

SQA-V *Gold*

and

SQA-V

S e r v i c e M a n u a l



V e r s i o n 2 . 4 8 / 2 . 4 9 / 2 . 6 0

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SECTION I: Introduction

The SQA-V is a high performance analytical medical device that combines state-of-the-art technology in electro-optics, computer algorithms and video microscopy. The system performs a precise, 75-second semen analysis. The SQA-V runs a self-test and auto-calibration on start-up and also runs external quality controls. The SQA-V incorporates two systems: An **automated system** and a **visualization system** which allows flexibility to analyze all types of semen samples.

Automated Test Results

WHO 5th Semen Parameters with SQA-V Abbreviation in Brackets			
Sperm Concentration (SPERM CONC.)	M/ml	Velocity (VELOCITY)	mic /sec
Total Motility (TOTAL MOTILITY <PR+NP>)	%	Sperm Motility Index (SMI)	#
Progressive Motility (PROG. MOTILITY <PR>)	%	Total Sperm Number / ejaculate (SPERM #)	M
Non-progressive Motility (NONPROG. MOTILITY <NP>)	%	Total Motile Sperm / ejaculate (MOT. SPERM)	M
Immotility (IMMOTILITY <IM>)	%	Total Progressively Motile Sperm / ejaculate (PROG. SPERM)	M
Sperm Morphology (normal forms, %) (MORPH. NORM. FORMS, WHO 5 th)	%	Total Functional Sperm / ejaculate (FUNC. SPERM)	M
Motile Sperm Concentration (MSC)	M/ml	Total Morphologically Normal Sperm / ejaculate (MORPH. NORM. -----)	M
Progressively Motile Sperm Concentration (PMSC)	M/ml	Postvasectomy: Motile, Immotile and Total Sperm/Scan (#SPERM/SCAN: MOTILE, IMMOTILE and TOTAL)	#
Functional Sperm Concentration: Progressively Motile Sperm with Normal Morphology (FSC)	M/ml	Postvasectomy: Motile, Immotile and Total Sperm/sample volume (#SPERM/SAMPLE VOLUME: MOTILE, IMMOTILE AND TOTAL)	M

Technology

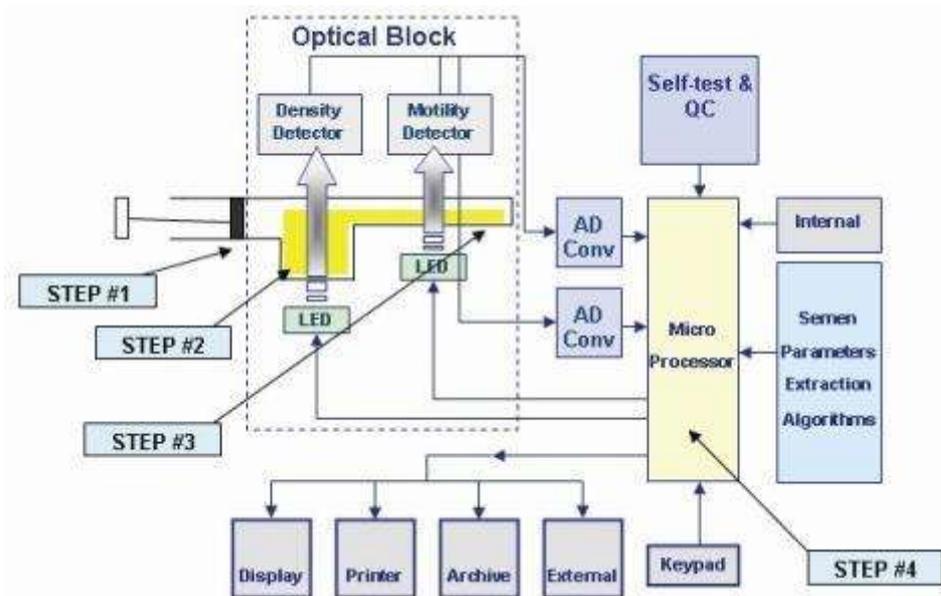
Automated System

Motility Channel

- Light disturbances caused by moving sperm cells are detected and translated into **analog signal peaks**.
- The greater the number of motile sperm cells in the field of view, the higher the **peak**.
- The slower the sperm velocity the broader the signal peaks.
- The **average analog signal** is mathematically proportional to **MSC**.

Concentration Channel

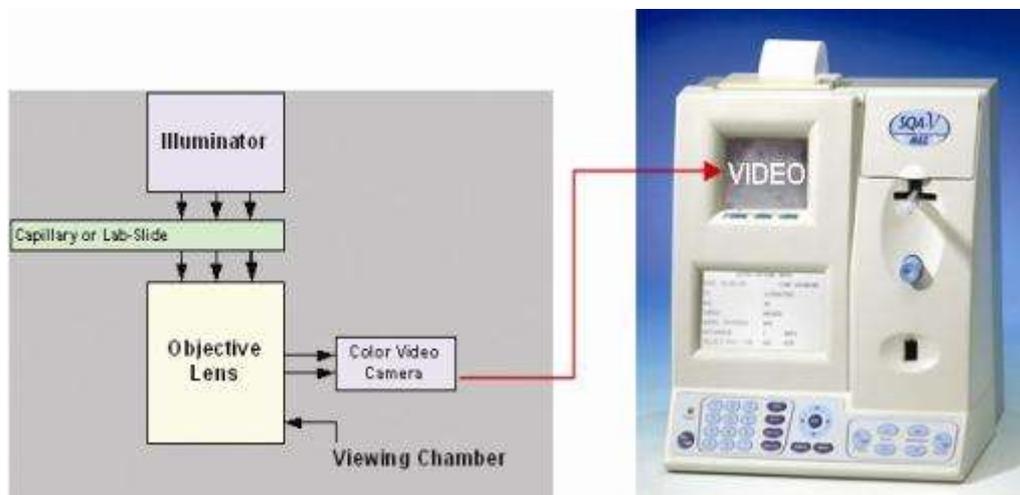
- Sperm concentration is measured in the cuvette section of the SQA-V testing capillary.
- An infrared light wavelength specific to sperm cells is maximally absorbed by sperm cells and minimally absorbed by other seminal fluid components.
- In the final calculation of sperm concentration the SQA-V algorithm makes an adjustment to account for the infrared light absorption of the seminal fluid components.



- Step 1:** The capillary is inserted into the measurement compartment.
- Step 2:** Sample concentration is evaluated in the "tall" 10 mm chamber of the capillary by measuring the amount of **optical absorption of light as a beam traverses the seminal fluid.**
- Step 3:** Motility is detected in the "thin" 0.3 mm section of the capillary by analyzing **light modulations caused by sperm motion.**
- Step 4:** This information is then digitized and routed to the microprocessor that applies algorithms to extract the required clinical semen parameters and performs internal self-testing and calibration.

Visualization System

- LED illuminator
- Objective lens with zoom capability
- Magnification: x300 to x500
- Focal depth: Approximately 30 microns
- Accommodates both a testing capillary and the SQA-V slide adaptor



Sperm Quality Analyzer**SQA-V Gold****SECTION II: System Specifications**

Dimensions: 40 Height x Width 30 x 15 - 25 cm Depth
Weight: 4.5 kg
AC power supply: 100 to 250 VAC, 50/60 Hz, 24W
Fuse rating: 2A 250V
Power stability requirements: Voltage fluctuations \pm 5% nominal

Measurement Compartment

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

Visualization Compartment

- LED illumination system
- CCD, 330 TV lines
- Objective: Standard, x20
- Signal Output: PAL standard
- Zoom system for magnification transition between x300 and x500
- Focus regulator

Display(s)

- Operational backlight LCD (16 lines x 40 characters)
- Video backlight LCD (8 x 10 cm): Will automatically illuminate when unit is "ON"
- Use monitor **ON/OFF** key on the keypad to independently operate the video display

Printer

- Built-in, Dot Matrix
- Non-thermostatic narrow paper with 20 characters per line
- Ribbon cassette (Citizen)

Keypad

- **Operational keys:** ON/OFF, TEST, PRINT, SERVICE, ARCHIVE, DELETE, ENTER, four cursor buttons, ESC, ten numeric buttons (0-9)
- **Video control keys:** ZOOM IN/OUT, ILLUMINATION HIGH/LOW, and MONITOR ON/OFF

Front Panel

- Built-in printer
- Visualization compartment
- LCD video display and controls
- Focus knob
- LCD operational display
- Measurement compartment
- Multi-button keypad
- I-Button

Rear Panel

- Power connector with fuse-holder (2 fuses: 250V, 2A)
- Video connector
- RS232 cable outlet

Specimen Testing Supplies

- **Measurement capillary:** Disposable, plastic, positive displacement testing capillary. (Testing depth of capillary section: 300-micron; Cuvette section: 10 mm).
- **Standard laboratory slide:** 20 micron depth, 22 x 22 mm cover-slip.

