Adam Equipment

Grain Scale
Model: CQT1752GR

Part No. 3086611514, Rev A1, April 2012

Software Ver 3.3

1.0 CONTENTS

2.0 INTRODUCTION

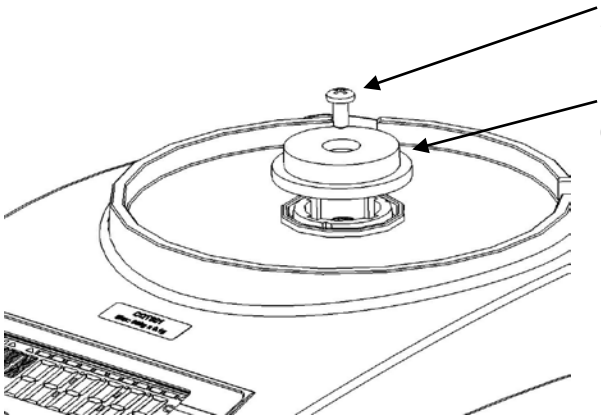
Thank you for purchasing your new grain scale which is based upon the Core series of Balances. The CQT1752GR model has been specifically designed to assist in the grading of grain quality following screenings in relation to an initial sample weight of grain, and to give an indication of yield in Kilograms per hectoliter (k.hl), and Pounds per bushel (L.bu) Winchester.

There are 4 container sizes available – 0.5liter, 1 liter, 1 pint and 1 quart as well as positive and negative % dockage readings following up to 5 x screenings, plus a memory facility for up to 5 x stored sample weights.

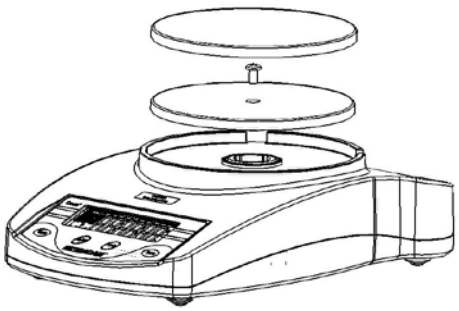
3.0 SET UP

3.1 UNPACKING AND SETTING UP YOUR SCALE

1) Remove the shipping protection screw and round cover as shown below using the hex allen key supplied in the box. (It is advisable to keep the shipping protection screw and the round cover for shipping to another location in the future).



2) Place the pan (which comes separately packed) in the receptacle on the top cover.



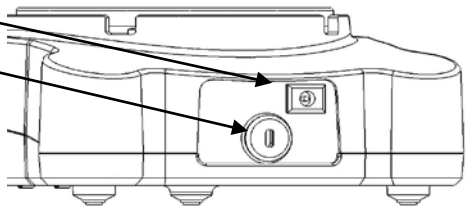
Use the screw that is packed separately in a bag with the allen key to screw the plastic pan into place. Be careful when inserting the screw that you do not use excessive force as it can damage the loadcell. Use light force to secure the screw.

3) Place the stainless steel pan on top of the plastic pan.

4) Place the balance on a firm and flat surface for accurate weighing.

3.2 OVERVIEW - DISPLAY / KEY BOARD

AC adapter socket
Lock down slot



Stainless Steel pan

LCD display

[On/Off] key
Turns the balance on/off

[Con/Unit] key
Selects the container size and (Unit) switches between weighing modes and results

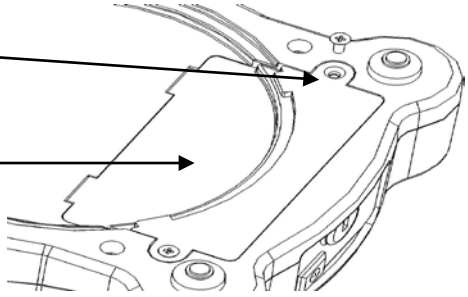
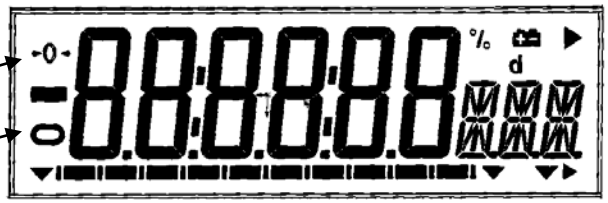
[Tare] key
Tares the balance

