# QwikCheck QC BULL

# User Guide

Version 1.00

Catalog #QCh-A-00341-00

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# TABLE OF CONTENTS
## QwikCheck™ QC Bull



## Appendix Section

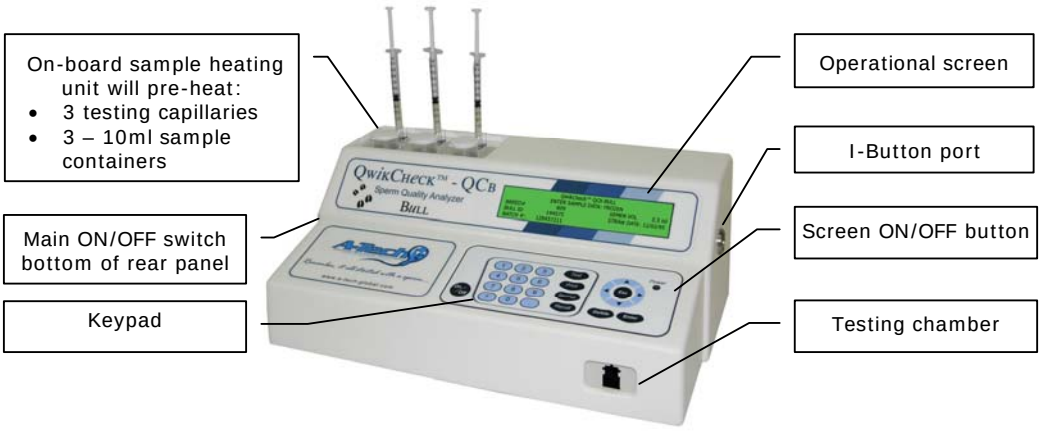
## Section 1: Overview

The ***QwikCheck™QC Bull*** sperm quality analyzer tests and reports the quality of FROZEN bull semen. Semen parameters are reported for all types of freezing medias. Only MOTILITY parameters are reported for Milk Based freezing medias as defined below:

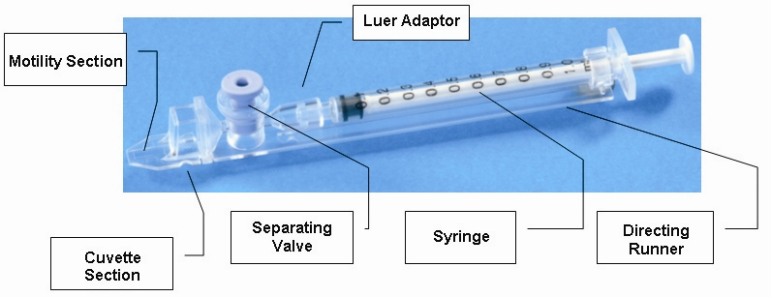
| **Semen Parameters For All except samples frozen in MILK BASED extenders** | |
|---|---|
| Concentration | Millions/milliliter |
| Motility | % |
| Progressive Motility | % |
| # Sperm | Total # per straw |
| Motile Sperm Concentration | Millions/milliliter |
| Progressively Motile Sperm Concentration | Millions/milliliter |
| Velocity | Microns/second |
| Motile Sperm | Total # per straw |
| Progressively Motile Sperm | |
| **Semen Parameters For samples frozen in MILK BASED extenders:** | |
| Motile Sperm Concentration | Millions/milliliter |
| Progressively Motile Sperm Concentration | Millions/milliliter |
| Velocity | Microns/second |
| Motile Sperm | Total # per straw |
| Progressively Motile Sperm | |

## Section 2: System Overview

***QwikCheck™ QC Bull* Sperm Quality Analyzer**




***QwikCheck™ QC Bull* Testing Capillary**




- Plastic, multi-use (10X for animal use only), disposable.
- Refer to the appendix section of this guide for instructions on how to use the capillary and how to clean it.

## Section 3: Operating the QwikCheck™ QCb BULL

- Turn on the main switch on the rear panel and the 37$^0$C heating indicator on the front panel will illuminate.
- Press the On/Off key on the *QwikCheck™QC* keypad.
- The system will now perform auto-calibration. When finished, the **# Tests Remaining** will be displayed. This indicates how many I-Button tests are still available in the system.

