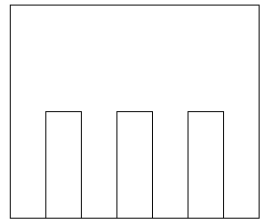
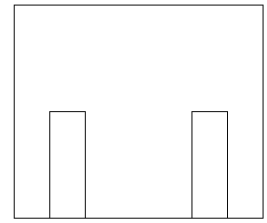
Date	02/10/96	Type	E100 SI E112-04

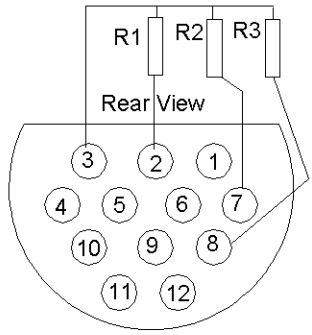
Schematic's

Led Face Down

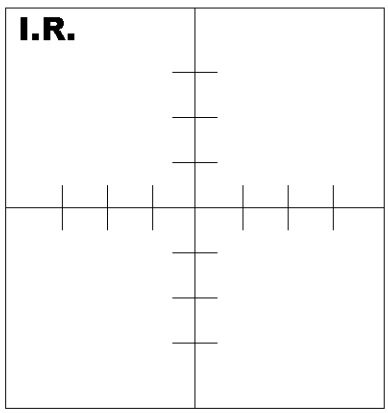


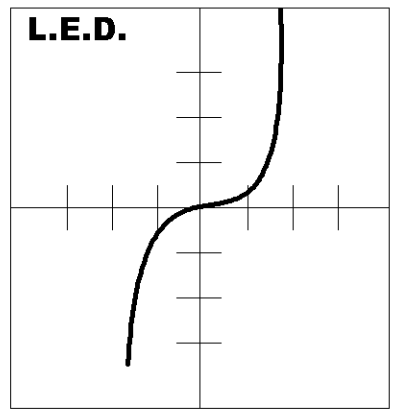
Sensor Face Down

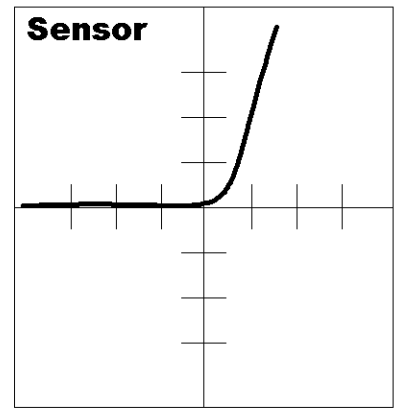




1 - White
2 - Black + R1
3 - R1 (10 Ohm)
4 -
5 -
6 -
7 - R2 (60Kohm)
8 - R3 (7.63KOhm)
9 -
10 -
11 - Yellow
12 - Red

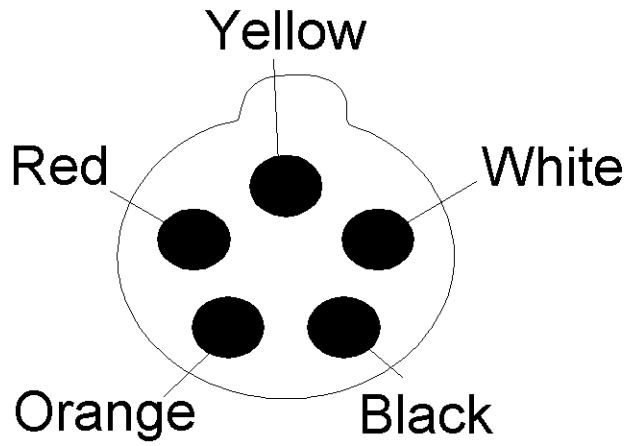




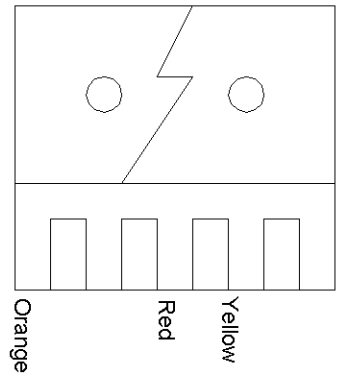


Drawn By:	Derek Lamb (unchecked)	Signed	

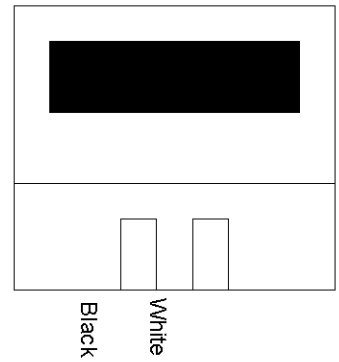
Date	24/03/97	Type	E112-05 (5 PIN LEMO)
E112-05.cmx			

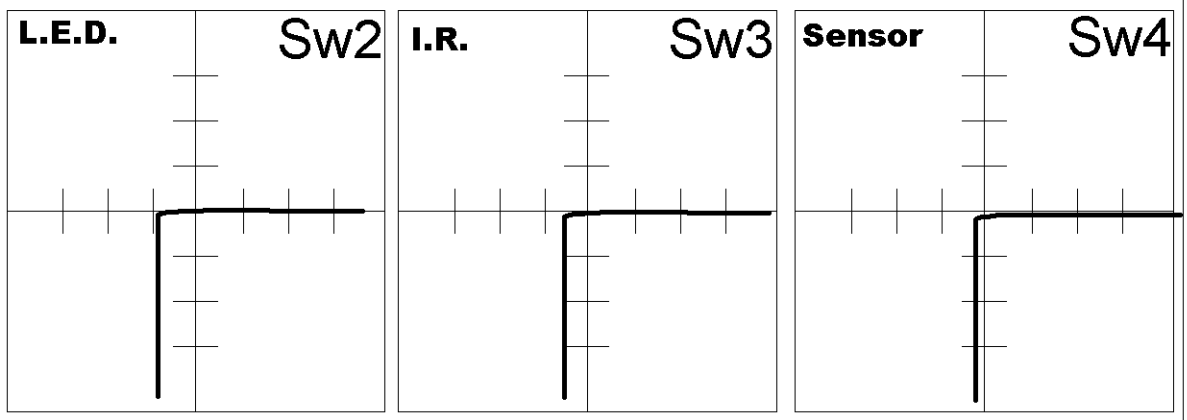


Led Face UP



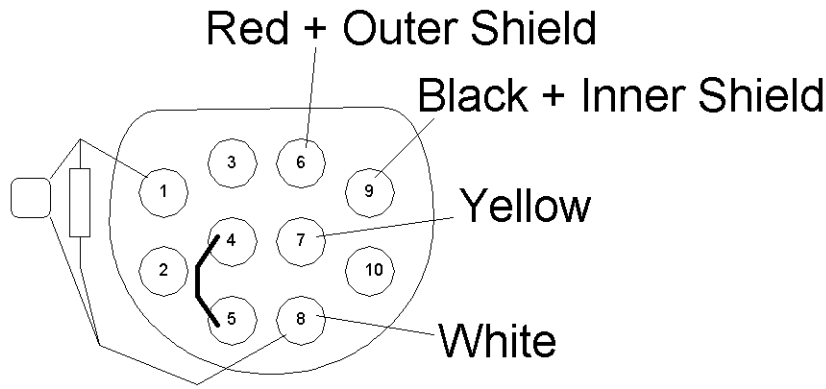
Sensor Face UP



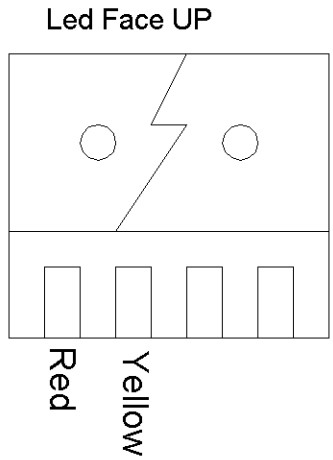


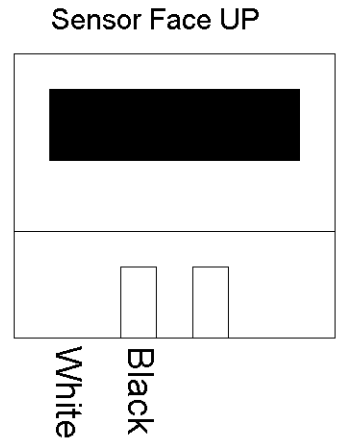
Drawn By	D.Lamb	Signed	

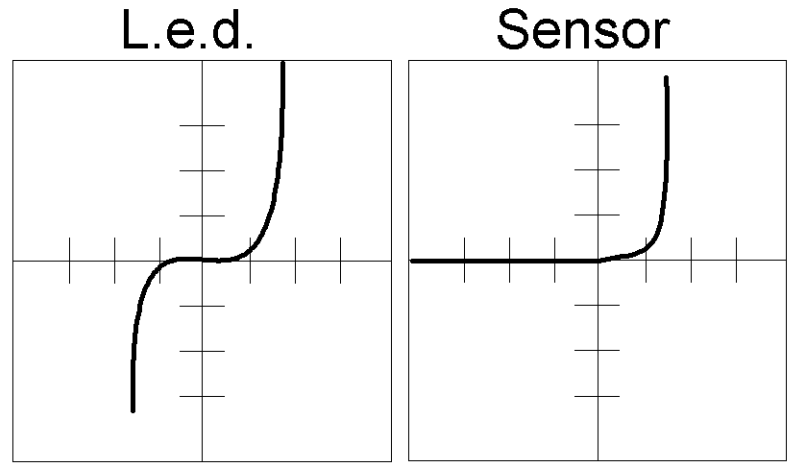
Date	01/04/97	Type	Epic 8785 / Epic E112-09
E112-09.cmx			



REAR VIEW

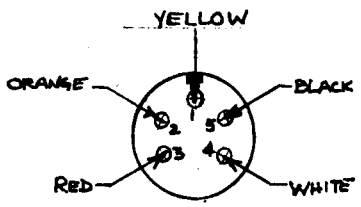




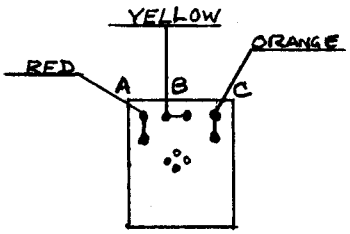


Drawn By:		Signed	

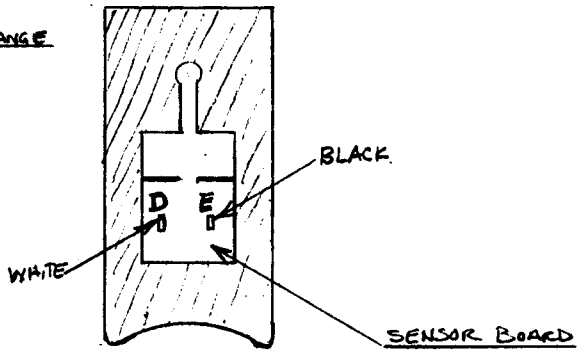
WIRING DIAGRAM



LEMO CONNECTOR
REAR VIEW

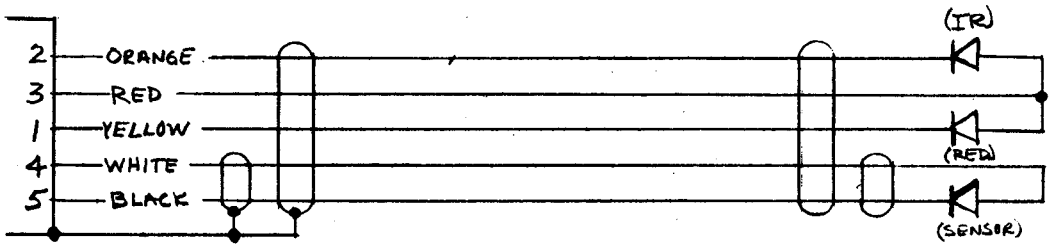


LED BOARD
*VIEWED FROM BOTTOM OF INSERT AFTER REMOVAL.



BOTTOM CLIP

SCHEMATIC



PARTS LIST

10'	XZD055B0	CABLE
	X3C1B305	CONNECTOR, 5 PIN, LEMO
	X3C1B050	STRAIN RELIEF

SPECIAL INSTRUCTIONS

1. SUPER GLUE WIRES IN FINGER CLIP BEFORE ASSEMBLING
2. WHEN REPLACING CABLE USE THE FOLLOWING WIRING DIAGRAM.

RED	– PIN	3 TO	A
ORANGE	–	2 TO	C
YELLOW	–	1 TO	B
WHITE	–	4 TO	D
BLACK	–	5 TO	E
SHIELDS	–	CASE TO	N/C

EPIC MEDICAL EQUIPMENT SERVICES, INC.
Dallas, Texas

SCALE: N/A	APPROVED BY:	DRAWN BY WORLEY
DATE: 11/17/95		REVISED 2/1/96

CRITICARE SpO2 CABLE – 511-10L

REPAIR STANDARDS

DRAWING NUMBER C-CARE01

DC 1

EPIC MEDICAL EQUIPMENT SERVICES, Inc.

Dallas, Texas

MANUFACTURING PROCESS INSTRUCTIONS (CONT)

STOCK NO. E8700/5-100 NAME FINAL ASSEMBLY

ASSEMBLY OPERATION 4 OF 4

ASSEMBLY PROCEDURE

FIG "A"

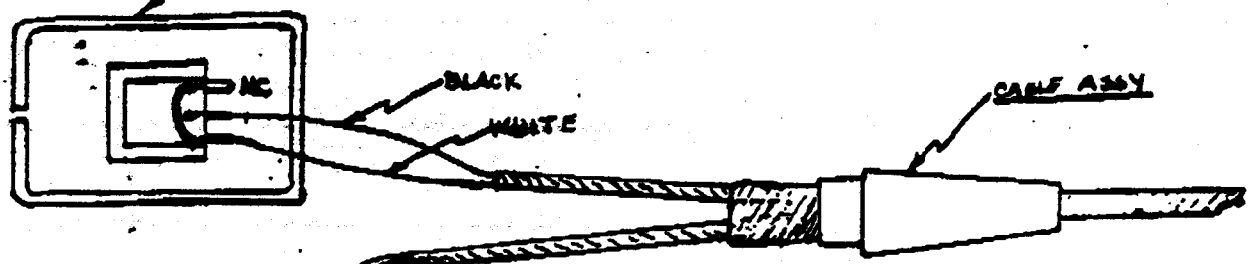


FIG "B"

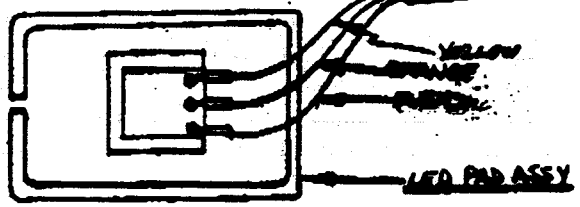


FIG "C"

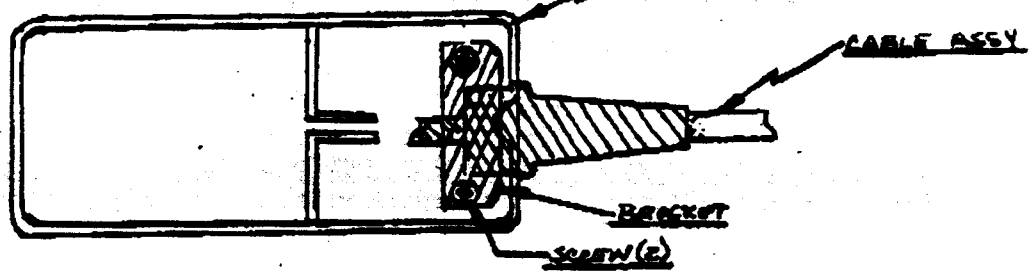
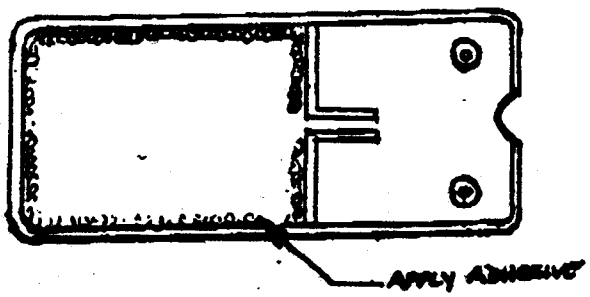


FIG "D"



DL

EPIC MEDICAL EQUIPMENT SERVICES, Inc.

Dallas, Texas

MANUFACTURING PROCESS INSTRUCTIONS (CONT)

STOCK NO. E8700/5-901 NAME CABLE ASSEMBLY

ASSEMBLY OPERATION 3 of 4

ASSEMBLY PROCEDURE (CONNECTOR END)

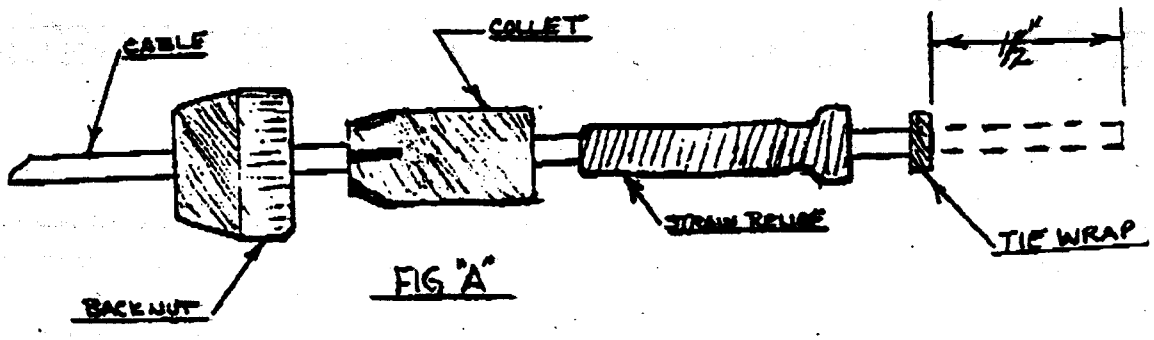


FIG "A"

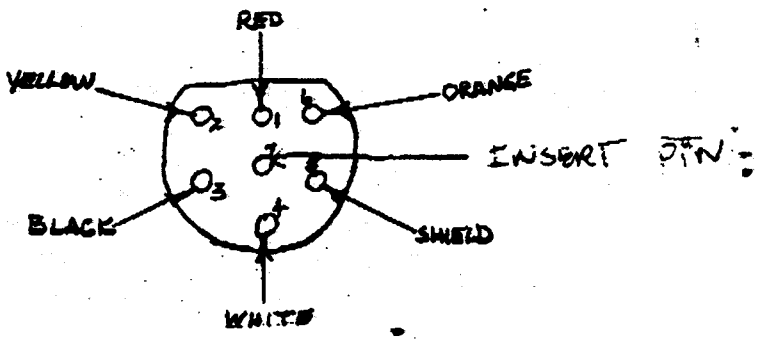


FIG "B"

DC

Repair procedures For Critikon Finger Probes

Finger Clip

Pull out retainer pins - the spring should then pop out.
Use a scalpul to cut around the inside edge of the pad.
With a small screwdriver pull up one corner of the pad, then run the screwdriver around the guide rail under the pad.
N.B. Don't rip the pad itself.
Break retainer (Not used again).
Remove cable - Save clear tubing.
With scalpul slightly increase the size of the hole for the strain relief so the epic strain relief will fit.

Removing Led / Sensor

1. Cut a slice from the rubber where the wires come out.
2. With a scalpel cut above and below the Sensor / Led
3. Pull Sensor or Led out of rubber pad
4. Remove any remaining silicone from the Sensor / Led.

Rewiring Senor / Led

See Fig 1

To restick pad use silicone rubber 3140 RTV.

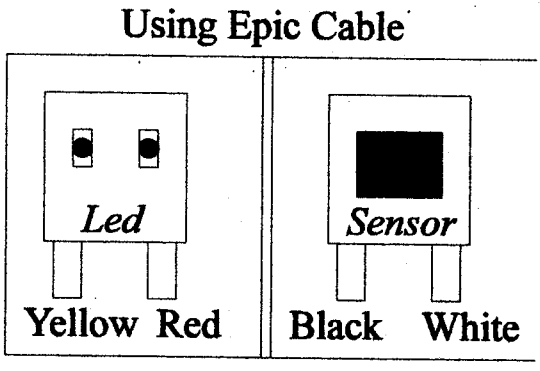


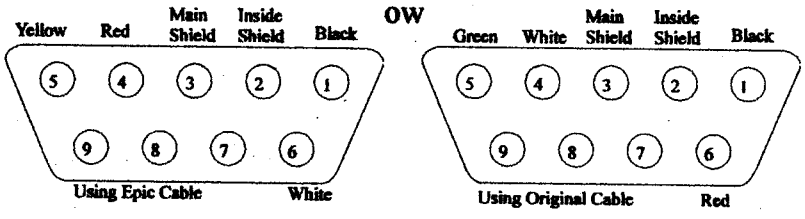
Fig 1

Reinserting Spring

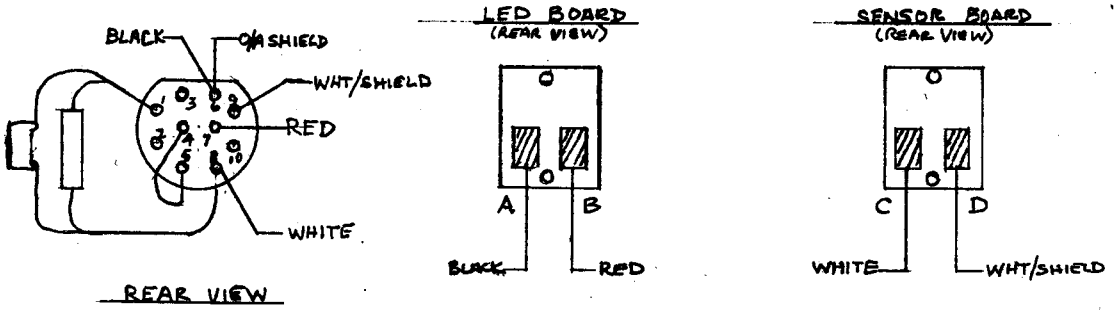
Finger Case with long bar - Split spring.
Finger Case with short bar - Solid spring.

