



Service Manual

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The PSION Series 3mx is similar to the Series 3a and Series 3c in many ways, but there are fundamental differences between the two products. Do not attempt to service the Series 3mx with spare parts intended for the Series 3a or Series 3c. Use only the spare parts supplied in Series 3mx spare parts kits - detailed on page

Note



The PSION Series 3mx contains CMOS devices that may be damaged by electrostatic discharge (ESD). The following steps to minimise ESD must be taken before the unit is dismantled. To prevent any damage that could result if the unit or its parts are not handled properly, observe the following precautions during any handling procedures:

- Minimise all handling of static-sensitive components and assemblies.
- Transport and store static-sensitive components and assemblies in their original containers or in anti-static bags.
- Label accordingly any package that contains static-sensitive components or assemblies.
- Discharge static electricity from the body by wearing a grounded anti-static wrist strap while handling these components. Servicing static-sensitive components or assemblies should be done only at a static-free work station by qualified service technicians. Increasing the humidity in the work area minimises static electricity problems.
- Do not allow anything that can generate or hold a static charge on the work station surface.
- Pick up components by their bodies, never by their leads.
- Do not slide components over any surface.
- Avoid handling components in areas with a floor or work-surface covering that can generate static charge.

FCC Information for the USA

Radio and Television Interference:

This equipment radiates radio frequency energy and if not used properly - that is, in strict accordance with the instructions in the user manual - may cause interference to Radio and Television reception. It has been tested and found to comply with the limits for a Class B computing device pursuant to part 15 of the FCC Rules. These are designed to provide reasonable protection against harmful interference in a residential installation. This equipment can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation distance between the equipment and the receiver.
- If you are using the Series 3mx computer with a mains adapter, plug it into an outlet which is on a different circuit from that to which the receiver is connected.

Consult an authorised Psion dealer or an experienced radio/TV technician for help.

This equipment was tested for FCC compliance under conditions that included the use of shielded cables and connectors between it and the peripherals. It is important that you use shielded cable and connectors to reduce the possibility of causing Radio and Television interference. Shielded cables, suitable for the Series 3mx, can be obtained from an authorised Psion dealer. If the user modifies the Series 3mx or its Expansion Peripherals in any way, and these modifications are not approved by Psion, the FCC may withdraw the user's right to operate the equipment. For customers in the USA, the following booklet prepared by the Federal Communications Commission may be of help: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the US Government Printing Office, Washington, DC 20402 - Stock No: 004-000-00345-4.

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Introduction

The purpose of this service manual is to give an overview of the service procedures that may need to be performed on the Psion Series 3mx palmtop computer by either a third party user or a registered Psion service centre. It has been designed to be used by the service and repair technicians who have the responsibility of maintaining the products.

☒ Note: *References will be made in these instructions to the Series 3mx user manual.*

The Series 3mx utilises high-density surface mount component technology which require specialist servicing techniques and equipment. We therefore recommend that repairs are carried out at a module level, rather than at *component* level. Psion encourage service centres to carry a small buffer stock of replaceable modules to allow immediate exchange, should they need to be replaced.

A final test unit is recommended when servicing a Series 3mx. The final test unit is used within Psion during the manufacturing process to exercise all functions of the machine and verify that the build is good. When a Series 3mx is connected to the final test unit test code is downloaded into the machine via the comms interface. The test program can then be run to exercise the LCD, keyboard, membrane, SSDs, switches, comms door, Infrared, speaker and microphone. Operating, idle and standby current consumption can also be measured. This can be extremely valuable in investigating or diagnosing a reported problem. In addition, once a repair has been completed, a full test is run to ensure that the repair has been carried out correctly and that no other fault has been introduced during the servicing procedure.

☒ Note: The information enclosed in this document is confidential and should therefore only be released under a non-disclosure agreement.

Circuit Description

Most of the Series 3c-MX active circuitry is contained on the Main PCB. This includes the power supply, processor, memory and I/O logic (refer to the block diagram opposite). This PCB has provision for 1MB or 2MB of self-refresh DRAM; with the operating system contained in 2 MB of ROM. In practice, only 2MB of RAM is fitted. All frequencies used by the system are derived from a single 3.6864MHz crystal oscillator, with the exception of the real-time clock frequency which is generated from a 32.768kHz watch crystal. This main clock frequency is multiplied up by an on-chip PLL to 27.684MHz, which is used as the main core clock.

ASIC9-mx is a 208 pin QFP standard cell ASIC which contains all core electronics, these include :

