Fault Determining.

Take the next ducket off the shelf. The most urgent duckets are usually ORANGE duckets. If there are no orange duckets, then the RED duckets should be taken. If there are no red duckets, take the BLUE ducket that is on the lowest shelf and furthest to the right.

Take the first probe out of the bag.

Read the photocopied paperwork, and heed any special instructions from the customer, and any customer's fault description.

Check probe for any visual damage; any damaged parts will have to be replaced. Remove the components from the clip, and test that they function as per the diagrams in the manual. If the clip is to be replaced, then follow clip replacement procedure. If the components do not function, then the probe is unable to be repaired.

If the probe appears to have no visual damage, then test the circuitry using the test box in conjunction with the repair manual. Use any test cables necessary.

If the circuitry appears to be damaged, then test for any intermittent circuits at the strain reliefs, by flexing the cable at these points. Any intermittent circuitry at these points can usually be remedied by slightly shortening the cable and rewiring beyond the point at which the break occurs. Any intermittent circuitry through the length of the cable, i.e. between the strain reliefs, must be remedied by replacing the cable- rewire the probe with the new cable according to the procedure. If the circuitry is not intermittent at these points, then open the connector, and check the integrity of the contacts inside- if any wires have become broken off from the contacts, then they can usually be remedied by simply resoldering the wires to the contacts as per the repair manual. If the circuitry is not damaged at this point, then open the finger clip, and check the integrity of the contacts at this point- if any wires have become broken off from the contacts, then they can usually be remedied by resoldering the wires to the components as per the repair manual.

If the circuitry appears to be undamaged, then test the probe on the oximeter for which it is manufactured. Look out for a regular, smooth waveform(if shown), and for regular readings of SpO2 and pulse rates. An erratic waveform, or irregular SpO2 readings, can usually be remedied by rewiring the connector, as per the repair manual, making sure that there is no shorting between components.Look also for onscreen messages.

If the probe appears to work well on the monitor, then test using the DL3000 simulator in conjunction with the monitor. Test at 97%, 90%, and 80% SpO2 levels, at 80 bpm. If the probe works well on the DL3000 simulator, then there is No Fault Found- follow the appropriate procedure. If the probe has inaccurate readings, i.e. >3% difference between simulated and actual readings, or if the probe cannot pick up the simulated SpO2 levels, then the probe is out of spec, and cannot be repaired- see the appropriate procedure.

Repeat the procedure for every probe in the ducket

z/main/repfault

QA PROCEDURE FOR NO FAULT FOUND PROBES

Check probes for cleanliness (Including cable and connector), also check for damage or cracks. Check the required stickers are on the probe in the right order and distance from the connector. Ensure all paper work is with the probe and that all appropriate paper work is filled in.

Plug probe into the test box and check for the required traces on the oscilloscope, as compaired to the diagram in the repair manual. Check for any breaks or connections in the length of the cable and at the clip and connection ends (including any extension cables).

Plug probe into original monitor and place probe clip on finger. Check the trace on the monitor, making sure that it is regular and is not erratic. Record the SpO2 reading from the monitor into the appropriate QA box on the probe repair sheet. Take the probe off finger and place on the *DL3000* finger. Set the *DL3000* to the required setting (ie, to correspond to the monitor being used). With the Bpm set at 80 take readings of the Spo2 at settings : 97, 90, 80. These results should also be recorded on to the probe repair sheet in the appropriate boxes, then recorded onto the computer. This is done by clicking on the 'DL3000' box the screen will change to the DL3000 result screen which can then be filled in with the relevant information. Once completed the previous sheet can be brought back by clicking on 'Back to repair sheet'.

If any faults are found with the probe they should be noted on to the repair sheet and the probe along with the paper work should be returned to the engineer who undertook the repair.

Working probes should have a Mylar tag attached and should be placed in a repair service box, making sure a repair service sticker has been placed on the box. The box should have a small amount of silicone polish sprayed under the lid, which should then be wiped off with kitchen roll. Probes for the company ENVITEC should not be boxed.

The information which was recorded on to the repair sheet should now be recorded on to computer, ensuring all sections are filled including the probe information if any.

The repair code should be filled in "No Fault Found".

A repair certificate should then be printed out, on Viamed headed paper, which should be signed and placed with the probe and original paper work.

