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Service Repair Documentation
Level 2 – SF65

Release	Date	Department	Notes to change
1.0	05.01.2005	COM MD CC GRM T	New document
1.1	27.01.2005	COM MD CC GRM T	Small changes

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Introduction

This Service Repair Documentation is intended to carry out repairs on Siemens repair up to level 2. The described failures shall be repaired in Siemens authorized local workshops only.

All repairs have to be carried out in an ESD protected environment and with ESD protected equipment/tools. For all activities the international ESD regulations have to be considered.

Assembling/disassembling has to be done according to the latest SF65 Level 2 repair documentation. It has to be ensured that every repaired mobile Phone is checked according to the latest released General Test Instruction document (both documents are available in the Technical Support section of the C-market).

Check at least weekly C-market for updates and consider all SF65 related Customer Care Information

If you have any questions regarding the repair procedures or technical questions spare not hesitate to contact our technical support team in Kamp-Lintfort, Germany:

Tel.: +49 2842 95 4666
Fax: +49 2842 95 4302
e-mail: st-support@ klf.siemens.de

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1. GPRS (General Packet Radio Service)

GPRS is a new non-voice value added services that allows information to be sent and received across a GSM mobile telephone network. It supplements today's Circuit Switched Data (CSD) and Short Message Services (SMS). GPRS involves overlaying a packet based air interface on the existing circuit switched GSM network. This gives the option to use a packet-based data service. The information is split into separated but related "packets" before being transmitted and reassembled at the receiving end. Theoretically, maximum speeds of up to 171.2 kilobits per second (kbps) are achievable with GPRS using all eight timeslots at the same time. This is about 3 times as fast as the data transmission speed possible over today's fixed telecommunications networks and 10 times as fast as current Circuit Switched Data services on GSM networks.
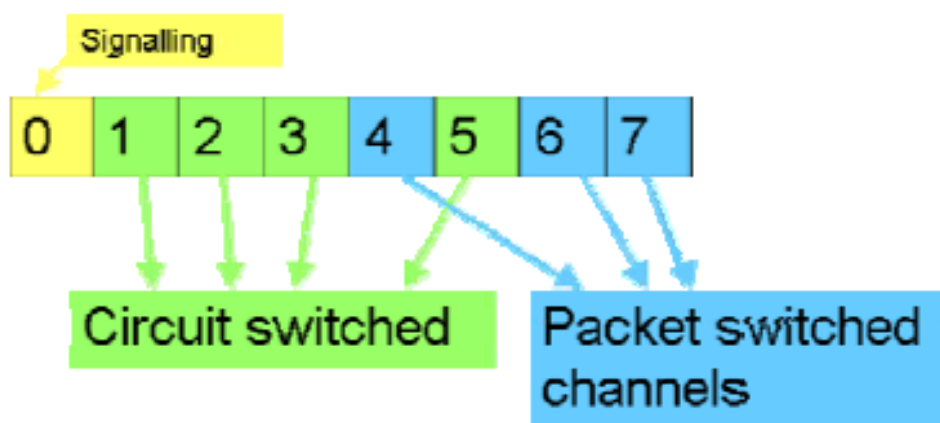

Figure1. Example of GPRS data transmission

Example: Cell with 1 Frequency channel:
1 physical channel for signaling, 4 physical channels for Circuit switched and 3 physical channels for Packet switched.