**NOTE**: Load I-Button tests and set system defaults **PRIOR** to testing

When using the system for the first time please:

- Load I-Button tests: Go to: **MAIN MENU>ADD I-BUTTON TESTS** (see section #5)
- Set-up the system defaults: Go to: **MAIN MENU > SERVICE > DEFAULT SETTINGS** (see SERVICE section of this user guide)
- The extender default needs to be selected before running tests (see **SERVICE>DEFAULT SETTINGS**).

Press the **ENTER** key to view the **MAIN MENU.**

Three options are available from the **MAIN MENU**:

- **TEST NEW SAMPLE**
- **ADD I-BUTTON TESTS**
- **SERVICE**

**FROZEN SAMPLE TESTING**

## Section 4: Testing Samples

Testing requires a minimum of 200 µl of semen and the sample must be diluted with QwikCheck FROZEN SAMPLE DILUENT or DILUENT FOR MILK BASED SAMPLES. Access the screen below by going to: **MAIN MENU>TEST NEW SAMPLE**.

**NOTE:** Before starting testing, place 3 testing capillaries and 3 collection cups into the on-board heater to begin the pre-heating process and avoid cold shock.

```
MAIN MENU

TEST NEW SAMPLE
ARCHIVE
SERVICE
```

Select **TEST NEW SAMPLE** from the **MAIN MENU** and the screen below will be displayed:

```
ENTER SAMPLE DATA: FROZEN STRAW
BREED#        809   | SEMEN VOL      0.5 ml
BULL ID       144575| STRAW DATE: 12/02/95
BATCH #:  128457211 |
```

- **Breed #:** The number assigned to the bull breed
- **Bull ID**: The number of the bull providing the sample - up to 10 digits
- **Batch #**: The tracking number for the frozen sample - up to 10 digits
- **Semen Volume:** Enter the volume of semen in the straw (in ml)
- **Straw Date:** The date the semen was frozen

Press the **ENTER** button on the keypad and the message below will be displayed. The system is checking calibration

```
PLEASE WAIT
```

**FROZEN SAMPLE TESTING**

**NOTE:** See Appendix section for sample preparation and capillary filling guidelines.

The screen below will automatically display instructions for sample preparation/dilution. Follow the instructions and prepare the sample for testing.

DO NOT INSERT THE TESTING CAPILLARY at this time.

MIX AND FILL PRE-HEATED CAPILLARY WITH:

1. 200 µl SEMEN, THAWED
2. 500 µl DILUENT, PRE-HEATED 4 min

>>AUTOCALIBRATION – DO NOT TOUCH UNIT <<

- Prepare the FROZEN sample for testing:
  - Thaw 1-2 frozen straw(s) to room temperature. Place the semen from the straws into a pre-heated (at least 4 min) 10 ml plastic container.
  - Gently mix the semen and then pipette exactly 200 µl.
  - Add the semen to the 500 µl of pre-heated (at least 4 min) QwikCheck Diluent for FROZEN BULL Semen (For samples frozen in milk based extenders use MILK BASED DILUENT) .
  - Gently mix the sample for 10 seconds.
  - Fill a pre-heated testing capillary per APPENDIX instructions “Capillary Filling Instructions for FROZEN Samples”.

MIX AND FILL PRE-HEATED CAPILLARY WITH:

1. 200 µl SEMEN, THAWED
2. 500 µl DILUENT, PRE-HEATED 4 min

>>INSERT CAPILLARY INTO CHAMBER<<

- When a beep is heard, insert the testing capillary. Testing will begin automatically. DO NOT TOUCH THE SYSTEM until the beep is heard (see instructions on screen below).

DO NOT TOUCH THE CAPILLARY OR SYSTEM DURING TESTING

<<WAIT FOR BEEP>>

- Another “beep” will be heard when the testing is complete – about 45 seconds.

TEST RESULTS: FROZEN STRAW

| | | | |
|---|---|---|---|
| DATE: | 01/12/08 10:30 | BATCH # | 128457211 |
| BREED # | 809 | STRAW VOL | 0.5 |
| BULL ID | 144575 | STRAW DATE: | 04/02/09 |

**NOTE:** Samples that are frozen in MILK BASED media /extenders, only the following semen values will be reported: MSC, PMSC, VELOCITY, # MOTILE SPERM per STRAW VOLUME, # PROG MOT SPERM per STRAW VOLUME.

