

CONFIDENTIAL

SERVICE MANUAL

Level 1&2

NOKIA NOKIA
5200 5300

RM-174

RM-181

RM-146

RM-147



Transceiver characteristics:

Band:

- RM-146/RM-174: Tri-band phone for EGSM 900/1800/1900MHz
- RM-147/RM-181: Tri-band phone for GSM 850/1800/1900MHz

Camera:

- RM-146/RM-147: 1.3 Megapixel camera with 8x digital zoom
- RM-174/RM-181: VGA resolution

Display:

- RM-146/RM-147: QVGA TFT color display resolution
320x240, 256.644 colors
- RM-174/RM-181: CSTN color display 160x128, 256.644 colors

Bluetooth

IRDA

FM radio

Connector: Mini USB Connector

Memory Card: miniSD™

Transceiver with BL-5B Li-Ion battery pack

Talk time	Standby	Note
up to 3.2h	up to 9.3days	Depends on network parameters

Environmental characteristics:

- Lead-free soldered

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CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	18.Jun.2006	Initial draft
Approved	1.0	18.Sept.2006	Approval
Approved	2.0	15.Mrz.2007	Exploded view updated (I014 added to 5300 only); Spare Parts overview/ General Recycling Recommendation added; Battery Test and GONOGO TEST removed
Approved	3.0	12.Sept.2007	Exploded view & Spare Parts overview updated
Approved	4.0	24.Sept.2007	Exploded view & Spare Parts overview updated

1. INTRODUCTION

The purpose of this document is to help NOKIA service levels 1 and 2 workshop technicians to carry out service to NOKIA products. This Service Manual is to be used only by authorized NOKIA service suppliers, and the content of it is confidential. Please note that NOKIA provides also other guidance documents (e.g. Service Bulletins) for service suppliers, follow these regularly and comply with the given instructions.

While every endeavor has been made to ensure the accuracy of this document, some errors may exist. If you find any errors or if you have further suggestions, please notify NOKIA using the address below:

<mailto:cc-ts-rc.documentation@nokia.com>

Please keep in mind also that this documentation is continuously being updated and modified, so watch always out for the newest version.

Warnings and Cautions

Please refer to the phone's user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

Warnings:

1. CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI-SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.
2. THE HANDPORTABLE TELEPHONE MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES, EG PETROL STATIONS (SERVICE STATIONS), BLASTING AREAS ETC.
3. OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. CONSULT A PHYSICIAN OR THE MANUFACTURER OF THE MEDICAL DEVICE IF YOU HAVE ANY QUESTIONS. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.

Cautions:

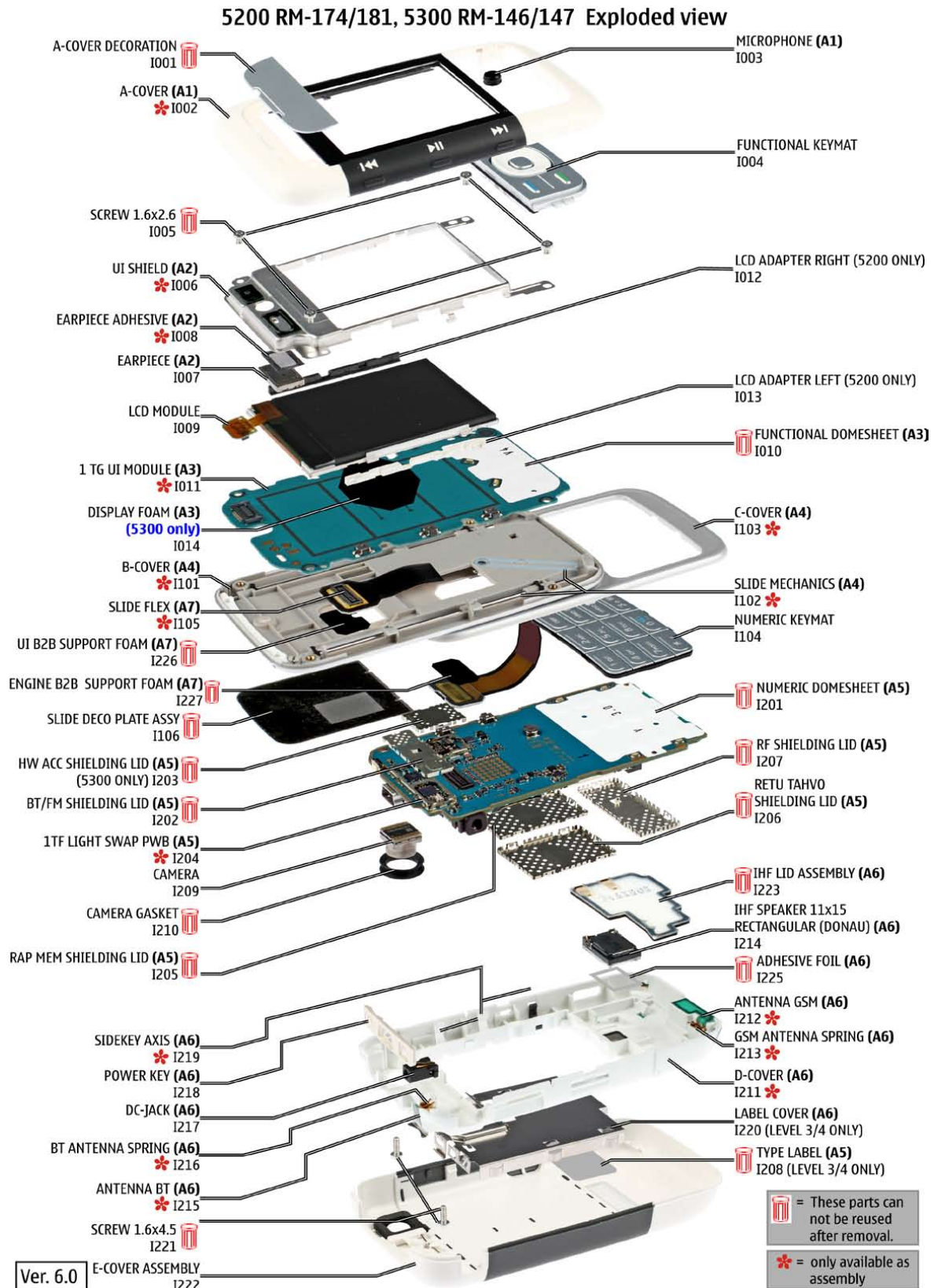
1. Servicing and alignment must be undertaken by qualified personnel only.
2. Ensure all work is carried out at an anti-static workstation and that an anti-static wrist strap is worn.
3. Use only approved components as specified in the parts list.
4. Ensure all components, modules screws and insulators are correctly re-fitted after servicing and alignment.
5. Ensure all cables and wires are repositioned correctly.



Electrostatic discharge can easily damage the sensitive components of electronic products. Therefore every Service Supplier has to take care of all precautions, which are mentioned in the service level related "Service Partner Requirements", available on NOKIA Online. Also see ESD Protection Requirements in this Service Manual.

2. EXPLODED VIEW

See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on NOL.



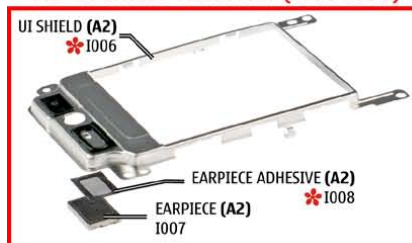
3. SPARE PARTS OVERVIEW

5200 RM-174/181, 5300 RM-146/147 Spare Parts overview

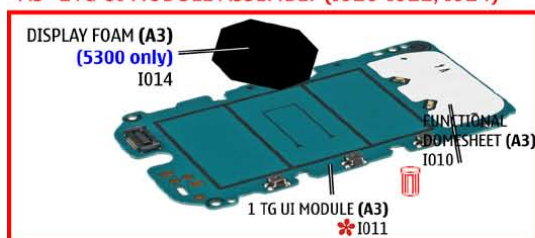
A1=A-COVER ASSEMBLY (I002-I003)



A2=UI SHIELD ASSEMBLY (I006-I008)



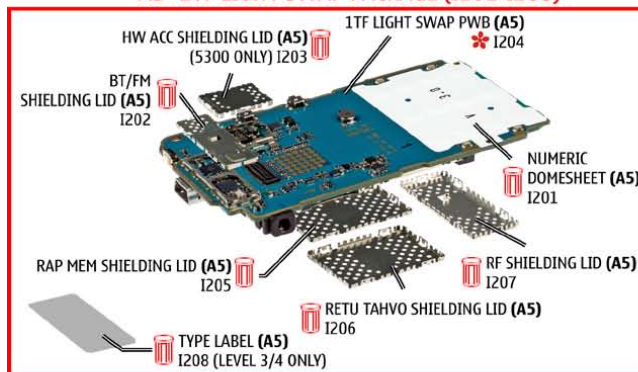
A3=1TG UI MODULE ASSEMBLY (I010-I011, I014)



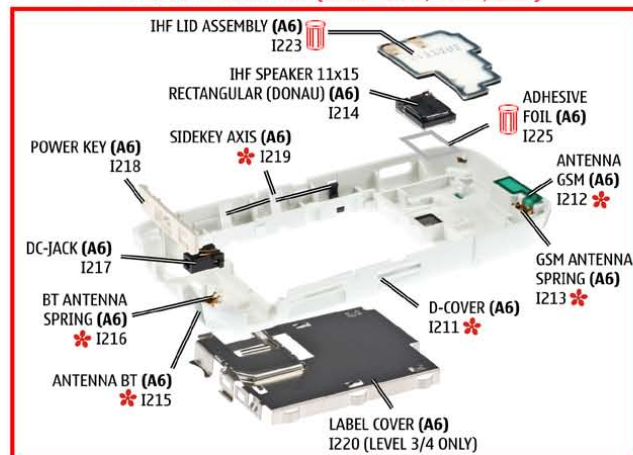
A4=SLIDE ASSEMBLY (I101-I103)



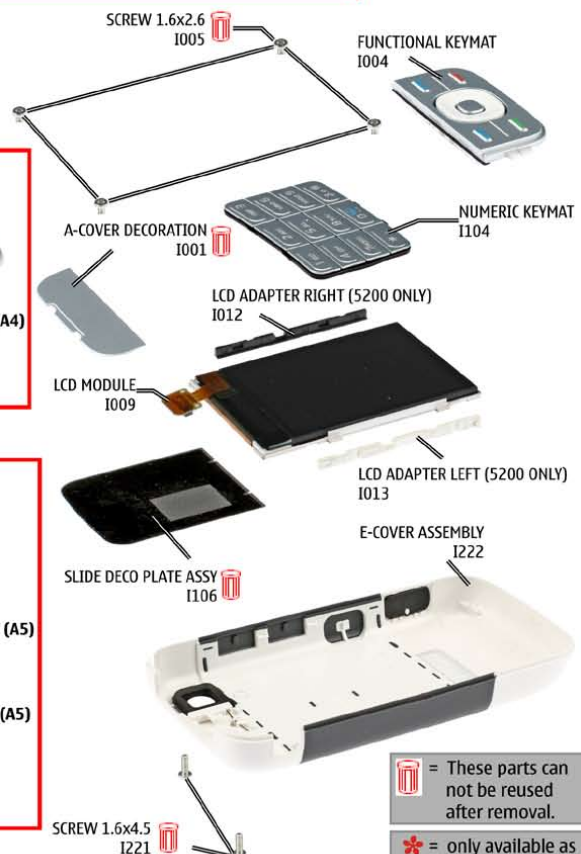
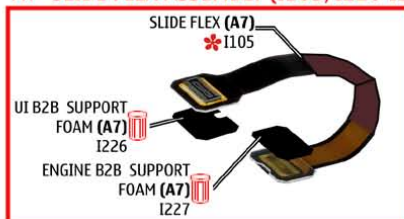
A5=1TF LIGHT SWAP PACKAGE (I201-I208)



A6=A-COVER ASSEMBLY (I211-I220, I223, I225)



A7=SLIDE FLEX ASSEMBLY (I105, I226-I227)



= These parts can not be reused after removal.
 = only available as assembly

Ver. 3.0

4. GENERAL RECYCLING RECOMMENDATION

NOKIA

CMO Operations & Logistics
Training and Vendor Development
Multimedia Creation & Support

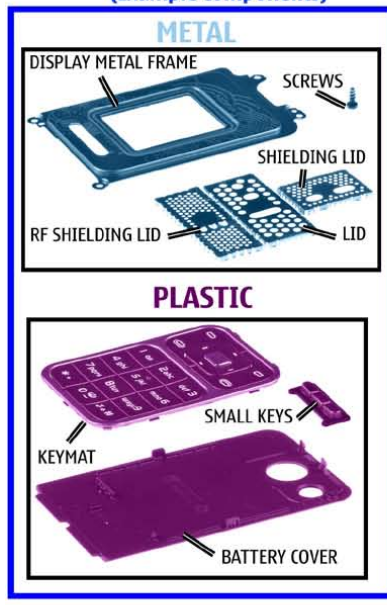
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13.11.2006

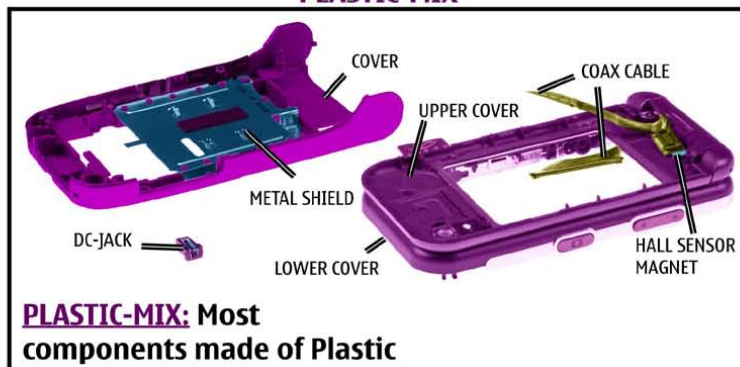
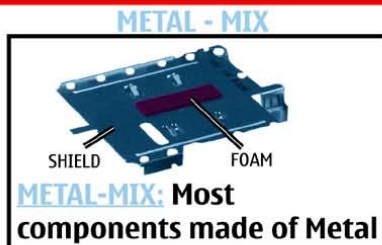
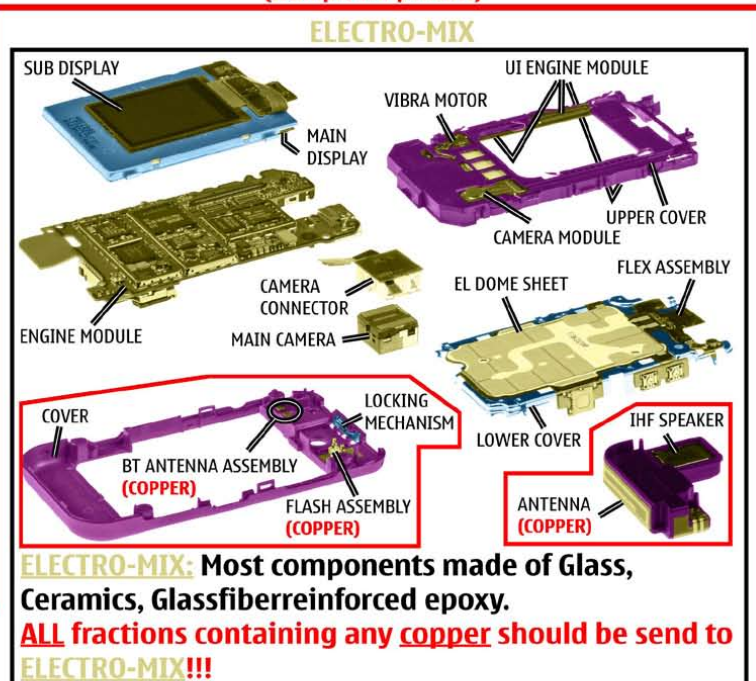
MGR

General Recycling recommendation

100% - only one Material
(Example components)



Mixed components
(Example components)



Some of these options can be utilized directly and some need pretreatment as for instance dismantling, grinding, milling, etc.
For sorting the waste into fractions for recycling, your recycler will offer you more specific information, but a **GENERAL RULE** is:

Electronic Equipment: There are recyclers that can process this "multimaterial" for high recycling yields.

Metals: Fractions containing metals must always be collected and sent for (metal) material recycling.

Plastics: Pure plastics fractions (i.e. covers) can be sent for (plastics) materials recycling.

Mixed Plastic/Metals: A metal fraction contaminated with plastics does not represent a problem for metal recycling/recovery whereas recycling/recovery of plastics is generally sensitive for contamination by other materials.

