



# Working Instruction, Mechanical

Applicable for G502

## CONTENTS

<b>1</b>	<b>Introduction.....</b>	<b>3</b>
1.1	Equipment.....	4
1.2	General cautions .....	5
1.3	Adhesives .....	5
<b>2</b>	<b>Disassembly .....</b>	<b>6</b>
2.1	Overview .....	7
2.1.1	Battery Cover and Battery .....	8
2.1.2	Antenna Cover Assembly .....	9
2.1.3	Front Cover Assembly .....	10
2.1.4	Frame Cover Assembly .....	12
2.1.5	LCD Frame Assembly and PCBA .....	14
2.1.6	Display 1.96 TFT.....	15
<b>3</b>	<b>Replacements.....</b>	<b>16</b>
3.1	Battery Cover.....	17
3.2	Front Cover Assembly .....	17
3.3	Frame Cover Assembly .....	17
3.4	Display 1.96 TFT.....	17
3.5	Camera.....	18
3.6	Keypad.....	21
3.7	Volume Key.....	22
3.8	Camera Key .....	23
3.9	KRH Label.....	24
3.10	Shield Can Lid.....	25
3.11	Gasket.....	26
3.12	Liquid Intrusion Indicator.....	27
3.13	Main Antenna Assembly .....	28
3.14	Loudspeaker Box Assembly .....	30
3.15	Camera Lens .....	32
3.16	System Connector.....	34
3.17	Mylar for Sim Components .....	35
3.18	Key Dome Foil FPC Assembly .....	36
3.19	Vibrator.....	38
3.20	Receiver.....	39
<b>4</b>	<b>Reassembly .....</b>	<b>40</b>
4.1	Overview .....	41
4.1.1	Display 1.96 TFT.....	42
4.1.2	LCD Frame Assembly and PCBA .....	43
	Frame Cover Assembly and PCBA .....	44
4.1.3	Front Cover Assembly .....	45
4.1.4	Antenna Cover Assembly .....	46
4.1.5	Battery and Battery Cover .....	47



5    **Revision history** .....48

# 1 Introduction

## FRONT



## BACK





## 1.1 Equipment

### SPECIAL TOOLS

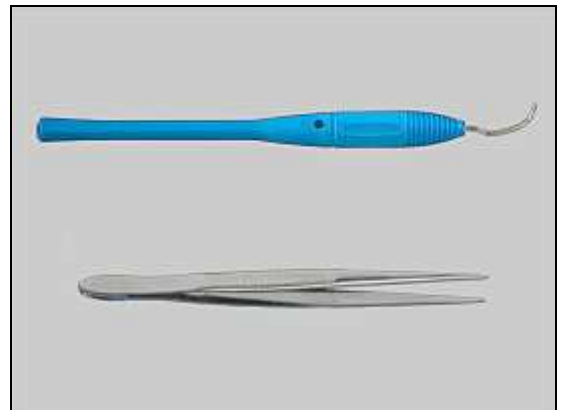
- NTZ 112 459 Torque screwdriver (or equivalent)
- NTZ 112 288 Torx bit no. 6
- NTZ 112 302/2 Front opening tool
- NTZ 112 1067 Mega camera tool
- NTZ 112 590 Guitar Pick "Plectrum"
- NTZ 112 521 Flex film assembly tool



### STANDARD TOOLS

Standard tools text:

- Dentist hook
- ESD tweezers



### LABEL EQUIPMENT

The following special equipment is required when replacing or installing a new label:

- Hot air flow solder station
- Zebra printer connected to computer



### OTHER EQUIPMENT

- ESD-wristband
- ESD-gloves
- Isopropyl alcohol
- Air blower





## 1.2 General cautions

The following cautions are considered to be generic for all phone models and will not be repeated in the Disassembly, Replacements and Reassembly sections:

1. **TURN OFF THE PHONE AND REMOVE THE SIM CARD BEFORE STARTING THE DISASSEMBLY!**
2. **KEEP ALL CONTACT SURFACES CLEAN!**
3. **BE CAREFUL WHEN USING TOOLS LIKE THE DENTIST HOOK, TWEEZERS, OPENING TOOLS, GUITAR PICK ETC. TO AVOID SCRATCHES OR DAMAGES TO THE EXTERIOR AND INTERIOR PARTS OF THE PHONE!**
4. **BE CAREFUL NOT TO DAMAGE ANY CONTACT SPRINGS!**
5. **REMEMBER TO REMOVE THE PROTECTION FOILS ON NEW PARTS SUCH AS THE LCD!**
6. **NEVER TOUCH THE DISPLAY GLASS!**
7. **USE AIR BLOW EQUIPMENT TO KEEP THE FRONT WINDOW AND DISPLAY MODULE DUST FREE!**

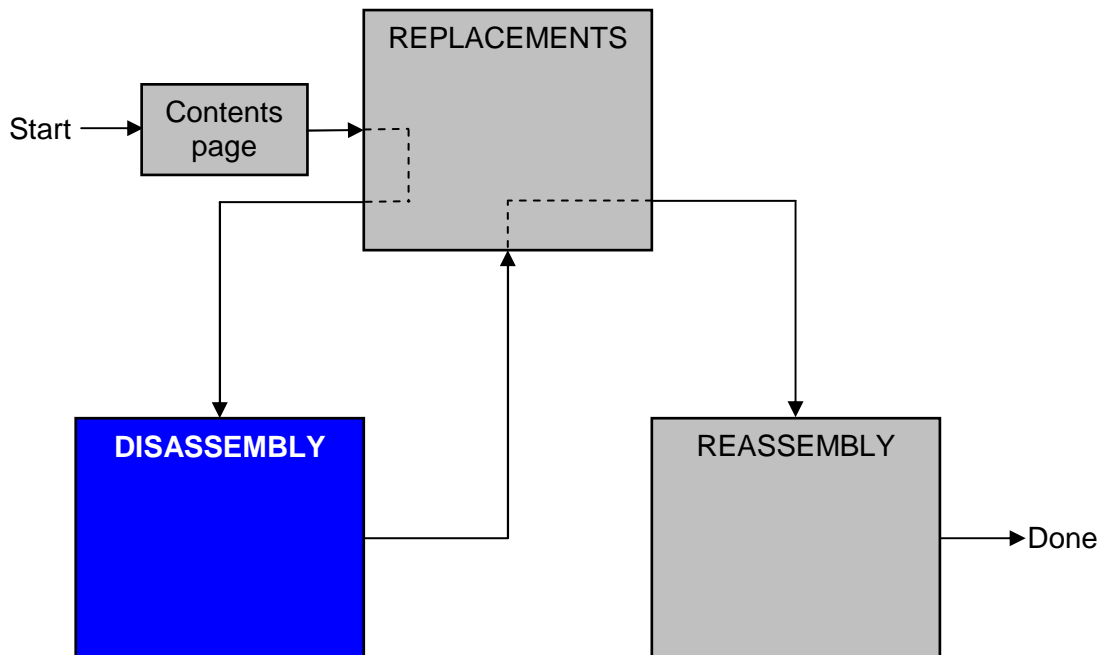
## 1.3 Adhesives

Use a dentist hook and/or the tweezers to remove old adhesives.  
Clean the surface with isopropyl alcohol before attaching new adhesives.