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2. Key Features

Feature	Description
Frequency	Dual band: 900-1800 MHZ
Power	EGSM-900: Class 4 (2 W) GSM-1800: Class 1 (1 W)
Antenna	Integrated dual band Antenna
Telephony	Codec FR, EFR, AMR
SMS	Class 0, 1, 2 Short Message MT / MO Cell Broadcast Concatenated Messages EMS
SIM Appl. Tool Kit	SIM tool kit supported, further info depends on service provider.
Keypad	0 to 9; *; # 4-contact navigation element (2 soft keys + up / down) refer to MMI specification
Display	65 k color screen.
Illumination	Supported
Physical Details	Size: 91 x 44 x 23 mm (L x W x H) Volume: 86 cm3 Weight: 101,4 g
Interfaces	IRDA & Slim Lumberg for accessory support
Battery type	Li-Ion 660mAh Standby time: Up to 400 hours Talk time: Up to 240 minutes
Melody	Polyphonic technology.
Phone Book	ADN, FDN, SDN, MS-ISDN managed in SIM phone book (SIM dependent). Address book managed in mobile memory.
CPHS	No ALS
Text input	T9 method inside.
Phone No. Memory	Supported: Call list contains all numbers: Incoming, outgoing, missed calls.
Voice Recognition	Supported: Speaker dependent.
Echo cancellation	Supported
Noise reduction	Supported

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3. Accessories

For SF65, the following accessories will be available.

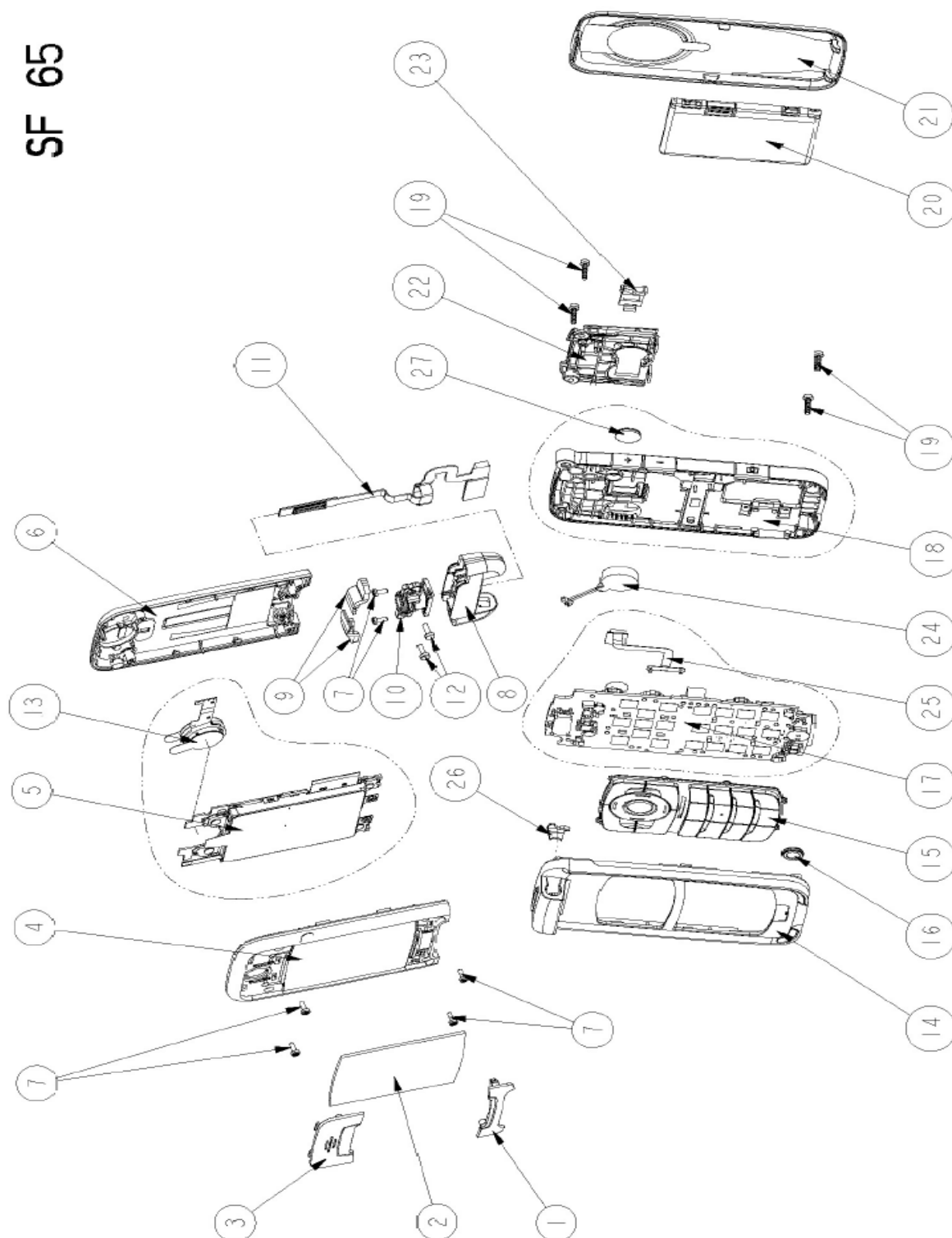| Description	Part number
Power Suppply EU with Service Packaging Material	L36280-Z4-C404
Power Suppply UK with Service Packaging Material	L36280-Z4-C405
Travel Charger EU ETC-500	L36880-N5601-A104
Travel Charger EU ETC-510	L36880-N5601-A105
Headset HHS-500	L36880-N5601-A107
Headset PTT HHS-510	L36880-N5601-A108
Car Kit Portable HKP-500	L36880-N5601-A109
Data Cable USB DCA-510 (Seriell-USB)	L36880-N5601-A111
Tour Case FCT-650	L36880-N5601-A149
Car Charger Plus ECC-600	L36880-N7101-A109
Headset PureStyle HHS-610	L36880-N7101-A500
Battery Li-Ion 660mAh SF65	L50645-K1310-X319
Battery Cover SF65 Polar white	L560658-A157-A15
Battery Cover SF65 onyx black	L560658-A157-A34