- Press ENTER to view the test results:

TEST RESULTS: FROZEN STRAW

| | | | |
|---|---|---|---|
| CONC. | 82.6 M/ml | MSC | 65.1 |
| MOTILITY | 78.8 % | PMSC | 56.4 |
| PR. MOT. | 71.3 % | VELOCITY | 32 mic/sec |

- Press ENTER again to view the total number of sperm per straw:

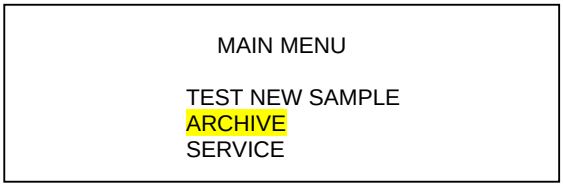
TEST RESULTS: FROZEN STRAW
TOTALS / STRAW VOL

| | | | |
|---|---|---|---|
| # SPERM | 20.65 M | # PR. SPERM | 14.73 M |
| # MOTILE | 16.28 M | | |

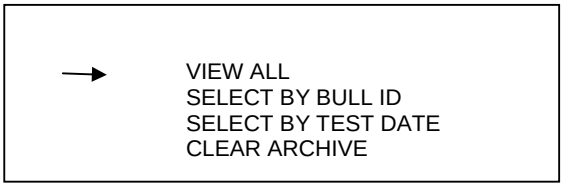
Reported results for samples frozen in MILK BASED extenders

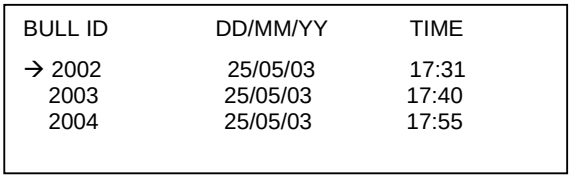
## Section 5: Archive

Select ARCHIVE from the main menu to view and/or print archived tests (up to 250 can be saved).



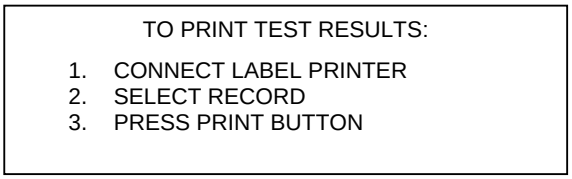

Move the arrow and select one of the archive options. Press ENTER.



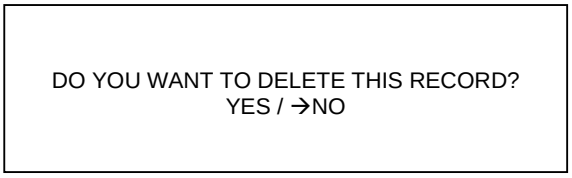




The screen above shows **SELECT BY BULL ID**.

- Select the record by moving the arrow to point to the record.
- Press: **ENTER** and the screen below will be displayed:

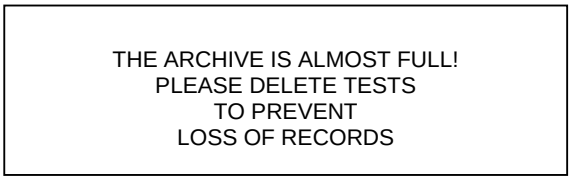



Press: PRINT to print a label. The screen below will be displayed after printing:

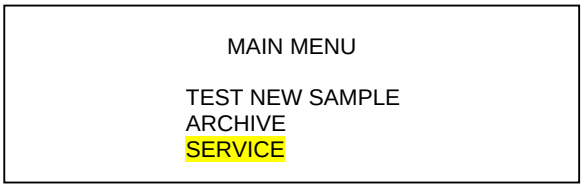



When the archive is full (about 250 records) the message below will be displayed. To delete tests from the archive:

- Go to **MAIN MENU** > **SERVICE** > **ARCHIVE** and select the option **CLEAR ARCHIVE**

