

Repair Manual

Gigaset C450, C455, CX450isdn

up to level 2.5



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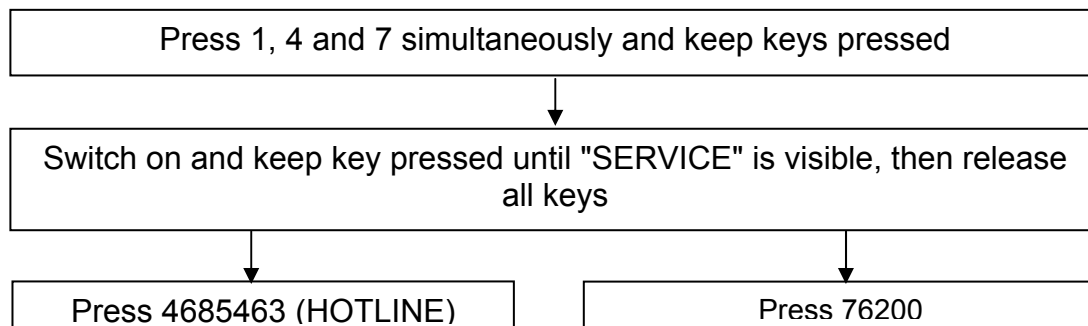
2 Procedures

Hidden service procedures for the handset and base stations.

Note: The service procedures are confidential.

2.1 Service procedures for Gigaset C45 handset

Read out IPUI of the handset (for identification purposes): menu-key, *, #, 0, 6, #



This code performs a fundamental reset on the handset. All settings are reset to factory defaults. Handset is still registered to base.

Service-menu is displayed with following items:
[SW-version](#), [QS-data](#), [Speechpath test](#), [Battery mode](#), [DSP-parameters](#), [Metering mode](#),
[Measure time](#), [Working time](#), [SAR](#).
 Red items are only for Development Department or Quality Assurance and not explained here!

[SW-version](#): Read out SW-version and IPUI (international portable user identity) of handset. IPUI is a unique number (like IMEI) that could be used for identification.

[Speechpath-test](#): Switches a direct loop between microphone and loudspeaker. This enables a check of the speechpath by blowing in the microphone.

[Metering mode](#): Press o.k. to activate an information line during normal operation mode and leave the service menu afterwards.

Example: 100 - 0 - 02 - 016 - 100
 RX-level - Frequency - Time slot - Base code - Bit error rate (100 = 100% o.k.)

[Measure time](#): Changes the measure time of the metering mode (change is not necessary).

[Working time](#): Read out the time for which the handset has been switched on.
 Example: 100h means handset has been switched on for 100 hours.
 The counter can only be reset at WSC.

2.2 Service procedures for Gigaset C450 and 455

Press: "menu-key", 4, 3, 9, X, Setting: Service Pin = 76200 (if required), Y, option (see table), o.k.

Pos. acknowledge tone (rising sequence of notes) = Procedure has been accepted.

X / Y	Action	Options / description	Setting
1 / 1	Dial mode	0 = MFV (Tone) 1 = IWW (Pulse)	Customer (no PIN input)
1 / 2	Flashtime	0 = 80ms 1 = 100ms 2 = 120ms 3 = 180ms 4 = 250ms 5 = 300ms 6 = 600ms 7 = 800ms	Customer (no PIN input)
1 / 3	Barge In	0 = off 1 = on	Customer (no PIN input)
1 / 4	Pause after signalling (exchange) key	1 = 800 ms 2 = 1600ms 3 = 3200 ms	Customer (no PIN input)
1 / 6	ADA on / off	0 = off 1 = on	Customer (no PIN input)
1 / 7	Time for end-of-call	0 = 4 seconds 1 = 5.5 seconds 2 = 7 seconds 3 = 11 seconds 4 = 2.5 seconds	Customer (no PIN input)
1 / 8	Hookflash prevention	0 = 800 ms 1 = 2000 ms	Customer (no PIN input)
1 / 9	Pause after line seizure	1= 1 second 2 = 3 seconds 3 = 7 seconds	Customer (no PIN input)
2 / 5	suppress First call if SMS is activated	0 = no 1 = yes	Customer (no PIN input)
2 / 6	Switch SMS functionality (does not affect menus or list entries) If the SMS function is turned off, all SMS menu entries in the MWI list are not visible. The local SMS menu entries in the handset are visible, however they can not be entered. An NQ-Tone is generated.	0 = Off 1 = On	Customer (no PIN input)
2 / 8	CLIP Russia: Mode	0 = manuel mode 1 = automatic mode	Customer (no PIN input)
2 / 9	CLIP Russia: Number of CLIP digits (1-7) are shown (Not in BS with AM)	0 = CLIP Russia function off 1-7 = Number of CLIP digits	Customer (no PIN input)

3 / -	PIN Reset		Service PIN
4 / 1	Write to EEPROM address	coded string consists of 15 bytes and holds checksum, mask, data, offset and segment	Service PIN
4 / 2	Version display	Sample display: "0103200 00000" 12-digit Meaning: Variante 2-digit "01" Version 3-digit "032" Revision 2-digit "00" space User ID 3-digit "000" Localincrement "00" All decimal	Service PIN
4 / 3	Ring detection frequency	0 = 20-60 Hz 1 = 15-75 Hz 2 = other factory setting	Service PIN
4 / 4	DP behavior pulse pause	0 = 1.5 : 1 1 = 2 : 1	Service PIN
4 / 5	CLIP list activated	0 = on 1 = off	Service PIN
4 / 6	Off-hook CLIP activated	0 = off 1 = on	Service PIN
5 / 5	Switch AM Novox detection on / off	0 = detection is on 1 = detection is off	Service PIN
6 / 5	Approval test	will stay activated until power on reset	Service PIN

Service Settings:

Read out service settings of the base via handset at an external call (Hotline feature).

Preconditions:

Line seized, number dialled and connection is established for at least 8 seconds.

Press softkey "options", select "service info" and confirm with "o.k."

