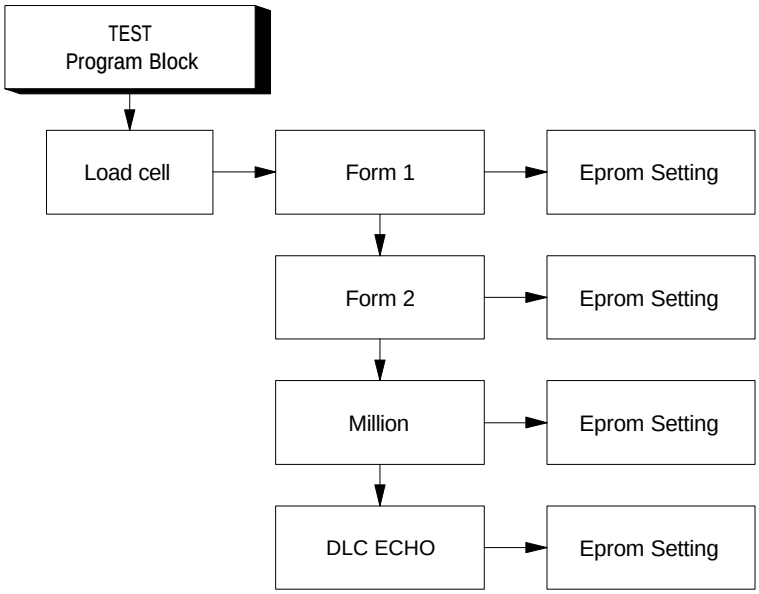
BC Service Mode



Test Program

The Test program block is used to view higher resolution of the BC scale. The following diagram describes this program block:

From the [TEST] prompt, press PRINT to access the program block.



Load Cell Sub-block

There are four test modes available in the load cell sub-block. They are: Form 1 (compensated load cell counts), Form 2 (uncompensated raw load cell counts and compensation value), Million (scale capacity divided into one million and compensated load cell counts), and DLC ECHO (used for manufacturing purposes only - DO NOT SELECT).

Test Load cell Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		tESt	LOADCELL	
1. Access the load cell sub-block	PRINT Error! Switch argument not specified.	LoAdCEL	FORM 1	The first test mode is displayed at the right.

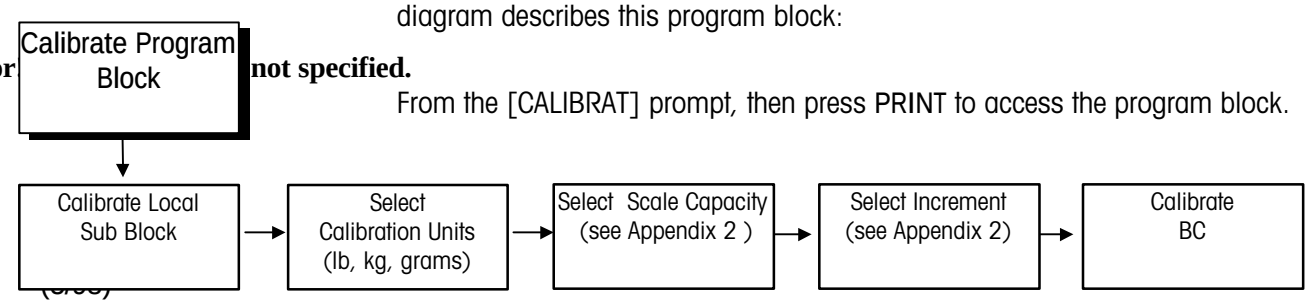
Test Load cell Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
2. Display the desired load cell test mode to be viewed.	TARE	LoAdCEL	desired mode	Options include: Form 1 Form 2 Million DLC ECHO
3. Select the displayed test mode.	PRINT	EEProm	Setting	The load cell is set to the chosen format.
	Error! Switch argument not specified.	73091	FORM 1	After setting the load cell, the BC scale shows the chosen load cell data format.
4. When complete, press CLEAR to return to normal view mode in Service mode.	Clear C	EEProm	Reseting	The load cell will be reset back to the normal operating mode.
		LoAdCEL	FORM 1	The BC scale returns to the Form 1 sub-block.
5. Select another test mode by pressing TARE or exit test mode by pressing ZERO .	Zero →0←	tESt	LOADCELL	First press of ZERO returns the BC scale to the load cell sub-sub- block.
6. Press ZERO again to exit.	Zero →0←	SErViCE	TEST	The BC scale returns to first sub-block in Service mode.
7. Press TARE to proceed to the next sub-block.	TARE Error! Switch argument not specified.	SErViCE	CALIBRAT	The BC scale proceeds to the next parameter

Calibrate Program Block

The calibrate program block lets you calibrate your BC unit. The following diagram describes this program block:

Error! Switch argument not specified.

From the [CALIBRAT] prompt, then press PRINT to access the program block.



Local Sub-block

This sub-block lets you calibrate the BC counting scale.

Calibrate Local Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
		CALIBR	LOCAL	
1. Access the local scale calibration sub-block	PRINT	LOCAL	UNITS	
2. Access the Units options	PRINT Err or! Switch argument not specified.	UNITS	LB (or currently selected unit)	The calibration unit refers only to the unit of weight that you will use to calibrate the BC
3. Display the desired calibration unit	TARE Err or! Switch argument not specified.	UNIT	(desired option)	Options include: lb, kg, and gram
4. Select the displayed calibration unit	PRINT Err or! Switch argument not specified.	CAPACTY	20 lb	The BC automatically proceeds to the next parameter
5. Display the appropriate scale capacity	TARE Err or! Switch argument not specified.	CAPACITY	(desired capacity)	Options include: lb / gram / kg 10 / 5000 / 5 15 / 6000 / 6 20 / 10000 / 10 30 / 12000 / 12 37.5 / 15000 / 15 60 / 30000 / 30 120 / 60000 / 60

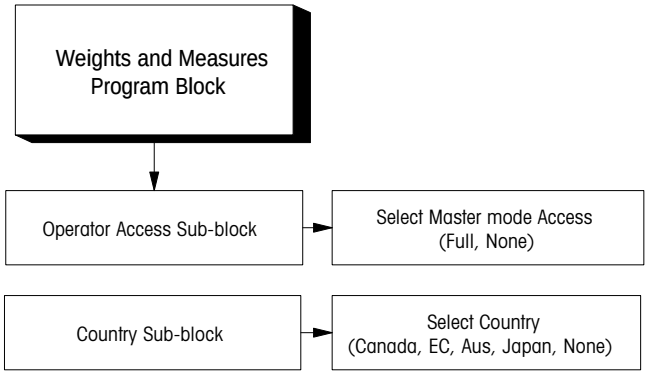
Calibrate Local Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
6. Select the displayed capacity option	PRINT Err or! Switch argument not specified.	INCRMNT	0.0002 (or currently selected increment)	
7. Display the desired increment option	TARE Err or! Switch argument not specified.	INCRMNT	(desired increment)	Options are given based on the selected unit and capacity. Refer to Appendix 2
8. Select the displayed increment option	PRINT Err or! Switch argument not specified.	EMPTY	SCALE	The BC now prompts you through the calibration process
9. Remove any residual weight on the platter	PRINT Err or! Switch argument not specified. (after all weight is removed)	ADD	WEIGHT	
10. Place the test weight on the platter **	PRINT	diGit 1?	? _ _ _ _	The scale is asking for the first (most significant) digit of the calibration weight to be entered. 5 digits must be entered.
11. Enter the first digit of the test weight value.	TARE	diGit 1?	0 _ _ _ _	TARE is used to scroll through all available numbers. Weight value entry begins at the left so 10 would be entered as 00010.
12. When the correct value is displayed, press PRINT.	PRINT	diGit 2?	0 ? _ _ _	Display moves to second digit to allow next numeric entry.
13. Enter the second digit of the test weight value	TARE	diiGit 2?	00 _ _ _	Follow the same procedure for all five digits of test weight entry. Note that ALL digits must be entered.
14. Enter the complete numeric value for the test weight on the platter.	PRINT	blank	CAL DONE (when finished calibrating scale)	Calibration weights can now be removed from the platter.

Calibrate Local Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
15. Continue to the Op Access sub-block	PRINT	blank	OpAccess	

** Use test weight totaling at least 50% of rated scale capacity, 100% if possible.

Weights and Measures Program Block

The Weights and Measures program block lets you select the configure access to Master mode parameters and select the country or market area where the BC counting scale will be used. Certain weights and measures limitations are imposed depending on the country selected.



Operator Access Sub-block

Operator Access Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
			OPACCESS	
1. Access the Operator Access sub-block	PRINT Error! Switch argument not specified.	OPACCES	FULL	[Full] gives access to Master mode; [None] blocks access to Master mode from the keyboard

2. Display the desired access level	TARE Error! Switch argument not specified.	OPACCES (Full or None)	
3. Select the displayed operator access.	PRINT Error! Switch argument not specified.	COUNTRY	

It is suggested that after that after Master mode programming is complete, set operator access to [None] to eliminate unintentional changes to the setup.

Country Sub-block

Error! Switch argument not specified.

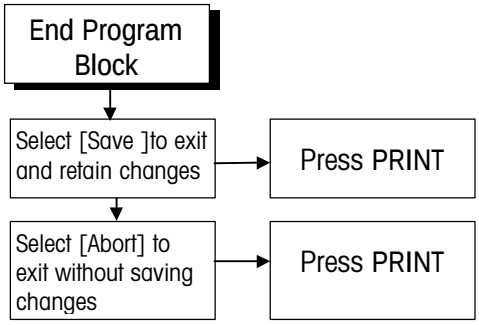
Country Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
			COUNTRY	
1. Access the Country sub-block	PRINT Error! Switch argument not specified.	COUNTRY	NONE	
2. Display the country or market area where the BC will be used	TARE Error! Switch argument not specified.	COUNTRY	(country or market area)	Options include: Canada EC Australia Japan None (USA)
3. Select the displayed country and continue to the END program block	PRINT Error! Switch argument not specified.	END?	SAVE	

End Program Block

The End program block is used to exit Service mode. The [End] prompt is accessed when you reach the end of the Weights and Measures program block, or when you press ESCAPE from anywhere within Service mode. Once accessed, you have the following options before exiting Service mode:

- Save—retains your changes
- Abort—exits Service mode without saving the changes and retains the values previously set

The following diagram describes this program block:



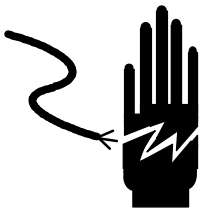
Error! Switch argument not specified.

End Sub-block				
Step Description	Press Key	Display Left	Display Right	Comment
		END?	SAVE	
1. Select the desired exit option	TARE Error! Switch argument not specified.	END?	SAVE or ABORT	If you select [ABORT], all changes made in current session will be lost
2. Confirm and exit	PRINT Error! Switch argument not specified.Error! Switch argument not specified.	END?	SAVE or ABORT	Press PRINT if you are saving your changes. The BC updates the program settings.

Note: When exiting Service mode, [Saving] will be displayed even if [ABORT] is selected.

5 Configuring Master Mode Parameters

Master Mode lets you set those parameters governing scale operation and customize the BC counting scale to your particular application.



WARNING!

PERMIT ONLY QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY INJURY.

Accessing Master Mode

The Operator Access sub-block in Service Mode must be configured as [Full] to access the Master Mode parameters. Refer to Chapter 4 for more information.

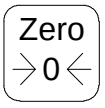
To access Master Mode:

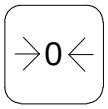
1. Press and hold the PRINT key for approximately 7 seconds until [*******] is displayed on the lower right display.
2. Release the PRINT key. The scale will briefly flash [Master], then advance to the User program block in Master Mode.

You can exit Master Mode at any time by pressing CLEAR to access the [End] program block. You can save your changes before exiting, abort Master Mode without saving the changes you made, or reset all parameters to factory default values.

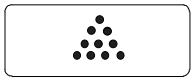
Navigating in Master Mode

English	International	
TARE	**T**	The TARE key advances through a list of options. Use the TARE key to scroll through program blocks, sub-blocks, and options within sub-blocks.
PRINT	⇨	The PRINT key accepts the displayed option. Use PRINT to access program blocks and sub-blocks and to accept displayed options.



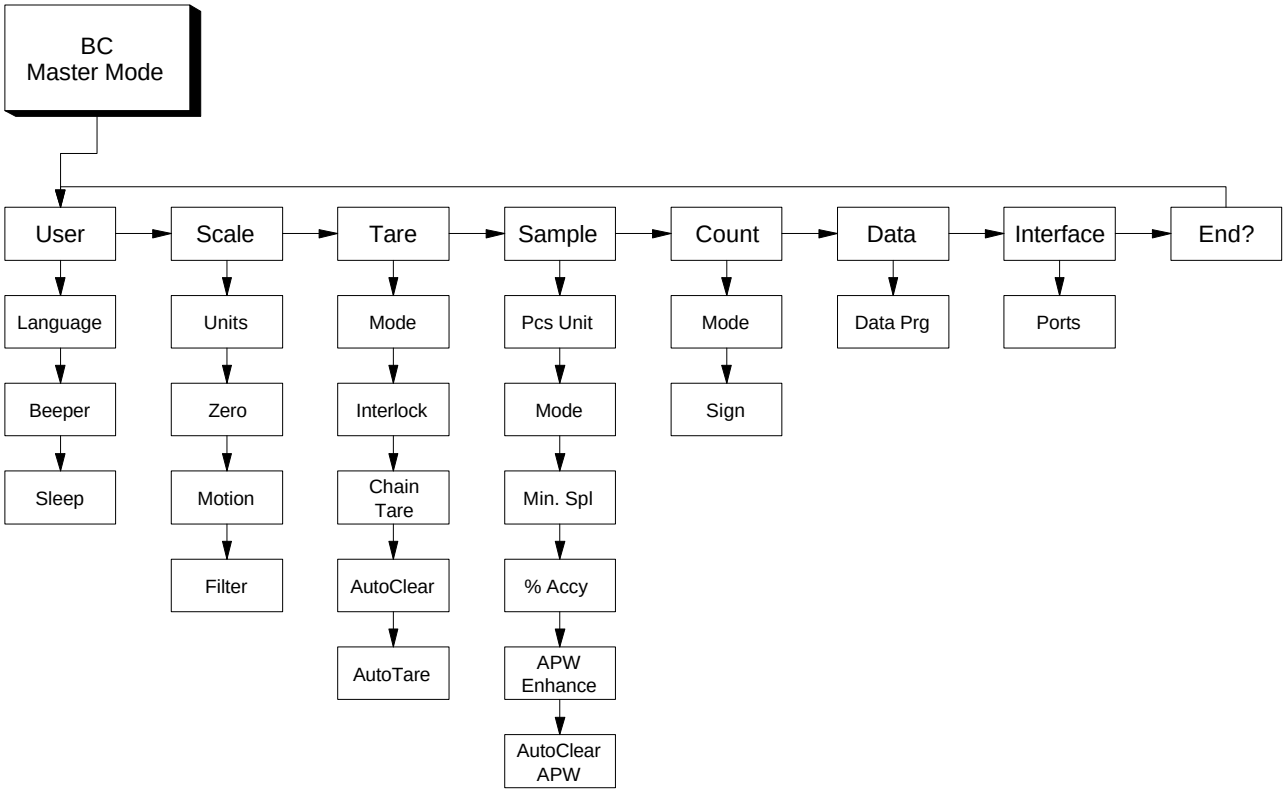


The ZERO key returns to the beginning of a program block.



The SAMPLE key returns to the previous location. Use SAMPLE to back through items in a list, sub-blocks, or program blocks.