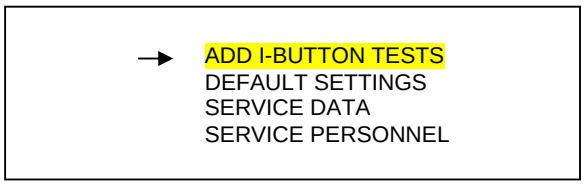



## Section 6: SERVICE




Select: SERVICE from the MAIN MENU and the screen below will be displayed:

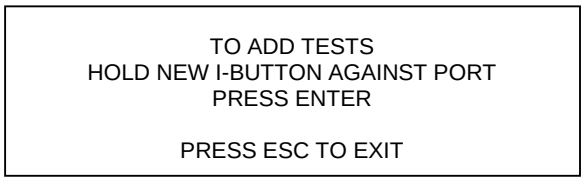
**ADD I-BUTTON TESTS**




Select: **ADD I-BUTTON TESTS** when:

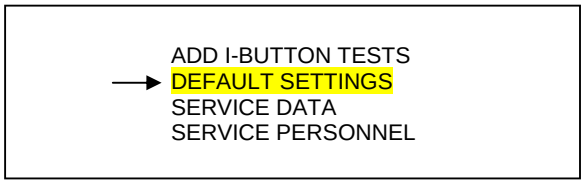
- An I-BUTTON warning message is displayed on the *QwikCheck™QC* screen.
- Before starting to run tests on the *QwikCheck™QC* the first time.
- A new test kit is purchased (a new I-BUTTON is supplied with each test kit).

**NOTE**: If the I-Button is not properly inserted a message: **I-BUTTON NOT PROPERLY ACTIVATED OR NOT RECOGNIZED BY SYSTEM** will be displayed. Remove the button, press ESC and try again.




- Follow the instructions on the screen: **HOLD NEW I-BUTTON AGAINST PORT / PRESS ENTER**.
- Make sure the I-BUTTON touches both the internal surface and the edges of the port.
- Press and HOLD the I-button firmly in the port during the entire loading process.
- The **# TESTS ADDED** and the **# OF TESTS NOW REMAINING** will be displayed.

**DEFAULT SETTINGS**




Select: **DEFAULT SETTINGS** and the screen below will display options for setting the defaults:

| DEFAULT SETTINGS | | | |
|---|---|---|---|
| LOCAL TIME | 08:15:45 | HH:MM:SS | 24 h |
| DATE FORMAT | MM/DD/YY | DD/MM/YY | |
| SET DATE | 04/01/08 | | |

| DEFAULT SETTINGS | |
|---|---|
| AUTOMATIC PRINTING | YES/NO |
| # OF LABELS TO PRINT | 1 / 2 |

- **LOCAL TIME**: Set the time using a 24 hour format.
  - **ENTER**: hour/minutes/seconds.
  - Press **ENTER** to confirm the setting
- **DATE FORMAT**: Select the format **MM/DD/YY** or **DD/MM/YY** using the right/left arrows on the keypad and press **Enter** to confirm the setting
- **SET DATE:** Enter the current date and press **ENTER** to confirm the setting.
- **CONC. STANDARD:** Select “1” for concentration results to be reported in alignment with NEUBAUER; Select “2” for Nucleocounter
- **AUTOMATIC PRINTING: YES / NO** select one or the other and press **ENTER**
  - Select **YES** to automatically print a label after running a test
  - Select NO and nothing will print after running a test
- **# LABELS TO PRINT : 1 / 2** Select either one or two labels to print and press **ENTER**.

- The **FREEZING MEDIA** default is set-up in the third set-up screen seen below. Select a media and press ENTER:

FREEZING MEDIA: SELECT BY MEDIA #

1. CLEAR
2. SEMI-CLEAR
3. SEMI-DENSE
4. DENSE
5. MILK

- A screen will be displayed to confirm the media selected.