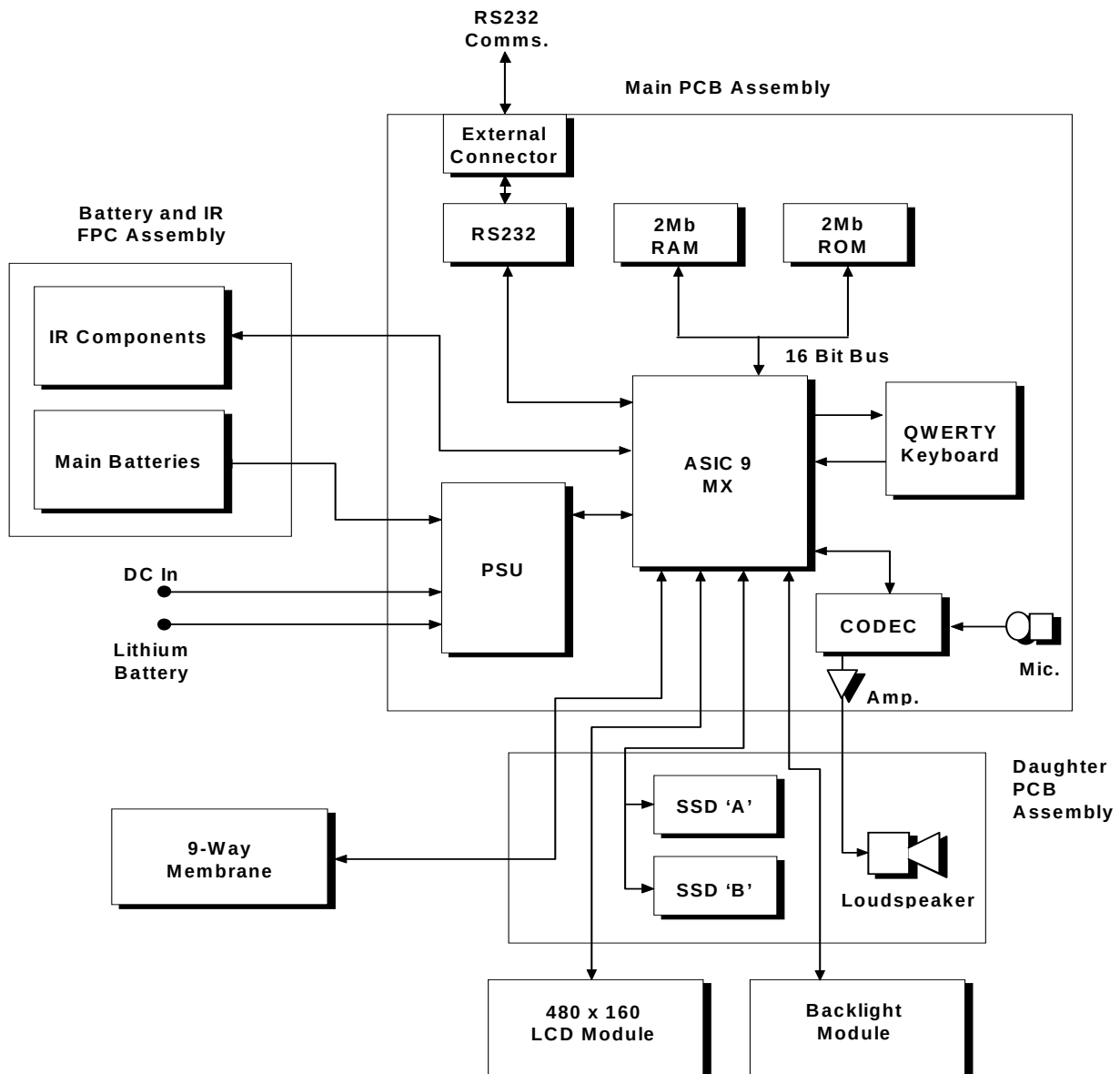
- V30MX 16-bit micro-processor core
- Bus controller
- LCD controller
- CODEC serial interface
- Bit timers
- Watch-dog timer
- Address and I/O protection
- CPU clock generation and halting
- High speed synchronous protocol controller - Real time clock (RTC)
- PSU control
- Keyboard interface
- Main clock oscillator (3.6864MHz)
- PWM PSU controllers and comparators - DRAM controller and interface
- Comms UART for RS232 interface
- UART and IrDA encoder.

ASIC9-mx is essentially a more integrated version of ASIC9, as well as running at a greater core clock speed. The PSU circuitry provides the following functions

- Programmable supply rails
- DC to DC converters
- Battery monitoring

The Series 3c operates from its own battery supply or from an ac/dc adapter. When the latter is plugged in it takes over from the internal battery source. A daughter PCB provides interconnections between the main PCB and LCD module, membrane switch assembly/ SSD's and speaker. In addition to the active circuitry on the main PCB the following is provided:

- The LCD module includes its row and column drivers.
- The backlight includes an inverter circuit which is enabled under software control from ASIC9-MX
- The Battery flexible printed circuit (FPC) includes the IR transmitter and receiver components.

Series 3mx block diagram

Troubleshooting Guide

Fault	Cause	Cure
Unit appears dead	- Main PCB failure - LCD failure - Daughter PCB failure	- Replace the main PCB. - Listen for key clicks as the LCD may be dead but the main PCB could still be functional. Check battery or DC supply. - Test the main PCB by using another LCD and daughter PCB.
Membrane keys not responding.	- Membrane failure - Daughter PCB failure - Main PCB failure	- Replace the membrane. - Replace the daughter PCB. - Replace the main PCB.
Dead on main batteries	- Dead batteries - Battery FFC failure - Main PCB fault	- Replace the main batteries. - Replace the battery FFC. - Replace the main PCB.
No sound and/or incorrect sound	- Daughter PCB failure - Main PCB fault	- Replace the daughter PCB. - Replace the main PCB.
LCD lines missing	LCD fault	Replace the LCD module.
Back light not working	- Back light fault - Daughter PCB fault - Main PCB fault - Zebra contact fault	- Replace the back light - Replace the daughter PCB - Replace the main PCB - Replace the zebra contact.
Unit incapable of writing to flash SSD	- Daughter PCB fault - Main PCB fault	- Replace the daughter PCB. - Replace the main PCB.
Unit not recognising expansion port	- Main PCB fault - Faulty cable	- Replace main PCB - Replace cable
Unit constantly resets	Main PCB fault	Replace Main PCB
Unit not transmitting / receiving IR data	- Battery FFC fault - Main PCB fault - IR window fault	- Check FFC is in correct place and replace if necessary - Replace the main PCB - Check that the IR window is in place and clean.
Unit not reading SSDs	- SSD fault - Daughter PCB fault - Main PCB fault	- Check unit updates lists on door close (door switch may be out of place) - Replace the daughter PCB - Replace the main PCB
Keys not working	- Key mat split - Membrane fault - Main PCB failure	- Replace the key mat - Replace the membrane - Replace the main PCB