Operating System

- **Control:** Keypad
- **Analysis Time:** Normal Test – 75 seconds; High Sensitivity/Postvasectomy Test – 5 minutes (9 minutes in version 2.43).
- **Software:** Resides on flash memory and drives all man-machine interface functions, runs algorithms for test measurements (according to WHO guidelines), and operates visual and automated screens. System can be upgraded from a PC CD-ROM.
- **Sample Testing Temperature:** Calibrated for room temperature only 20-25° C / 68-77° F. 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.
- **External:** Counts can be run on the SQA-V automated and visualization systems using commercially available assayed control material: "**QwikCheck-beads™**" (product of Medical Electronic Systems) or Stabilized Sperm as a non-assayed control in version 2.45 and higher.

PC Compatibility

Minimum requirements for V-Sperm software

- **PC:** 1 GHz processor, Pentium 3
- **RAM:** 256 MB
- **AGP-video display card** with at least 16 MB of RAM memory
- **Video color:** At least 16 bit (65,535)
- **CD ROM drive**
- **200 MB free hard disk space** for image capturing
- **Video resolution:** Minimum 640 x 480
- **Operating system compatibility:** Windows XP, VISTA (Windows 7 pending)
- **Ports:** One serial; two USB ports
- **Monitor:** 15" color

Required Software

- **V-Sperm software for SQA-V system and I-button set-up, archive and CONTROL reporting** also permits user to benefit from many features such as real time visualization interface between PC and SQA-V visualization system, data analysis, video/picture capture and archives test records.
- **Excel/Word for exporting files and clips**

Operational Temperature and Humidity

- System is operational at 15-38°C.
- **NOTE:** SQA-V operates in a wide range of ambient temperatures however the system is calibrated to measure semen samples at room temperature: 20-25°C (68-77°F).

- *NOTE:* Variations in ambient temperature may impact the accuracy of test results because of the effect of temperature on human semen.
- System is fully operational at up to 80% humidity and 26°C.

Maintenance Schedule

- Daily cleaning of measurement compartment (refer to User Guide – "Cleaning") or with each 10-15 tests and/or spillage. **USE ONLY the MANUFACTURER supplied cleaning kit, brush and solution to clean the SQA-V or the system may be damaged and/or inoperable!**

Manufacturer Recommendations

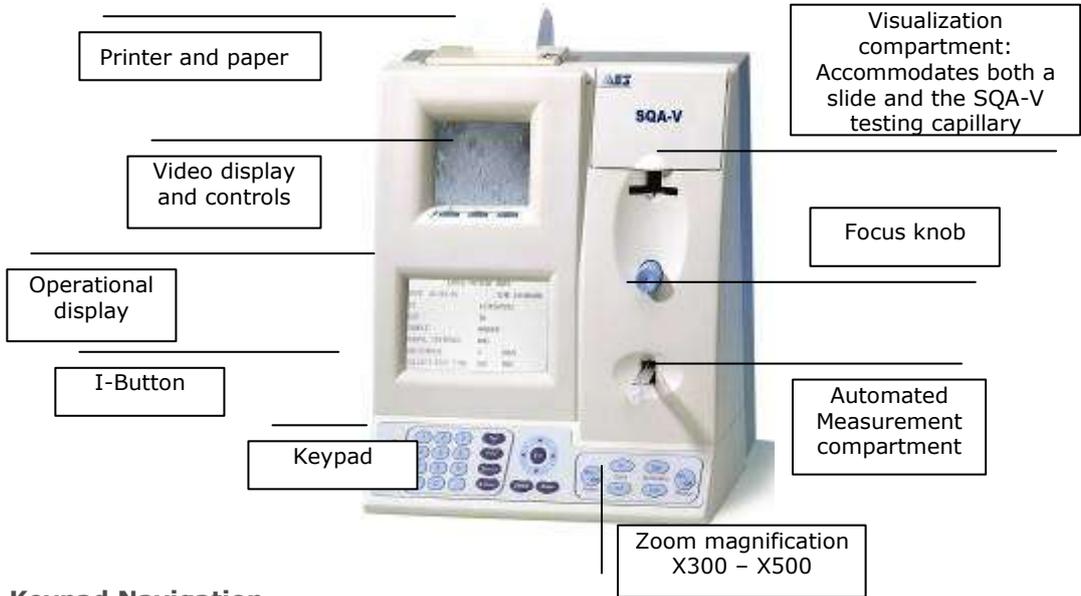
- Operate the SQA-V away from devices that may cause electronic noise (cell phones) or other devices causing vibrations such as centrifuges.
- Turn system **OFF** at the rear-panel when not in use for extended period of time.
- When running High Sensitivity or Postvasectomy tests do not interrupt test cycle nor interfere with system or testing capillary in any way – this test requires complete stability of the system during the 5 minute testing cycle.
- Variations in ambient temperature can affect semen samples. The SQA-V (HUMAN) is calibrated to test samples at room temperature: 20-25°C (68-77°F). All VET SQA's are calibrated with internal heaters.
- Semen is considered a biologically hazardous material and is subject to individual laboratory protocols for handling such materials.

Factory Default Settings

- **Chamber standard:** 2 (Neubauer)
- **Morphology:** WHO
- **Date format:** DD/MM/YY
- **Time/Date:** Manufacturer's local time/date
- **Controls (all levels/types):** Exp date 01/01

SECTION III: System Overview

SQA-V System



NOTE: The **TEST** button of the SQA-V keypad is only active in the **CALIBRATION** mode

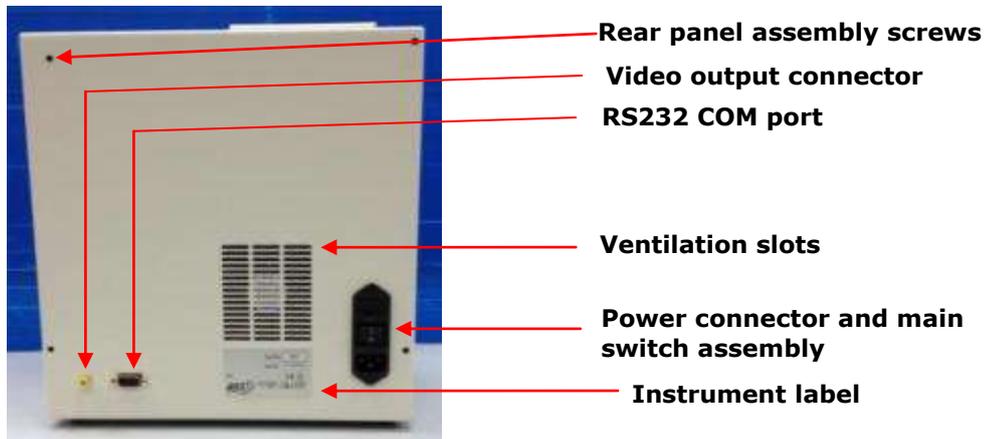
The **ARCHIVE** button on the keypad is inactive- the archive is managed through the V-Sperm GOLD.

Keypad Navigation

- Use **NUMERIC** keys to enter data; **ARROW** keys to move to the next field.
- Press **ENTER** to select menu options, confirm data entries and to move to the next screen or field.
- Use the **ESC** button to return to the previous screen or field.

Rear Panel

Rear Panel



Side Panel

Side Panel

- The side panel has an I-Button port (with clip in newer SQA-V's starting with Serial Number 1333)
- Refer to the Appendix Section for instructions on how to load I-button tests.



Assemblies

The Chassis Assembly

The chassis assembly includes both the base and rear panel and contains the following sub-assemblies:

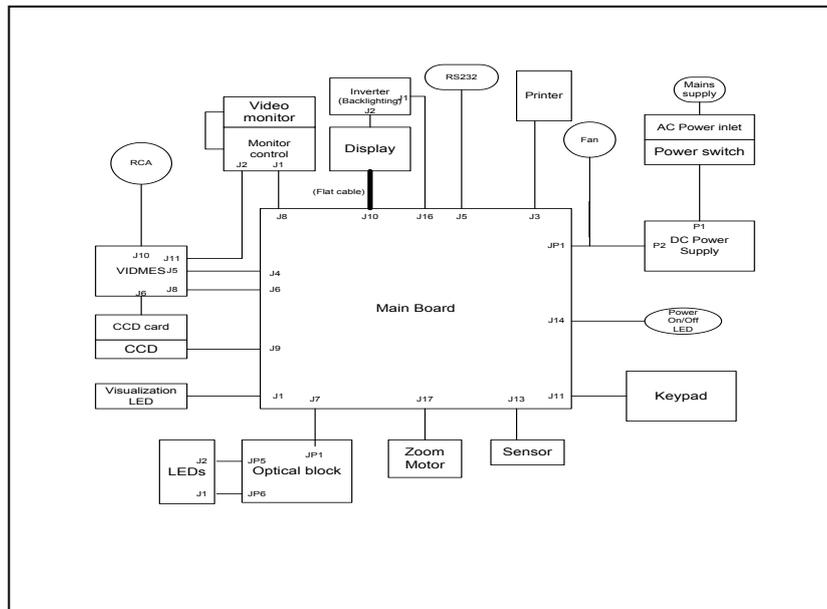
- Main Board
- Switch Power Supply
- Surge Protector (starting with SN# 1270)
- AC Power Inlet Assembly
- Ventilation Fan
- Printer
- Communication Plug
- Video Splitter
- Video Board Assembly or T-Jack Video Adaptor (starting with SN# 1318) or Video splitter (starting with SN #1411)