- Accessories availability depends on Siemens marketing policy
- Note : Please refer always to Communication-Market, in order to get the latest status in terms of prices , parts ,accessories (including second colour Onyx Black)

  https://communication-market.siemens.de

4. Exploded View

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Ref. Nr.	Description	Part Number	R. Level	Qty
1	Menu Key SF65 Silver	L50658-A157-A1	1	1
2	Display Window SF65	L50658-A157-A2	1	1
3	Switch Zoom Key SF65 silver	L50658-A157-A3	1	1
4	Flip Frontcase without Earphone SF65 polar white	L60658-A157-A4	1	1
5	LCD Module Assy with Earphone SF65	L50680-Q7360-M1	1	1
6	Flip Rearcase SF65 Polar White	L60658-A157-A5	1	1
7	Screw 14X4 Torx Plus 6IP silver SF65	L50658-A157-A6	1	6
8	Hinge Body SF65 polar white	L50658-A157-A7	1	1
9	Hinge Cover SF65 polar white	L50658-A157-A8	1	2
10	Rotary Metal Hinge SF65	L50658-A157-A9	1	1
11	Flexible PCB Assembly SF65	L50680-Q7360-F1	1	1
12	Screw Torx Plus-6IP M1.6X4.4mm SF65	L50658-A157-A10	1	2
13	Earphone SF65	L50604-F3090-X923	2.5	1
14	Base Upper Case Shell without keypad SF65 polar white	L50658-A157-A11	1	1
15	Keypad SF65 polar white	L50658-A157-A12	1	1
16	Microphone SF65	L50654-Z6-C117	1	1
17	RF Control Board Sf65 w. Camera Flash	L36880-Q7360-U10	2	1
18	Mounting Frame with Camera Glass,w/o Vibra,w/o Camera Gasket SF65 silver	L50658-A157-A19	1	1
19	Screw Torx Black SF65	L50658-A157-A14	1	4
20	Battery Li-Ion 660 mAh SF65	L50645-K1310-X319	0	1
21	Battery Cover SF65 polar white	L50658-A157-A15	0	1
22	Antenna with Connectors SF65	L50651-Z1901-A57	1	1
23	Camera Gasket SF65	L50658-A157-A16	1	1
24	Vibra Unit SF65	L50653-Z5-C302	1	1
25	Flexible Camera Flash Assembly SF 65	L50680-Q7360-F2	2.5	1
26	Base Upper Case Cap SF65 polar white	L50658-A157-A17	1	1
27	Camera Glass Assembly SF65	L50658-A157-A18	1	1
	IRDA Communication Module SF65	L50610-U6189-D670	2.5	1
	Sensor Hall SF65	L50610-U6190-D670	2.5	2
	Side Tact Switch SF65	L50615-Z77-C257	2.5	3
	Backup Battery SF65	L50628-F2705-Z1	2.5	1
	Display Connector – Board to Board Connector SF65	L50634-Z97-C58	2.5	2
	Battery Connector SF65	L50634-Z97-C59	2.5	1
	Vibra Connector SF65	L50634-Z97-C63	2.5	1
	System Connector SF65	L50634-Z97-C64	2.5	1
	White Led SF65	L50640-L2119-D670	2.5	8
	LED Red/Green Light Design SF65	L50640-L2125-D670	2.5	1