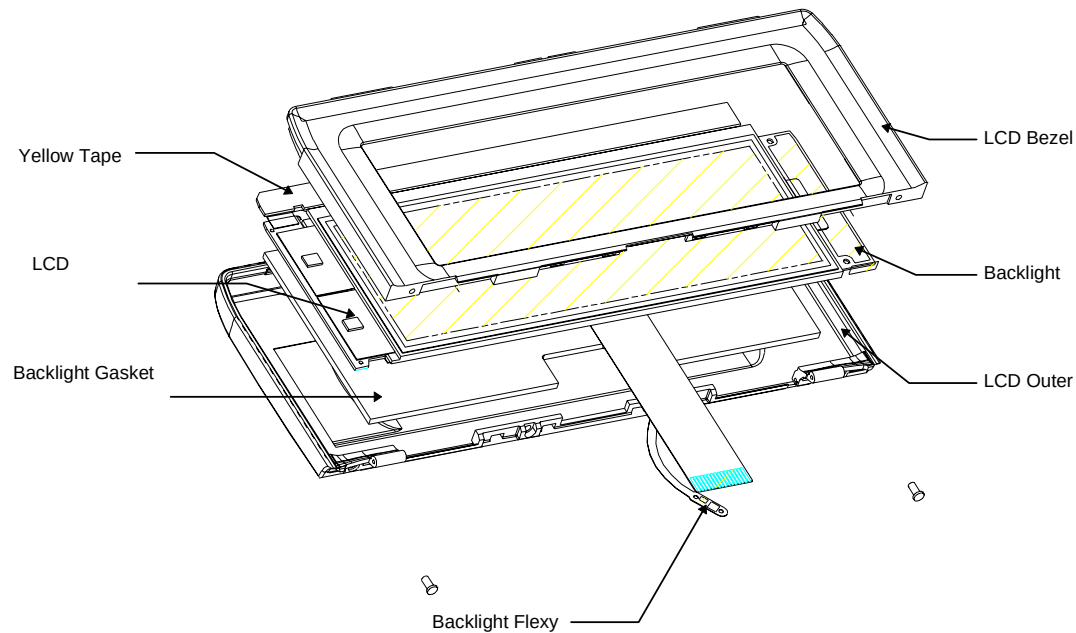
Before commencing service procedures on a Series 3mx check for the following:

- Broken warranty label.
- Corrosion.

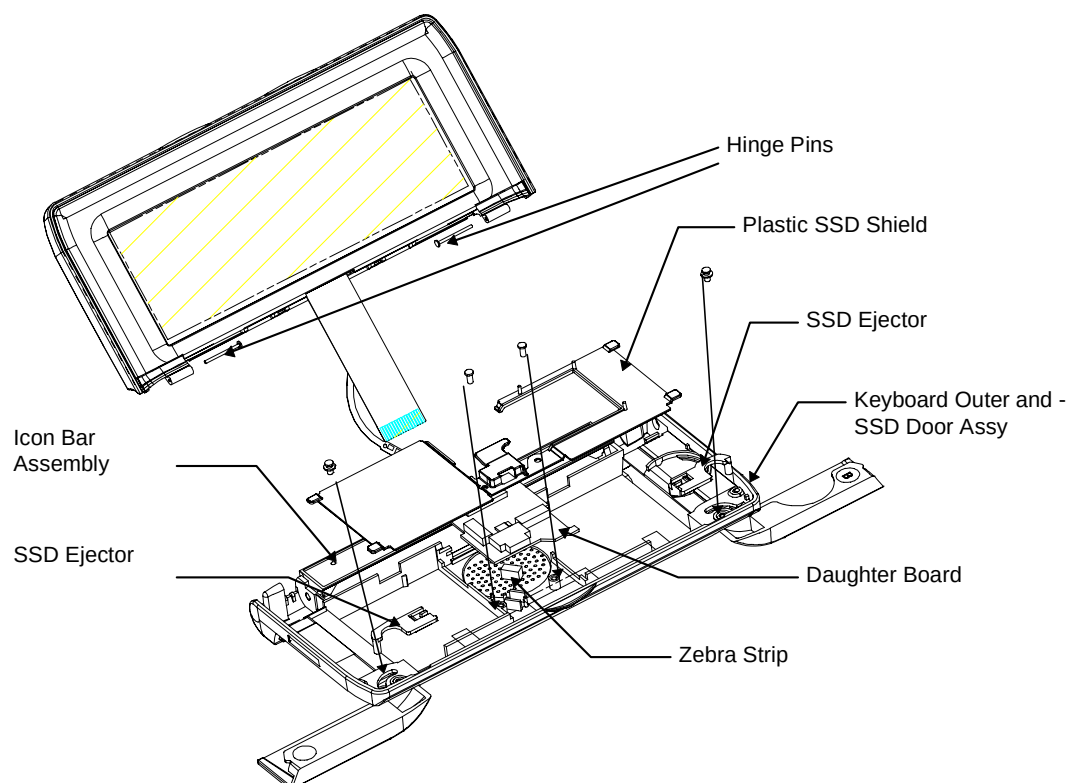
It is important to note that units can occasionally experience a software crash, which can be rectified by enacting a soft reset; see the section "Resetting the Series 3mx" in the User Guide. However it is possible that a crash could be caused by an intermittent hardware fault and therefore it is advisable to fully test any unit that has experienced a crash. Faults such as failure to read SSD's, links, power supplies or batteries can be caused by the peripherals themselves and these faults should be determined only using Series 3mx's that are known to work. Some brands of batteries are shorter in length than the European average and as such can give poor contact, which can result in the unit giving incorrect low battery warnings. Also, re-chargeable batteries have a very low usage time and as such can give the false impression that the Series 3mx is draining them too quickly.