The working probe should then be signed out of the repairs folder by dating and initialling against the probe's repair number.

The probe and its paper work should then be returned to its original ducket. The ducket, when completed, should be placed on the repaired probes shelf.

z/main/qanff

Probe Repairs - Goods In

Revision Date 24/02/99- *surpasses Document: Epic/proc/goodin1.sam*

Goods In

Switch on Goods In computer.

Load REPMAIN.apr if not already loaded

Select REPAIRS IN

Open Post

Keep all paperwork supplied with each probe with each probe

Check that all the information on the paperwork is correct, i.e. that the right number and type of probes are on the paperwork- inform the office manager of any discrepancies, which should be followed up immediately

Place contents of each package (probes, paperwork, any other items) in a single ducket as follows:

UK hospitals/ agencies in BLUE duckets
URGENT UK hospitals/ agencies in RED duckets
EXPORT repairs in ORANGE duckets

Locate customer file number

Date stamp paperwork

Enter all relevant information into goods in book- date in, carrier, e.g. post, DHL, etc, tracking number if any, number of boxes, physical damage (either YES or NO), type of product (probe repairs), supplier (name of hospital/ agency), destination (w/s), booked in by (your initials). Leave the last two sections, completed by and w/s-o/n-r/n, blank for the time being

Enter details into computer

Enter your initials
Enter order number (from customer paperwork)
Enter customer file number
Check details of hospital (name and address) are correct
Enter contact name (from customer paperwork)- if no contact name, enter "Sir/Madam"
Enter department TO WHICH THE EQUIPMENT SHOULD BE DELIVERED (from customer paperwork)
Enter serial number
Enter cable type
Enter probe type i.e. manufacturer/ oximeter (if different), e.g. "Nellcor", "MCI Datex", etc.
Enter Viamed equivalent- if no equivalent, enter "Unavailable"
Enter originators tracking number, if any (any numbers found anywhere on probe or accompanying paperwork)
Enter customer's description of fault, if any
Enter condition of probe from list
Enter date sold if applicable
Enter previous repair number if applicable, checking that the previous repair details tie up
If probe is under Viamed's from new warranty, i.e. sold within last 12 months, click on "Warranty From New"- an "x" should appear in the corresponding box
If probe is under Viamed's repair warranty, i.e. repaired within last 6 months, click on "Repair Warranty"- an "x" should appear in the corresponding box
Read and act on any information brought up by computer
Click on "Browse," click "Find," and enter the repair number of the probe in the repair number field (this makes printing of the worksheet faster)
Click on "Print", which should print the worksheet
Check that all the information on the worksheet is correct
Fold the worksheet into three, place in a probe repair bag with the probe, and attach a "Customer Repair" label to the bag

Repeat the above steps for every probe in the box

When the box has been completed, the customer file number and the date should be written on the front of the ducket with a dry-wipe marker

Stamp the paperwork with the accepted stamp, add your initials, the date, and the repair number(s) to the paperwork.
Photocopy the paperwork, placing the photocopy in the ducket
Place the original paperwork at the front of the probe repair file for UK hospitals/agencies
Place the original paperwork in the appropriate lettered section, i.e. ENVITEC paperwork goes in section E, in the European Epic repair file for export repairs
Enter the repair numbers, date, probe type, quantity, serial numbers (if space is short, add "see w/s" to this section) and name of hospital/agency, to the sheet at the front of the repair file for UK hospitals/ agencies
Enter the repair numbers, date, probe type, quantity, serial numbers (if space is short, add "see w/s" to this section) and name of agency, to the sheet at the front of the European Epic repair file for exports

z/main/goodsin1

Add the repair numbers to the "w/s-o/n-r/n" section of the goods in book, and enter your initials in the "completed by" section.
When every probe in the ducket has been booked in and given a repair number, the ducket should be sent to the workshop for repair.

<u>If there is no order number supplied with the probes for repair;</u>
check the repair file- orders are occasionally sent ahead of equipment, so the official order may be in this file- if an order can be tied up with the equipment, then it should be taken from the file and used as the original paperwork, stamped, dated, signed, etc, **and the ducket can be sent to the workshop for repair,**
if the probe is in warranty, enter "warranty" as the order number, **and the ducket can be sent to the workshop for repair,**
if the probe is out of warranty,and there is no order in the repair file, **or if the paperwork asks for a quote before repair,** leave the order number blank- a standard letter will be printed, relevant to the specific probe- this should be signed on behalf of P.Lamb, and can be faxed (if a fax number hes been supplied), or posted to the customer, **and then the ducket should be placed on the hold shelf with the other duckets awaiting order numbers-** no probe should be repaired without an order number or a warranty to cover the repair.