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5. Disassembly of SF65

Note: ESD concept; the internal circuits will be more susceptible to ESD during the housing exchange.The construction of the internal block is designed , in the best possible way, to protect the circuit against sparks.
The keypad must be completely closed to prevent any occurence of an ESD disruptive discharge.

It is a requirement for the service personnel to observe ESD protection rules while performing service on SF65.

Disassembly tools :

Name	Part Number
Tweezers	XXXXXXXXXXXX
Torque-Screwdriver	F30032-P228-A1
Opening tool	F30032-P38-A1
Hinge Tool CF62	F30032-P371-A1

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Release the battery cover (using your finger)

Shift the cover (be careful with plastic pin)

Take out the battery pack by releasing the 2 fingers from their catchs and lifting the battery Upward from the strip.
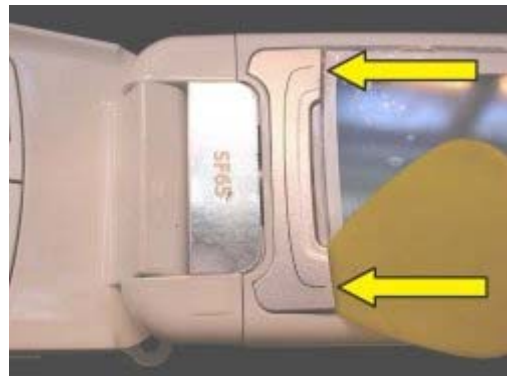
Remove the menu key by lifting it upward with a plastic tool