[Store] key
Stores the initial sample and subsequent weights following screening

[Recall/CE] key
Recalls stored weighing results and (CE) clears previously stored results from the memory

3.3 INSTALLING BATTERIES

Remove the battery compartment cover and insert six batteries (R6P/LR6 /AA size) into the battery compartment.

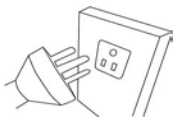
Battery compartment screws Battery compartment cover Batteries are not included	
ZERO indicator Indicates when the scale is at zero. STABLE indicator Indicates when the reading is stable.	

3.4 LOCATING AND PROTECTING YOUR SCALE

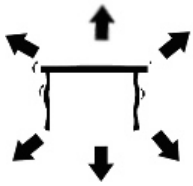
In order to keep your scale functioning at its best we suggest that you do the following:

Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning vents.

Make sure the scale is located on a strong table and free from vibration.

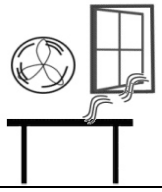


Avoid unstable power sources. Do not operate near large users of electricity such as welding equipment or large motors. Do not leave the batteries inside the scale if you are not using it for a long time.

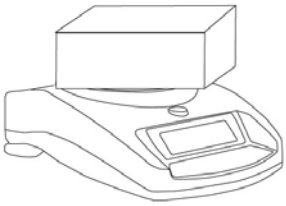


Keep free from vibration. Do not place near heavy or vibrating machinery.

Avoid high humidity that might cause condensation, and keep away from direct contact with water.



Do not place near open windows, air-conditioning vents or fans that may cause a draught and unstable readings.



Keep the scale clean, and do not stack material on the scale when it is not in use.

4.0 BASIC OPERATION

4.1 TURNING ON THE SCALE

Plug in the unit using the AC adapter or insert batteries and press the **[on/off]** key.

1) The scale will show **grn- X.X**, "**X.X**" meaning software revision number, "**grn**" meaning it has grain scale software, and then show the voltage **X.X Vol.** "**X.X**" is the voltage of the batteries if being used on battery power, or the regulated voltage from the AC adapter. Following this the scale will then count from 0 to 9, and then display "0.00g" with the Stable symbol, Zero symbol and the last chosen container size indicator being shown.

2) The scale is now ready to be used.

3) To turn the scale off after use press the **[on/off]** key again. There is an auto power-off function that will automatically turn the unit off, this can be set in the parameters section.

4.2 ZEROING / TARE

You can press the **[Tare]** key to set a new zero point. Zero will be set if the reading on the scale is less than 70g. This may be necessary if the weight is not reading zero with no weight on the pan. The zero indicator will show in the top left corner of the LCD.

If you are using a container to weigh then you can place this on the platform and press the **[Tare]** key, the display will show zero and NET on the display.
You can then weigh any material added to the container. Taring weight subtracts from the scale's total capacity.

Note: When the container is removed a negative value will be shown. If the **[Tare]** key is pressed when the container has been removed it will again zero the scale.

4.3 WEIGHING

To determine the weight of a sample, tare an empty container, then place the sample in the container. The display will show the weight and the unit of weight currently in use. The stable indicator will light up when the reading is stable.