● ELECTRO ● METAL ● PLASTIC ● BATTERY

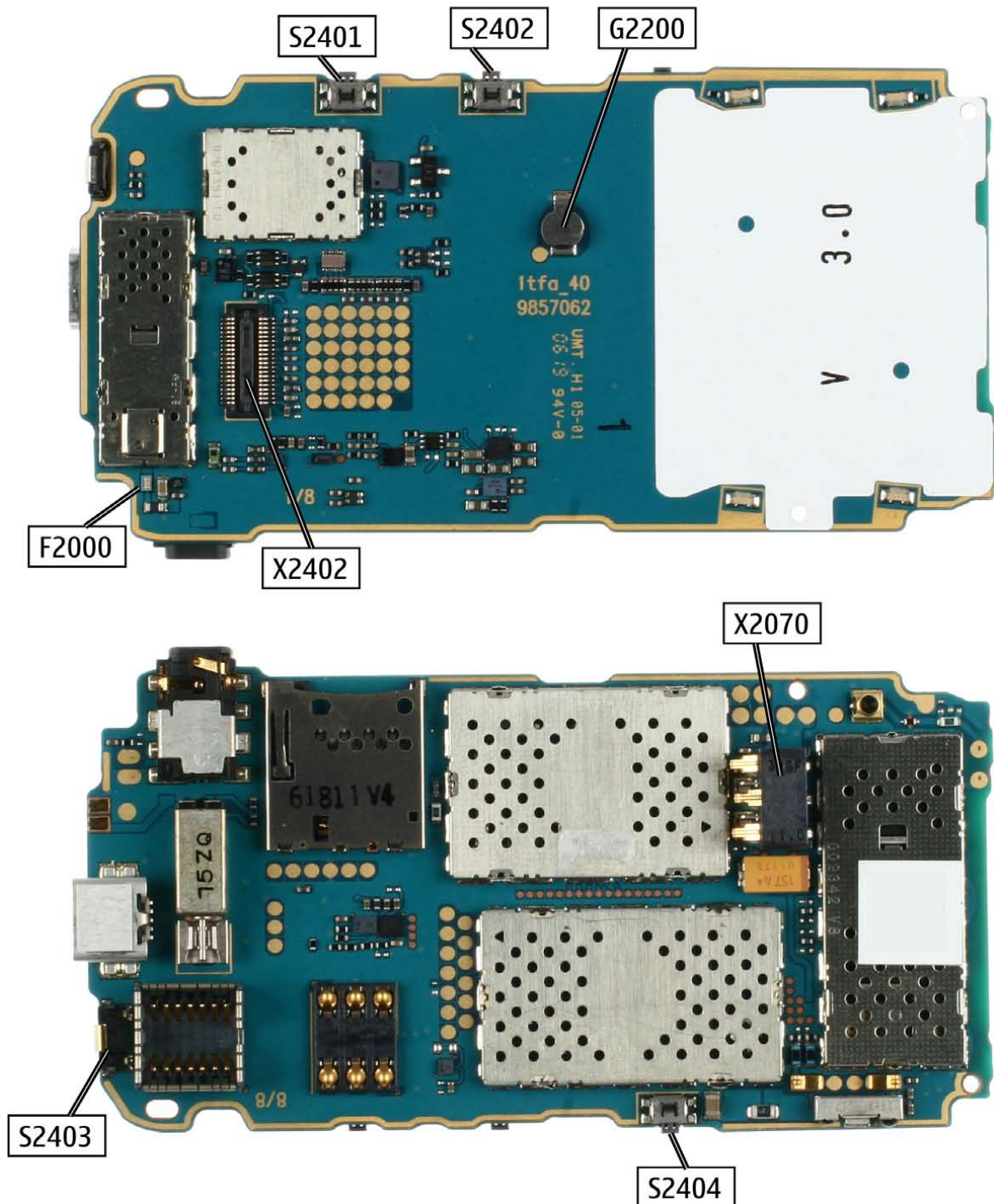
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5. LEVEL 2 SOLDER COMPONENTS

5200 RM-174/181 5300 RM-146/147

Level 2 solder components



6. SERVICE DEVICES

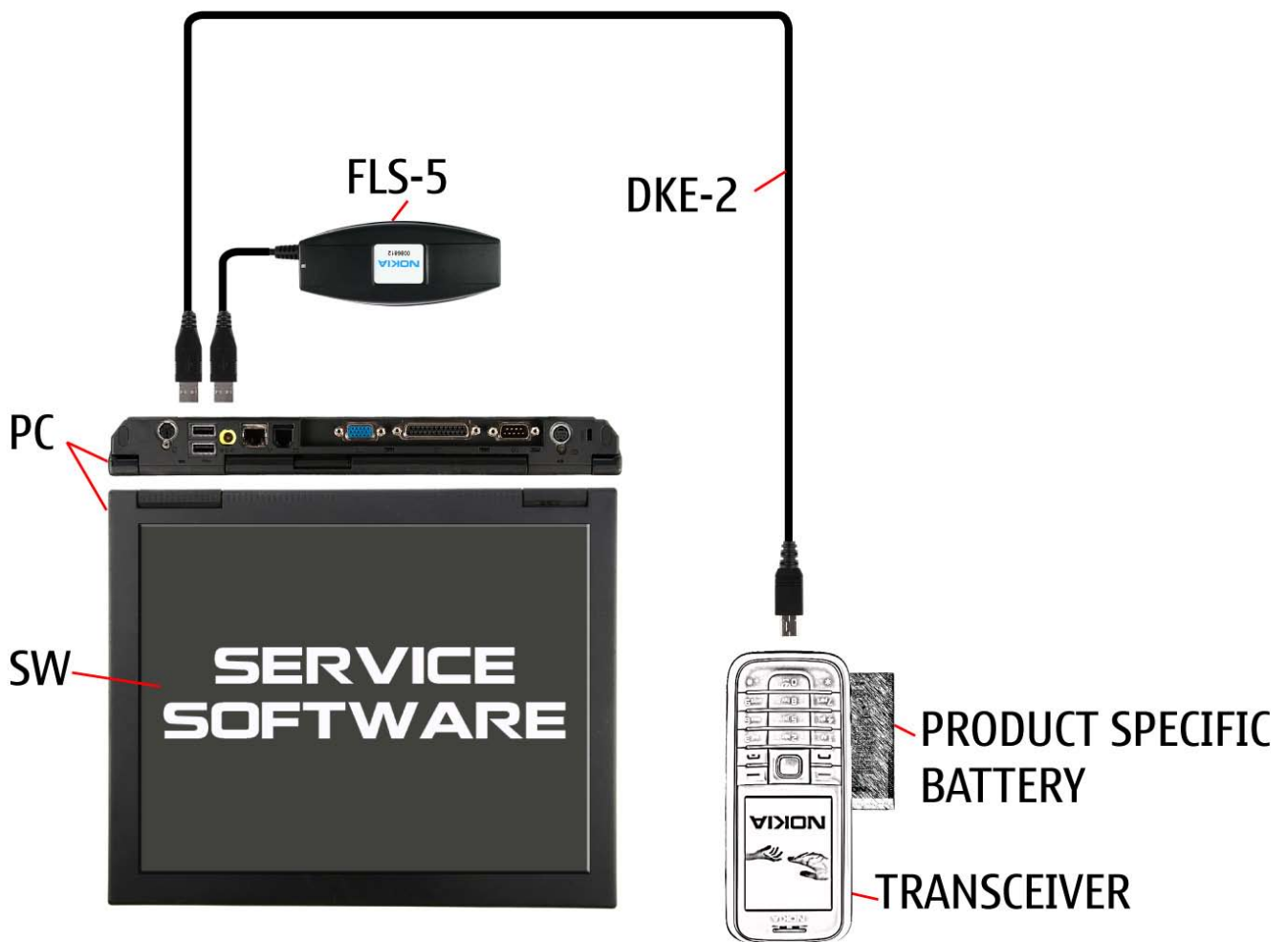
 <p>FLS-5</p>	<p>FLS-5 incl. ACF-8, Driver and User Guide Dongle and flash device incorporated into one package, developed specifically for POS use.</p>
	<p>ACF-8 Universal Power Supply is used to power FLS-5.</p>
	<p>Travel Charger AC-4 Small and lightweight charger for fast charging of your phone battery.</p>
 <p>BL-5B</p>	<p>Internal Battery BL-5B Inserted under the back cover, this Li-Ion battery provides power in a lightweight package.</p>
	<p>SS-83 Domesheet alignment tool.</p>
	<p>DKE-2 Service Cable to connect the PC with the mini USB connector.</p>

<p>SS-45</p> 	<p>SS-45 Camera removal tool. (5300 only)</p>
<p>SS-88</p> 	<p>SS-88 Camera removal tool. (5200 only)</p>
	<p>RJ-109 Soldering Jig</p>
	<p>Lead-free Solder Wire Mandatory for lead-free products (Level 2 only).</p>
	<p>0772040 NMP Standard Toolkit (V2)</p> <p>For more informations refer to the Service Bulletin (SB-011) on NOKIA Online.</p> <p>Supplier or manufacturer contacts for tool re-order can be found in “Recommended service equipment” document on NOKIA Online.</p>

7. SW-UPDATE

Flash Concept – (Point of Sales)

To use FLS-5 Flash Dongle you have to follow the user guide inside the sales package. Please check always for the latest version of flash software, which is available on [NOKIA Online](#).



8. UPPER BLOCK DISASSEMBLY INSTRUCTION



1. Needed tools: The SS-93, the dental pick, metal tweezers, a bit holder with a Torx Plus size 6 bit, a torque driver, and a DC plug.



2. Always cover the windows with a protective film.



3. Open the E-COVER Assembly. Remove the battery if it is still inserted.



4. Use the SRT-6 to pry open the A-COVER assembly.



5. Use the SRT-6 only in direction shown. Do not shift the SRT-6 along the side where the keys are located



6. Lift up the A-COVER Assembly.



7. The A-COVER DECORATION can now pushed out without the risk of damaging the A-COVER.



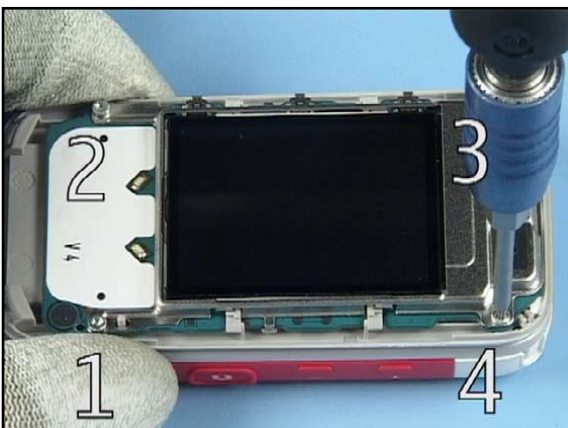
8. Cover the window from inner side with a protective film.



9. Release and remove the FUNCTIONAL KEYMAT..



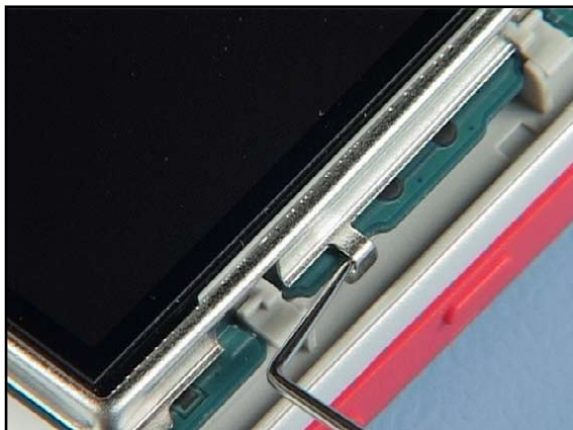
10. Ease out the MICROPHONE with the dental pic.



11. Unscrew the four screws in the order shown.



12. Remove all screws and discard them. Do not use them again.



13. Carefully unlock both latches.



14. Lift up the UI SHIELD assembly.



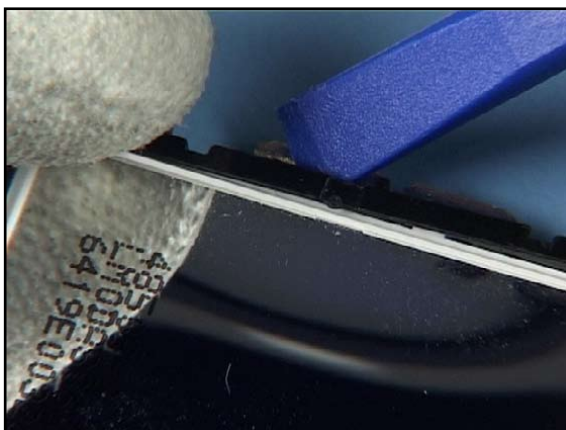
15. Cover the LCD Module with a protective film.



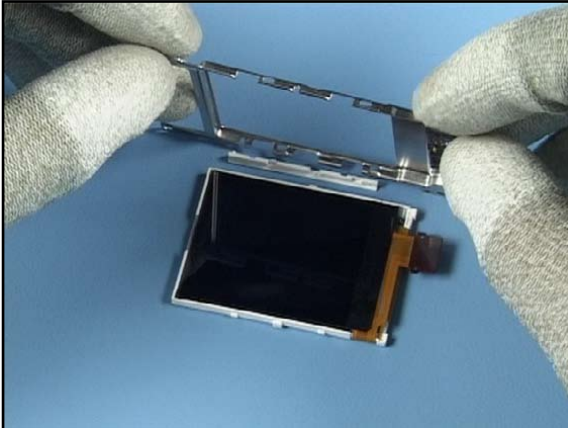
16. Nokia 5200 add-ons



17. After removing the screws carefully disconnect the LCD MODULE connector with the SS-93.



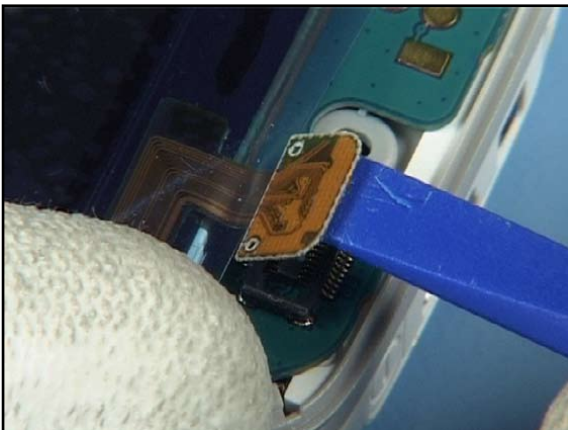
18. Carefully lever out one LCD ADAPTER with the SS-93.



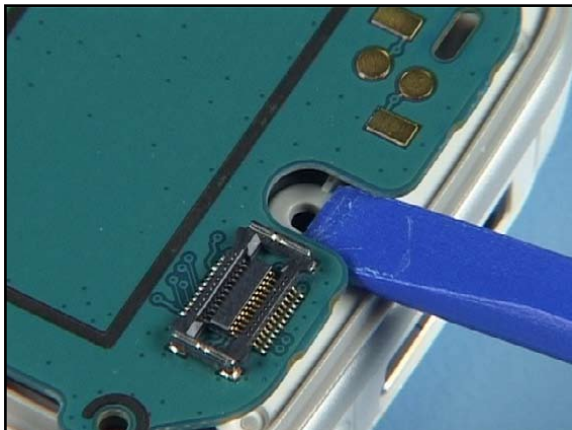
19. Now the LCD MODULE can be released from the UI SHIELD.



20. Lever out the EARPIECE.



21. Open the Flex Connector of the LCD MODULE.



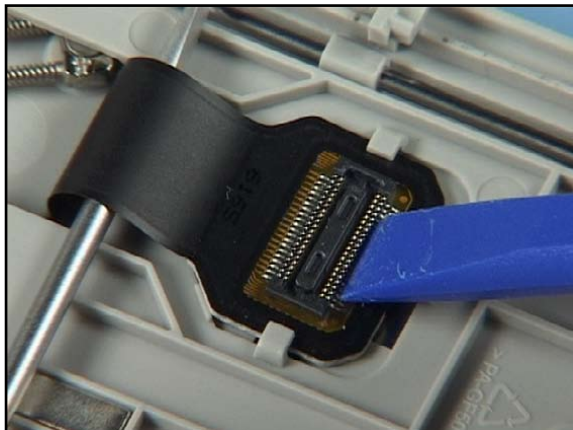
22. Carefully lever up the TG UI MODULE. This will disconnect the hidden B to B connector.