1: RFPI of base station

2: IPUI of current handset (read from the base station EEPROM)

3: Byte 1: registered handsets (lowest 6 bits)
 Byte 2: Repeater mode (highest bit), space, dial mode (2 bits), space, flash time (3 bits) → see description below
 Byte 3 and 4: working time counter

Description byte 3:

Flash time (ms): 0=80, 1 = 100, 2=120, 3=180, 4=250, 5=300, 6=600, 7=800

Dial mode: 0=Tone, 1=Pulse, 2=Tone-Earth

Repeater mode: 1=on, 0=off

DECT Subscription places: for each bit: 1=subscribed 0=empty

4: SW-Version: Variant[2] Version[3] Revision[2] User_ID[3] Local increment[2].

Fundamental reset:

Disconnect mains. Press paging key on base station and hold down.

Plug in AC- adapter. Hold key pressed for more than 3 seconds.

Release paging key. The base station is now set to factory defaults.

The system-PIN is reset to 0000 and all mobile units are deregistered.

If a **handset** was registered only to this base station before the reset, it can be **registered automatically after a location update** with the base station (after appr. 30 seconds or after picking up the handset (off hook key)).

2.3 Service procedures for Gigaset CX450 isdn

Press: Menu-key >> Settings >> OK >> Base Station >> OK >> 9 >>
 (X) >> 76200 (optional) >> (Y)
 (X and Y view table)

Pos. acknowledge tone (rising sequence of notes) = Procedure has been accepted.

<p>1-1 Function Pause after Access code and Length of dial pause ("P") X= 1 Y= 1</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1 second</td> <td rowspan="4">Customer (no PIN input)</td> </tr> <tr> <td>2</td> <td>2 second</td> </tr> <tr> <td>3</td> <td>3 second</td> </tr> <tr> <td>4</td> <td>6 second</td> </tr> </tbody> </table>	Options	Description	Settings	1	1 second	Customer (no PIN input)	2	2 second	3	3 second	4	6 second
Options	Description	Settings											
1	1 second	Customer (no PIN input)											
2	2 second												
3	3 second												
4	6 second												
<p>1-2 Function Pause after signalling key X= 1 Y= 2</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>800 ms (Default)</td> <td rowspan="3">Customer (no PIN input)</td> </tr> <tr> <td>2</td> <td>1600 ms</td> </tr> <tr> <td>3</td> <td>3200 ms</td> </tr> </tbody> </table>	Options	Description	Settings	1	800 ms (Default)	Customer (no PIN input)	2	1600 ms	3	3200 ms		
Options	Description	Settings											
1	800 ms (Default)	Customer (no PIN input)											
2	1600 ms												
3	3200 ms												
<p>1-3 Function ADA on / off X= 1 Y= 3</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>off delivery state</td> <td rowspan="2">Customer (no PIN input)</td> </tr> <tr> <td>1</td> <td>on</td> </tr> </tbody> </table>	Options	Description	Settings	0	off delivery state	Customer (no PIN input)	1	on				
Options	Description	Settings											
0	off delivery state	Customer (no PIN input)											
1	on												
<p>1-4 Function Time for end-of-call X= 1 Y= 4</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4 seconds</td> <td rowspan="4">Customer (no PIN input)</td> </tr> <tr> <td>1</td> <td>5.5 seconds</td> </tr> <tr> <td>2</td> <td>7 seconds delivery state</td> </tr> <tr> <td>3</td> <td>11 seconds</td> </tr> </tbody> </table>	Options	Description	Settings	0	4 seconds	Customer (no PIN input)	1	5.5 seconds	2	7 seconds delivery state	3	11 seconds
Options	Description	Settings											
0	4 seconds	Customer (no PIN input)											
1	5.5 seconds												
2	7 seconds delivery state												
3	11 seconds												
<p>1-5 Function Hookflash prevention X= 1 Y= 5</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>800 ms</td> <td rowspan="2">Customer (no PIN input)</td> </tr> <tr> <td>2</td> <td>2000 ms delivery state</td> </tr> </tbody> </table>	Options	Description	Settings	1	800 ms	Customer (no PIN input)	2	2000 ms delivery state				
Options	Description	Settings											
1	800 ms	Customer (no PIN input)											
2	2000 ms delivery state												
<p>1-6 Function Pause after line seizure X= 1 Y= 6</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1 seconds</td> <td rowspan="3">Customer (no PIN input)</td> </tr> <tr> <td>2</td> <td>3 seconds (Default)</td> </tr> <tr> <td>3</td> <td>7 seconds</td> </tr> </tbody> </table>	Options	Description	Settings	1	1 seconds	Customer (no PIN input)	2	3 seconds (Default)	3	7 seconds		
Options	Description	Settings											
1	1 seconds	Customer (no PIN input)											
2	3 seconds (Default)												
3	7 seconds												
<p>1-7 Function Music on hold X= 1 Y= 7</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>off</td> <td rowspan="2">Customer (no PIN input)</td> </tr> <tr> <td>1</td> <td>on</td> </tr> </tbody> </table>	Options	Description	Settings	0	off	Customer (no PIN input)	1	on				
Options	Description	Settings											
0	off	Customer (no PIN input)											
1	on												

