QwikCheck Gold

BULL

User Guide

Version 2.00
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1</td>
<td>Overview</td>
<td>3</td>
</tr>
<tr>
<td>Section 2</td>
<td>System Overview</td>
<td>3</td>
</tr>
<tr>
<td>Section 3</td>
<td>Operating the QwikCheck™ Gold</td>
<td>4</td>
</tr>
<tr>
<td>Section 4</td>
<td>TEST FRESH &amp; FROZEN</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Fresh Sample Testing</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Frozen Sample Testing</td>
<td>6</td>
</tr>
<tr>
<td>Section 5</td>
<td>Archive</td>
<td>7</td>
</tr>
<tr>
<td>Section 6</td>
<td>Settings and Service Menu</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Transfer Archive</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Add I-Button Tests</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Default Settings</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Service Screens</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Service Personnel</td>
<td>10</td>
</tr>
<tr>
<td>Section 7</td>
<td>Troubleshooting and Warning Messages</td>
<td>10</td>
</tr>
<tr>
<td>Appendix Section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appendix I</td>
<td>Fresh and Frozen Semen Sample Preparation</td>
<td>12</td>
</tr>
<tr>
<td>Appendix II</td>
<td>Capillary Filling Instructions for FRESH and FROZEN Samples</td>
<td>13</td>
</tr>
<tr>
<td>Appendix III</td>
<td>QwikCheck GOLD Cleaning Instructions</td>
<td>14</td>
</tr>
<tr>
<td>Appendix IV</td>
<td>Capillary Washing Instructions</td>
<td>15</td>
</tr>
<tr>
<td>Appendix V</td>
<td>Glossary of Terms</td>
<td>16</td>
</tr>
<tr>
<td>Appendix VI</td>
<td>QwikCheck GOLD System Specifications</td>
<td>17</td>
</tr>
</tbody>
</table>
Section 1: Overview

The **QwikCheck™ Gold Bull** sperm quality analyzer is used to test and report the parameters of FRESH and FROZEN bull semen. The following semen parameters are reported:

<table>
<thead>
<tr>
<th>Reported Semen Parameters</th>
<th>FRESH and FROZEN SAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Sperm Concentration</td>
<td>Millions/milliliter</td>
</tr>
<tr>
<td>Motility</td>
<td>%</td>
</tr>
<tr>
<td>Progressive Motility</td>
<td>%</td>
</tr>
<tr>
<td>Morphology (Fresh only)</td>
<td>% Normal</td>
</tr>
<tr>
<td>Motile Sperm Concentration</td>
<td>Millions/milliliter</td>
</tr>
<tr>
<td>Progressively Motile Sperm</td>
<td>Millions/milliliter</td>
</tr>
<tr>
<td>Velocity</td>
<td>Microns/second</td>
</tr>
<tr>
<td># Sperm</td>
<td>Billions per ejaculate/straw volume</td>
</tr>
<tr>
<td>Motile Sperm</td>
<td></td>
</tr>
<tr>
<td>Progressively Motile Sperm</td>
<td></td>
</tr>
</tbody>
</table>

**FROZEN (Milk Based Freezing Media only)**

<table>
<thead>
<tr>
<th>Reported Semen Parameters</th>
<th>FRESH and FROZEN SAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motile Sperm Concentration</td>
<td>Millions/milliliter</td>
</tr>
<tr>
<td>Progressively Motile Sperm</td>
<td>Millions/milliliter</td>
</tr>
<tr>
<td>Velocity</td>
<td>Microns/second</td>
</tr>
<tr>
<td>Motile Sperm</td>
<td></td>
</tr>
<tr>
<td>Progressively Motile Sperm</td>
<td></td>
</tr>
</tbody>
</table>

Section 2: System Overview

- Plastic, multi-use (10X for animal use only), disposable.
- Refer to the appendix section for instructions on how to fill and clean the testing capillary.
Section 3: Operating the QwikCheck™ Gold Bull

- Turn on the main switch on the rear panel of the QwikCheck™ Gold Bull.
- Press the On/Off key on the keypad.
- Wait for the system to complete auto-calibration and self-testing.
- Press ENTER to view the MAIN MENU.