4. CLEAR WAS SELECTED

PRESS ENTER TO CONTINUE OR ESC TO RETURN

***Freezing Media Default Settings: Five media settings are available***

- **CLEAR:** Completely clear, transparent extenders that do not contain ANY turbid components such as soybean proteins or egg yolk.
- **SEMI-CLEAR:** Slightly turbid extenders containing soybean protein or a synthetic based media.
- **SEMI-DENSE:** Egg Yolk media prepared with fresh FILTERED egg yolk (homemade) and CSS or TRIS buffer. These extenders appear semi-translucent and darker than the SEMI CLEAR extenders. Commercially available Egg Yolk extenders which are denser than the previous category (more opaque).
- **DENSE:** Dark yellow media that are dense in nature. Egg Yolk based media prepared with fresh NON FILTERED egg yolk (homemade). Egg yolk particles can be seen under the microscope.
- **MILK:** All milk-based extenders.

| CLASSIFICATION OF EXTENDERS (OPTICAL DENSITY AND NAME) | | | | |
|---|---|---|---|---|
| # | FREEZING MEDIA | OD RANGE* | | EXTENDER |
| | | FROM | TO | |
| 1 | CLEAR | 0.00 | 0.00 | Optidyl®, Triladyl®, Biladyl® |
| 2 | SEMI-CLEAR | 0.10 | 0.20 | Andromed®, Bioxcell |
| 3 | SEMI-DENSE | 0.25 | 0.35 | Homemade fresh, FILTERED egg yolk based |
| 4 | DENSE | 0.40 | 0.60 | Homemade fresh NON-FILTERED Egg Yolk based extenders |
| 5 | MILK | 0.70 | 1.8 | All milk based extenders |

- ***OD = Optical Density. If this is not known, a sample of non-diluted freezing media can be run on the system to obtain this value. Contact your local distributor or the manufacturer @ www.a-tech-global.com for instructions on how to run this test.

→ ADD I-BUTTON TESTS
DEFAULT SETTINGS
SERVICE DATA
SERVICE PERSONNEL

**SERVICE DATA**

Select: **SERVICE DATA** to display all the interal settings of the *QwikCheck™QC* system.

- Press **PRINT** from any of the internal data screens to print a label containing the data.
- The in these screens will be needed for technical support when there is a failure.

**SERVICE PERSONNEL**

**SERVICE PERSONNEL:** For technical service personnel only (requires a password).

# Section 7: Troubleshooting and Warning Messages

The *QwikCheck™QC* will display a variety of warning messages when something is wrong or needs to be done. Please see the various screens below and the actions required if the screen is displayed:

**Stabilization Failure:**

STABILIZATION FAILED
TURN DEVICE OFF AND ON
IF SYSTEM FAILS AGAIN,
CALL TECHNICAL SUPPORT

**Self-Test Failure:**

FAILED SELF TEST
TURN DEVICE OFF
CLEAN TESTING CHAMBER
TURN DEVICE ON

- Make sure there is no testing capillary in the measurement compartment.
- Remove the *QwikCheck™QC* from sources of electronic noise (cell phones, etc.).
- Clean the measurement compartment (refer to Appendix section).
- Reboot the *QwikCheck™QC* without a testing capillary in the chamber:
  - Turn system **OFF** then back **ON** at the main switch on the rear panel.
  - Press the front panel **ON/OFF** key to begin Auto-Calibration /Stabilization.
- Call technical support if failure recurs.

**Electronic Noise:**

ELECTRONIC NOISE
TURN DEVICE OFF AND ON
IF SYSTEM FAILS AGAIN,
CALL TECHNICAL SUPPORT

- Follow steps 1-3 above.
  - After cleaning go to **MAIN MENU** > **TEST NEW SAMPLE** and re-run the test.
- If this message is displayed again, reboot the *QwikCheck™QC:*
  - Turn the system **OFF** then back **ON** at the main switch on the rear panel.
  - Press the front panel **ON/OFF** key to begin Auto-Calibration and Stabilization.
  - From MAIN menu: Select **TEST NEW SAMPLE** and re-run.
  - Call technical support if this message is displayed again.

**Remove Capillary:**

REMOVE CAPILLARY
FOLLOW SCREEN INSTRUCTIONS

- This message is displayed if the capillary from a previous test was left in the measurement slot. Remove the testing capillary and insert a new one when instructed.