<p>1-8 Function Read customer setting</p> <p>X= 1 Y= 8</p>	Options	Description	Settings								
	Sample Display	0XXXXX-0-0-4	Customer (no PIN input)								
	6*1 digit "Subscription"	X >> not subscribed 0 >> subscribed									
	1 digit "Repeater mode"	0 = off 1 = on									
	1 digit "Dial mode"	0 >> Multifrequency 1 >> Pulse dial 2 >> Multifreq. + earth									
	1 digit "Flash time"	0 >> 80 ms 1 >> 100 ms 2 >> 120 ms 3 >> 180 ms 4 >> 250 ms (def.) 5 >> 300 ms 6 >> 600 ms 7 >> 800ms									
	Example:	0XXXXX-0-0-4									
		0XXXXX	6 registration places 1 occupied (0)								
		-0-0-4									
		0	Repeater Mode "off"								
	0	Dail mode "Multifr."									
	4	Flash time 250ms									
<p>1-9 Function Suppress first call if SMS is activated</p> <p>X= 1 Y= 9</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>no</td> <td rowspan="2">Customer (no PIN input)</td> </tr> <tr> <td>1</td> <td>yes</td> </tr> </tbody> </table>			Options	Description	Settings	0	no	Customer (no PIN input)	1	yes
Options	Description	Settings									
0	no	Customer (no PIN input)									
1	yes										
<p>1-0 Function RFPI Display (Basic-ID)</p> <p>X= 1 Y= 0</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>Sample display</td> <td>0000203566</td> <td>Customer (no PIN input)</td> </tr> </tbody> </table>			Options	Description	Settings	Sample display	0000203566	Customer (no PIN input)		
Options	Description	Settings									
Sample display	0000203566	Customer (no PIN input)									
<p>2-1 Function Voice Prompt Language 1 only AM variants</p> <p>X= 2 Y= 1</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>not in all countrys possible</td> <td></td> <td>Customer (no PIN input)</td> </tr> </tbody> </table>			Options	Description	Settings	not in all countrys possible		Customer (no PIN input)		
Options	Description	Settings									
not in all countrys possible		Customer (no PIN input)									
<p>2-2 Function Voice Prompt Language 2 only AM variants</p> <p>X= 2 Y= 5</p>	<table border="1"> <thead> <tr> <th>Options</th> <th>Description</th> <th>Settings</th> </tr> </thead> <tbody> <tr> <td>not in all countrys possible</td> <td></td> <td>Customer (no PIN input)</td> </tr> </tbody> </table>			Options	Description	Settings	not in all countrys possible		Customer (no PIN input)		
Options	Description	Settings									
not in all countrys possible		Customer (no PIN input)									

2-3 Function Voice Prompt Language 3 only AM variants X= 2 Y= 5	Options	Description	Settings
	not in all countrys possible		Customer (no PIN input)

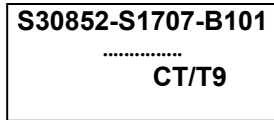
Service functions during a external call: Presupposition: After starting the external call the menu needs 8 seconds to switch. After that the menu-entry "Service Info" is available.	
During a call: <i>Menu >> Service Info</i>	Choice with the control key up or down: 1. 0075638C20 <i>RFPI Base station</i> 2. 0075FDE156 <i>IPUI handset</i> 3. 10000000400693 <i>Call center monitor code</i> 4. 0202800 00000 <i>SW-version base station</i>

Fundamental reset:

Disconnect mains. Press paging key on base station and hold down.
 Plug in AC- adapter. Hold key pressed for more than 3 seconds.
 Release paging key. The base station is now set to factory defaults.
 The system-PIN is reset to 0000 and all mobile units are deregistered.

If a **handset** was registered only to this base station before the reset, it can be **registered automatically after a location update** with the base station (after appr. 30 seconds or after picking up the handset (off hook key)).

3 Lasered imprint and sticker on microprocessor

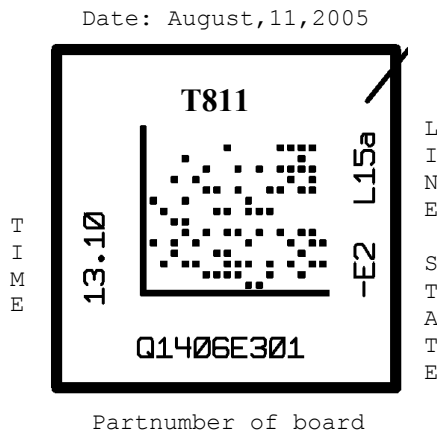


These are the 2 important numbers on the info sticker.
The first number shows the type of the phone.

- Example:
- **S30** means **new** component
 - S36** means **swap** component
 - 852 stands for analogue Gigaset
 - S17xx means Portfolio 2005 (here: 1707 = handset for C455 base).
 - The following **2 characters** indicate the **country**.
 B1 means Germany (Siemens); A1 means Germany (PTT)
 C1 Austria, C4 Australia, N1 France, V1 Ireland, K1 Italy,
 S2 Poland, S3 Russia, S7 Hungary, B4 Turkey, L1 UK,
 F1 Switzerland, M1 Netherlands, D1 Spain,
 - The following character shows the variant.
 Euro-PTT-Version, Base with Classic-/ Comfort handset...
 - The last character indicates the colour.

The second number indicates the date of production.
 CT stands for Bocholt.
 The next character shows the year of production.
 S = 2004, T= 2005 ...
 The last character shows the month of production.
 1-9 = January to September
 O = October
 N = November
 D = December

Sticker on Microprocessor:



4 Test setup recommendation

- Gigaset 4170 or 4175 to be used as a PBX
- Gigaset handset which is registered on Gigaset 4175
- Gigaset C450 base station to test customer's handset
- Gigaset C45 handset to test customer's base station
- 2 multimeters:
 - 1 voltmeter to measure the PSTN line voltage of the customer's base
 - 1 amperemeter to measure the AC-current of the AC-adaptor connected to the customers base station
- 2 modified cables:
 - 1 AC adaptor where the cable is opened (cut off) for the amperemeter
 - 1 Mini-Western PSTN cable with a parallel cable for the voltmeter

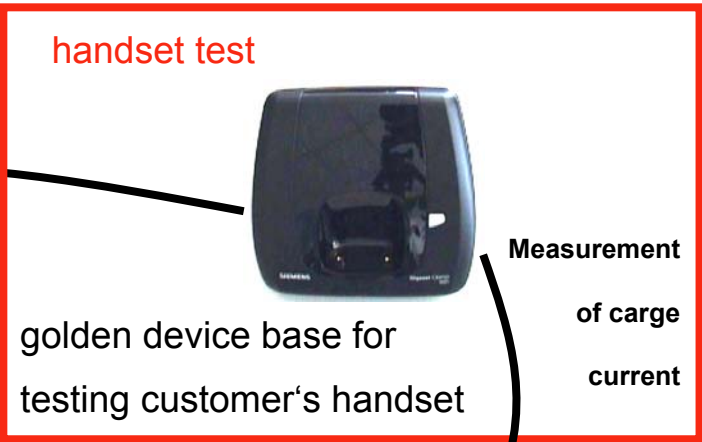
See next page for the setup.