23. To remove the SIDE FLEX both parts of the phone must be disassembled first.



24. Start removing the connector of the SIDE FLEX by lifting it up as shown first.



25. Then carefully shift it with the SS-93 as shown.



26. After disassembling the upper part the SIDE FLEX can be removed easily.

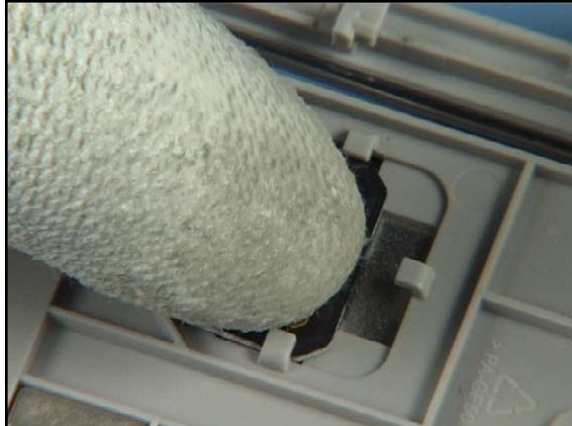


27. The disassembly of the upper part is now completed.

9. UPPER BLOCK ASSEMBLY INSTRUCTION



1. Assembly



2. Place the SIDE FLEX into its compartment.



3. Now close the slide mechanism.



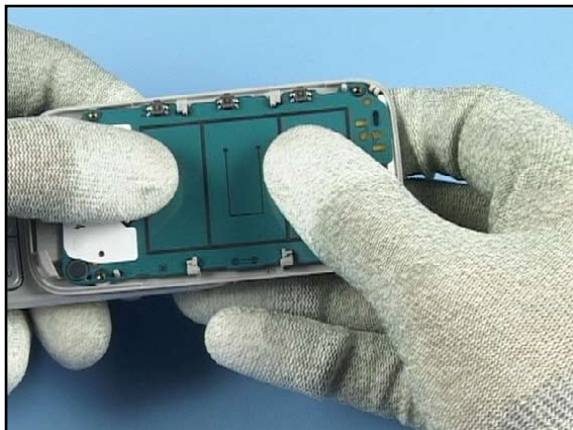
4. Push the connector into position shown.



5. Place the UI MODULE exactly as shown.



6. Check the positioning of the connector before continue.



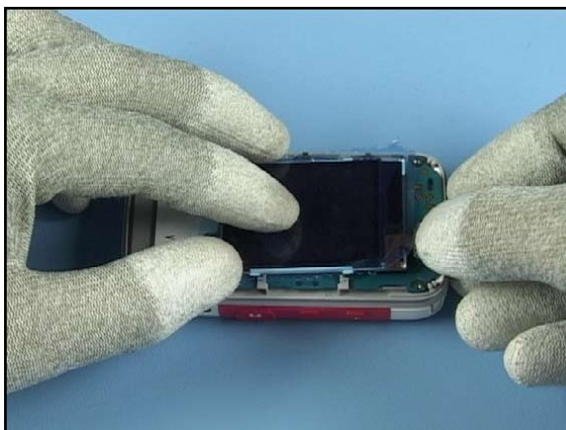
7. Push down the UI MODULE while opening the slide mechanism.



8. Check the position of the UI MODULE again.



9. Now close the hidden connector.



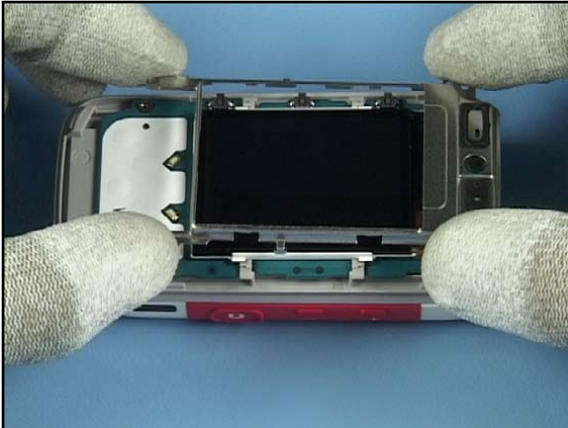
10. Position the LCD MODULE and close the connector.



11. Insert the EARPICIE, always fit a new adhesive when replacing the EARPICIE.



12. Push it down evenly.



13. Now place the UI SHIELD over the assembly as shown.



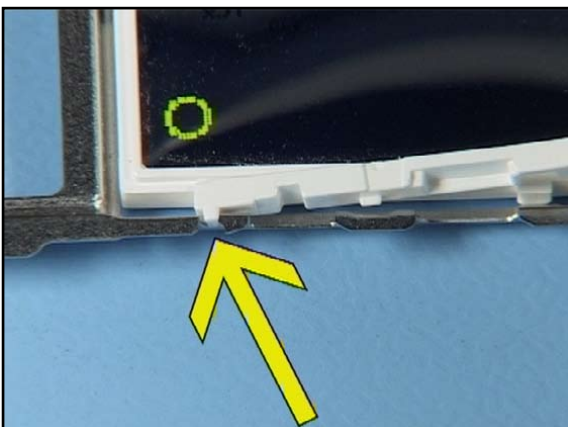
14. Mind that the two snaps are clicked into their places.



15. Nokia 5200 add-ons



16. Peel up the protection film from the LCD and place it into the UI SHIELD.



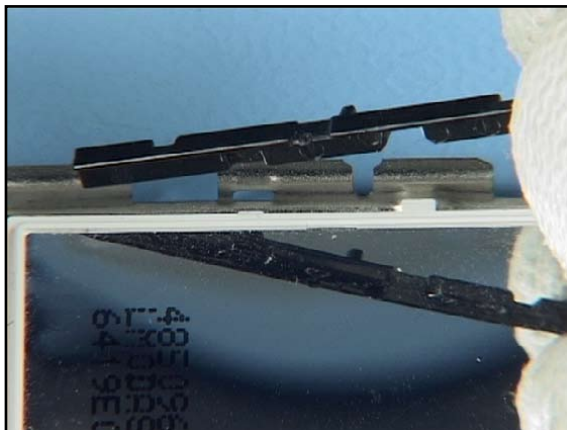
17. Insert the first LCD ADAPTER and push it into its place.



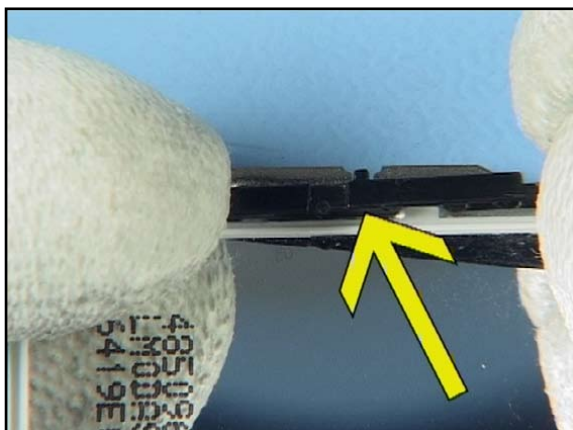
18. Mind the guide while pushing down evenly.



19. Slightly shift down the LCD MODULE as shown.



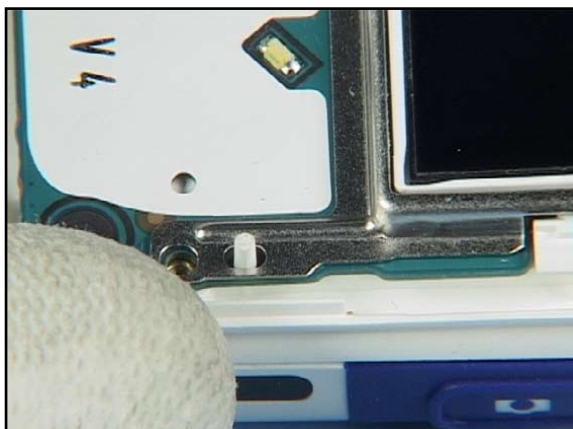
20. Insert the opposite LCD ADAPTER now.



21. Mind the guide and push it down evenly.



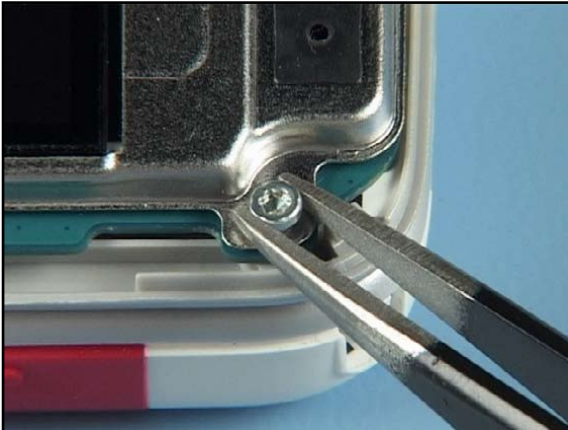
22. Now place the UI SHIELD over the assembly as shown.



23. Mind the guides.



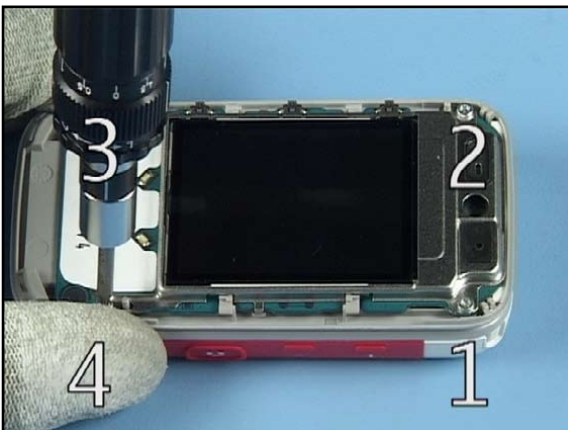
24. Close the LCD Module connector.



25. Insert the screws.



26. Set the correct torque.



27. Apply the torque to all screws in the order shown.



28. Insert the MICROPHONE.



29. Note that the spring contacts are very delicate and can be bent easily.



30. Fit the FUNCTIONAL KEYMAT.



31. Click the snaps into their places.



32. Do not forget removing the protective film before continue.



33. Align the A-COVER assembly and push it down evenly. Click all snaps into their places.



34. Check the window for cleanness.

10. LOWER BLOCK DISASSEMBLY INSTRUCTION



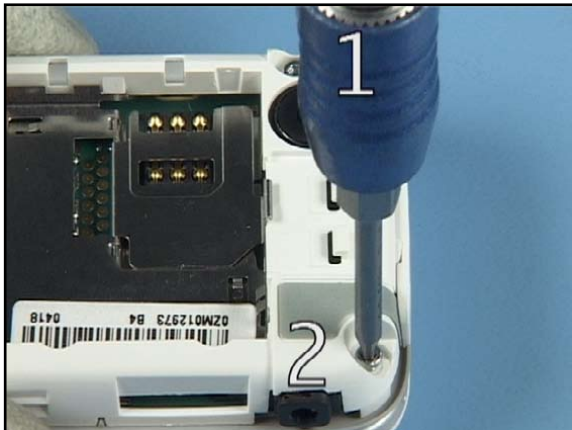
1. Needed tools: The SS-45 & SS-88 camera removal tool, metal tweezers, a straight bladed screwdriver, a bitholder with a Torx plus size 6 bit, a torque driver, and a DC plug.



2. Always cover the windows with a protective film.



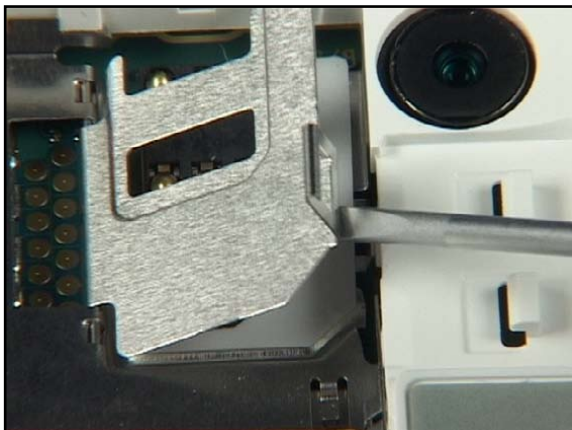
3. Unlock and remove the E-COVER. Remove the battery if it is still inserted.



4. Unscrew the torx plus size 6 screws in the order shown.



5. Remove all screws and discard them. Do not use them again.



6. Before removing the LABEL COVER, open the SIM flip first...



7. ...then lever out the whole LABEL COVER. Never mismatch this part with other engine modules.



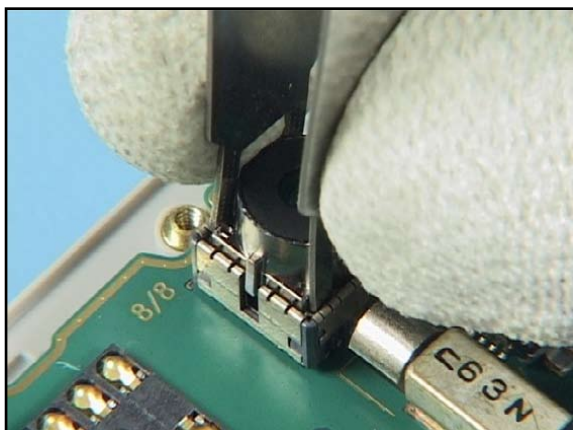
8. Carefully unlock the latches of the C-COVER on both sides. Do not bent the Shielding Lids.



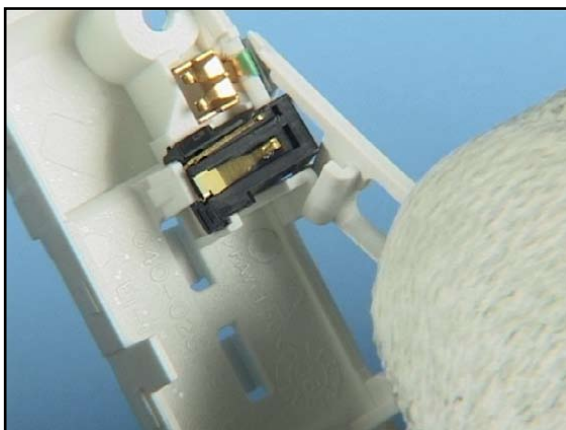
9. Shift the C-COVER in direction shown and remove it.



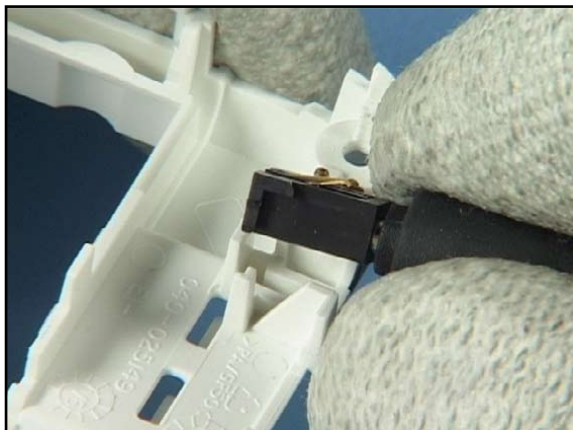
10. Do not touch the lens of the CAMERA while removing the CAMERA GASKET.



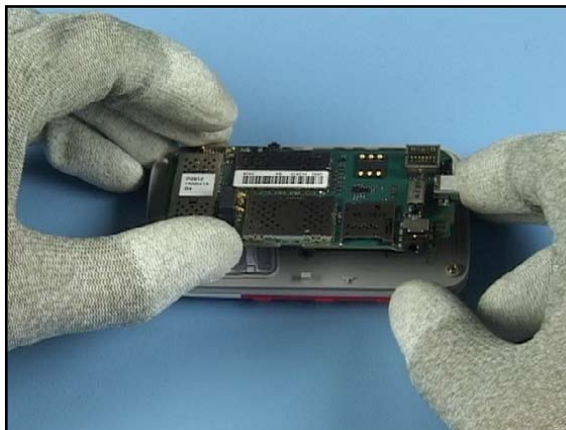
11. Use the SS-45 Camera removal tool to unlock the clips of the housing of the CAMERA. Use the SS-88 for the smaller CAMERA of the 5200.



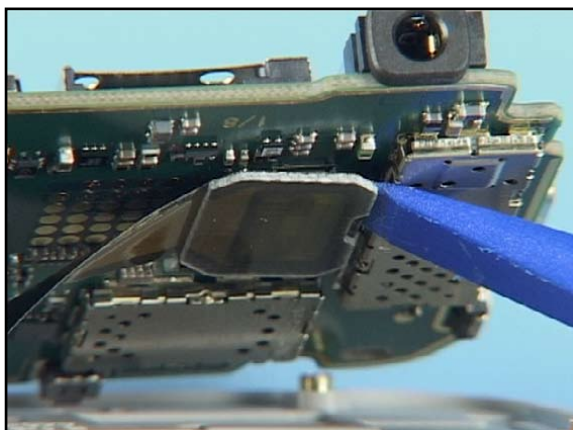
12. Carefully release the POWER KEY.