The Cover Assembly

The cover assembly includes the following:

- Operational Display
- Video Keypad
- Power Indicator LED
- Visualization Compartment
- Visualization Compartment Cover
- Measurement Compartment
- Focus Control

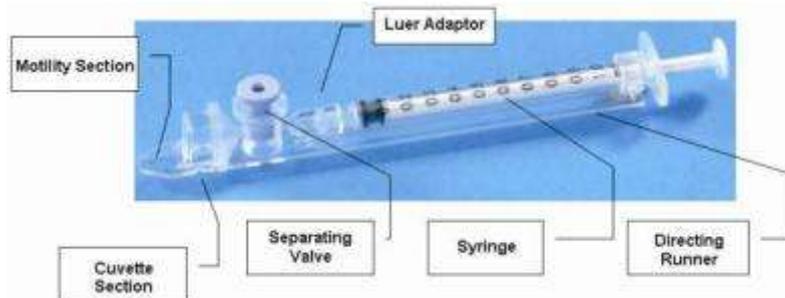
Schematic of the SQA-V Motherboard



SECTION IV: System Components and Accessories

Testing Capillary

Testing Capillary



- Can be used in both measurement chambers of the SQA-V.
- Disposable, designed to collect and test samples in a biologically safe manner.
- Motility is measured in the 0.3 mm (thin) "Capillary Section."
- Concentration is measured in the 10 mm (tall) "Cuvette Section."

Slide Adaptor

Slide Adaptor

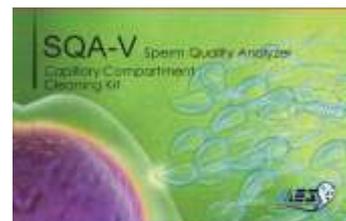


- For use with a standard laboratory slide 76 x 25.6 mm and 22 x 22 mm cover-slip in the **visualization compartment** of the SQA-V to visually assess semen samples.

Cleaning Kit

Cleaning Kit

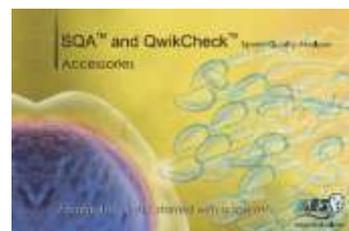
- Daily cleaning is recommended or after testing 10-15 specimens.
- See the detailed cleaning instructions in the Appendix Section.
- **NOTE:** Only use the manufacturer's cleaning kit or the SQA-V can be damaged.



Accessory Kit

Accessory Kit

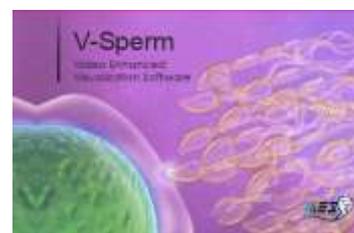
- Each kit contains:
 - Slide Adaptor
 - Power Cables
 - Communication Cable
 - Printer Paper
 - Printer Ribbon
 - Instructional Guides



V-Sperm

V-Sperm

- Each kit contains:
 - V-Sperm CD
 - Security Key
 - RS232 to USB converter cable
 - Video Capture Device
 - User Guide



Electronic Self-Test and Auto-Calibration

SECTION V: Electronic Self-Test and Auto-Calibration

A series of tests are automatically run on the SQA-V to check the calibration and internal operating system. Tests are run when the SQA-V is first turned-on and also prior to each semen analysis test.

Start-up:

- **Stabilization and auto calibration:** Checks system stability and reference ranges. The system sensors are analyzed for several minutes to insure that the values are within a very narrow acceptable range. Once the system is stable for 30 seconds it will pass stabilization and auto calibration. The system will fail if it is not stable for at least 30 seconds and a warning message will be displayed.
- **System noise:** The level of electronic noise in the system is measured to insure that noise thresholds are accurately defined to ensure effective measurement of electronic signals. The system will use this measurement prior to running a test and will automatically adjust the noise level thresholds to ensure accurate readings.
- **Self-test:** The system produces electronic signals that simulate motility and concentration in order to check the performance of the system and verify that the calibration settings are consistent with the factory specifications. The SQA-V will report failures (see section on error and warning messages) and "freeze" the system if the system is not within the established ranges.

Prior to testing a sample:

- **Auto calibration verification:** Reference values are read again. The concentration and motility parameters are measured (without a testing capillary).
- **System noise:** Measures the electronic noise level of the system to insure that noise thresholds are accurately defined in the system to ensure effective measurement of electronic signals. The system will use this measurement prior to running a test and will automatically adjust the noise level thresholds to insure accurate readings.
- **Electronic spikes:** Checks for any measurement points that are out of range electronically. More than three such points will fault the system and a warning message will be displayed.

The following procedure details how the user can document the system parameters to prepare for technical support if the system fails (see section of this user guide on Error Messages and Warning Messages).

How to run a copy of the system parameters version 2.48/2.49 GOLD:

- From the **MAIN MENU** select: **SERVICE>PRINT SQA-V DEFAULT SETTINGS>SELF TEST DATA**

All other versions:

- Remove any testing capillaries from the system.
- Turn the SQA-V on from rear panel and from the front keypad.
- When the MAIN MENU appears or when a FAILED SELF TEST message appears press the **SERVICE** key on the keypad to enter the SERVICE menu.
- Select **USER**.
- Press the **PRINT** key on the keypad to generate the required printout.

Refer to the table below. Enter numbers in the "SQA-V Value" column that corresponds to #1 - #10 from the SQA-V system parameters printout. Compare the values. If the value from the SQA-V is within range mark the "Pass" column. If not, mark the "Fail" column.

#	Parameter	Software version 2.45,2.46, 2.48, 2.49	SQA-V Value	Pass	Fail
1.	Ref 1	150 – 350 mV			
2.	LED Cur 1	5 – 25 mA			
3.	Amplitude	50 – 100 mV			
4.	Zero Level	500 - 525			
5.	Ref 2	2500 – 3500 mV			
6.	LED Cur 2	10 – 32 mA			
7.	CONC. 1	0 – 1 M/ml			
8.	CONC. 2	50-150 M/ml			
9.	CONC. 3	300-600 M/ml			
10.	Count (Internal Data, Item #12)	26 - 36			

SECTION VI: Getting Started / Set-Up

Please refer to the relevant SQA-V User Guide for start-up and set-up instructions (based upon the software version of the SQA-V).

NOTE:

Turn off the power supply to the SQA-V and disconnect the power supply cable from the back of the device before opening the SQA-V.

Only a qualified, MES certified distributor is authorized to open the SQA-V without voiding the warranty.

SECTION VII: Troubleshooting

Overview: The following sections describe how to troubleshoot and repair potential problems that may occur with the SQA-V. This section will discuss how to provide support for three types of issues: **Technical - Self test - Clinical**

PLEASE NOTE:

- **Only a qualified MES distributor who has been trained to perform technical support is authorized to open the SQA-V.**
- **If the SQA-V is opened without authorization it may cause damage to the calibration AND will VOID THE WARRANTY.**
- **The electro-optical board should NEVER be touched when the SQA-V is opened – it will cause damage to the SQA-V calibration.**

SECTION VIII: Technical Support/Part Replacement

Opening the SQA-V

- Turn off the main switch located on the rear panel and disconnect the SQA-V from the electrical supply.
- Using a Philips screwdriver, remove all of the screws on the rear panel.



Closing the SQA-V

- Grip each panel from the side and gently push them back together making sure that all cables and connectors are free and not "pinched" between the panels.
- Use a standard Phillips screwdriver to reconnect the panels.



Printer

Printer (Part # PCD-0171)

ISSUE: The printer is not working

Open the SQA-V and check that the:

- Printer has a roll of paper loaded properly
- Printer ribbon (ink) is not dry
- Printer paper is not jammed in the printer
- Cable connecting the printer to the main board is not damaged or disconnected.
- Press the FEED button, if the paper does not advance the printer needs to be replaced:
- Pull the printer gently out of its holder
- Disconnect the printer cable
- Remove the two screws holding the printer and remove the printer from the casing.
- Replace the printer and re-attach it to the SQA-V panel.

NOTE: Use only paper rolls supplied by the SQA-V manufacturer, otherwise the printer can be damaged.



Remove the printer and disconnect the cable

Keypad

Keypad (Part # PCD-0201)

ISSUE: The Keypad is not working

- Open the SQA-V
- Verify that the keypad cable is connected firmly to the Main board at J11 location (connector is not loose)
- Confirm that the cable is connected in the correct orientation: The golden stripe on the cable connector should be facing the rear panel
- If the cable is connected properly and the keypad is still not working- replace the keypad:
- Disconnect the keypad cable connector from location J11 on the main board
- Using a flat screwdriver, carefully peel off the damaged keypad from the front panel. Clean the surface with alcohol and let it dry for a few minutes.
- Pull the keypad cable through the slit in the front panel

Please note: DO NOT connect it at this time.