Rewiring Connector

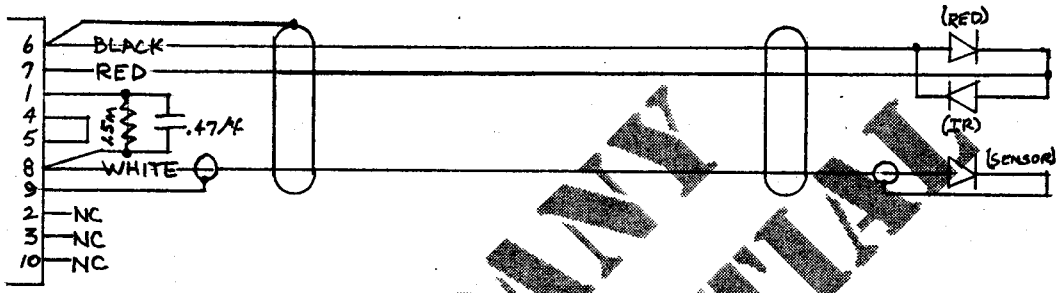
See Fig 2 Below



WIRING DIAGRAM



SCHEMATIC



PARTS LIST

12'	X2D05580	CABLE
	X3B01505	RESISTOR 4.5K 1/4W 1%
	X3A04703	CAPACITOR .47 MF
	X3C11719	CONNECTOR, FEMALE, 10 PIN
7	X3C20106	CONNECTOR, PINS, FEMALE

SPECIAL INSTRUCTIONS

1. WHEN REPLACING CABLE USE THE FOLLOWING WIRING DIAGRAM:

RED	- PIN 6 TO A
YELLOW	- 7 TO B
WHITE	- 8 TO C
BLACK	- NC
W/B SHIELD	- 9 TO D
O/A SHIELD	- NC

EPIC MEDICAL EQUIPMENT SERVICES, INC.
Dallas, Texas

SCALE: NA	APPROVED BY:	DRAWN BY WORLEY
DATE: 11-27-95		REVISED

DATEX SpO2 CABLE -#878579-1 } OLD VERSIONS
#878579-2 }
SAS-F4

REPAIR STANDARDS

DRAWING NUMBER DATEX01

INTERNATIONAL OXIMETRY SENSORS & CABLES, INC.
DALLAS, TEXAS

QUALITY CONTROL PROCEDURE

REPAIRED SaO2 CABLES

Original Copy - Engineering
Copy #1 - Quality assurance
Copy #2 - Quality Control
Date Initiated 11/29/95 by GW

Rev: ___ Date _____ by _____

MFR: DATEX MODEL: 878579-1, 878579-2, SAS-F4

I. PHYSICAL

A. CONNECTOR
1. Inspect for bent or broken pins.
2. Inspect strain relief.
3. Inspect for proper connector assembly and secure mechanical union.

B. CABLE
1. Inspect for cuts and/or abrasions.
2. Inspect for cleanliness.

C. CLIP
1. Inspect for traces of glue or epoxy.
2. Check for proper assembly of clips, pads, springs and cable retainer.
3. Check that "Company identification" label has been attached.

II. ELECTRICAL

A. LED's

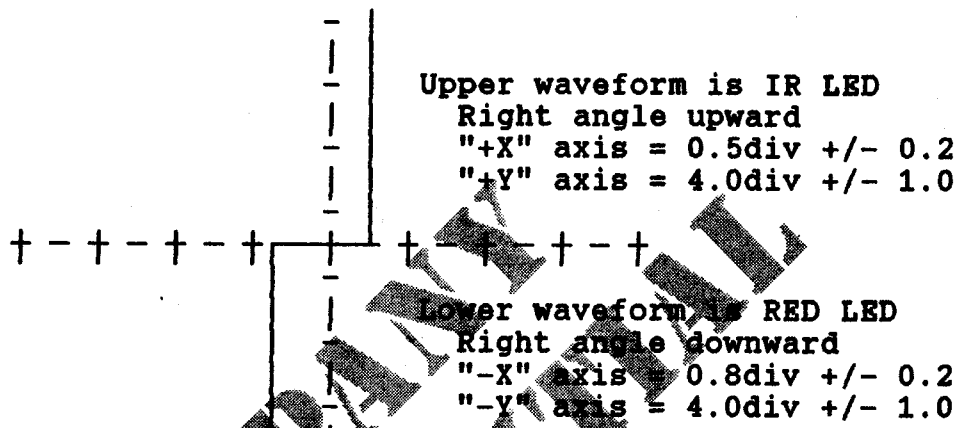
NOTE: Set COMPONENT TESTER to: * - Lo
* - A

1. Connect cable to "M" connector on the text fixture.

II. ELECTRICAL (cont.)

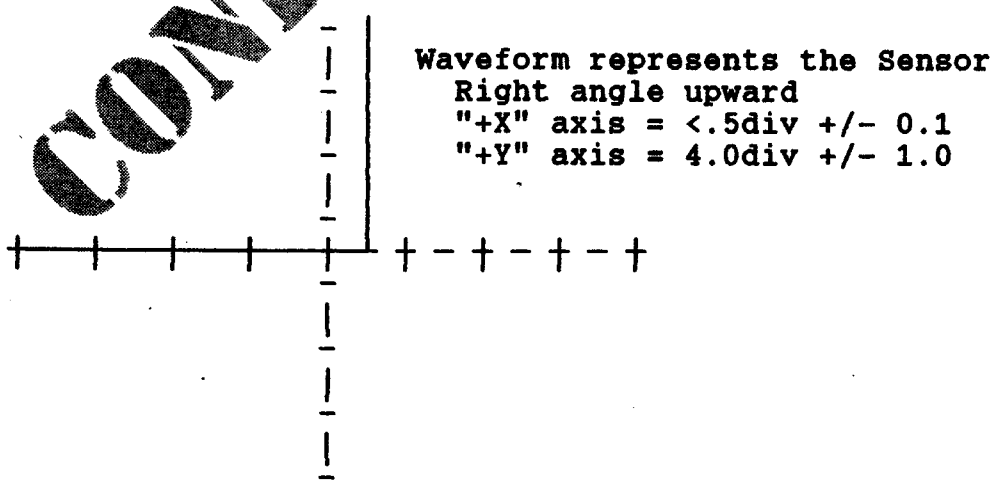
A. LED's (cont.)

2. Place "BLUE (S1)" switch in position "1". The COMPONENT TESTER should indicate the following pattern.



B. SENSOR

1. Place "BLUE (S1)" switch in position "4". The COMPONENT TESTER should indicate the following pattern.



C. CALIBRATION RESISTANCE

NOTE: Set DVM to "2meg" ohm range.

1. Check resistance manually between pins 1 & 8. Should read between 1.480m - 1.520m ohm.

III. PERFORMANCE (record readings on WORKSHEET)

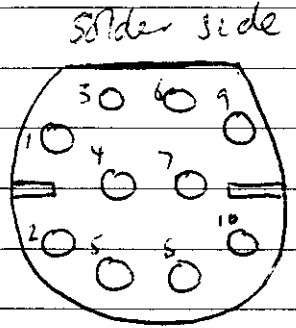
A. CABLE CONNECTOR
1. Connect the Nellcor Adapter Cable to the "A" connector of the Text Fixture and the Nellcor N200 Oximeter Patient Module.

B. SENSOR CLIP
1. Attach the sensor clip to the "RED" Nonin Saturation Test Unit.
2. Pulse the unit about once per second.
3. The Oximeter should read " "% SaO2 (+/- 2).
4. Attach the Sensor Clip to the "BLACK" Nonin Saturation Test Unit.
5. Pulse the unit about once per second.
6. The Oximeter should read " "% SaO2 (+/- 2).

IV. GENERAL

A. Make sure all entries are recorded on worksheet.
B. Indicate "Acceptance" or "Failure".
NOTE: If unit fails, return to repair technician.
C. If accepted, record the date QC was performed.
D. Send the unit, with the worksheet, to shipping for return to the customer.

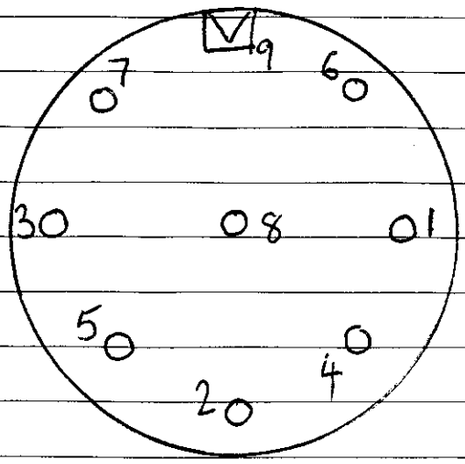
E412-09
Epic Delta
wireless



1 resistor + capacitor
2 n/c
3 n/c
4 link
5 link + Outer shield
6 Red
7 Yellow
8 res + cap + white
9 Black + Inner shield
10 n/c

resistor - 16k

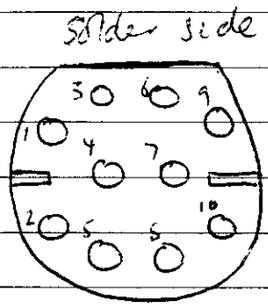
P864RA
hite
ermolded
nector)



1 Yellow
2 22Ω red
3 White
4 Orange
5 Main shield
6 47k
7 Black
8 47k
9 (MAIN BODY) Inner Shield

DS
S/N
9F2028C

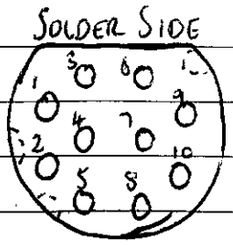
E412-09
Epic Delta
wire pads

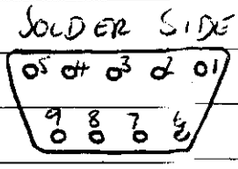


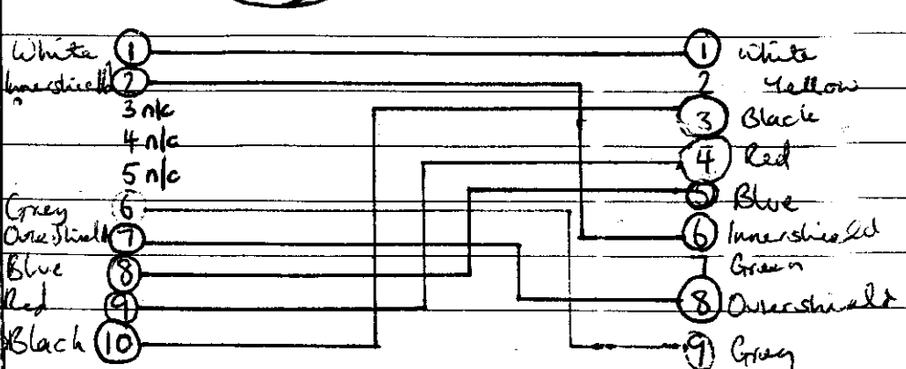
1 resistor + capacitor
2 n/c
3 n/c
4 link
5 link + Outer shield
6 Red
7 Yellow
8 res + cap + white
9 Black + Inner shield
10 n/c

resistor - 16k

NECTOR
↓
S&W
extn.
cable

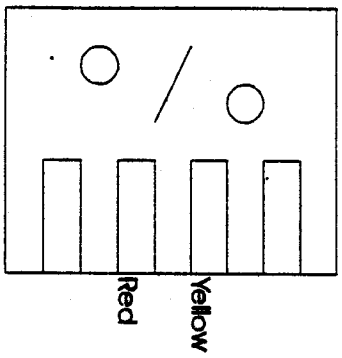




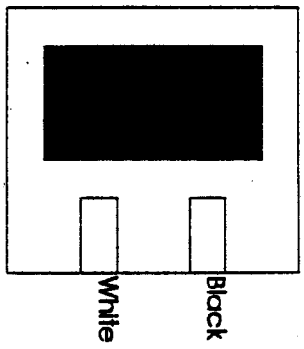


Date	02/10/96	Type	Epic E100A
Schematic's	Epic Nbucor		

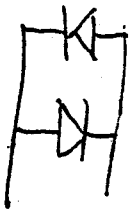
Led Face Up

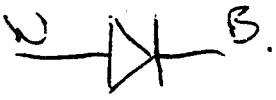


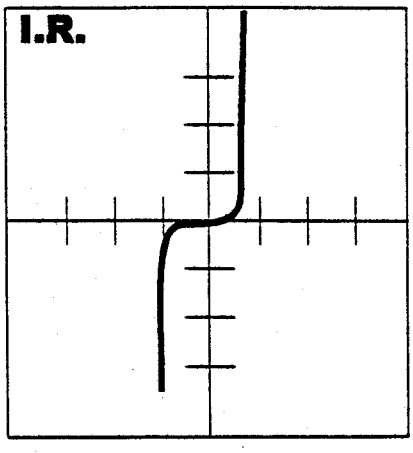
Sensor Face Up

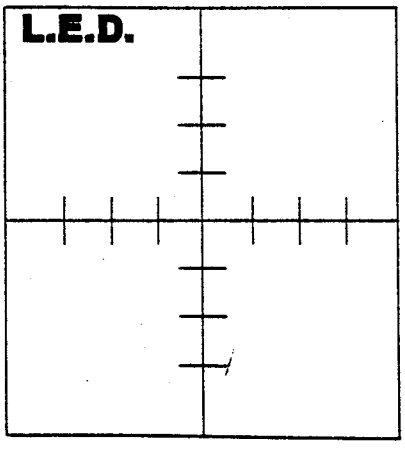


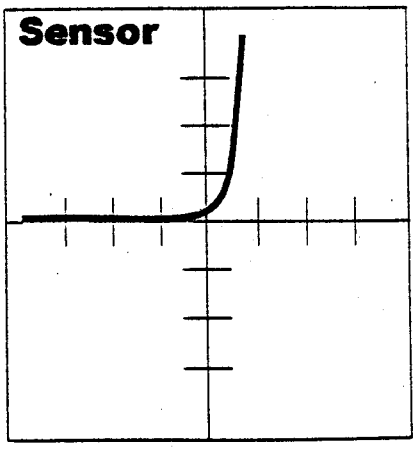
Using E100A-101 Cable





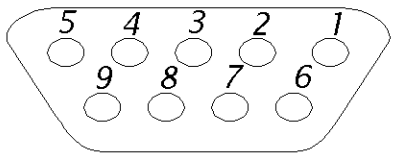






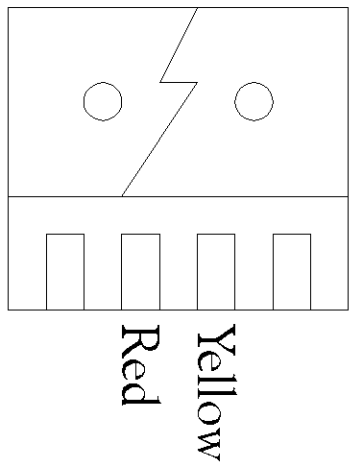
Drawn By:		Signed	

Date	24/03/97	Type	E103-10 / E8997
E103-10.cmx			

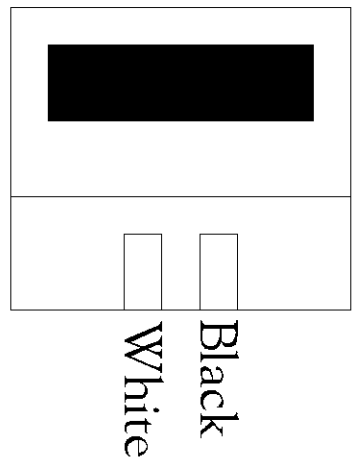


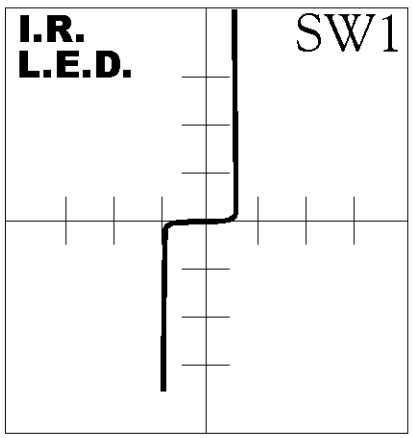
1 Black
2 Inner Shield
3 Outer Shield
4 Yellow
5 Red
6 White
7 -
8 -
9 -

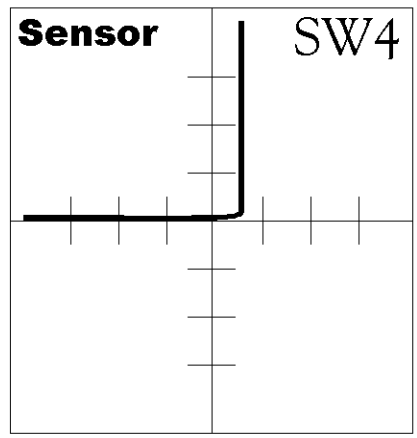
Led Face UP



Sensor Face UP



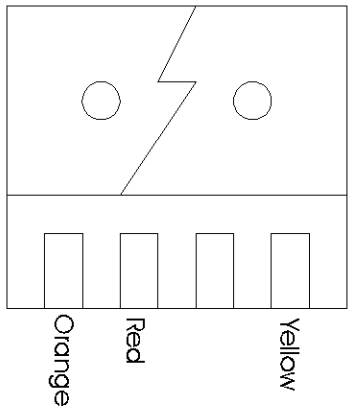




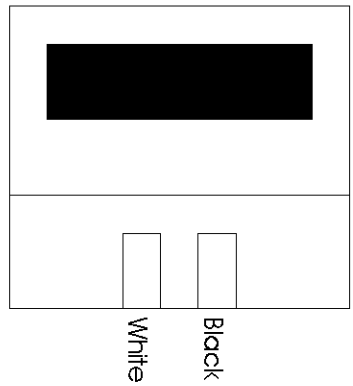
Drawn By:	D.Lamb	Signed	

Date		Type	E112-02 / E3000
Schematic's			

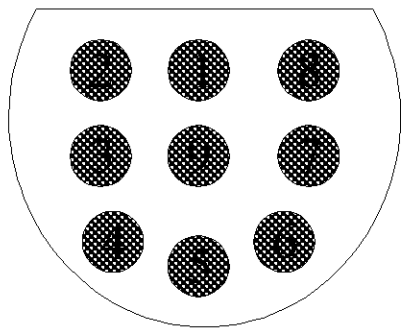
Led Face UP



Sensor Face UP

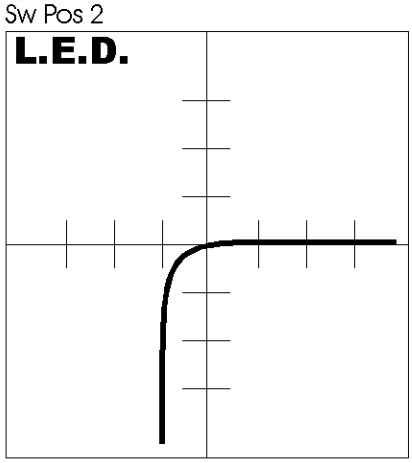


Rear View

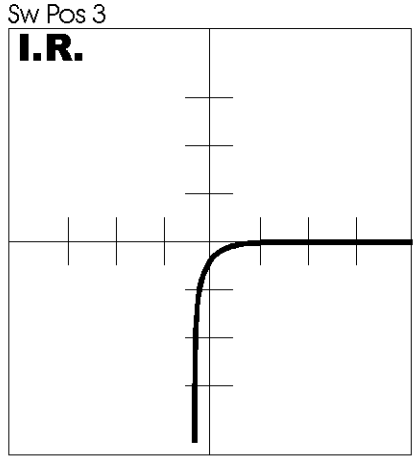


1 - Orange (I.R.)
2 - Yellow (L.E.D.)
3 - Not Used
4 - Red (Common)
5 - 75K Resistor
6 - Not Used
7 - 75K Resistor
8 - White (Sensor)
9 - Black (Sensor)

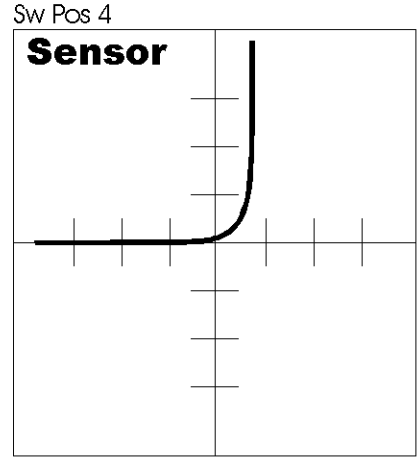
Sw Pos 2



Sw Pos 3

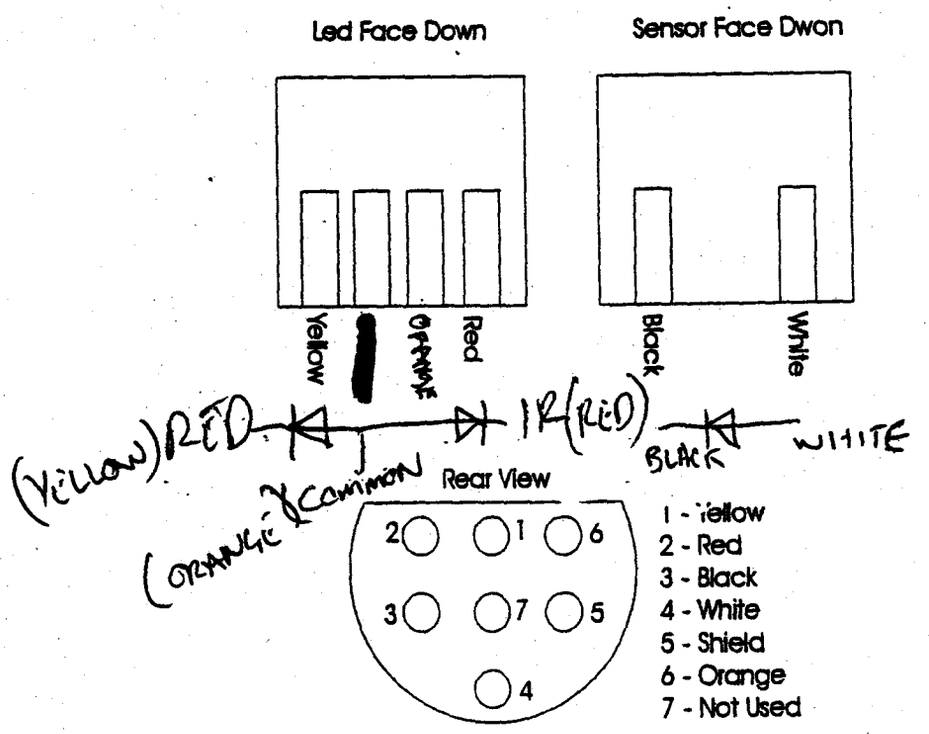


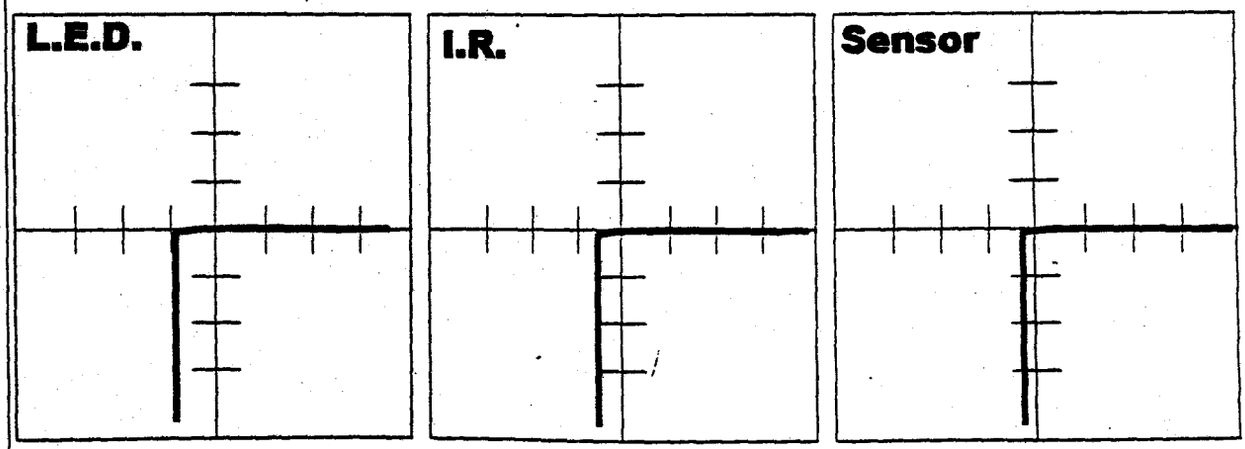
Sw Pos 4



Drawn By:		Signed	

Date	24/03/97	Type	E8700/5 or E112-03
e112-03.cmx	Epic (Epic connector Colours)		