Remove the zoom key by lifting it upward

Unscrew the four screws of the flip front case

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|	
Separate the flip front case from the flip rearcase	Open the covers (be careful, earphone is sticked on the top and bottom)
Unscrew the two screws of the LCD module	Lift the LCD module, unplug the flexible PCB assembly on the bottom side
Unscrew the four screws of the mounting frame	Release the antenna with connectors by pushing the antenna fixing fingers
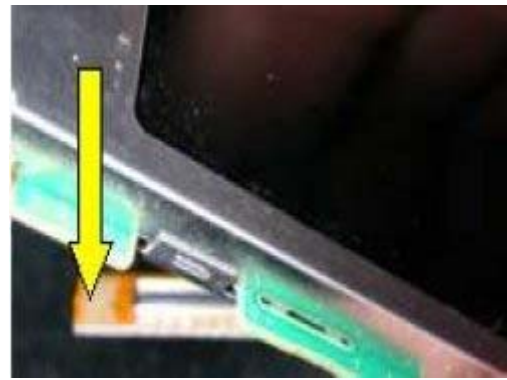
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Take out the camera gasket with tweezers
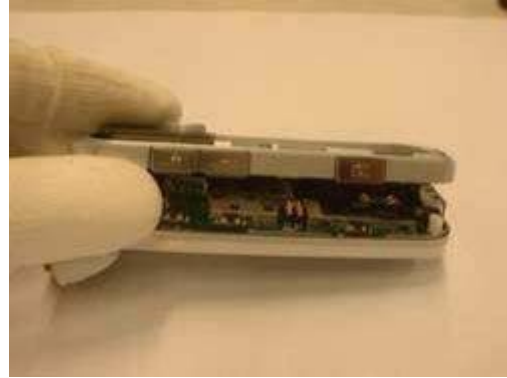
Take apart the mounting frame from the base upper case shell (Attention to the flexible camera flash assembly and the vibrator connection)
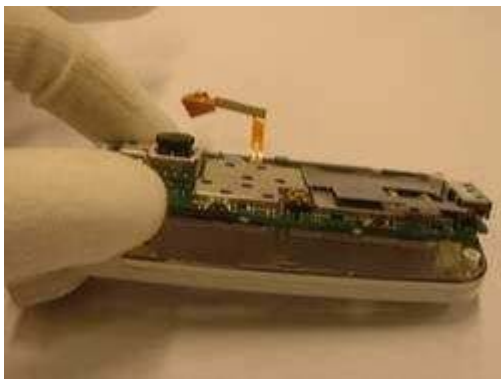
Remove the PCB assembly by lifting it straight up
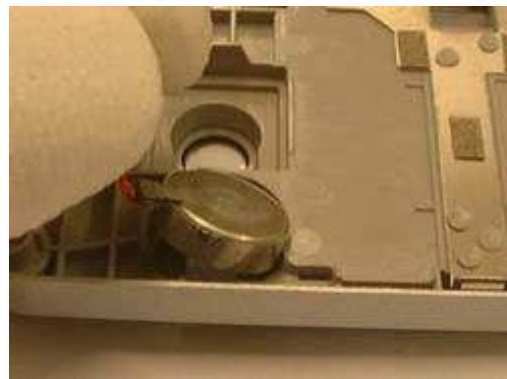
Remove the vibrator from the Mounting frame
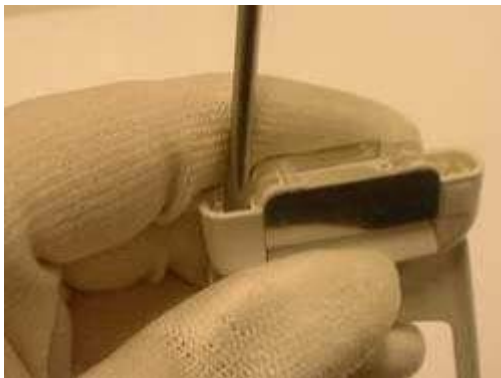
Place the hinge assembly tool into body hinge´s hole, against the springhead and push it in

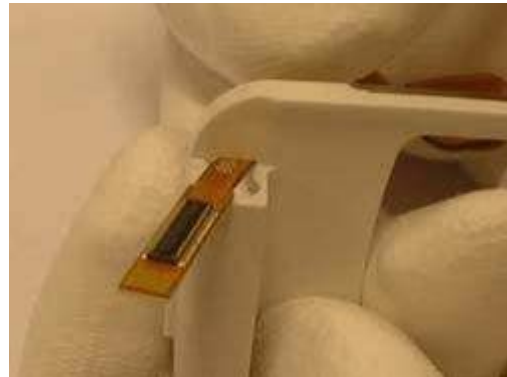Hold spring compressed in the hinge. When the hinge is released, remove the hinge body

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Carefully pull out the flex (pay attention not to damage it)