Handset is registered to G4175



Connection for corded phones under the bottom of G4175



handset test

golden device base for testing customer's handset

Measurement of charge current



golden device handset for testing customer's base station

system or base station test

customer's system



Measurement of PSTN voltage



Measurement of AC-adaptor current



Prepared power supplies (1 wire opened for current measurement)

4.1 Test steps handset

- Try to verify the customer's fault description. If necessary perform a long term test (sporadic problems (e.g. RF) or charging problems).
- Complete test (e.g. if no customer's fault description available)
- Switch the customer's handset on.
- Check function of display.
- Register handset on golden device base station.
- Set up an external call to the test handset that is registered to the G4175.
- Do an audio test in transmit and receive direction (speech).
- Check if the handset switches on hook when putting it in the charger.
- Control the charging current with the help of the customer's base station or use the appropriate golden device base station / charger.
Current consumption in charger is appr. 160-170 mA. If a base is used for test: Add the normal current consumption of the base station to the charge current.
- Do a ringer test on customer's handset by receiving an incoming call.
- Test the RF-range of the customer's handset by walking to a marked line.

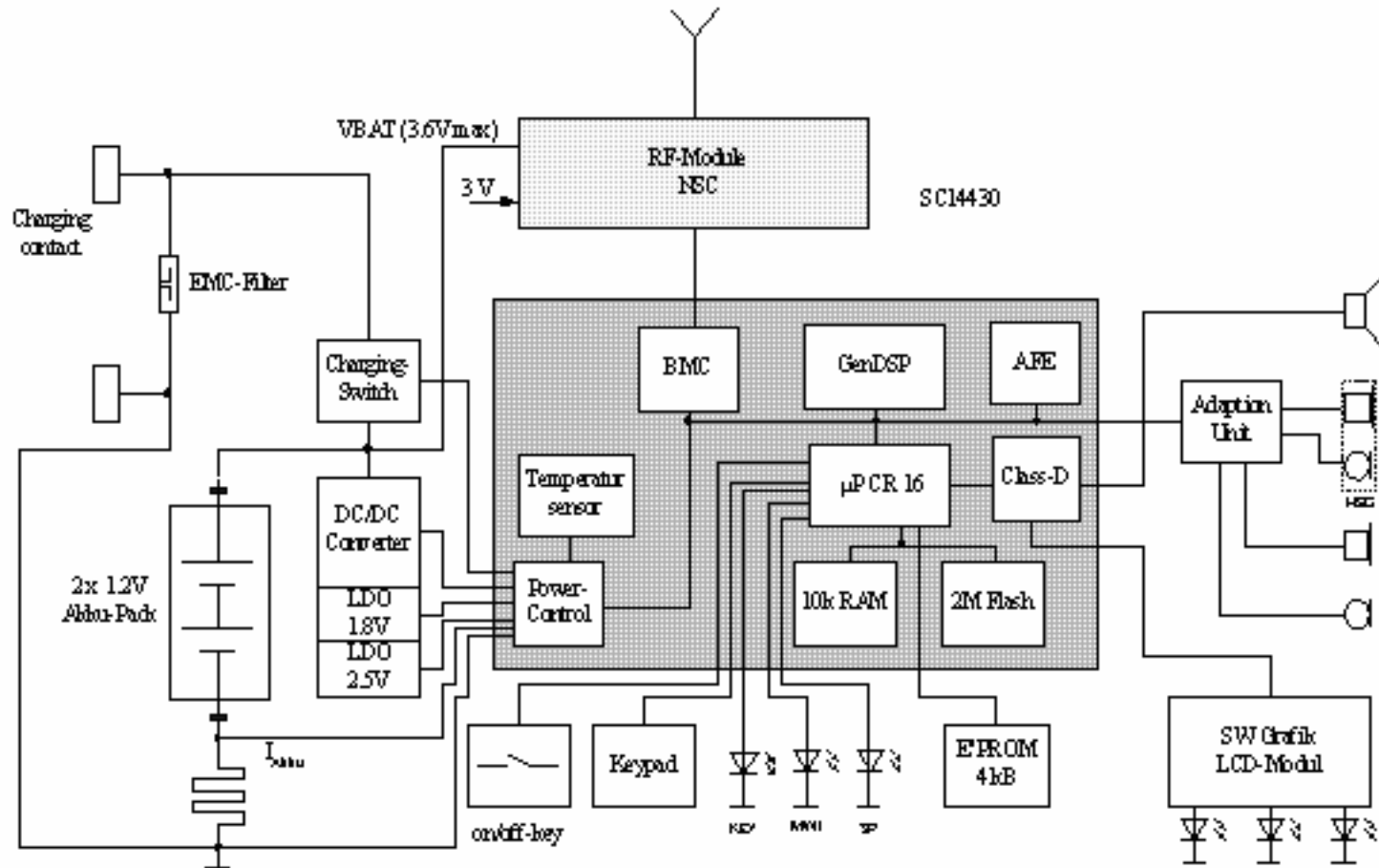
4.2 Test steps base station

- Try to verify the customer's fault description. If necessary perform a long term test (sporadic problems (e.g. RF) or charging problems).
- Complete test (e.g. if no customer's fault description available)
- Check the current consumption of the customer's base station.
- Control the PSTN voltage.
- Register golden device handset on customer's base station.
- Pick up the handset and check the PSTN voltage.
- Set up an external call to the test handset that is registered to the G4175.
- Do an audio test in transmit and receive direction (speech).
- Control the charging current with the help of a golden device handset.
Charge current consumption appr. 160-170 mA.
Add the normal current consumption of the base station to the charge current.
- Do a ringer test on customer's base station by receiving an incoming call.
- AM base stations: Test the function of the answering machine by leaving a message on the AM. Check the quality of the message afterwards.
- Test the RF-range of the customer's handset by walking to a marked line.