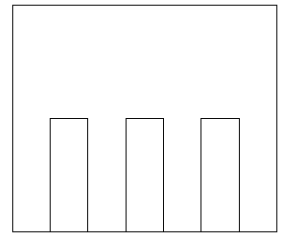


Drawn By:	D.Lamb	Signed	

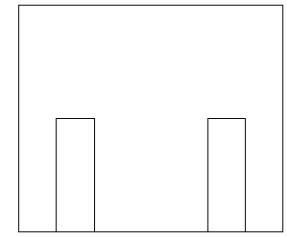
Date	02/10/96	Type	E100 Sl E112-04

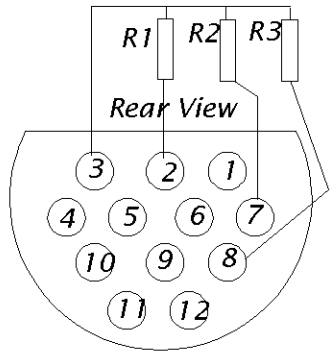
Schematic's

Led Face Down

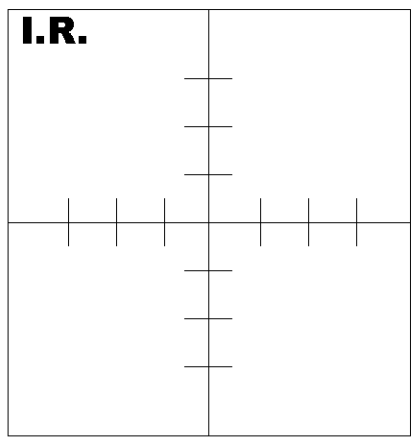


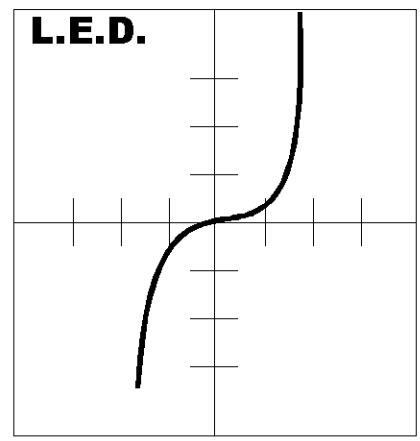
Sensor Face Down

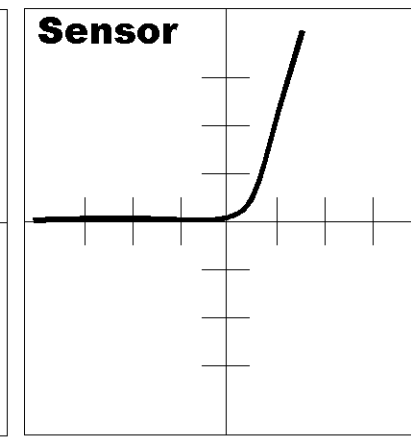




1 - White
2 - Black + R1
3 - R1 (10 Ohm)
4 -
5 -
6 -
7 - R2 (60Kohm)
8 - R3 (7.63KOhm)
9 -
10 -
11 - Yellow
12 - Red

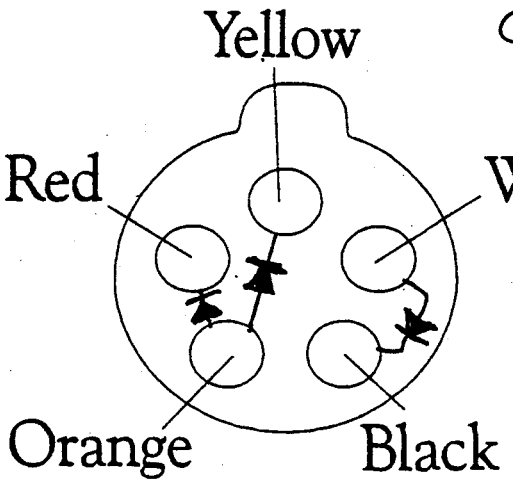






Drawn By:	Derek Lamb (unchecked)	Signed	

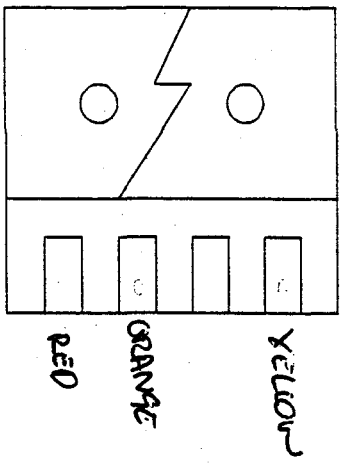
Date	24/03/97	Type	E112-05 (5 PIN LEMO)
E112-05.cmx			



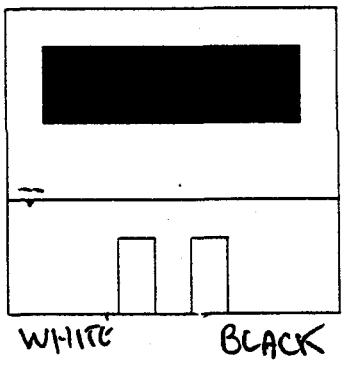
CONNECTOR REAR VIEW

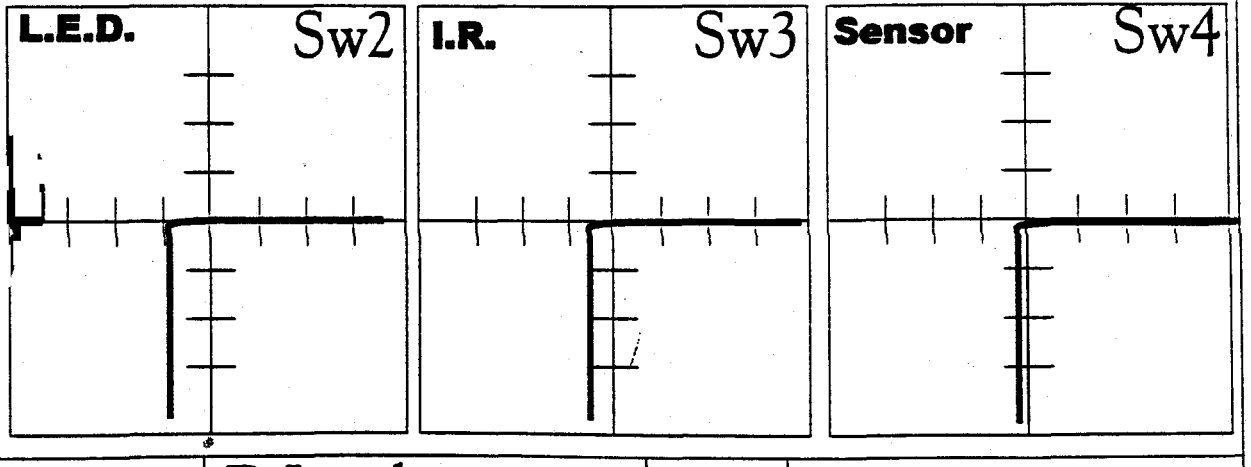
NB. BOTH SHIELDS TO CONNECTOR BODY.

Led Face UP



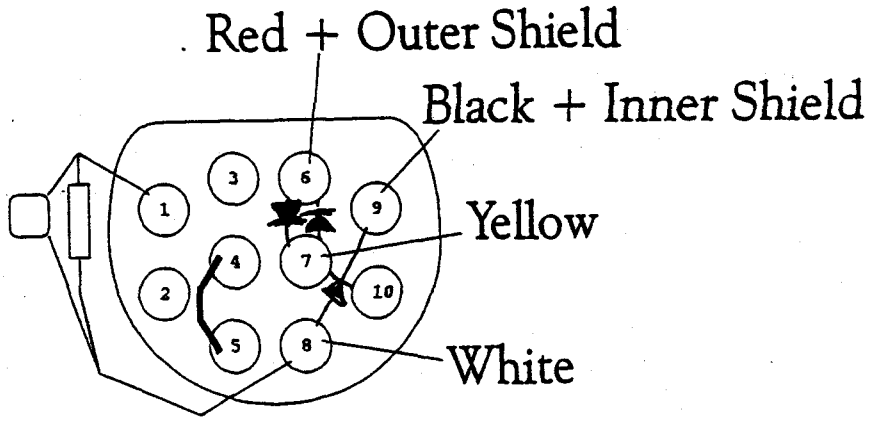
Sensor Face UP



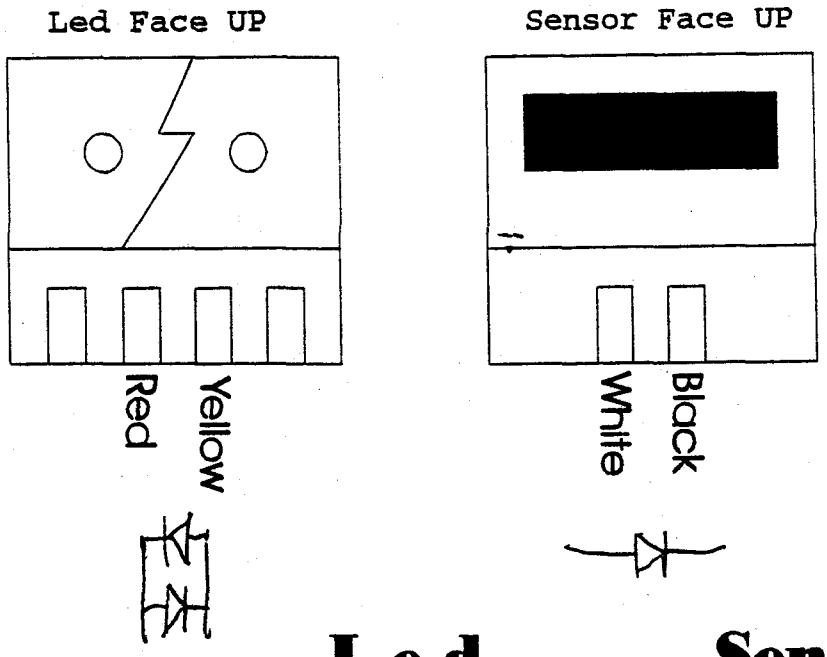


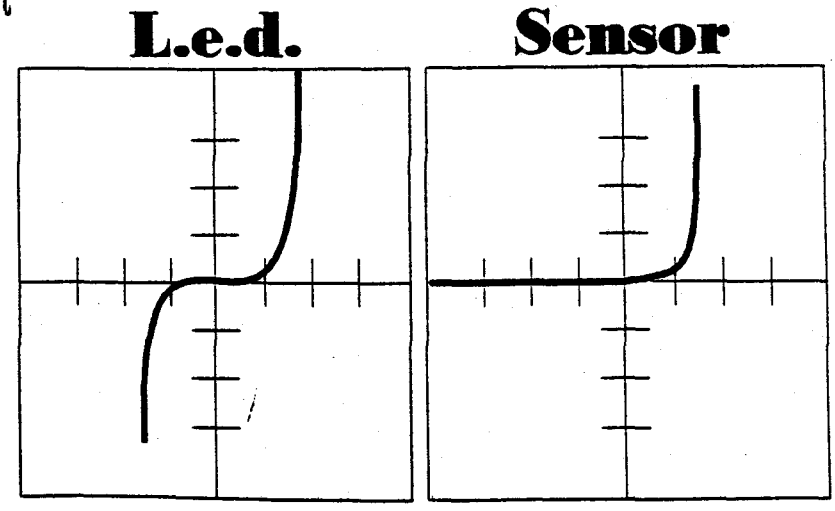
Drawn By	D.Lamb	Signed	

Date	01/04/97	Type	Epic 8785 / Epic E112-09
E112-09.cmx			



REAR VIEW

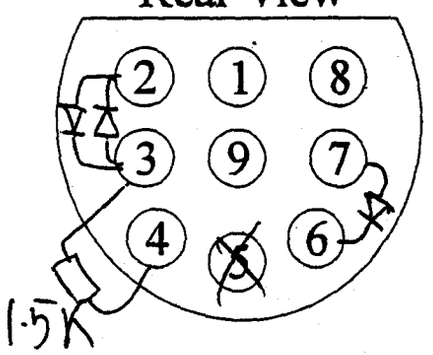




Drawn By:		Signed	

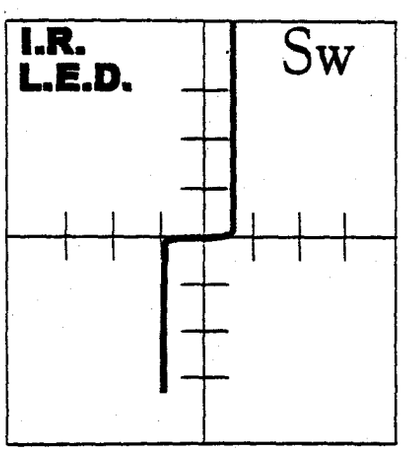
Date	24/03/97	Type	E333 / E112-12
E333.cmx			SIMED

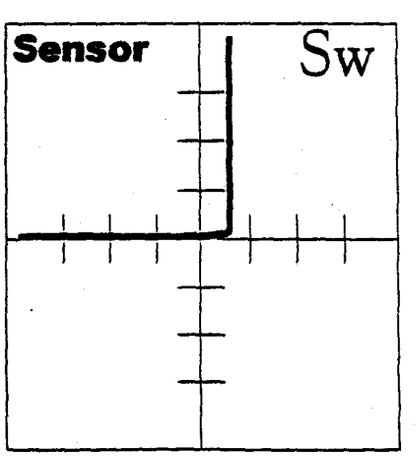
Rear View



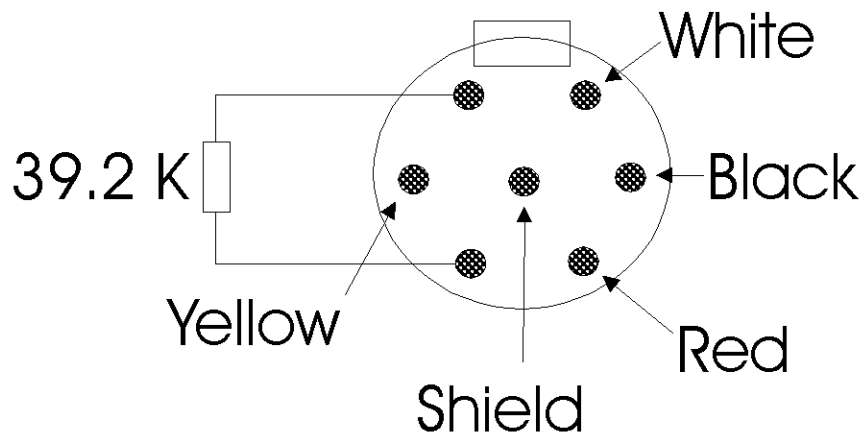
1.5k

1 Shield MAIN
2 Yellow
3 Red
4 Not Used
5 Not Used
6 B
7 White
8
9 Shield INNER

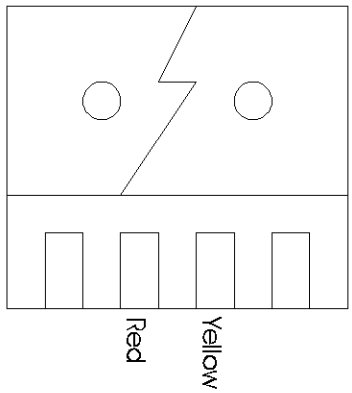




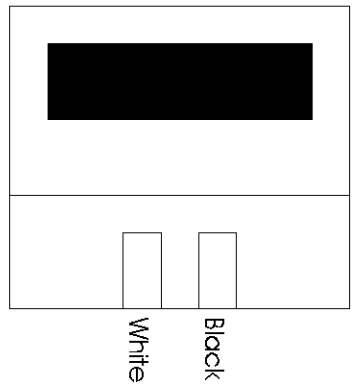
Date	15/09/97	Type	E112-14
Schematic's			

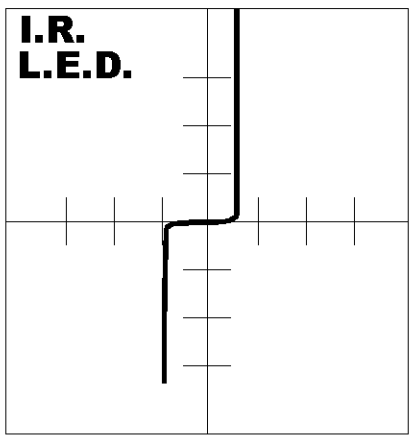


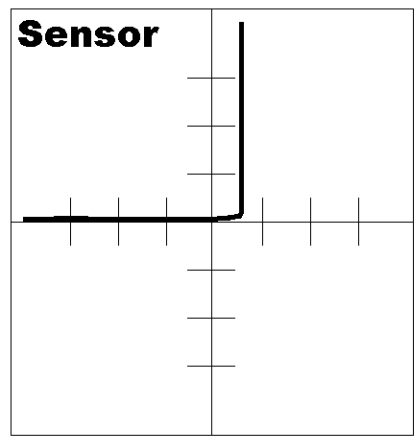
Led Face UP



Sensor Face UP

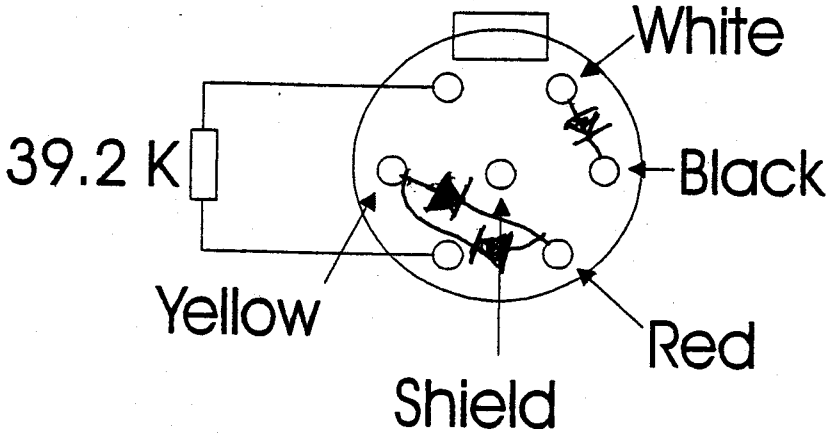




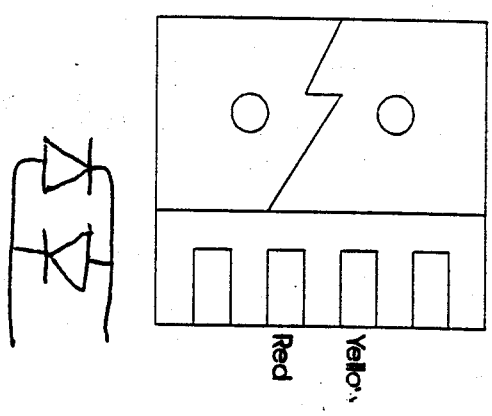


Drawn By:	Derek Lamb	Signed	

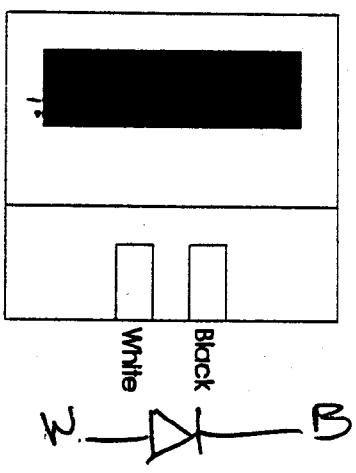
Date	15/09/97	Type	E112-14 / E9000
Schematic's			INVNO

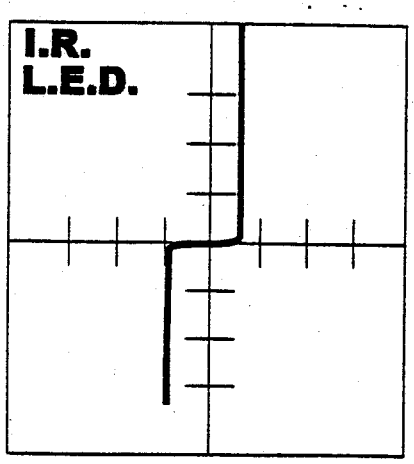


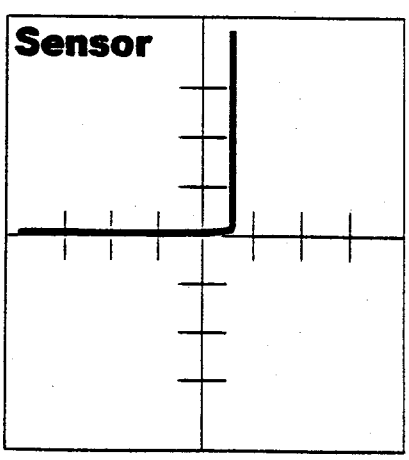
Led Face UP



Sensor Face UP

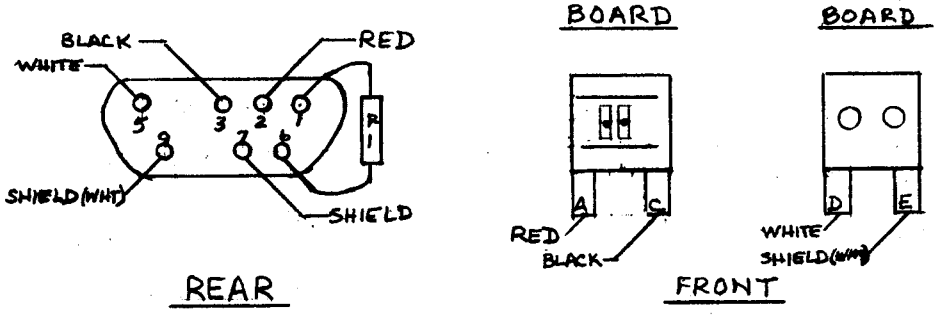






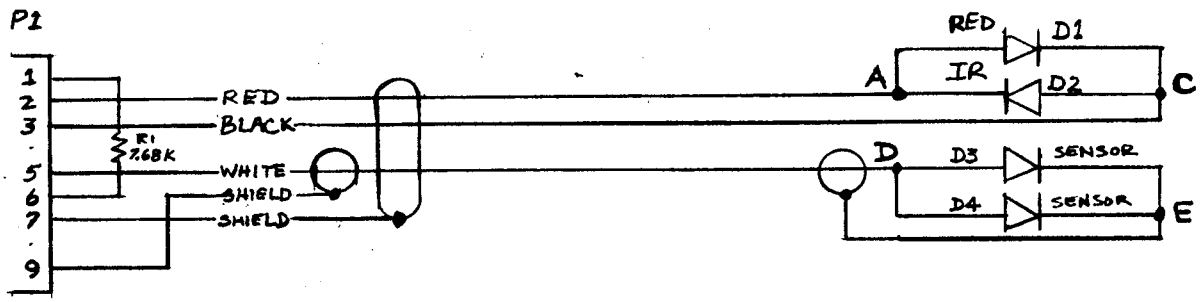
Drawn By:	Derek Lamb	Signed	

WIRING DIAGRAM



REAR FRONT

SCHEMATIC



PARTS LIST

E100A-101A CABLE

SPECIAL INSTRUCTIONS

1. WHEN REPLACING THE CABLE ASSY, USE EPIC P/N E100A-101A AND FOLLOW THE WIRING DIAGRAM BELOW:
   - RED – PIN 2 TO A
   - YELLOW – 3 TO C
   - WHITE – 5 TO D
   - BLACK – 9 TO E
   - SHIELD – 7 (NC)

EPIC MEDICAL EQUIPMENT SERVICES, INC.
Dallas, Texas

SCALE: N/A	APPROVED BY: GS Worley	DRAWN BY WORLEY
DATE: 1/9/95		REVISED 2/8/96

NELLCOR SaO2 CABLE – DS100A

REPAIR STANDARDS

DRAWING NUMBER NELLCOR1

INTERNATIONAL OXIMETRY SENSORS & CABLES, INC.
DALLAS, TEXAS

QUALITY CONTROL PROCEDURE

REPAIRED SaO2 CABLES

Original Copy - Engineering
Copy #1 - Quality assurance
Copy #2 - Quality Control
Date Initiated 01/09/95 by GW

Rev: ___ Date _____ by _____

MFR: NELLCOR MODEL: DS100A

I. PHYSICAL

A. CONNECTOR
1. Inspect for bent or broken pins.
2. Inspect strain relief.
3. Inspect for proper connector assembly and secure mechanical union.