Four options are available from the MAIN MENU:
- TEST FRESH
- TEST FROZEN
- ARCHIVE
- SETTINGS AND SERVICE

When using the system for the first time please:
- Load I-Button tests: Go to: MAIN MENU > SETTINGS AND SERVICE > ADD I-BUTTON TESTS
- Set-up the system defaults: Go to: MAIN MENU > SETTINGS AND SERVICE > DEFAULT SETTINGS

Section 4: Test Fresh & Frozen

FRESH Sample Testing

To begin testing FRESH samples in the QwikCheck™ Gold Bull select:

- TEST FRESH from the MAIN MENU:

  MAIN MENU
  TEST FRESH
  TEST FROZEN
  ARCHIVE
  SETTINGS AND SERVICE

- The heating instructions for FRESH semen will be displayed:

  HEATING INSTRUCTIONS: FRESH
  DILUENT AND CAPILLARY PREPARATION:
  1 PLACE FRESH DILUENT INTO CUP: 2 ml
  2 PUT CUP INTO HEATER
  3 HEAT DILUENT FOR: 4 min
  4 PRE-HEAT EMPTY CAPILLARY: > 4 min

  PRESS ENTER TO CONTINUE

- Follow heating instructions. Press ENTER and the ENTER SAMPLE DATA: FRESH screen will be displayed:

  ENTER SAMPLE DATA: FRESH
  HERD #: 340
  BREED #: 5949
  BULL ID: 49833
  SEMEN VOLUME: 3.0 ml
  SAMPLE #: 23233

- Enter the bull data using the QwikCheck™ Gold keypad:
  - Herd/Breed #: Up to 10 digits
  - Bull ID: Up to 10 digits
  - Semen Volume: Volume of the entire specimen (must be ≤ 20 ml)
  - Sample #: Up to 10 digits
• Press **ENTER** and the SAMPLE PREPARATION screen below will be displayed:

```
FRESH SAMPLE PREPARATION:
1 MIX SEMEN THOROUGHLY
2 ADD SEMEN TO DILUENT: 100 µl
3 MIX SEMEN, FILL AND WIPE CAPILLARY
4 WAIT FOR BEEP TO BEGIN TESTING

**AUTOCALIBRATION – DO NOT TOUCH UNIT**
```

• Prepare the FRESH semen sample for testing according to the instructions on the screen.
• Wait for a “beep” and a screen message before inserting the testing capillary into the QwikCheck™Gold.

```
FRESH SAMPLE PREPARATION:
1 MIX SEMEN THOROUGHLY
2 ADD SEMEN TO DILUENT: 100 µl
3 MIX SEMEN, FILL AND WIPE CAPILLARY
4 WAIT FOR BEEP TO BEGIN TESTING

**INSERT CAPILLARY INTO CHAMBER**
```

• Insert the prepared testing capillary when instructed. Testing will begin automatically.
• A “beep” will indicate that testing is complete after about 45-60 seconds.
• Test results will then be displayed on the screen below:

```
FRESH SEMEN – BULL ID: 49833
CONC. 332.6 M/ml  MSC 259.1 M/ml
MOTILITY 77.9 %  PMSC 183.9 M/ml
PR. MOT. 55.3 %  VELOC. 69 mic/sec
MORPHOLOGY 81.0 %
TOTALS (SEMEN VOL: 5.5 ml)
# SPERM 1.83 Bil
MOT. SPERM 1.43 Bil  PR. SPERM 1.01 Bil
```

• Data will automatically be saved to the QwikCheck™Gold Bull archive.

```
DATA SAVED
```

• Press PRINT to print out a label (or the QwikCheck™Gold will automatically print if the system default is set to do this).