- Attach the keypad to its designated location on the front panel by gradually removing the paper while pressing it firmly into place from one side to the other.

Please note: DO NOT bend the keypad during this process or electrical wires/connectors will be damaged.

- Attach the keypad connector to the J11 location on the main board.

Please note: The golden stripe on the cable connector should face the rear panel (the fan side).

- Close the SQA-V using 4 screws on the rear panel of the SQA-V.

Disconnect the old Keypad Cable



Remove the old Keypad



Pull the old Keypad Cable



Attach the NEW Keyboard Connector



Apply the New Keypad



Power Supply Unit (PSU)

NOTES:

1. Turn off the power supply and disconnect the power supply cable from the back of the SQA-V before opening.

2. Refer to the Appendix section for instructions on how to address power supply problems.

Note:

Before checking the input\ output connectors of the main PSU, turn on the SQA-V from the switch on the rear panel.

Power Supply Unit (PSU)

**SECTION 1:
SN #1329
and lower,
PSU part #:
PSD-0492**

Power Supply Unit – PSU

ISSUE: The main switch is **ON** but the power indicator does not light up and the fan is not working.

- Check the fuse in the fuse box located on the rear panel of the SQA-V.
- Replace the fuse if it is burned out.
- Reconnect the power supply and turn the unit back on.
- If the unit still does not work, check the input/output power inlet as instructed below.

How to check the input connector:

- Check the voltage in the input connector of the main PSU using a multimeter
 - 0V: black wire
 - 220V AC: red wire
- If no power is evident, replace the power inlet (see paragraph 7)
- If power is being supplied to the input connector, check the output connector.

How to check the output connector:

- Disconnect the output cable from the motherboard.
- Check the voltage in the output connector of the main PSU using a multimeter:
 - 0V: black wire
 - +5V: red wire
 - +12V: purple wire
 - -12V: white wire
- If there is still no power supply in the output connector, OR if the power is working but the problem continues contact support services.

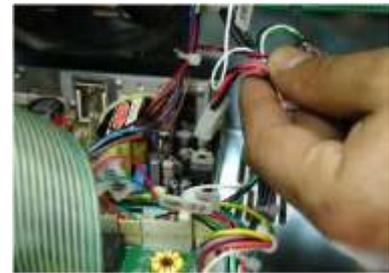
Replacement of the Power Supply Unit –

ISSUE: The power supply and/or cables are not working.

PLEASE NOTE: The instructions depend on the SERIAL NUMBER (SN#) of the SQA-V.

- SN# 1329 and less – follow the instructions in SECTION 1
- SN# 1330 and greater – follow the instructions in SECTION 2

1. Turn off the SQA-V and disconnect the power cable from the rear panel.
2. Place the SQA-V on its side; Using a #1.5 Philips screwdriver, remove the three screws that connect the PSU to the rear panel. Open the SQA-V.
3. Remove the black plastic cover from the PSU.



Power Supply Power Cable



Power Supply Board

Unscrew the Power Supply Unit (PSU)



4. Disconnect the two cables of the OLD PSU:
 - Input connector- location P1
 - Output connector- location P2. This connector also includes the GROUND cable.

Remove the old PSU

5. Assemble the black Formex[®] cover to a new PSU
6. Secure the new PSU to the rear panel using the same three screws.
7. Re-connect the input and output cable connectors to the PSU.
8. Close the SQA-V. If the problem persists - Contact Customer Support.

SECTION 2
SN# 1330
and above,
PSU part #:
FPE-E-
00146-00

1. Open the SQA-V.
2. Disconnect the input connector of the power supply unit- location CN1.



3. Disconnect the output connector of the power supply unit- location CN2.



4. Using a #2 Philips screwdriver, unscrew the four screws that connect the PSU to the rear panel.
5. Remove the old PSU.



6. Secure a new PSU to the rear panel using the same four screws.
7. Re-connect the input and output cable connectors to the PSU.
8. Close the SQA-V. If the problem persists - Contact Customer Support.

Power Inlet

Power Inlet (Part# AP-9081001)

ISSUE: There is no power supplied to the PSU from the inlet.

NOTES:

1. Turn off the power supply and disconnect the power supply cable from the back of the SQA-V device before opening.

2. Refer to the Appendix section for a flow chart of power supply problems and solutions.

- Open the SQA-V.
- Unscrew the power-inlet screws at the rear panel of the device.
- Disconnect the power supply connector from the power supply board.
- Gently pull the plastic cover of the power inlet until the connectors are exposed.
- Disconnect the three connectors from the power inlet.
- Gently pull the power inlet out of the SQA-V through the rear panel.
- Insert a new power inlet and re-connect the cables.
- Re-connect the internal cables, re-place the internal cover and re-connect the power supply cable to the power supply board.



Unscrew the power inlet screws



Pull the plastic cover to expose the connectors



Disconnect the 3 connectors from the power inlet



Gently pull the power inlet from the rear panel

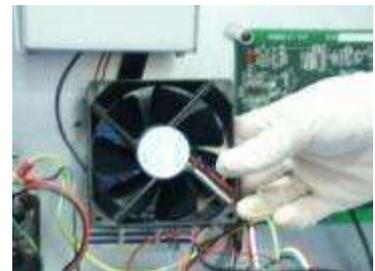
Fan Assembly

Fan Assembly

- For SQA-V of SN 1329 and lower: use part# KHD-08-000856
- For SQA-V of SN 1330 and higher: use part #V-H-00575-00

ISSUE: The master switch is ON, the power indicator is lit but the fan is not rotating.

- Open the SQA-V.
- Confirm that all the fan connecting cables are in place.
- Check that the voltage in the main board connector of the fan (location JP1) is:
 - 0V: black wire
 - +12V: purple wire
- If no power is evident, replace the main PSU (see paragraph 6)
- If the voltage is as described above, replace the fan:
 - Unscrew the four fan screws.
 - Replace the fan assembly (fan+ cable).
 - Re-connect the cables and screw the new fan to the rear panel of the SQA-V.
 - Do not change the direction of the outlet air flow! (the arrow on the fan should point outwards)



SQA-V Fan

Please note:

The fan on veterinary systems work only when the system reaches a certain internal temperature.

Please note:

Be sure to re-connect the cables correctly and verify that the GROUND cables are attached VERY tightly.

Operation Monitor

Operation Monitor - Lower LCD Screen (Part# LCD-0009)

ISSUE #1: The SQA-V is ON, both power indicators are functioning and the fan is working. But the lower LCD screen (Operation Monitor) is not illuminated although data is displayed on the screen.

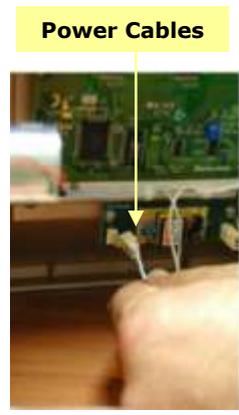
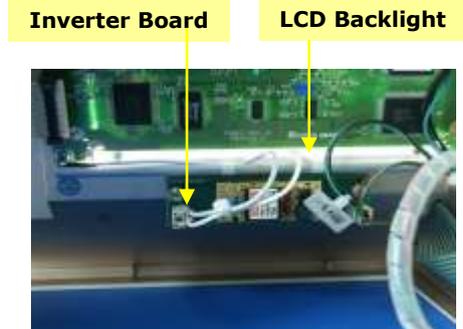
NOTE: Turn off the power supply to the SQA-V and disconnect the power supply cable from the back of the device before opening the SQA-V.

WARNING: DO NOT TOUCH the illuminated area of the LCD Backlight – HIGH VOLTAGE is supplied there.

AFTER checking the LCD backlight, turn off the SQA-V and disconnect it from the main.

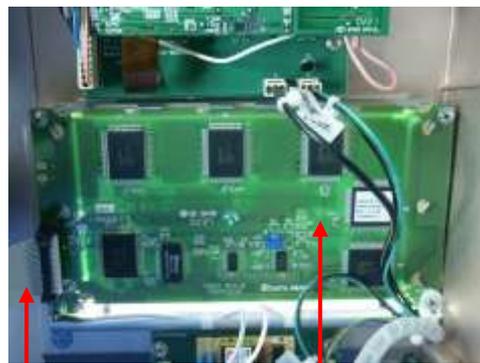
WARNING: The two ends of the flat cable must be connected in the same way at each of the hubs or the LCD may be burned!

- Open the SQA-V.
- Turn on the SQA-V and check that the **LCD Backlight** is lit. If not, check the **input and output cables** of the inverter board: verify that the cables are well connected and not loose.
- If the power supply is OK and the screen doesn't light up, replace the inverter board (Item#AS-9084111):
 - Turn the SQA-V off and disconnect the cables connecting the inverter board to the main board and LCD screen.
 - Using a Phillips screwdriver, remove the two screws that secure the old inverter board.
 - Replace the inverter board with a new one and secure it with the two screws.
 - Re-connect the cables of the inverter board.
- If the problem persists, contact MES Customer Support.