13. Lever out the DC JACK with the DC Plug.



14. Lift up the ENGINE MODULE, but bear in mind that the flex connector is still connected.



15. Carefully lever open the Flex connector.



16. Remove the NUMERIC KEYMAT.

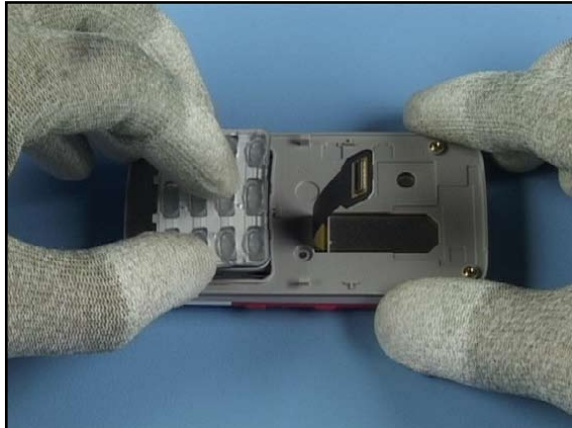


17. The disassembly procedure is now completed.

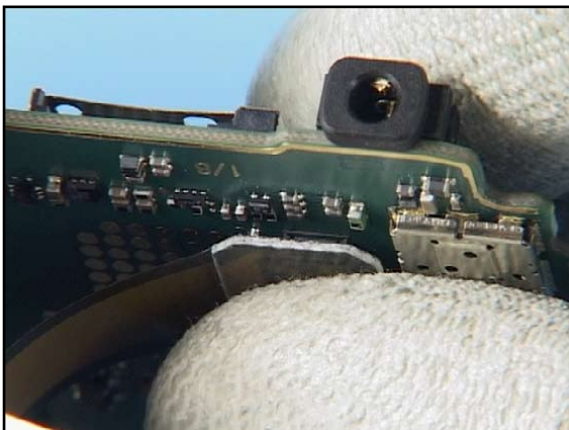
11.LOWER BLOCK ASSEMBLY INSTRUCTION



1. Assembly



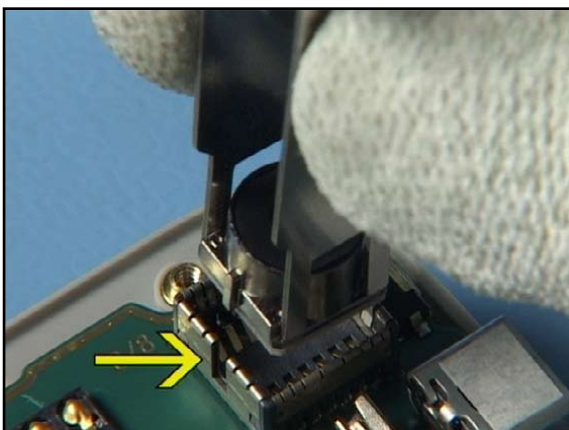
2. Insert the NUMERIC KEYMAT.



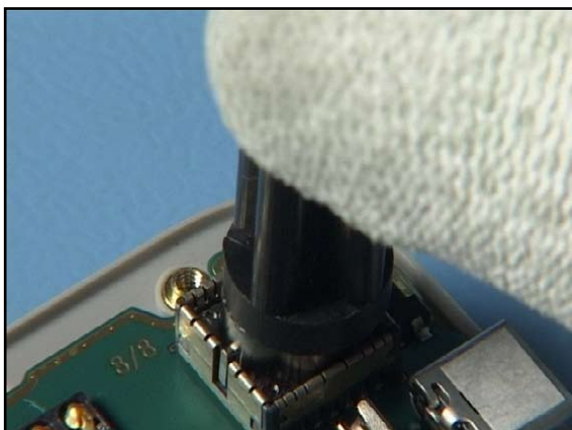
3. Connect the flex foil.



4. Position the ENGINE MODULE correctly.



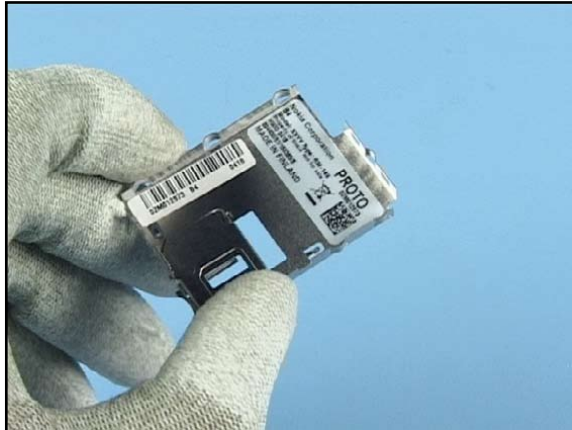
5. Insert the CAMERA. Mind the correct positioning. Use the SS-88 for the smaller camera of the 5200.



6. Carefully push it into its place.



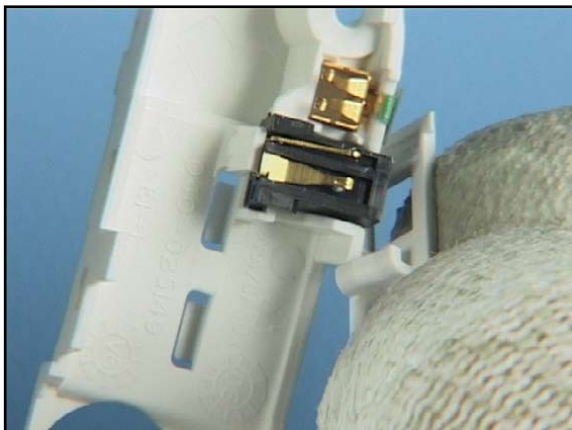
7. Place the CAMERA GASKET.



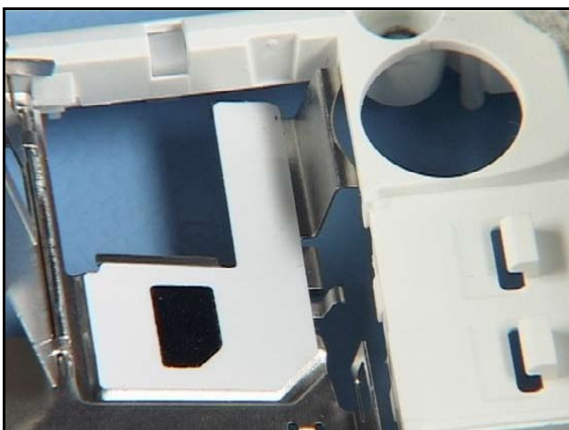
8. When replacing the D-COVER assembly, the delivered LABEL COVER must be replaced with the original labeled one. Never deliver a Product without its Type Label.



9. Insert the DC JACK with the DC Plug.



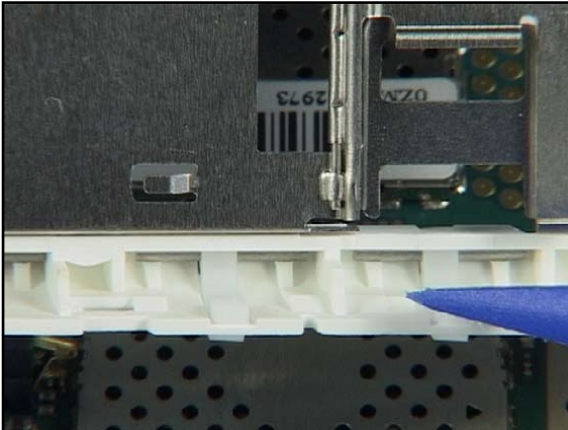
10. Place the POWER KEY, mind the correct placement.



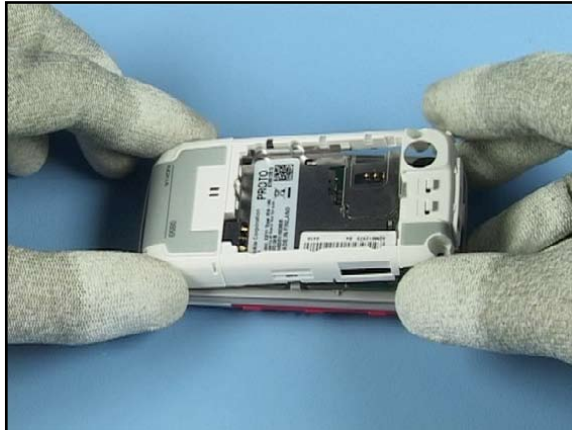
11. Insert the LABEL COVER, fitted with the original TYPE LABEL.



12. Click all snaps into their places.



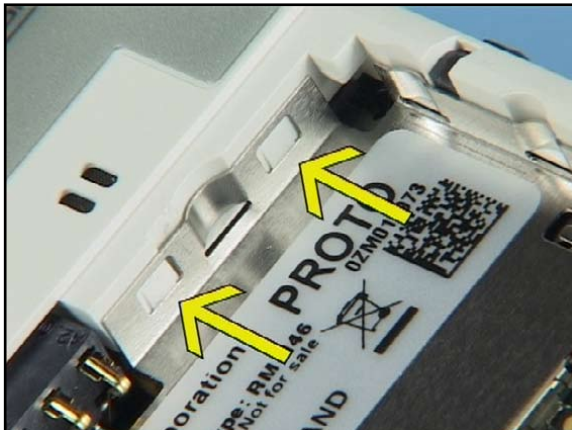
13. Before continue,- bring all sidekey levers into the position shown.



14. Place the assemblies together, click the snaps into their places.



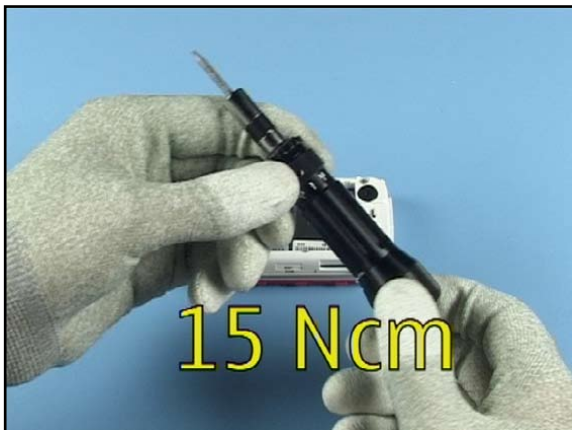
15. Check the functionality of all keys before going on.



16. Mind the correct positioning of this metal clips.



17. Insert the screws.



18. Set the correct torque.



19. Apply the torque to all screws in the order shown.




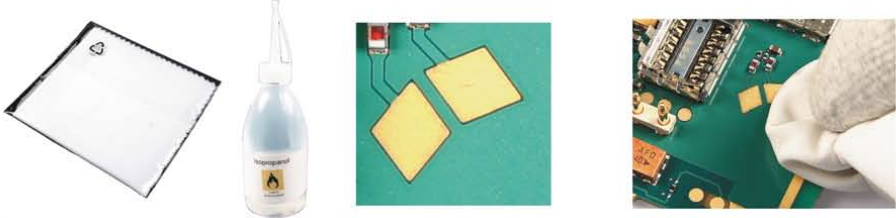





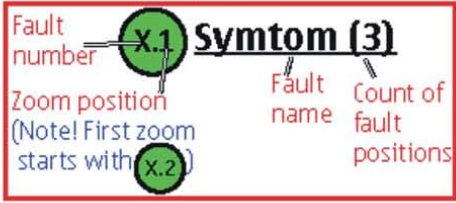


20. Complete the assembly with the B-COVER.



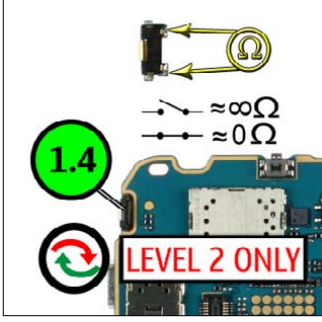


21. At least check the functionality of the slide mechanism.

12.LEGEND FOR QUICK TROUBLE SHOOTER

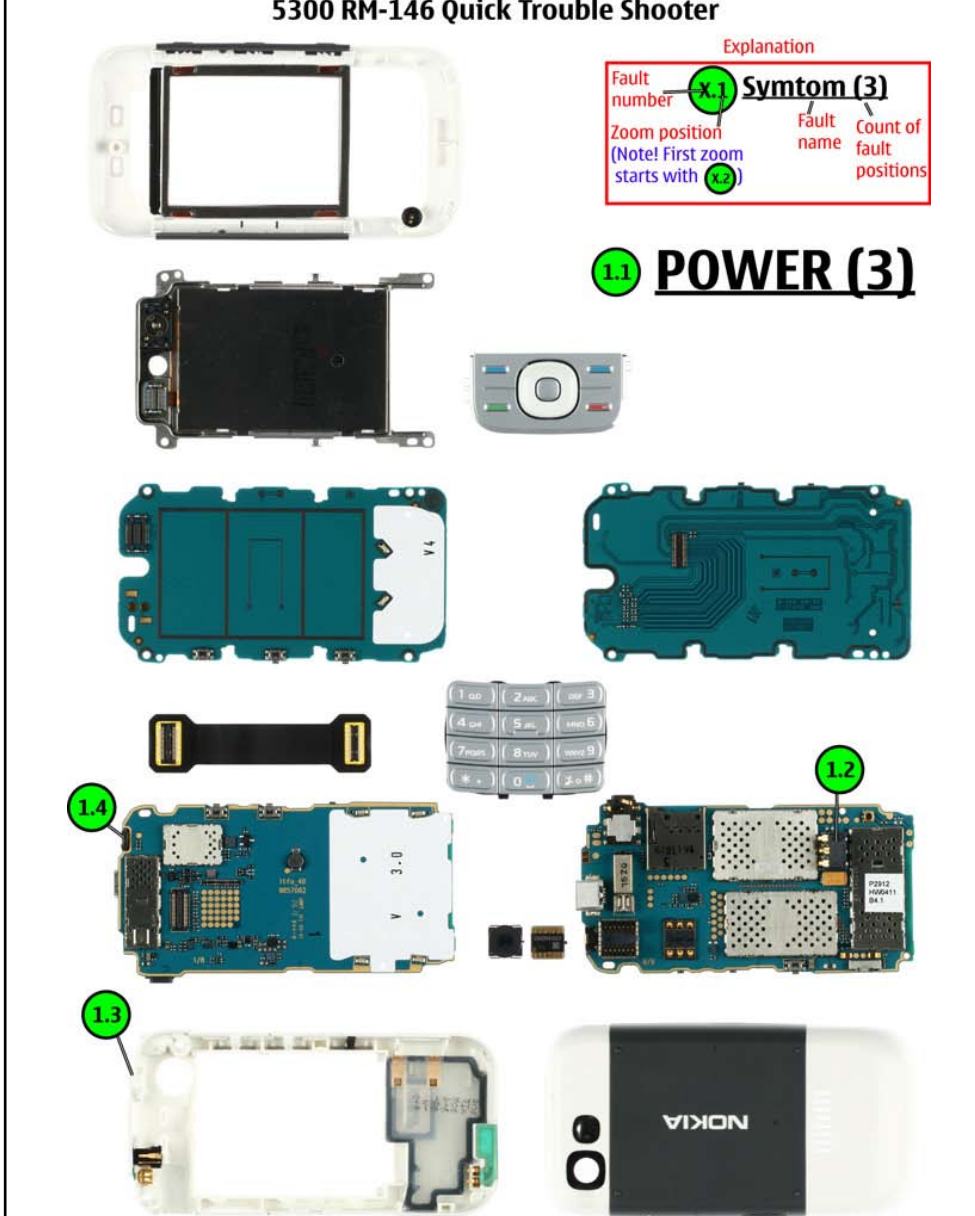
Legend for Quick Trouble Shooter	
This legend is valid for all parts of the Quick Trouble Shooter	
Follow the steps until the problem is solved. If this doesn't help, you are not authorized to go forward.	
	Check the mechanical condition of the component (bent, broken or missing).
	Only marked components can be replaced.
	<p><u>Cloth usage:</u> Check pads or contacts for optical and mechanical condition particularly regarding to corrosion. Clean it if necessary.</p> 
	<p>Measure component for electrical functionality and change, if needed. (Level 2 only)</p> 
	<p><u>ESD Brush usage:</u> Check contacts for optical and mechanical condition particularly regarding to corrosion. Clean it if necessary.</p> 
	<p>Explanation</p>  <p>Fault number — x.1 Symtom (3)</p> <p>Zoom position (Note! First zoom starts with x.2)</p> <p>Fault name</p> <p>Count of fault positions</p>