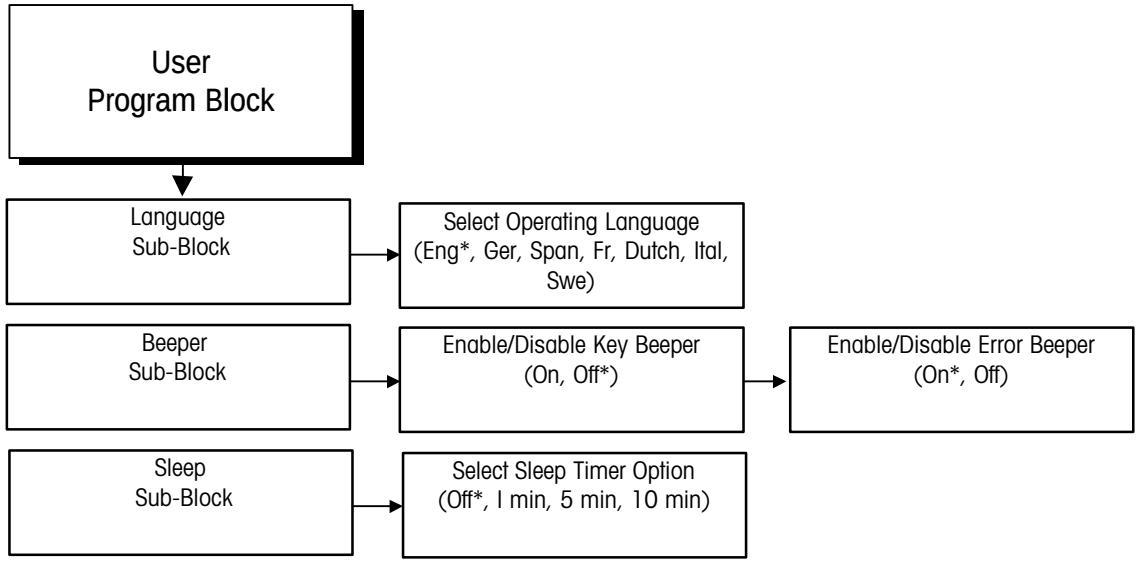
The following diagram gives an overview of the program blocks and sub-blocks:



Error! Switch argument not specified.

User Program Block

The User program block lets you configure the parameters related to operator/BC counting scale interaction (human interface). Parameter selections with an asterisk are default settings.



Error! Switch argument not specified.

To access the program block, press PRINT at the [USER] prompt.

1. Language Sub-block

The Language sub-block lets you select the operating language for the BC counting scale. All prompts and numbering conventions will appear according to the selected language. Data entered from the keyboard will be in the characters of the selected language as well.

Language Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		USER	LANGUAGE	
1. Access the Language sub-block	PRINT	LANGUAGE	ENGLISH*	
2. Display the desired system language	TARE Error! Switch argument not specified.	LANGUAGE	(options)	Options include: English* Dutch German Italian Spanish Swedish French
3. Select the displayed option	PRINT Err	BEEPER	KYBD	The BC scale continues to the next program block

	or! Switch argument not specified.			

2. Beeper Sub-block

The Beeper sub-block lets you configure the audible beeper On or Off with each keystroke and error situation.

Beeper Sub-block				
Step Description	Press Key	Display Left	Display Right	Comment
		BEEPER	KYBD	
1. Access beeper parameters	PRINT Error! Switch argument not specified.	BEEPER	KYBD	
2. Access keyboard beeper	PRINT Error! Switch argument not specified.	BD	OFF*	An asterisk indicates that the option is BC's default
3. Display desired keyboard beeper option	TARE Error! Switch argument not specified.	BD	ON or OFF*	If ON, BC beeps once each time a key is pressed
4. Select the displayed option	PRINT Error! Switch argument not specified.	ERROR	ON *	BC continues to the next parameter in the sub-block
5. Display desired error beeper option	TARE Error! Switch argument not specified.	ERROR	ON* or OFF	If ON, BC beeps twice to indicate an error
6. Select the displayed option	PRINT Error! Switch argument not specified.	SLEEP	OFF*	BC continues to the next sub-block

3. Sleep Sub-block

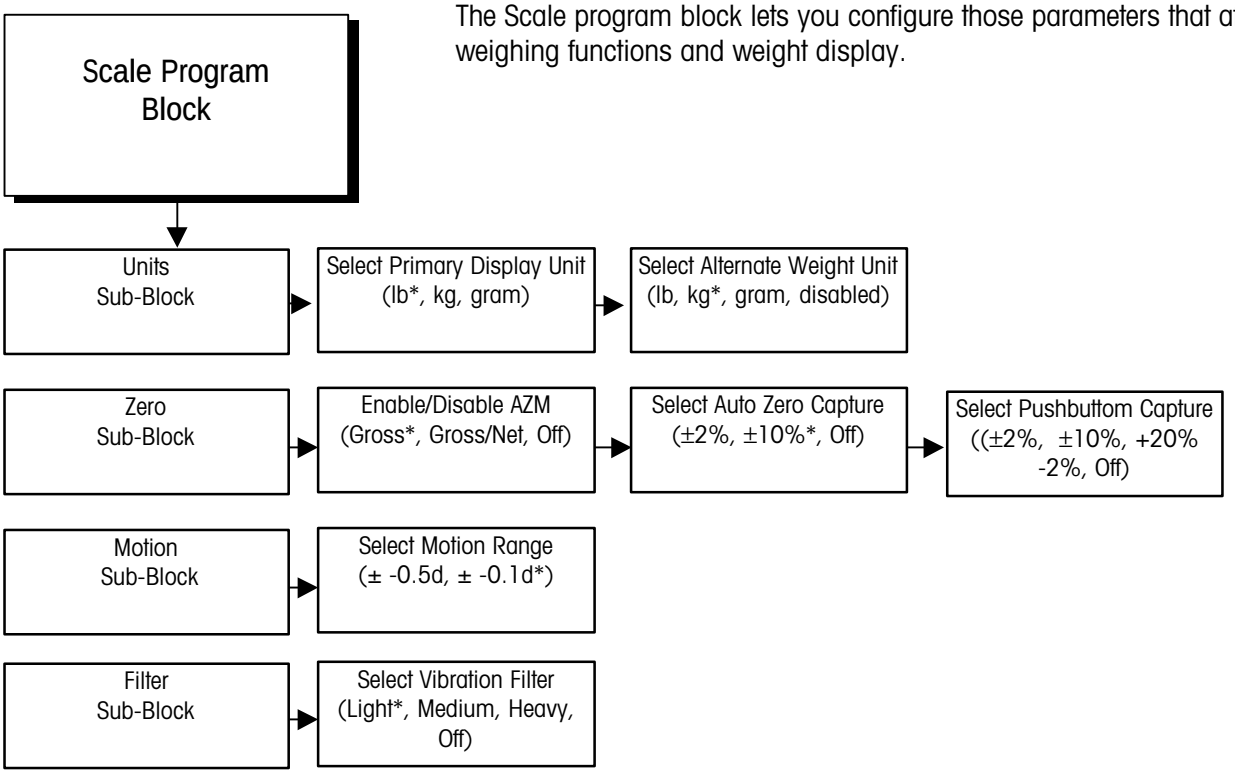
The Sleep sub-block lets you configure the BC counting scale's display power-down parameters. Mettler Toledo recommends using the sleep mode when a battery option is used to conserve power.

Sleep Sub-block			
		Display	

Step Description	Press Key	Left	Right	Comment
		SLEEP	OFF*	
1. Display the desired sleep option	TARE **Error! Switch argument not specified.**	SLEEP	(options)	Options include: OFF* 1 MIN 5 MIN 10 MIN
2. Select the displayed option	PRINT **Error! Switch argument not specified.**	SCALE	UNITS	BC counting scale continues to the next program block

Scale Program Block

The Scale program block lets you configure those parameters that affect weighing functions and weight display.



1. Units Sub-block

The Units sub-block lets you select the primary weight units that BC counting scale will display. You can also select an alternate weight unit that can be selected by unit switching.

Units Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
		SCALE	UNITS	Units selected in Master Mode apply only to scale operation. Units selected in Service Mode apply only to calibration
1. Access the Units sub-block	PRINT Error! Switch argument not specified.	UNITS	DISPLAY	You can configure display and/or alternate weight units
2. Access the display units parameter	PRINT Error! Switch argument not specified.	DISPLAY	LB*	
3. Display the desired display unit	TARE Error! Switch argument not specified.	DISPLAY	(options)	Options include: lb* kg gram
4. Select the displayed unit	PRINT Error! Switch argument not specified.	ALT UNT	KG*	BC continues to the next parameter in the sub-block
5. Display the desired alternate weight unit	TARE Error! Switch argument not specified.	ALT UNT	(options)	Options include: kg* gram disabled lb
6. Select the displayed alternate unit	PRINT Error! Switch argument not specified.	ZERO	AZM	BC continues to the next sub-block

2. Zero Sub-block

The Zero sub-block lets you set the zero reference parameters. You can configure any or all of the following options:

- Auto Zero Maintenance (AZM)—automatically compensates for small changes in zero resulting from small amounts of scale build-up or temperature fluctuations.
- Auto Capture—captures zero at power up through a specific increment range selected in Master Mode.
- Pushbutton Capture—captures zero when ZERO is pressed.

Zero capture increment ranges are based on the actual calibrated zero. To configure the sub-block:

Zero Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
		ZERO	AZM	
1. Access the AZM parameter	PRINT Error! Switch argument not specified.	AZM	GROSS*	
2. Select the desired AZM feature	TARE Error! Switch argument not specified.	AZM	GROSS	Options include: Gross* Gross /Net Off Selection of gross only allows the operator to take a tare (net mode) to disable AZM while sampling very small pieces that may be erased if AZM were tracking.
3. Accept the displayed option	PRINT Error! Switch argument not specified.	AUTOCAP	+10/-10%*	BC continues to the next parameter in the sub-block
4. Display the desired auto capture range	TARE Error! Switch argument not specified.	AUTOCAP	(options)	Options include: ±2% ±10% OFF
5. Select the displayed option	PRINT Error! Switch argument not specified.	PB CAP	+10/-10% *	BC continues to the next parameter in the sub-block

Zero Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
6. Display the desired pushbutton capture range	TARE Error! Switch argument not specified.	PB CAP	(options)	Options include: ±2% ±10% OFF
7. Select the displayed option	PRINT Error! Switch argument not specified.	MOTION	+/-0.1d*	BC continues to next sub-block

3. Motion Sub-block

The Motion sub-block lets you configure the BC counting scale's motion detection feature. The motion filter senses motion on the scale. The feature requires three successive readings to be within an "acceptable" amount of motion as measured in scale divisions before detecting "no motion". This ensures maximum accuracy. Motion on the scale disables tare, zero, sampling and printing. The lower the setting, the more sensitive the scale.

Motion Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		MOTION	+/-0.1d*	
1. Display the desired motion range	TARE Error! Switch argument not specified.	MOTION	(options)	Options include: +/-0.1d* +/-0.5d
2. Select the displayed option	PRINT Error! Switch argument not specified.	FILTER	LIGHT*	The BC scale continues to the next sub-block

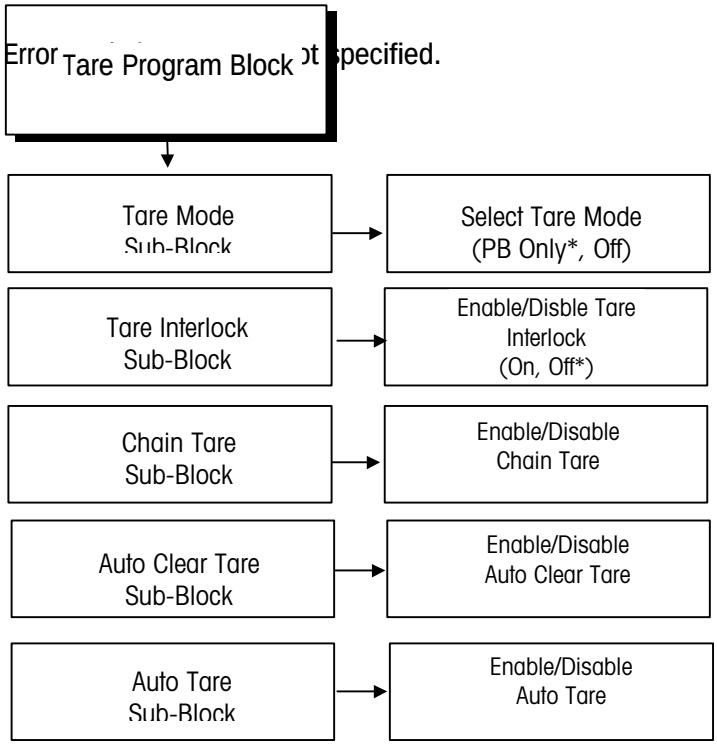
4. Filter Sub-block

The filter feature compensates for environmental conditions such as vibration and noise. Heavier filtering increases the scale's settling time.

Filter Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		FILTER	LIGHT*	
1. Display the desired filter	TARE Error! Switch argument not specified.	FILTER	(options)	Options include: Light* Medium Heavy Off
2. Select the displayed filter option	PRINT Error! Switch argument not specified.	TARE	MODE	The BC scale continues to the next program block

Tare Program Block

The Tare program block lets you configure various tare options.



1. Tare Mode Sub-block

The Mode sub-block lets you select the type of tare to use or disable tare. Tare modes include pushbutton and Off. If enabled, pushbutton tare subtracts the weight of a load on the scale when TARE is pressed. The BC scale displays net weight when a load is placed on the tared platter. To configure the Tare mode sub-block:

MODE SUB-BLOCK				
		Display		
Step Description	Press Key	Left	Right	Comment
		TARE	MODE	
1. Access Mode sub-block	PRINT Error! Switch argument not specified.	MODE	PB Only*	
2. Display the desired tare capability	TARE Error! Switch	MODE	(options)	Options include: Off PB Only

	argument not specified.			
3. Select the displayed option	PRINT Error! Switch argument not specified.	INTRLOC	OFF*	BC continues to the next sub-block

2. Tare Interlock Sub-block

This sub-block lets you enable or disable tare interlock which limits how tare values can be cleared or entered in legal-for-trade applications.

Tare Interlock Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		INTRLOC	OFF*	
1. Enable or disable the tare interlock feature	TARE Error! Switch argument not specified.	INTRLOC	OFF* or ON	If ON: • Tare can only be taken or cleared after power-up zero or at gross zero (no motion) • Previous tares must be cleared. • Multiple tares are not accepted. • Tare interlock limits pushbutton zero to 2% of scale capacity
2. Accept the displayed option	PRINT Error! Switch argument not specified.	CHAIN TR	ON*	The BC scale continues to the next sub-block. If tare interlock ON, BC does not allow access to chain tare sub-block

3. Chain Tare Sub-block

This sub-block lets you enable or disable the BC counting scale's multiple-tare-before-gross-zero function. Chain tares have a replacement effect to the full capacity of the scale. This feature is applicable only if tare interlock is OFF. If tare interlock is ON, the BC counting scale will not access this sub-block.

Chain Tare Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		CHAIN TR	ON*	
1. Enable or disable the chain tare feature	TARE Error! Switch	CHAIN TR	ON* or OFF	Chain tare permits multiple tares for each counting sequence.

	argument not specified.			
2. Select the displayed option	PRINT Error! Switch argument not specified.	AUTOCLR	TARE OFF*	BC continues to the next sub-block

4. Auto Clear Tare Sub-block

This sub-block lets you enable or disable the auto clear tare feature. If auto clear tare is enabled, BC counting scale automatically clears tare when the scale exceeds 9 divisions and then returns to within ±3 divisions of gross zero.

Auto Clear Tare Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
		AUTOCLR	TARE OFF*	
1. Enable or disable the auto clear tare feature	TARE Error! Switch argument not specified.	AUTOCLR	TARE OFF* or ON	
2. Select the displayed option	PRINT Error! Switch argument not specified.	AUTO TR	OFF*	BC continues to the next sub-block

5. Auto Tare Sub-block

This sub-block lets you enable or disable the auto tare feature. If auto tare is enabled, the BC scale tares the first load placed on the platter (above 10d).