B. CABLE
1. Inspect for cuts and/or abrasions.
2. Inspect for cleanliness.

C. CLIP
1. Inspect for traces of glue or epoxy.
2. Check for proper assembly of clips, pads, springs and cable retainer.
3. Check that "Company identification" label has been attached.

II. ELECTRICAL

A. LED's

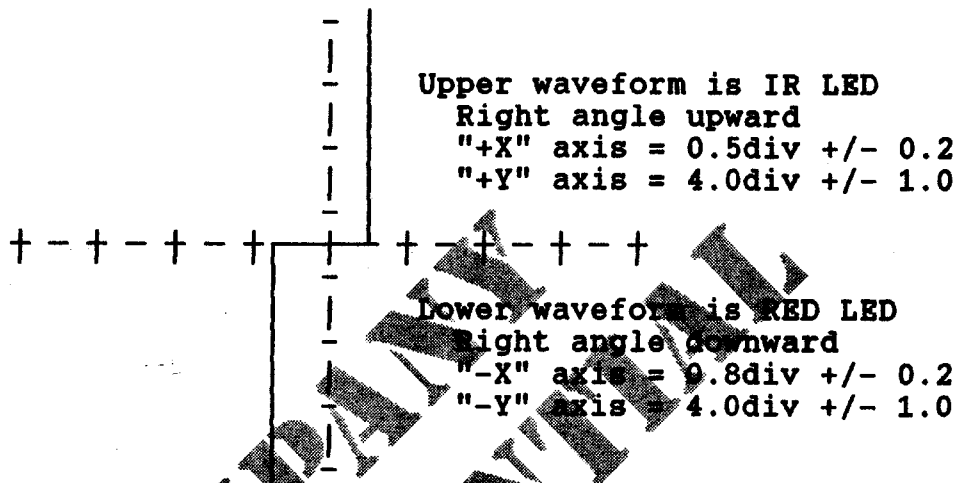
NOTE: Set COMPONENT TESTER to: * - Lo
* - A

1. Connect cable to "A" connector on the text fixture.

II. ELECTRICAL (cont.)

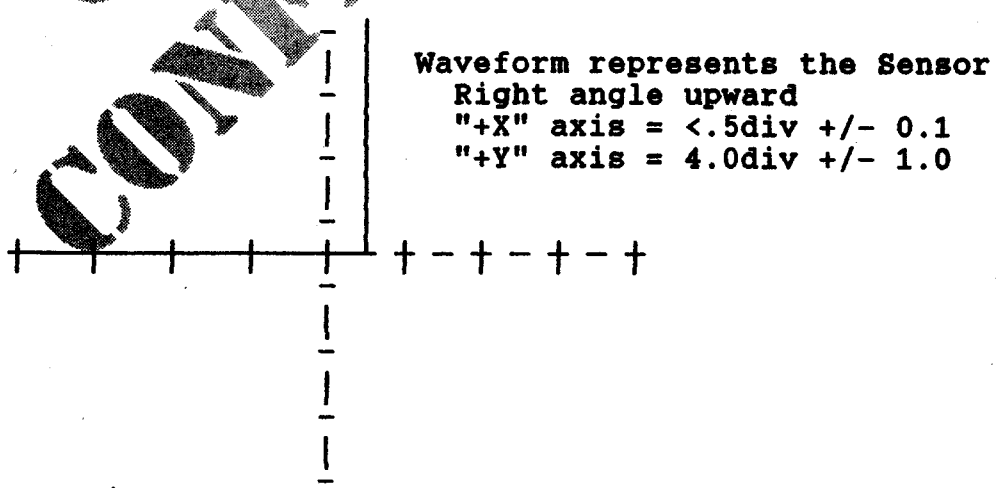
A. LED's (cont.)

2. Place "BLUE (S1)" switch in position "1". The COMPONENT TESTER should indicate the following pattern.



B. SENSOR

1. Place "BLUE (S1)" switch in position "4". The COMPONENT TESTER should indicate the following pattern.



C. CALIBRATION RESISTANCE

NOTE: Set DVM to "20K" ohm range.

1. Place the "GREEN (S1)" switch in position "1". The DVM should indicate "7.4K to 7.7K ohm" +/- 0.10k ohm.

III. PERFORMANCE (record readings on WORKSHEET)

A. CABLE CONNECTOR
1. Connect the cable to the "NELLCOR" Oximeter Monitor.

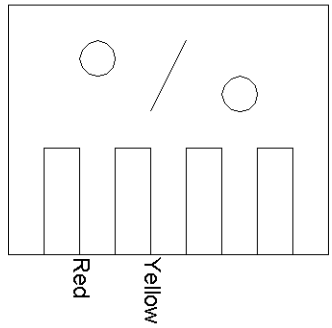
B. SENSOR CLIP
1. Attach the sensor clip to the "RED" Nonin Saturation Test Unit.
2. Pulse the unit about once per second.
3. The Oximeter should read "98"% SaO2 (+/- 2).
4. Attach the Sensor Clip to the "BLACK" Nonin Saturation Test Unit.
5. Pulse the unit about once per second.
6. The Oximeter should read "83"% SaO2 (+/- 2).

IV. GENERAL

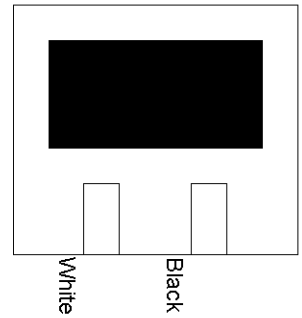
A. Make sure all entries are recorded on worksheet.
B. Indicate "Acceptance" or "Failure".
NOTE: If unit fails, return to repair technician.
C. If accepted, record the date QC was performed.
D. Send the unit, with the worksheet, to shipping for return to the customer.

Date	02/10/96	Type	Epic E100A
Schematic's			

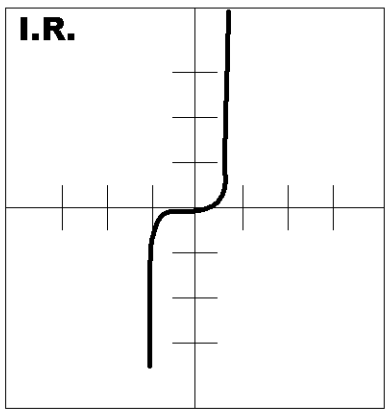
Led Face Up

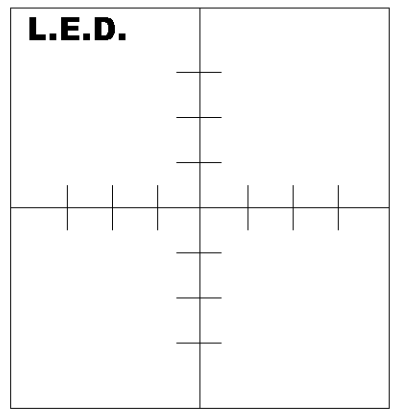


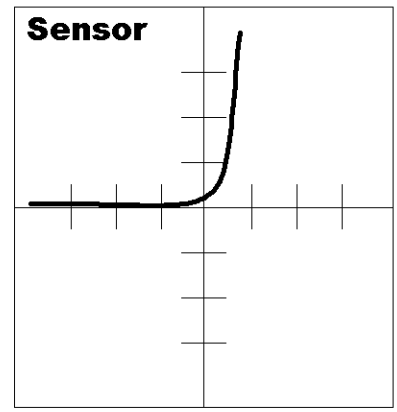
Sensor Face Up



Using E100A-101 Cable



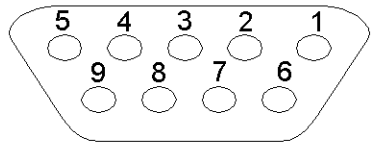




Drawn By:		Signed	

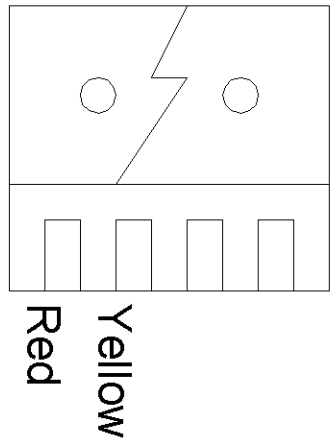
Date	24/03/97	Type	E103-10 / E8997

E103-10.cmx

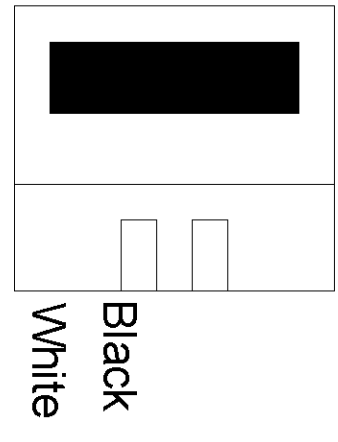


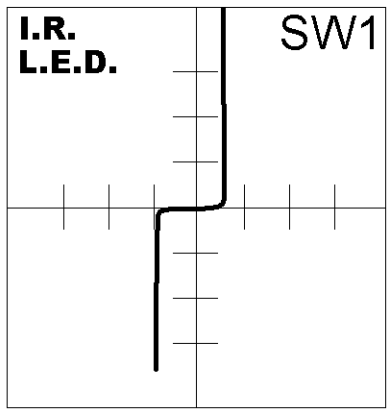
1 Black
2 Inner Shield
3 Outer Shield
4 Yellow
5 Red
6 White
7 -
8 -
9 -

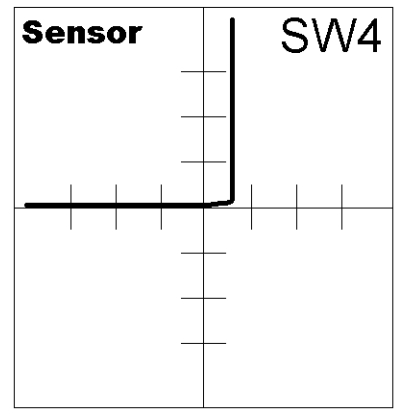
Led Face UP



Sensor Face UP



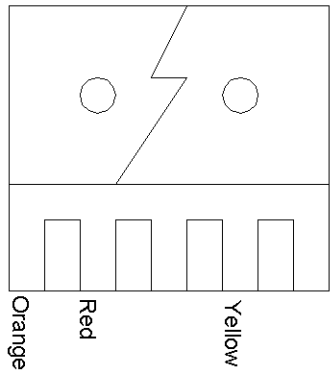




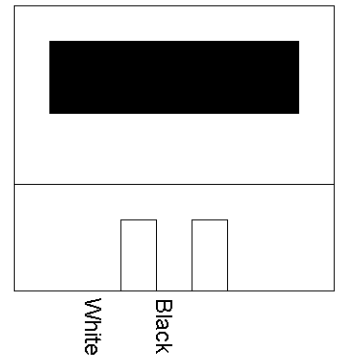
Drawn By:	D.Lamb	Signed	

Date		Type	E112-02 / E3000
Schematic's			

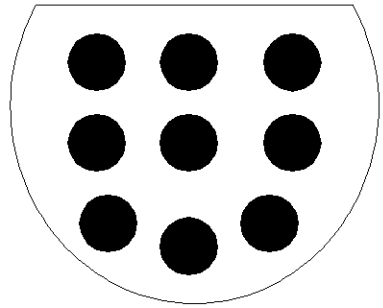
Led Face UP



Sensor Face UP

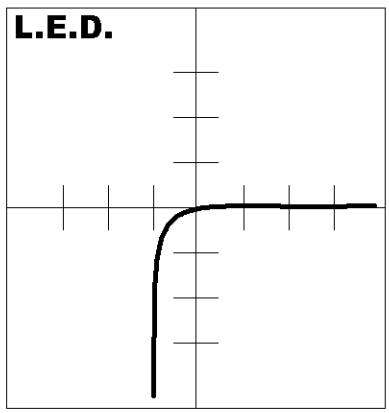


Rear View

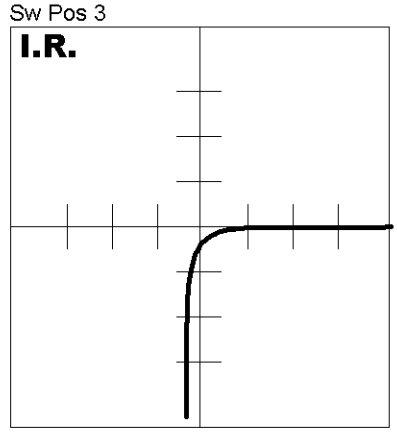


1 - Orange (I.R.)
2 - Yellow (L.E.D.)
3 - Not Used
4 - Red (Common)
5 - 75K Resistor
6 - Not Used
7 - 75K Resistor
8 - White (Sensor)
9 - Black (Sensor)