Exploded Views

The following illustration shows the Series 3mx LCD assembly.



The following illustration shows the Series 3mx general assembly.



For further details of Series 3mx construction please refer to the diagram on page 5 of the Series 3c Service Manual.

Spares Kits

The following tables show the listed spares kits that are offered to service centres enabling thorough and complete service and repair work. They have been subdivided into relevant groups to differentiate between the generic kits that supply parts for the servicing of all Series 3mx's, and the language and option specific kits which deal with the localised servicing requirements. The spares kits can be ordered by referencing the 1608 part numbers given.

Series 3mx PCB Spare Parts Kits

1608-0112-01	S3MX Spares kit PCB 2MB ENGLISH
1608-0113-01	S3MX Spares kit PCB 2MB USA
1608-0114-01	S3MX Spares kit PCB 2MB GERMAN
1608-0115-01	S3MX Spares kit PCB 2MB FRENCH
1608-0116-01	S3MX Spares kit PCB 2MB DUTCH
1608-0117-01	S3MX Spares kit PCB 2MB ITALIAN
1608-0118-01	S3MX Spares kit PCB 2MB NORDIC

Series 3mx Modular Spare Parts Kits

1608-0120-01	S3mx Spares Kit LCD Retro
1608-0122-01	S3mx Battery Housing/Door Assembly Spares Kit
1608-0123-01	S3mx SSD Shield Spares Kit
1608-0124-01	SERIES 3mx label Spares Kit
1608-0125-01	SERIE 3mx label Spares Kit
1608-0126-01	S3c/3mx Battery flexi cable Assembly Spares Kit
1608-0127-01	S3mx Base Moulding and SSD Doors Kit
1608-0128-01	S3mx Lithium Battery Kit

Disassembling The Series 3mx

This section deals with the disassembly of the Series 3mx's three main sub-assemblies - the battery assembly, the LCD assembly and the main body assembly. Follow the procedure accurately to ensure the unit is not damaged.

The Series 3mx, although similar to the Series 3c, is in fact quite different and there are very few common parts between the two machines. It is not recommended to attempt to mix parts

Before commencing the disassembly procedure, be sure to remove any batteries (including the lithium cell), and/or SSD's that may be contained within the Series 3mx. To remove the lithium cell open the SSD door marked 'B' to access the cell and push it inwards, towards the centre of the Series 3mx so as to clear the retaining detail in the case moulding. This action pushes the cell against a spring which will in turn push the cell out of its location. Do not use a metallic tool to do this as it may short the cell.



Caution

Danger of explosion if lithium battery is incorrectly replaced.
Replace only with the same or equivalent type of lithium battery and dispose of used batteries as recommended in the Series 3mx User Guide

When removing the internal workings from the case, care should be taken not to damage the LCD module. Do not bend the module as the circuit board is prone to fracturing. If replacing a broken LCD be careful not to get any liquid crystal in mouth or eyes. In the event of any liquid crystal getting on skin or clothes, wash off immediately with soap and plenty of water.

☒ Note: Do not remove both the lithium dry cell and main batteries without first ensuring that the data contained in the Series 3mx's internal memory has first been backed up. Removal of both the battery sources, without previously attaching an external power supply, will erase all information stored on the internal memory.

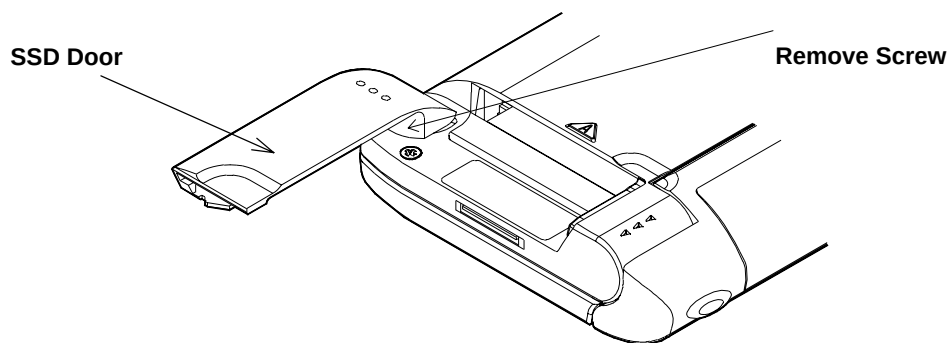
Tools Required

Tool	Description	Type
Screwdriver	Pozi	Size - 00
Screwdriver	Pozi	Size - 1
Tweezers	-	Straight Point
Pliers	-	Snipe Nose