13. QUICK TROUBLE SHOOTER - POWER

5300 RM-146 Quick Trouble Shooter

Fault number	X.1	Symptom (3)	Fault name	Count of fault positions
<p>1.1 POWER (3)</p>				



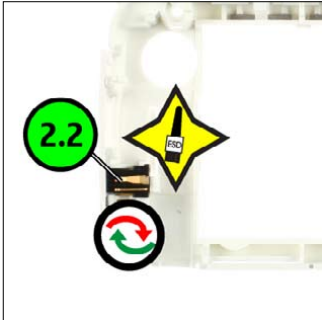
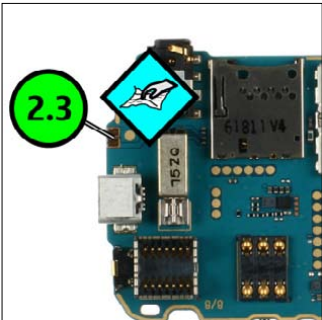
1.2 Battery Connector (X2070)

1.3 Power Key



1.4 Switch (S2403)

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14. QUICK TROUBLE SHOOTER - CHARGING

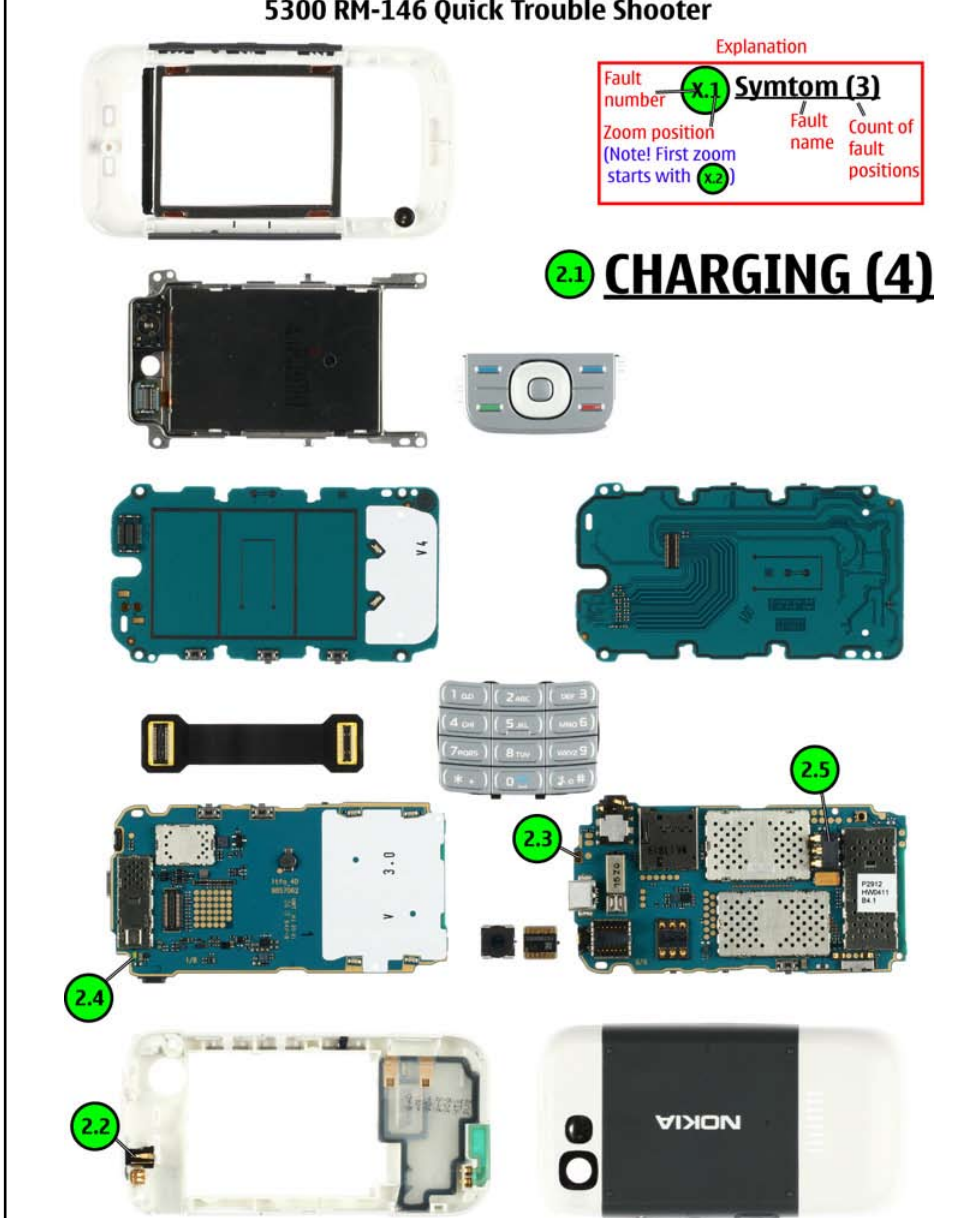



LEVEL 2 ONLY

LEVEL 2 ONLY

5300 RM-146 Quick Trouble Shooter



Explanation

Fault number	Symptom (3)	Fault name	Count of fault positions
X.1	Zoom position (Note! First zoom starts with X.2)		

2.1

CHARGING (4)

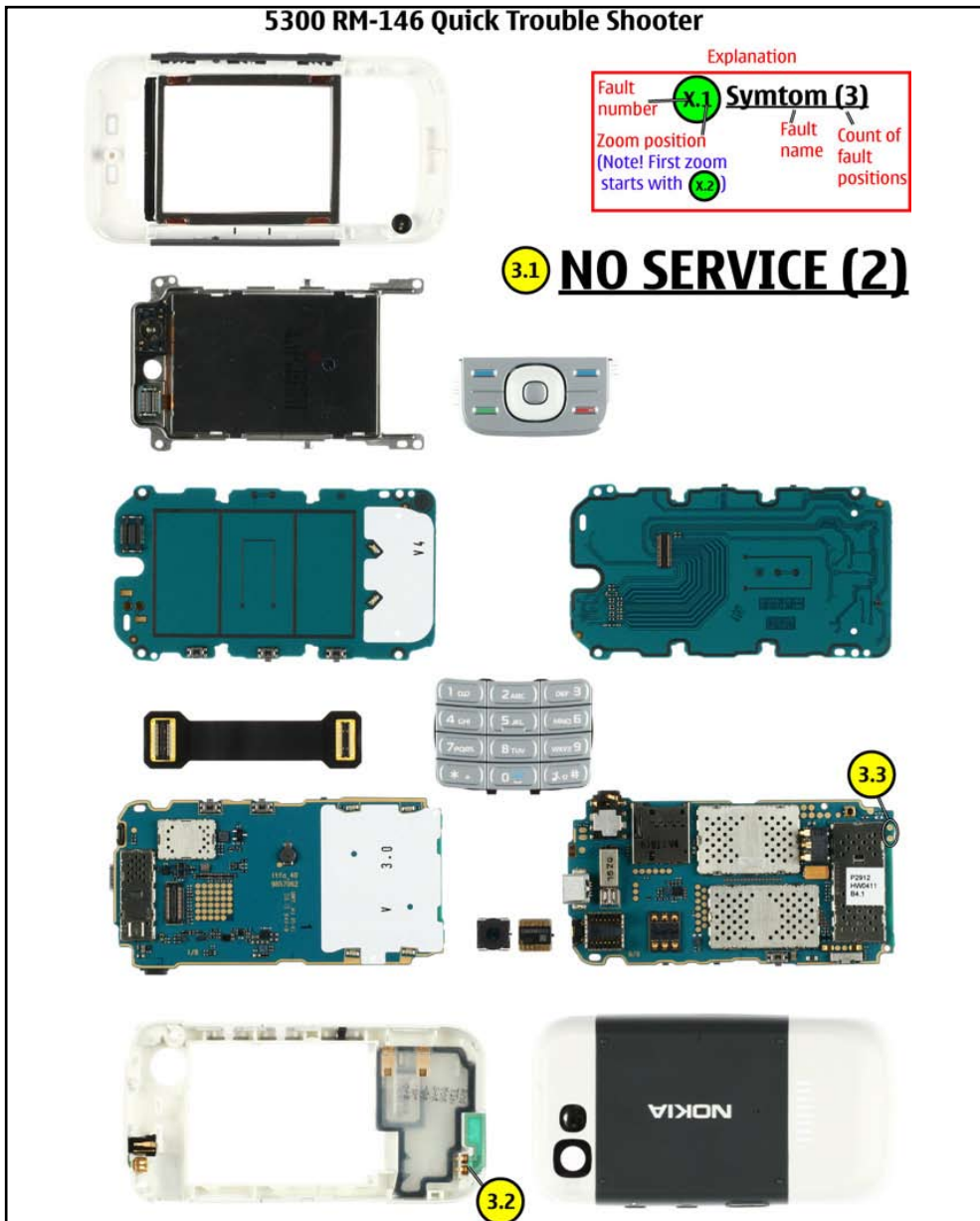
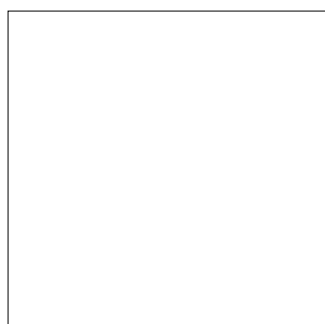
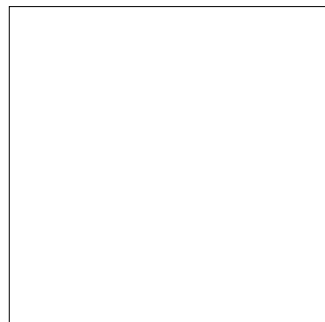
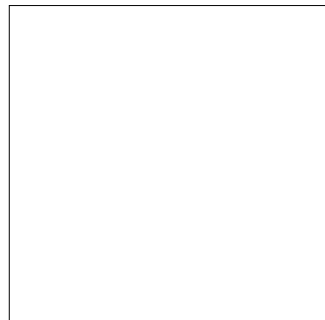
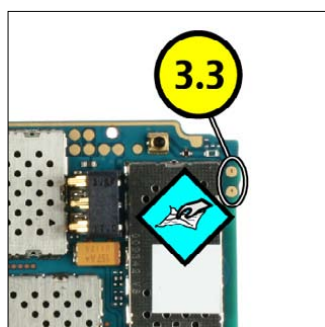
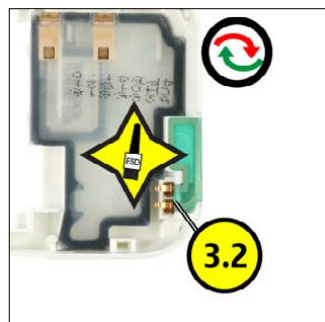
2.2 DC-Jack

2.3 -----

3.4 Fuse (F2000)

2.5 Battery Connector (X2070)

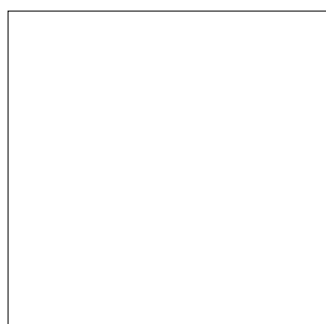
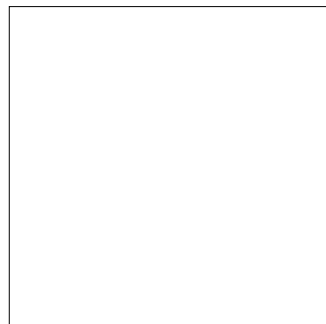
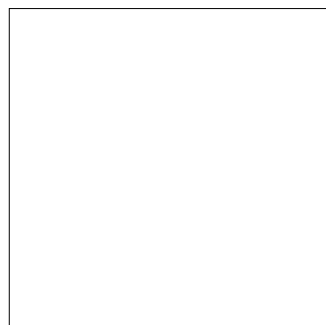
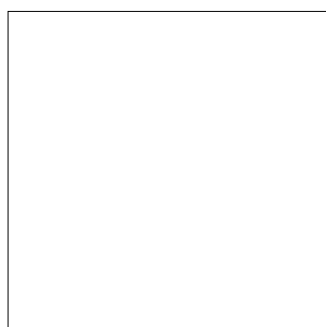
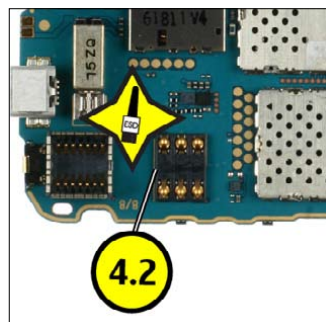
15. QUICK TROUBLE SHOOTER - NO SERVICE



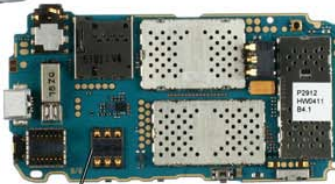
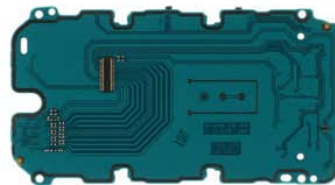
3.2 D-Cover Assembly
3.3 -----

3.1 NO SERVICE (2)

16. QUICK TROUBLE SHOOTER - SIM



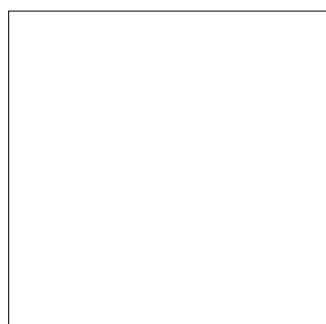
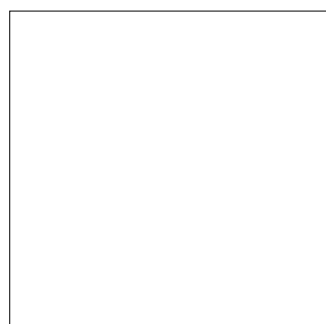
5300 RM-146 Quick Trouble Shooter



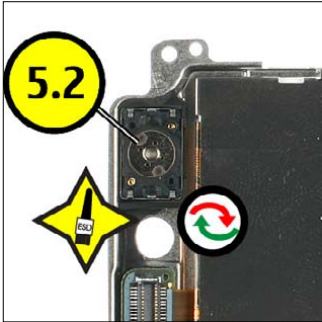
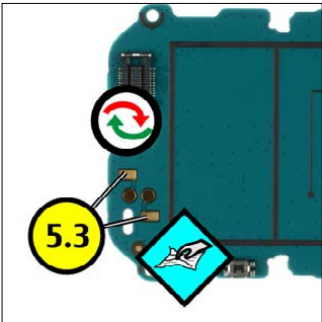
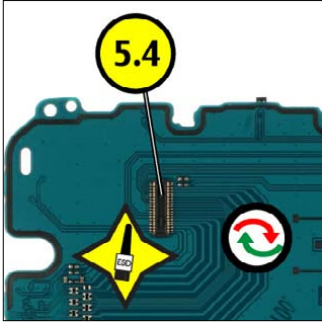
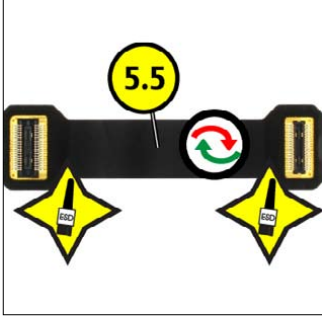

Explanation		
Fault number	X.1	Symptom (3)
Zoom position (Note! First zoom starts with	X.2)	Fault name
		Count of fault positions

4.1 SIM (1)



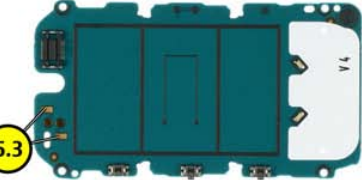



4.2 -----


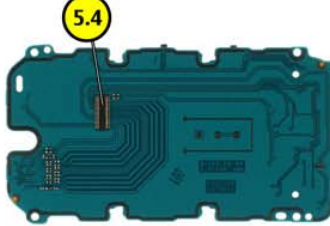





17. QUICK TROUBLE SHOOTER - EARPIECE

5300 RM-146 Quick Trouble Shooter

Explanation

Fault number	Symptom (3)	Fault name	Count of fault positions
X.1	Zoom position (Note! First zoom starts with X.2)		
X.2			