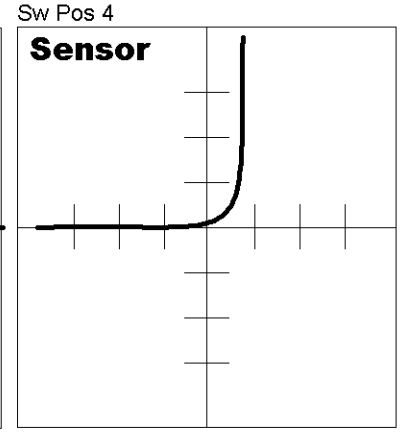
Sw Pos 2



Sw Pos 3

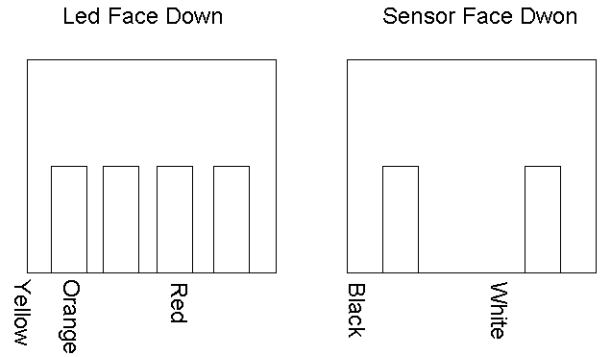


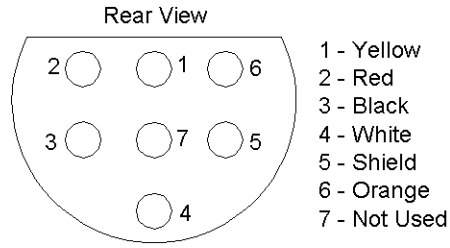
Sw Pos 4

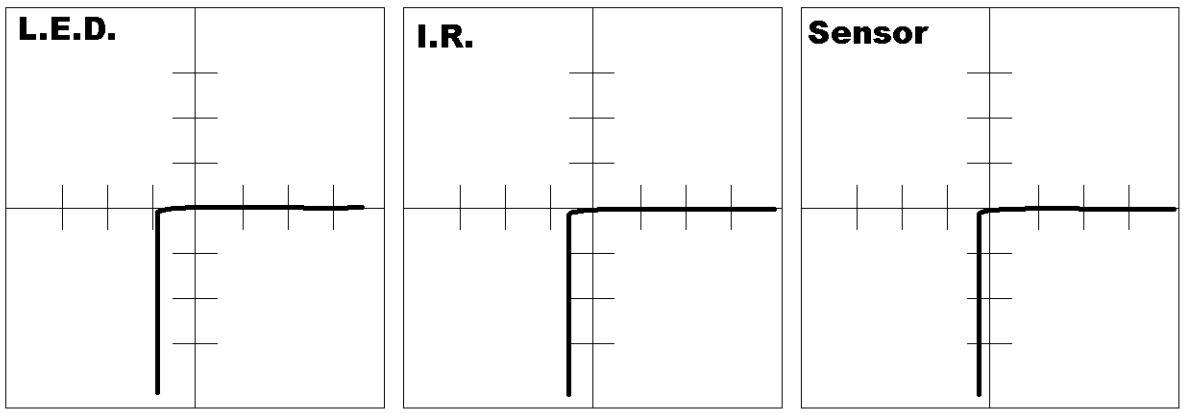


Drawn By:		Signed	

Date	24/03/97	Type	E8700/5 or E112-03
e112-03.cmx			

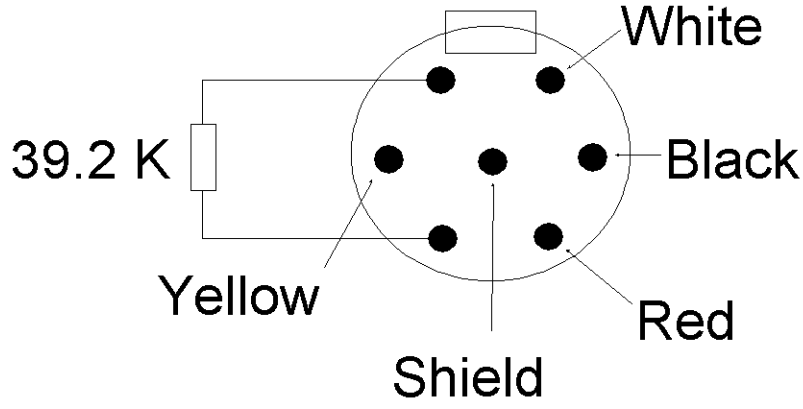




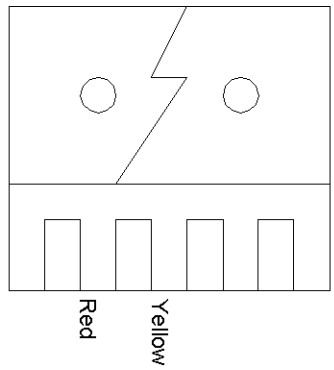


Drawn By:	D.Lamb	Signed	

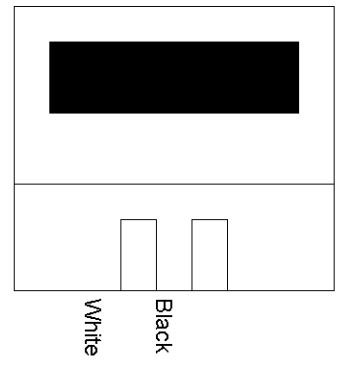
Date	15/09/97	Type	E112-14
Schematic's			

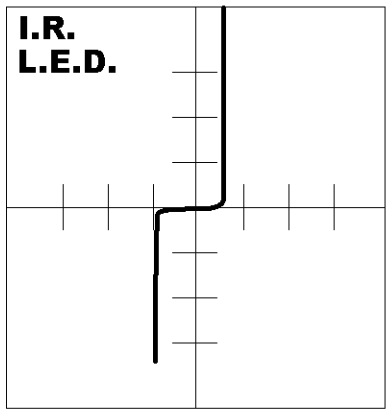


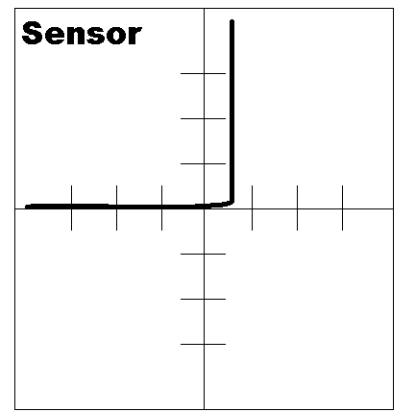
Led Face UP



Sensor Face UP







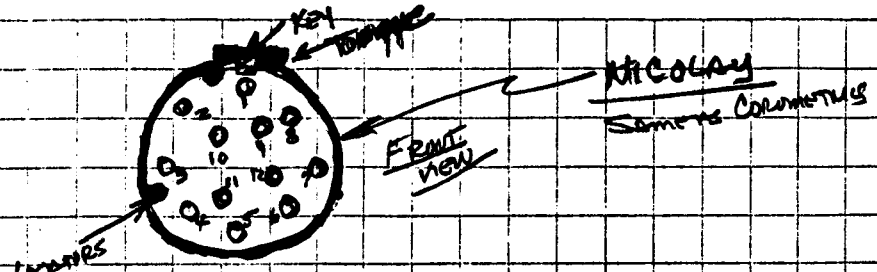
Drawn By:	Derek Lamb	Signed	

E8010

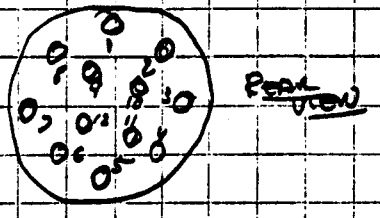
KONTRON INSTRUMENTS LTD

PN 060E010 SWITZERLAND

PREPARED BY	BW
DATE	2/6/96

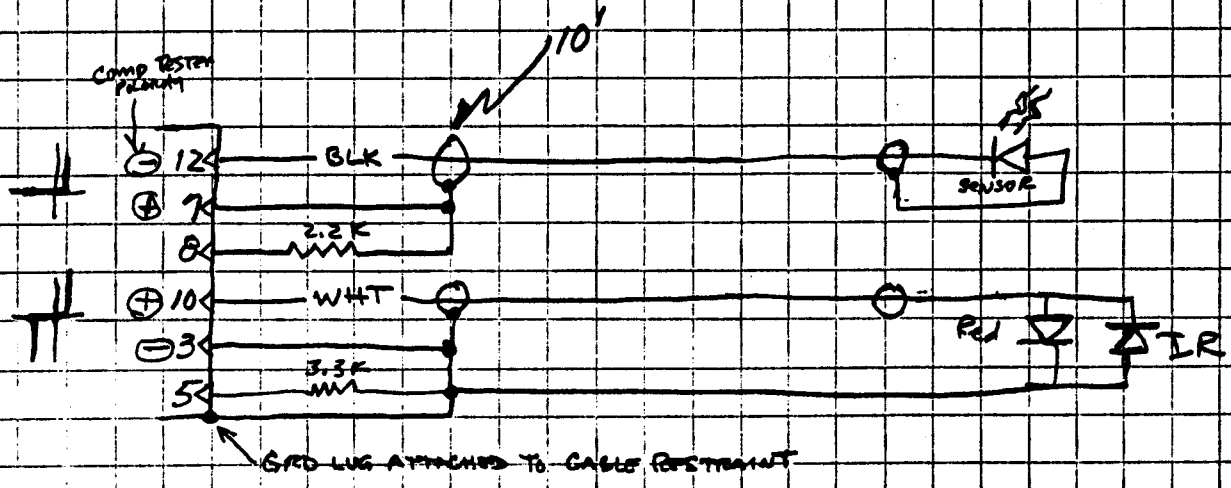


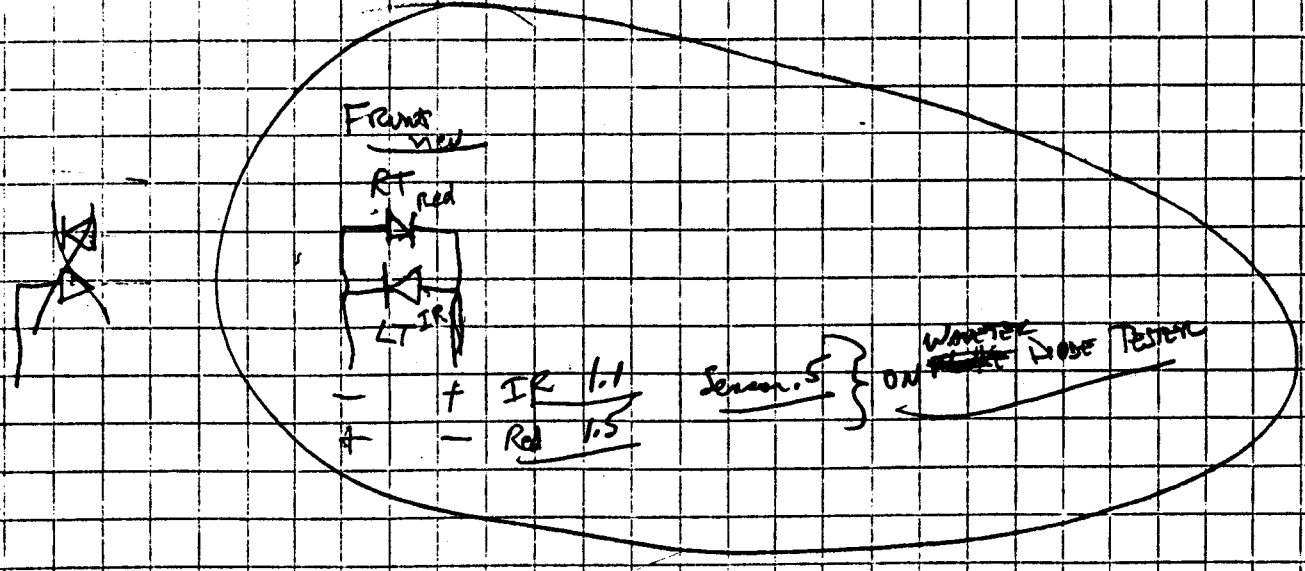
MICOLAY
SOMETIS CONNECTIONS



EPIC CABLE CONNECTIONS X2D05580

		Connect to
10	RED	
3	YELLOW	
5	WHITE	
12	BLACK	
7		
8		

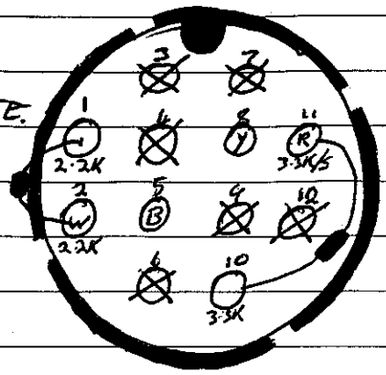




P886RA (~~K~~ONTRON)

12' CABLE.

1 = 2.2K RES.
2 = 2.2K RES + WHITE.
3 = N/C
4 = N/C
5 = BLACK.
6 = N/C

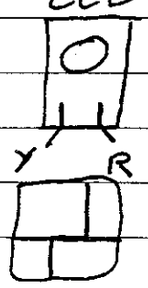


7 = N/C
8 = YELLOW
9 = N/C
10 = 3.3K RES.
11 = RED + SHIELDS + 3.3K RES.
12 = N/C.

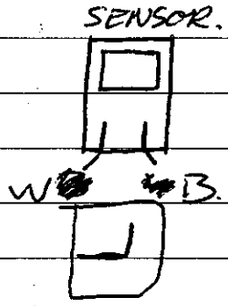
PART REQUIRED [redacted]
- 0010100 CLIPKIT.
- 0030955 LED
- 0030902 SENSOR

~~[redacted] shields~~ · Remove shields from inside & outer CABLE.

LED



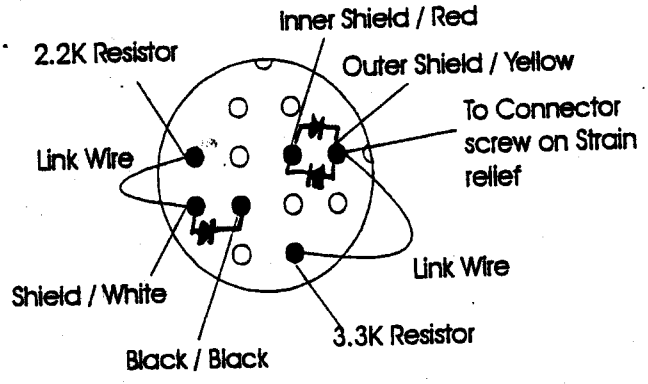
SENSOR.

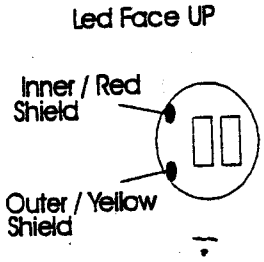


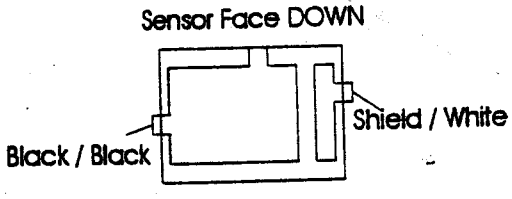
Date	03/10/96	Type	Kontron

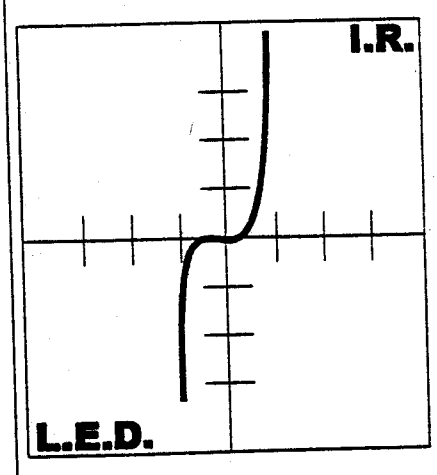
kontron.cmx Cable

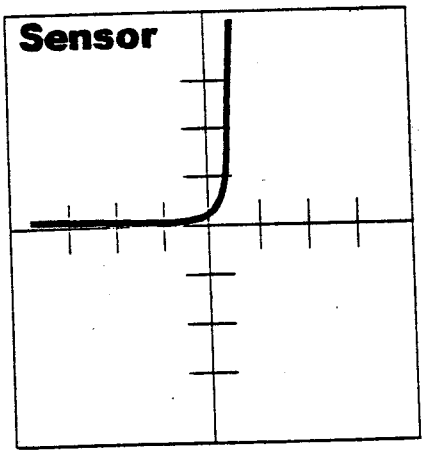
REAR VIEW







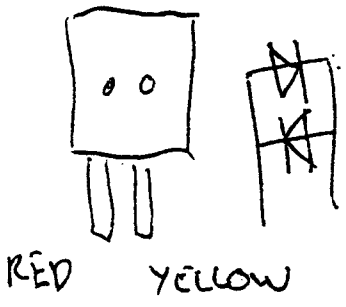




Drawn By:		Signed	

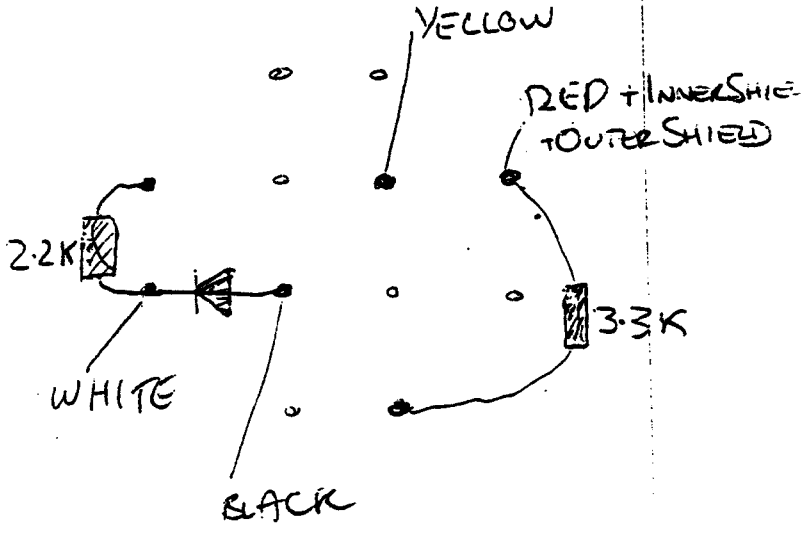
Date		Type	P886RA KONTRON

LED

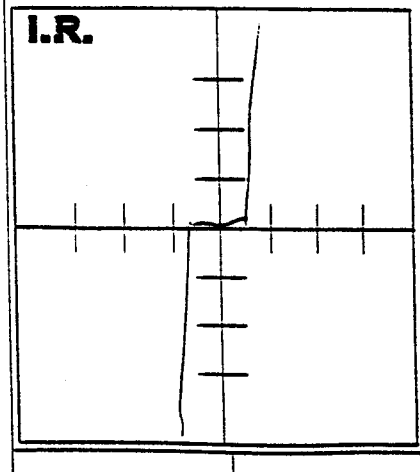


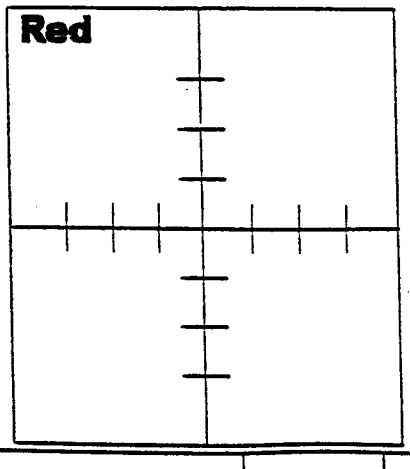
SENSOR

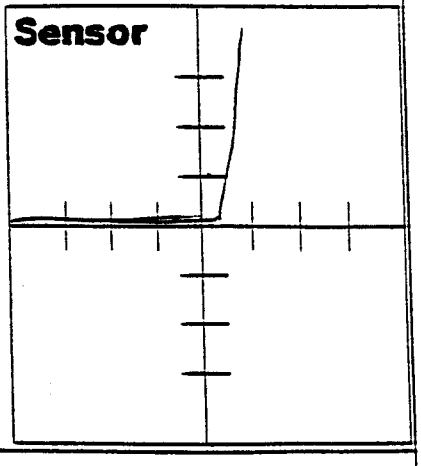
CONNECTOR REAR VIEW



N.B. THIS DIAGRAM IS STILL TO CONFIRM







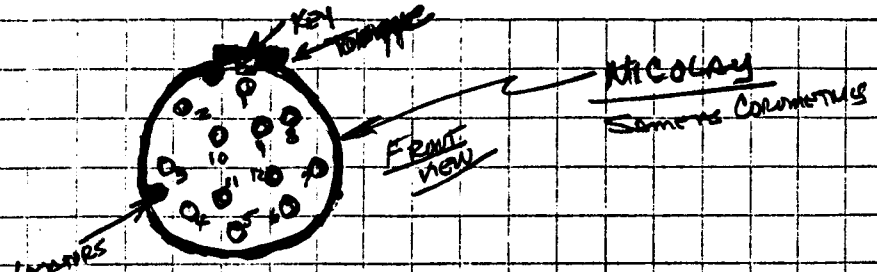
Drawn By:		Signed	

E8010

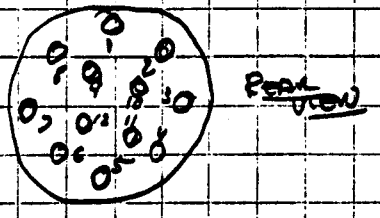
KONTRON INSTRUMENTS LTD

PN 060E010 SWITZERLAND

PREPARED BY	BW
DATE	2/6/96

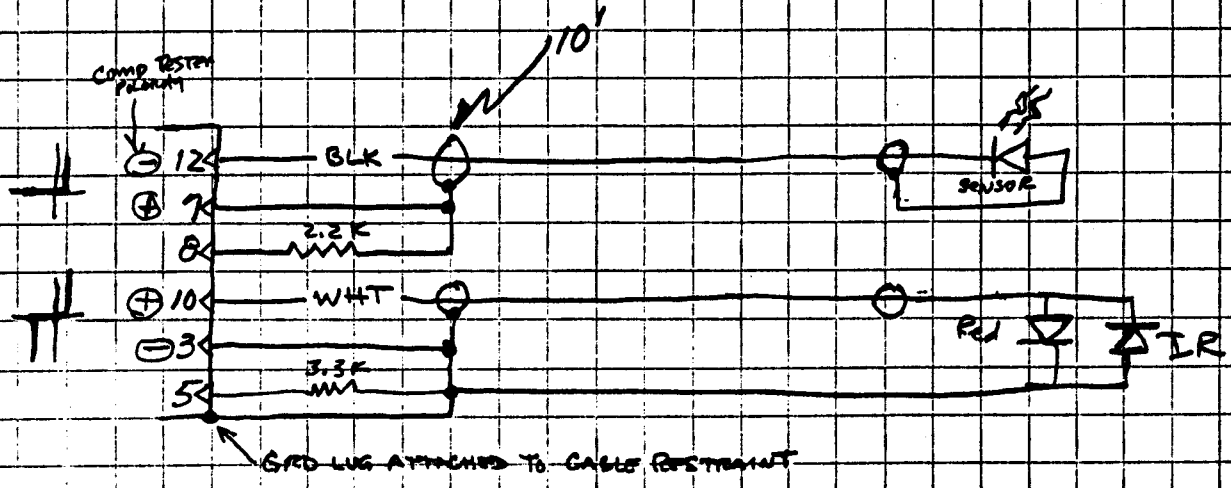


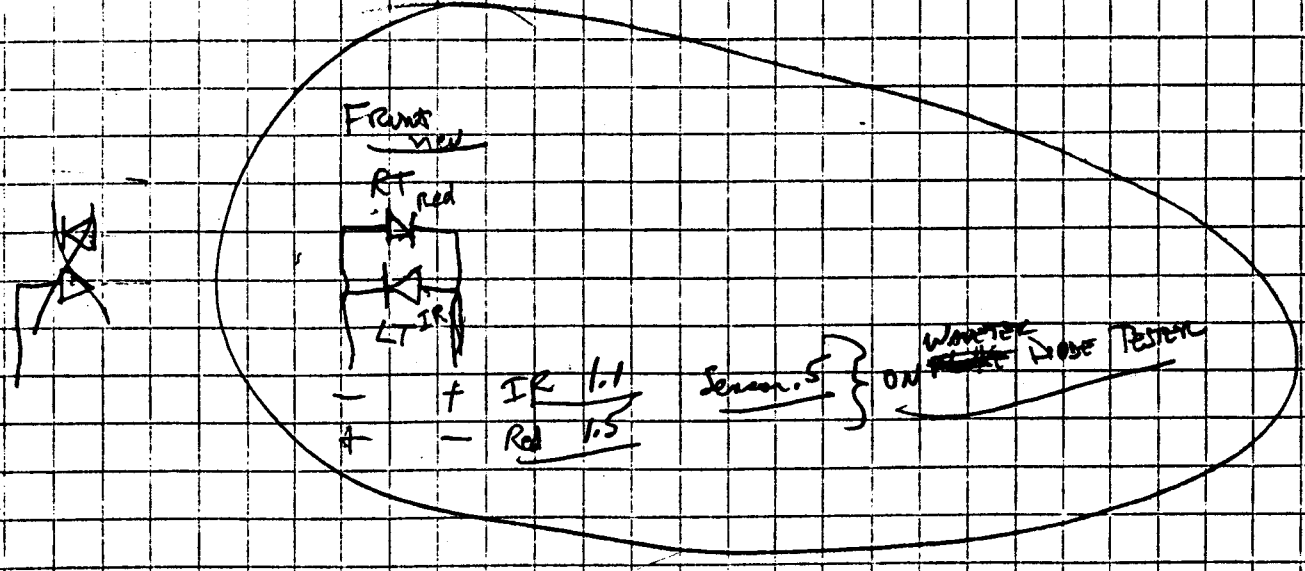
MICOLAY
SOMETIS CONNECTIONS



EPIC CABLE CONNECTIONS X2D05580

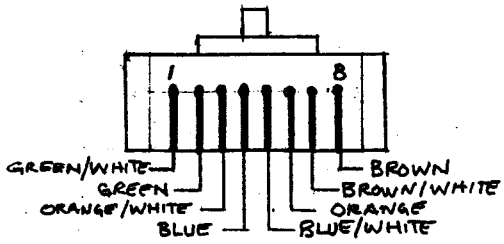
		Connect to
10	RED	
3	YELLOW	
5	WHITE	
12	BLACK	
7		
8		





WIRING DIAGRAM

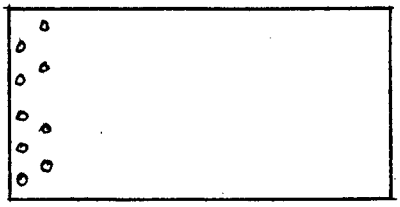
8 BIT CONNECTOR



END VIEW.

PC BOARD

CONNECTS TO CABLE (See Page 2 for wiring)



SCHEMATIC

PARTS LIST

18" X2DL5STR CABLE, [illegible] CONDUCTOR

SPECIAL INSTRUCTIONS

REPLACE CABLE ON ALL REPAIRABLE UNITS. SEE PAGE 2 FOR SPECIAL INSTRUCTIONS TO DISASSEMBLE, REPLACE CABLE AND ASSEMBLE.

EPIC MEDICAL EQUIPMENT SERVICES, INC.
Dallas, Texas

SCALE: NA	APPROVED BY:	DRAWN BY: WORLEY
DATE: 11/28/95		REVISED

NELLCOR PATIENT MODULE - N10 OXIMETER

REPAIR STANDARDS

DRAWING NUMBER: NELLCOR3
PAGE 1 of 2

MODULE DISASSEMBLY & ASSEMBLY PROCEDURE

A. N10 "MINI"

1. DISASSEMBLY

(SEE N100 & N200 "MINI" PROCEDURE PAGE 3)

2. ASSEMBLY

(SEE N100 & N200 "MINI" PROCEDURE PAGE 3 AND CABLE ASSEMBLY BELOW)

B. N10 "OLD STYLE"

1. DISASSEMBLY

(SEE N100 (4 BUTTON) PROCEDURE PAGE 3)

2. ASSEMBLY

(SEE N100 (4 BUTTON) PROCEDURE PAGE 3)

CABLE PREP AND ASSEMBLY PROCEDURE (OPEN UNIT BEFORE PROCEEDING)

A. CONNECTOR END

(PRE-WIRED)

B. MODULE END

1. ASSEMBLE STRAIN RELIEF (AND "MINI" CASE) TO CABLE.
2. REMOVE 1½" OF JACKET.
3. STRIP AND TIN WIRES.
4. CONNECT WIRES TO PC BOARD AS FOLLOWS:

N10 "MINI"	
1	ORANGE/WHITE
2	ORANGE
3	BROWN
4	BROWN/WHITE
5	NC
6	GREEN
7	BLUE/WHITE
8	GREEN/WHITE
9	BLUE

N10 "OLD STYLE"	
1	BROWN
2	GREEN/WHITE
3	BROWN/WHITE
4	GREEN
5	ORANGE
6	ORANGE/WHITE
7	BLUE/WHITE
8	BLUE
9	NC
10	NC

EPIC MEDICAL EQUIPMENT SERVICES, INC.
Dallas, Texas

SCALE: NA	APPROVED BY:	DRAWN BY: WORLEY
DATE: 11/28/95		REVISED

NELLCOR PATIENT MODULE – N10 OXIMETER

REPAIR STANDARDS

DRAWING NUMBER: NELLCOR3 PAGE 2 of 2

INTERNATIONAL OXIMETRY SENSORS & CABLES, INC.
DALLAS, TEXAS

QUALITY CONTROL PROCEDURE

REPAIRED NELLCOR PATIENT MODULE

Original Copy - Engineering
Copy #1 - Quality assurance
Copy #2 - Quality Control
Date Initiated 11/29/95 by GW

Rev: Date by

MODEL N10

I. PHYSICAL

A. CONNECTOR
1. Inspect for bent or broken pins.
2. Inspect for proper connector assembly and secure mechanical union.

B. CABLE
1. Inspect for cuts and/or abrasions.
2. Inspect for cleanliness.

C. PREAMP HOUSING
1. Inspect connector.
2. Check strain relief.
3. Check for proper labels attached in the presribed manner.

