

## COMPANY OPERATING PROCEDURES

# SpO<sub>2</sub> Repair Procedures Criticare D-Type

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OEM Part Numbers &/or Names
511-10D

Photo  
**CRITICARE (D-Type)**

### 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. Note that the D-Type connector can normally be reused. Remove the connector from the cable as follows
  - a. Carefully cut around the insert circumference (around the pins).
  - b. Carefully prise out the boot.
  - c. Note that the pins will be encased in solid hot-glue. Using the heatgun, gently warm to enable easier removal.
  - d. Clear Kevlar and glue from contact.
  - e. Desolder the old wires from the contacts.
2. Prepare connector end of cable as follows
  - a. Take a 12' length of replacement cable. Attach rubber strain relief boot to cable
  - b. Cut back cable cover by approximately 2.5cm. Discard blue wire
  - c. Strip and tin red, yellow and orange wires. Cut back black, white and shield to 1cm and tin. Solder into contacts as per relevant diagram. Note to insulate shield from other wires using heat-shrink tubing
  - d. Superglue cable to lip on pin housing
  - e. Put some silicone inside boot and push pin housing back into original position.
  - f. Apply superglue around area where rubber moulding was originally cut out, and reattach rubber moulding from around pins.
3. Prepare clip end of cable as follows
  - a. Attach strain relief "0010150," to cable 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 and blue wire
  - d. Strip and tin red, yellow, and orange wires to required lengths - approximately 13mm from end of cable cover. Strip and tin last 1mm of each wire

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- e. Cut inner white cable to 78mm from end of outer cable cover, strip last 8mm of inner cable cover, cut off inner shield and discard
- f. Strip and tin last 1mm of black and white wires.
4. Solder wires to component as per relevant diagram
5. Fit components into pads as follows
  - a. Position components in drying rack - angle of component position in rack is down to common sense
  - 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. Note that replacement pads for Criticare probes are always white. 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

Nos	Viamed Part number	Description
1	0010100	Viamed SpO <sub>2</sub> finger probe service kit (white pads)
1	0010752	Sub miniature D connector plug kit
3m	0030513	SpO <sub>2</sub> cable - version D (production)
30mm	0032331	Heatshrink tubing - clear, 6.0mm, 7m 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
2. Solder wires to components as per relevant diagram

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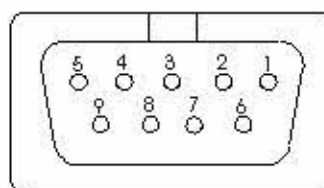
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3. Fit components into pads as follows
  - a. Position components in drying rack.
  - b. Place a small amount of flowable non-corrosive silicone sealant onto the face of the components.
  - c. Place pads onto components, ensuring that both emitter 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

### Connector rear view:

1. White
2. Main + inner shield
3. No pin
4. Orange
5. Red
6. Black
7. No pin
8. No Pin
9. Yellow



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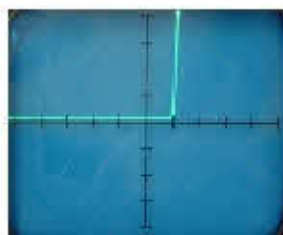
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### Assembly Connector

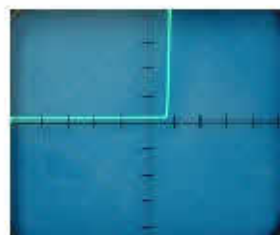
1. a/ Check that all the relevant parts are in the connector kit - the kit should contain:  
1 x shroud, 1 x pin housing, 1 x cable grip.
- b/ Add a 30mm length of heatshrink (0032331) to the cable.
- c/ Add the shroud to the cable.
- d/ Add the cable grip to the cable.
- e/ Strip the outer cable cover back by 30mm, using the cable stripper (0060031).
- f/ 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.
- g/ Strip the inner cable cover back, using the cable stripper, flush to the end of the outer cable cover as possible. Unwind, but do not remove, the inner shield.
- h/ Cut the wires to 15 mm from the end of the cable cover. Strip and tin the last 2mm of each of the wires.
- i/ Twist the shields together, and tin between 12-18mm from the outer cable cover. Cut the twisted shield at 15mm from the outer cable cover.
- j/ Referring to the relevant wiring diagram, solder the wires into the pins.
- k/ Clamp the cable clamp onto the cable, using the cable crimp tool (0010501), 2mm from the end of the outer cable cover.
- l/ Push the shroud up over the contact housing, ensuring that the housing fits securely and neatly into the shroud.

Test using component tester and test box:

Position 1: Red emitter



Position 2: IR emitter



Position 3: Photo-diode