Auto Tare Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
		AUTO TR	OFF*	
1. Enable or disable the auto tare feature	TARE Error! Switch argument not specified.	AUTO TR	OFF* or ON	

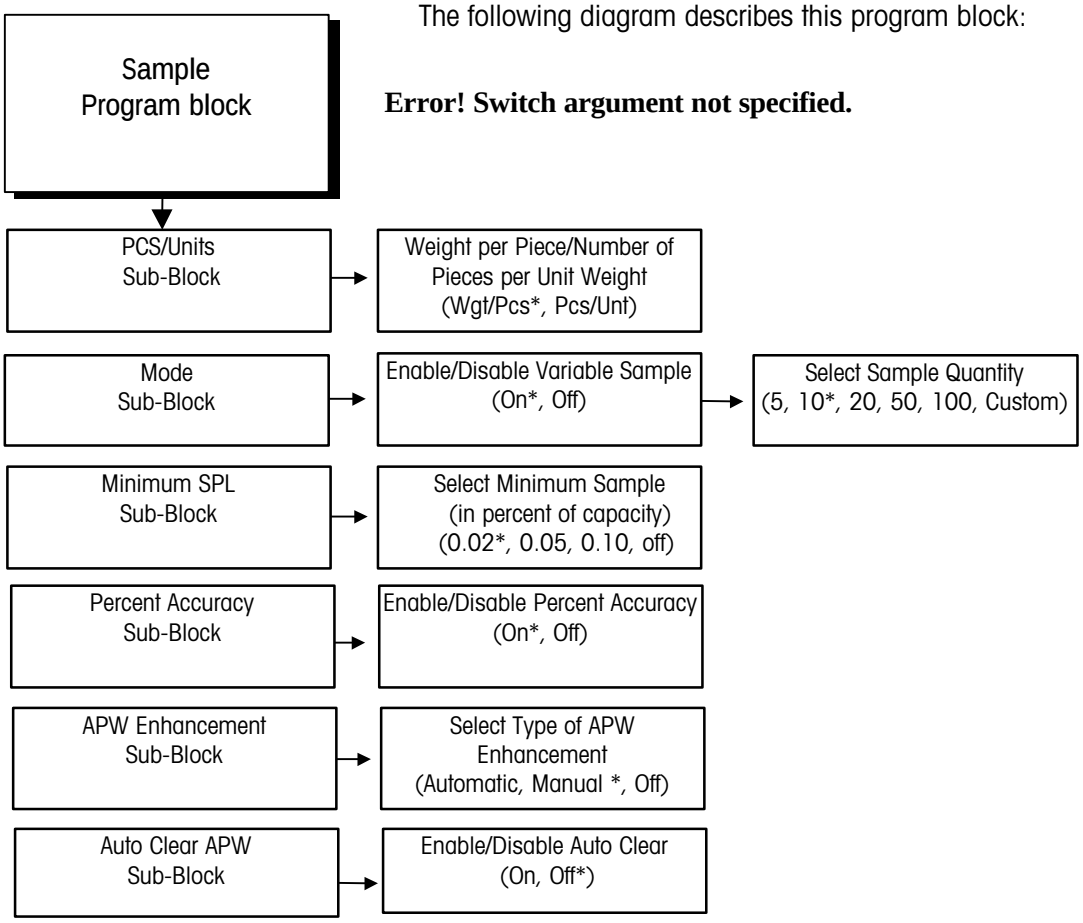
2. Select the displayed option	PRINT E rror! Switch argument not specified.	SAMPLE	PCS UNIT	BC continues to the next program block

Sample Program Block

The Sample program block lets you configure the parameters that affect sampling procedures.

The following diagram describes this program block:

Error! Switch argument not specified.



1. Pcs/Unit Sub-block

This sub-block lets you configure how the APW is presented: decimal weight per piece or how many pieces are in a lb or kg.

Pcs Unit Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		SAMPLE	PCS UNIT	
1. Access the Sample program block	PRINT Error! Switch argument not specified.	PCS UNT	WGT/PCS	
2. Display the desired indication option	TARE Error! Switch argument not specified.	PCS UNT	WGT/PCS* or PCS/UNT	Wgt/Pcs*—BC displays an average weight per piece (APW). Pcs/Unt—BC displays the number of pieces per weight unit (lb or kg).
3. Select the displayed option	PRINT Error! Switch argument not specified.	MODE	VAR SPL	BC continues to the next sub-block

2. Sample Mode Sub-block

The Sample mode sub-block lets you configure the sample quantity identification parameters.

Mode Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		MODE	VAR SPL	
1. Access the variable sample feature	PRINT Error! Switch argument not specified.	VAR SPL	ON*	
2. Enable or disable the variable sample feature	TARE Error! Switch argument not specified.	VAR SPL	ON* or OFF	ON - you can select a variable sample size directly at the terminal. OFF - BC scale uses only the sample quantity parameter (see below) as the sample size.

Mode Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
3. Select the displayed option	PRINT Error! Switch argument not specified.	SPL QTY	10*	The BC scale continues to the next parameter in the sub-block
4. Display the desired sample quantity	TARE E rror! Switch argument not specified.	SPL QTY	(options)	Options include: 5, 10*, 20, 50, 100
5. Select the displayed option	PRINT E rror! Switch argument not specified.	MIN SPL	0.02%*	The BC scale continues to the next sub-block

3. Minimum Sample Sub-block

This sub-block lets you set the minimum sample requirement for average piece weight (measured as a percentage of scale capacity). Sample weight on the scale must exceed this percentage before an average piece weight will be determined.

Minimum Sample Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
		MIN SPL	0.02%*	
1. Display the desired minimum sample percentage	TARE Er ror! Switch argument not specified.	MIN SPL	(options)	Options include: 0.02%* 0.05% 0.10% OFF
2. Select displayed option	PRINT E rror! Switch argument not specified.	ACC URCY	OFF*	The BC scale continues to the next sub-block

4. Percent Accuracy Sub-block

This sub-block allows you to enable the calculation and display of a percent accuracy value in the right display of the BC. This results from a

ratio comparison of the sample weight to the scale capacity. The larger the sample weight, the higher the percent accuracy value. This is one simple method to predict the scale influence on count accuracy.

Percent Accuracy Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		ACCURCY	OFF*	
1. Enable or disable the percent accuracy feature	TARE Error! Switch argument not specified.	ACCURCY	OFF* or ON	If OFF, the percent accuracy value will not be calculated and displayed. If ON, the BC will calculate and display a percent accuracy value.
2. Select the displayed option	PRINT Error! Switch argument not specified.	APW ENH	MANUAL*	The BC continues to next sub-block.

5. Average Piece Weight Enhancement Sub-block

This sub-block selects the mode of APW enhancement to be used. If automatic mode is selected, a new APW value will automatically be calculated when a no-motion condition exists after adding additional sample pieces. The enhancement occurs every time there is a motion/no-motion cycle. If manual mode is selected, the SAMPLE key must be pressed in order to generate a new APW calculation after adding additional sample pieces. This allows the operator to decide if an APW enhancement cycle should be done or not depending upon the piece being counted.

The initial computed value of APW may not be accurate enough to count large numbers of small parts reliably. To compensate for this, the APW can be enhanced up to 4% of the scale capacity.

APW Enhancement Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		APW ENH	MANUAL*	
1. Display the desired selection for the APW enhancement feature	TARE Error! Switch argument not specified.	APW ENH	AUTO, MANUAL*, or OFF	
2. Select the displayed option	PRINT Error! Switch argument not specified.	AUTOCLR	APW OFF*	BC continues to the next sub-block

6. Auto Clear APW Sub-block

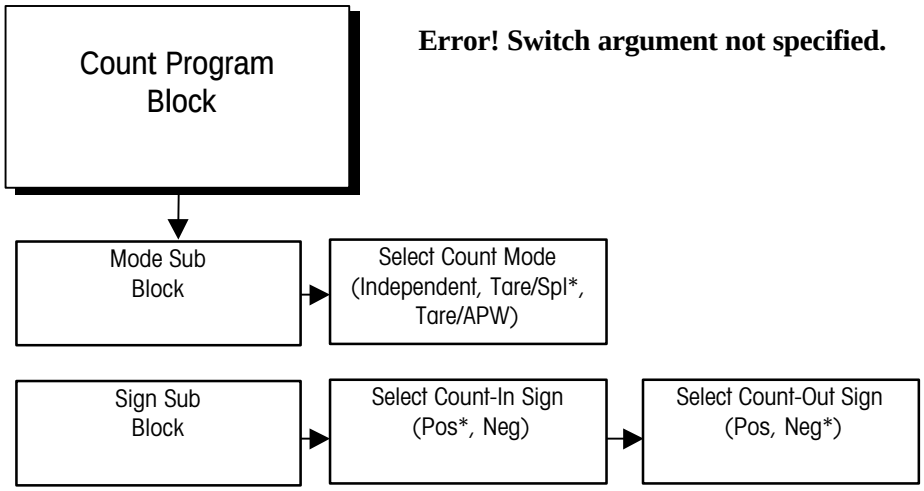
The Auto Clear APW sub-block lets you set the parameters determining whether the BC counting scale automatically clears APW when the scale returns to no-motion condition within ± 3 divisions of gross zero. To arm the AutoClear APW function, a weight exceeding 9 increments above net zero must be added to the platter.

Auto Clear APW Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		AUTOCLR	APW OFF*	
1. Enable or disable the APW auto clear	TARE Er	AUTOCLR	APW ON or OFF*	If [Off], the APW is cleared by resampling or pressing CLEAR

	feature	ror! Switch argument not specified.			
2.	Select the displayed option	PRINT E rror! Switch argument not specified.	COUNT	MODE	The BC scale continues to the next program block

Count Program Block

The Count program block lets you configure parameters related to the counting sequence and displayed count. You can select independent count mode where the count sequence is not prompted, or you can select a predefined count sequence for prompting the operator in dependent count mode. You can also configure the displayed count sign for count-in and count-out operations. The following diagram describes this program block:



Error! Switch argument not specified.

1. Mode Sub-block

This sub-block lets you determine the counting mode. The dependent mode (Tare, Spl), and Independent modes determine how you perform a counting operation. Dependent mode prompts you through the procedure. Independent does not provide prompts but does provide full flexibility of operator sequencing and may speed up the counting process.

Mode Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		COUNT	MODE	
1. Access the Count program block	PRINT Error! Switch argument not specified.	MODE	TARE, SPL*	
2. Display the desired sample mode option	TARE Error! Switch argument not	MODE	(options)	Options include: Independent Tare, Spl*

Mode Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
	specified.			
3. Select the displayed option	PRINT Error! Switch argument not specified.	SIGN	CNT IN	BC continues to the next sub-block

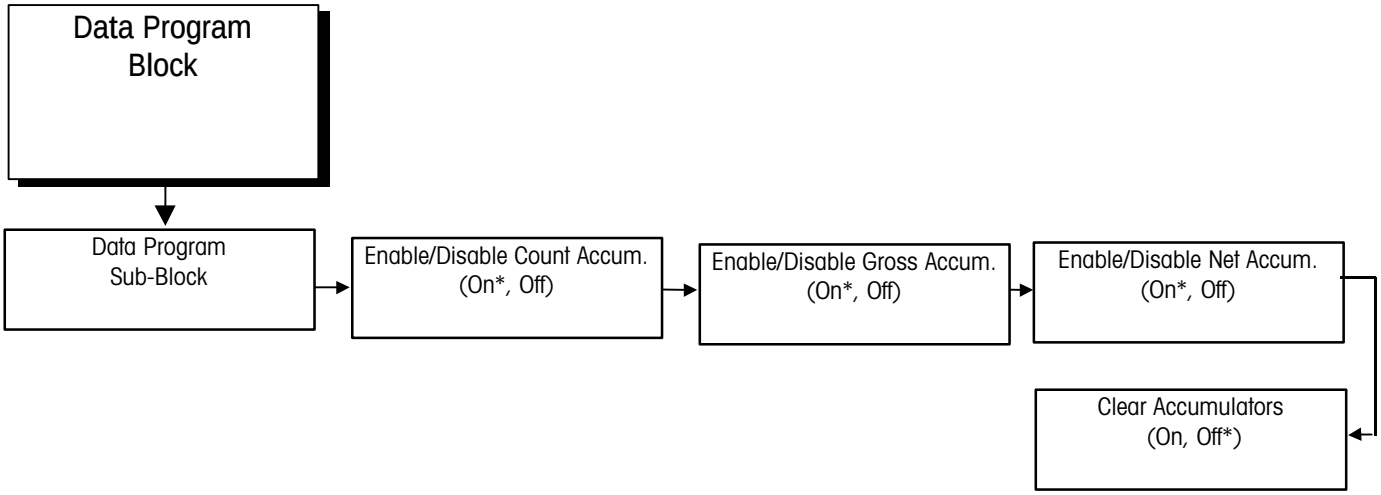
2. Sign Sub-block

This sub-block lets you indicate the appropriate sign for count-in and count-out operations. Count-in operations are usually displayed as positive values; count-out operations are usually negative. This sub-block allows you to change these signs if desired.

Sign Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
		SIGN	CNT IN	
1. Access the count-in sign feature	PRINT Error! Switch argument not specified.	CNT IN	POS*	
2. Display the desired count-in sign	TARE Error! Switch argument not specified.	CNT IN	POS* or NEG	
3. Select the displayed option	PRINT Error! Switch argument not specified.	CNT OUT	NEG*	The BC scale continues to the next parameter in the sub-block
4. Display the desired count-out sign	TARE Error! Switch argument not specified.	CNT OUT	NEG* or POS	
5. Select the displayed option	PRINT Error! Switch argument not specified.	DATA	DATA PRG	The BC scale continues to the next sub-block.

Data Program Block

The Data program block lets you configure the parameters associated with accumulators.



1. Data Program Sub-block

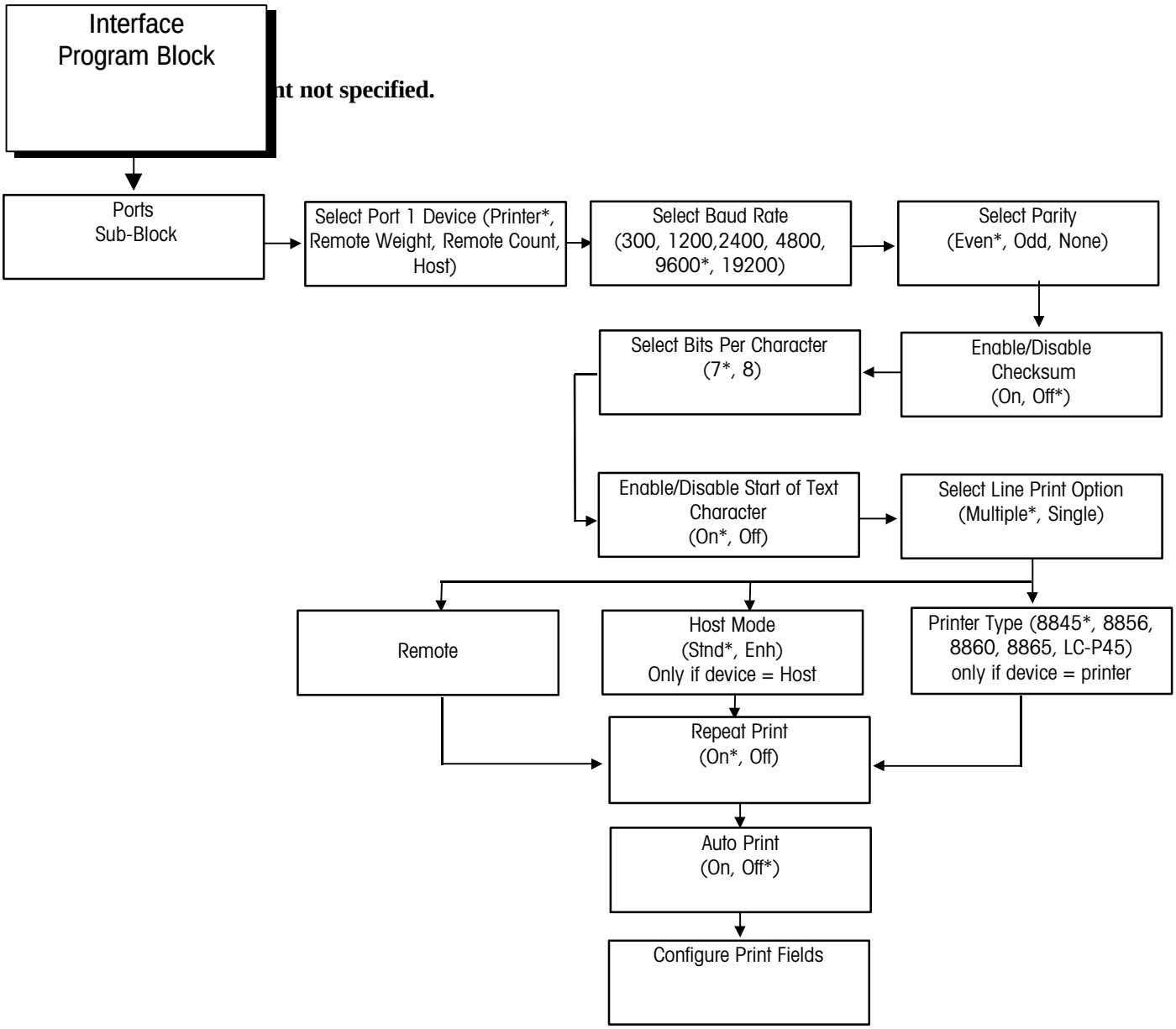
The BC counting scale's accumulation data are configured in this sub-block. You can enable or disable count accumulation, gross weight accumulation, and/or net weight accumulation. You can also configure the BC scale to clear accumulators automatically. The accumulator totals may be cleared from the keyboard. During the recall sequence, when the desired accumulator is displayed, press ZERO twice to clear totals value.