After testing is completed the **MAIN MENU** will be displayed with additional option:

• **RECALL LAST TEST RESULTS** – View last test results

```
MAIN MENU
TEST FRESH
TEST FROZEN
RECALL LAST TEST RESULTS
ARCHIVE
SETTINGS AND SERVICE
```
FROZEN Sample Testing
To begin testing FROZEN samples, select:

- **TEST FROZEN** from the MAIN MENU:

  ![Main Menu](image)

- The heating instructions for FRESH semen will be displayed:

  ![Heating Instructions](image)

- Follow heating instructions. Press ENTER and the **ENTER SAMPLE DATA: FROZEN** screen will be displayed:

  ![Enter Sample Data](image)

- Enter the bull data using the **QwikCheck™** keypad:
  - Herd/Breed #: Up to 10 digits
  - Bull ID: Up to 10 digits
  - Batch #: The number assigned to the entire batch of straws
  - Straw Volume: Volume of semen in the entire straw
  - Straw Date: The date the straws were PREPARED (up to 10 digits)

- Press ENTER to view the SAMPLE PREPARATION screen below:

  ![Sample Preparation](image)

- Prepare the FROZEN semen according to the screen instructions.
- Wait for a “beep” and insert the testing capillary when the message below is displayed. Testing will begin automatically:

  ![Sample Preparation Instructions](image)
A “beep” will indicate that testing is complete and the results will be displayed.

<table>
<thead>
<tr>
<th>FROZEN STRAW – BULL ID: 4944425833</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONC. 82.6 M/ml  MSC 65.1 M/ml</td>
</tr>
<tr>
<td>MOTILITY 77.9 %  PMSC 58.9 M/ml</td>
</tr>
<tr>
<td>PR. MOT. 55.3 %  VELOC. 31 mic/sec</td>
</tr>
<tr>
<td>TOTALS (STRAW VOL: 0.250 ml)</td>
</tr>
<tr>
<td># SPERM 20.65 M</td>
</tr>
<tr>
<td>MOT. SPERM 16.28 M</td>
</tr>
<tr>
<td>PR. SPERM 14.73 M</td>
</tr>
</tbody>
</table>

The results of the straws with milk-based extenders will include: MSC, PMSC, Velocity and Total Motile and Progressively Motile Sperm.

Data will automatically be saved to the archive.

Press PRINT to print out a label (or will automatically print if the default is set to do this).

Section 5: Archive

Select ARCHIVE in the MAIN MENU to view the screen below with four options. Highlight the search option by using the arrow key on the QwikCheck™ Gold keypad and press ENTER.

<table>
<thead>
<tr>
<th>ARCHIVE MENU</th>
</tr>
</thead>
<tbody>
<tr>
<td>BULL ID</td>
</tr>
<tr>
<td>DATE OF TEST</td>
</tr>
<tr>
<td>SCROLLING</td>
</tr>
<tr>
<td>CLEAR ARCHIVE</td>
</tr>
<tr>
<td>2/05/13</td>
</tr>
</tbody>
</table>

Select BULL ID or DATE OF TEST – enter the information and press ENTER to view the record (DATE OF TEST search option is displayed above).

Select the SCROLLING option and the table below will be displayed:

- Press ENTER after highlighting the SCROLLING option
- Select the desired test record using the directional arrows
- Press Print for a copy of the test results

<table>
<thead>
<tr>
<th>BULL ID</th>
<th>DD/MM/YY</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>07/05/08</td>
<td>17:31</td>
</tr>
<tr>
<td>2003</td>
<td>07/05/08</td>
<td>17:40</td>
</tr>
<tr>
<td>2004</td>
<td>07/05/08</td>
<td>17:55</td>
</tr>
<tr>
<td>3001</td>
<td>07/05/08</td>
<td>11:33</td>
</tr>
<tr>
<td>3009</td>
<td>07/05/08</td>
<td>11:25</td>
</tr>
</tbody>
</table>
Section 6: SETTINGS AND SERVICE MENU
Select the SETTINGS AND SERVICE MENU and one of five options:

TRANSFER ARCHIVE
ADD I-BUTTON TESTS
DEFAULT SETTINGS
SERVICE SCREENS
SERVICE PERSONNEL

TRANSFER ARCHIVE: (Requires installation of the ARCHIVE software included with the QwikCheck Gold Bull system – see accompanying software installation instructions)

In order to transfer the internal archive of the system to the computer, select TRANSFER ARCHIVE option from the menu above, and the following screen will be brought to view:

ARCHIVE TRANSFER INSTRUCTIONS:
1 CONNECT SYSTEM TO COMPUTER
2 TURN COMPUTER ON
3 CLICK COMPUTER ICON: BULL ARCHIVE
4 CLICK ICON: IMPORT ARCHIVE
5 FOLLOW COMPUTER INSTRUCTIONS

Follow instructions listed above, and the system archive will be transferred to the computer Excel file (Excel software must be available on a PC).