4.4 WEIGHING UNITS

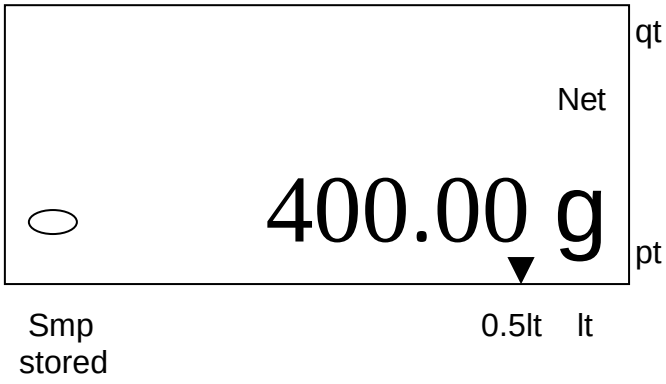
Three weighing units are available: grams (g), Kilograms per Hectoliter (k.hl), and Pounds per bushel (L.bu) based on the Winchester bushel.

4.5 GRAIN DETERMINING

1) Turn on the scale and wait for the scale to display zero. Press **[CON/UNIT]** to select the container size you will use, an Indicator will show next to the container size to confirm which one you have selected (for example below 0.5lt).

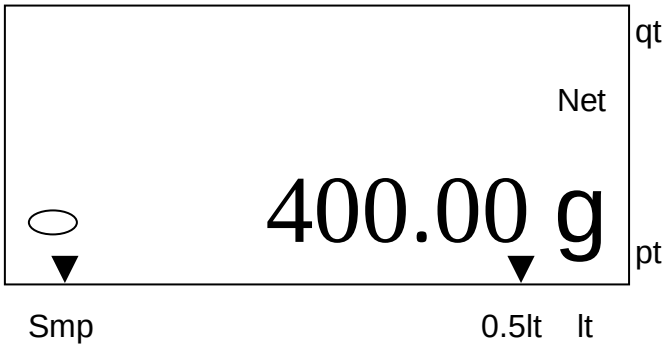
2) Place the empty container on the pan and press **[TARE]**

3) Load the 500ml container with the grain. The screen shows the net weight (the first net weight) of the grain (in this example the total weight is 400g).



At this point you can press the **[CON/UNIT]** key to view the yield values calculated in k.hl and L.bu based on the net weight in the container.

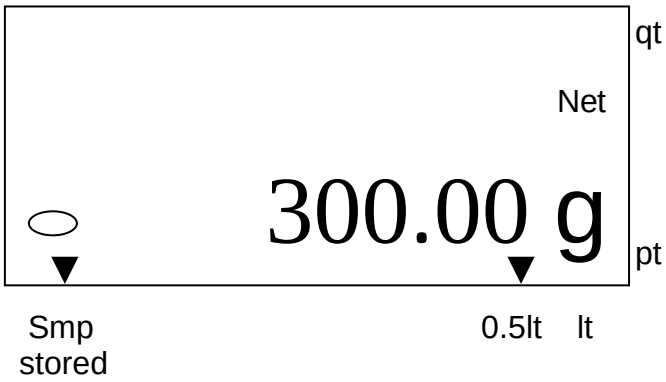
4) To store this weight as the initial sample value, press the **[STORE]** key, the display will show “Store smp” and then return to the last weighing mode, an indicator above Smp/stored will show to confirm the sample weight has been stored in the memory.



stored
The container can now be removed from the scale and a screening performed.

5) Replace the same 500ml container on to the scale with the grain that is left following the screening. The display will show the net weight of the grain that is left, for example 300g left meaning 100g removed.

   Again at this point you can press the **[CON/UNIT]** key to view the yield values calculated in k.hl and L.bu based on the new net weight in the container.



6) In order for the scale to calculate a negative or positive dockage following the first screening press the **[STORE]** key, Store 1st will be displayed. The new net weight will be entered into the memory and calculate the % grain remaining and removed against the initial sample weight value stored at point 4.

   Note that in order to perform a new STORE the scale has to go back to ZERO or a negative value, removing the container to perform a screening allows the display to go to a negative value which then permits the new STORE to be performed when the container is placed back onto the top pan.