Direction of the flex cable : down to up

If necessary push with a plastic tool to release the flex cable
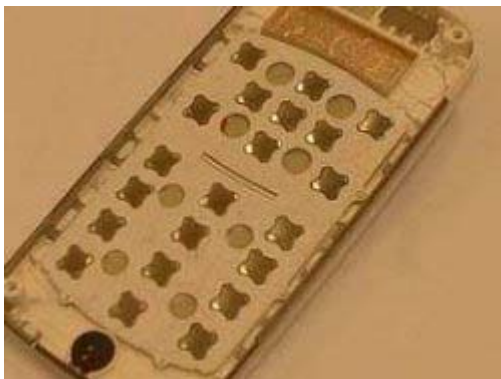

Removal of the flex cable

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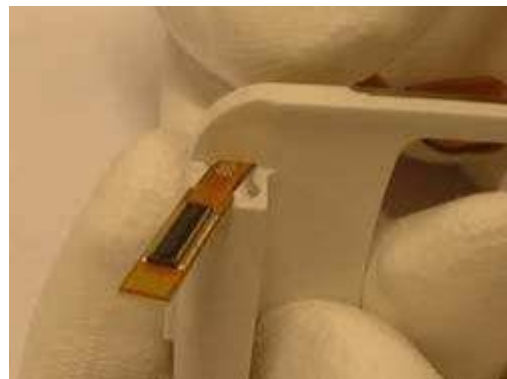Level 2 – SF65

6. Assembly of SF65

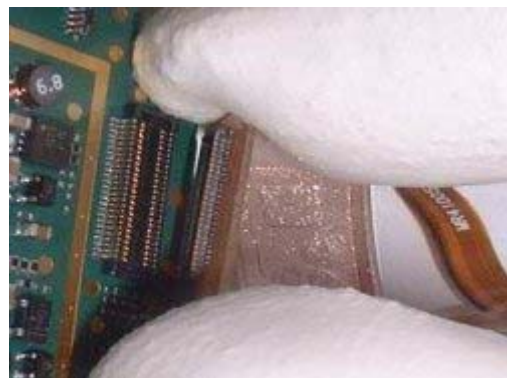|	
Place the Base Upper Case Shell on a flat place	Place the microphone with tweezers
Take a new keypad,remove the safety foil, place it into base upper case shell, taking care of the 8 positionning pins	Insert the flex cable into the base upper case shell
Place the white cap next to the screw bording	Plug the flexible PCB assembly into the B2B connector

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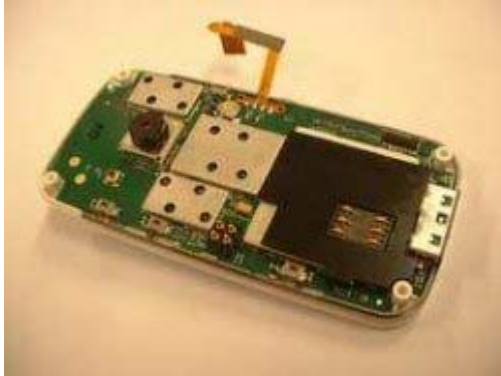
Place the PCB assembly into the base upper case shell
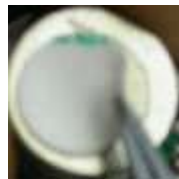
Remove the foil from the vibrator and stick it into the mounting frame
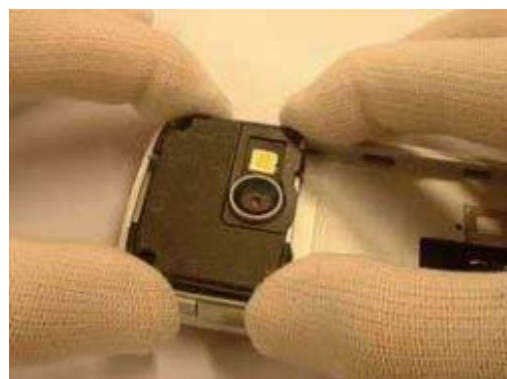Connect the vibrator to the PCB assembly

Thread in the flexible camera flash assembly to the mounting frame

Adjust the flex camera flash
Clamp together the phone, press in the middle and then on the four corners to avoid breaking side buttons