ISSUE #2- Blank Screen: There is no data displayed on the screen in spite of the fact that the SQA-V is ON, both power indicators are functioning and the fan is working.

- Re-install SQA-V software.
- If the software was not installed successfully- please refer to the technical bulletin in the appendix section for further instructions
- If the software was installed successfully and the problem remains- check the LCD flat cable:
 - Open the SQA-V and verify that the LCD flat cable, with the red lined side up is connected to the section designated with a 12 on the main board
 - Replace the flat cable if it appears damaged in any way.
- If replacing the cable does not work- replace the processor on the main board (see Appendix section for instructions).

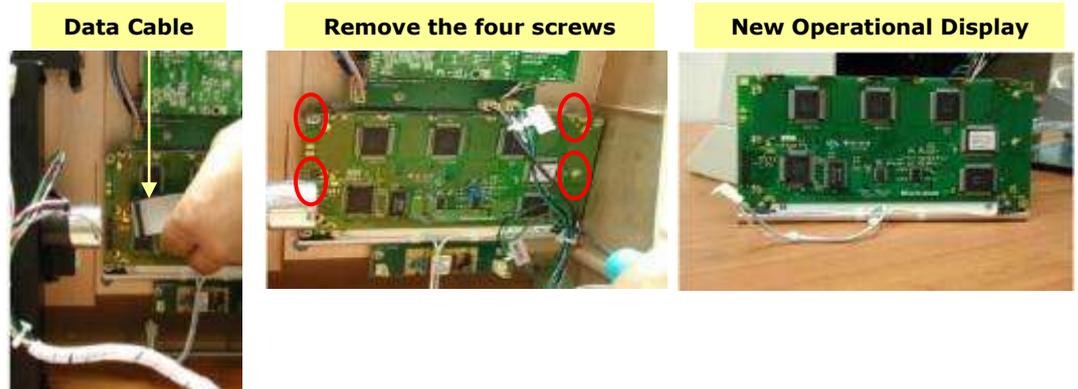


Note the alignment of the RED line on the cable

LCD Flat Cable **LCD Operation Monitor/Board**

Note: for more detailed explanations regarding blank screen issues, please refer to the "blank screen technical bulletin" in the appendix section

- If replacing the processor does not work:
- Re-start the SQA-V and see if the LCD operational screen is still blank. If yes, replace the screen:
 - Disconnect the operational display data and power cable - note the four screws.
 - Replace the screen & reconnect the data and power cables.
- In case the problem persists after replacing the LCD screen- contact MES Customer Support.



Focus Knob Focus Knob (Part# PE-MA-00538-00)

ISSUE : When using the focus knob there is no change in the visualization system (the focus shown on the video screen is not changed).

- Open the SQA-V and disconnect the optical assembly from the front panel (four screws)
- Disconnect the focus knob from the optical assembly by unscrewing three screws
- Remove the old focus knob
- Insert the new focus knob making sure it is turned all the way counterclockwise before replacing
- Re-connect the optical assembly to the front panel and close the SQA-V



Disconnect the focus knob



Replace the focus knob



New, Improved focus knob

Video | Video Screen (Part# LCD-0010)

ISSUE: A problem in the video system occurs when there is a malfunction or maladjustment in one of these areas:

- **Light source, CCD camera, Harness connection, Video display monitor**

To diagnose a video system problem, refer to the table below. Detailed instructions on how to repair the problem are presented after the table.

Description of the Video Problem	VIDEO Troubleshooting/Repair
<p>1. Poor resolution and dark pictures on both the SQA-V and V-Sperm monitors, OR no image on both SQA-V and V-sperm</p>	<ol style="list-style-type: none"> 1. Check to make sure the illumination setting of the SQA-V is on high and the brightness setting is maximized to the best setting. Intermittently press the illumination button on the keypad – do not press and hold. 2. Turn the illumination button (this is the one of the blue buttons under the video screen) since it may be set on no illumination 3. Check the brightness settings in V-Sperm: Go to VIDEO>Real Time Video>Settings - adjust brightness to the best setting <div data-bbox="880 891 1284 1115" data-label="Image"> </div> <ol style="list-style-type: none"> 4. If no improvement, check the visualization LED, if the light indicator is on, it is working. <div data-bbox="742 1211 1204 1429" data-label="Image"> </div> <ol style="list-style-type: none"> 5. If no light is visible through the light indicator, replace the visualization LED cable- part # KHD-908-000849-03 (detailed instructions can be found after this table). 6. If the LED is working- check the cable connecting the optical column to the MB and to the video splitter/video adaptor/ video board: <ul style="list-style-type: none"> • Open the SQA-V • Check to see if all of the harness connections are secure and tightly connected. • Check the voltage on the main board at location J9 using a multimeter- the voltage value should be 12V. Make sure to measure the voltage between the green and the black wire. • If the voltage is different than 12V- replace the cable (part # KHD-908-000853). • If the same problem persists after replacing the cable- replace the CCD camera (part #5226, see instructions in this manual).



2. The quality of the image is different on the SQA-V screen compared to the V-Sperm computer screen

7. If the LED is working- check the cable connecting the optical column to the MB and to the video splitter\ video adaptor\ video board:
 - Open the SQA-V
 - Check to see if all the harness connections are secure and tightly connected.
 - Check the voltage on the main board at location J9 using a multimeter- the voltage should be 12V. Make sure to measure the voltage between the green and the black wire.
 - If the voltage is different than 12V- replace the cable (part # KHD-908-000853).
 - If the same problem persists after replacing the cable- replace the CCD camera (part #5226, see instructions in this manual).

Video: Old Board (SQA-V of SN lower than 1318), New Adaptor (SN 1318- 1410) and New video splitter (SN 1411 and higher)



SQA-V image better than V-Sperm image (or no image on the v-sperm):

- Adjust the brightness settings in V-Sperm: Go to VIDEO>Real Time Video>Settings - adjust brightness to the best setting
- Lower the illumination of the SQA-V
- Check the external cables connecting the SQA-V to the V-Sperm frame grabber (if problematic, replace the cables).
- If there is no problem with the cables, open the SQA-V and check the cable connecting the video board\ video adaptor\ video splitter to the video out port:
 - Verify that it is attached securely on both sides and that the cables does not appear damaged in any way
 - If the cable is damaged- replace it with a new one (part # KHD-908-000852, instructions can be found in the appendix section of this manual)
- If the problem persists after replacing the cable- contact MES support)

V-Sperm Image is better than the SQA-V:

- Adjust the brightness of the SQA-V
- Adjust the illumination of the SQA-V to a higher level.
- If no improvement, replace the LCD video display.

3. There are spots on the SQA-V and V-Sperm screens

To remove dust spots: Clean the CCD and the lens, according to the instructions in this manual.

4. The image on the SQA-V is flickering

Tap on the area around the monitor to see if the monitor flickers more. If no, inspect the LED, Video monitor and CCD cables for damage and repair/replace. If yes, replace the video control board.

5. The image on the SQA-V is frozen or stuck

- This type of problem can only occur in old systems- with SN lower than #1318
- In case of frozen or stuck image- please contact MES support services

Visualization LED

LED Replacement (Part #KHD-908-000849-03)

ISSUE: No light seen from the light indicator, even after increasing the illumination by pressing the illumination button intermittently.

- Open the SQA-V.
- Disconnect the Optical Assembly.
- Remove the LED cover (unscrew the cover).
- Disconnect the LED cable from the main board (J1).
- Replace the old LED cover, re-attach the Optical Assembly and close the SQA-V.

Optical Assembly



Remove the LED cover



Replace the LED



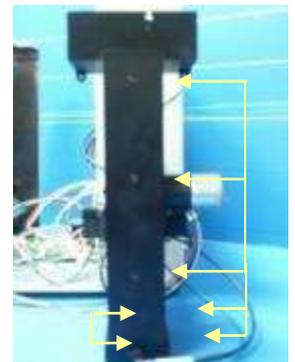
CCD Cleaning or Replacement

CCD Replacement/Cleaning (Part #5226)

Issue: The CCD is broken or needs cleaning (spots on the screen)

- Open the SQA-V.
- Remove the four screws connecting the optical assembly to the SQA-V device.
- Pull the optical assembly to remove it from the front panel.
- Disassemble the optical assembly, remove a total of seven screws:
 - Three screws are located at the rear section of the optical assembly.
 - Four screws are located at the base of the optical assembly.
- Turn the optical assembly upside down to lift the lid that is on the base of the optical assembly.
- Disconnect the external video cable from the internal video cable.

Instructions for SQA-V's with SN# 770 and earlier



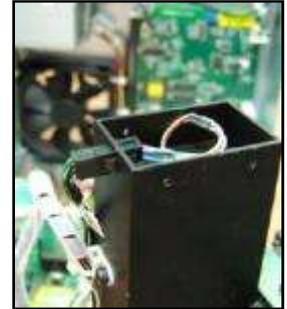
Seven Screws – Optical Assembly

Warning:
Do not press
the **On/Off**
key!