Data Program Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		DATA	DATA PRG	
1. Access the Data Program sub-block	PRINT Error! Switch argument not specified.	DATAPRG	ACCUM	
2. Access the accumulators parameter	PRINT Error! Switch argument not specified.	ACCUM	ACC CNT	You can configure the count, gross, and net accumulator parameters in any combination
3. Access the count parameter	PRINT	ACC CNT	ON*	

Data Program Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
	Error! Switch argument not specified.			
4. Enable or disable the count accumulator	TARE Error! Switch argument not specified.	ACC CNT	ON* or OFF	
5. Select the displayed option	PRINT Error! Switch argument not specified.	ACC GRS	ON*	The BC scale continues to the next parameter in the sub-block
6. Enable or disable the gross accumulator	TARE Error! Switch argument not specified.	ACC GRS	ON* or OFF	
7. Select the displayed option	PRINT Error! Switch argument not specified.	ACC NET	ON*	The BC scale continues to the next parameter in the sub-block
8. Enable or disable the net accumulator	TARE Error! Switch argument not specified.	ACC NET	ON* or OFF	
9. Select the displayed option	PRINT	CLR ACC	OFF*	The BC scale continues to the next parameter in the sub-block
10. Enable or disable accumulator clearing	TARE	CLR ACC	ON or OFF*	If enabled, all accumulations will be cleared when CLEAR is pressed at the end of a transaction.
11. Select the displayed option	PRINT Error! Switch argument not specified.	I-FACE	PORTS	The BC scale continues to the next sub-block

Interface Program Block

The Interface program block lets you configure the BC counting scale's communication port. You can select the device connected to the port and set the protocol parameters for that port.



nt not specified.

1. Ports Sub-block

This sub-block lets you configure the BC scale's communication port.

Ports Sub-block				
Step Description	Press Key	Display		Comment
		Left	Right	
		I-FACE	PORTS	
1. Access the Ports sub-block	PRINT **Error! Switch argument not specified.**	PORTS	PORT 1	
2. Access port 1 parameters	PRINT **Error! Switch argument not specified.**	PORT 1	DEVICE	
3. Access device options	PRINT **Error! Switch argument not specified.**	DEVICE	PRINTER*	
4. Display the desired device type.	TARE **Error ! Switch argument not specified.**	DEVICE	(options)	Options include: Printer* Remote Weight Remote Count Host
5. Access the Protocol Baud section.	PRINT Error! Switch argument not specified.	PROTOCL	BAUD	
6. Select the displayed option	PRINT	BAUD	9600*	The BC scale continues to the protocol parameters
7. Display the desired baud rate	TARE Error! Switch argument not specified.	BAUD	(options)	Options include: 9600* 1200 19200 2400 300 4800
8. Select the displayed baud rate	PRINT Error! Switch argument not specified.	PARITY	EVEN*	BC continues to the next parameter in the sub-block
9. Display the desired parity protocol	TARE Error! Switch argument	PARITY	(options)	Options include: Even* None Odd

Ports Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
	not specified.			
10. Select the displayed parity option	PRINT Error! Switch argument not specified.	CHC SUM	OFF*	The BC scale continues to the next parameter
11. Enable or disable the checksum feature	TARE Error! Switch argument not specified.	CHC SUM	OFF* or ON	Checksum is a method of checking each line of data by encoding a character at the end of each data string. The receiving device must be able to decode and verify the checksum digit.
12. Select the displayed option	PRINT Error! Switch argument not specified.	BITSCHR	7 BITS*	The BC scale continues to the next parameter
13. Display the desired bits per character option	TARE Error! Switch argument not specified.	BITSCHR	7* or 8	Bits per character is the number of bits making up an ASCII character. Most Mettler Toledo equipment uses 7 data bits.
14. Select the displayed option	PRINT Error! Switch argument not specified.	ST CHAR	ON*	The BC scale continues to the next parameter
15. Enable or disable the start of text character	TARE Error! Switch argument not specified.	ST CHAR	ON* or OFF	STX character is an ASCII character indicating the start of text. If enabled, an STX will be transmitted as the first character of data output.
16. Select the displayed option	PRINT Error! Switch argument not specified.	PRTLINE	MULTIPLE*	The BC scale continues to the parameter
17. Display the desired line print option	TARE Error! Switch argument not specified.	PRTLINE	(options)	Options include: Multiple* Single
18. Select the displayed option	PRINT Error! Switch	PRTTYPE	8845	BC continues to the next parameter in the sub-block

Ports Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
	argument not specified.			
19. Display the desired printer type	TARE Error! Switch argument not specified.	PRTTYPE	(options)	Options include: 8845*, 8865, 8856, LC-P45, 8860. If a printer other than the ones listed will be used, select the model 8845.
20. Access the repeat print parameter	PRINT	RPT PRT	ON*	
21. Enable or disable repeat print	TARE	RPT PRT	ON* or OFF	[OFF] requires return to gross zero before the next print command can be executed. [ON] enables you to issue multiple print commands without returning to gross zero.
22. Select the displayed option	PRINT	AUTO PR	OFF*	BC continues to the next parameter
23. Enable or disable auto print	TARE	AUTO PR	OFF* or ON	If enabled, printing will occur automatically once a piece count is reached above 3 increments. Weight must return to zero before another automatic print will occur.
24. Select the displayed option	PRINT Error! Switch argument not specified.	FIELDS	FIELD 1	BC continues to the next parameter
25. Access the parameters for field 1 data	PRINT Error! Switch argument not specified.	FIELD 1	GRS WGT*	
26. Display the desired data type for field 1	TARE Error! Switch argument not specified.	FIELD 1	(options)	You can insert information from one of 12 data fields. These fields follow this table
27. Select the displayed option	PRINT Error! Switch argument not specified.	EP F1	OFF*	

Ports Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
28. Enable or disable the expanded print feature	TARE Error! Switch argument not specified.	EP F1	OFF* or ON	EP stands for expanded print. If enabled, an ASCII <so> (shift out) character is added before the field, and an ASCII <si> (shift in) follows the field. This allows the field to print expanded (larger) on most Mettler Toledo printers.
29. Select the displayed option	PRINT Error! Switch argument not specified.	FIELD 2	NET WGT*	BC continues to the next data field parameter
30. Repeat steps 25 through 28 for data fields 2 through 7				Field options are the same as for Field 1 and EP 1. No defaults are assigned for fields 4 through 7.

Data type options for fields 1 through 7 include:

- Gross weight
- Tare weight
- Net weight
- Sample quantity
- APW or Pcs/Wt
- Pieces
- Percent Accuracy
- Gross accumulation
- Piece accumulation
- Net Accumulation
- Blank

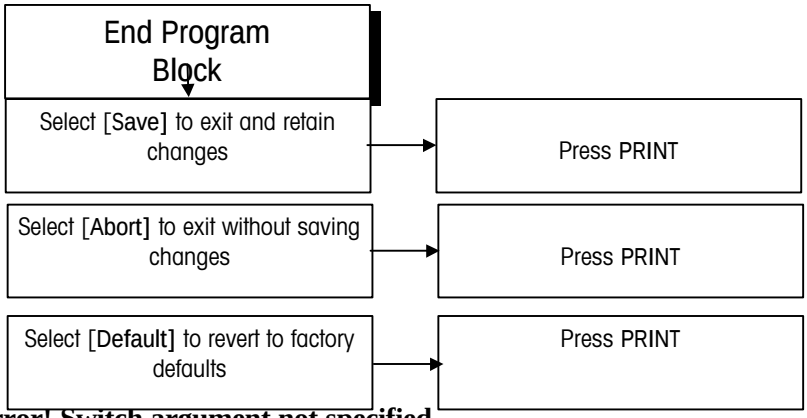
Field default data are:

- Field 1Gross Weight
- Field 2 Net Weight
- Field 3 Pieces
- Field 4 Blank
- Field 5 Blank
- Field 6 Blank
- Field 7 Blank

End Program Block

The End program block is used to exit Master mode. The End prompt is accessed when you reach the end of the Print sub-block in the Interface program block, or when you press CLEAR from anywhere within Master mode. Once accessed, you have the following options before exiting:

- Save—retains your changes
- Abort—exits Master mode without saving the changes and retains the values previously set
- Default—Resets all parameters to factory default values



Error! Switch argument not specified.

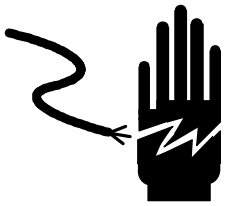
To exit Master mode:

End Sub-block				
		Display		
Step Description	Press Key	Left	Right	Comment
		END?	SAVE	
1. Select the desired exit option	TARE Error! Switch argument not specified.	END?	SAVE, ABORT, or DEFAULT	If you select [ABORT], all changes made in the current session will be lost. Defaults returns all values to the factory default values
2. Confirm and exit	PRINT Error! Switch argument not specified.Error! Switch argument not specified.	END?	SAVE, ABORT, or DEFAULT	Press PRINT. The Save or Abort option causes the BC to update the software and return to Normal Operating Mode. The Defaults option does not exit Master mode.

6

Service and Maintenance

The BC counting scale is a reliable scale and parts counter. However, like any precision equipment, it requires regular maintenance.



⚠ WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

Cleaning and Regular Maintenance

⚠ WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

You may wipe the display area and weighing platter with a clean, soft cloth that has been dampened with a mild cleaner. Do not use any type of industrial solvents. These may damage the display and platter finish. The rubber tactile keypad with keys that protrude from the face cover requires little cleaning. If debris falls between the keys, brush it away or use a small vacuum designed for computer keyboards to remove dirt and lint. Do not use an industrial solvent on the keys.

Regular maintenance inspections by a qualified service technician are recommended.

Troubleshooting

The following table lists the BC counting scale's error messages and corrective actions.

Display and Error Messages

DISPLAY MESSAGE	DESCRIPTION	ACTION
Adding	ACCUM+ key was pressed and current scale values are being accumulated.	No action required.
Cal Done	The calibration procedure has been completed and accepted.	No action required.
Replaced	ACCUM+ key was replaced and current scale values are replacing the previously stored values in the accumulators.	No action required. If a second accumulation was desired, make sure the scale returns to zero between accumulations.
Too Many	Too many pieces added to the platter during an APW enhancement process.	Remove some pieces from the scale platter until the error does not reoccur. After an enhancement occurs, more pieces may be added.
- - - - - OutOfRng	Scale turned on with weight on the scale exceeding the programmed power up zero capture range.	Remove extra weight. A larger power up zero capture range may be required in Master mode. Be sure shipping screw is removed from the 5 kg unit. Recalibrate. Inspect load cell for damage
- - - - - OutOfRng	Scale turned on with weight on the scale below the programmed power up zero capture range.	Add weight to the scale. Platter may be off. A larger power up zero capture range may be required in Master mode.
- - - - - Over Cap	Weight on the scale has exceeded the calibrated capacity.	Remove weight from the platter until the error disappears and weight is shown. (Switching units may move the over cap limit. See scale builds.)
- - - - - UnderCap	Weight on the scale is below zero more than 5 increments.	Press ZERO. If zero cannot be captured, service may be required. Platter or accessory may have been removed.
- - - - - - -	Tare interlock is enabled and there is motion on the scale.	The message automatically clears when weight on the scale becomes stable. Disable tare interlock in Master mode to show weight values during motion.
CLEAr Calb Err	The calibration procedure has not been completed or accepted.	Press CLEAR to clear the error, check the Service mode setup, for proper capacity and increment selection. Also may be invalid calibration test weights entered.
CLEAr Illegal	Sequence of operation out of order.	Press CLEAR. Re-enter the operation in correct sequence.
CLEAr Too High	The count data to be displayed is greater than 9,999,999 pieces.	Remove some pieces, press CLEAR key.

DISPLAY MESSAGE	DESCRIPTION	ACTION
Error BadEntry	Data type not correct or invalid data entered. Incorrect key sequence.	Enter an integer for sample size (no decimal) or number for the weight (no alpha). Follow the correct key sequence.
Error FullAccm	The accumulator is full.	Clear accumulators by recalling the accumulator to be cleared using the RECALL key. When the desired accumulator is displayed, press ZERO key twice.
Error InRecall	Function being attempted cannot be completed while the BC wasin recall mode.	Error will automatically clear in 2 seconds. Press CLEAR to exit Information mode, then retry the function.
Error No Add	An addition (ACCUM+) was attempted without meeting the accumulation requirements or ACCUM+ pressed out of sequence.	Make sure weight is more than 3 increments from gross and net zero before accumulating. Accumulators may be disabled in Master mode.
Error No Chain	Multiple tares attempted while chain tare is disabled in Master mode.	Enable chain tare in Master mode or clear out of a count transaction and begin a new transaction.
Error No Print	Print sequence attempted with gross weight below 20 increments or repeat print is disabled.	Add additional weight then retry the print or enable repeat print in the Master mode.
Error NoSwitch	Trying to switch units while the alternate weight unit disabled in Master mode.	Do not switch units or enable an alternate weight unit in Master mode.
Error No Tare	Occurs if tare is disabled and a pushbutton tare is attempted.	Do not attempt a tare or enable the tare feature in Master mode.
Error No Var	A variable sample entry was attempted while only fixed sample size is enabled in Master mode.	Use only the selected fixed sample quantity or enable the variable sample selection in Master mode.
Error Spl Low	The total weight of the sample is not 2 display increments or has not met the minimum sample % selected in the Master mode.	Error will automatically clear after 2 seconds. Add additional sample pieces and resample.
PouuEr Failure	Indicates a low battery condition exists. Further use of the scale is not permitted.	Battery must be recharged. Turn battery switch off and plug scale into AC outlet. Display will show [SLEEP] and battery symbol will blink for a few minutes. After the symbol stops blinking, press ON/OFF to turn scale on.
SLEEP Waking	Indicates the scale is powering up from the sleep mode after the ON/OFF key was pressed.	Display will automatically clear after approximately 5 seconds.
SLEEP	Shows that the scale is "off" and is "sleeping". At power-up, this may indicate a low battery condition or a damaged or failed battery pack.	Press ON/OFF. The BC scale should complete a power-up cycle. If a low battery condition exists, turn the battery switch off and plug the scale into an AC power source. After a few minutes, press the ON/OFF key.

Diagnostic Tests

There are four test modes available in the load cell sub-block. They are: Form 1 (compensated load cell counts), Form 2 (uncompensated raw load cell counts and compensation value), Million (scale capacity divided into one million and compensated load cell counts), and DLC ECHO (used for manufacturing purposes only - DO NOT SELECT).

Replacing the BC05/BC15 Load Cell

Instructions for replacing the load cell for the Large BC counting scale (models BC30 and BC60) follow this section.

This section describes how to replace the load cell in models BC05 and BC15. Obtain the correct replacement load cell kit before proceeding:

- BC05—11 kg replacement load cell kit (part number 153815 00A)
- BC15—22 kg replacement load cell kit (part number 153816 00A)

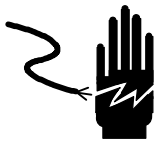
As you replace the load cell, you will need the following tools:

- #15 Torx screwdriver
- #20 Torx screwdriver
- Torque wrench, 200 inch pound minimum with a 6mm allen socket
- Feeler gauge, 0.004 in. (0.102 mm)
- Three 5 kg, Class 3 test weights or equivalent
- Electrostatic discharge (ESD) strap

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

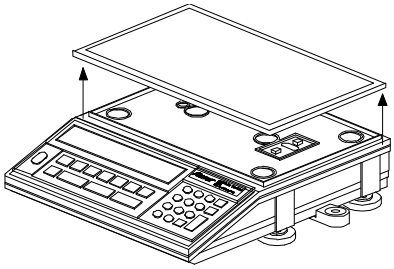
Removing the Load Cell



WARNING

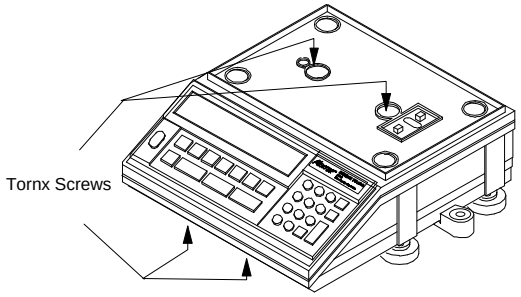
DISCONNECT ALL POWER TO THIS UNIT BEFORE SERVICING.