## 2 Disassembly

When you are going to replace a part being listed in *Replacements*, the instruction of that section usually begins by directing you to this *Disassembly* section with a specification of the instructions you have to carry out in order to disassemble the phone as far as needed before returning to *Replacements* for the actual replacement.



## 2.1 Overview

The disassembly is done in the following sequence:

1. Battery Cover (1a) and Battery (1b)
2. Antenna Cover Assembly
3. Front Cover Assembly
4. PCBA
5. LCD Frame Assembly
6. Frame Cover Assembly
7. Display 1.96TFT





### 2.1.1 Battery Cover and Battery

Press down the *Battery Cover* and push in the direction shown by the arrow in the picture.



Grip *Battery Cover* with fingers and lift it off.



Grip *Battery* as shown in picture and lift up to release it.





## 2.1.2 Antenna Cover Assembly

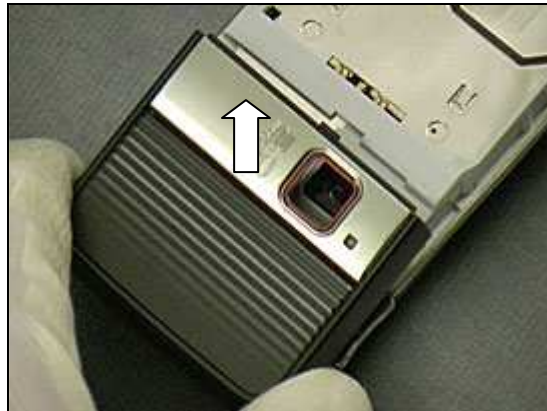
Unsnap one side of the *Antenna Cover* using a front opening tool.



Repeat this for the other side of the *Antenna Cover*.



Grip *Antenna Cover* with fingers and lift off from the phone.





### 2.1.3 Front Cover Assembly

Remove the four Screws using torx bit no. 6.



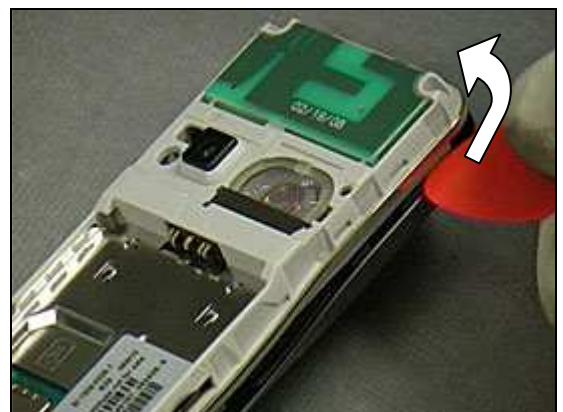
Unlatch snap hooks along the side of the phone as shown by the arrow inserting the guitar pick tool as shown in picture.



Repeat this again for the other side.



Repeat this again for the top of the phone.



Grip *Front Cover Assembly* and lift away from the phone.





## 2.1.4 Frame Cover Assembly

There are four hooks located as shown in the picture.

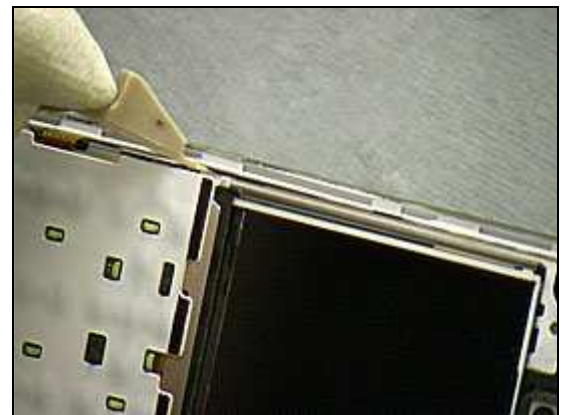


**BE CAREFUL NOT TO TOUCH OR MARK THE LCD DISPLAY!**  
**BE CAREFUL NOT TO DAMAGE THE KEYPAD FPC FLEX!**

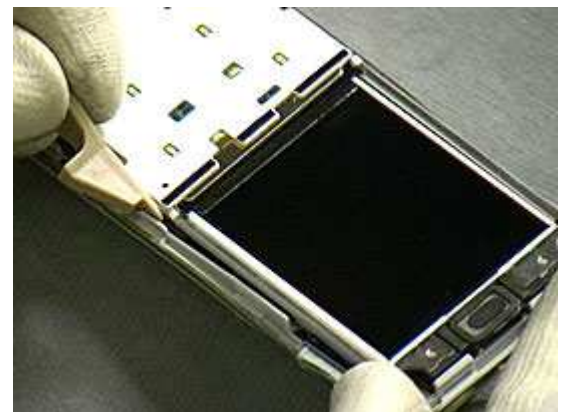
Unsnap the hook (1) using a front opening tool.



Repeat this step for hook (2).



Repeat this step for hook (3).

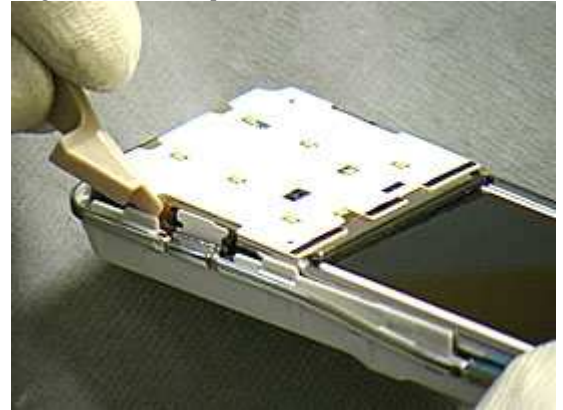






**BE CAREFUL NOT TO DAMEGE THE KEYPAD FPC FLEX!**

Repeat this step for hook (4).



Grip at bottom and lift the *LCD Frame Assembly* to remove it from the *Frame Cover Assembly* as shown in picture.



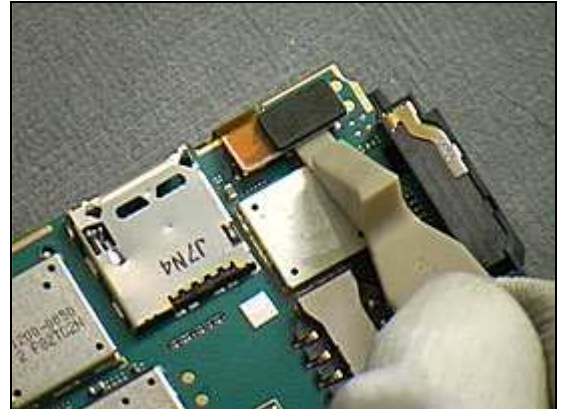
Separate the *LCD Frame Assembly* from their cavity.