5.1 EARPICEE (5)

5.2 Earpiece

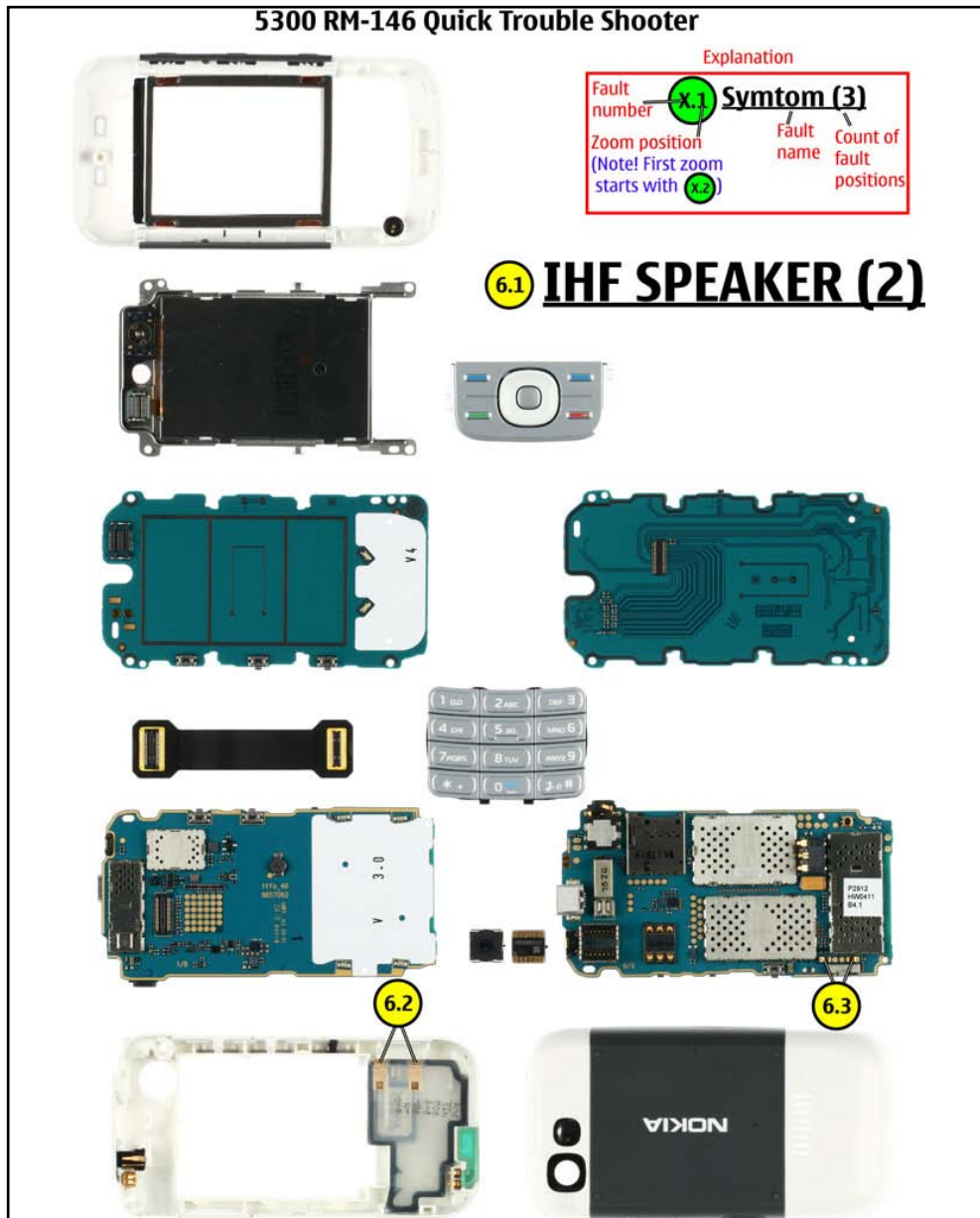
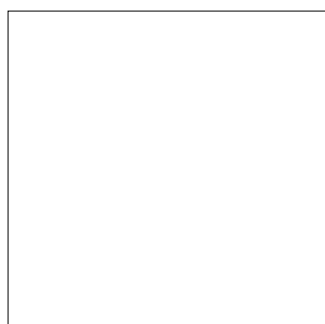
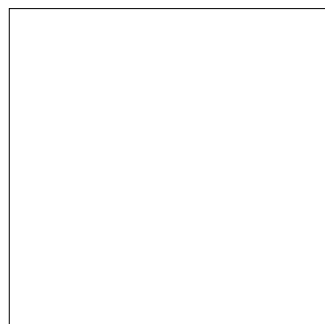
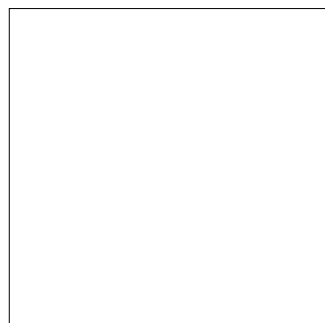
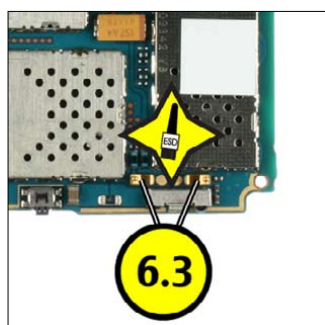
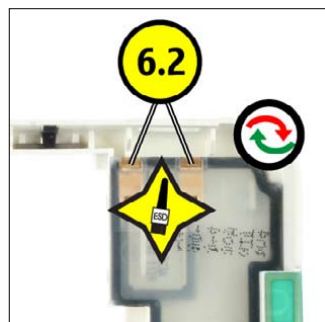
5.3 ITG UI Module Assembly

5.4 ITG UI Module Assembly

5.5 Slide Flex

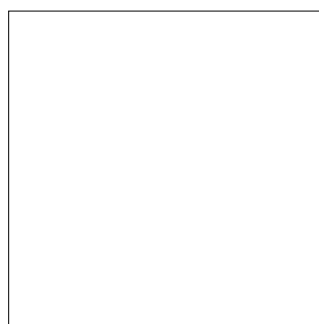
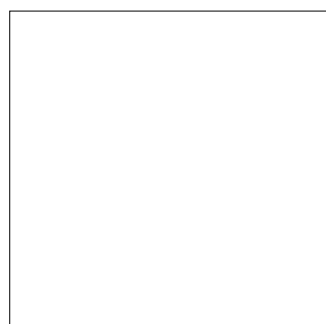
5.6 Connector (X2402)

18. QUICK TROUBLE SHOOTER - IHF SPEAKER


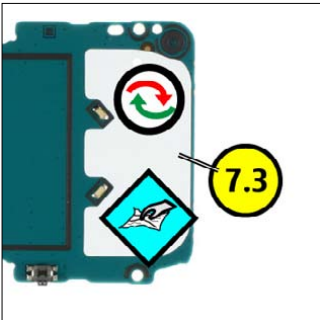
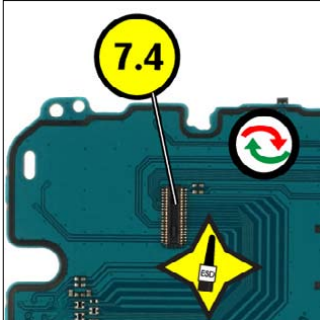

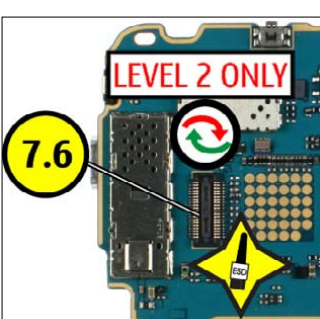


6.2 D-Cover Assembly

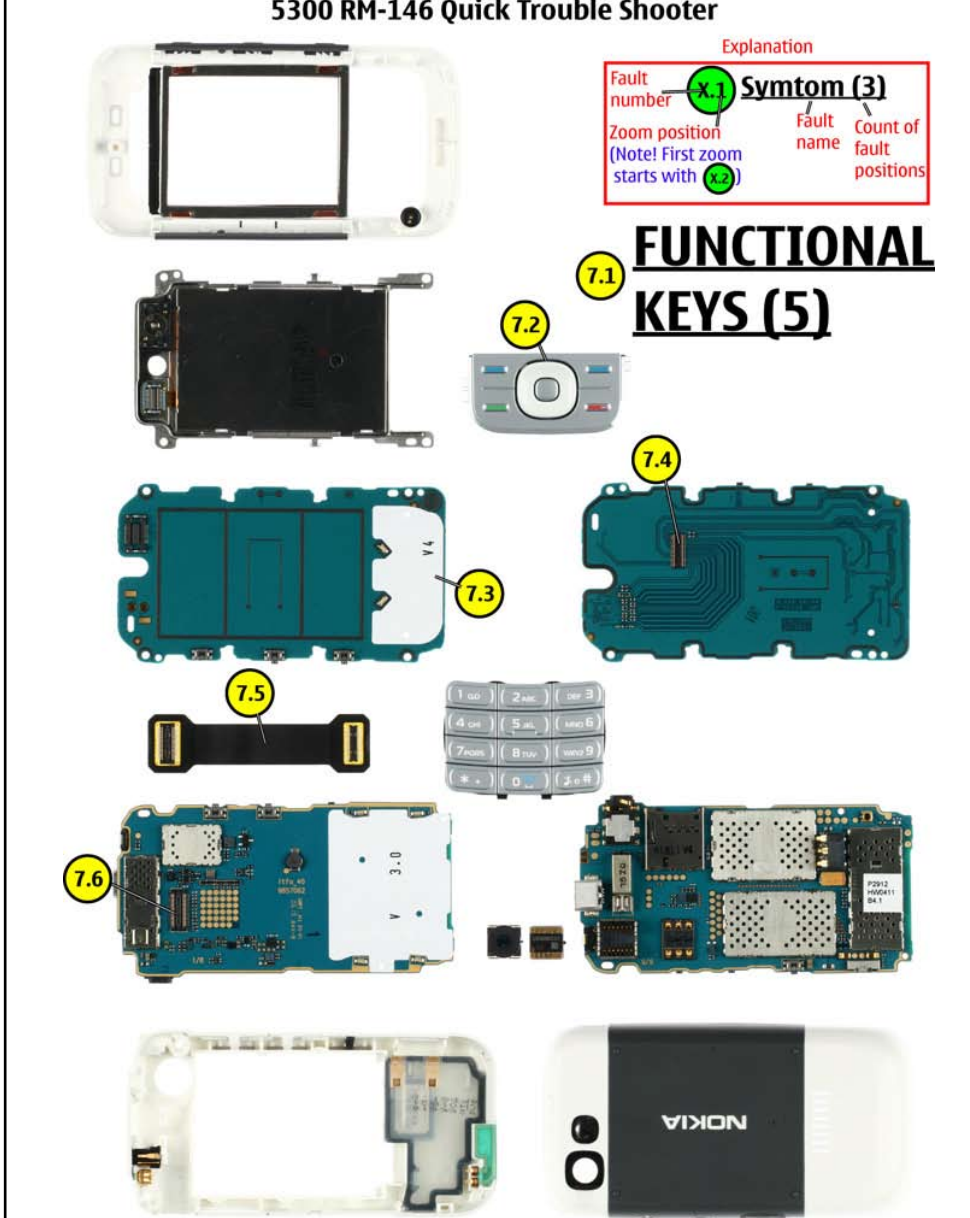
6.3 -----



19. QUICK TROUBLE SHOOTER - FUNCTIONAL KEYS

5300 RM-146 Quick Trouble Shooter



Fault number	Symptom (3)
X.1	Zoom position (Note! First zoom starts with X.2)
	Fault name
	Count of fault positions

FUNCTIONAL KEYS (5)

7.2 Functional Keymat

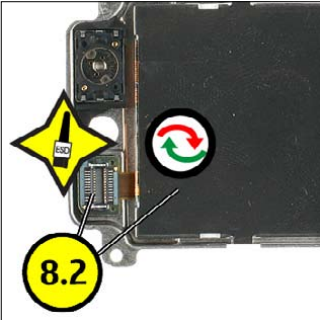

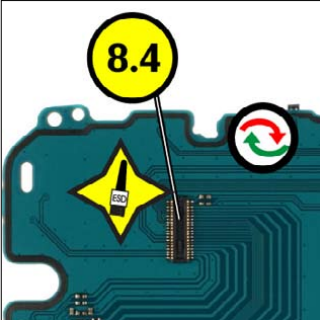


7.3 Functional Domesheet

7.4 ITG UI Module Assembly

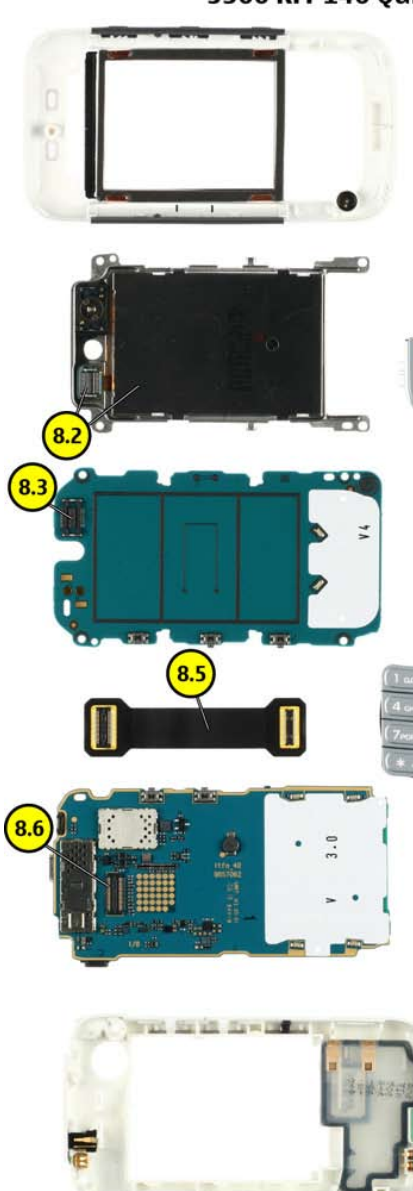
7.5 Slide Flex

7.6 Connector (X2402)

20. QUICK TROUBLE SHOOTER - DISPLAY

5300 RM-146 Quick Trouble Shooter



Explanation	
Fault number	Symptom (3)
Zoom position (Note! First zoom starts with X.2)	Fault name
X.1	Count of fault positions
X.2	

8.1 DISPLAY (5)

8.2 LCD Module



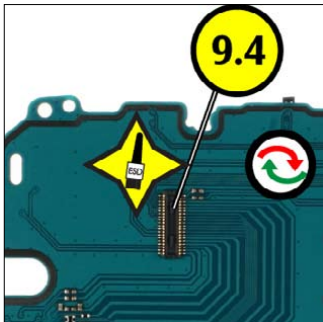

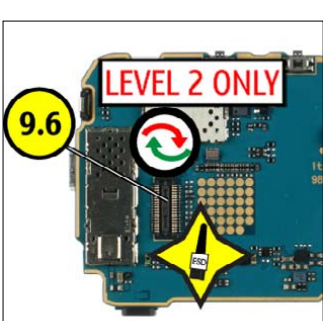
8.3 ITG UI Module Assembly

8.4 ITG UI Module Assembly

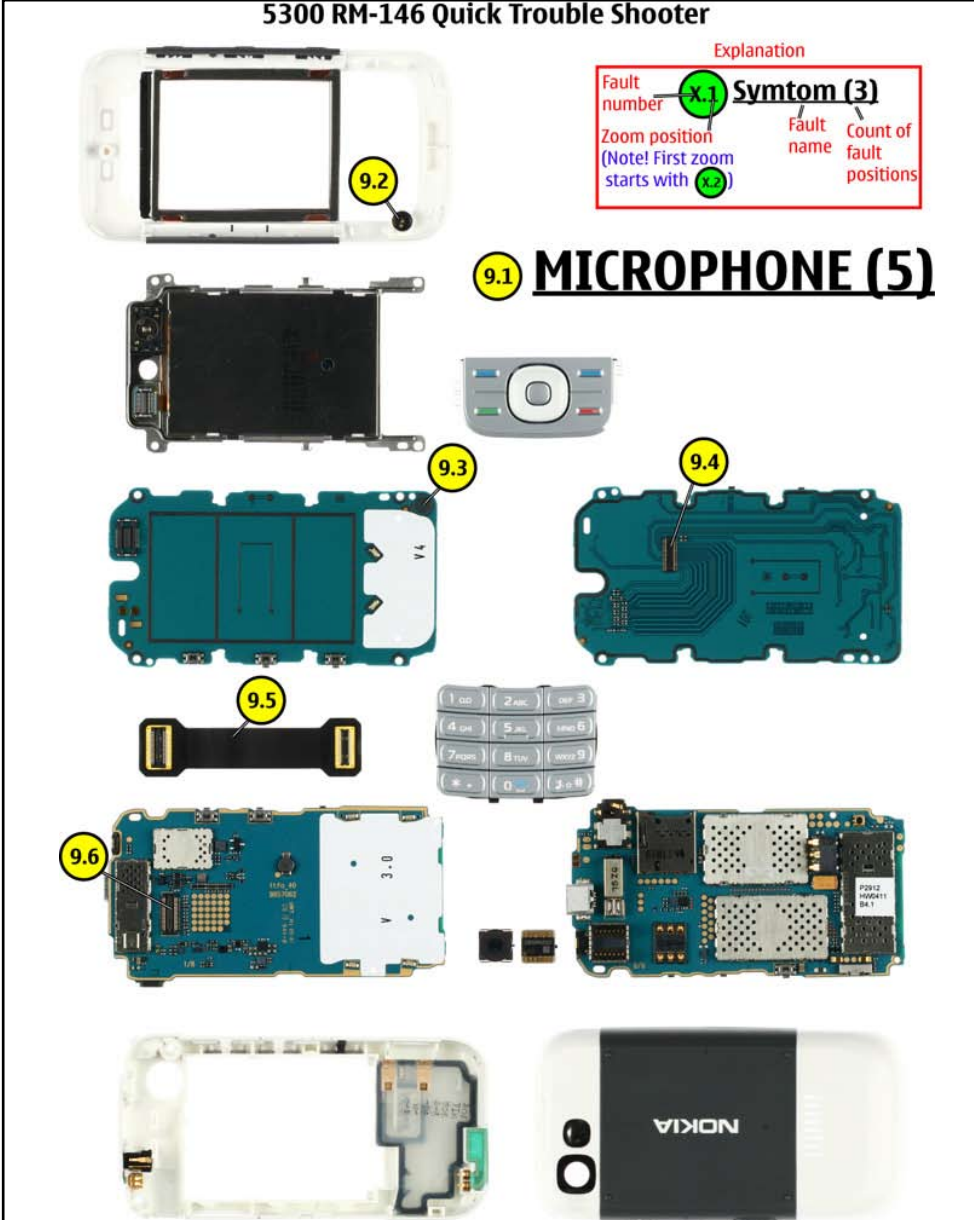
8.5 Slide Flex

8.6 Connector (X2402)

21. QUICK TROUBLE SHOOTER - MICROPHONE

5300 RM-146 Quick Trouble Shooter



Explanation

Fault number	X.1	Symtom (3)	
		Fault name	Count of fault positions
Zoom position (Note! First zoom starts with X.02)			