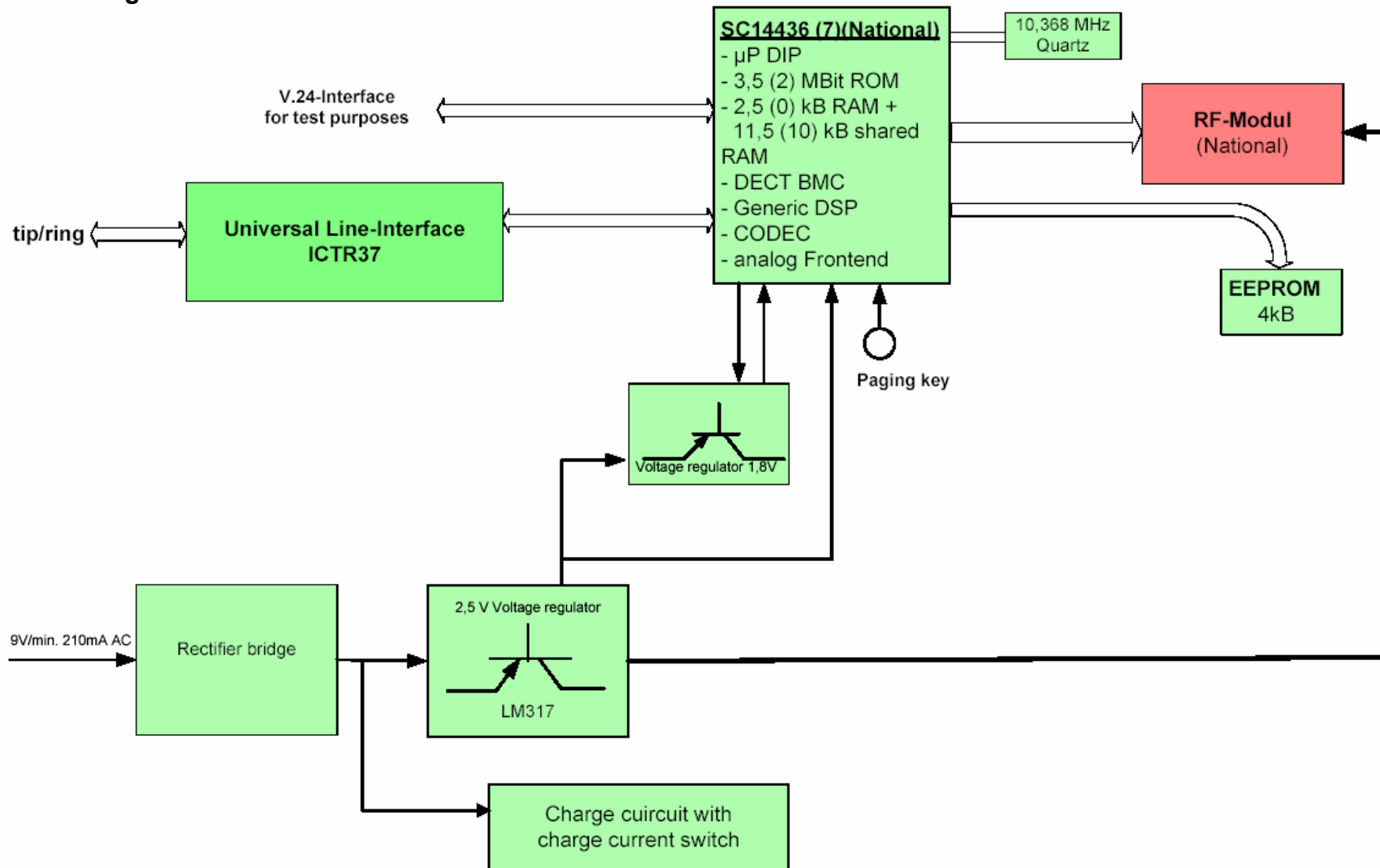
Do a fundamental reset on the handset / base station in case of swap.