ADD I-BUTTON TESTS:

To view the screen below, select: ADD I-BUTTON TESTS from the SETTINGS AND SERVICE MENU when:

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

TO LOAD I-BUTTON TESTS:
1 SLIDE I-BUTTON UNDER THE CLIP
2 PRESS DOWN FIRMLY
3 BUTTON MUST CONTACT PORT EDGES
4 PRESS ENTER
5 CONTINUE TO HOLD I-BUTTON

- Follow the screen instructions: 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:

<table>
<thead>
<tr>
<th>DEFAULT SETTINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCAL TIME: 08:15:45</td>
</tr>
<tr>
<td>DATE FORMAT: MM/DD/YY/DD/MM/YY</td>
</tr>
<tr>
<td>DATE SETTING: 01/04/08</td>
</tr>
<tr>
<td>AUTO PRINTING: YES/NO</td>
</tr>
<tr>
<td>CONC STANDARD: 1/2</td>
</tr>
</tbody>
</table>

- **LOCAL TIME**: Enter current local time.
- **DATE FORMAT**: Select the format MM/DD/YY or DD/MM/YY using the right/left arrows on the keypad. Press Enter to confirm.
- **DATE SETTING**: Enter current date.
- **AUTO PRINTING**: YES / NO. Select YES to automatically print a label after running a test.
- **CONC STANDARD**: Select “1” for Neubauer standard; “2” for Nucleocounter standard

Press ENTER and the FREEZING MEDIA DEFAULT SETTINGS screen will be shown. Select the media that was used in the freezing process and press ENTER.

FREEZING MEDIA DEFAULT SETTINGS
1. CLEAR
2. SEMI-CLEAR
3. SEMI-DENSE
4. DENSE
5. MILK

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)

<table>
<thead>
<tr>
<th>#</th>
<th>FREEZING MEDIA</th>
<th>OD RANGE*</th>
<th>EXTENDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CLEAR</td>
<td>0.00 0.00</td>
<td>Optidy®, Trilady®, Bilady®</td>
</tr>
<tr>
<td>2</td>
<td>SEMI-CLEAR</td>
<td>0.10 0.20</td>
<td>Andromed®, Bioxcell</td>
</tr>
<tr>
<td>3</td>
<td>SEMI-DENSE</td>
<td>0.25 0.35</td>
<td>Homemade fresh, FILTERED egg yolk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>based</td>
</tr>
<tr>
<td>4</td>
<td>DENSE</td>
<td>0.40 0.60</td>
<td>Homemade fresh NON-FILTERED Egg Yolk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>based extenders</td>
</tr>
<tr>
<td>5</td>
<td>MILK</td>
<td>0.70 1.8</td>
<td>All milk based extenders</td>
</tr>
</tbody>
</table>

*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.
SERVICE SCREENS: Click SERVICE SCREENS to display three screens: Screen #1: Service Data, Screen #2: Self-Test Data (Internal Data after a test) and Screen #3: Self-Test Data Algorithm. These screens are used for technical troubleshooting and might be required if a problem occurs with the system.

