COMPANY OPERATING PROCEDURES

SpO_2 Repair Procedures
DATEX 3

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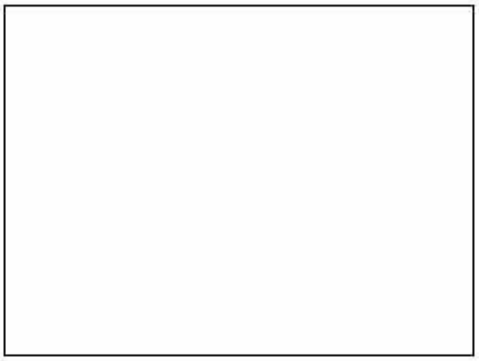


OEM Part Numbers &/or Names

Introduction

Soldering iron set to 250 degrees, to prevent heat damage to components.

1. Determine fault - intermittent or non-existent component connection, physical damage to clip, physical damage to cable, physical damage to connector, and intermittent circuitry at points of strain, such as the clip end strain relief and the connector end strain relief. If there is no damage to the it can be reused. Any parts to be reused should be cleaned thoroughly with isopropyl alcohol or foam cleaner

2. Remove pads from shells
3. Remove components from pad housing
4. Clean excess silicone from components, ensuring that the contacts are as clean as possible.
5. Desolder old wiring from components
6. Reposition components into the new pads, removing any obstacle rubber to allow comfortable fitting of components - note that replacement pads must be the same colour as the original pads, so that components from a white pad must go into a white pad, and component s from a black pad must go into a black.
7. Place a small amount of flowable non-corrosive silicone sealant onto the face of the components and place into pads, ensuring that both emitter and detector are central in pad windows. Note that the silicone on the outside of the pad must run to the contour of the pad to make a smooth window - there should be no doming or sinking of the window. Any excess can be removed with a small screwdriver, also any deficit can be topped up with small amounts of silicone from a screwdriver tip - however these steps should be taken within 2 minutes of the component being placed in the pad, before the silicone has had time to become tacky, so that it is still flowing enough to ensure that the window will return to a smooth flat surface. Leave pads to set for 24
8. Prepare new cable as follows
   a. Attach strain relief "0010150," to replacement cable, 0018727 and glue in position.

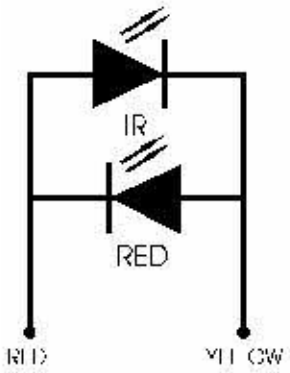
b. Strip back outer cable cover of exposed end flush to strain relief.
c. Remove outer shield and paper, and cut off Kevlar fibres, orange and blue wires.
d. Strip and tin red and yellow wires to required lengths - approximately 2.5 cm from end of cable cover.
e. Cut inner white cable to 88mm from end of outer cable cover, strip last 8 mm of inner cable cover, cut off inner shield and discard.
f. Strip and tin ends of black and white wires.

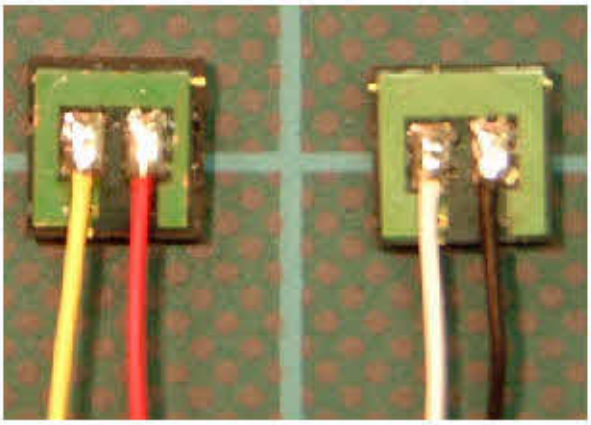
Nos	Viamed Part number	Description
1	0010100	Viamed SpO2 finger probe service kit (White pads)
1	0010706	10 socket plug connector kit.
1	0032087	Resistor - 16K2, metal film
1	0032250	Capacitor, 150pF
3.65m	0030513	SpO2 cable - version D (production)
30mm	0032331	Heatshrink tubing - clear, 6.0mm, 7m reel
15mm	0032321	Heatshrink tubing - black, 6.0mm, 7m reel
10mm	0032310	Heatshrink tubing - black, 1.6mm, 25m reel