II. PERFORMANCE

A. CABLE CONNECTOR
1. Connect cable to N10 Nellcor Oximeter Monitor.

B. SENSOR CLIP CONNECTOR
1. Attach the NELLCOR DS100A to the cable.
2. Attach to your finger.
3. The Oximeter should read approximately 97% Sat.

III. GENERAL

A. Make sure all required entries are recorded.
B. Initial "Acceptance" or "Failure".
C. Record the date QC was performed.
D. Send the unit to SHIPPING for return to the customer.

WPDOCS\QCPROC\NELLCOR3.QCP

INTERNATIONAL OXIMETRY SENSORS & CABLES, INC.
DALLAS, TEXAS

QUALITY CONTROL PROCEDURE

REPAIRED SaO2 CABLES

Original Copy - Engineering
Copy #1 - Quality assurance
Copy #2 - Quality Control
Date Initiated 11/29/95 by GW

Rev: ____ Date ____ by ____

MFR: CRITICARE MODEL: 511-10L & 934-10L

I. PHYSICAL

A. CONNECTOR
1. Inspect for bent or broken pins.
2. Inspect strain relief.
3. Inspect for proper connector assembly and secure mechanical union.

B. CABLE
1. Inspect for cuts and/or abrasions.
2. Inspect for cleanliness.

C. CLIP
1. Inspect for traces of glue or epoxy.
2. Check for proper assembly of clips, pads, springs and cable retainer.
3. Check that "Company identification" label has been attached.

II. ELECTRICAL

A. LED's

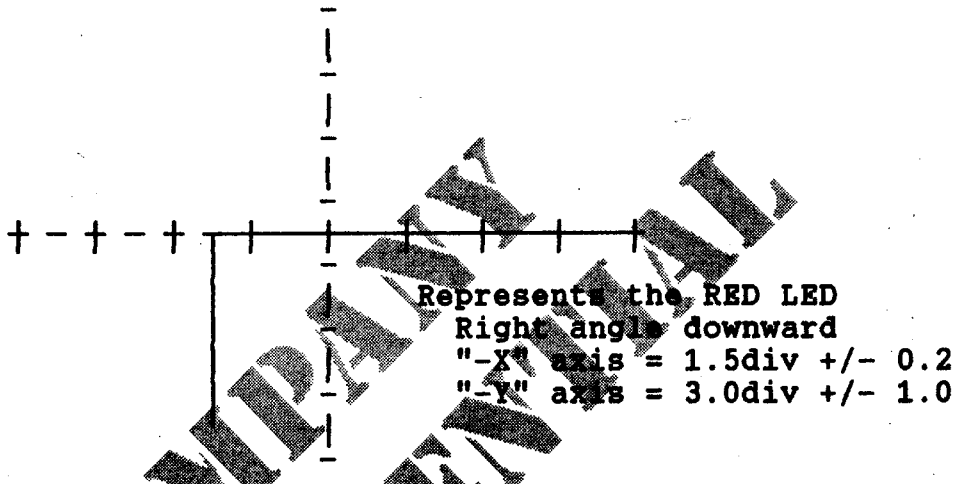
NOTE: Set COMPONENT TESTER to: * - Lo
* - A

1. Connect cable to "J" connector on the text fixture.

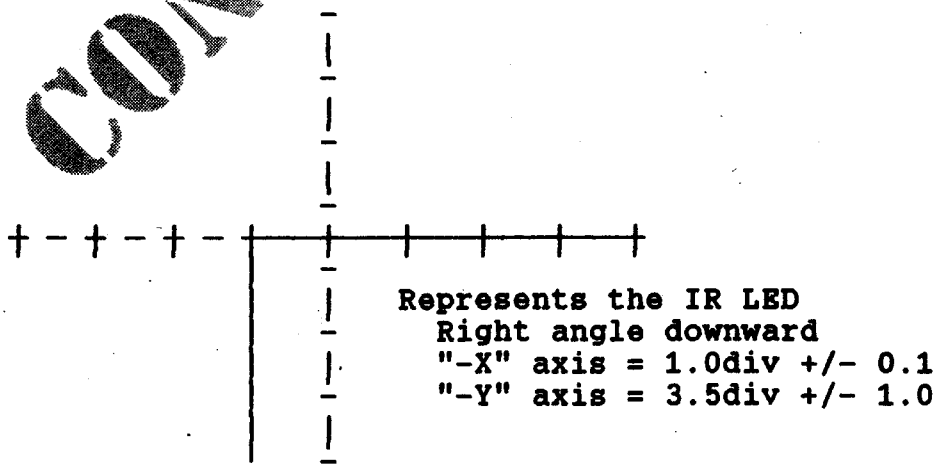
II. ELECTRICAL (cont.)

A. LED's (cont.)

2. Place "BLUE (S1)" switch in position "2". The COMPONENT TESTER should indicate the following pattern.

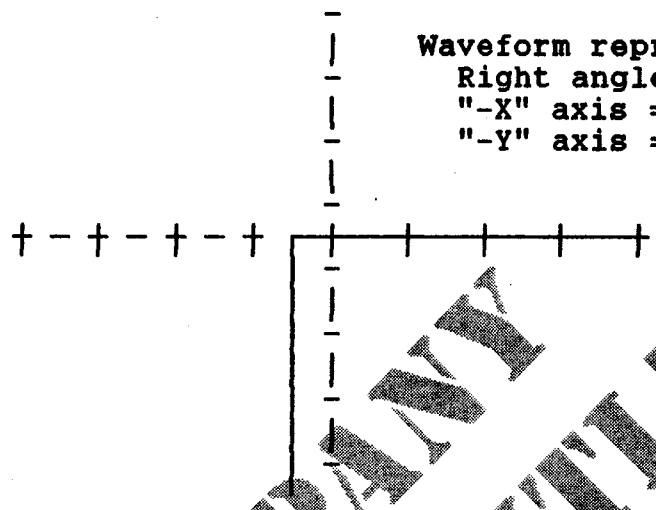


3. Place "BLUE (S1)" switch in position "3". The COMPONENT TESTER should indicate the following pattern.



B. SENSOR

1. Place "BLUE (S1)" switch in position "4". The COMPONENT TESTER should indicate the following pattern.



III. PERFORMANCE (record readings on WORKSHEET)

A. CABLE CONNECTOR
1. Connect the cable to the "CRITICARE" Oximeter Monitor.

B. SENSOR CLIP
1. Attach the sensor clip to the "RED" Nonin Saturation Test Unit.
2. Pulse the unit about once per second.
3. The Oximeter should read "96"% SaO2 (+/- 2).
4. Attach the Sensor Clip to the "BLACK" Nonin Saturation Test Unit.
5. Pulse the unit about once per second.
6. The Oximeter should read "82"% SaO2 (+/- 2).

IV. GENERAL

A. Make sure all entries are recorded on worksheet.
B. Indicate "Acceptance" or "Failure".
NOTE: If unit fails, return to repair technician.
C. If accepted, record the date QC was performed.
D. Send the unit, with the worksheet, to shipping for return to the customer.

DL

Datex

'Scotch Grip' Plastic adesive - 4475.
'Dow Corning' 3140 RTV - Silicone Rubber.

If Cable is the manufacturers cable then change cable - original is poor quality 12 foot cable.

Prepair new Cable

Pull pads out.
Remove Led / Sensor.
Clean Led / Sensor.
Remove old wires.

Attach to Led / Sensor 4 Link Wires.

Red / Yellow - Led.
Black / White - Sensor.

See fig 1.

Led / Sensor Facing Down

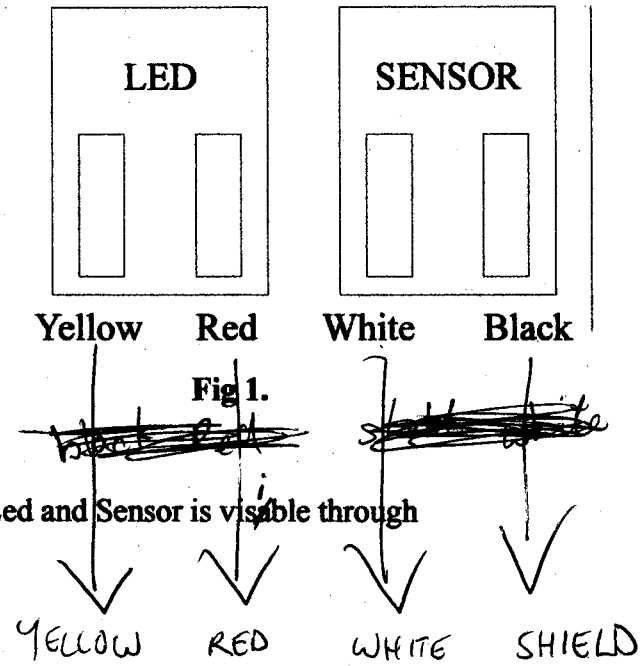


Fig 1.

Super Glue Sensor / Led into Epic Pads (Ensuring Led and Sensor is visible through window).

Leave to Dry.

Stretch new strain relief on a screw driver.
Glue strain relief 7.5 cm down the cable.

1.6 mm Diameter 5 cm Length.
1.6 mm Diameter 4 cm Length.
3.2 mm Diameter 1.5 cm Length.

0.5 cm from strain relief remove sheath of cable.
Cut and remove main shield.
Cut and remove Orange wire and the 2 Strings.

4 cm heat shrink over sheilded black / white.
5 cm heat shrink over red and yellow.
Shrink both.
1.5 cm heat shrink over both heat shrinks and shrink.
Cut and remove black wire.

DL

1.5 cm from heat shrink cut wires/shield.
Strip and Tin.

With 4475 Glue around finger clip rail (around sensor/led) and cover sensor/led.

leave to dry 2Hrs.

Cable Connector End

Remove Retaining Ring.
Stretch casing with screw driver.
Use alcohol to lubricate.
Remove rubber case.
Remove ring from inside rubber case.
Place rubber case and internal ring onto new cable.
Remove wires from plug.
Desolder wires from Pins 6 , 7 , 8 , 9.

Cut back cable 1.5 cm.
Remove main shield.
Remove Orange wire.
Remove Strings.
Remove Black Wire.
Strip and tin remaining wires.
Place 1.6 mm diameter 1 cm long heat shrink over shield.

Red to Pin 6
Yellow to Pin 7
White to Pin 8
Shield to Pin 9

IMPORTANT:
IT IS ESSENTIAL THAT THE SHIELD IS USED, AND NOT THE BLACK WIRE.

Shrink heat shrink on shield.
Put Connector back together.

Attaching pads to cable.

Over each link wire on the Led and Sensor place 0.5 cm length 1.6 mm Diameter heat shrink.
Attach cable to link wires (colour for colour) —
Cut and remove small peg on on side of epic finger clip
Insert strain relief into place.
Screw holding plate into place.
(Sensor pad to the bottom).

Use 4475 to Glue the pads into place.

Repair procedures For Nellcor Finger Probes

Initial Visual Check.

If Case of finger clip is Cracked then the sensor is unrepairable.

If Cable is nicked/damaged then cable is to be replaced.

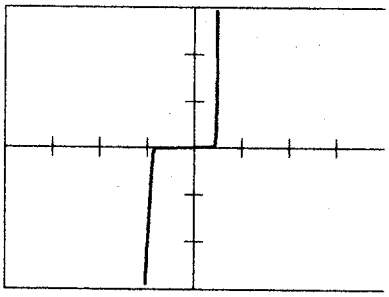


Fig 1

Initial test.

Insert plug into Socket A. .

Meter Should show 7.4 - 7.6 K Ohm

Switch to LED .(1) BLUE S1 See Fig 1.

Twist cable with particular attention to the strain relief's at both ends.
Push and move the finger pads.
Switch to Sensor. (4) BLUE S1

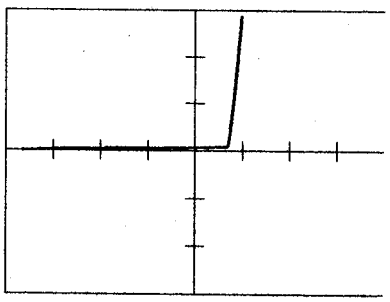


Fig 2

See Fig 2.

Twist cable with particular attention to the strain relief's at both ends.
Push and move the finger pads.

If an intermittent fault is seen then the cable needs replacing.
If a fault is found in the finger pads then resoldering the pads may cure the problem.

Replacing the Cable.

Dismantling finger probe

Cut Cable 10 cm from finger Clip - Discard Cable and Plug

There are 4 holding clips on each finger pad one in each corner.
Unclip pads with a small screwdriver.

Cut Wires from the pads and discard.

Ultra Sonic Clean the finger Clip, The two pads and the two springs.

DC

Prepare New Cable.

Replacement cable P/N E100A-101A

1. Remove sleaving 1/2 cm from strain relief.
2. Cut and bin main shield.
3. Cut and bin Orange wire and the 2 black strings.
4. Remove twisted pair shield.
5. Cut and bin shield.
6. Place over Black and White cables heat shrink 1/16'' Diameter - 2'' Long. Also over red & yellow cables.
7. Cut Red and Yellow cables to be 1/2'' shorter than the end of the heat shrink.
8. Cut Black and White wires to be 1/2'' longer than heat shrink.
9. Strip all remaining wires and Tin.

Removing Sensor and Led.

Clean all parts with alcohol after Ultra Sonic Cleaning.

1. Cut a slice from the rubber where the wires come out.

2. With a scalpel cut above and below the Sensor/Led.

NOTE: Don't slice any rubber except where scalpel is inserted.

3. Pull Sensor or Led out of rubber.

4. Remove any remaining Silicone from the Sensor/Led.

Attaching Led/sensor to new cable.

Desolder old wires from both the led and the sensor.
NOTE Led is heat sensitive - Don't get too hot.

1. With Led facing up and legs towards you.

See fig 3.

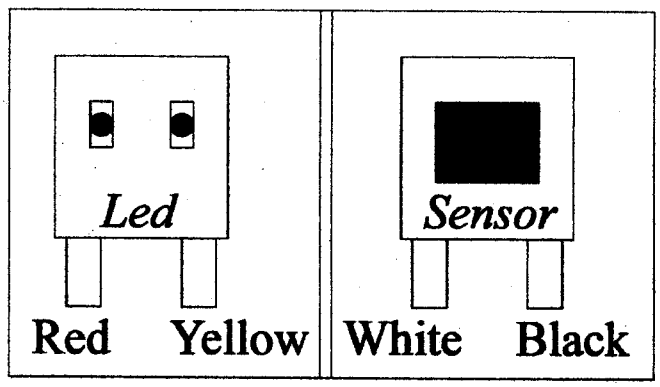


Fig 3.

Solder the red wire to the left
Solder the yellow wire to the right.

2. With Sensor Facing up and legs towards you.

See fig 3.

Solder the white wire to the left.
Solder the Black wire to the right.

Check New cable.
Push the Sensor and Led back into finger pads.
NOTE ensure they face in the correct direction.

Assembling finger clip

Check both pads that the metal rim is not bent. If rim is bent straighten with pliers.

See fig4 . for assistance / orientation.

1. Place pads together with the windows in the same direction.
2. Place Springs around the pads and attach together.
3. Line black heat shrink with groove inside clip.
4. Clip each pad in turn into place. Each corner of each pads should click into place.

NOTE When viewing clip from the back non of the metal rim should be visable.

Recheck Probe.

Glue front corners of both pads (single drop).

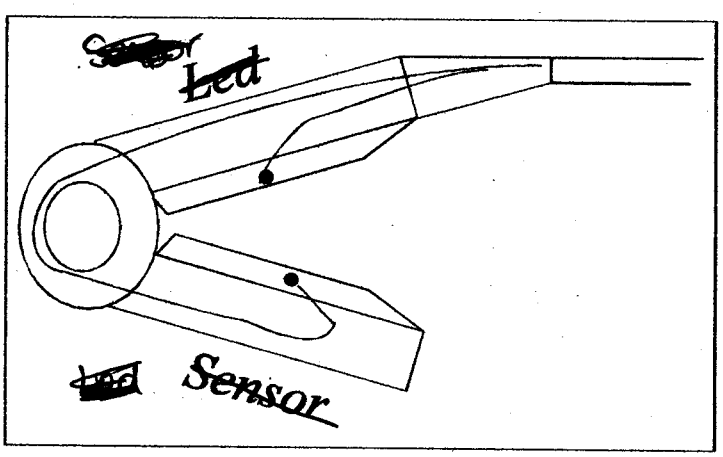


Fig 4

Nellcor Pre-Amp Cables

Cable Preparation and Assembly

Connector End

Determine connector end; this is when looking into the cable the red, white and grey wires are in an anti-clockwise rotation.

Assemble Lemo connector parts onto cable; strain relief first, then the back nut and finally the collar.

Remove about 4cm of sleeving and foil.

Strip and tin only about 2mm of wires, twist and tin shield.

Place about 8mm of heat shrink onto each wire.

Solder wires into connector in the following order:

12- Open

11- Black

10- White (omit if 100 Mini)

9- Green

8- Red

7- Grey

6- Violet

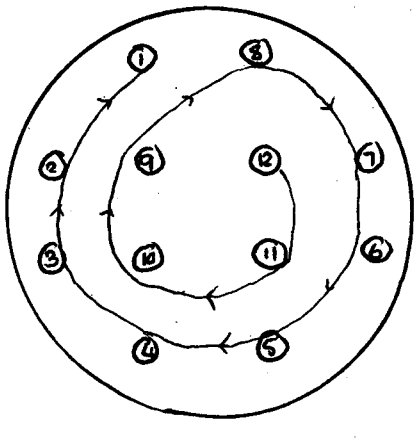
5- Yellow

4- Orange

3- Blue

2- Brown

1- Shield



Shrink heat shrink on each wire as it is connected.

Push on sleeving along the length of the cable to reduce the gap between the cable and connector.

Assemble the connector and close with spanners.

Slide strain relief onto back of connector.

Module End

If cable is to be used on a 'mini' then put the housing onto the cable.

Put strain relief onto cable..

Remove about 6cm of the outer sleeving and inner foil.

Cut about 3cm from the coloured wires but leave the shield wire at its original length.

Strip only about 2-3mm of insulation from the coloured wires.

Tin wires and shield.

Connect the wires to the PCB as follows.

N100/N200 'mini'	N200 with ECG	N100 (4 button)
1-Blue	1-Black	1-Black
2-Black	2-Red	2-Red
3-Red	3-Yellow	3-Yellow
4-Brown	4-Grey	4-Grey
5-Green	5-Violet	5-Violet
6-Orange	6-Orange	6-Orange
7-Yellow	7-White	7-White
8-Violet	8-Open	8-Green
9-Grey	9-Blue	9-Blue
	10-Brown	10-Brown
	11-Green	

Test unit **before** closing it up.

Close unit and retest. (See individual procedures for disassembly/assembly/closing up method)

Seal and label unit.

Nellcor N100/N200 Mini Pre-Amp Cable

Disassembly

Cut cable a few centimetres from the strain relief.
Place housing in a vice with the word 'NELLCOR' uppermost.
Saw between letters 'N' & 'E' of NELLCOR on the top of the housing.
Saw down either side of the housing, then join these cuts together by sawing along the bottom.
Turn the housing around and grip the end in the vice whilst holding the housing, pull the housing free.
Remove strain relief and cable sleeve from housing.
Cut strain relief in half at the moulding line to increase diameter.
Remove cable from strain relief by pushing a small screwdriver down between sleeve and strain relief to break glue seal, discard sleeve.
Remove and discard crimping sleeve from metal shield.
Disassemble metal shield from module.
Remove spacers, being careful not to lose them, and hold board in a mini vice with solder pads uppermost.
Remove coloured wires in turn.

Assembly

N100 & N200 mini do not require white wire so this can be cut off at the sleeve.
Put housing and strain relief onto cable.
Attach cable to PCB as mentioned in "Cable Preparation and Assembly- Module End".
Test unit.

Closing up

Push along the cable to push the sleeve right up to the P.C.B.
Replace spacer pegs.
Squash the cable clamp part of the metal shield with pliers, then replace the shield onto the P.C.B.
Wrap the shield wire around the flattened end of the metal shield.
Push the strain relief up to the shield and fix with super-glue.
Push plastic casing over module, using super-glue before closing casing as far as possible.
Fill the remaining crack with silicone, removing any excess sealant by wiping at right angles across the crack with a cloth soaked with alcohol.
Place a foil sticker around the module over the silicone.

Nellcor N100 Pre-Amp Cable

Disassembly

Cut cable off a few centimetres from the strain relief.
Open up the outer plastic casing.
Remove strain relief from case and module.
Remove metal shield.
On the side where the rubber sealant is thinnest, lightly slice across and remove the 2cm of rubber nearest the cable. This should reveal 2 sets of solder pads to which the wires attach.
Turn the module over and cut the rubber along the other side, being very careful to lift the scalpel if it hits any resistance to avoid cutting the capacitor under the rubber.
Remove all wires and prepare board for new cable.
Remove old cable from strain relief with a small screwdriver.

Assembly

Put strain relief onto cable.
Attach cable to PCB as mentioned in "Cable Preparation and Assembly- Module End".
Test unit.

Closing up

Push along the cable to slide the sleeving up to the PCB.
Tie-wrap the cable and secure with a spot of super-glue.
Glue down the sleeving to secure the wires to it.
Push strain relief up to the tie-wrap and glue in place.
Replace metal shield and solder shield wire to it.
Assemble outer casing, glue it into place and hold with clamp.
Add label and retest.

N200 with E.C.G

Disassembly

Cut cable off a few centimetres from the strain relief.
Remove the clip and the spring.
Separate and remove the outer casing by prying it apart.
Remove old cable from strain relief with a small screwdriver.
Remove the metal shield. If the shield is made of foil, cut away the amount necessary as oppose to removing it all.
On the side where the rubber sealant is thinnest, lightly slice across and remove the 2cm of rubber nearest the cable. This should reveal 2 sets of solder pads to which the wires attach.
Turn the module over and cut the rubber along the other side, being very careful to lift the scalpel if it hits any resistance to avoid cutting the capacitor under the rubber.
Remove all wires and prepare board for new cable.