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

Section 7: Troubleshooting and Warning Messages

The QwikCheck™ Gold will display a variety of warning messages when something is wrong. Please see the various screens below and the actions required if the screen is displayed:

<table>
<thead>
<tr>
<th>Status</th>
<th>Action Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stabilization Failed</td>
<td><strong>TURN OFF MAIN SWITCH ON REAR PANEL</strong> REACTIVATE UNIT IF PROBLEM PERSIST, CALL FOR TECHNICAL SUPPORT</td>
</tr>
<tr>
<td>Self-Test Failure</td>
<td><strong>TURN OFF MAIN SWITCH ON REAR PANEL</strong> CLEAN OPTICAL CHAMBER REACTIVATE UNIT IF PROBLEM PERSIST, CALL FOR TECHNICAL SUPPORT</td>
</tr>
<tr>
<td>Electronic Noise</td>
<td><strong>TURN OFF MAIN SWITCH ON REAR PANEL</strong> REACTIVATE UNIT IF PROBLEM PERSIST, CALL FOR TECHNICAL SUPPORT</td>
</tr>
<tr>
<td>Overflow Error</td>
<td><strong>REMOVE CAPILLARY</strong> <strong>TURN DEVICE OFF AND ON</strong> RE-RUN THE SAMPLE IF PROBLEM PERSIST, CALL FOR TECHNICAL SUPPORT</td>
</tr>
</tbody>
</table>

1. Make sure there is no testing capillary in the measurement compartment.
2. Remove the QwikCheck™ Gold from sources of electronic noise or vibration.
3. Clean the measurement compartment (refer to Appendix section).
4. Reboot the system 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.
5. Call technical support if failure recurs.

Reboot the QwikCheck™ Gold: If this message is displayed again:
- Follow steps 1-3 above.
- 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 FRESH or FROZEN and re-run.
- Call technical support if this message is displayed again.
Remove Capillary:

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

Archive Full:

- This message is displayed when the *QwikCheck™* archive is full. The archive needs to be transferred to the PC (if required) and cleared. Refer to the Section 6 for instructions for transferring the archive. To clear the archive go to: **MAIN MENU > ARCHIVE > CLEAR ARCHIVE** and follow the screen instructions on the ARCHIVE MENU screen.

- Select: YES when the second screen appears:

```plaintext
ARCHIVE MENU
BULL ID
DATE OF TEST
SCROLLING
CLEAR ARCHIVE
```

```plaintext
ALL RECORDS WILL BE DELETED
ARE YOU SURE? YES/NO
```
Appendix I: FRESH and FROZEN Semen Sample Preparation

EQUIPMENT REQUIRED:

- Testing Media: QwikCheck™ Diluent for FRESH BULL SEMEN and QwikCheck™ Diluent for FROZEN BULL SEMEN (normal volume FROZEN testing only).
- Diluent Dispenser or pipette
- 10 ml Plastic Containers
- Pipette with tips
- QwikCheck™ testing capillary

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

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

FRESH SEMEN SAMPLES:

DILUENT PREPARATION (prior to adding semen)

- Place 2.0 ml of QwikCheck™ Diluent for FRESH BULL semen into a 10 ml plastic container (Fig. 1).
- Heat for 4 minutes in the on-board heater (Fig 5).

FRESH SAMPLE PREPARATION

1. Extract exactly 100 µl of semen using a pipette (Fig. 2), wiping the pipette tip to remove any excess semen.
2. Add the semen to the 2.0 ml of pre-heated QwikCheck™ Diluent for FRESH BULL semen (Fig 3).
3. Gently but thoroughly mix the sample for 10 seconds (Fig 4).
4. Fill a pre-heated testing capillary per the instructions in Appendix II: Capillary Filling Instructions for FRESH or FROZEN Samples.

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 (Use QwikCheck Diluent for FRESH BULL semen to dilute straws prepared with MILK based freezing medias) 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 Appendix II: Capillary Filling Instructions for FRESH or FROZEN Samples.
Appendix II: Capillary Filling Instructions for FRESH and FROZEN SAMPLES

1. Push the syringe piston in fully. Place the thin part of the capillary into the bottom of the sample (Figure 1).

2. 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).

3. 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).

4. Tap on the syringe to make sure there are no air bubbles in the sample.

5. 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).

6. 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.

7. Slowly and carefully push-in the separating valve until it is level with the plastic. The capillary is now ready for testing (Figure 4).