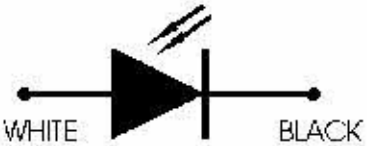
Assembly Clip

1. Prepare Clip end of cable as follows
   a. Attach strain relief "0010150," to relevant replacement cable, and glue in position.
   b. Strip back outer cable cover of exposed end 1mm from end of strain relief.
   c. Remove outer shield and paper, and cut off Kevlar fibres and any unused wires.
   d. Strip and tin relevant coloured wires (from red, yellow, blue, orange) to 13mm from end of cable cover. Strip and tin last 1mm of each wire.
   e. Cut inner white cable to 78mm from end of outer cable cover, strip last 8mm of inner cable cover, strip and tin last 1mm of black and white wires, cut off inner shield and discard
   f. Strip and tin ends of black and white wires.
2. Solder wires to components as per relevant diagram
3. Fit components into pads as follows
   a. Position components in drying rack.
   b. Place a small amount of flowable non-corrosive silicone sealant onto the face of the components.
   c. Place pads onto components, ensuring that both emitter and detector are central in pad windows. Also note that the silicone on the outside of the pad must run to the contour of the pad to make a smooth window - there should be no doming or sinking of the window. Any excess can be removed with a small screwdriver, also any deficit can be topped up with small amounts of silicone from a screwdriver tip - however these steps should be taken within 2 minutes of the pad being placed on the component, before the silicone has had time to become tacky, so that it is still flowing enough to ensure that the window will return to a smooth flat surface
   d. Leave pads to set for 24 hours.

4. Assemble the clip as follows
   a. Glue white inner cable into channel in detector pad
   b. Fill around component with silicone
   c. Glue pad support onto back of detector pad.
   d. Glue pad support onto back of emitter pad.
   e. Glue white inner cable into channel in emitter pad.
   f. Fill around component with silicone
   g. Refit replacement springs "0010140," around pads.
   h. Push pads into position within clip, making sure that the pad support rim is securely underneath the pad retaining lugs - there are four retaining lugs for each pad. If any lugs are not holding the pad support securely, then add a drop of superglue to the relevant lug.
   i. Glue buttons onto clip
   j. Glue strain relief into position in clip body.
   k. Add labels as required.







Assembly Connector

1. a/ Check that all the relevant parts are in the connector kit - the kit should contain:
   1 x grey front ring, 1 x shroud, 7 x ARBO pins (DPK1) with retaining ring, 1 x internal ring,
   1 x strain relief, 1 x shell (with tongue), 1 x shell (without tongue),, 2 x

Assembly Connector

1. a/ Check that all the relevant parts are in the connector kit - the kit should contain:
   1 x grey front ring, 1 x shroud, 7 x ARBO pins (DPK1) with retaining ring, 1 x internal ring,
   1 x strain relief, 1 x shell (with tongue), 1 x shell (without tongue),, 2 x screw M2.5x10,
   1 x grey socket housing.
   b/ Add a 30mm length of heatshrink (0032331) to the cable.