- The internal video cable is held in place by two plastic clips. While pressing the two plastic clips, push the internal video cable connector inside to release it.
- Gently lay the optical assembly on its rear section.
- Move the internal video cable aside and make sure nothing obstructs the open top of the optical assembly.
- Turn on the SQA-V at the **main switch** on the rear panel. The Power LED Indicator should light up, the operational display should display Standby mode.
- Press the ZOOM-IN key on the SQA-V keypad.
- Pull out the CCD assembly.
- Turn off the SQA-V main switch.
- Remove the screw holding the dust cover and manually unscrew the dust cover.



Lift the lid



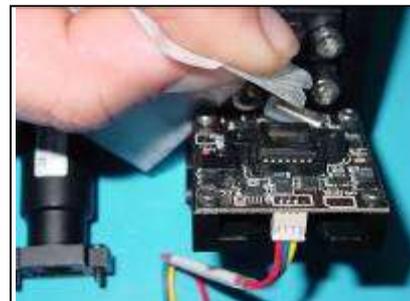
**CCD
Cleaning**

Cleaning the CCD

- Use a Phillips screwdriver to remove the two screws that secure the base of the dust cover.
- The CCD is now visible within the CCD adaptor.
- Use **ONLY lint free commercial lens cleaning paper to wipe the CCD screen.**
- Place the CCD back into the housing of the optical assembly and visually check to see if it is clean.
- Using a Phillips screwdriver re-attach the dust cover base and the dust cover.



Remove the base of the Dust Cover



Clean the CCD

**Instructions
for SQA-V's
with SN#
771 and
later**

Servicing the focus system requires the use of a FALSE TRACK. This is supplied with the system (see Fig. 7 below).



Fig. 7

Do not start this procedure unless you have this track. Contact MES if you need a FALSE TRACK.

Cleaning the CCD

Issue: The CCD is broken or needs cleaning (spots on the screen)

- Remove the visualization system from the device. (The same way as before).
- Unscrew the 4 screws on the base of the visualization system (fig. 1 and 2).



Fig. 1



Fig. 2

Lift the lid

- Remove the zoom DC motor by unscrewing the 2 screws (fig. 3 and 4).



Fig. 3



Fig. 4

Remove the DC motor

- Remove the stopper from the CCD tray at the bottom of the system (figure 5) by unscrewing the 2 screws. (figure 6).



Fig. 5 Remove the stopper



Fig. 6

- The focus system contains many small ball bearings that can be dislodged unless a FALSE TRACK is used to secure them. Slide the FALSE TRACK (fig. 7) over the metal track to keep the ball bearings contained in the metal track (fig. 8).



Fig. 7 False track



Fig. 8

- Slide the CCD tray over the FALSE TRACK, then remove the FALSE TRACK With the CCD tray attached to (enclosed within the FALSE TRACK).
- Seal the FALSE TRACK with the plastic cover to prevent the CCD tray from slipping out. (figure 9).
- Gently clean the CCD. (fig.10)



Fig. 9 Seal the false track

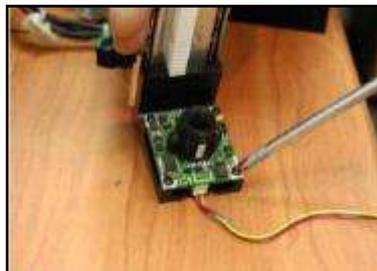
- After cleaning, remove the cover of the FALSE TRACK carefully.
- Carefully align the FALSE TRACK with the metal track and gently push the CCD tray back over the metal track.
- Re-assemble the black stopper of the CCD tray (fig .5) and fasten the screws.
- Reattach the zoom DC motor, and make sure the cogwheel is meshed with the teeth of the white plastic rack.
- Close the bottom cover and fasten the screws.
- Plug-in the wires.
- Place the visualization system back into place.



Fig. 10 Clean gently

Replacing the CCD

- Refer to steps for cleaning/replacing the CCD (do not remove the dust cover)
- Using a Phillips screwdriver, remove the four screws holding the CCD PCB
- Replace with a new CCD PCB.



Remove the CCD PCB



Replace the CCD

Reassembling the CCD

- Insert the entire CCD assembly back into the optical assembly.
- Reassemble the optical assembly (three screws on the rear panel of the optical assembly).
- Snap the internal video cable connector back into place.
- Replace the lid on the assembly.
- Push the optical assembly back into the front panel. Reassemble (four screws).
- Connect the external video cable to the internal video cable, close the SQA-V.

Testing:

- Turn the SQA-V on from the main switch on the rear panel. The Power LED indicator should light up and the operational display should be activated and indicate The SQA-V is in Standby mode.
- Press the Zoom IN/OUT key and verify that the zoom function is working.

Video Display

Note:

This repair can only be performed for SQA-V of SN 1505 and higher. For systems with different serial numbers, please contact MES support services.

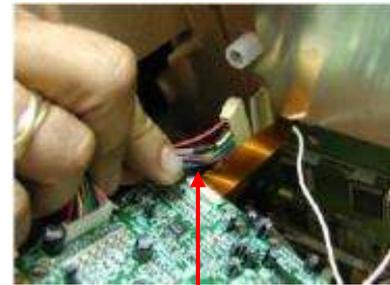
Video Display Monitor (Part# LCD-0010)

ISSUE: The image on the Video Screen is wavy

- Open the SQA-V device.
- Using a Phillips screwdriver, remove the four screws holding the PCB of the video display.
- Disconnect the video display main cable
- Remove the spacers holding the Video Display
- Replace with a new video display using the spacers to secure it in place.
- Connect the main cable of the new video display.
- Using a Phillips screwdriver, secure the PCB of the video display (four screws).
- Close the SQA-V.



Remove the Video Display



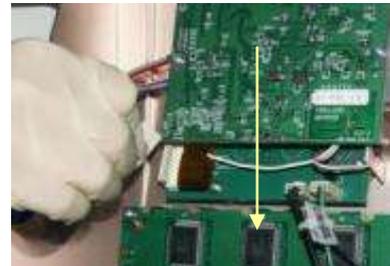
Video main cable

Video Control Board

Video Control Board Replacement (Part #AS-9086111)

Issue: The image on the SQA-V screen is flickering on and off and adjustments to the brightness, illumination or contrast has no effect.

- Open the SQA-V.
- Disconnect the main video cable from the video control board.
- Remove the two screws holding the video control board.
- Remove the video control board and replace with the new one.
- Re-attached the video control board and screw it back to the SQA-V panel.
- Re-connect the main video cable.



Video Control Board

Surge Protector for SN# 1270 and greater

PLEASE BE ADVISED:

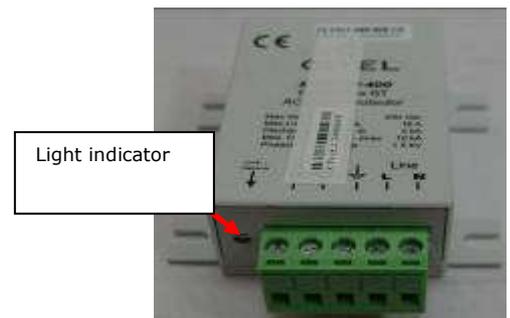
Only an experienced and licensed electrical technician or electrician should perform this repair.

Surge Protector Replacement (Part #V-A-00475-00)

Issue: The SQA-V does not turn-on

Electrical surges or unstable electricity may cause damage to the SQA-V. The SQA-V contains an internal surge protector to prevent damage to the components of the SQA-V.

- Turn off the power and then open the SQA-V
- Turn the power on BRIEFLY just to check to see if the green light of the surge protector is on.
- Turn the system off and close.
- If it is not on, replace the surge protector:



How to replace the Surge Protector:

- Turn off the SQA-V and disconnect the power cable from the rear panel.
- Remove the printer from the rear panel

Remove the Printer



- Disconnect the printer cable and set the printer aside.

Disconnect the Printer Cables



- Pull down and separate the two green sections of the surge protector.

Separate the two sections



- Using a 5.5mm socket screw driver, unscrew the 4 nuts connecting the Surge Protector to the rear panel.
- Replace the surge protector "body" (grey part) with a new one.
- Replace the four nuts.
- Reconnect the printer cable and return the printer to its designated location on the rear panel.
- Close the SQA-V.

Remove the Surge Protector



Capillary Sensor

Capillary Sensor Troubleshooting and Replacement (KHD-908-000846 REV 02)

Issue: When the SQA-V is turned on, it fails SELF TEST.

- Ensure there is no testing capillary in the measurement compartment.
- Remove the SQA-V from sources of electronic noise (cell phones, etc.).
- Clean the measurement compartment per User Guide instructions.
- Reboot the SQA-V without a testing capillary in the chamber:
- 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.
- In case the self- test keeps failing after the reboot do the following:
- Print a copy of the SELF- TEST parameters.
- Check parameter #17. This parameter represents the noise level. In case the value is higher than 3- the noise level is too high. In this case replace the cables connecting the Optical Board to the LED Board.
- Check the values of Conc 1, Conc 2 and Conc. 3. If these values are ZERO, the capillary sensor might be damaged and needs to be replaced.

How to replace the capillary sensor

- Turn off the power and open the SQA-V by unscrewing the screws from the rear panel using a #2 Philips screwdriver.
- Use a #2 Allen key, remove the four screws connecting the optical column to the front panel of the SQA-V.