1. Remove the weighing platter.

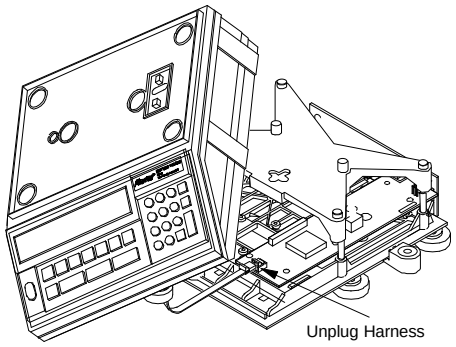


If the unit is approved for trade, you must break the wire seal and remove the plate before removing the cover.

2. Remove the two #15 Torx screws under the keyboard section and the two #20 Torx screws in the wells on top of the unit.

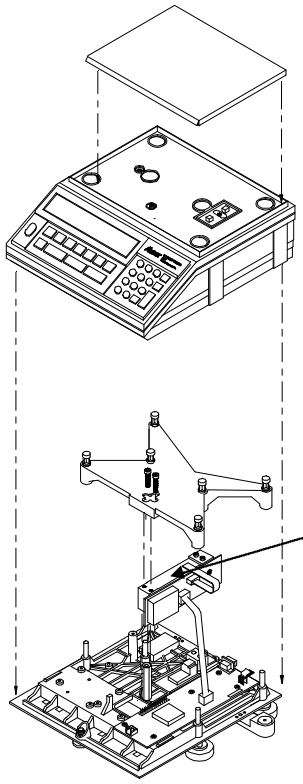


3. Lift the cover straight up, then tilt the cover forward (keypad side) and disconnect the display harness from J1 connector on the Logic PCB. Set the cover aside.



⚠ CAUTION
REMOVE THE COVER SLOWLY AND GENTLY. DO NOT JERK THE COVER FROM THE UNIT. DOING SO CAN BREAK THE CONNECTOR JACK FROM THE PCB.

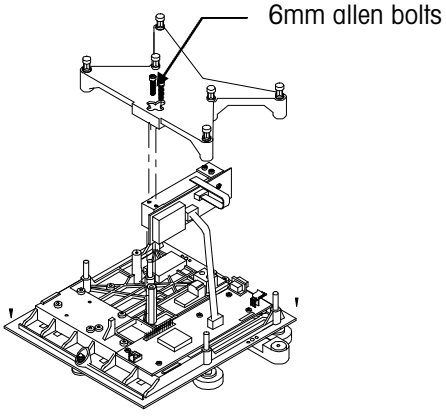
4. Remove the spider assembly by removing the two 6 mm allen bolts that attach the assembly to the live end of the load cell.



5. Unplug the ribbon cable (item 1K) from the J2 connector on the Digital Load Cell board. Do not remove the board from the load cell.

To avoid damage to the spider assembly, hold the assembly with one hand while loosening the bolts.

6. Turn the base on its side. Do not lay it upside down on the load cell. Remove the two 6 mm allen bolts that attach the load cell to the base. Set the load cell aside.



Installing the Load Cell

1. Position the new load cell where the old load cell was (parallel to the ribs on the base).
2. Hold the base on its side and insert the two bolts through the base into the end of the load cell where the PCB is attached.
3. Attach the ribbon cable (item 1K) from the main Logic PCB to the J2 connector on the DLC board.
4. With the load cell aligned parallel to the ribs in the base, tighten the load cell bolts to 100 inch pounds (± 5 inch pounds).

CAUTION

DO NOT HOLD THE LIVE END OF THE LOAD CELL WHILE TIGHTENING THE BOLTS.

Reassembling the Unit

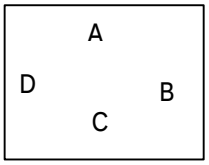
1. Replace the two bolts from the spider assembly through the spider and into the load cell. Do not tighten the bolts yet.
2. Carefully align the overload plungers (on the spider assembly) with the overload stops (on the base).
3. Hold the spider assembly with one hand and torque the bolts to 100 inch pounds (± 5 inch pounds).

CAUTION

TO AVOID DAMAGE TO THE LOAD CELL, DO NOT HOLD THE BASE WHILE TIGHTENING THE SPIDER BOLTS AS THE FORCE IS TRANSFERRED THROUGH THE BEAMS OF THE LOAD CELL.

4. Replace the cover. Holding the keyboard down, attach the display cable to the J1 connector on the main Logic PCB. Rotate the cover into place.
5. Power up the unit and calibrate without the platter using a test weight equal to half the capacity of the scale.
6. From the top of the scale, insert an Allen wrench into one of the outside (longitudinal) overload stops. Turn the Allen screw clockwise until the scale indicates "Under Capacity". {It should only take about 1/2 turn to contact the stop.}
7. Slowly turn the screw counterclockwise until the scale again reads weight. Not the position of the Allen wrench. Turn the Allen wrench exactly 1/2 turn counterclockwise.

8. Repeat step 5 for the other longitudinal overload stop
9. Proceed to the inner (transverse) overload stops. Repeat step 5 but set the stops at 3/8 turn. To do this, locate the 1/4 and 1/2 turn positions and get exactly in the middle between them.
10. Verify that the unit can weigh full capacity off center loads, only check the shift positions as shown. A drop of loctite may be placed on each overload stop, but this is optional.



10. Install the two #20 Torx screws in the wells on top, then install the two #15 Torx screws under the keyboard.
11. Replace the weighing platter.

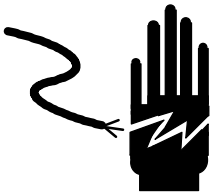
Replacing the BC30 and BC60 Load Cell

This section describes how to replace the load cell in models BC30 and BC60. The BC30 uses a 45 kg load cell kit (P/N 153817 00A) and the BC60 uses a 100 kg load cell (P/N 15381800A). Obtain the correct replacement load cell kit before proceeding.

On BC60 models with date code previous to YY, a mechanical modification must be done before using the 15381800A load cell kit. These instructions are included with the 15381800A kit.

As you replace the load cell, you will need the following tools:

- Torque wrench, 200 inch pound minimum with a 6mm allen socket
- Three 10 kg, Class 3 test weights or equivalent
- 7 mm wrench
- Phillips screw driver
- Electrostatic discharge (ESD) strap



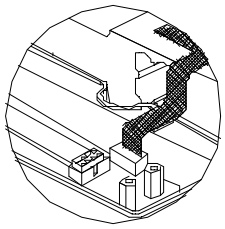
WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE SERVICING.

Removing the Load Cell

1. Remove the weighing platter.
2. Turn the scale over so it rests on the spider assembly, then remove the four rubber leveling feet.

3. Remove the four Phillips screws that secure the lower cover to the base and gently lift the cover.
4. Unplug the ribbon cable from connector J4 on the main Logic board.



5. If the battery option is installed, unplug the cable from connector J1 on the Battery board. Set the lower cover aside.

If the unit is approved for trade, you must break the wire seal on the two bolts.

6. Holding the assembly with one hand, turn the scale so the spider assembly is up. Loosen the bolts. Remove the assembly and the spacer underneath.
7. Remove the two 7 mm bolts and the cover on the DLC board. Unplug the load cell flex cable from connector J3 on the DLC board. The cable locking mechanism is released by lifting the tabs on either side of the connector.
8. Peel the flex tail from the foam tape that holds the cable to the base. Remove any tape residue from the base.
9. Turn the base on its side. Remove the two 6 mm allen load cell bolts that secure the load cell. Set the load cell aside, but keep the spacer.

Installing the Load Cell

1. With the base on its side, insert the two load cell bolts through the holes in the base. Place the space on the bolts from the top side.
2. Position the new load cell on top of the spacer. Screw the bolts into the load cell but do not tighten them.
3. Center the load cell in the cavity and tighten the bolts to 150 inch pounds (± 5 inch pounds).

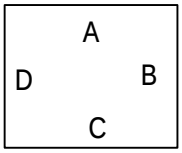
⚠ CAUTION

DO NOT HOLD THE LIVE END OF THE LOAD CELL WHILE TIGHTENING THE BOLTS.

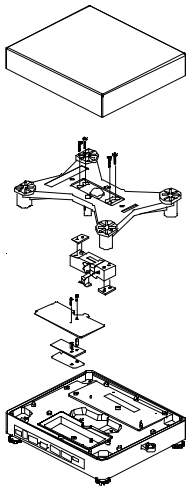
4. Attach the foam tape squarely to the base directly below the load cell flex cable. Plug the flex cable into connector J3 on the DLC board. Press the latching mechanism straight down. Verify that the flex cable is secured in the connector.
5. From the load cell end, bend the cable downward then outward and attach it to the foam tape. Do not fold or crimp the flex cable.
6. Replace the cover on the DLC board.

Reassembling the Unit

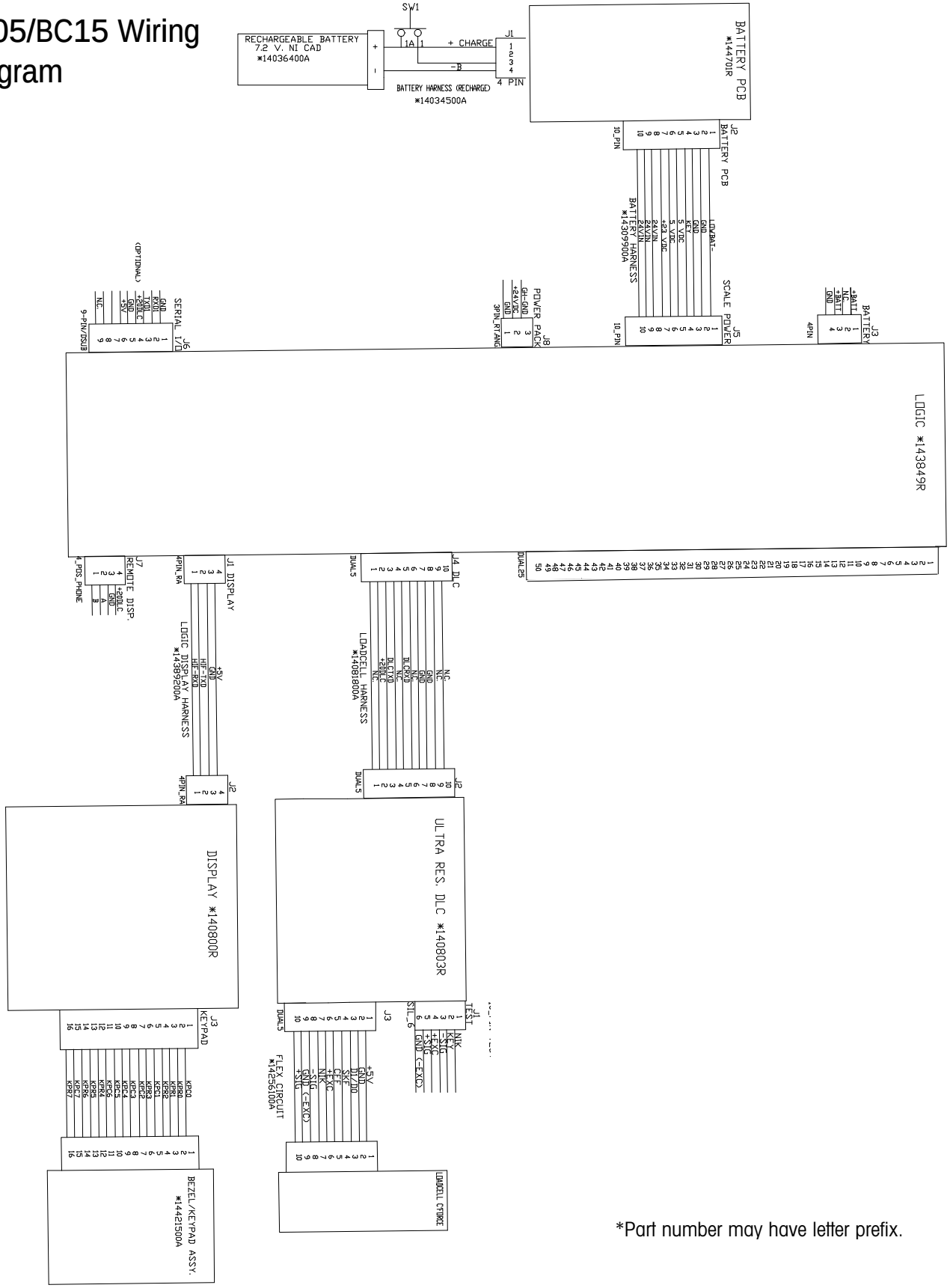
1. Place the spacer on top of the load cell, then place the spider assembly on top of the spacer and insert the two retaining bolts.
2. Holding the spider assembly with one hand, tighten the bolts to150 inch pounds (± 5 inch pounds). Be sure that the load cell flex cable does not touch the spider assembly.
3. Turn the scale over so it rests on the spider assembly. Replace the bottom cover on the base.
4. Plug the ribbon cable into connector J2 on the Logic board.
5. If the battery option is installed, plug the battery cable into connector J1 on the Battery board.
6. Install the four Phillips screws. Replace the four rubber leveling feet.
7. Attach the remote keyboard, then power up the unit. Calibrate without the platter with a test weight equal to half the scale's capacity.
8. Insert an Allen wrench into the one of the outside overload stops. Turn the Allen screw clockwise until the scale indicates "Under Capacity". It should only take about 1/2 turn to contact the stop. Turn the screw counterclockwise until the scale again reads weight. Note the position of the Allen wrench. Turn it exactly 1/2 turn counterclockwise. Repeat for the other longitudinal overload stop.
9. Proceed to the inner (transverse) overload stops. Use the same procedure as in step 2 but set the stops at 3/8 turn.
10. Verify the unit can weigh full capacity off center loads. Check shift positions as shown. A drop of loctite may be placed on each overload stop.