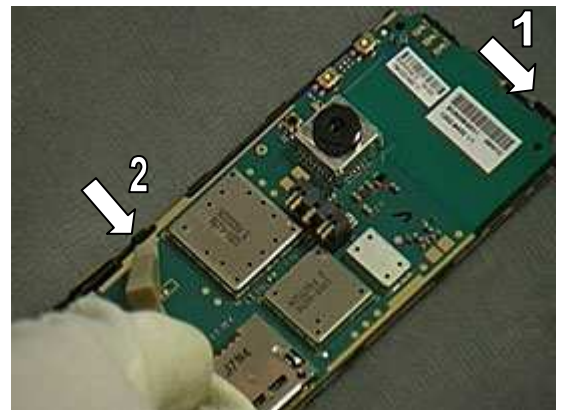


## 2.1.5 LCD Frame Assembly and PCBA

Release *Key Foil Assembly connector* using a front opening tool.

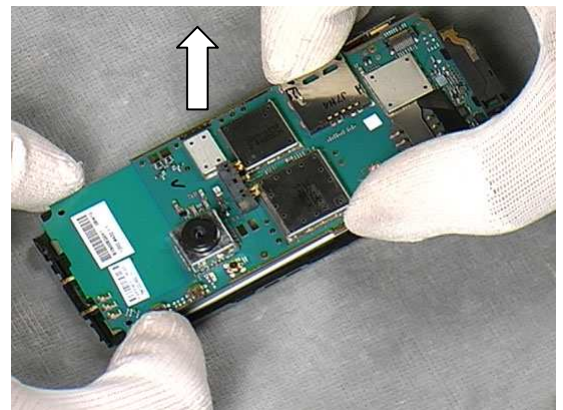


Unlatch the two snap hooks using a front opening tool as shown in the picture by the arrows.



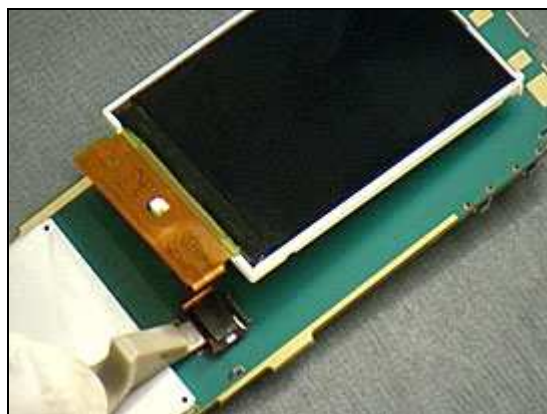
**BE CAREFUL NOT TO DAMAGE THE LCD FLEX!**

Separate the *PCBA* and *LCD Frame Assembly* using your hands.



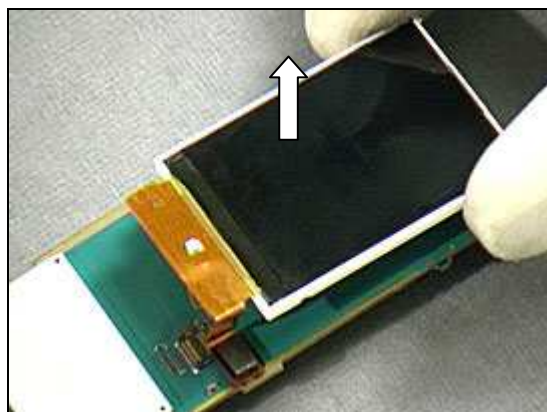
### 2.1.6 Display 1.96 TFT

Release the *LCD Connector* using a front opening tool.



***BE CAREFUL NOT TO TOUCH OR MARK THE LCD DISPLAY!***

Grip *Display* with fingers and lift from the *PCBA*.





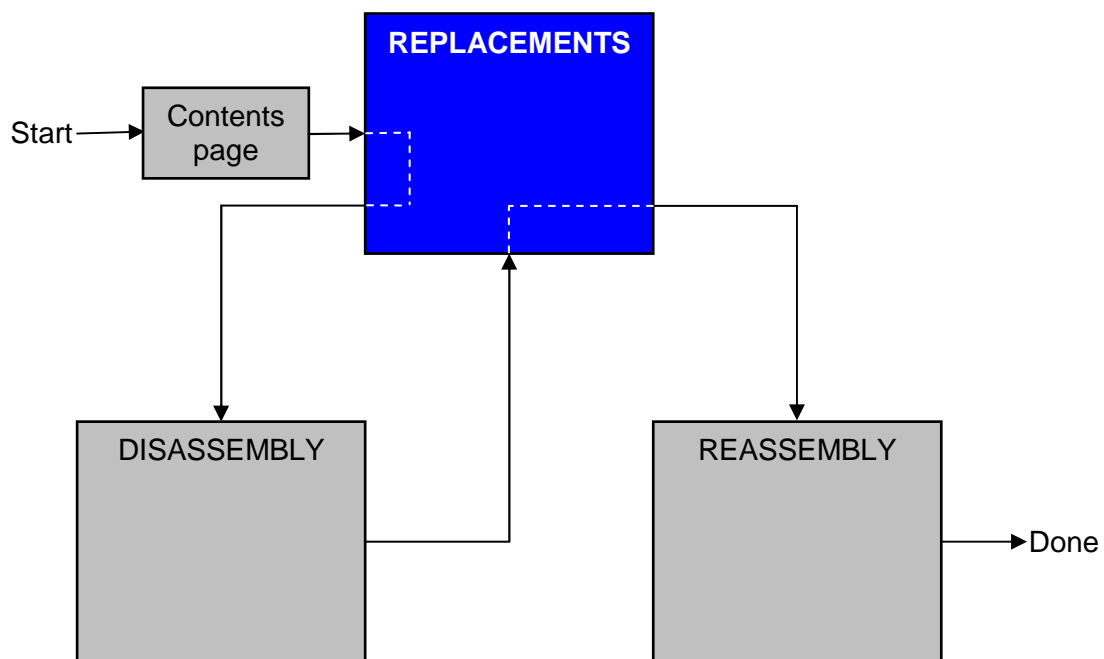
### 3 Replacements

Search for the part to be replaced on the Contents page and go to that instruction to be found in this *Replacements* section.

The instruction usually begins by directing you to the *Disassembly* section with a specification of the instructions you have to carry out in order to disassemble the phone as far as needed before the actual replacement.

Go back to this *Replacements* section and carry out the instruction.

The instruction usually ends by directing you to the *Reassembly* section with a specification of the instructions you have to carry out in order to reassemble the phone.





### **3.1 Battery Cover**

*Follow the 2.1.1 Disassembly instructions!*

Prepare the new *battery cover*.

*Follow the 4.1.6 Reassembly instructions!*

### **3.2 Front Cover Assembly**

*Follow the 2.1.1 – 2.1.3 Disassembly instructions!*

Replace the *Front Cover Assembly*.

*Follow the 4.1.4 – 4.1.6 Reassembly instructions!*

### **3.3 Frame Cover Assembly**

*Follow the 2.1.1 – 2.1.4 Disassembly instructions!*

Replace the *Frame Cover Assembly*.

*Follow the 4.1.3 – 4.1.6 Reassembly instructions!*

### **3.4 Display 1.96 TFT**

*Follow the 2.1.1-2.1.6 Disassembly instructions!*

Prepare the new *Display*.