5 Block diagrams

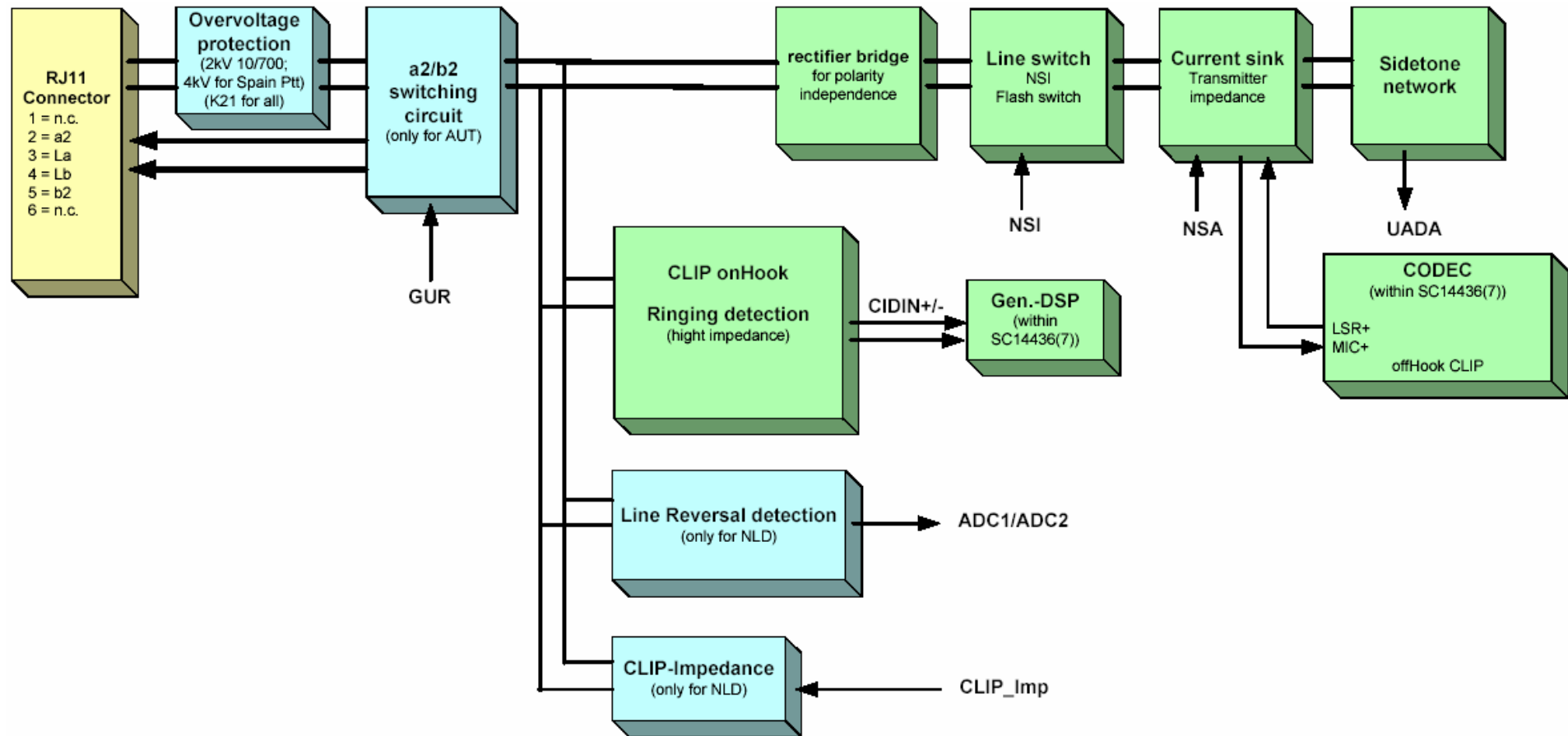
5.1 Block diagram handset



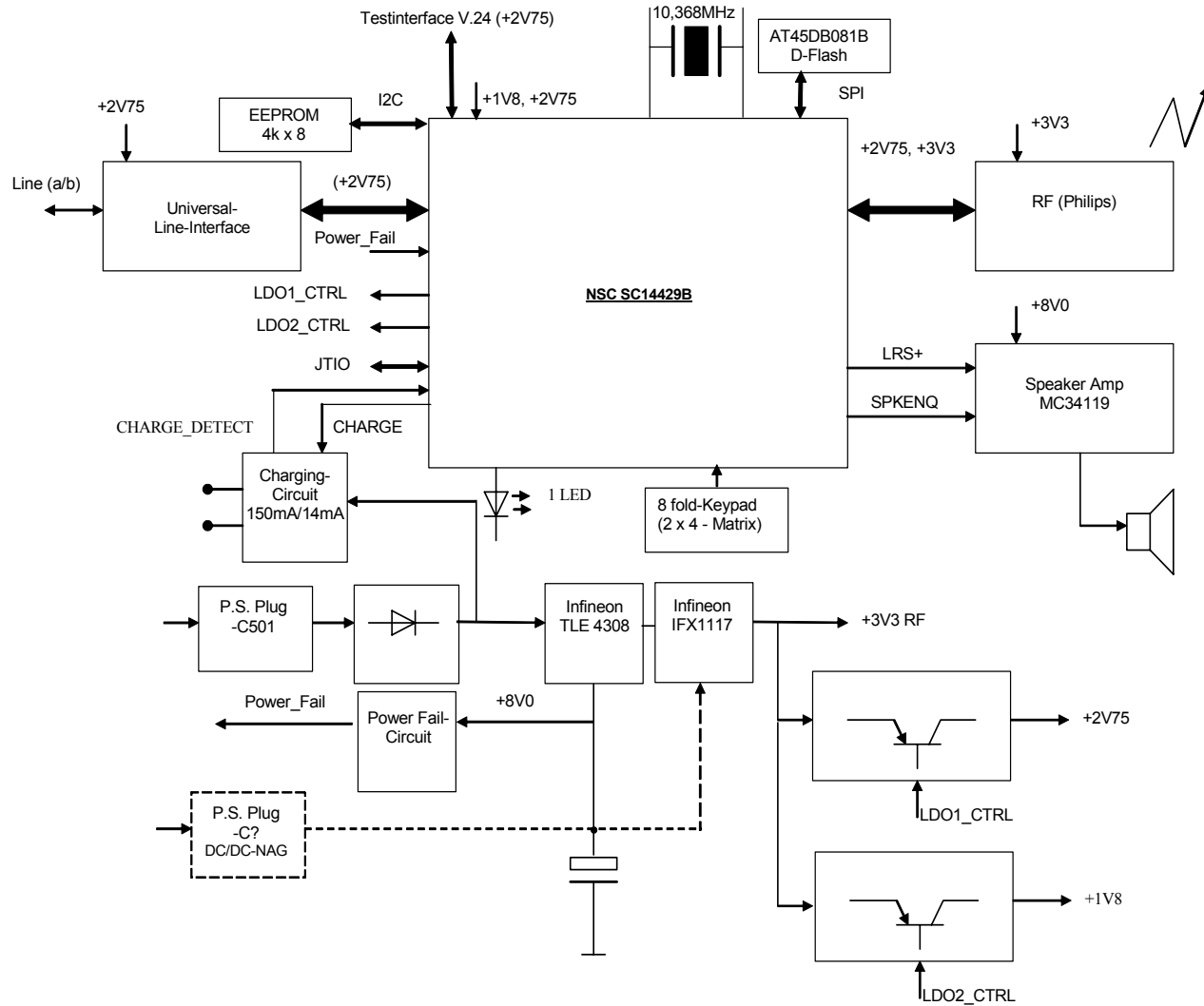
5.2 Block diagram C450 base station



5.3 Block diagram of universal line interface ICTR37



5.4 Block diagram C455 base station



6 Repair of C45 handset

ESD regulations have to be followed in the complete repair process!