Place the camera gasket on the flashlight

Clamp the antenna onto its place

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Screw the four black screws (M1.8*6.5 Screw Torx black SF65) of the mounting frame
Torque : 18 cNm

Thread in the flexible PCB assembly into the hinge body

Lift the Hinge Body on the edge of the Base Upper Case Shell.
With the help of a screw driver clamp the Hinge body to its place
Clamp the Hinge Body parallel with the phone

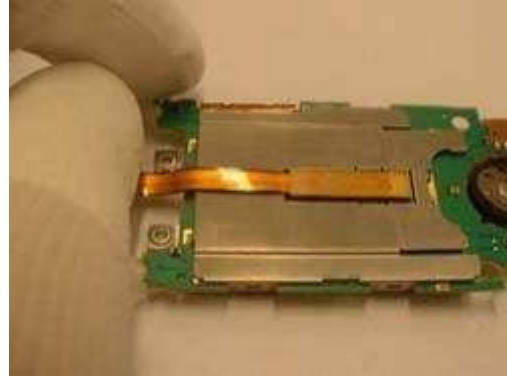Bend in the flex to the hinge body anti-clockwise (using tweezers)

Thread in the flex, place the rotary hinge metal in such a way that it musn´t get to the side of the keypad with its arched surface

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 Fix the rotary metal hinge with the two silver screws (M1.4*4 screws silver SF65) Torque : 9 cNm	 Connect the flexible PCB assembly to the LCD and fix it (Check the connection carefully)
 Place the LCD module into the flip rearcase The LCD module has to be seated into the positionning points	 Screw in the LCD module (M1.6*4.4 screws Yellow)Torque : 9 cNm
 Remove the safety foil from the inner side of the earphone, stick it into its place	 Place the flip front housing and press hefty (press on top , then bottom and middle)

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Screw together (the screwing has to be done cornerwise)
(M1.4*4 Screws black SF65)Torque : 10 cNm

Place the upper part of the zoom key and then press hefty to fix it.

Place the menu key and press strongly
(Take care not to break down the snapping fingers)

Turn the flip of the phone by 90°
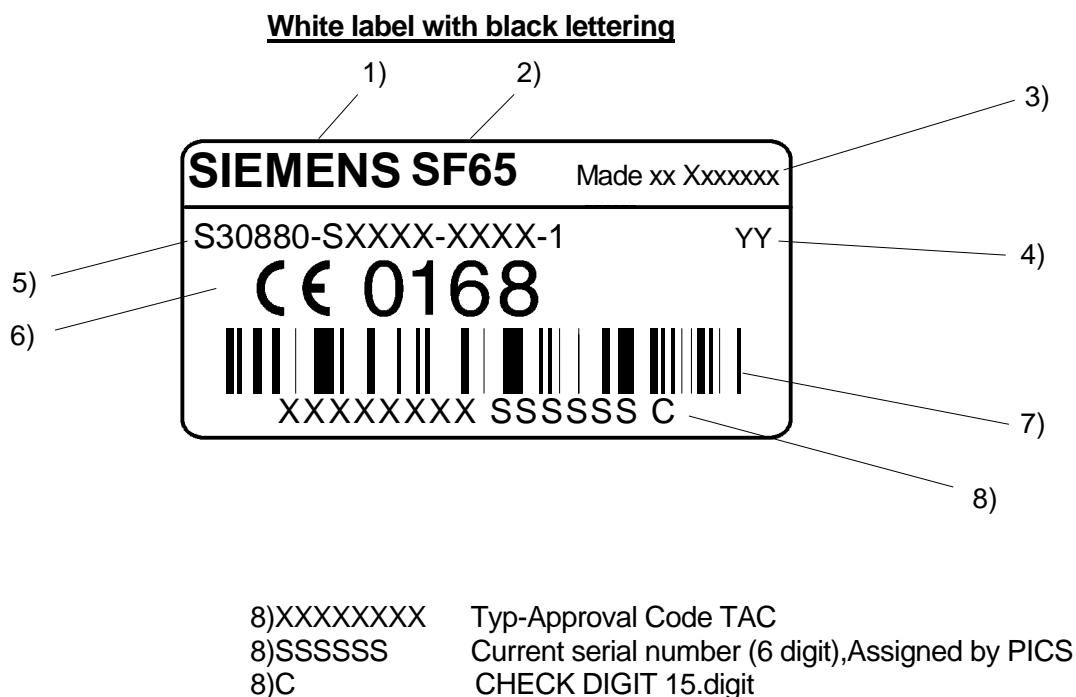Place the two hinge covers into their place