Disassembly Procedure

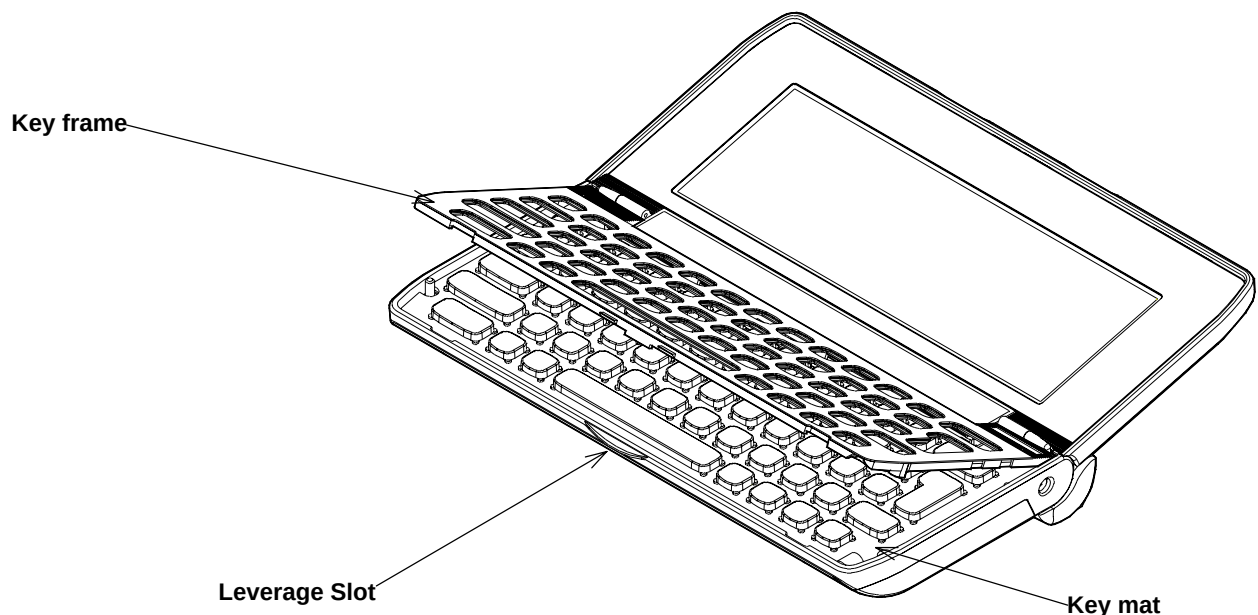
☒ Note: The surface coating on the Series 3mx is applied by a painting process, and as such can be subject to slight colour variations between production batches. To prevent any mismatch, ensure all the parts of a machine are stored together throughout the service procedure.

1. Open both SSD doors fully and remove the two screws situated near the door pivots.



☒ Note: The screw inside the SSD door marked 'B' is located beneath a tamperproof label.

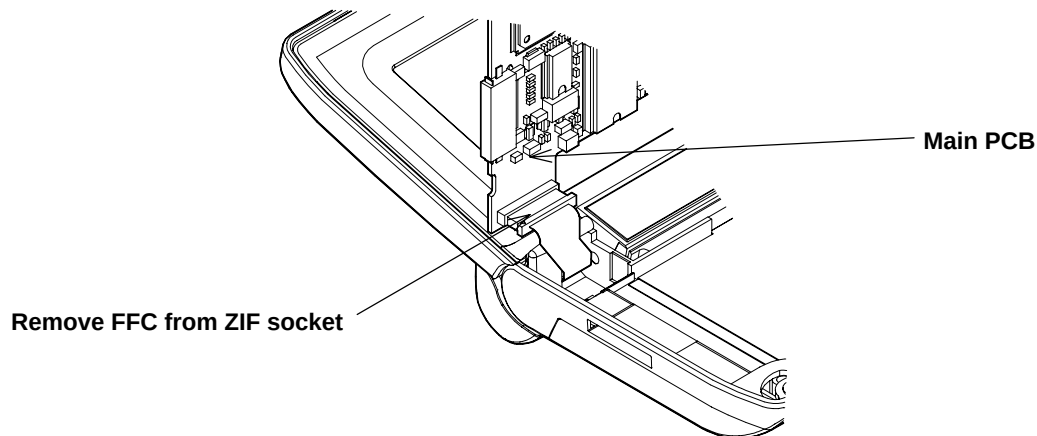
2. Unclip the key frame at the front, by deforming the outer keyboard moulding in the centre of the front edge.
3. Hinge up the key frame from the front to disengage the clips at the back.



4. Slide the key frame out from under the hinge areas.
5. Lift off the key mat.
6. Open The SSD Doors. NOTE this is essential to avoid causing damage to the PCB prior to removal. Remove the main PCB by gently levering the board upwards at its front edge using the leverage slot, and easing the PCB out of its socket on the daughter PCB. Take care not to damage the front edge of the keyboard moulding whilst removing the main PCB.

☒ *Note: Take care whilst removing the RS232 connector from the case moulding.*

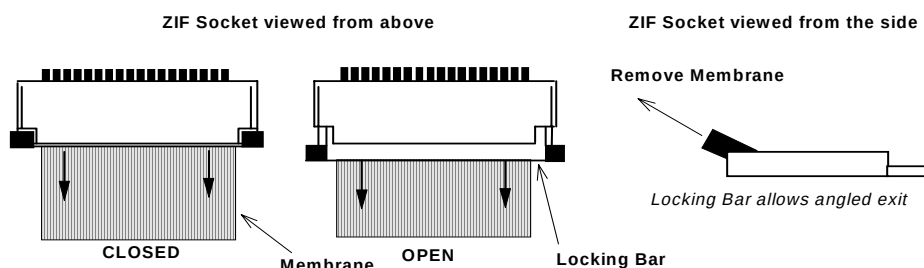
7. Hinge the PCB over and rest it on the LCD. Disconnect the battery FFC from the Zero Insertion Force (ZIF) socket on the main PCB and remove the PCB.



8. Remove the battery cover and the four screws securing the battery housing to the rear of the unit.
9. Remove the battery housing, and carefully pull the battery FFC through the aperture in the main assembly.
10. Remove the 2 hinge springs. Hold the unit vertical with the hinge side upper most and pull the coiled part of the spring towards the centre of the unit and off the hinge link arm. The spring will move towards its pivot and free of the hinge link. Squeeze the spring arms together and slide towards the centre of the unit. Take care not to damage plastic parts or LCD/membrane cables.