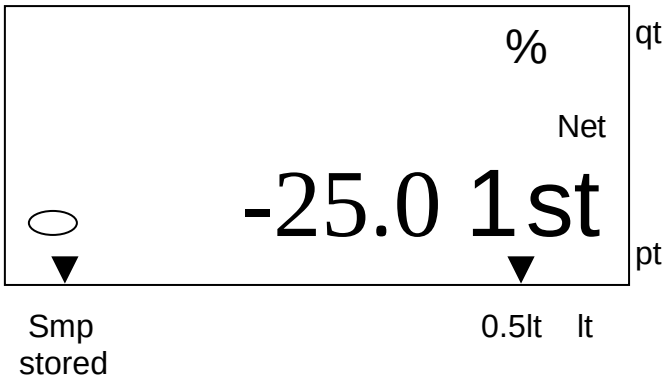
   The first dockage result will then be displayed, and by pressing the **[CON/UNIT]** key further results can be viewed including dockage, the net weight in grams which was used in the calculation, and also the new yield values.

   Pressing the **[RECALL/CE]** key unlocks the display for further weighings. Pressing the **[RECALL/CE]** key again continuously will show you the same results with reference to a particular screening, this can be done at any time and will progress from the 1st screening through to the last screening stored showing all results. Once all of the stored results have been displayed the next press of the **[RECALL/CE]** key will exit you from these results.

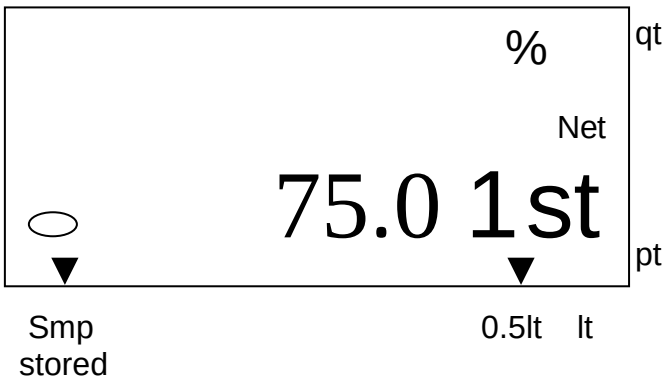
7) A further screening can now take place following the same procedure as above with the next net value being stored. Following the storing of the new net weight the same information is available by pressing the appropriate keys. Screenings can be repeated for up to 5 times with each result able to be stored and % dockage, grams, yield and net weight values to be recalled. Each time a net weight is stored the display will show Store x (x being the number of the screening performed).

Examples of displayed information following **[RECALL/CE]** is as below, once a complete test result is shown the next stored results will be displayed showing the number of that test until the last set of test results are displayed.

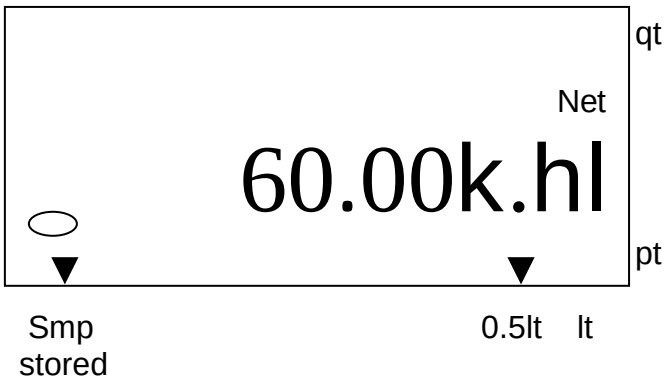
Negative dockage (showing the % of grain removed after screening), and indicating the 1st recorded set of test results.



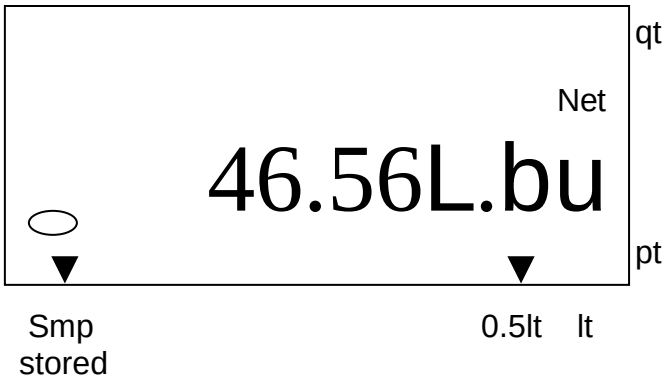
Positive dockage (showing the % of grain remaining after screening) and indicating the 1st recorded set of test results.