9.1 **MICROPHONE (5)**

9.2 Microphone



9.3 1TG UI Module Assembly

9.4 1TG UI Module Assembly

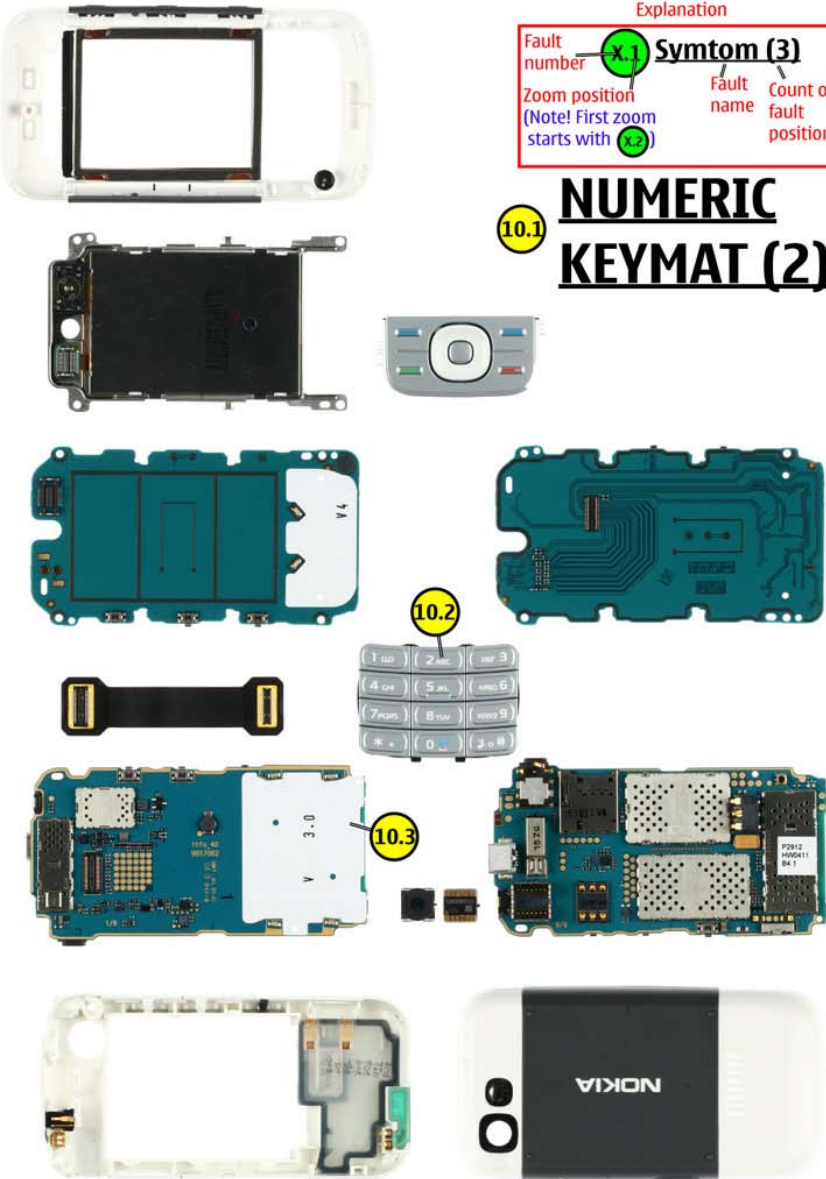
9.5 Slide Flex

9.6 Connector (X2402)

22. QUICK TROUBLE SHOOTER - NUMERIC KEYMAT

5300 RM-146 Quick Trouble Shooter



Explanation	
Fault number	Symptom (3)
Zoom position (Note! First zoom starts with)	Fault name
	Count of fault positions

NUMERIC KEYMAT (2)

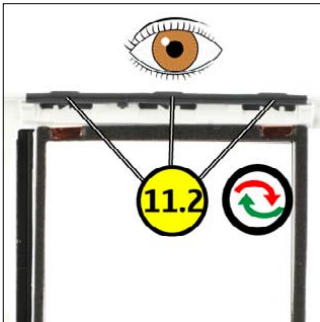
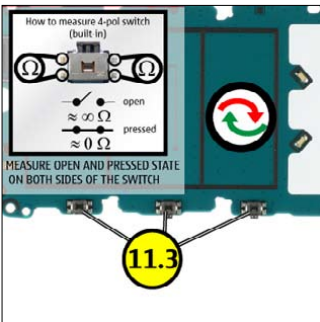
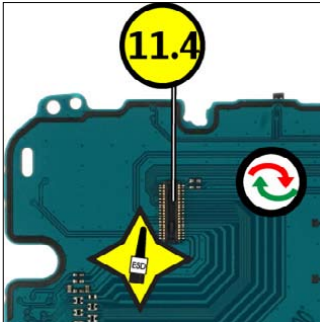
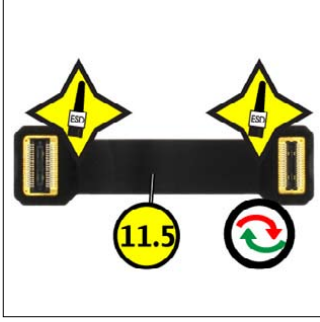
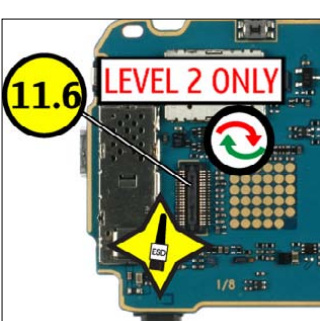
10.2 Numeric Keymat

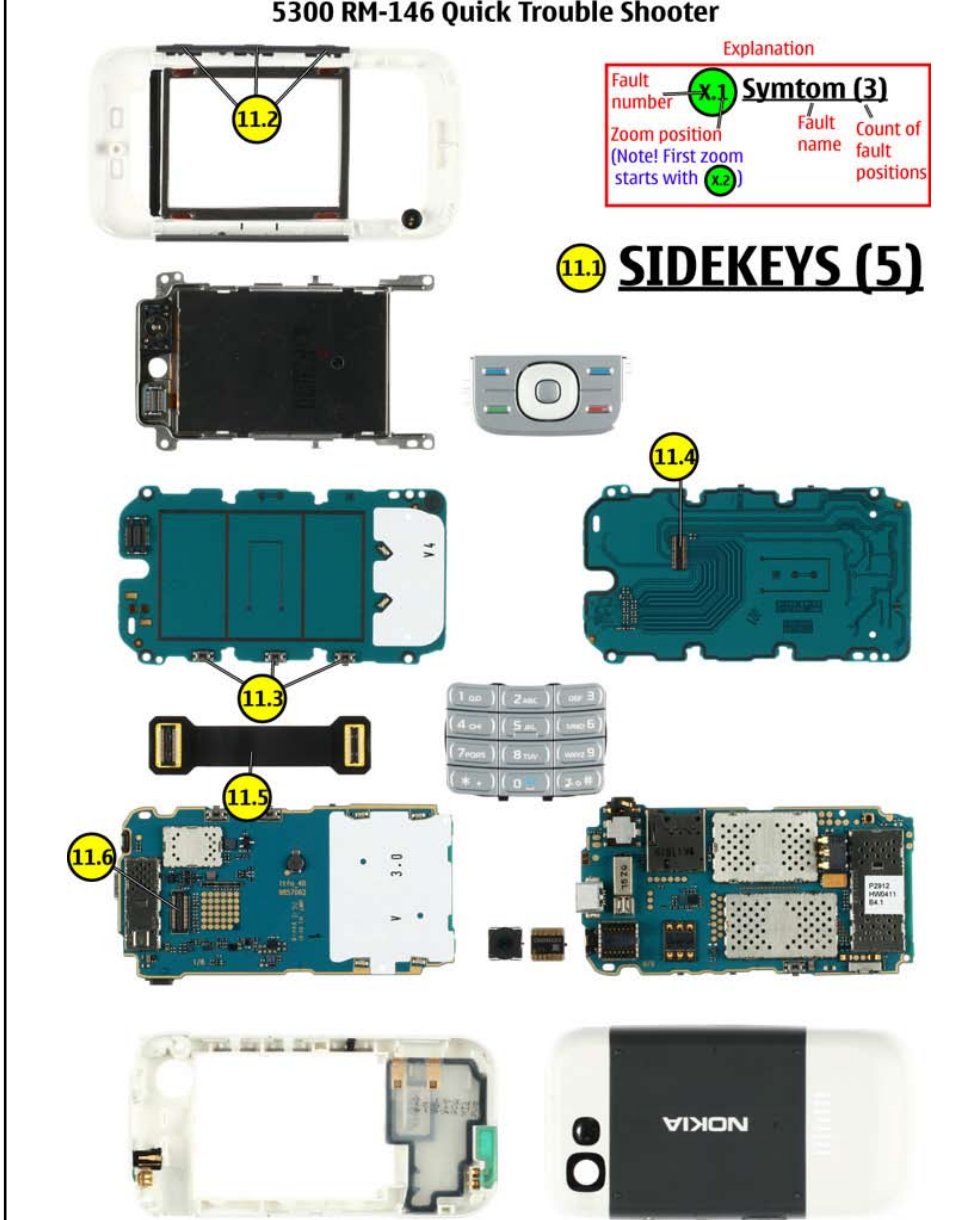
10.3 Numeric Domesheet

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23. QUICK TROUBLE SHOOTER - SIDEKEYS

5300 RM-146 Quick Trouble Shooter



Explanation

Fault number	Symptom (3)	Fault name	Count of fault positions
X.1	Zoom position (Note! First zoom starts with X.2)		

11.1 SIDEKEYS (5)

11.2 A-Cover Assembly

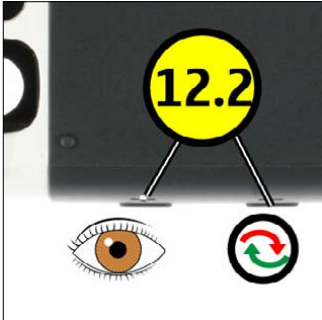
11.3 1TG UI Module Assembly

11.4 1TG UI Module Assembly

11.5 Slide Flex

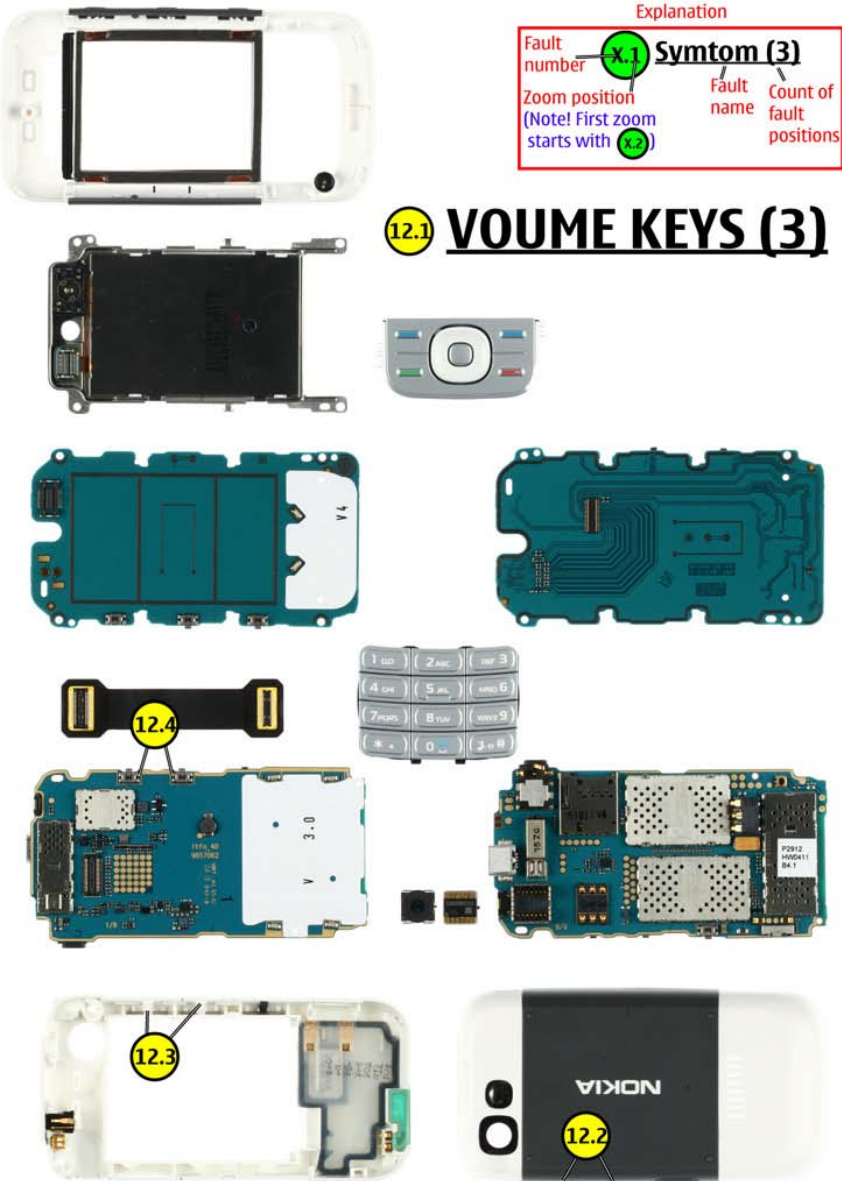
11.6 Connector (X2402)

24. QUICK TROUBLE SHOOTER - VOLUME KEYS



12.2

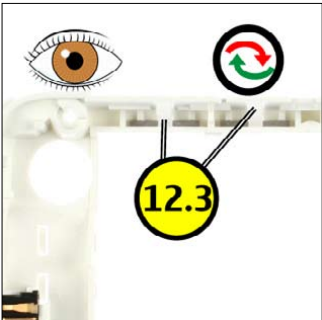
5300 RM-146 Quick Trouble Shooter



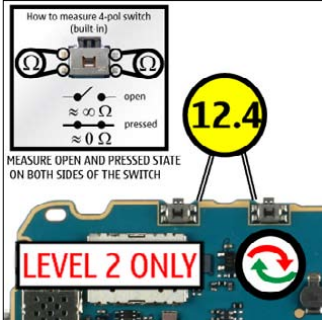
12.1 **VOUME KEYS (3)**

Explanation

Fault number	Symptom (3)	Fault name	Count of fault positions
X.1	Zoom position (Note! First zoom starts with X.2)		