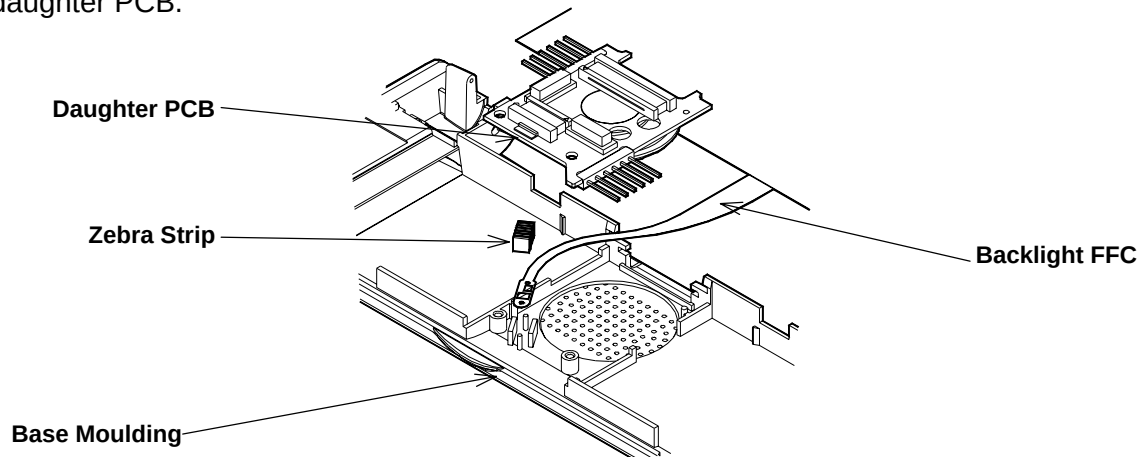
☒ *Note: It may be simpler to use the snipe nose pliers to remove the hinge springs.*

11. Remove the hinge link assembly by pushing either hinge link arm towards the opposite end of the unit until the pivot detail on the hinge link disengages from the keyboard outer moulding. Lift this end so the pivot detail rests on the keyboard outer moulding. Repeat for the other end. (The hinge link assembly will bend a reasonable amount to aid removal).
12. The LCD and hinge link assemblies can now be disconnected from the two ZIF connectors on the daughter PCB. These incorporate a locking bar to retain the cables. Pull the locking bar out at both sides of the connector to release the cable. The cable should give no resistance when being removed.



☒ *Note: Do not force the cable out of a locked ZIF socket as this may cause damage to the cable and/or the socket.*

13. Remove the daughter PCB by removing the two screws securing it and the plastic SSD shield to the base moulding. The SSD shield can be lifted out to allow removal of the daughter PCB.



14. If fitted, remove the zebra strip connector and backlight FFC from the case moulding.

☒ **Note:** *Always wear gloves when handling the zebra strip.*

15. The LCD module and cover moulding assembly can now be disconnected from the case moulding by removing the two hinge pins from their locations and separating the two parts.
16. The TAB LCD module can be removed from the cover moulding by removing the two hinge pins using the snipe nose pliers. Note: Backlight and non backlight LCD assemblies are assembled using machinery at the point of manufacture to ensure correct alignment of the components, and as such are supplied to service centres as fully assembled, language specific units to ensure that they can be replaced with the minimum of complexity.
17. The battery FFC can be removed from the battery housing by unclipping the IR window, which will release the IR circuit and FFC assembly. The battery connectors can be removed from their locations and the FFC can then be removed from the location points along the back of the battery housing.

Reassembly Instructions

The Series 3mx can be reassembled by enacting the reverse of the Disassembly Procedure. However, observe the following points:



Exercise caution whilst reinserting the FFC's into the ZIF sockets. Inserting FFC's into the sockets at an angle can cause short or open circuits.

Ensure that all necessary static precautions are taken before servicing a Series 3mx.

Whenever servicing a Series 3mx ensure that all screws that are removed are replaced

When replacing the main PCB ensure that the SSD doors are left open. Failure to do so will cause severe damage to the SSD door open detect switches on the main PCB

Ensure that the LCD FFC and the Touch membrane FFC are firmly locked into the ZIF sockets on the daughter PCB. These connections can potentially work loose if not fitted correctly.

When replacing the main PCB fit the top left hand corner of the PCB (when looking from above) into the keyboard outer moulding first to ensure that the RS232 connector is located into the aperture in the keyboard outer moulding correctly. Then firmly push the PCB down onto the daughter PCB connectors. Check that the RS232 connector sits accurately in the moulding aperture once the PCB has been inserted.

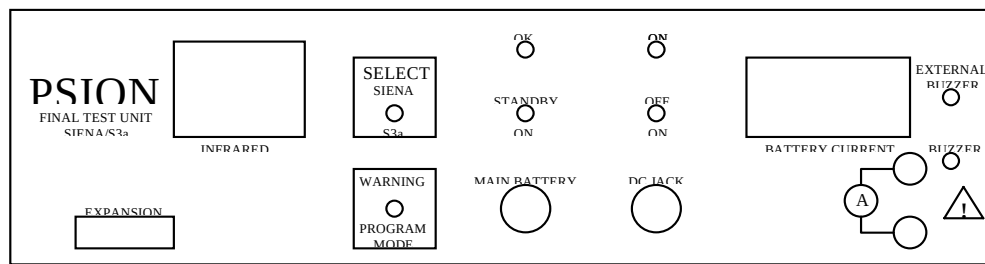
Never separate the LCD assembly from the LCD bezel as these parts are assembled using machinery at the point of manufacture to ensure accurate alignment of the LCD in the bezel.