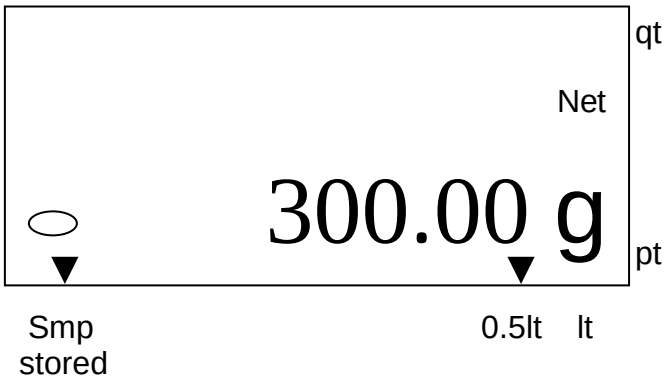
Yield in Kilograms per hectolitre of the remaining grain following the first screening



Yield in Pounds per bushel of the remaining grain following the first screening



Net weight used for all calculations following first screening



The memorised values can be deleted at any time by pressing and holding the **[RECALL/CE]** key for 3 seconds. A message of CLEAR will be displayed to confirm deletion of the stored values and the indicator above Smp stored will go out.

New tests can now be performed.

If the balance is turned off during the weighing process, it will retain the stored information in the memory so that you could then complete the tests without having to start again due to a loss of power.

Once a sample weight has been stored the scale will not allow you to change the container size.

5.0 USER SETTINGS

The grain scale can be set up by the USER to enable or disable container sizes, units of yield and dockage results in order to make operation and recalling of results faster.

The scale has 3 settings available.

FUNCTION	SECTION	DESCRIPTION
Yield	See section 5.2	Selects which units of yield are to be displayed
Container size	See section 5.3	Selects the container sizes available to be used
Dockage	See section 5.4	Selects the type of dockage to be displayed in the test results

5.1 USER SETTING ENTRY

- Press the **[ON/OFF] key** to turn the balance off.
- Press and Hold the **[CON/UNIT]** key and press the **[ON/OFF]** key to switch the scale on, the scale will show “grn-3.3 GRN” and then enter the USER setting mode. The display will show "X k.hl" which is the first parameter.

5.2 YIELD

Yield can be shown in Kilograms per hectolitre (k.hl) and/or Pounds per bushel (L.bu).

1) The display will show ‘‘X k.hl’’ (X being the current setting)
2) Press **[TARE]** to set ON or OFF for k.hl
3) Press **[STORE]** to select L.bu
4) Press **[TARE]** to set ON or OFF for L.bu
5) Press **[RECALL/CE]** to confirm settings

5.3 CONTAINER SIZE

The container size can be set so that any amount of the 4 can be selected.

1) The display will show ‘‘X qt’’ (X being the current setting)

2) Press **[TARE]** to set ON or OFF for qt

3) Press **[STORE]** to select pt

4) Press **[TARE]** to set ON or OFF for pt

5) Press **[STORE]** to select 1lt

6) Press **[TARE]** to set ON or OFF for 1lt

7) Press **[STORE]** to select 0.5lt

8) Press **[TARE]** to set ON or OFF for 0.5lt

9) Press **[RECALL/CE]** to confirm settings

5.4 DOCKAGE

The dockage results can be set to display negative % and/or positive % dockage

1) The display will show X -% (X being the current setting)

2) Press **[TARE]** to set ON or OFF for -%

3) Press **[STORE]** to select % (positive)

4) Press **[TARE]** to set ON or OFF for % (positive)

5) Press **[RECALL/CE]** to confirm settings

Power OFF the scale and then ON after pressing **[RECALL/CE]** to return to normal weighing with the required settings.