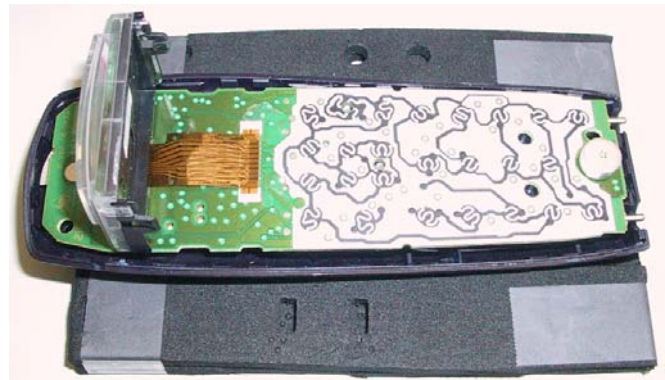
6.1 Special equipment and tools

Opening-tool G2000/4000	F30032-P175-A1
Battery dummy G5000	F30032-P270-A1

Helpful selfmade tools:

1. Foam shape:

Take a **piece of foam**, cut and stick together the parts, so that it looks like the tool on the picture. This is a good help for the display soldering process, because the lower case shell, which acts as a **display soldering jig** can be fixed in this foam shape.



2. Testhousing:

Take a lower case shell of a handset and cut the latches on both sides with a sidecutter.

That allows you to open both case shells easily because they are only fixed by the latches on the bottom and on the top.

6.2 Disassembling of handset

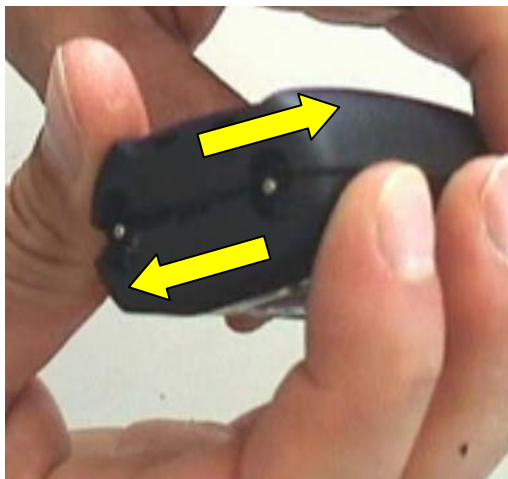
Insert opening tool G2000/4000 as described below, turn it upwards and downwards.



Do the same procedure on the other latches.



Push both case shells to the opposite direction, so that the first latch opens.



Open the remaining latches by turning the tool downwards.



Insert battery dummy G5000 and take out the PCB.

6.3 Assembling of handset

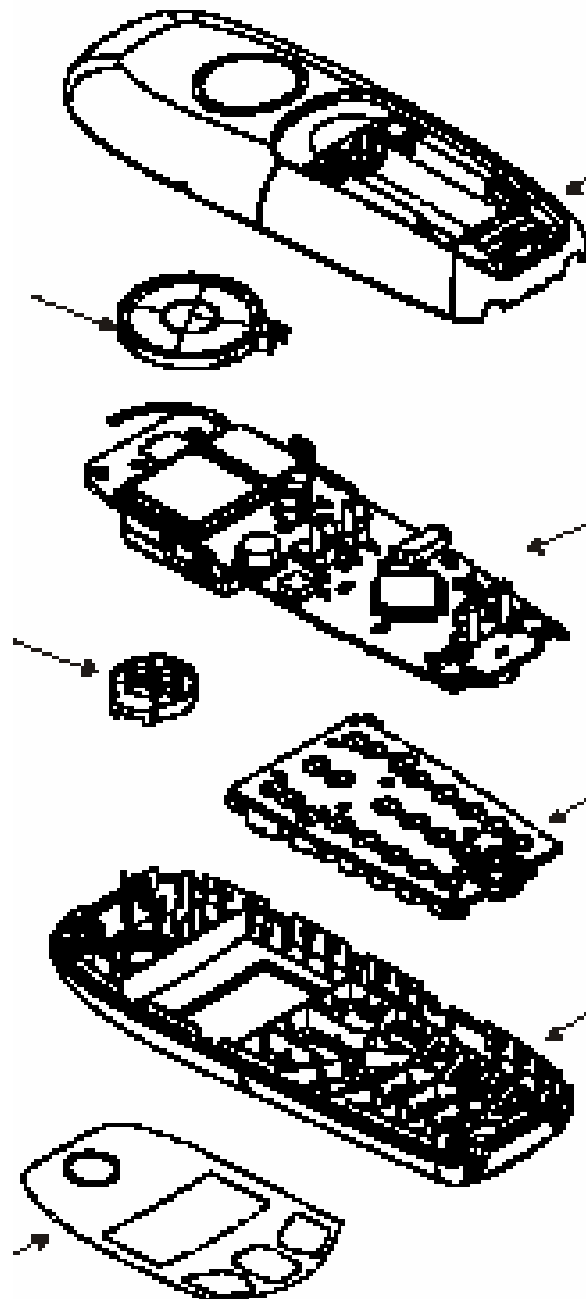
Use the exploded view as a help to see where the components are located.

Insert keypad, receiver and afterwards PCB in upper case shell.