*Follow the 4.1.1- 4.1.6 Reassembly instructions!*

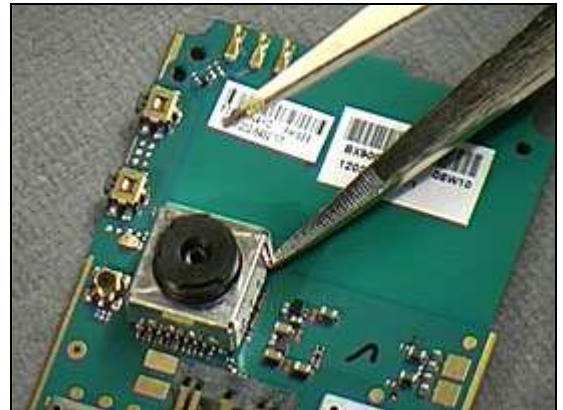


## 3.5 Camera

### REMOVAL

*Follow the 2.1.1 – 2.1.4 Disassembly instructions!*

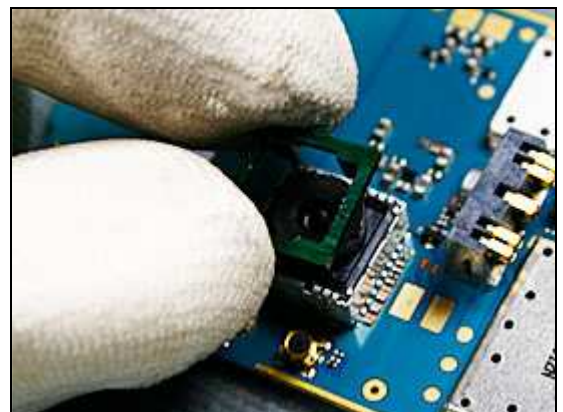
Loosen the *Camera shield* using a pair of tweezers or front opening tool.



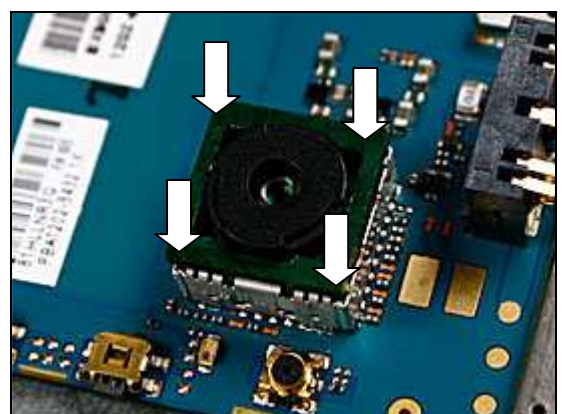
Remove the *Camera shield* using a pair of tweezers.



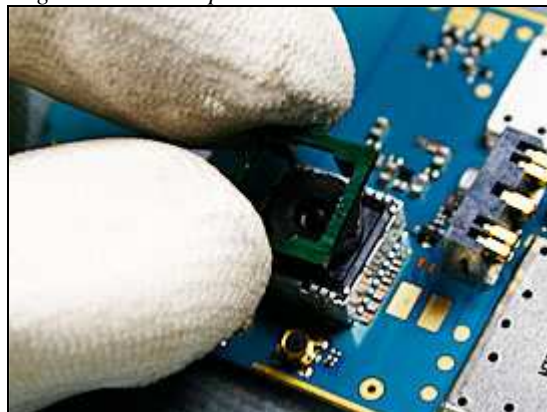
Use camera removal tool and lower into position.



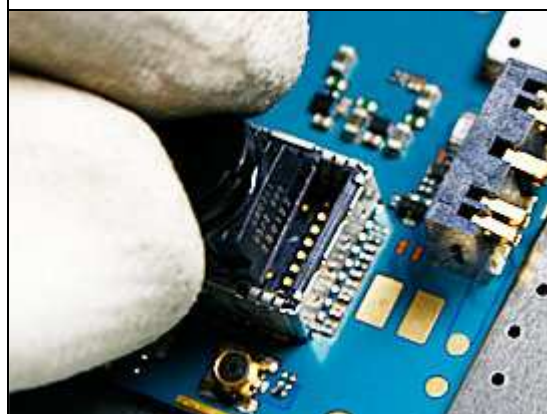
Insert the camera tool into socket and use fingers to secure at all corners as arrows shown in the picture.



Lift upwards and remove the camera tool.

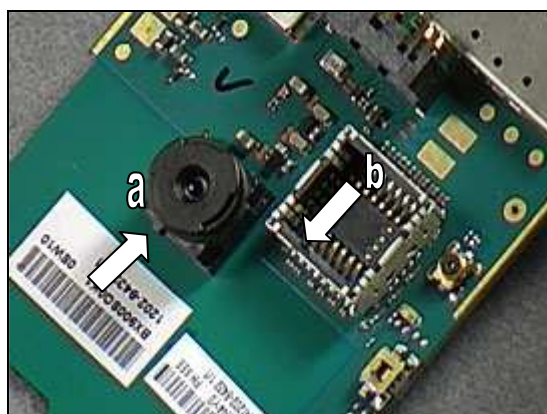


Remove the CAMERA.



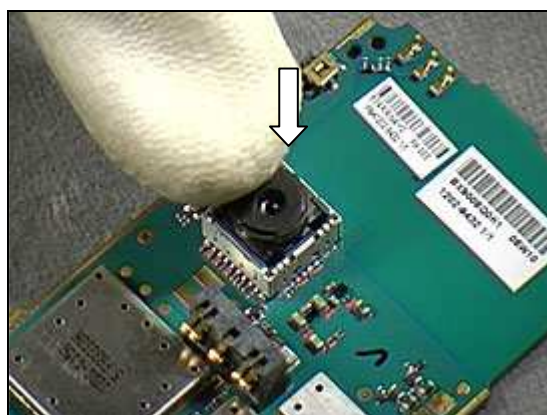
## INSTALLATION

- a. Camera alignment pin.
- b. Socket alignment slot.



Position the Camera into socket and press down on each edge to secure the Camera.

**DO NOT TOUCH THE LENS!**



Position the new *Camera shield* using a flex film assembly tool and press down to secure.

*Follow the 4.1.1 – 4.1.6 Reassembly instructions!*







## 3.6 Keypad

### REMOVAL

*Follow the 2.1.1 –2.1.3 Disassembly instructions!*

Remove the *Keypad* using a flex film assembly tool.



### INSTALLATION

Place the *Keypad* into position using a flex film assembly tool.



Visually inspecting that the *Keypad* is in position.

*Follow the 4.1.4 – 4.1.6 Reassembly instructions!*



## 3.7 Volume Key

### REMOVAL

*Follow the 2.1.1 – 2.1.4 Disassembly instructions!*

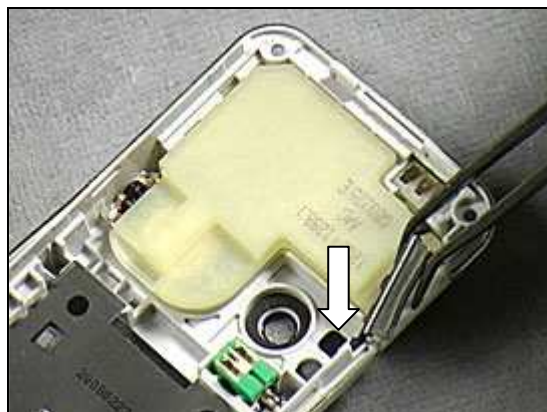
Remove the *Volume Key* using a flex film assembly tool.