Open the SQA-V



Disconnect the Optical Column

- Carefully pull the optical assembly in order to release it from the front panel.
- Place the optical assembly on its side.
- Release the screw holding the capillary sensor using a #2 Philips screwdriver.



Pull the Optical Assembly



Release the Capillary Sensor Screw

- Unwind the white plastic cable wrap that holds the capillary sensor and other cables
- Remove the damaged capillary sensor from the optical block and unplug the cable connector from its location on the main board- J13



Unwind the Plastic Cable Wrap



J13 connector

- Install a new capillary sensor harness on the optical block and fasten it using the screw.
- Re-attach the cable to the cable bundle, fasten the cables using the white plastic cable wrap.
- Connect the cable connector to its designated location on the main Board- J13.
- Attach the optical column to the front panel of the SQA-V using the original 4 screws.
- Close the back the front and rear panels of the SQA-V using a #2 Philips screwdriver.



New Capillary Sensor

Optical Board Cables

Optical Board to LED Cable - Replacement (Part # KHD-908-000689 REV 01)

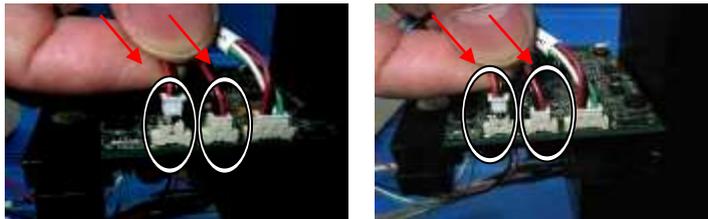
- **Issue:** When the noise level of the SQA-V (Parameter #17) is higher than 3, then the cables connecting the Optical Board to the LED Board need to be replaced.
- Turn off the power and open the SQA-V by unscrewing the screws from the rear panel using a #2 Philips screwdriver.
- Using a #2 Allen Key, release the 4 screws which hold the Optical Base to the rear panel (shown in the pictures below).



Open the SQA-V



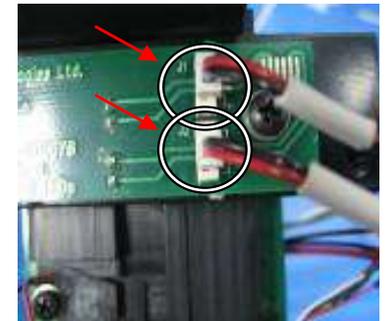
- Remove the damaged cables from the Optical board by disconnecting the J5 and J6 connectors from the Optical Board.



- Carefully lay down the Optical Base
- Remove the damaged cables from the LED board: disconnect J1 and J2 connectors for their location on the LED board.

Important Note: Pay CLOSE attention to connect the cables in the CORRECT direction

- Connect a new pair of cables as follows:
 - Connect the cables back to the J5 and J6 connectors on the Optical Board.
 - Connect the cables back to the J1 and J2 connectors on the LED Board



- Reattach the optical base using the same 4 screws.
- Close the SQA-V.



Visualization System Upgrade

Visualization System Upgrade – VSU (Part # V-M00571-00)

Issue: A VSU upgrade is available for purchase and can be easily installed on existing systems. The upgrade consists of THREE components: An improved Visualization LED Housing; A new Focus Knob Assembly and an Improved Slide Adaptor. Below are instructions for assembling the new components.

Stage 1: Open the SQA-V and detach the Optical Base

- Turn off the SQA and disconnect the power supply cable.
- Unscrew the 4 screws on the rear panel using a #2 Philips screwdriver and open the SQA-V.
- Use a #2.5 Allen key to remove the 4 screws that hold the Optical Base to the rear panel and remove the Optical Base from the front panel as shown below:



Stage 2: Replace the Visualization LED Housing

- Unplug the cable connector from J1 on the Main board and cut the cable tie strips.



- Remove the spiral wrapping band
- Release the screw and remove the old Visualization LED housing.

Please note: Remember the spring position – it will have to be placed in the exact same position when inserting the new Visualization LED housing.



- Place the new Visualization LED housing on the same platform and refasten the screw.
- Plug-in the connector of the LED to J1 on the Motherboard and replace the cable ties.
- Re-wrap spiral wrap band.



Stage 3: Replace the Focus knob

- See instructions in this manual.[Section #10]

Stage 4: Close the SQA-V

- Re-connect the optical assembly to the front panel. Make sure to screw back all 4 screws.
- Close the back of the unit and fasten the 4 screws on the rear panel using a #2 Philips screwdriver.

Additional Components: New, improved Slide Adaptor

One of the components of the improved visualization system, as mentioned above, is a newly improved slide adaptor. This new slide adaptor holds the slide firmly and allows movement back and forth from one field of view to the next smoothly, without losing focus.



**ERROR
Messages****SECTION IX: Error Messages****1. Stabilization Failed:**

```
STABILIZATION FAILED
TURN OFF MAIN SWITCH ON REAR PANEL
REACTIVATE UNIT
IF PROBLEM PERSISTS,
CALL FOR TECHNICAL SUPPORT
```

- Ensure there is no testing capillary in the measurement compartment.
- Remove the SQA-V from sources of electronic noise (cell phones, etc.).
- Clean measurement compartment (refer to Appendix).
- Reboot the SQA-V 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.

2. Self-test Failed:

```
FAILED SELF-TEST
TURN OFF MAIN SWITCH ON REAR PANEL.
CLEAN OPTICAL CHAMBER.
REACTIVATE UNIT.

IF PROBLEM PERSISTS
CALL FOR TECHNICAL SUPPORT
```

- Ensure there is no testing capillary in the measurement compartment.
- Remove the SQA-V from sources of electronic noise (cell phones, etc.).
- Clean measurement compartment (refer to Appendix).
- Reboot the SQA-V without a testing capillary in the chamber:
 - 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.
 - Call technical support if this message is displayed again. Prepare for technical support by printing a copy of the SQA-V internal parameters

3. Electronic Noise:

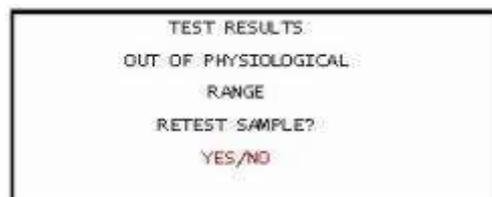
```
ELECTRONIC NOISE.
TURN OFF MAIN SWITCH ON REAR PANEL.
EACTIVATE UNIT.
IF PROBLEM PERSISTS,
CALL FOR TECHNICAL SUPPORT
```

- Ensure there is no testing capillary in the measurement compartment.
- Remove SQA-V from sources of electronic noise (cell phones, etc.).
- Clean measurement compartment (refer to Appendix).

- After cleaning:
 - Press **SERVICE > ESC**. MAIN MENU will be displayed.
 - Select **TEST NEW PATIENT** and re-run test.
- If this message is displayed again, reboot the device:
 - 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 PATIENT and rerun.
- Call technical support if this message is displayed again. Prepare for technical support by printing a copy of the SQA-V internal parameters.

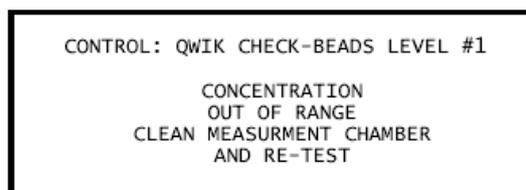
4. Concentration Out of Range

Normal Testing:



- A message will appear indicating that the tests results for SPERM CONC. and/or MSC are beyond the dynamic range established by the manufacturer for testing. This message will appear if the SQA-V reads:
 - SPERM CONC. > 500 M/ml or
 - MSC > 450 M/ml
- Review sample handling technique (see Appendix "Filling the SQA-V Capillary").
- Re-test the sample in a new SQA-V capillary. If the message appears again, reboot the system.
- Call for technical assistance if problem persists.

Control Testing:



- A message will appear indicating that the CONTROL is out of the dynamic range for control testing (CONCENTRATION > 118 M/ml) due to:
 - Dehydrated control media
 - Bubbles in the testing capillary
 - Defective SQA-V testing capillary
- Check control media expiration date.
- Run new control in a new SQA-V testing capillary.
- Call for technical assistance if problem persists.

5. Sample size out of range

If the sample size has been entered as > 50 ml the calculated parameters will not import to the V-Sperm software.

6. I-Button warning screen

- **I-BUTTON NOT PROPERLY ACTIVATED**
 - Remove the I-button
 - Press ESC and Retry

- **EMPTY I-BUTTON INSERTED**
 - Press ESC and Retry with a new I-Button

- **I-BUTTON WARNING**
 - This screen will be displayed when less than 10 tests remain in the SQA-V
 - Insert a new I-Button

I-BUTTON NOT PROPERLY ACTIVATED
PRESS ESC TO RETRY

EMPTY I-BUTTON INSERTED!
INSERT NEW I-BUTTON
#TESTS REMAINING: 10
PRESS ESC TO RETRY

I-BUTTON WARNING:
LESS THEN 10 TESTS REMAINING

7. COMMUNICATION ERROR

- **A communication error may occur in one of the following cases:**
 - Defective wire connection:
The cable that connects the optical board to the main board is not well connected or was damaged
 - Hardware problem

COMMUNICATION ERROR
CALL FOR TECHNICAL SUPPORT

SECTION X
Appendix

Appendix: 1 SQA Cleaning Instructions

SQA and QwikCheck™ Cleaning Instructions

When to clean: DAILY or when...