6.0 PARAMETERS

The scale has 5 parameters that can be set by the user.

FUNCTION	SECTION	DESCRIPTION
Filter	See section 6.2	Sets the display update rate
Zero Tracking	See section 6.3	Sets the zero tracking for return to zero
Stability	See section 6.4	Sets the stability symbol sensitivity
Auto Off	See section 6.5	Sets the auto power off function
Backlight	See section 6.6	Sets the backlight control

6.1 PARAMETER SETTING

- Press **[ON/OFF]** to turn the balance off.
- Press and Hold the **[TARE]** key and press the **[ON/OFF]** key to switch the scale on, the scale will show “grn-3.3 GRN” and then enter the parameter setting. The display will show "X FIL" which is the first parameter.

6.2 FILTER

The filter function allows the USER to adjust the speed of display update, a setting of 1 will mean a faster response on the display from when the weight is placed on the pan, default is 2.

1) The display will show ‘‘X FIL’’ (X being the current setting)
2) Press the **[TARE]** key to increment through the various settings 1-6
3) Press the **[RECALL/CE]** key to confirm the setting chosen

6.3 ZERO TRACKING

The zero tracking function influences the scale to return to zero, a setting of 1 will automatically return the display to zero when it is within 1 division of the zero point. A setting of 7 will automatically return the display to zero when it is within 7 divisions of the zero point, if the environment is not good it may mean a higher setting is required, default is 2.

1) The display will show ‘‘X ZEO’’ (X being the current setting)
2) Press the **[TARE]** key to increment through the various settings 1-7
3) Press the **[RECALL/CE]** key to confirm the setting chosen

6.4 STABILITY

The stability setting function adjusts when the STABILITY symbol shows, this can be useful when printing in a number of different environments to ensure a stable and correct reading is printed, default is 2.

1) The display will show ''X STA'' (X being the current setting)
2) Press the **[TARE]** key to increment through the various settings 1-6
3) Press the **[RECALL/CE]** key to confirm the setting chosen

6.5 AUTO POWER OFF

The auto power off function helps conserve power when using the batteries or AC adapter. The Auto power-off time period may be set by the user and is the amount of time in seconds of inactivity, i.e. no weight movement or key presses, default is OFF.

1) The display will show "OFF PWR"

2) Press the **[TARE]** key to increment through the various settings as below.

OFF PWR	Auto power off
10 PWR	10 seconds before the power will switch off
20 PWR	20 seconds before the power will switch off
30 PWR	30 seconds before the power will switch off
40 PWR	40 seconds before the power will switch off
50 PWR	50 seconds before the power will switch off
60 PWR	60 seconds before the power will switch off
70 PWR	70 seconds before the power will switch off
80 PWR	80 seconds before the power will switch off
90 PWR	90 seconds before the power will switch off

3) Press the **[RECALL/CE]** key to confirm the setting, the display will show "AUTO BL"

6.6 SETTING THE BACKLIGHT

The backlight control can be set by the USER. If the backlight is disabled, the battery life will be longer, default is AUTO.

1) The display will show "AUTO BL".

2) Press the **[TARE]** key to increment through the various settings as below.

AUTO	Sets the backlight to operate automatically
ON	Sets the backlight to be ON at all times.
OFF	Sets the backlight to be OFF at all times.

3) Press the **[RECALL/CE]** key to confirm the setting

Power OFF the scale and then ON after pressing **[RECALL/CE]** to return to normal weighing with the required settings.

7.0 CALIBRATION

Calibration may be required when the scale is initially installed or moved to a new location.
Over time and use, mechanical deviations may occur so it is recommended that you calibrate your scale regularly.

Before calibrating you should make sure you have a suitable weight. The weights should be known to an accuracy that is appropriate for the balance being calibrated, for example, OIML Class F1 type or ASTM E617 Class 2. If you do not have proper weights do not attempt calibration.