### INSTALLATION

Position into place with a flex film assembly tool.

*Follow the 4.1.3 – 4.1.6 Reassembly instructions!*



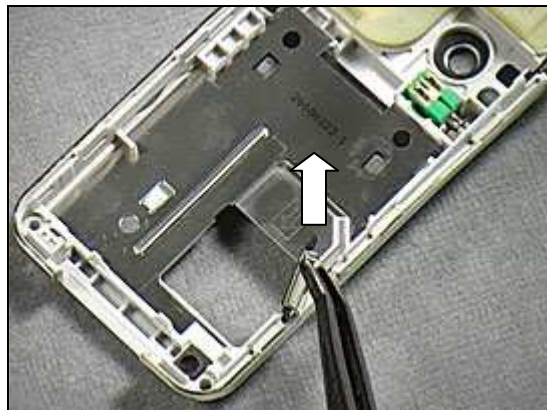


## 3.8 Camera Key

### REMOVAL

*Follow the 2.1.1 – 2.1.4 Disassembly instructions!*

Remove the *Camera Key* using a flex film assembly tool.



### INSTALLATION

***BE CAREFUL THE DIRECTION OF THE CAMERA KEY!***

Position the *Camera Key* into place with a flex film assembly tool.

*Follow the 4.1.3 – 4.1.6 Reassembly instructions!*





### 3.9 KRH Label

*Follow the 2.1.1 Disassembly instructions!*

- Read the old label and/or write the information into the "Label make" program before removal
- Note the position of the label before removal
- Heat up the label by using hot air, if needed
- Carefully remove the label without causing scratches
- If there still are residues, clean the surface with isopropyl alcohol

- Check that the proper label format is loaded in the Zebra printer
- Write a new label by using the program "Label make" and check that the printing is OK
- Take the new label and place it onto the frame as in the adjacent picture

**ONE LABEL ONLY IS ALLOWED!**

*Follow the 4.1.6 Reassembly instructions!*



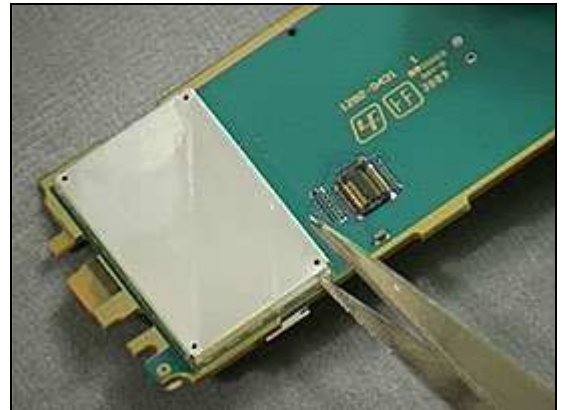


### 3.10 Shield Can Lid

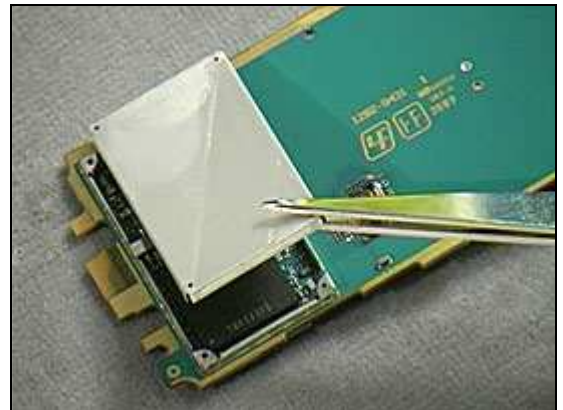
#### REMOVAL

*Follow the 2.1.1 – 2.1.4 Disassembly instructions!*

Loosen each side of the *Shield Can Lid* using a pair of tweezers.



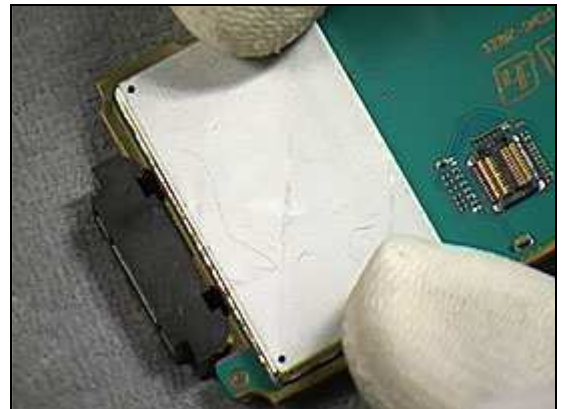
Remove the *Shield Can Lid* using a pair of tweezers.



#### INSTALLATION

Position the *Shield Can Lid* and press down on each corner to secure.

*Follow the 4.1.3 – 4.1.6 Reassembly instructions!*



### 3.11 Gasket

#### REMOVAL

*Follow the 2.1.1 – 2.1.5 Disassembly instructions!*

Remove the *Gasket* using a pair of tweezers.



#### INSTALLATION

Position a new *Gasket* as shown in the picture.

*Follow the 4.1.2 – 4.1.6 Reassembly instructions!*







## 3.12 Liquid Intrusion Indicator

### INSPECTION

There are two Liquid Intrusion Indicators located on the *Main Antenna Assembly* and the *PCBA*.

To get access to and to inspect the indicators:

*Follow the 2.1.1 – 2.1.5 Disassembly instructions!*

### REMOVAL

Remove the activated *Liquid Intrusion Indicator* with a dentist hook and a pair of tweezers.

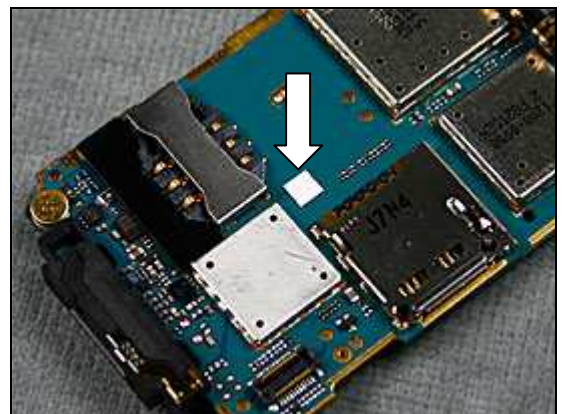
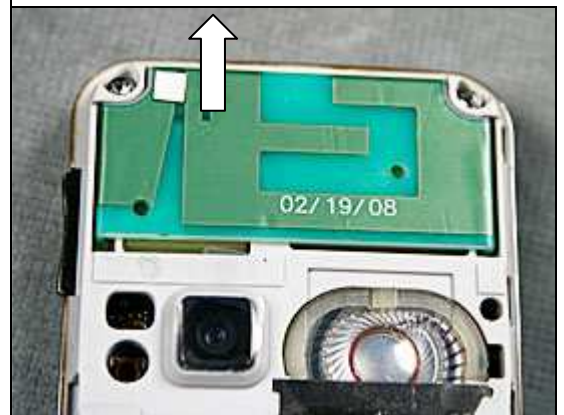
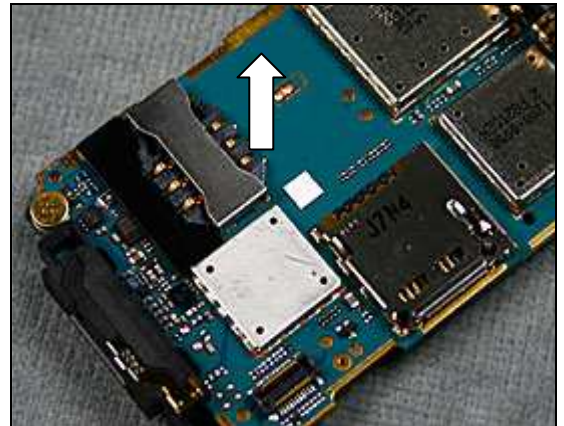
Remove the activated *Liquid Intrusion Indicator* with a dentist hook and a pair of tweezers.