Final Test Procedure

Test Equipment & Set Up

Equipment Required

Quantity	Description	Psion Part No.
1	Siena/S3a Final Test Unit	1610 0006 01
1	AA dummy battery cable	2503 0003 01
1	Expansion to D-type cable	2503 0022 01
1	DC Jack cable	2503 0001 01
1	Lithium battery	4900 0018
2	Test SSDs	2301 0115 01
1	Test Unit programming cable	2503 0021 01
1	OKW Test Box key	



Front panel 4mm sockets are **ONLY** provided for connection of an **Ammeter** for measuring current drawn from the **DC Jack** supply output. Note the **DC Jack** led indicator current is included in any reading. Also, note that to obtain a current reading, the **DC Jack** switch must be left in the '**OFF**' position

Caution

To avoid the possibility of this test equipment malfunctioning it must be used in a benign electromagnetic environment. Strong radiating devices, such as mobile phones, must not be used in the vicinity of the product as they may cause a temporary disturbance.

This test equipment must be used in a static-free environment. Such an environment can be provided by using static dissipative surfaces on the test bench below the equipment and ensuring that operators are discharged by means of static wristbands, prior to using the equipment.

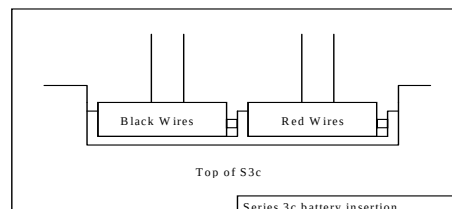
Static dissipative surfaces and wristbands can be obtained from your local component stockists.

Series 3mx Set Up

1. Connect the Functional earth terminal on the rear panel to the fixed installation earth.
2. Connect the test unit mains input lead. Switch on the unit (the switch is on the back panel) and allow to settle for a few seconds before starting tests.
3. Move the SELECT switch on the front of the unit to the 'S3a' setting. NB Switch position for testing S3c/Series 3mx and S3a is the same.
4. Connect a 'D type to Expansion' test lead to the Expansion Port on the front of the unit.
5. Connect a 'AA battery lead' to the Main Battery connector on the front of the unit.
6. Connect a 'DC Jack lead' to the DC jack connector on the front of the unit.

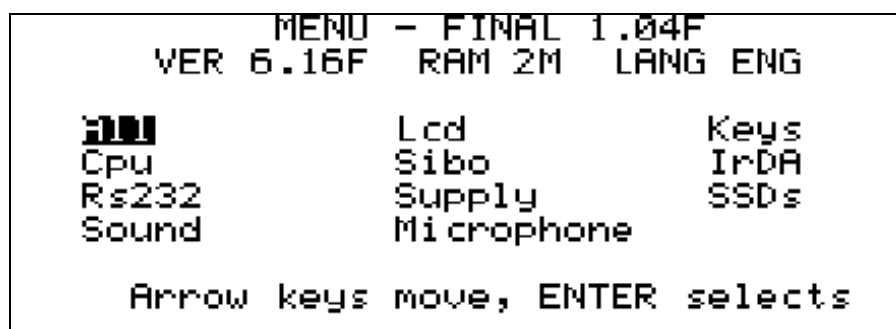
Test Procedure

1. Ensure the Main Battery switch on the front of the test unit is in the 'Standby' position, and the 'OK' LED is on. Ensure the DC switch is 'Off'.
2. Insert the Expansion connector from the test unit Expansion Port into the Series 3mx expansion port, and the DC jack lead into the Series 3mx DC socket..
3. Insert the dummy AA batteries into the Series 3mx as shown below. Ensure the batteries are inserted the correct way around.



4. Insert a good Lithium battery and two test SSDs into the Series 3mx.
5. Check that the ammeter is not showing an 'overload' condition (i.e. it does not show '1.' on the LCD display).
6. Place the Series 3mx on the bench in front of the test unit so it's IR window is pointing in the direction of the Infra Red window on the test unit (note alignment does not have to be exact)
7. Move the Main Battery Switch to the 'On' position. After a few seconds, the Series 3mx should come on and display the Series 3mx test menu as shown below. (An error occurs if the test unit is in the wrong mode - i.e. the select switch is in the wrong position).

Looking at the header information on the menu screen



Series 3mx Final Test Menu

- (a) Check *O/S Version Number* is correct for the Series 3mx build.
- (b) Check *RAM Size* is correct for the Series 3mx build.
- (c) Check the *LANG Language* is correct for the Series 3mx build.

- Note: If a load error occurs i.e. a warning message is displayed on the Series 3mx indicating a missing file, then reset the machine and try loading the test software with the DC jack switched ON.

8. Follow the instructions given on the display. When prompted, press the appropriate key to confirm whether a test has passed or failed.

During the display test, a bold centre cross with corner markers is displayed. Check this carefully to see if any rows or columns are missing.

Press each key during the Keys test. The display shows keys pressed.

During the Infra Red test, ensure the Series 3mx IR window is pointing towards the IR window on the test unit.

During the supplies test, switch the DC switch to 'On' when prompted. Check the Battery Current display reduces to zero.

Check the quality of the speaker when it sounds.

When the microphone is tested, hold the Series 3mx close to the buzzer on the test unit.

At the end of the test either 'OK' or 'Fail' is displayed.

9. Switch off the DC supply. Check the On (idle) current on the Battery ammeter; this should be in the range given in Section 5.4.

10. Move the Battery switch on the test unit to 'Standby'. Press the Series 3mx reset switch, noting the Series 3mx goes into standby (off) state. Check the Standby current on the battery ammeter; this should be in the range given in Section 5.4.

11. End of test. Remove the DC jack lead, the expansion cable and Dummy AA batteries from the Series 3mx.

Test Sequence and Explanations of Tests

Start of test

At the start of the test sequence, the test unit Battery switch is set to 'standby'. This setting applies approximately 2.75V to the batteries, current limited to around 50mA. (2.75V represents realistic battery output).