Assembly

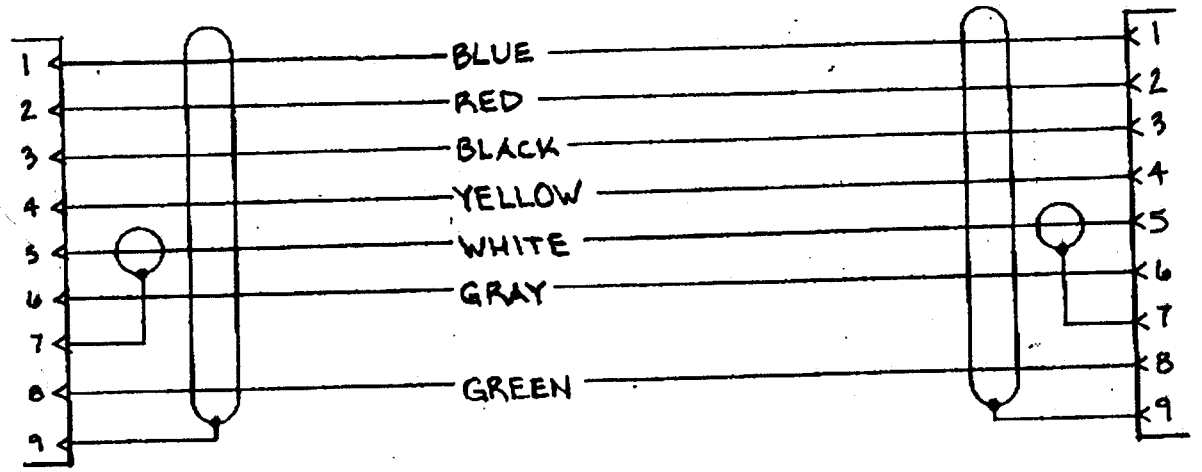
Put strain relief onto cable.
Attach cable to PCB as mentioned in "Cable Preparation and Assembly- Module End".
Test unit.
If the amp connector needs replacing, cut the legs off and de-solder from the PCB before soldering a new connector on.

Closing up

Push along the cable to slide the sleeving up to the PCB.
Tie-wrap the cable and secure with a spot of super-glue.
Glue down the sleeving to secure the wires to it.
Push strain relief up to the tie-wrap and glue in place.
Replace metal shield and solder shield wire to it.
Assemble outer casing, making sure that the bezel for the amp connector is in place and the pin locates properly.
Glue it into place and hold with clamp.
Add label and retest.

DB-9 MALE

DB-9 FEMALE



DC

Ohmeda Finger Probes (old style).

(Old style has small Strain relief at the finger clip end.)

Visual Check

Cracks in probe - Exchange
Nicks in cable - Replace Cable

Required:

1. 9 Pin Connector
2. 7 Connector Pins
3. 61.9 K Ohm Resistor
4. Strain Relief

Cut Resistor Legs :
1 side 0.5 cm
1 side 1.5 cm

Solder a pin to each side of resistor
Place length of heat shrink 2 cm Long - 3.2 mm diameter over resistor.
NOTE Short side of resistor to Pin 5
Insert Resistor into Connector

Cable

Expose 1.5 cm of cable.
Cut and Remove main shield.
Cut and Remove white wire (inside internal shield).
Strip and Tin wires.
Solder pins on each wire including shield.
Insert pins into Connector

NOTE before inserting pins ensure Strain Relief and relevent connector parts are on the cable.

Slide/Stretch Cable sheath down.
Attach Small Cable Tie to Cable.

Note if only re-wireing cable at finger clip end cut the cable by a max of 10-15 cm.

Finger Clip

Rubber band Finger Clip (To hold it open)

DL

Remove bottom Pad -
Use a small screwdriver to prise the pad off (use the small groove)
Desolder old wire
Cut yellow String

Pull Strain relief from the Finger clip.
If necessary score around the strain relief with scalpul
Remove cable

cleanup pads (use a toothbrush)

Remove strain relief from cable
Use a small screwdriver to break the seal between the strain relief and the cable, Use alcohol to pull out cable)

place strain relief on new Cable
place 0.5 cm length of 3.2 mm heat shrink on cable

Cut back 1.5 cm of cable
Remove main shield + string
Remove white wire
Strip and Tin remaining wires
NB sheath should fit in the groove (if not slide sheath down)

Solder on to finger clip as per diagram
Slide down sheathing to fit
Super glue heat shrink onto cable in the grove
Slide down strain relief and glue

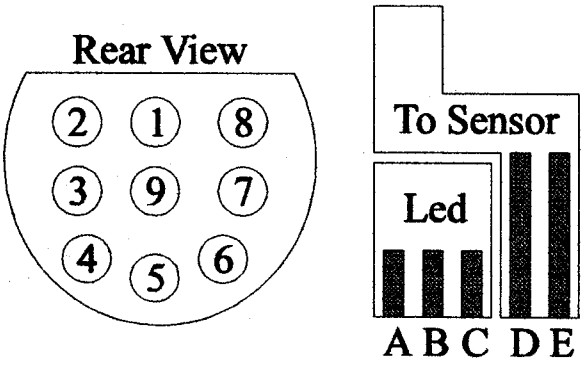
Glue the 4 corners of padding to finger clip

Test Probe.
Resistance between 30KOhm and 80 KOhm

<u>Ohmeda (new Style)</u>

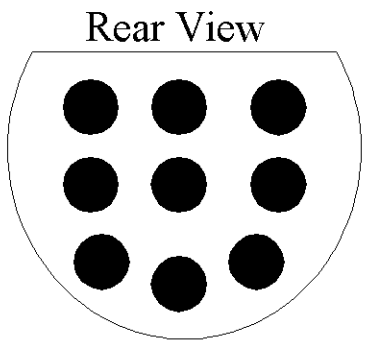
The only differences is a bigger strain relief and the resistor in the connector must be Shielded.

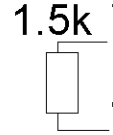
DC



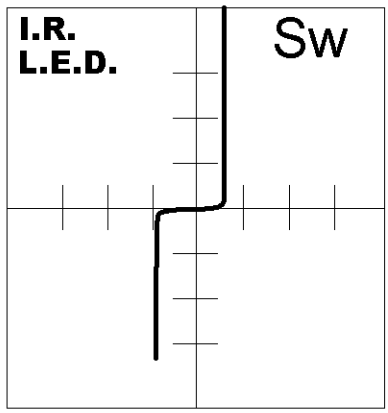
Pin Number	Ohmeda Cable Original Model	Ohmeda Cable New Model	Epic Cable New Model	Epic Cable Original Model
1	Orange	Orange	Orange	Orange
2	Green	Green	Yellow	Yellow
3	-	-	-	-
4	Red	Red	Red	Red
5	Resistor	Resistor	Resistor	Resistor
6	-	-	-	-
7	Resistor	Resistor and Shield	Resistor and Shield	Resistor
8	Black	Black	Black	Black
9	Shield	White	White	~~White~~ Shield
A	Green	Green	Yellow	Yellow
B	Red	Red	Red	Red
C	Orange	Orange	Orange	Orange
D	Black	Black	Black	Black
E	Shield	White	White	Shield

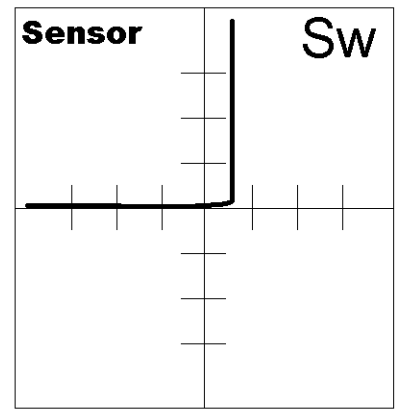
Date	24/03/97	Type	E333 / E112-12
E333.cmx			





1 Shield
2 Yellow
3 Red
4 Not Used
5 Not Used
6 B
7 White
8
9 Shield





P864RA
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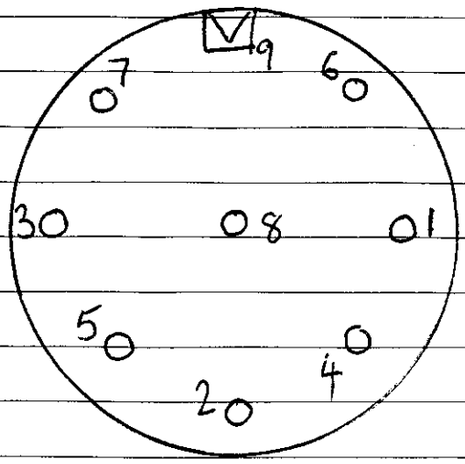
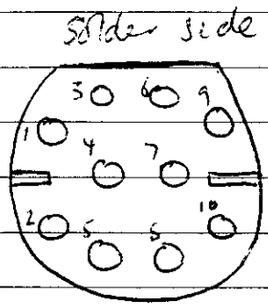
nector)



1 Yellow
2 22Ω red
3 White
4 Orange
5 Main shield
6 47k
7 Black
8 47k
9 (MAIN BODY) Inner Shield

DS
S/N
9F2028C

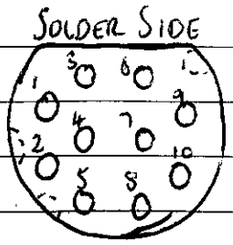
E412-09
Epic Delta
wire pads

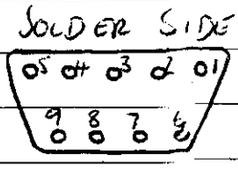


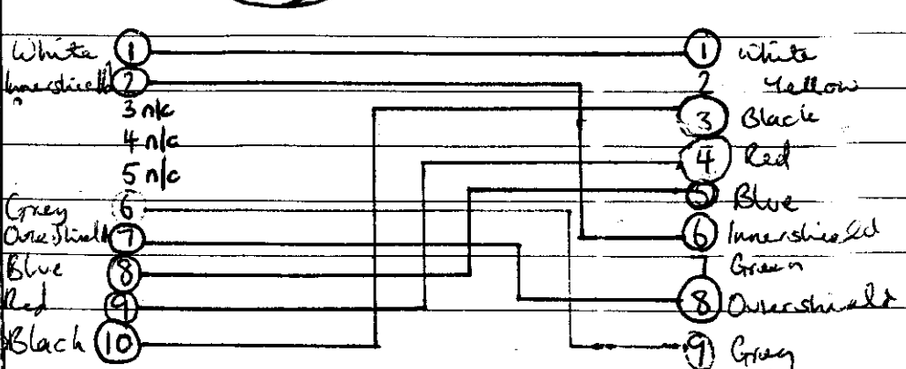
1 resistor + capacitor
2 n/c
3 n/c
4 link
5 link + Outer shield
6 Red
7 Yellow
8 res + cap + white
9 Black + Inner shield
10 n/c

resistor - 16k

NECTOR
↓
S&W
extn.
cable

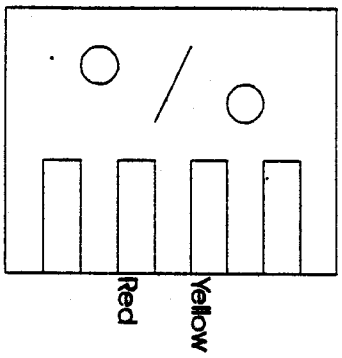




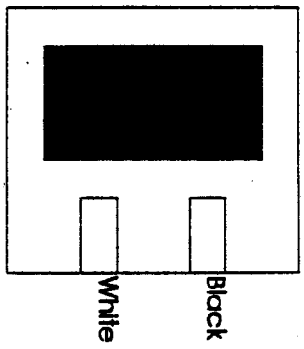


Date	02/10/96	Type	Epic E100A
Schematic's	Epic Nbucor		

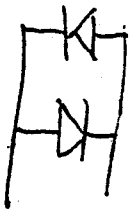
Led Face Up

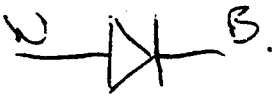


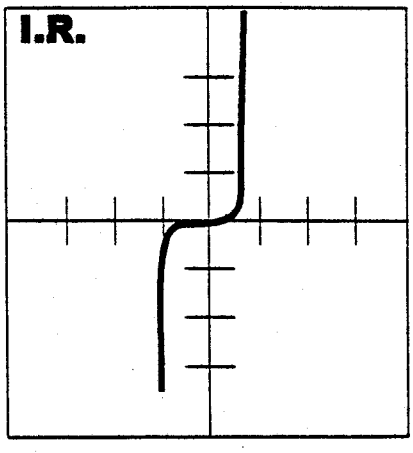
Sensor Face Up

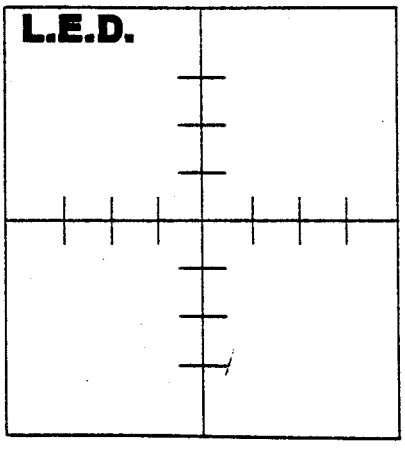


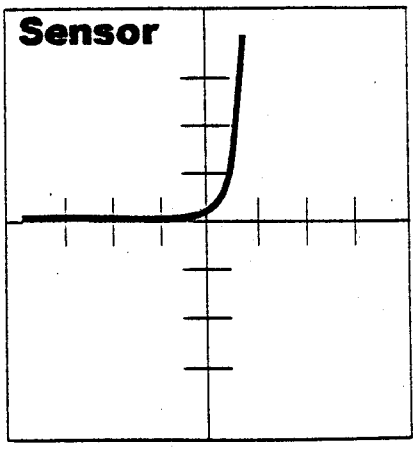
Using E100A-101 Cable





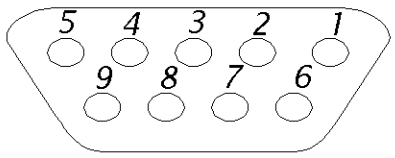






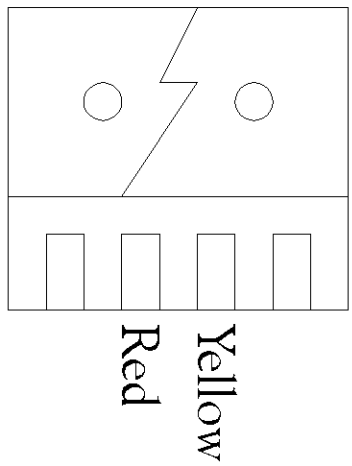
Drawn By:		Signed	

Date	24/03/97	Type	E103-10 / E8997
E103-10.cmx			

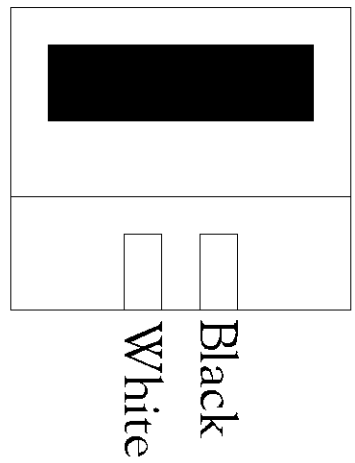


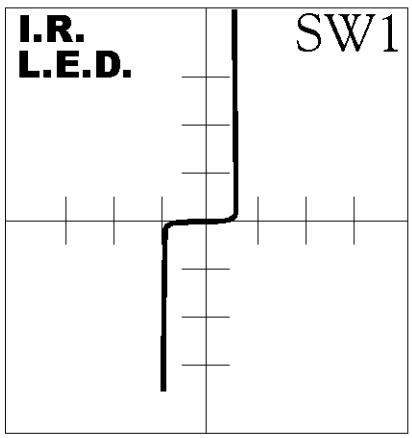
1 Black
2 Inner Shield
3 Outer Shield
4 Yellow
5 Red
6 White
7 -
8 -
9 -

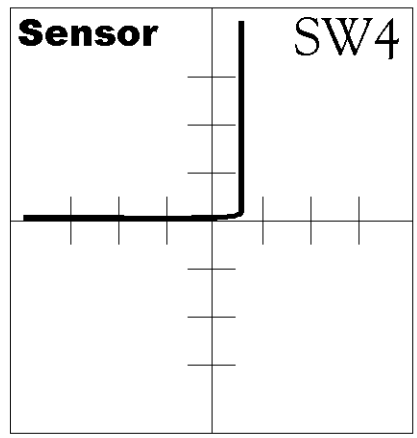
Led Face UP



Sensor Face UP



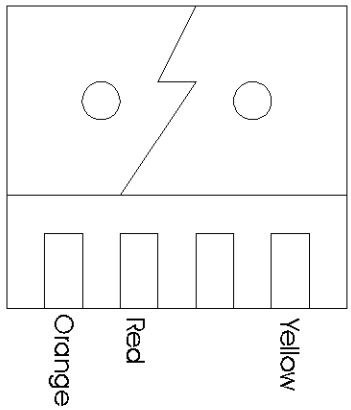




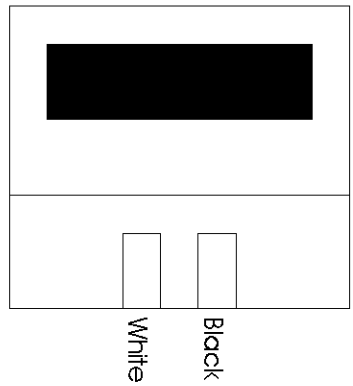
Drawn By:	D.Lamb	Signed	

Date		Type	E112-02 / E3000
Schematic's			

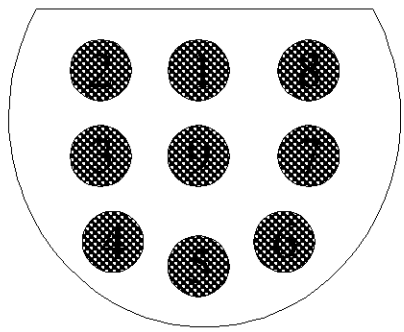
Led Face UP



Sensor Face UP

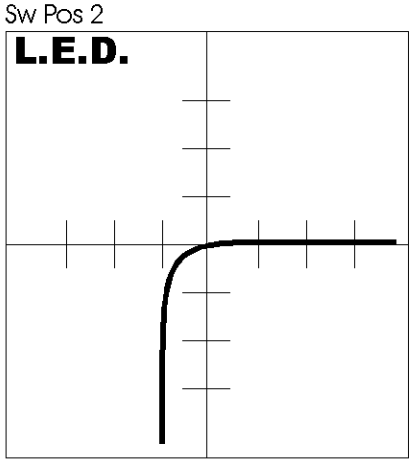


Rear View

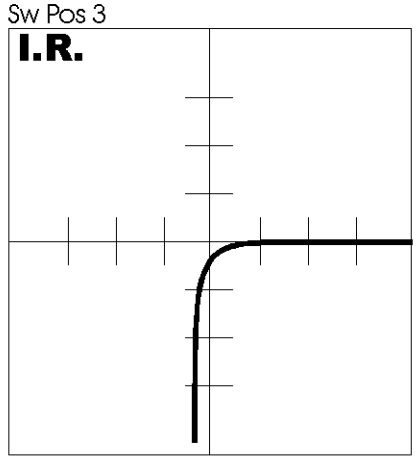


1 - Orange (I.R.)
2 - Yellow (L.E.D.)
3 - Not Used
4 - Red (Common)
5 - 75K Resistor
6 - Not Used
7 - 75K Resistor
8 - White (Sensor)
9 - Black (Sensor)

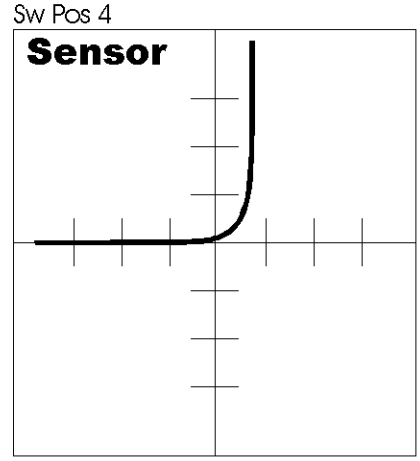
Sw Pos 2



Sw Pos 3

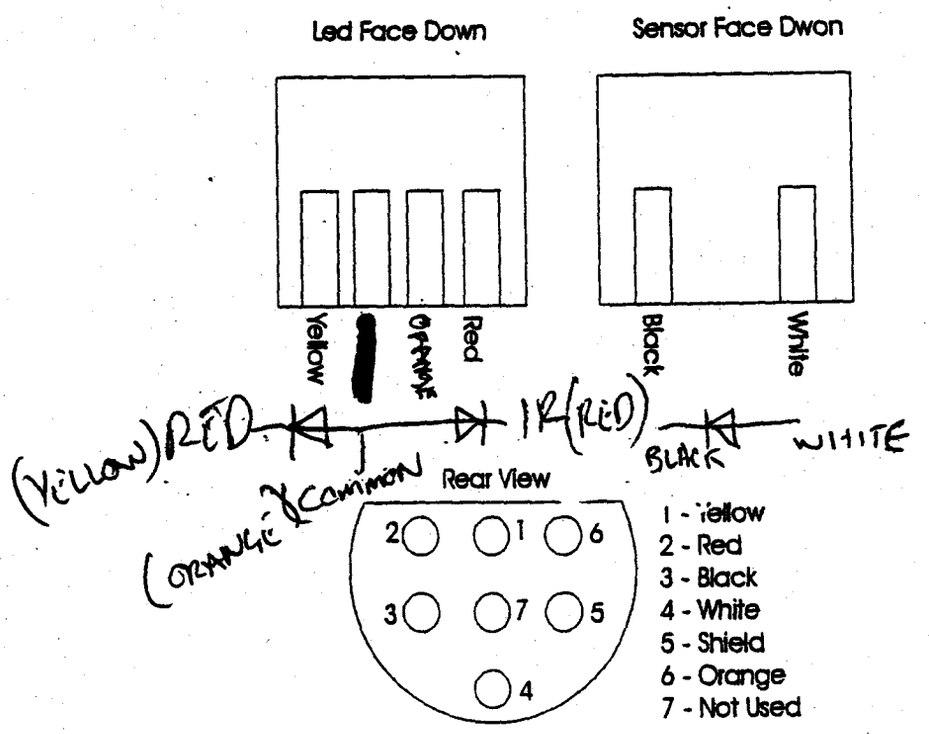


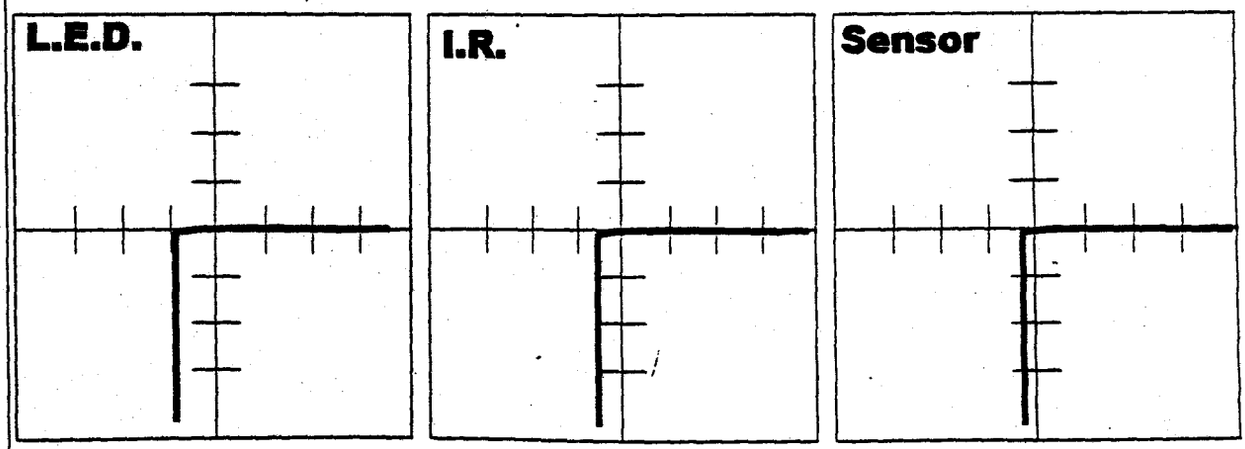
Sw Pos 4



Drawn By:		Signed	

Date	24/03/97	Type	E8700/5 or E112-03
e112-03.cmx	Epic (Epic connector Colours)		