### INSTALLATION

Attach the new *Liquid Intrusion Indicator* with a pair of tweezers and a dentist hook.

Attach the new *Liquid Intrusion Indicator* with a pair of tweezers and a dentist hook.

*Follow the 4.1.3– 4.1.6 Reassembly instructions!*





### 3.13 Main Antenna Assembly

#### REMOVAL

*Follow the 2.1.1 – 2.1.4 Disassembly instructions!*

Loosen the snap hook using a flex film assembly tool as shown in picture.



Loosen the snap hook using a flex film assembly tool as shown in picture.



Loosen the snap hook using a flex film assembly tool as shown in picture.



Remove the *Main Antenna Assembly* using fingers.



**INSTALLATION**

Position the *Main Antenna Assembly* into the *Frame Cover Assembly*.

Press down to secure the *Antenna Assembly* using fingers and  
*Follow the 4.1.3 – 4.1.6 Reassembly instructions!*







### 3.14 Loudspeaker Box Assembly

#### REMOVAL

Follow the 2.1.1 –2.1.4 Disassembly instructions!

Unlatch the snap hook inserting a flex film assembly tool as shown in picture.



Repeat this step for the other snap hook.



Remove the *Loudspeaker Box Assembly* using a flex film assembly tool.



#### INSTALLATION

Position the *Loudspeaker Box Assembly* using fingers.



Use you thumb and press the *Loudspeaker Box Assembly* into the cavity.

*Follow the 4.1.3 – 4.1.6 Reassembly instructions!*



### 3.15 Camera Lens

#### REMOVAL

*Follow the 2.1.1 –2.1.4 Disassembly instructions!*

Push out the *Camera Lens* using the end of the tweezers.



Remove the *Camera Lens* using a pair of tweezers.



#### INSTALLATION

**BE CAREFUL NOT TO SCRATCH THE CAMERA LENS!**

Position the new *Camera Lens* using a pair of tweezers.



Secure the position using fingers.



Peel off the protection foil of the *Camera Lens* using a pair of tweezers.

*Follow the 4.1.3 – 4.1.6 Reassembly instructions!*

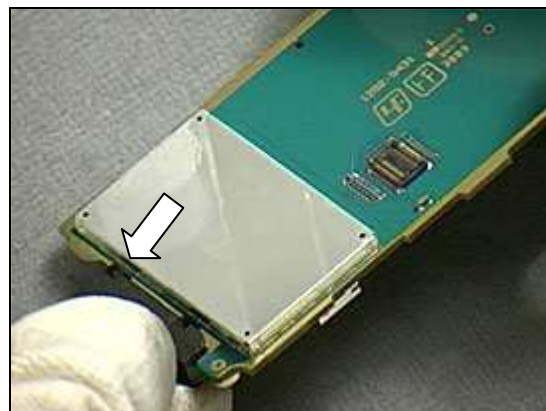


## 3.16 System Connector

### REMOVAL

*Follow the 2.1.1 – 2.1.5 Disassembly instructions!*

Grip with fingers the *System Connector* and pull away from *PCBA*.

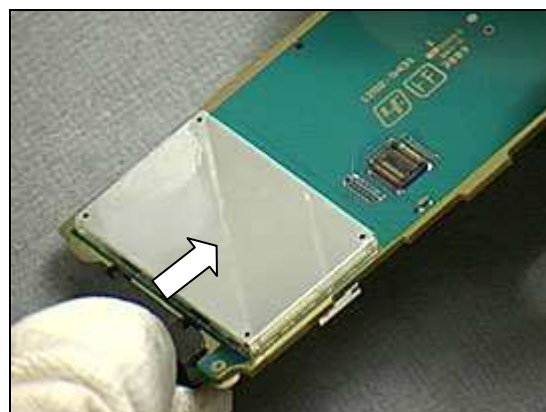


### INSTALLATION

Push *System Connector* into place and secure to *PCBA*.

Visually inspect that the *System Connector* is correctly positioned.

*Follow the 4.1.2 – 4.1.6 Reassembly instructions!*



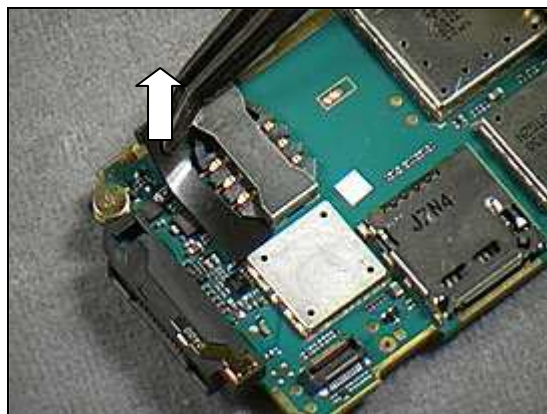


### 3.17 Mylar for Sim Components

#### REMOVAL

*Follow the 2.1.1 – 2.1.5 Disassembly instructions!*

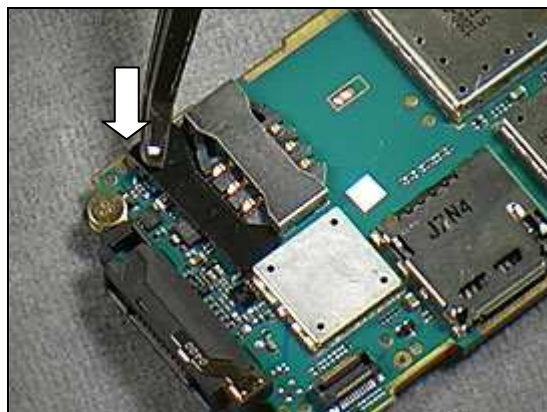
Peel off the *Mylar for Sim Components* using a flex film assembly tool.



#### INSTALLATION

Position the *Mylar for Sim Components* using a flex film assembly tool.

*Follow the 4.1.2 – 4.1.6 Reassembly instructions!*



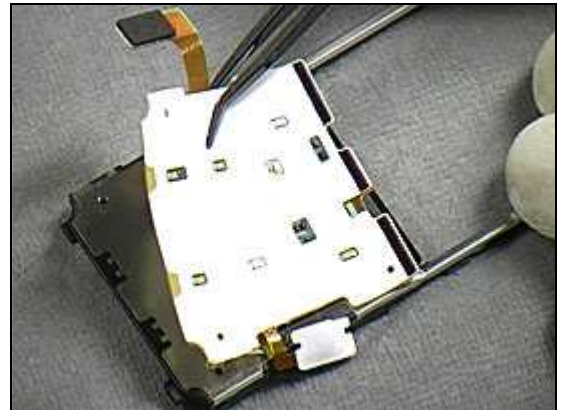
### 3.18 Key Dome Foil FPC Assembly

#### REMOVAL

Follow the 2.1.1 –2.1.5 Disassembly instructions!