8. Insert the capillary into the QwikCheck™ Gold (Figure 5).
Appendix III: QwikCheck™ 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

CLEANING: STEP 1

1. TURN OFF the QwikCheck™ 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)

CLEANING: STEP II

Clean the channel that measures concentration using the cleaning brush (Fig. 4):

1. Insert the brush (bristle-side down) fully into the upper portion of the lower chamber of the QwikCheck™ in same manner as a testing capillary (Fig. 5).
2. 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)
3. Switch QwikCheck™ unit ON and observe self-test results. The system should now PASS the self-test. If not, repeat cleaning procedure with the brush.
Appendix IV: 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:

**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:**
- 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: Capillary Drying Options:**
- Place the capillaries:
  - 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 and inspect the capillary.
- Discard capillaries with debris, cracks or broken parts.
- Make a dot on the capillary with a water proof marker after each washing cycle.

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

<table>
<thead>
<tr>
<th>Sample/Test Data</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>SN</td>
<td>Serial Number of the QwikCheck™ Gold</td>
</tr>
<tr>
<td>SAMPLE #</td>
<td>The number assigned to the semen sample</td>
</tr>
<tr>
<td>BULL ID</td>
<td>The identifying number of the bull being tested</td>
</tr>
<tr>
<td>HERD #</td>
<td>The number that identifies the herd of the bull being tested</td>
</tr>
<tr>
<td>BREED #</td>
<td>The number that identifies the breed of the bull being tested</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Results</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONC.</td>
<td>Total Sperm Concentration expressed in millions/ml</td>
</tr>
<tr>
<td>MSC</td>
<td>Motile Sperm Concentration expressed in millions/ml</td>
</tr>
<tr>
<td>PMSC</td>
<td>Progressively Motile Sperm Concentration expressed in millions/ml</td>
</tr>
<tr>
<td>MOTILITY %</td>
<td>% of Motile Sperm</td>
</tr>
<tr>
<td>PR. MOT. %</td>
<td>% of Progressively Motile Sperm</td>
</tr>
<tr>
<td>MORPHOLOGY</td>
<td>% of Morphologically Normal Sperm</td>
</tr>
<tr>
<td>VELOC.</td>
<td>The average velocity of the motile sperm cells (microns/sec) in the sample</td>
</tr>
<tr>
<td># SPERM</td>
<td>The total number of sperm cells per ejaculate (FRESH Semen)</td>
</tr>
<tr>
<td>MOT. SPERM</td>
<td>The total number of motile sperm cells per ejaculate (FRESH)</td>
</tr>
<tr>
<td>PR. SPERM</td>
<td>The total number of progressively motile sperm cells per ejaculate (FRESH)</td>
</tr>
</tbody>
</table>
Appendix VI: QwikCheck™ Gold System Specifications

Dimensions: 20 x 29 x 24 cm (HXWxD) - Weight: 4.1 kg
AC power Supply: 100-251 VAC, 50/60 Hz, 10 VA

Measurement Compartment
- Sources of radiant energy: 2 880 nm LEDs - 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

Specimen Testing Supplies
- Testing capillary: Disposable, multi use plastic (purchase from manufacturer).
- I-Button: Required to run tests (supplied with testing capillaries)

Archive Capacity
- 250 test records in each archive

Operating System
- Control: Keypad
- Analysis Time: Normal Test – 45-70 seconds
- Software: Flash memory - drives all interface functions, runs algorithms for test measurements and operational screens.
- Sample Testing Temperature: Calibrated for 37 degrees centigrade. Motility results will be impacted if temperature controls are not followed.
- 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 / 80% humidity.
- NOTE: The system operates in a wide range of ambient temperatures. The system is calibrated to measure semen samples heated to 37°C / 98.6°F. Temperature is maintained during testing by built-in heating block.

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 or other devices causing vibrations such as centrifuges.
- Turn system off at the rear-panel when not in use for extended period of time.
- Treat semen handling following procedure for biologically hazardous materials.

Factory Default Settings
Date/Time: Format - DD/MM/YY; Manufacturer’s local date/time
Operational Default Settings:
- Automatically Print: YES
- Sample Type: FRESH
- # Labels to print: 1
- Conc. Standard: 1
- FREEZING MEDIA – SEMI CLEAR