If the order for the work has the wrong price on, for example, sometimes the order will say "please repair 1xprobe @ £10-", etc, **or if the paperwork asks Viamed to phone with a quote**, then the probe and paperwork should be given to the office manager, who should then contact the hospital direct to obtain an order number over the phone.

At the end of the day, when all probe repairs have been entered, hit F2, which will print out a list of the probes entered that day. This list should then go at the front of the probes QA book in the workshop.

Repaired

If the probe has been determined as having been repaired, then the engineer should:

Clean the probe- any dirt or stains should be removed from the cable, clip and connector parts, as far as is humanly possible, using isopropanol, foam cleaner, silicone polish or foam polish. Any iodine stains may be impossible to remove, but any dirt that can be removed should be removed.

Label the probe- if the probe type has a specific "DO NOT THROW AWAY" label, then one of these should be attached to the cable approx 3" from the connector.

If the probe type does not have a specific "DO NOT THROW AWAY" label, then a generic, orange coloured label should be attached to the cable approx 3" from the connector- if the probe is from a customer/ agency outside the UK, the multi-lingual

"DO NOT THROW AWAY- Nicht Wegwerfen-Ne Pas Jeter"

label should be used. If the probe is from a hospital or agency within the UK, the English

"DO NOT THROW AWAY- Intended for multiple use"

label should be used. Probes for the company ENVITEC should have the generic multi-lingual label, rather than any specific label.

If the probe is for a hospital within the UK, then a silver

"CALL VIAMED - PROBE REPAIR"

label should be placed on the cable approx 5" from the connector. If the probe is for a hospital outside the UK, or for an agency, then the silver sticker is not needed.

The above labels should be orientated so that when the cable is held upright, with the connector hanging below, the labels are the right way up and can be read easily.

A repair label should be filled in- alongside "REPAIR" the repair number should be written, and alongside "S/N" the probe's original serial number should be written, if known. This label should then be fastened to the cable approx 7" from the connector.

The probe should then be tested by the engineer, on the test box, original monitor (if available), and DL3000 simulator (if available). The probe should also be checked for superficial damage that may have been missed the first time around.

If the engineer is happy that the probe works, then the probe should then be returned to the ducket with all paperwork appropriately filled in.

When completed the ducket should be placed on the QA shelf.

z/main/repair

QA PROCEDURE FOR UNREPAIRED PROBES

Check the probe to make sure all the parts are with it.

Read the engineers description of the reason that the probe cannot be repaired, and as far as possible verify, i.e. if the engineer states that the components are not functioning, test the components using the test box.

When it has been verified, call up the appropriate repair number on the computer, and fill in all the appropriate information, going so far as to test the probe on the test box, monitor and DL3000 if the probe's condition will allow it.

Fill in the date, initials of the repair engineer and the time taken(which can both be found on the worksheet), and enter your own initials in the "Tested by" field.

Fill in the results of any tests on the computer and on the worksheet, sign and date the worksheet, and in the section marked "Probe information/ reason unrepairable," fill in the reasons that the probe cannot be repaired, making sure to enter this information in complete and concise sentences, as this information will go to the customer.

Fill in the repair code as "Unable to repair."

Click on the "Print Customer Letter," field.

Attach a red "Unrepaired" sticker to the probe, around the clip or cable.

Sign and date the worksheet. Return the probe to the bag with the signed and dated worksheet.

If the probe is in warranty, an internal letter will be printed, on Viamed headed paper, this should be placed in the bag.

If the probe is out of warranty, a customer letter will be printed, on Viamed headed paper, which should be signed by the engineer on behalf of D.Lamb.The letter should be returned to the bag.

The completed probe should be placed in the ducket.

The completed probe should then be signed out of the repairs folder by dating and initialling against the probe's repair number.

The ducket, when completed, should be placed on the repaired probes shelf.

z/main/QAunrep