**BE CAREFUL NOT TO DAMAGE THE PCBA!**

Remove the *Key Dome Foil FPC Assembly* using a flex film assembly tool.

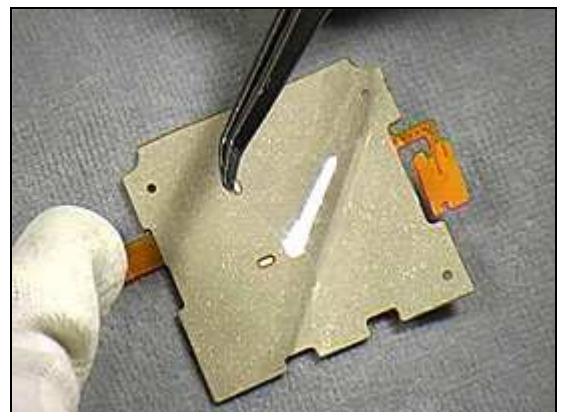


Clean all pads on the PCBA with Isopropyl alcohol.

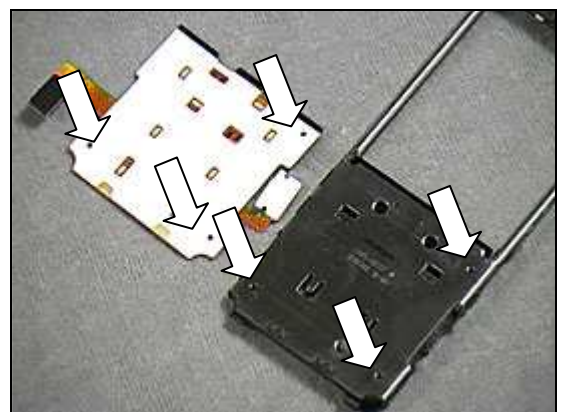


#### INSTALLATION

Peel off the protection foil of the *Key Dome Foil FPC Assembly* using a flex film assembly tool.



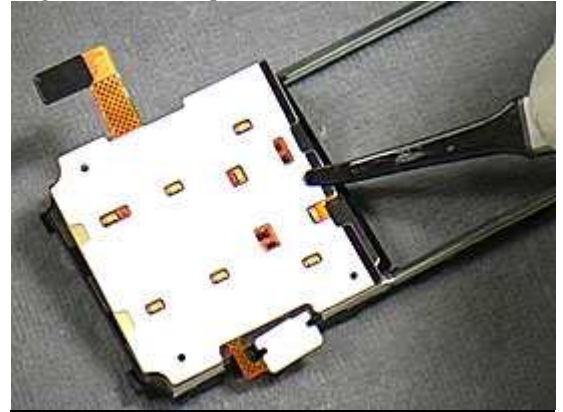
**THE PCBA HAS GUIDING HOLES WHICH SHALL FIT THE DOME FOIL!**





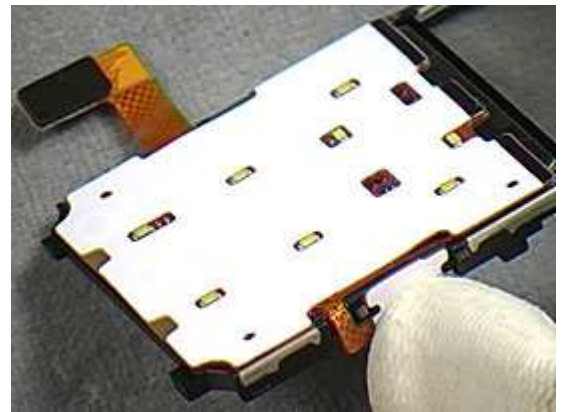


Position the *Key Dome Foil FPC Assembly* using a flex film assembly tool into place and check the guiding holes.



Press down and secure the *Key Dome Foil FPC Assembly* and *Camera Key Pad* to its position.

*Follow the 4.1.2 – 4.1.6 Reassembly instructions!*





## 3.19 Vibrator

### REMOVAL

*Follow the 2.1.1 – 2.1.4 Disassembly instructions!*

Loosen *Vibrator* with tweezers.

Remove with tweezers gripping the side avoiding the metal contacts pins.

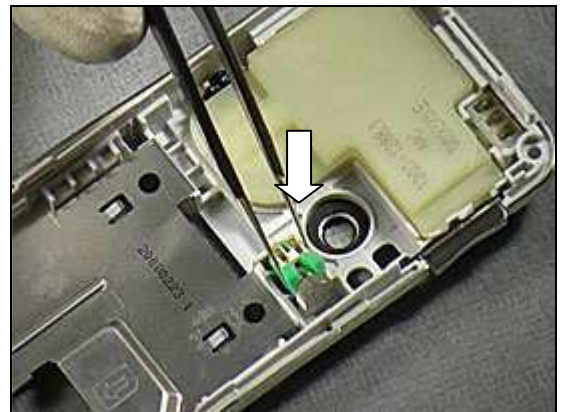
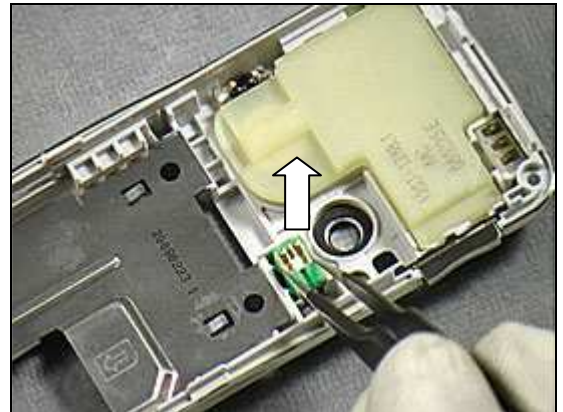
**AVOID TOUCHING METAL CONTACTS!**

### INSTALLATION

Use tweezers to position into place.

Use tweezers and press the *Vibrator* into its cavity.

*Follow the 4.1.3 – 4.1.6 Reassembly instructions!*



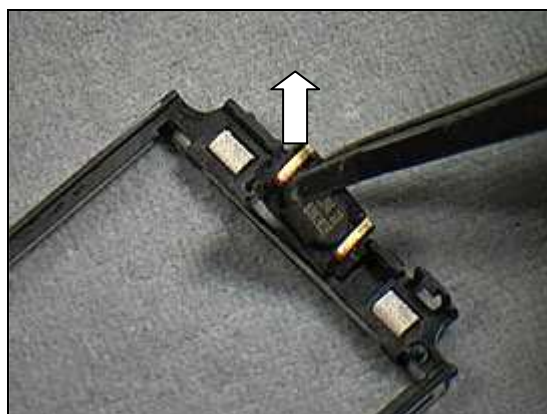
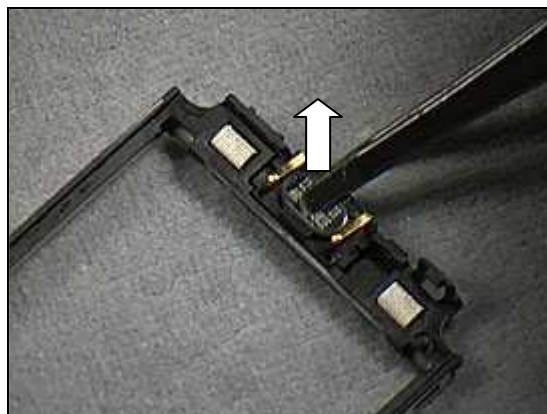
## 3.20 Receiver

### REMOVAL

*Follow the 2.1.1 –2.1.5 Disassembly instructions!*

Push out the *Receiver* using a flex film assembly tool.