Insert the battery as shown

Snap on the battery cover

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7. IMEI Label Description

White label with black lettering

|		
8)XXXXXXXX	Typ-Approval Code TAC
8)SSSSSS	Current serial number (6 digit),Assigned by PICS
8)C	CHECK DIGIT 15.digit

1) Corporate logo :
2) Product name :
3) Made in Hungary :
4) Code of date : (See table below)
5) Code number of Transceiver
6) CE-identification :
7) Barcode IMEI-No.:
8) IMEI-No. (plain writing)

Explanation of Code of date

Year	Date Code	Month	Date Code
2003	R	January	1
2004	S	February	2
2005	T	March	3
2006	U	September	9
2007	V	**October**	**O**
2008	W	**November**	**N**
2009	X	**December**	**D**

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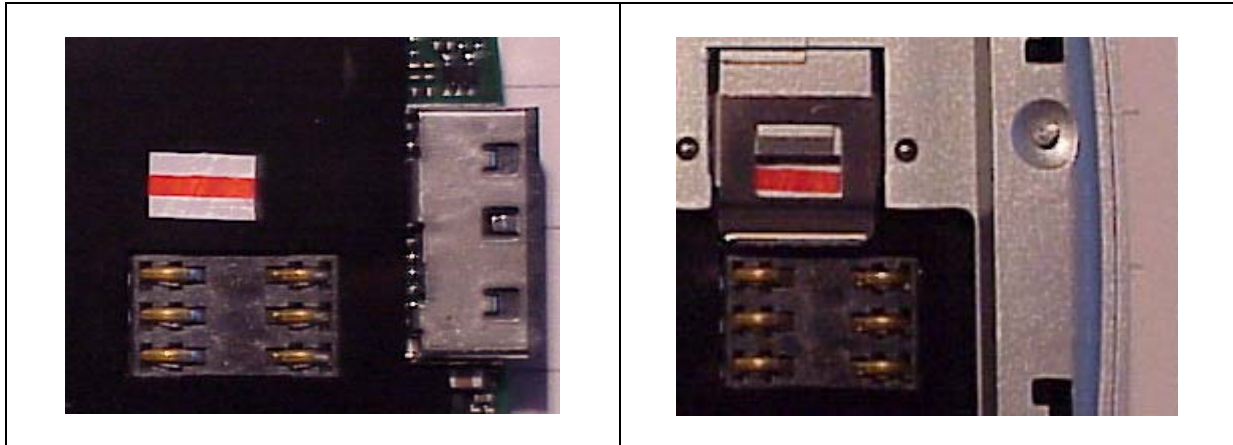
8. Water Indicator

- Water-indicator on main board
- Water-indicator visible through holder window

☞ The position of the Water-Indicator had been defined the way that it is possible to read out the status of the water-Indicator within level0.In case that a walk-in shop has been used as service-channel, the endcustomer shall be confronted directly – if colour of Water-Indicator has turned to pink! In a further step the mainboard shall be checked for any signs of oxidation.The result shall be used as proof of evidence towards the endcustomer.In that case the mobile phone shall not be accepted as in-warranty,but shall be considered as Damage Caused by customer.

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