QwikCheck™ FROZEN Sample Preparation

# Appendix I: FROZEN Sample Preparation

## EQUIPMENT REQUIRED:

- Testing Media: QwikCheck™ Diluent for FROZEN BULL SEMEN (Samples extended with MILK BASED media use MILK BASED DILUENT).
- Diluent Dispenser or pipette
- 10 ml Plastic Containers
- Pipette with tips
- Testing capillary

## SAMPLE TESTING: Pre-heating requirements using the on-board heating unit

- Pre-heat the testing capillaries at least 4 minutes
- Pre-heat the FROZEN diluent for at least 4 minutes before placing any semen into the container

## FROZEN SEMEN SAMPLES:

1. Thaw 1-2 frozen straw(s) to room temperature. Place the semen from the straws into a pre-heated (at least 4 min) 10ml plastic container.
2. Extract exactly 200 µl of semen using a pipette (Fig. 2) and wipe the tip of the pipette to remove any excess semen.
3. Add the semen to the 500 µl of pre-heated **QwikCheck™ Diluent for FROZEN BULL semen (or MILK BASED DILUENT)** (Fig 3).
4. Gently but thoroughly mix the sample for 10 seconds (Fig 4).
5. Fill a pre-heated testing capillary per the instructions in the appendix section of this user guide: Capillary Filling Instructions

**Figure 1: Gently mix**

**Figure 2: Pipette the sample**

**Figure 3: Add sample to pre-heated diluent**

**Figure 4: On-board heating unit pre-heats 3 testing capillaries and 3 collection cups**

# Appendix II: Testing Capillary Filling Instructions

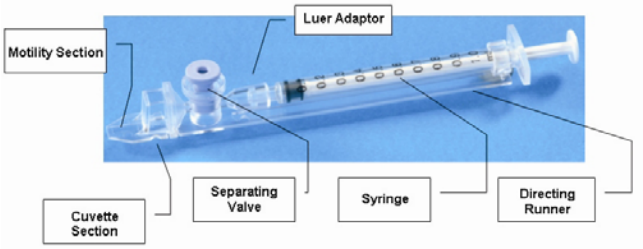



**Figure 1**

- Push the syringe piston in fully. Place the thin part of the capillary into the bottom of the sample (Figure 1).
- Placing two fingers below the piston head pull the piston back slowly while keeping the tip of the capillary well below the sample level and below any surface bubbles (Figure 1). Continue to aspirate the sample until it appears in the Luer adaptor (Figure 2).
- Hold the capillary in a vertical position and visually confirm that the sample has completely filled the thin section and the cuvette section and appears in the Luer adaptor (Figure 2).
- Tap on the syringe to make sure there are no air bubbles in the sample.
- Quickly and thoroughly wipe both the top and bottom of the outer surface of the capillary with a tissue such as Kimwipes, etc. (Figure 3).
- Visually confirm that the capillary chambers are still full after wiping. If some of the sample has been lost, a meniscus will be visible in the thin section of the capillary. If so, push very slightly on the piston to re-fill the thin capillary section.
- Slowly and carefully push-in the separating valve until it is level with the plastic. The capillary is now ready for testing (Figure 4)
- Insert the capillary into the ***QwikCheck™QC*** (Figure 5)

**NOTE:** If air bubbles are still present in the capillary after tapping on the syringe, dip the capillary into the semen sample again and aspirate a small quantity of semen to draw air bubbles into the syringe.

**NOTE:** It is important to clean the capillary to remove all semen. This will prevent the ***QwikCheck™*** optical chamber from becoming clogged

**Figure 2**

**Figure 3**


**Figure 5**

**Figure 4**

# *Appendix III: QwikCheck™QC Cleaning Instructions*

## When to clean:

Daily or after every 25 tests
If the system fails **SELF-TEST**

## Cleaning kit components:

- Blue Dot capillaries (fig 1)
- Sponge-tipped drying capillaries (fig 2)
- Cleaning brush-wooden-handled (fig 4)
- Cleaning fluid