1) To enter into the calibration parameter turn the power off, switch the scale on and during the counting up sequence press the **[TARE]** and **[STORE]** keys together, then release these keys.
2) The display will show UnLOAD, remove any weight from the pan.
3) Press the **[TARE]** key, the weight value used for the last calibration will be displayed.
4) To select a different calibration weight value press the **[STORE]** key. This will cycle you through the weight values that can be selected for your calibration, values available are 500g, 1000g and 1500g.
5) Once you have selected the weight to use press the **[TARE]** key.
6) LOAD will be displayed, place the calibration weight on the pan.
7) Once the stable sign is shown press the **[TARE]** key.
8) If the weight is within 5% of the last calibration the display will show PASS, exit the calibration routine and return to normal weighing mode. If the calibration is not successful the display will show FAIL and exit the routine, if the calibration fails try again.

8.0 TROUBLE SHOOTING

8.1 ERROR MESSAGES

ERROR CODE	DESCRIPTION	POSSIBLE CAUSES	Solutions
NO dkg	No dockage results	Recall button pressed before any screenings have taken place	Store an initial sample, perform a screening and store the new weight to give you dockage results
NO smp	No sample weight stored	Store button pressed without a weight on the top pan	Place a container with grain on the top pan and press STORE to register your initial sample weight
Error	Incorrect weight attempting to be stored	A weight reading higher than the previous one is attempting to be stored, or the scale did not return to zero before the next STORE was attempted	Check that the last screening process was performed correctly, each screening should result in a lower net weight than the previous one
ADO	A/D Value too high.	Weight on the pan when turning on. Improper calibration of the scale. Damaged load cell. Damaged Electronics.	Remove any weight from the stainless steel pan. Recalibrate.
ADL	A/D Value too low.	Pan is not installed when turning on. Calibration not correct. Damaged load cell.	Install pan and power on. Recalibrate.
	Low battery indicator.	Batteries may be flat.	Change the batteries.
FAIL	Calibration failure.	Incorrect mass used to calibrate. The user calibration is not within 5% of factory calibration. Possible damaged to load cell.	Try to recalibrate, check that the weight used to calibrate matches that of the value displayed on the scale.
	Unstable – machine cannot display a stable reading.	Possible damage to the mechanics / Load cell. Possible poor and drafty location caused by air conditioner or next to open windows or doors.	Replace load cell Make sure the balance is on a flat surface and away from vibration and air movement.
	No Power when turning on.	Battery may be flat. AC adapter may not be working.	Change the batteries. Or use the AC adapter

9.0 PARTS LIST

CQT 1752-GR	
Part number	**Description**
3.08.2.3.2030	IN USE COVER
3.08.1.2.2011	TOP PAN 145mm
3.08.2.3.2010	SUB PAN 145mm
3.08.2.3.2038	LOAD CELL BRACKET FOR SUB PAN
3.08.1.0.2040	LOAD CELL - 2000g cell
3.08.5.6.11519	KEYPAD
3.08.4.8.2031	MAIN PCB inc DISPLAY PCB
3.08.2.3.2003	UPPER HOUSING
3.08.2.3.2004	LOWER HOUSING
7.00.4.0.0023	POWER SUPPLY STANDARD MODEL 12Vac 150ma- UK
7.00.4.0.0024	POWER SUPPLY STANDARD MODEL 12Vac 150ma- USA
7.00.4.0.0025	POWER SUPPLY STANDARD MODEL 12Vac 150ma- OZ
7.00.4.0.0026	POWER SUPPLY STANDARD MODEL 12Vac 150ma- EURO
7.00.4.0.0027	POWER SUPPLY STANDARD MODEL 12Vac 150ma- SA
3.08.1.0.2043	CARRY CASE
3.08.2.3.2032	BATTERY COVER
3.08.3.0.0001	COMPLETE PACKING
3.08.4.0.2029	POWER JACK