12.3



12.4

How to measure 4-pol switch (built in)

open $\approx \infty \Omega$

pressed $\approx 0 \Omega$



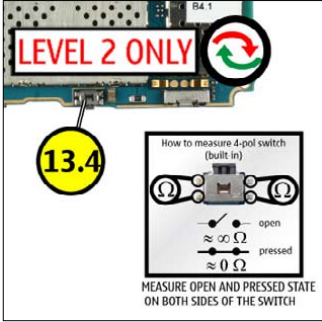
MEASURE OPEN AND PRESSED STATE ON BOTH SIDES OF THE SWITCH

LEVEL 2 ONLY

12.2 E-Cover Assembly
12.3 D-Cover Assembly
12.4 Switchs (S2401 / S2402)

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25. QUICK TROUBLE SHOOTER - CAMERA KEY

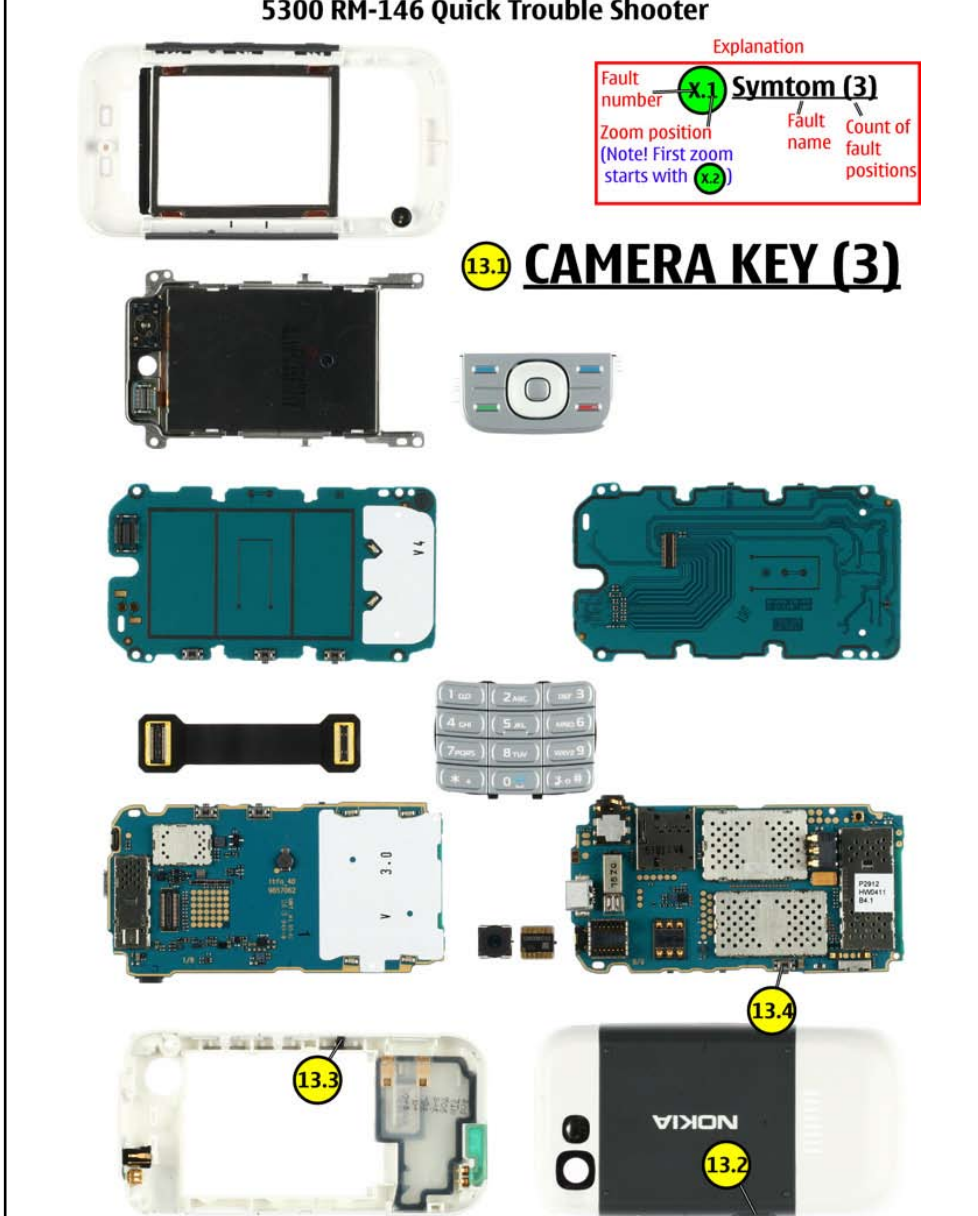




5300 RM-146 Quick Trouble Shooter

Explanation

Fault number	X.1	Symtom (3)		
Zoom position (Note! First zoom starts with X.2)	X.2	Fault name	Count of fault positions	

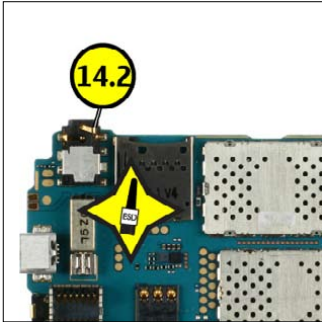
13.1 CAMERA KEY (3)



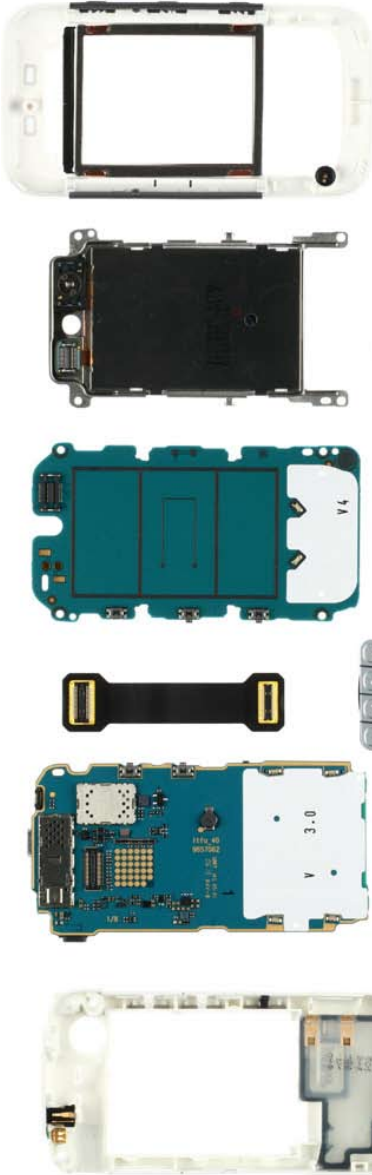
13.2 E-Cover Assembly
13.3 D-Cover Assembly
13.4 Switch (S2404)

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26. QUICK TROUBLE SHOOTER - HEADSET



5300 RM-146 Quick Trouble Shooter



Explanation


Fault number	Symptom (3)
Zoom position (Note! First zoom starts with X.2)	Fault name Count of fault positions

14.1

X.1

14.2

X.2

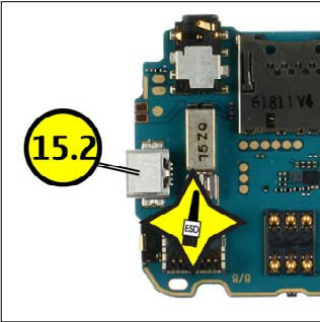


14.1

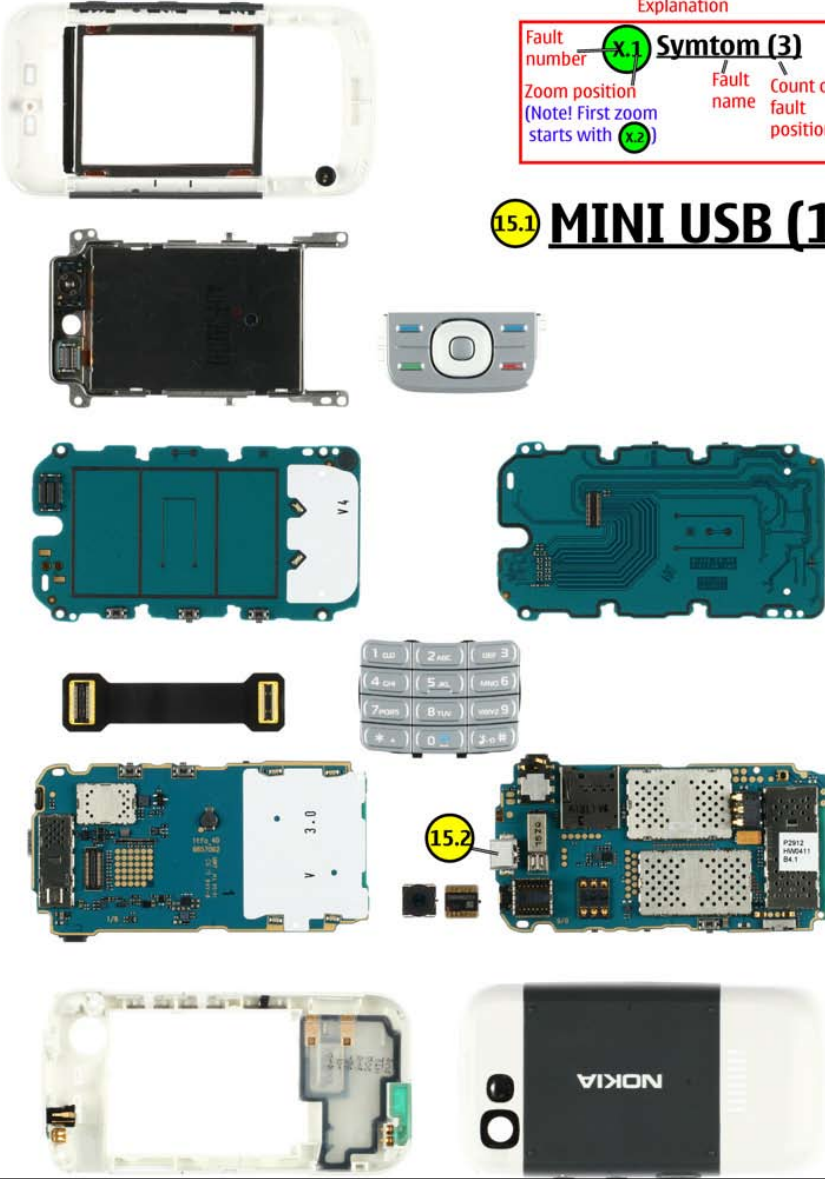
HEADSET (1)

14.2 -----

27. QUICK TROUBLE SHOOTER - MINI USB



5300 RM-146 Quick Trouble Shooter

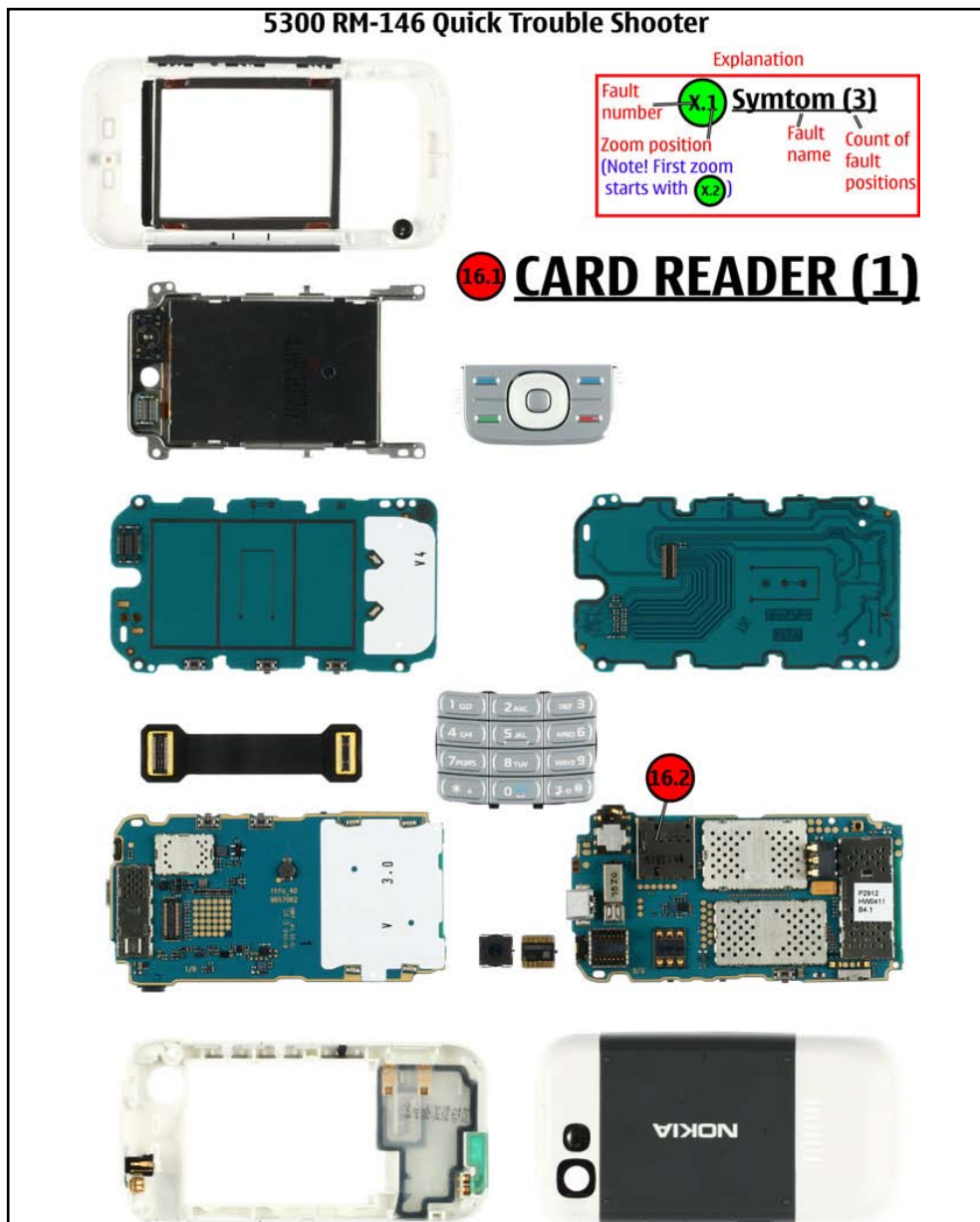
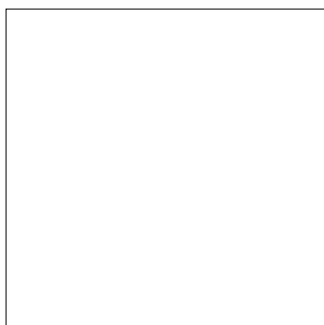
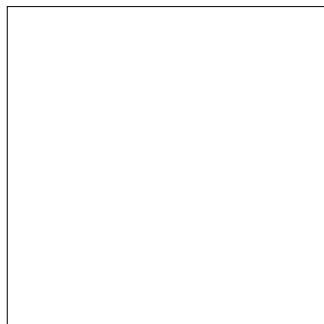
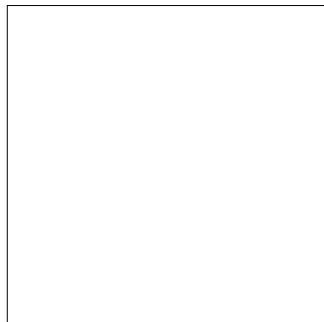
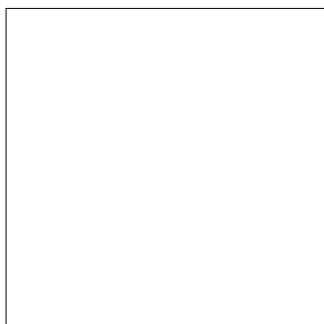
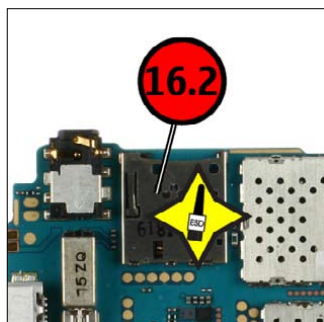


Explanation	
Fault number	Symtom (3)
Zoom position (Note! First zoom starts with X.2)	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Fault name</div> <div style="width: 55%;">Count of fault positions</div> </div>

15.1 **MINI USB (1)**

15.2 -----

28. QUICK TROUBLE SHOOTER - CARD READER



16.2 -----