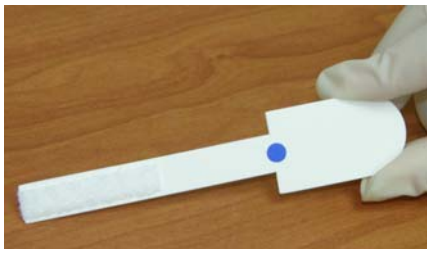


Figure 1

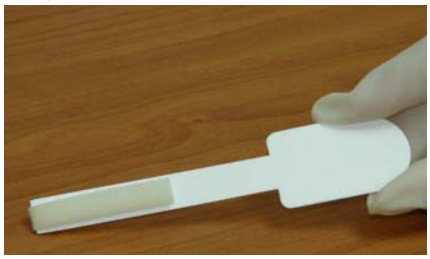


Figure 2

### CLEANING: STEP 1

1. **TURN OFF** the ***QwikCheck™ QC*** and unplug it at main electrical outlet.
2. Select a **BLUE DOT cleaning** capillary (fig 1).
   - Moisten with **ONE** drop of cleaning fluid, shaking off excess fluid.
   - Insert into the measurement compartment - fibrous material facing up, and move back and forth a few times in the directional runner.
   - Repeat with fibrous material facing down
   - Select a sponge material capillary (Fig 2) and insert it in the same compartment in order to dry the chamber (fig 3)

Figure 3

### CLEANING: STEP II

**Clean the channel that measures concentration using the cleaning brush (fig 4):**

3. Insert the brush (bristle-side down) fully into the upper portion of the lower chamber of the ***QwikCheck QC*** in same manner as a testing capillary (fig 5).
4. Pull the brush out of the chamber while sweeping or "dusting off" the LED (you will feel a step or shelf at the back and top of the chamber – this is the top of the LED). (Fig 6)
5. Switch ***QwikCheck™ QC*** unit **ON** and observe self-test results. The system should now PASS the self-test. If not, repeat cleaning procedure with the brush.

Figure 4

Figure 5

# Appendix IV: Testing Capillary Washing Instructions

## (For animal applications ONLY!)

**Both testing capillaries and 10ml sample collection cups can be washed and re-used up to 10 times by following this EASY procedure:**

### How to wash the Testing Capillary

Repositioning the blue valve with the jig

**Step 1 After running a test:**

- Use the white capillary jig to re-position the blue capillary valve
- Expel semen by pumping the plunger a couple of times
- Soak the testing capillary in tap water until ready to wash

**Step 2 Set-up: Fill with 1 liter/2 quarts of solution as follows:**

- Bowl #1: Tap water (marked “TAP WATER”)
- Bowl #2: Distilled water (marked “DISTILLED WATER”)
- Bowl #3: Isopropyl Alcohol 70% - 100%

**Step 3: Remove all liquid from the testing capillary:**

- Pump the syringe plunger a couple of times to remove liquids.

**Step 4: Capillary Washing – Follow this order:**

Removing the plunger

- Bowl #1 Tap Water: Completely fill each capillary with tap water. Expel the solution into a hazardous waste container. **Repeat 2 times** then go to Bowl 2.
- Bowl #2 Distilled Water: Completely fill each capillary with distilled water. Expel the solution into a hazardous waste container. **Repeat 2 times** then go to Bowl 3.
- Bowl #3 Isopropyl Alcohol: Completely fill each capillary with isopropyl alcohol and expel the solution into a hazardous waste container. **Repeat 2 times**.
- Remove the plunger from the syringe.

**Step 5: Drying the Capillaries:**

Reassembled capillary

- Place the capillaries until dry:
  - On a flat surface and dry overnight.
  - In a commercial desiccator - follow manufacturer instructions.
  - In an oven on low heat for a few hours.

**Step 6: Final Preparation/Inspection:**

- Replace the plunger into the syringe.
- Inspect the capillary and throw away if cracked, broken or semen remains.
- Note the number of washings by making a dot on the capillary with a water proof marker after each washing cycle.

### How to wash the 10ml sample collection cups

**Washing – Please refer to Step 4 and Step 5 of the Capillary Washing Procedure above - follow the same process for washing in solution bowls #1; #2 and #3. Turn upside down on absorbent paper to dry overnight or place in a commercial warming oven for a few hours.**