10.0 SPECIFICATIONS

Model #	**CQT1752GR**
Maximum Capacity	1750g
Readability	0.05g
Repeatability (Std Dev)	0.05g
Linearity ±	0.1g
Units of Measure	grams, Kilograms per hectoliter, and Pounds per bushel(Winchester)
Stabilisation Time	2-3 seconds
Operating Temperature	0ºC to 40ºC 32ºF to 104ºF
Power Supply	12VAC @ 150mA adapter or 6x AA batteries
Calibration	Push button calibration using external mass
Calibration Mass	500g, 1000g or 1500g user selectable
Display	6 digit LCD, 18mm digits, with backlight
Balance Housing	ABS Plastic
Pan Size	145mm ø (5.7” ø)
Overall Dimensions (w x d x h)	173 x 255 x 86mm (6.8” x 10” x 3.3”)
Net Weight	760g (1.7lb)

11.0 WARRANTY INFORMATION

Adam Equipment offers Limited Warranty (Parts and Labour) for the components failed due to defects in materials or workmanship. Warranty starts from the date of delivery.

During the warranty period, should any repairs be necessary, the purchaser must inform its supplier or Adam Equipment Company. The company or its authorised Technician reserves the right to repair or replace the components at any of its workshops depending on the severity of the problems. However, any freight involved in sending the faulty units or parts to the service centre should be borne by the purchaser.

The warranty will cease to operate if the equipment is not returned in the original packaging and with correct documentation for a claim to be processed. All claims are at the sole discretion of Adam Equipment.

This warranty does not cover equipment where defects or poor performance is due to misuse, accidental damage, exposure to radioactive or corrosive materials, negligence, faulty installation, unauthorised modifications or attempted repair or failure to observe the requirements and recommendations as given in this User Manual. Additionally rechargeable batteries (where supplied) are not covered under warranty.

Repairs carried out under the warranty does not extend the warranty period. Components removed during the warranty repairs become the company property.

The statutory right of the purchaser is not affected by this warranty. The terms of this warranty is governed by the UK law. For complete details on Warranty Information, see the terms and conditions of sale available on our web-site.

CE

Manufacturer's Declaration of Conformity

This product has been manufactured in accordance with the harmonised European standards, following the provisions of the below stated directives:

Electro Magnetic Compatibility Directive 2004/108/EC

Low Voltage Directive 2006/95/EC

Adam Equipment Co. Ltd.
Bond Avenue, Denbigh East
Milton Keynes, MK1 1SW
United Kingdom

FCC COMPLIANCE

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

Shielded interconnect cables must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device.

Changes or modifications not expressly approved by Adam Equipment could void the user's authority to operate the equipment.

WEEE COMPLIANCE

Any Electrical or Electronic Equipment (EEE) component or assembly of parts intended to be incorporated into EEE devices as defined by European Directive 2002/95/EEC must be recycled or disposed using techniques that do not introduce hazardous substances harmful to our health or the environment as listed in Directive 2002/95/EC or amending legislation. Battery disposal in Landfill Sites is more regulated since July 2002 by regulation 9 of the Landfill (England and Wales) Regulations 2002 and Hazardous Waste Regulations 2005. Battery recycling has become topical and the Waste Electrical and Electronic Equipment (WEEE) Regulations are set to impose targets for recycling.

ADAM EQUIPMENT is an ISO 9001:2008 certified global company with more than 35 years experience in the production and sale of electronic weighing equipment.

Adam products are predominantly designed for the Laboratory, Educational, Health and Fitness, retail and Industrial Segments. The product range can be described as follows:

-Analytical and Precision Balances
-Compact and Portable Balances
-High Capacity Balances
-Moisture analysers / balances
-Mechanical Scales
-Counting Scales
-Digital Weighing/Check-weighing Scales
-High performance Platform Scales
-Crane scales
-Health and Fitness Scales
-Retail Scales for Price computing

For a complete listing of all Adam products visit our website at www.adamequipment.com

Adam Equipment reserves the right to make changes to the technology, features, specifications and design of the equipment without notice.

All information contained within this publication is to the best of our knowledge timely, complete and accurate when issued. However, we are not responsible for misinterpretations which may result from the reading of this material.

The latest version of this publication can be found on our Website.

www.adamequipment.com