12. Turn the scale over so it rests on the feet. Replace weighing platter.

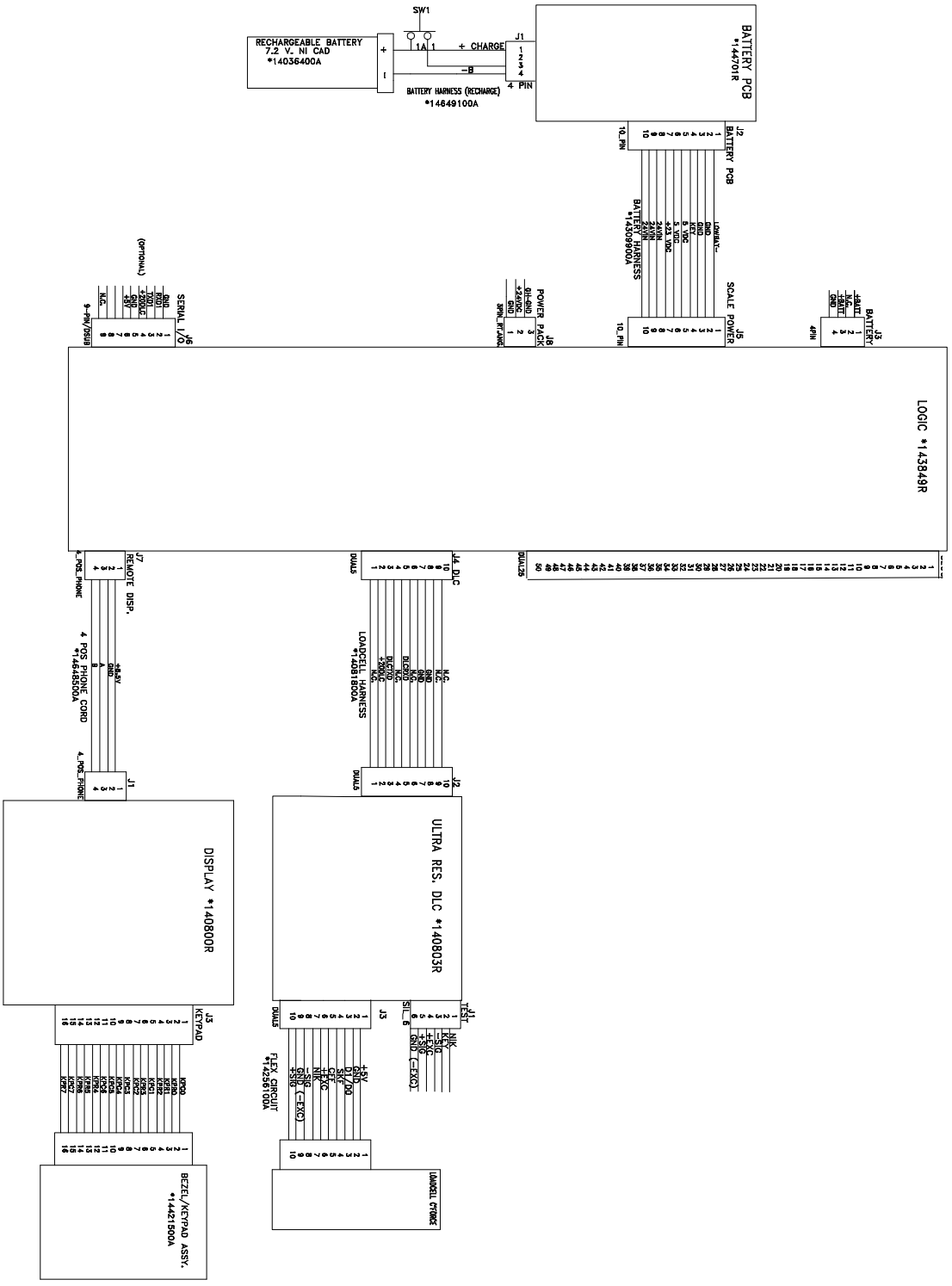


BC05/BC15 Wiring Diagram



*Part number may have letter prefix.

BC30/BC60 Wiring Diagram

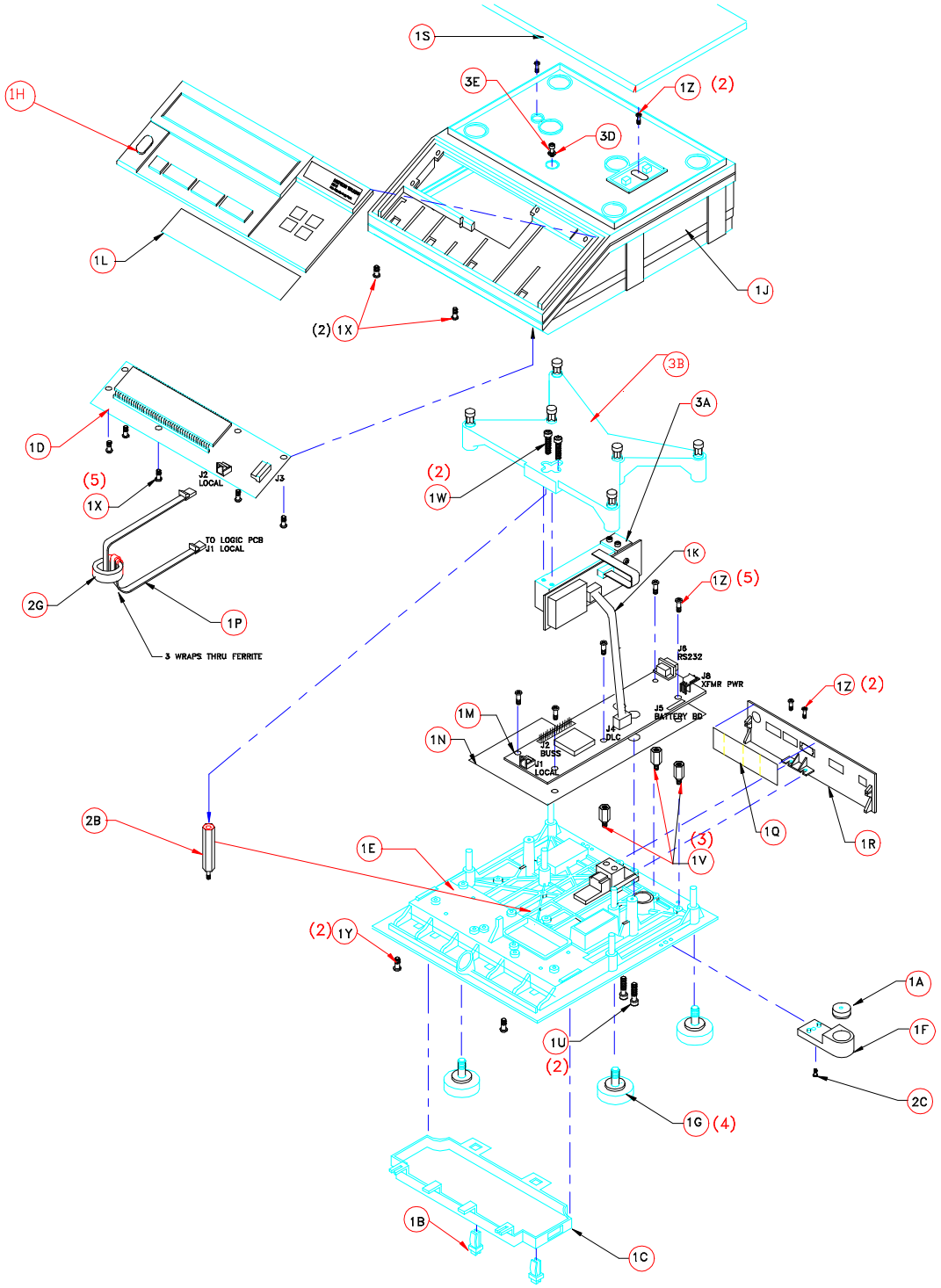


*Part number may have letter prefix.

7 Parts and Accessories

Please refer the diagrams and charts on the following pages when ordering parts for the BC counting scale.

BC05/BC15


1S
3E
1Z (2)
3D
1H
1L
1J
(2) 1X
3B
3A
1D
(5)
1X
J2 LOCAL
J3
(2)
1W
TO LOGIC PCB J1 LOCAL
2G
1P
3 WRAPS THRU FERRITE
1K
1Z (5)
J6 RS232
J8 XFMR PWR
1Z (2)
1M
1N
J5 BATTERY BD
J4 DLC
J2 BUSS
J1 LOCAL
2B
1E
(3)
1V
1Q
1R
(2) 1Y
1A
1F
1U
(2)
2C
1G (4)
1B
1C

Consists of Common Parts BC05/BC15 Counting Scale			
Symbol	Quantity	Part Number	Description
1A	1	(*)10268900A	Level
1B	2	(*)12051300A	1/4 Turn Fastener
1C	1	(*)13912500A	Battery Cover*
1D	1	(*)15056300A	Display PCB Kit
1E	1	(*)14081000A	Base
1F	1	(*)14081300A	Level Support
1G	5	(*)14100500A	Foot
1H	1	(*)15056100A	International Keyboard Kit①
1H	1	(*)15056200A	English Keyboard Kit①
1J	1	(*)14081700A	Cover
1K	1	(*)14081800A	Load Cell Harness
1L	1	(*)14081500A	Display Lens①
1M	1	(*)14387100A	Logic PCB
1N	1	(*)14603200A	PCB Insulator
1P	1	(*)14389200A	Display/Logic Harness②
1Q	1	(*)14424200A	Rear Decal
1R**	1	(*)14082300A	Rear Panel
1S	1	(*)14639700A	Platter
1U	2	(*)R0408800A	M8 x 30 Hex Socket Hd
1V	3	(*)14476200A	M4 x 20mm Hex Post
1W	2	R0517600A	M8 x 30 Cap Screw
1X	7	R0518300A	M3 x 10 PH Screw
1Y	2	R0513500A	#6-19 x 3/8 PH Torx
1Z	9	R0513100A	M4 x 10 PH Screw
2B	1	(*)14514500A	10-32 Standoff
2C	1	R01913020	10-32 x 3/8 One Way Screw
2G	1	(*)14528700A	Ferrite Core
3A	1	(*)15381500A	11 kg Load Cell (BC05)
3A	1	(*)15381600A	22 kg Load Cell (BC15)
3B	1	(*)14532400A	Spider Assb. (BC05)
3B	1	(*)14854300A	Spider Assb. (BC15)
3D	1	R0271600A	Cap Screw 10-32 x 1
3E	1	R0383100A	O-ring
Not Shown	1	(*)14083200A	Standard Power Supply
Not Shown	1	(*)14664800A	1.0 Amp Power Supply
Not Shown	1	(*)10386700A	Line Cord (USA)
Not Shown	1	(*)13894600A	Line Cord (UK)
Not Shown	1	(*)13902200A	Line Cord (Europe)
Not Shown	1	(*)14235700A	Line Cord (Australia)

*Battery cover is only included with the Battery Kit

Logo Replacement Capacity Labels P/N 15061700A

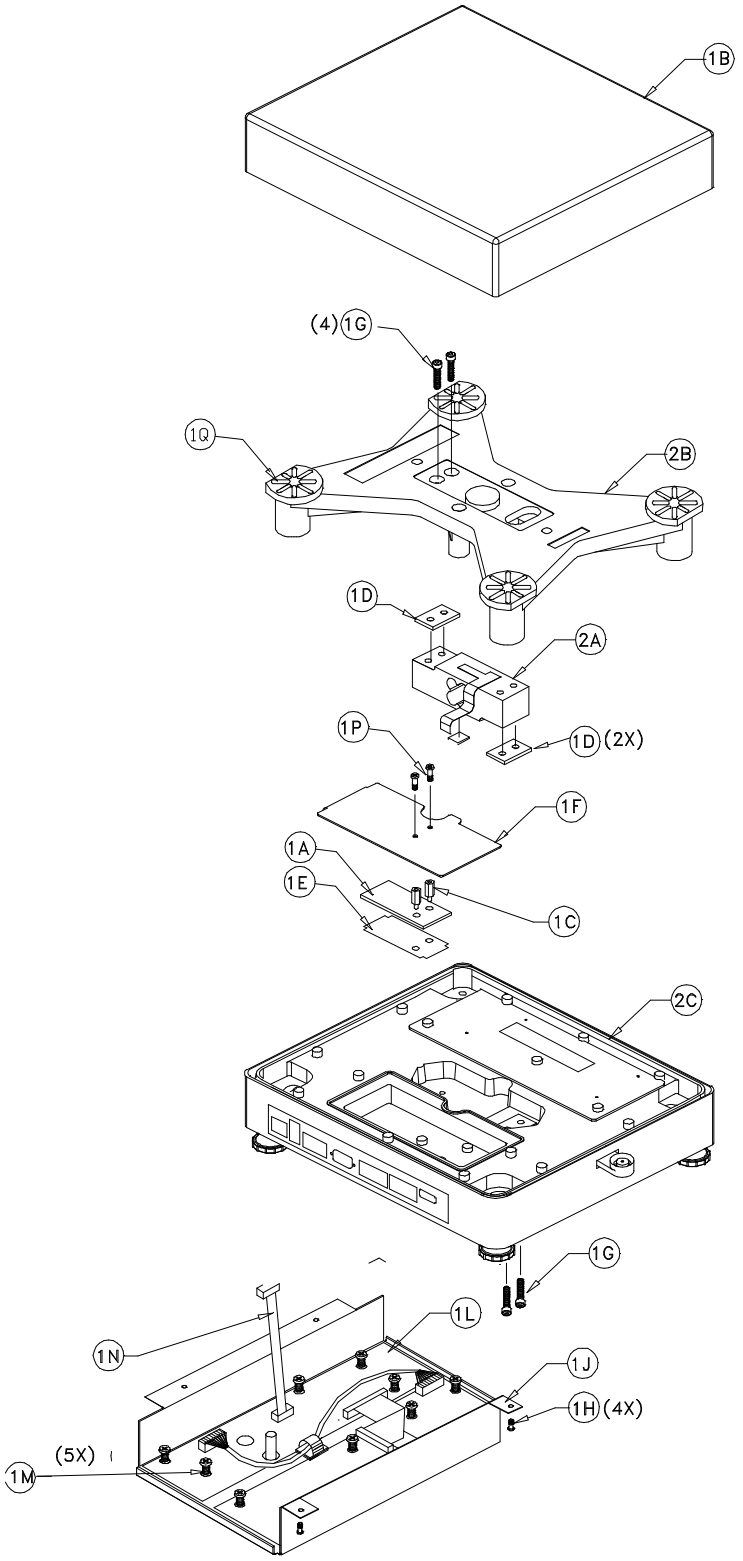
**If the rear panel is replaced, the serial data plate from the original unit must be retained and attached to the new panel.

(*) Part number may have letter prefix.

① Included in the Keyboard Kit

② Included in the Display PCB Kit

BC30/BC60 Counting Scale



Consists of Common Parts BC30/BC60			
Symbol	Quantity	Part Number	Description
1A**	1	(*)15313500A	DigiTOL Load Cell PCB
1B	1	(*)15083400A	Platter Assb.
1C	2	(*)14497000A	Standoff Hex, 4M/F.16MM Brass
1D	2	(*)14647700A	Spacer Block
1E	1	(*)14647900A	Insulator Logic
1F	1	(*)14648800A	Cover Plate
1G	4	R0517600A	M8 x 30 Cap Screw
1H	4	R0369800A	#8 x 5/8 Tap Screw
1J	1	(*)14649200A	Cover, Bottom
1L	1	(*)14745900A	Large BC Logic PCB
1M	5	R0514700A	M-0.7 x 6PH Torx/Slot Screw
1N	1	(*)14745600A	Load Cell Harness
1P	2	R0514600A	M40-0.7 x 8 Hex Drilled Screw
1Q	4	(*)15083900A	Platter Pad
2A***	1	(*)15213600A	45 kg Load Cell Assb.
2A***	1	(*)15213800A	100 kg Load Cell Assb.
2B	1	(*)14544100B	Spider Assb.
2C	1	(*)14749300A	Scale Enclosure Assb. (30 kg)
2C	1	(*)14649500A	Scale Enclosure Assb. (60 kg)
Not Shown	1	(*)140364000A	Large BC NiCad Battery
Not Shown	1	(*)14647300D* English	Complete Keyboard/
Not Shown	1	(*)14647300B* International	Display Assb.
Not Shown	1	(*)14083200A	Standard Power Supply
Not Shown	1	(*)14664800A	1.0 Amp Power Supply
Not Shown	1	(*)10386700A	Line Cord (USA)
Not Shown	1	(*)13894600A	Line Cord (UK)
Not Shown	1	(*)13902200A	Line Cord (Europe)
Not Shown	1	(*)14235700A	Line Cord (Australia)