## *Appendix V: Glossary of Terms*

| | QwikCheck™ QC | Definition |
|---|---|---|
| **Sample/Test Data** | SN | Serial Number of the *QwikCheck™QC* – the systems will automatically print this on the test report |
| | DATE/TIME | The date and time the test was performed – the system will automatically print this on the test report |
| | BATCH # | The number assigned to the FROZEN AI sample by the producer |
| | STRAW VOLUME | The total volume of the semen in the straw |
| | SEMEN VOLUME (tablets only) | The volume of the ENTIRE reconstituted tablet |
| | STRAW/TABLET DATE | The date the straw/tablet was produced |
| | BULL ID | The identifying number of the bull being tested |
| | BREED # | The number that identifies the herd of the bull being tested |
| **Test Results** | CONC. | Total Sperm Concentration expressed in M/ml |
| | MSC | Motile Sperm Concentration expressed in millions/ml |
| | MOTILITY | % of Motile Sperm |
| | PMSC | Progressively Motile Sperm Concentration expressed in millions/ml |
| | VELOCITY | The average velocity of the progressively motile sperm cells (microns/sec) in the sample |
| | TOTAL # SPERM | The total number of sperm cells per straw volume |
| | TOTAL MOT. SPERM | The total number of motile sperm cells per straw |
| | TOTAL PR.SPERM | The total number of progressively motile sperm cells per straw |

# Appendix VI: QwikCheck™ QC System Specifications

Dimensions: 20 x 29 x 24cm (HXWxD)

Weight: 4.1 kg

AC power supply: 100 to 250 VAC, 50/60 Hz, 10 VA

### Measurement Compartment

- **Sources of radiant energy** - two 880 nm LEDs for motility and spectrophotometry channels
- **Detector system** – 2 photo detectors - Motility and Optical Density

### Display(s)

- Operational backlight LCD (16 lines x 40 characters)

### Keypad

- **Operational keys:** ON/OFF, TEST, PRINT, SERVICE, DELETE, ENTER, four cursor buttons, ESC, numeric buttons (0-9)

### Front Panel

- LCD operational display
- Measurement compartment
- Multi-button keypad

### Rear/Side Panel

- Power connector with fuse-holder (fuse 250V, 2A)
- RS232 cable outlet
- I-Button port (side panel)

### Specimen Testing Supplies

- **Measurement capillary:** Disposable, multi use plastic, positive displacement testing capillary (purchase from manufacturer).
- **I-Button:** Required to run tests (purchase from manufacturer)

### Archive Capacity

- 250 test record archive

### Operating System

- **Control:** Keypad
- **Analysis Time:** Normal Test – 45-70 seconds
- **Software:** Resides on flash memory and drives all man-machine interface functions, runs algorithms for test measurements and operational screens. System can be upgraded from a PC CD-ROM.
- **Sample Testing Temperature:** Calibrated for room temperature only. Motility results will be impacted by heating the specimen.
- **Motility channel input signal:** Analog, up to 5V.
- **Spectrophotometer channel input signal:** Modulated (1 kHz) analog, up to 5V.

### Quality Control

- **Internal:** Electronic Self-Test and Auto-Calibration.

### Operational Temperature and Humidity

- System is operational at 20-31°C.
- *NOTE*: The sysytem operates in a wide range of ambient temperatures however the system is calibrated to measure semen samples at room temperature: 22-26°C (68-79°F). Semen samples can be pre-heated to 37$^0$C / 98.6$^0$F prior to testing if required – note that motility will be impacted.
- *NOTE*: Variations in ambient temperature may impact the accuracy of test results because of the effect of temperature on semen.
- System is fully operational at up to 80% humidity and 31°C.

### Maintenance Schedule

- Clean daily or after every 25 tests (refer to the User Guide Appendix section).

### Manufacturer Recommendations

- Operate the system away from devices that may cause electronic noise (cell phones) or other devices causing vibrations such as centrifuges.
- Turn system **OFF** at the rear-panel when not in use for extended period of time.
- Variations in ambient temperature can affect semen samples. The system is calibrated to conduct tests at room temperature: 22-26ºC (68-79ºF). Nevertheless semen samples can be run by the system after pre-heating to 37$^0$C / 98.6$^0$F but motility will be impacted.
- Semen is considered a biologically hazardous material and is subject to individual laboratory protocols for handling such materials.

### Factory Default Settings

Date format: **DD/MM/YY**

Date/Time: Manufacturer's local date/time

Operational Default Settings:

- Automatically Print: **YES**
- Sample Type: LOW VOLUME
- # Labels to print: 1
- Freezing Media: SEMI CLEAR
- Concentration Standard: 1