- Self-test or any other failure occurs
- System becomes contaminated with semen

Cleaning kit contents:

- Blue "dot" cleaning capillaries
- Sponge drying capillaries
- Cleaning brush (wooden-handled)
- Cleaning fluid

CLEANING: Step 1

1. TURN OFF the system and unplug it at the main electrical outlet.
2. Select a Blue dot cleaning capillary (Fig.1)
 - Moisten with ONE drop of cleaning fluid
 - Shake off excess fluid
 - Insert into measurement compartment with fibrous material facing up, moving back and forth a few times
 - Repeat with fibrous material facing down
3. Select a sponge drying capillary (Fig.2) and insert it in the same compartment in order to dry the chamber. (Fig.3)

Only use the manufacturer's cleaning kit and brushes to clean the system or damage will occur to the film and the system will not function

CLEANING: Step 2

If the system still does not pass self-test, the channel that measures concentration may need cleaning. Use the cleaning brush (Fig.4)

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

Cleaning the SQA Visualization Compartment

Open the visualization compartment door (upper slot) and swing the cover above the lens to the left. Wipe the lens with 70% Isopropyl alcohol (not provided).



Fig.1 Fibrous-Material Blue Dot Cleaning Capillary



Fig.2 Sponge Tipped Drying Capillary



Fig.3 Insert into measurement Compartment



Fig. 4 Cleaning Brush



Fig. 5 Lower Chamber



Fig. 6 "Dusting off"

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Appendix 2: Loading I-Button Tests

How to Load the I-button

Applies to: ALL SQA-V (V, Vb, Ve, Vp and Vt) with new I-button clip hardware
Issue date: July 31, 2014

Instructions:

Procedure for LOADING THE I-BUTTON:

1. Turn on the SQA-V and the V-Sperm Computer
2. From the SQA-V go to: MAIN MENU > SERVICE > ADD I-BUTTON TESTS

3. Insert the I-button card (with the I-button attached to it) into the I-button port of the SQA:
 - The back of the card (instructions side) should be facing up so that the clip touches the I-button through the round hole at the back of the card (See Fig. 1).
 - The I-button should be placed snugly into the port and held firmly in place by the clip (See Fig. 2).
 - There is no need to hold the I-button or the card during the loading process – the clip will do this.



Figure 1: I-button insertion



Figure 2: Final location of the I-button inside the port

4. When the button is in place, go to **V-Sperm** (or B-Sperm, or E-Sperm, etc.) and click: **CONTINUE** (See Fig. 3)



Figure 3

5. A progress bar can now be seen on V-Sperm.
6. **The button must remain inside the port as described above during the ENTIRE process of loading the tests until you receive the message: I-Button Tests successfully updated (see Fig. 4).**

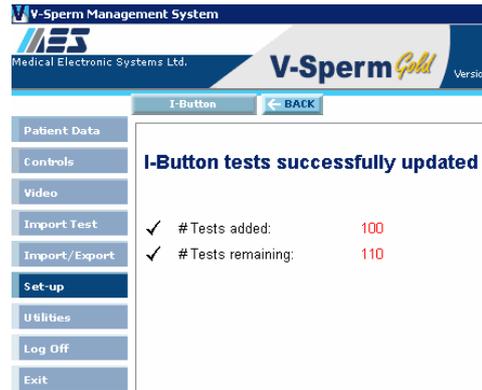


Figure 4

Troubleshooting Errors

Problem description: I-Button Tests are not loading from the I-Button after repeated attempts and an error message is displayed on the V-Sperm screen (see Figure 5)

Explanation of the failure: There is an intermittent I-button communication failure between the SQA-V and the computer in some cases.



Figure 5: Error Message

Troubleshooting Instructions

1. Click **CONTINUE** again if the I-button it doesn't load tests and you receive a communication error.
2. If you still receive a **Communication Error** check the following:
 - **Is the I- button properly located (fully inserted) inside the port?**
 - **Is every step being followed exactly as explained in the I-button loading procedure?**
 - **Is a NEW I-button card being used?**
3. Is the SQA-V connected (via an RS232) to your V-Sperm Computer? (To test this- try importing your patient data...does this work?)
4. If you answered "Yes" to all of these questions, follow these instructions:
 - **Turn off the power on the SQA-V (from the back)**
 - **While holding the SERVICE button of the SQA-V, turn the power switch back on**
 - **You should now have a blank screen (sometimes with garbled lines)**
 - **Immediately turn off the power again.**
5. Finally, turn on the power and follow the "I-button loading instructions" again (section 1-section 6 above).

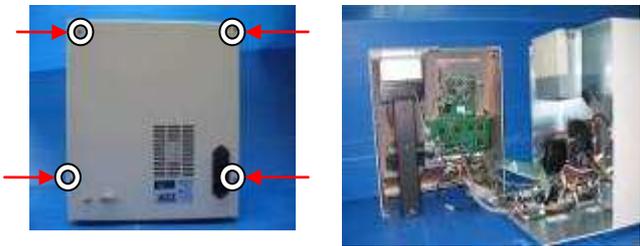
SECTION X | Appendix 3: Replacing the SQA PROCESSOR

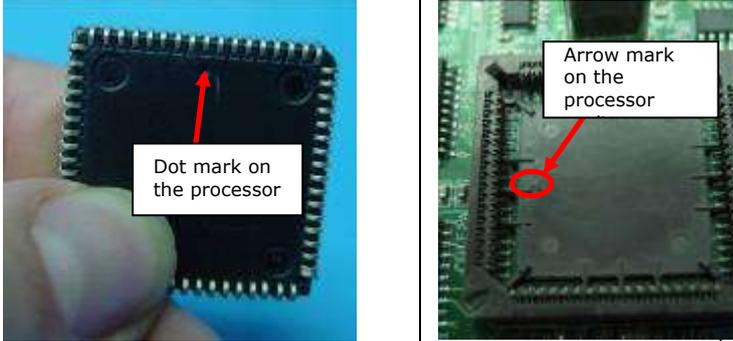
Instructions for RE-SEATING or REPLACING the SQA PROCESSOR

Applies to the following SQA systems: ALL SQA-V (V, Vb, Ve, Vp and Vt)

Problem description: In some cases, the lower screen of the SQA-V is blank (sometimes after trying to re-install the software or when installing a non-i-button software onto an i-button system). A very quick solution to the problem may be to just re-seat the processor with some downward pressure. If this doesn't help, and compatible software was installed (i-button software on i-button systems and non-i-button software on non-i-button systems), the processor may be damaged and require replacement.

Instructions:

<p>Stage 1: Re-seating the processor to the correct position:</p> <ol style="list-style-type: none"> 1. Turn off the SQA and disconnect the power supply cable. 2. Remove the 4 screws on the rear panel using a Philips screw driver #2 (Fig.1) and open the SQA (Fig.2) 	 <p>Fig. 1-2: Open the SQA-V</p>
<ol style="list-style-type: none"> 3. Slightly press the center of the processor with an index finger to re-seat it into the correct position. (Fig. 3). 	 <p>Figure 3: Apply downward pressure to the processor</p>
<ol style="list-style-type: none"> 4. Close the SQA and replace the 4 Phillips screws on the rear Panel (Fig.4) 5. Connect the power cable of the SQA-V. 6. Turn the SQA on and run the SELF TEST. 7. If the SQA-V passes, the repair process is complete. 8. If the SQA-V does not turn-on or fails the self- test, go to stage 2. 	 <p>Fig. 4: Close the SQA</p>
<p>Stage 2: Replace the damaged processor:</p> <ol style="list-style-type: none"> 1. Turn off the SQA and disconnect the power supply cable. 2. Release the 4 screws on the rear panel using a Philips screw driver #2 and open the SQA. 	

<p>3. Remove the damaged processor using tweezers as shown (see Fig.5).</p>	 <p>Fig. 5: Remove the damaged processor</p>
<p>4. Replace the old processor with a new processor according to the following directions:</p> <ul style="list-style-type: none"> Align the “dot” which is marked on the processor with the “Arrow” mark in the processor cavity (see Fig. 6-7). <p>5. Slightly press the center of the processor with an index finger to re-seat it into the correct position (Fig. 8).</p>	 <p>Fig. 6-7: Align the processor in the cavity correctly</p>
<p>6. Close the unit and screwing in the 4 Phillips screws on the rear Panel (as shown in Fig. 4 above)</p> <p>7. Connect the power cable, turn on the SQA and verify that it passes the SELF-TEST.</p>	 <p>Figure 8: Re-seat the processor</p>

SECTION X | Appendix 4: Power Supply – Troubleshooting Flow Chart