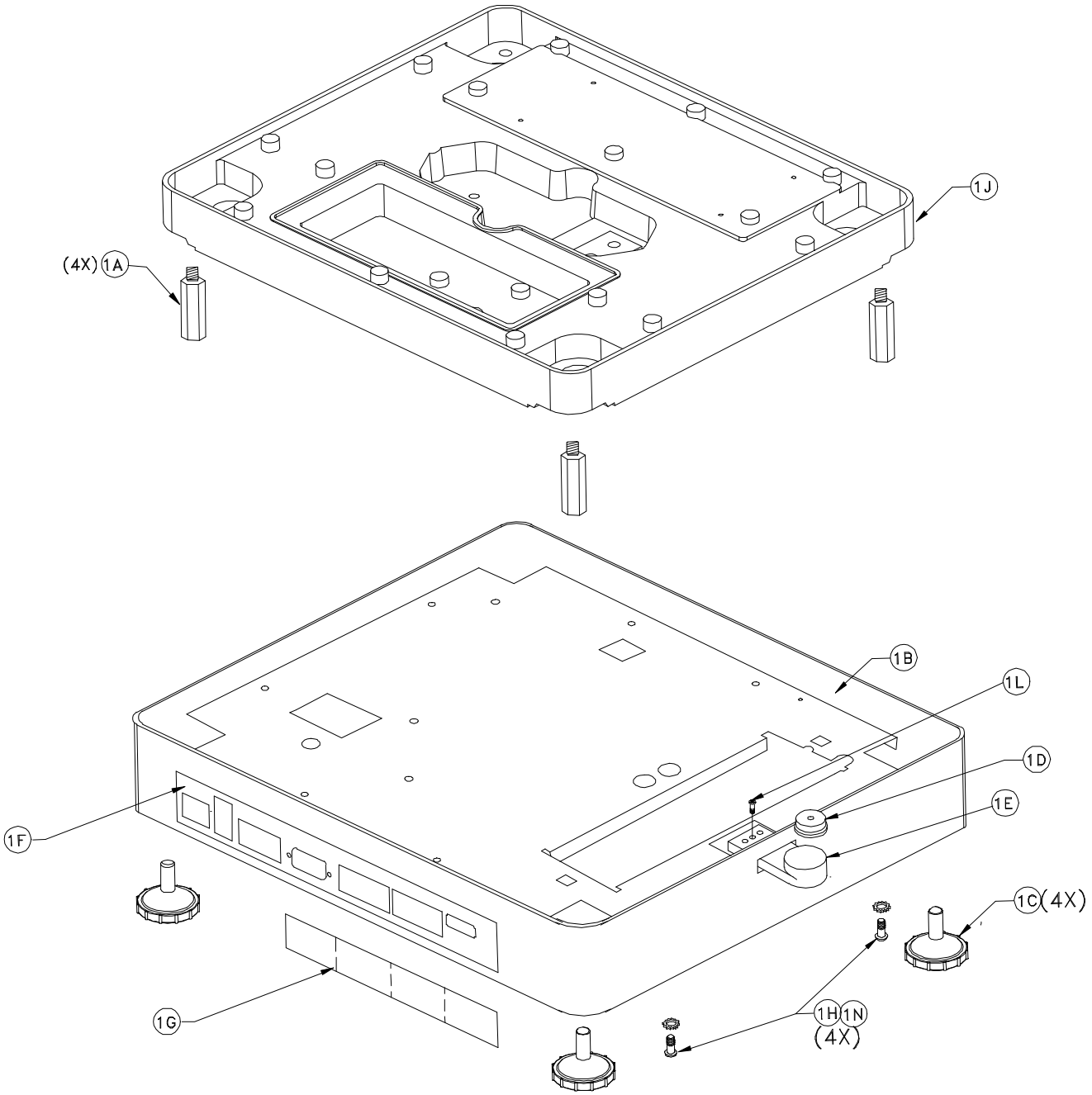
Note: 30 kg scale bases have screws that attach from the bottom of the base
*Consists of all parts on page 7-8 and 7-9
** This new style PCB should only be used to replace a PCB with the same part number. If the existing PCB is part number A14080400A, both the load cell (item 2A) and the PCB (item 1A) must be replaced together. The kit with both the load cell and PCB together are:

BC30 153817 00A (45 kg)
BC60 153818 00A (100 kg)

*** This new style load cell should only be used to replace a load cell with the same part number. If the existing load cell is part number 14647500A (45kg) or 14647600A (100kg), both the load cell (item 2A) and the PCB (item 1A) must be replaced. The kit with both the load cell and PCB together are:

BC30 153817 00A (45kg)
BC60 153818 00A (100kg)

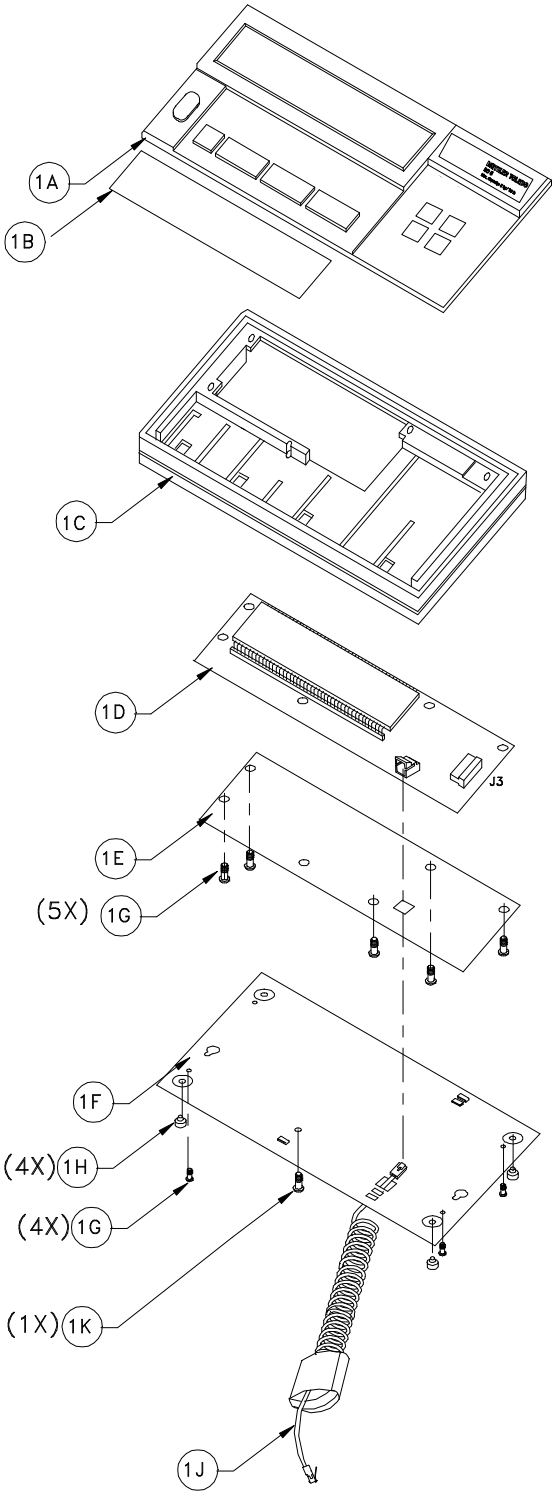
BC30/BC60 Counting Scale Chassis



Consists of Common Parts Large BC Chassis			
Symbol	Quantity	Part Number	Description
1A	4	(*)14648300A	5/16 -18 x 1.50 Hex Post
1B*	1	(*)14663800A	Skirt
1C	4	(*)14100500A	Foot
1D	1	(*)10268900A	Level
1E	1	(*)14664000A	Level Holder
1F	1	(*)14663900A	Connector Bezel
1G	1	(*)14664300A	Decal (Large BC)
1H	4	R0513100A	M4-0.7 x 10 Pan HD TT Torx/Slot
1J	1	(*)14543100A	Base
1L	1	R02180050	8-32 x 0.38 PH Pan HD Screw
1N	4	R00589130	#8 Lock Washer

*If the skirt is replaced, the serial data plate from the original unit must be retained and attached to the new skirt.

BC30/BC60 Keyboard

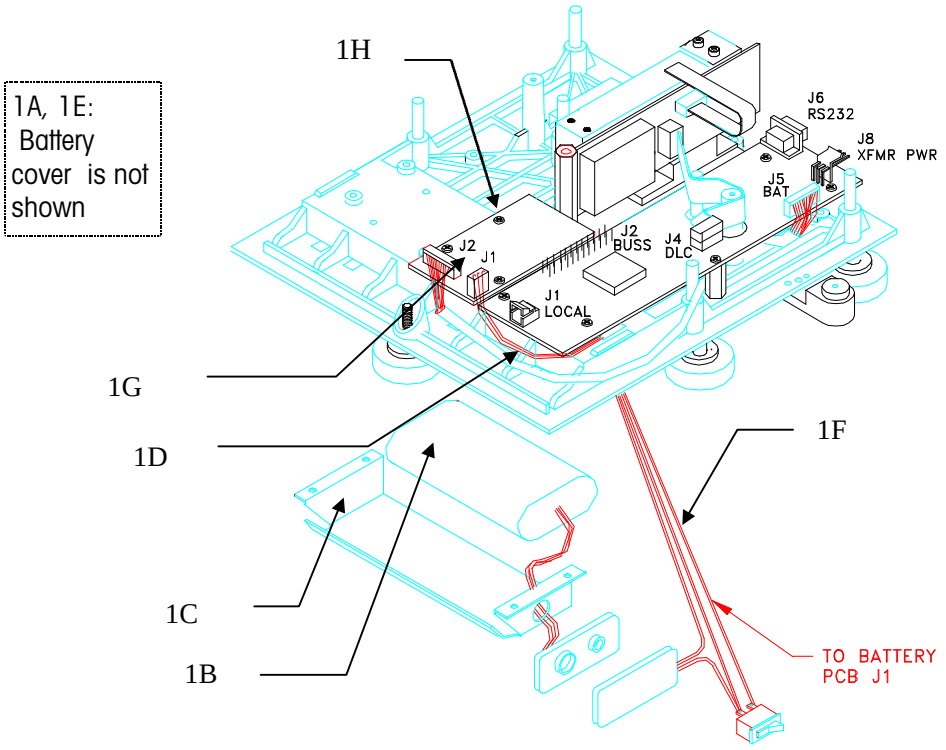


Consists of Parts for the BC30/BC60 Keyboard			
Symbol	Quantity	Part Number	Description
1A	1	(*)15056200A	English Keyboard Kit
1A	1	(*)15056100A	International Keyboard Kit
1B	1	(*)14081500A	Display Lens*
1C	1	(*)14647000A	Top Keyboard Cover
1D	1	(*)15056400A	Display PCB Kit
1E	1	(*)14663500A	Keyboard Insulator
1F	1	(*)14647100A	Bottom Plate Cover
1G	9	R0518300A	M3X10 PH Screw
1H	4	(*)14664700A	Foot
1J	1	(*)14973400A	Keyboard Cable
1K	1	R0513100A	M0.7x10 Pan HD Torx

* Display lens included in the replacement keyboard kit.

Optional Accessories

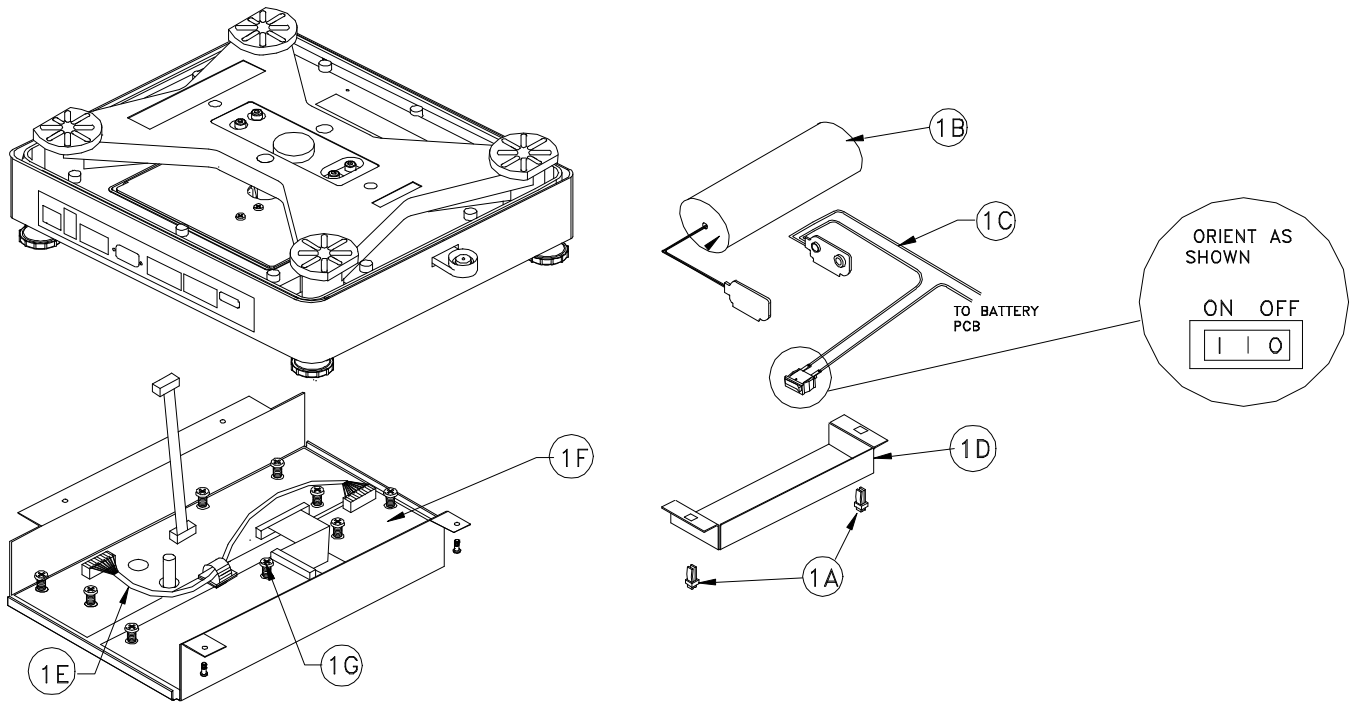
Battery Kit BC05/BC15



14915900A /09190045000 Consists of Parts for BC05/BC15 Battery Kit			
Symbol	Quantity	Part Number	Description
1A	2	(*)12051300A	1/4 Turn Fastener
1B	1	(*)14036400A	7.2V 4.3 AH NiCad Battery
1C	1	(*)14036500A	Battery Bracket
1D	1	(*)14309900A	Harness (Battery to PCB Main PCB)
1E*	1	(*)13912500A	Battery Cover
1F	1	(*)14034500A	Battery Harness
1G	1	(*)14470100A	Battery PCB
1H*	4	R0514700A	M4-0.7x6 Torx Screw
1J*	4	R0513200A	M3-0.5x8 Torx Screw

* Not shown on the diagram on page 7-8 see page 7-2 for graphic.

Battery Kit BC30/BC60



14915700A/09190049000 Consists of Parts for BC30/BC60 Battery Kit			
Symbol	Quantity	Part Number	Description
1A	2	(*)12051300A	1/4 Turn Fastener
1B	1	(*)14036400A	7.2V 43 AH NiCad Battery
1C	1	(*)14649100A	Battery Harness
1D	1	(*)14663400A	Battery Cover
1E	1	(*)14882200A	Harness (Battery PCB to Main PCB
1F	1	(*)14470100A	Battery PCB
1G	3	R0514700A	M4-0.7 x 6 Torx Screw

Optional Accessories

Factory Number	Part Number	Description
0919-0045	(*)14615900A	NiCad Battery Option BC05, BC15
0919-0049	(*)14915700A	NiCad Battery Option BC30, BC60
0919-0046	(*)14744700A	Extra NiCad Battery
0919-0047	(*)14753600A	1 Amp Power Supply w/ (USA) Line Cord
0919-0051	(*)15055800A	Remote Charger for Battery (120VAC)
0919-0052	(*)15056500A	1 Amp Power Supply w/ (UK) Line Cord
0919-0053	(*)15056600A	1 Amp Power Supply w/ (European) Line Cord
0919-0054	(*)15056700A	1 Amp Power Supply w/ (Australia) Line Cord
0992-0001	(*)15056900A	Keyboard/Display Stand BC30, BC60
0992-0002	(*)15010700A	Stand Attachment Bracket
0992-0003	(*)15057100A	W&M Sealing Kit
0992-0004	(*)15090300A	Software Upgrade Kit
0900-0255	(*)14995900A	RS-232 Interface Cable 20′/6M (DB25M Connector)
0900-0278	(*)13604900A	RS-232 Interface Cable 15′/5M (DB9F Connector)
0900-0279	(*)13605000A	RS-232 Host Interface 15′/5M (DB25F Connector)

8 Appendices

Appendix 1: Data Interface

The BC counting scale has a bi-directional asynchronous serial port which can be programmed for one of four different functions. The functions are "printer", "host," "remote weight," or "remote count". The BC scale provides different capabilities depending upon this selection.

Printer - This selection allows the serial port to transmit data when the PRINT key is pressed or automatically if the autoprint feature has been enabled and certain parameters have been met. The BC scale is not able to receive any ASCII commands when programmed for printer mode.

- Scale motion will delay printer output until after motion has ceased.
- Repeat print parameter allows multiple prints per transaction.
- Data output format can be single or multiple line.
- Autoprint feature will transmit data automatically when motion settles.
- All scale data fields are available to print.