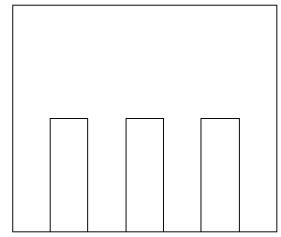


Drawn By:	D.Lamb	Signed	

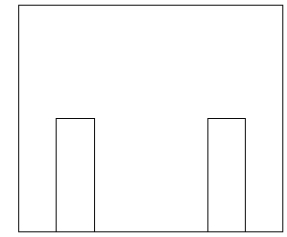
Date	02/10/96	Type	E100 Sl E112-04

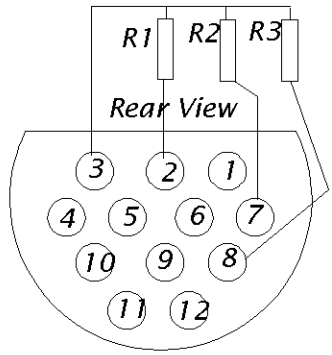
Schematic's

Led Face Down

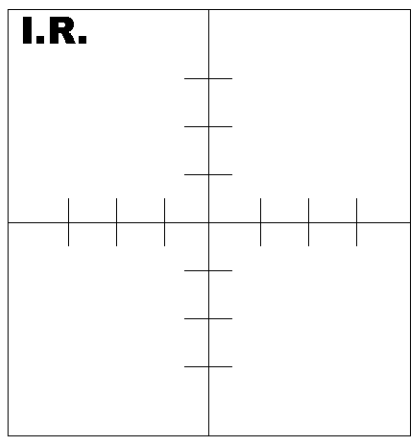


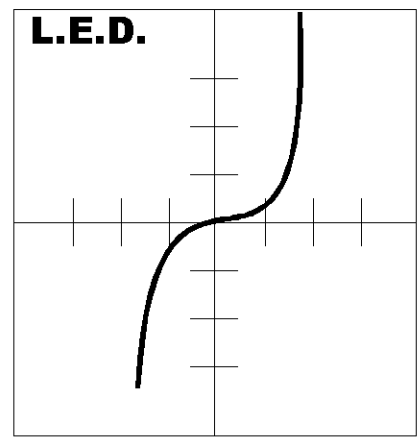
Sensor Face Down

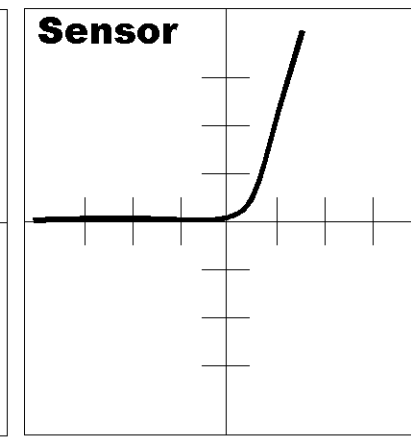




1 - White
2 - Black + R1
3 - R1 (10 Ohm)
4 -
5 -
6 -
7 - R2 (60Kohm)
8 - R3 (7.63KOhm)
9 -
10 -
11 - Yellow
12 - Red

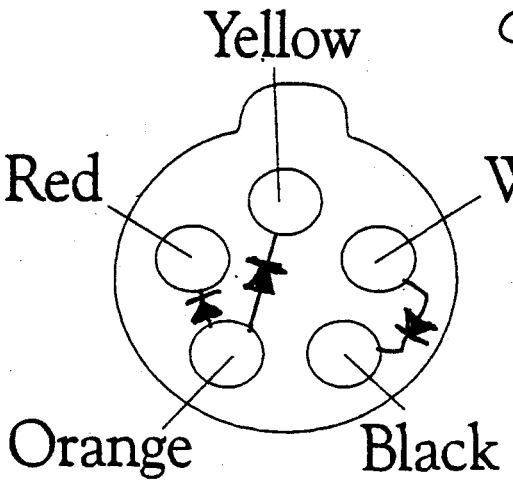






Drawn By:	Derek Lamb (unchecked)	Signed	

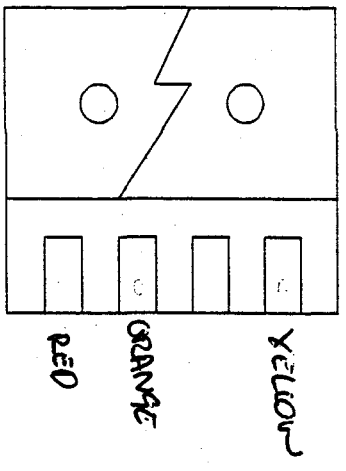
Date	24/03/97	Type	E112-05 (5 PIN LEMO)
E112-05.cmx			



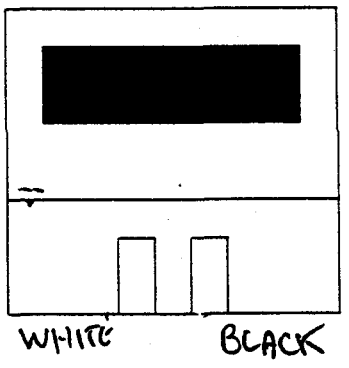
CONNECTOR REAR VIEW

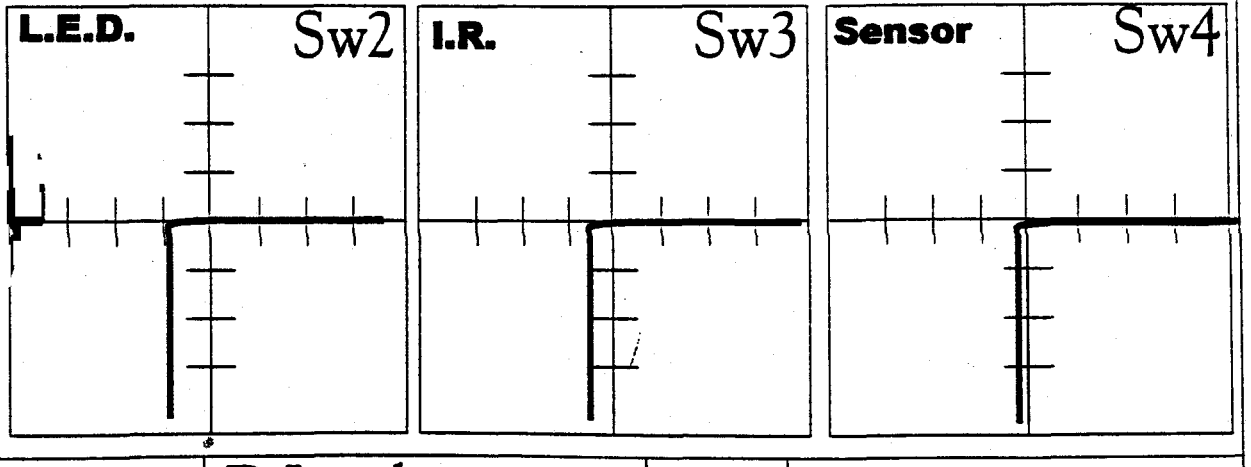
NB. BOTH SHIELDS TO CONNECTOR BODY.

Led Face UP



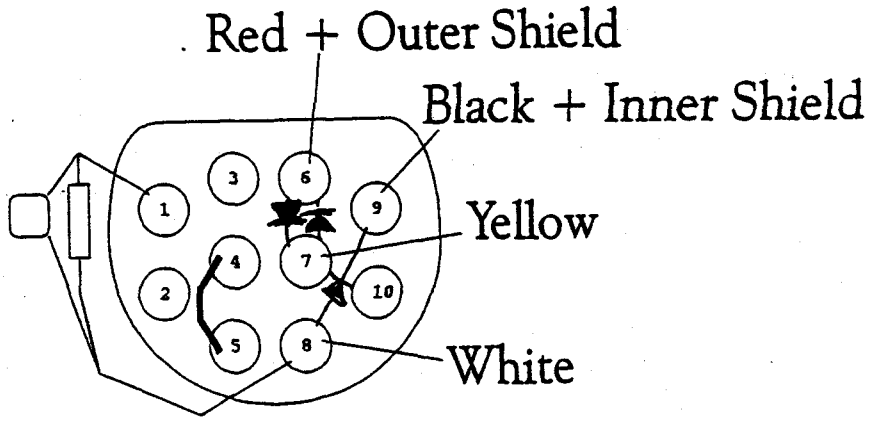
Sensor Face UP



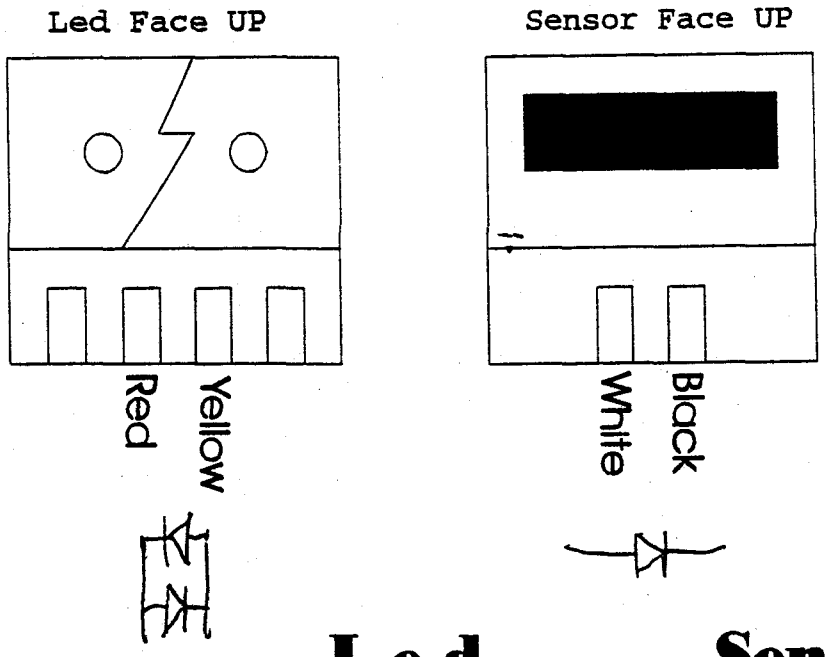


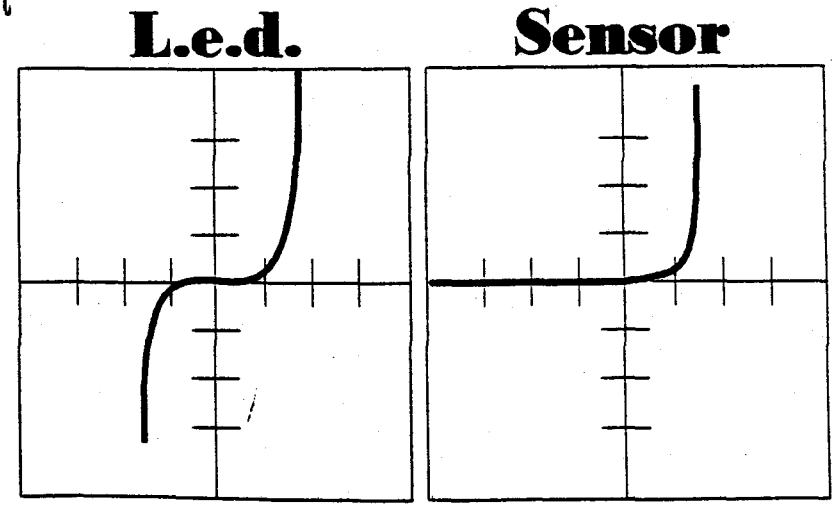
Drawn By	D.Lamb	Signed	

Date	01/04/97	Type	Epic 8785 / Epic E112-09
E112-09.cmx			



REAR VIEW

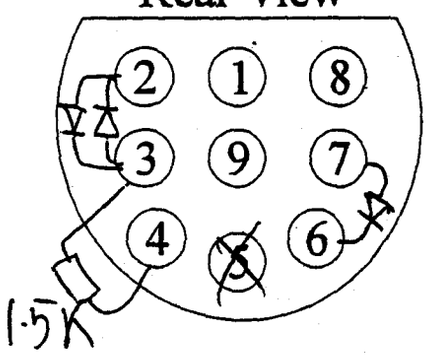




Drawn By:		Signed	

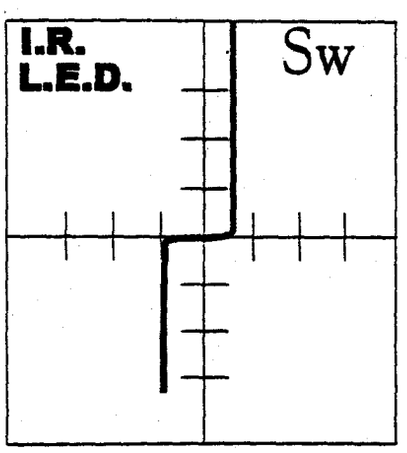
Date	24/03/97	Type	E333 / E112-12
E333.cmx			SIMED

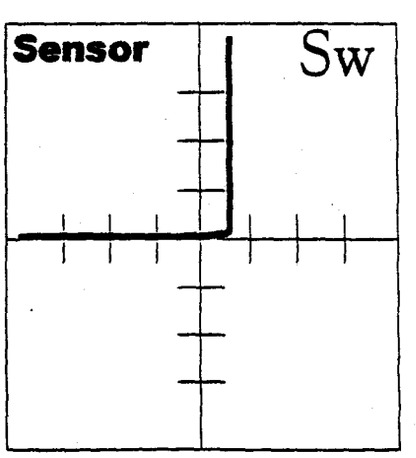
Rear View



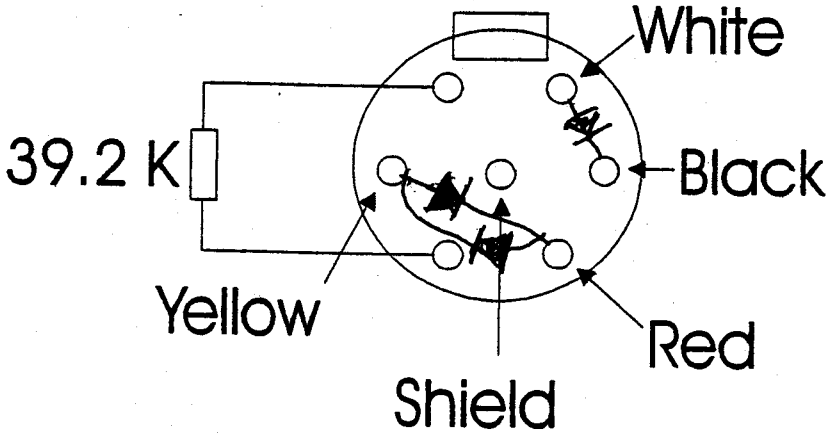
1.5k

1 Shield MAIN
2 Yellow
3 Red
4 Not Used
5 Not Used
6 B
7 White
8
9 Shield INNER

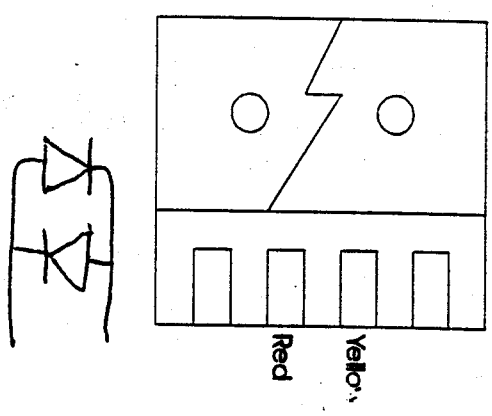




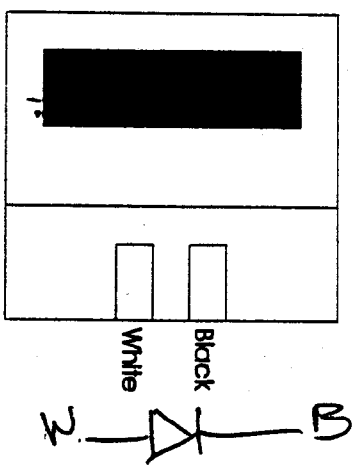
Date	15/09/97	Type	E112-14 / E9000
Schematic's			INVNO

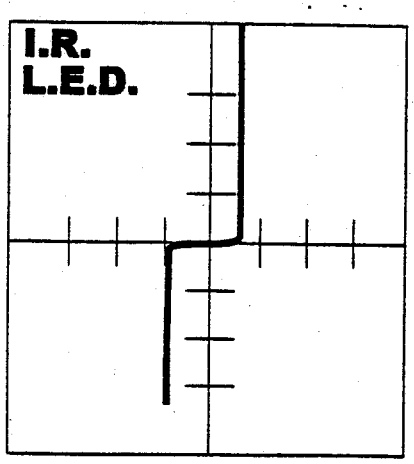


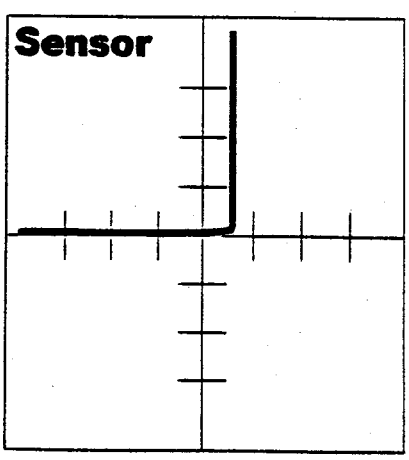
Led Face UP



Sensor Face UP

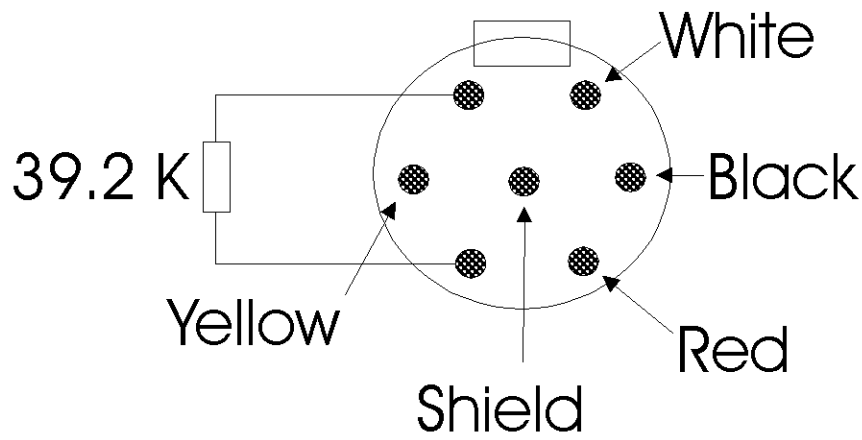




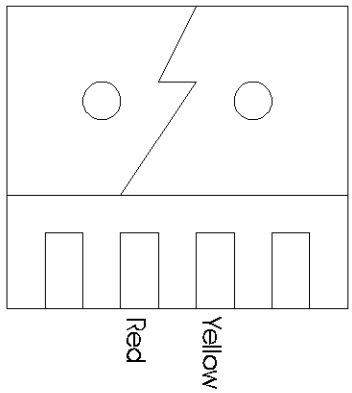


Drawn By:	Derek Lamb	Signed	

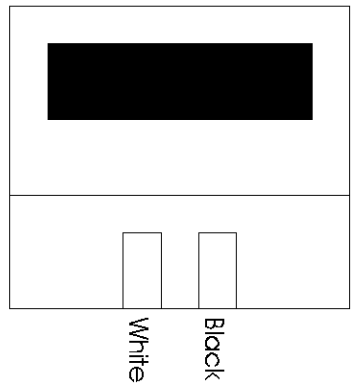
Date	15/09/97	Type	E112-14
Schematic's			

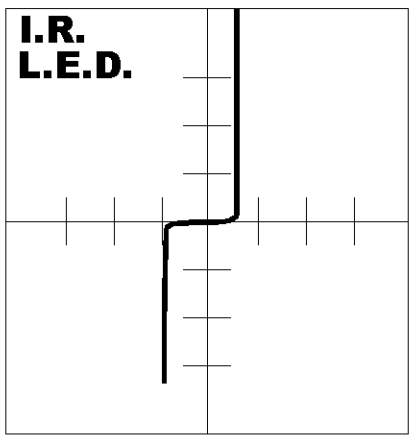


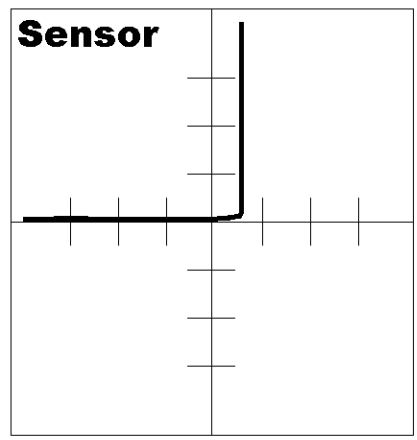
Led Face UP



Sensor Face UP







Drawn By:	Derek Lamb	Signed	