c/ Add the shroud to the cable.
d/ Add the internal ring to the cable.
e/ Add a 15mm length of heatshrink (0032321) to the cable.
f/ Strip the outer cable cover back by 30mm, using the cable stripper (0060031).
g/ Unwind, but do not remove, the outer shield. Remove the paper layer, and the Kevlar strands, using flush cutter (0060020), cutting them flush to the end of the cable cover. Also remove any unused wires, cutting them flush to the end of the cable cover, keeping one of the removed wires to be used as a link wire.
h/ Strip the inner cable cover back, using the cable stripper, as close to the end of the outer cable cover as possible. Unwind, but do not remove, the inner shield.
i/ Twist together the outer and inner shield, and tin this between 12-18mm from the cable cover.
j/ Cut the twisted shields at 15mm from the outer cable cover using the flush cutter. Trim off any loose strands of shield flush to the cable cover. Cover this with 10mm length of heatshrink (0032310), and shrink on using a heatgun - this will help to isolate the shields from the resistor and capacitor.
k/ Cut the wires to 15mm from the outer cable cover. Strip and tin the last 2mm of each wire.
l/ Cut both of the legs of the 16K2 resistor (0032087) to 15mm from the resistor body. Bend the legs of the resistor to form a 'U' shape, ensuring that the ends of both legs are now level.
m/ Cut both legs of the 150pF capacitor (0032250) to 15mm from the capacitor body, ensuring that the ends of both legs are level - there should be no need to bend the legs to form a 'U' shape, as the capacitor will normally be this shape anyway.
n/ Solder one leg of the resistor into one of the ARBO pins. Solder one leg of the the capacitor into the same pin. Solder also the white wire into the same pin. Solder the free leg of the resistor into another pin. Solder the free leg of the capacitor into the same pin.
o/ Take the length of wire that was retained (from step g), and strip and tin the last 2mm of each end of that wire. Solder a pin to each end of the wire. Also solder the twisted shield into one of these pins.
p/ Solder the remaining wires into the remaining pins.
q/ Referring to the wiring diagram, and ensuring that the pin retaining rings do not become detached, insert the pins into the socket housing as follows:

i/ Push the pin with the link wire attached into pin hole 5.
ii/ Push the pin with the link wire and shields attached into pin hole 4.
iii/ Push the pin with the resistor and capacitor attached into pin hole 1.
iv/ Push the pin with the resistor, capacitor, and white wire attached into pin hole 8.
v/ Push the remaining pins into the relevant pin holes.

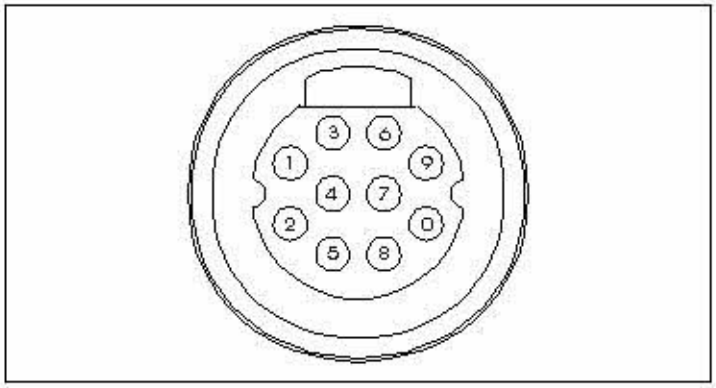
r/ Push the 15mm piece of heatshrink (0032321) up over the cable cover, so that 10mm of the heatshrink covers the white cable cover, and the remaining 5mm projects beyond the cable cover and over onto the wires, and also covers any exposed shields. Shrink this into position using a heatgun.
s/ Screw the strain relief over the cable and into the shell (without tongue), at a point just above where the cable cover ends, so that the cord grip does not bite down upon the cable at a point where there is no cable cover beneath the heatshrink to protect the wires. There should also be a small

degree of 'play' with the cable, so that when the connector is fitted together, there is no strain directly on the wires.

t/ Attach the cable tie to the cable, just below the strain relief, and tighten. Cut off the excess part of the cable tie using the flush cutter.

u/ Orientate the socket housing in the shell (without tongue), and add the shell (with tongue). Push up the internal ring into position around the shells. Push up the shroud around the connector. Finally add the front ring to the connector.

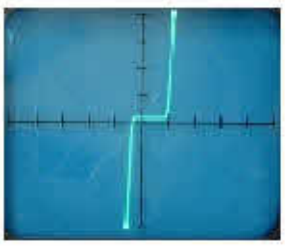
Connector rear view:



1. R1 + C1
2. No pin
3. No pin
4. Link + main + inner shield
5. Link
6. Red
7. Yellow
8. R1 + C1 + white
9. Black
0. No pin

Test using component tester and test box:

Position 1: Red & IR emitters



Position 3: Photo-diode