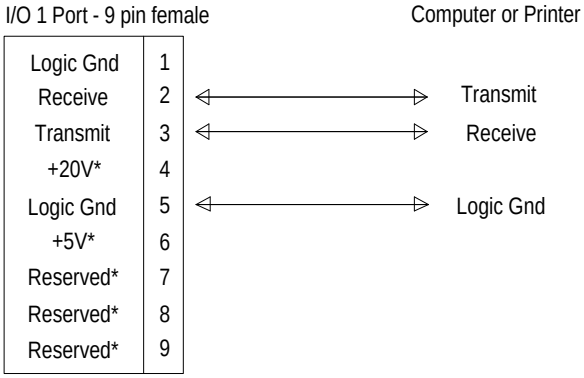
Host - This selection provides bi-directional communication with a computer or similar device. Eleven different commands are recognized by the BC and a corresponding action will be initiated when received. Some commands only function when the BC is programmed for the independent mode of operation.

- Only the standard mode of host interface should be used.
- Communication errors will be transmitted to the host when detected.
- The PRINT key does not function.

Remote Weight or Remote Count - This selection provides a continuous serial output of either weight data or count data to an external device. Several Mettler Toledo devices (such as the 8624 remote display and 8625 analog output module) are available for use with the continuous output. Bi-directional communication is limited to the C, T, and Z commands possible when the BC scale is programmed for either remote mode.

The serial port parameters such as baud rate, parity, checksum, data bits, and use of an STX (Start of Text) character are selectable in the Master Mode. The baud rate is selectable for 300, 1200, 2400, 4800, 9600, or 19200. Parity settings include even, odd or none and is used for outgoing data only. Refer to chapter 5 for complete details for programming the data interface parameters.

Serial Port Connections



* When making connections to the scale, these pins must NOT be used.

Data Format - Print Mode

Note: for both single and multiline formats, if checksum is enabled, the checksum of each line would be placed between the <CR> and <LF>. (in other words the <LF> character is treated as the first character of each line. Checksum is defined as the 2's complement of the binary sum of the bits 0-6 of all characters on that line preceding the checksum character.

In Master Mode, an ASCII <SO> (shift out) character may be added before any field to indicate to a printer that this field should print in a larger font. An ASCII <SI> (shift in) character will automatically be added at the end of the field to return the printer to normal print mode.

Single Line Output

When printing single line data, each field transmitted will be separated by five spaces. Blank fields will be printed as an additional five spaces. The transmission will be terminated with <CR> and <LF> characters.

Single Line Format Example:

<STX>**GROSS**<sp><sp><sp><sp>**1.114**<sp>**lb**<sp><sp><sp><sp><sp><sp><sp><sp><sp>
NET<sp><sp><sp><sp><sp><sp>**0.114**<sp>**lb**<sp><sp><sp><sp><sp><sp><sp><sp><sp>
PCS<sp><sp><sp><sp><sp><sp><sp><sp><sp><sp><sp>**50**<sp><sp><sp><sp><sp><sp><sp><sp>
<sp><sp><sp><sp>
<sp><sp><sp><sp><sp><sp>
<sp><sp><sp><sp><sp><sp>
<sp><sp><sp><sp><sp><sp>
<sp><sp><sp><sp><sp><sp><CR><LF>

Multiple Line Output

Each line in the multiple line format contains <CR><LF> characters at the end of the line. Blank fields are represented by just the <CR><LF> characters. A field description is automatically included at the beginning of each field. The field descriptions are:

GROSS	gross weight	PCS	piece count
TARE	tare weight	GRS ACC	gross accumulator total
NET	net weight	NET ACC	net accumulator total
SPL	sample quantity	PCS ACC	piece accumulator total
APW	average piece weight	% ACCY	percent accuracy

Multi Line Format Example:

<STX>**GROSS**<sp><sp><sp><sp>**1.114**<sp>**lb**<sp><sp><sp>><CR><LF>
NET<sp><sp><sp><sp><sp><sp><sp>**0.114**<sp>**lb**<sp><sp><sp><CR><LF>
PCS<sp><sp><sp><sp><sp><sp><sp><sp><sp><sp>**50**<sp><sp><sp><sp><sp><sp><sp><CR><LF>
<CR><LF>
<CR><LF>
<CR><LF>
<CR><LF>

Data Format - Host Mode

A command set is provided to support key scale functions. The following commands may be transmitted to the scale from a host via the serial I/O port. When the BC scale has been programmed as serial device = host.

Command	Description
<T><CR>*	Tare the weight on the scale.
<T><xx.xxxxx><CR>*	Tare xx.xxxxx from the scale weight, variable length field.
<A><xx.xxxxx><CR>*	Enter APW xx.xxxxx, (variable length field).
<H><CR>	Clear accumulators.
<C><CR>	Clear scale to gross mode.
<Z><CR>	Zero the scale, if within range, when no-motion condition exists.
<P><CR>	Print. Send data as specified.
<S><xxxxx><CR>*	Enter xxxxx (up to 5 digits) as the sample quantity.
<K><CR> or U <CR>	Switch displayed weight units.
<+><CR>	Accumulate selected value(s).

* These commands may only be used when the scale is programmed for the independent mode of operation. All other commands work in both dependent and independent modes.

To facilitate interface with a computer, a time delay clears a command or data entry if the <CR> or ASCII carriage return character is not received within 10 seconds after the command is received.

The Repeat Print feature allows only one "P" command to be accepted per count transaction when function enabled.

The scale automatically rounds off data so that the least significant digit entered need not be the same as the display increment. For example, if tare data is sent as a variable length field, .1, 0.1, and 0.100 all represent 0.1 lb tare.

When a host command is received by the scale, the message [Hst Cmd] will be shown on the right display briefly.

Errors Codes

General error responses are:

ET An error has occurred during transmission. This normally occurs when the checksum is incorrect.

ES A syntax error has occurred. This normally occurs when the message is improperly formatted.

EL A logic error has occurred. This normally occurs when a legal action is attempting to take place at the wrong time or in an invalid sequence, such as trying to sample when you are already in the counting state.

EF A function error has occurred. This is an internal error. A function was requested that has an error in execution on the BC.

EI An implementation error has occurred. The function requested has not been fully implemented.

Data Format - Remote Weight and Remote Count Mode

The continuous output format is shown below:

Character		Status[2]			Field 1[3]						Field 2[4]							
	1[1]	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17[5]	18[6]
Data	STX	SWA	SWB	SWC	MSD	—	—	—	—	LSD	MSD	—	—	—	—	LSD	CR	CHK

Table Notes: MSD Most significant digit
LSD Least significant digit

1. STX: ASCII start of text character, hex value 02.
2. SWA, SWB, and SWC: Status Words A, B, and C. See below.
3. Field 1: In weight mode, this will be six digits of displayed weight data including leading zeroes. No decimal point in field. In count mode, this will be six digits of count (no leading zeroes) when the scale is in the count mode or six spaces if not in the count mode.
4. Field 2: In weight mode, this will be six digits of tare weight data including leading zeroes. No decimal point in field. In count mode, this will always be six zeroes.
5. CR: ASCII carriage return, hex value 0D.
6. CHK: Optional checksum character defined as the 2's compliment of the low 7 order bits of the binary sum of all characters preceding the checksum.

Status Word A Bit Definitions (N/A = not applicable)								
		Status Bit						
Function	Selection	6	5	4	3	2	1	0
Decimal Point or Dummy Zero	X00	0	1	N/A		0	0	0
	X0					0	0	1
	X					0	1	0
	0.X					0	1	1
	0.0X					1	0	0
	0.00X					1	0	1
	0.000X					1	1	0
	0.0000X					1	1	1
Display Increment Size	X1			0	1	N/A		
	X2			1	0			
	X5			1	1			

Status Word B Bit Definitions	
Function/Value	Bit
Gross/Net: Net = 1	0
Negative = 1	1
Over Capacity = 1	2
Motion = 1	3
Lb/Kg: Kg = 1	4
1	5
Powerup = 1	6

Status Word C Bit Definitions	
Function/Value	Bit
0	0
0	1
0	2
Print Request = 1	3
Expanded Weight Mode = 1	4
1	5
Manual Tare Kg Only = 1	6

Appendix 2: Scale Build Determination

BC capacities when calibrated in pounds

MODEL	CALIBRATED CAPACITY	SWITCHABLE CAPACITY	DISPLAY DIVISIONS
BC05	10 x 0.002 lb	5 x 0.001 kg	5,000
	10 x 0.001 lb	5 x 0.0005 kg	10,000
	10 x 0.0005 lb	4 x 0.0002 kg	20,000
	10 x 0.0002 lb	5 x 0.0001 kg	50,000
	10 x 0.0001 lb	5 x 0.00005 kg	100,000
	15 x 0.005 lb	6 x 0.002 kg	3,000
	15 x 0.002 lb	7.5 x 0.001 kg	7,500
	15 x 0.001 lb	7.5 x 0.0005 kg	15,000
	15 x 0.0005 lb	6 x 0.0002 kg	30,000
	15 x 0.0002 lb	7.5 x 0.0001 kg	75,000
BC15	20 x 0.005 lb	8 x 0.002 kg	4,000
	20 x 0.002 lb	10 x 0.001 kg	10,000
	20 x 0.001 lb	10 x 0.0005 kg	20,000
	20 x 0.0005 lb	8 x 0.0002 kg	40,000
	20 x 0.0002 lb	10 x 0.0001 kg	100,000
	30 x 0.01 lb	15 x 0.005 kg	3,000
	30 x 0.005 lb	12 x 0.002 kg	6,000
	30 x 0.002 lb	15 x 0.001 kg	15,000
	30 x 0.001 lb	15 x 0.0005 kg	30,000
	30 x 0.0005 lb	12 x 0.0002 kg	60,000
	37.5 x 0.005 lb	15 x 0.002 kg	7,500
	37.5 x 0.0005 lb	15 x 0.0002 kg	75,000
BC30	60 x 0.02 lb	30 x 0.01 kg	3,000
	60 x 0.01 lb	30 x 0.005 kg	6,000
	60 x 0.005 lb	24 x 0.002 kg	12,000
	60 x 0.002 lb	30 x 0.001 kg	30,000
	60 x 0.001 lb	30 x 0.0005 kg	60,000
BC60	120 x 0.05 lb	48 x 0.02 kg	2,400
	120 x 0.02 lb	60 x 0.01 kg	6,000
	120 x 0.01 lb	60 x 0.005 kg	12,000
	120 x 0.005 lb	48 x 0.002 kg	24,000
	120 x 0.002 lb	60 x 0.001 kg	60,000

Table 2-a

Note: If grams is selected as a weight unit, the capacity and increment will be similar to the kilogram values shown except with the decimal point shifted three places to the right. Gram weight units are indicated with the letter [g] at the beginning of the right A/N display.

BC capacities when calibrated in kilograms

MODEL	CALIBRATED CAPACITY	SWITCHABLE CAPACITY	DISPLAY DIVISIONS
BC05	5 x 0.001 kg	10 x 0.002 lb	5,000
	5 x 0.0005 kg	10 x 0.001 lb	10,000
	5 x 0.0002 kg	12.5 x 0.0005 lb	25,000
	5 x 0.0001 kg	10 x 0.0002 lb	50,000
	5 x 0.00005 kg	10 x 0.0001 lb	100,000
	6 x 0.002 kg	15 x 0.005 lb	3,000
	6 x 0.001 kg	12 x 0.002 lb	6,000
	6 x 0.0005 kg	12 x 0.001 lb	12,000
	6 x 0.0002 kg	15 x 0.0005 lb	30,000
	6 x 0.0001 kg	12 x 0.0002 lb	60,000
BC15	10 x 0.002 kg	25 x 0.005 lb	5,000
	10 x 0.001 kg	20 x 0.002 lb	10,000
	10 x 0.0005 kg	20 x 0.001 lb	20,000
	10 x 0.0002 kg	25 x 0.0005 lb	50,000
	10 x 0.0001 kg	20 x 0.0002 lb	100,000
	12 x 0.005 kg	24 x 0.01 lb	2,400
	12 x 0.002 kg	30 x 0.005 lb	6,000
	12 x 0.001 kg	24 x 0.002 lb	12,000
	12 x 0.0005 kg	24 x 0.001 lb	24,000
	12 x 0.0002 kg	30 x 0.0005 lb	60,000
	15 x 0.005 kg	30 x 0.01 lb	3,000
	15 x 0.002 kg	37.5 x 0.005 lb	7,500
	15 x 0.001 kg	30 x 0.002 lb	15,000
	15 x 0.0005 kg	30 x 0.001 lb	30,000
	15 x 0.0002 kg	37.5 x 0.0005 lb	75,000
BC30	30 x 0.01 kg	60 x 0.02 lb	3,000
	30 x 0.005 kg	60 x 0.01 lb	6,000
	30 x 0.002 kg	75 x 0.005 lb	15,000
	30 x 0.001 kg	60 x 0.002 lb	30,000
	30 x 0.0005 kg	60 x 0.001 lb	60,000
BC60	60 x 0.02 kg	150 x 0.05 lb	3,000
	60 x 0.01 kg	120 x 0.02 lb	6,000
	60 x 0.005 kg	120 x 0.01 lb	12,000
	60 x 0.002 kg	150 x 0.005 lb	30,000
	60 x 0.001 kg	120 x 0.002 lb	60,000

Table 2-b

Note: If grams is selected as a weight unit, the capacity and increment will be similar to the kilogram values shown except with the decimal point shifted three places to the right. Gram weight units are indicated with the letter [g] at the beginning of the right A/N display.

Appendix 3: Master Mode Default Values

The following table lists the factory default values for each parameter in Master Mode. Use the As Configured column to record your actual setup configuration. Factory defaults are not set for Service Mode parameters.

MASTER MODE DEFAULT VALUES			
DEFAULT	AS CONFIGURED	DEFAULT	AS CONFIGURED
User Program Block		Sample Program Block	
Language - English		Pcs/Unit - Wgt/Pcs	
Beeper		Mode	
Keyboard - OFF		Variable Sample - ON	
Error - ON		Sample Quantity - 10	
Sleep - OFF		Minimum APW - 0.02%	
		Percent Accuracy - OFF	
Scale Program Block		APW Enhancement - MANUAL	
Units		Auto Clear APW - OFF	
Display - lb			
Alternate Unit - kg		Count Program Block	
Zero		Mode - Tare, Spl	
AZM - Gross		Sign	
Auto Capture - ±10%		Count-in - Pos	
PB Capture - ±10%		Count-out - Neg	
Motion Range - ± 0.1d			
Filter - Light		Data Program Block	
		Data Program	
Tare Program Block		Count Accumulator - ON	
Mode - PB Only		Gross Accumulator - ON	
Tare Interlock - OFF		Net Accumulator - ON	
Chain Tare - ON		Clear Accumulator - OFF	
Auto Clear Tare - OFF			
Auto Tare - OFF			

DEFAULT	AS CONFIGURED	NOTES
interface Program Block		
Port 1 Device - Printer		
Protocol		
Baud Rate - 9600		
Parity - Even		
Checksum - OFF		
Character Bits - 7		
STX Character - ON		
Print Lines - Multiple		
Printer Type -8845		
Repeat Print - ON		
Auto Print - OFF		
Print		
Field 1 - Gross Weight		
EP F1 - OFF		
Field 2 - Net Weight		
EP F2 - OFF		
Field 3 - Pieces		
EP F3 - OFF		
Field 4 - Blank		
EP F4 - OFF		
Field 5 - Blank		
EP F5 - OFF		
Field 6 - Blank		
EP F6 - OFF		
Field 7 - Blank		
EP F7 - OFF		

NOTES

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Publication Evaluation Form

If you find a problem with our documentation, please complete and fax this form to (614) 438-4355

Publication Name: BC Counting Scale Technical Manual

Publication Part Number: B14751600A Publication Date: 5/98

PROBLEM(S) TYPE:	DESCRIBE PROBLEM(S):	INTERNAL USE ONLY
☐ Technical Accuracy	☐ Text ☐ Illustration	
☐ Completeness What information is missing?	☐ Procedure/step ☐ Illustration ☐ Definition ☐ Example ☐ Guideline ☐ Feature ☐ Explanation ☐ Other (please explain below)	☐ Info. in manual ☐ Info. not in manual
☐ Clarity What is not clear?		
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