In moving the Battery switch to 'on', the battery voltage is switched to about 2.5V, current limited to 500mA. (2.5V represents typical end of life battery output).

Moving the switch also generates an 'EXON' pulse to the expansion port EXTON pin. This is effectively a clock pulse on the slave serial channel used to 'wake up' the machine.

As the Series 3mx wakes up, the test software is loaded from the Flash ROM in the test unit into the Series 3mx RAM, where it is executed.

At this point the test software checks that the test unit is in the correct mode and generates an error if it is not. A check is also made for Ground Faults, i.e. signal ground appears on the Series 3mx expansion connector and on the DC jack. A check for the presence of the middle battery clip is made.

Language

Reports the language variant to the operator. An operating system call is used to read the keyboard label identity. Check that this corresponds to the keyboard fitted.

LCD

A rows/columns test is performed by displaying a bold centre cross with corner markers on the screen. The operator must check the display to determine whether any rows or columns are missing or corrupted.

A backlight test switches the backlight ON if fitted. The operator must check the display to determine if it comes on.

A contrast test switches the display from dark to light. Again the operator must ascertain whether the contrast range shown is acceptable.

Keys

The display shows a template of the Series 3mx main keyboard and the nine way membrane keypad. The operator must press each key, and the display shows if a key has been successfully operated. If all keys are not successfully pressed within a set time, the test fails.

CPU

This test checks the mathematical operation of the Series 3mx's microprocessor.

SIBO

The EXSTAT line is toggled. The VCCEXT 5V as well as the Ground and Screen of the expansion (Honda) connector are checked.

Infra Red (IrDA)

The infra red test transfers a set of characters from the Series 3mx to the test unit over the infra-red link (TX test) and then vice versa (RX test). The files sent and received are compared in each case to determine if there is any data corruption.

RS232

Lines on the RS232 interface are looped back on each other to test communications. TX/RX, DTR/DCD, DTR/DSR and RTS/CTS are looped as pairs.

Supply

A 10V supply (current limited to 200mA) is applied to the DC jack socket of the Series 3mx. Note that no ground connection is present on the jack as a separate circuit tests that the GND connection is present on the jack socket fitted to the Series 3mx. This is because the test may detect a fault in the ground return path. e.g. a break in the input filter toroidal or GND choke would prevent normal operation via this connector.

SSD

This checks both the operation of the SSD door switches and the SSD connectors. Note that the DC Jack must be present and ON in order for this test to work. This is because the Vback output from the Series 3mx is below the Test SSDs limit when supplied via batteries. The Vback output is increased when the DC jack is present.

Microphone

The buzzer in the test unit will sound for a maximum of three seconds. A recording of the buzzer will be made and analysed for zero crossings. Failure will result if zero crossings are found to differ from the expected values. Note the buzzer used has a typical frequency of 2.9 kHz with a range of 2.3 - 3.4 kHz. Minimum sampling time is one quarter of a second.

Sound

The DC Jack must be present and ON in order for this test to work. This is to prevent current limiting via the battery.

On and Idle current measurement

This test should be made only when the processor is not active. i.e. at the end of the test sequence.

Reset

This test verifies that the Reset switch operates correctly.

Standby Current

The meter should settle at the standby current according to the build of the unit under test. Units with Pseudo static memory have their refresh enabled after cold booting, so the standby current can only be measured at the end of the test sequence. A 3% tolerance factor is added in order to take into account meter error.

Series 3mx Test Parameters

2MB

Measurement	Typical	Minimum	Maximum
On (idle) current	20mA	N/A	36mA
Standby current (after reset)	0.110mA	N/A	0.639mA

Note: Limit include a 3% tolerance to account for measurement error.

Problem Solving

1. Check all cables are properly connected as described, and are not damaged or worn.
2. Ensure the test procedure is followed carefully, exactly as described.
3. If the test box fails a unit known to be working, please contact the Test Manager at the address given in the Introduction (page 3).

Maintenance & Calibration

Caution

To avoid the possibility of this test equipment malfunctioning it must be used in a benign electromagnetic environment. Strong radiating devices, such as mobile phones, must not be used in the vicinity of the product as they may cause a temporary disturbance.

This test equipment must be used in a static-free environment. Such an environment can be provided by using static dissipative surfaces on the test bench below the equipment and ensuring that operators are discharged by means of static wristbands, prior to using the equipment.

Static dissipative surfaces and wristbands can be obtained from your local component stockists.

The test units requires no calibration. All values are pre-set, and test limits are stored in software to allow easy modification if required.

The Infra Red window must be kept clean. Do not use cleaning agents on the window; remove dirt carefully with a soft dry cloth.

All test cables and connectors should be inspected regularly for signs of wear or damage. Excessively worn or damaged connectors must be replaced. This particularly applies to connectors which are plugged/unplugged for each test. It is advisable to keep two working sets of test equipment so damaged or faulty components may be easily replaced.

Test Unit modification are indicated by a label on the rear of the test Unit. The modification level is the last number crossed out on the label. For example the following indicates Modification Level 3:

MODIFICATION LEVEL:

~~0~~	~~1~~	~~2~~	~~3~~	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20

Upgrading the Test Unit

Any software upgrade is supplied on a Flash Memory chip.

To install an upgrade to your final test unit;

1. Switch off the mains supply and remove the mains cable.
2. Disconnect all cables from the test unit front panel.
3. Open the test unit by removing the top cover using the OKW key supplied.
4. Carefully remove the Flash Memory chip (marked IC6 on the PCB) from its socket - the correct chip is easily identifiable as it is the only one in a blue socket and should be marked 'Siena/S3a Final Test'.
5. Carefully place the new Flash chip into the socket, making sure it is inserted the correct way round.
6. Replace the top cover of the unit before re-connecting power or any cables.