**AVOID TOUCHING METAL CONTACTS!**



Remove the *Receiver* using a flex film assembly tool.

### INSTALLATION

Position the *Receiver* using a flex film assembly tool.

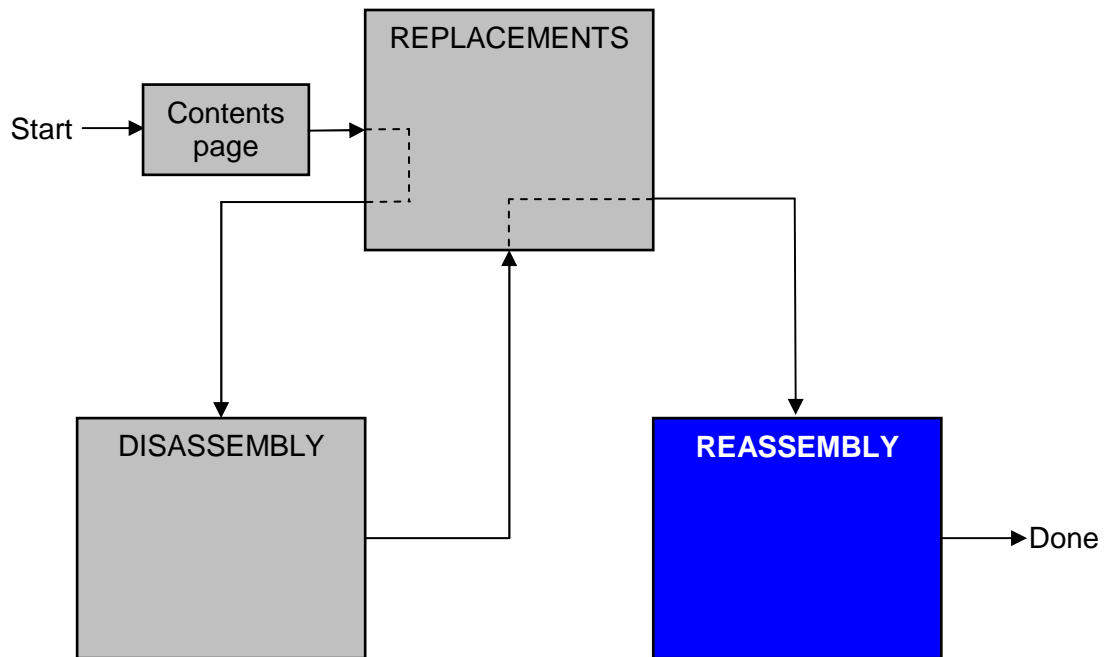
*Follow the 4.1.2 – 4.1.6 Reassembly instructions!*





## 4 Reassembly

After replacing a part being listed in Replacements, the instruction of that section usually ends by directing you to this Reassembly section with a specification of the instructions you have to carry out in order to reassemble the phone.



## 4.1 Overview

The reassembly is done in the following sequence:

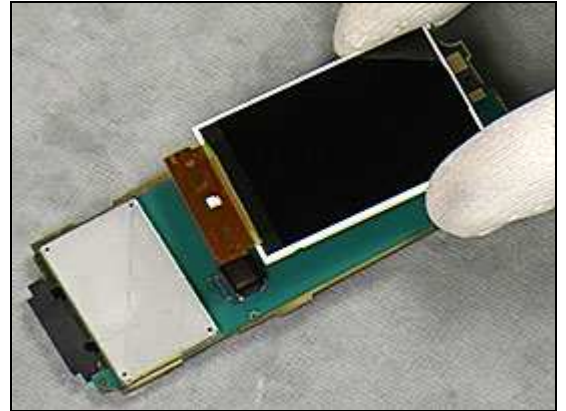
1. Display 1.96 TFT
2. PCBA
3. LCD Frame Assembly and Key Dome Foil FPC Assembly
4. Front Cover Assembly
5. Antenna Cover Assembly
6. Frame Cover Assembly
7. Battery Cover (7a) and Battery (7b)





#### 4.1.1 Display 1.96 TFT

Position the *Display* using fingers.



Press down on *LCD connector* and secure the connection.





## 4.1.2 LCD Frame Assembly and PCBA

Position the *LCD frame assembly* to the *PCBA* using hands.



Press down on each corner to secure the *PCBA* using hands.



Press the *Camera Keypad* to secure the position.



Press down the connector and secure the connection.



## Frame Cover Assembly and PCBA

Place the *PCBA* into bottom position first.  
Lower the top end of the *PCBA* into the *Frame Cover Assembly*.

**BE CAREFUL NOT TO TOUCH OR MARK THE LCD!**

Press down on each corner to secure the *PCBA*.

**CLEAN THE LCD FROM ANY MARKS OR DUST BEFORE ASSEMBLING!**



### 4.1.3 Front Cover Assembly

**MAKE SURE ALL THE SIDE KEYS ARE IN POSITION!**

Place *Front Cover Assembly* using hands.



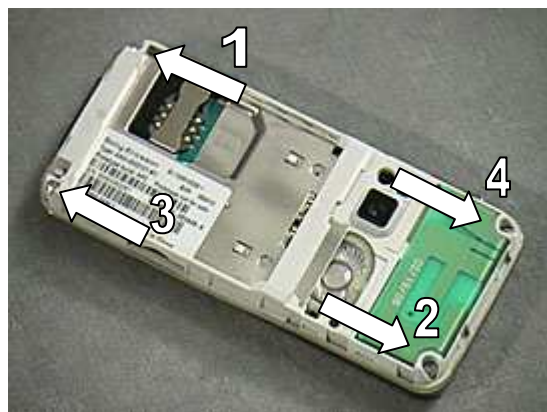
Press on the *Frame Cover Assembly* to secure snap hooks as shown in picture.



Press on *Frame Cover Assembly* to secure snap hooks as shown in picture.



Use **18 Ncm** torque to tighten the four Screws with torx bit no.6.



#### 4.1.4 Antenna Cover Assembly

Place the *Antenna Cover Assembly* into position.



Press down with fingers to secure the *Antenna Cover Assembly*.





### 4.1.5 Battery and Battery Cover

Insert the *Battery* as shown in the picture.



Press the *Battery* into position.



Slide on the *Battery Cover* as shown in the picture.



Secure the *Battery Cover* as shown in picture.





## 5 Revision history

Rev.	Date	Changes / Comments
1	2008-06-14	First release
2	2008-08-25	Update Flex film assembly tool number