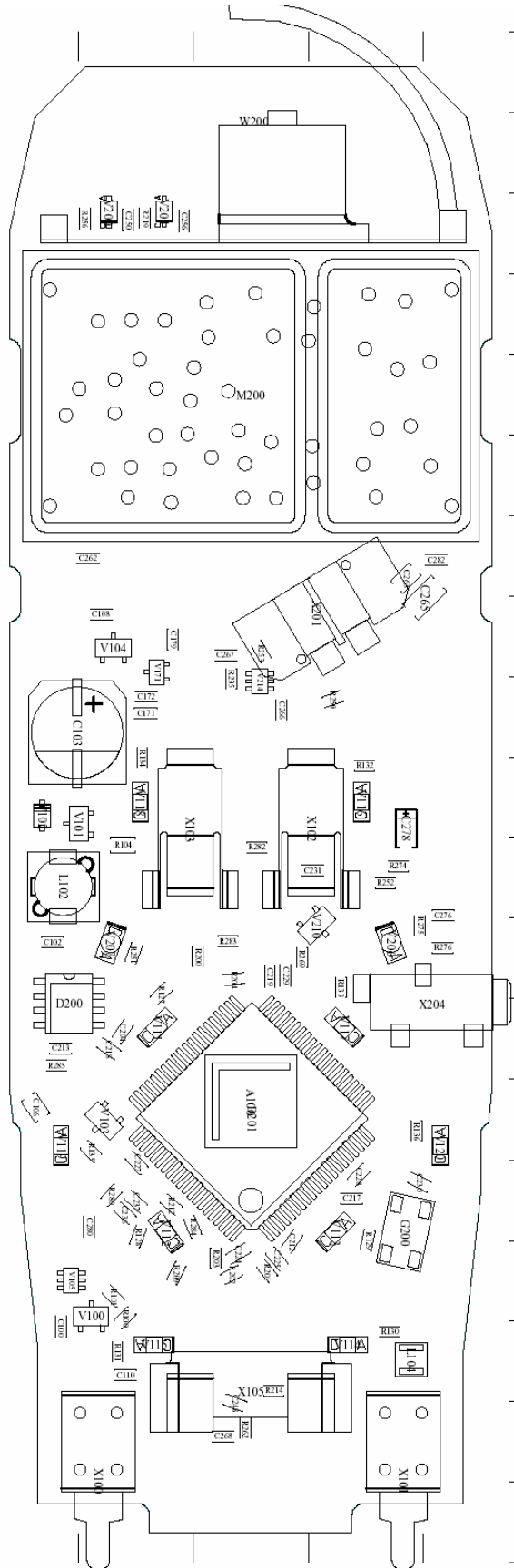
Fix loudspeaker in lower case shell.

Close handset by pressing both case shells together.

6.4 Exploded view of handset



6.5 PCB layout of handset



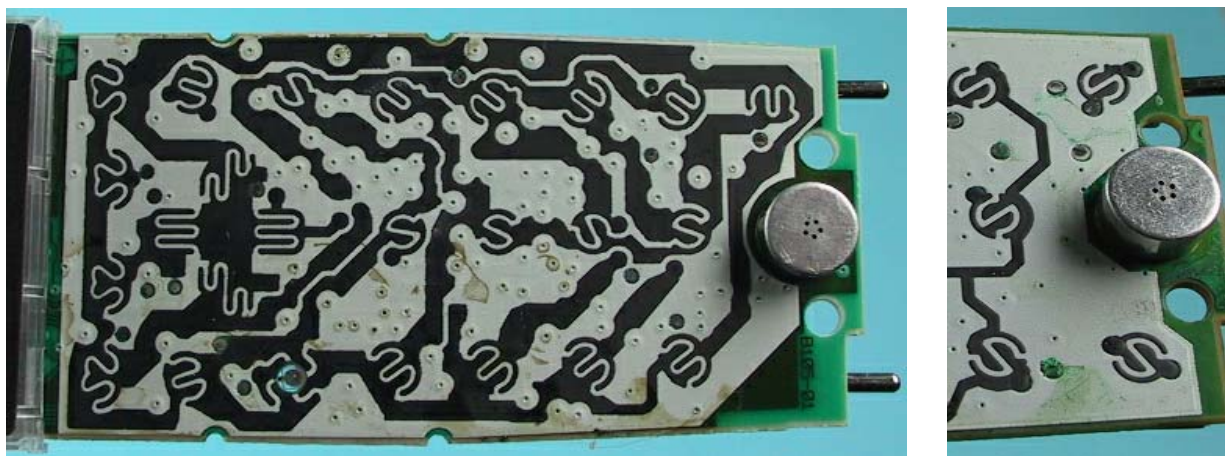
6.6 Humidity or liquid damage

Diagnosis code IRIS: 61000 (DEVICE / MOISTURE DAMAGE)

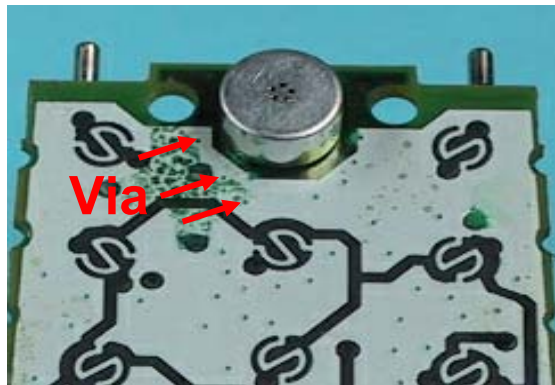
- Boards with oxidation on the keypad side do not have to be scrapped if the vias are not affected by green oxidation layer. → Clean the PCB.
- Boards with humidity damages on the component side have to be scrapped.

Check all electronic components on the back side. Do not open the RF-Part.
 Remaining flux on the component side could look similar to a humidity damage (white deposits) but it will disappear when heating it up with a hot air blower.

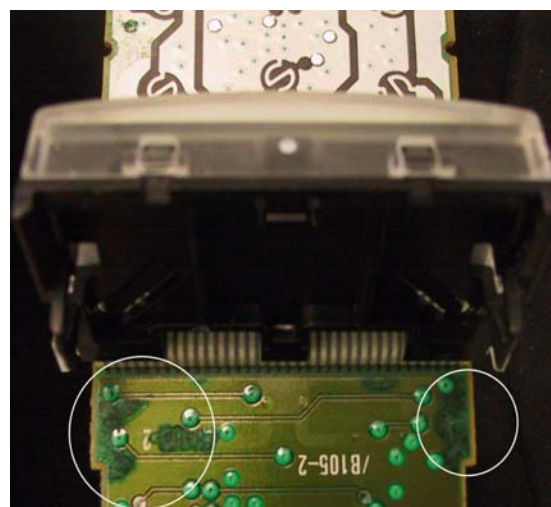
no scrap:



Scrap:



Check also area under display!



6.7 Receiver faulty

<u>Affected unit:</u>	Handset
<u>Diagnosis code IRIS:</u>	72100 (ACOUSTICS / RECEIVING / EARCAP)
<u>Repair level:</u>	Level 1
<u>Components:</u>	Receiver
<u>Needed equipment:</u>	Multimeter
<u>Working material:</u>	None

Diagnosis:

The diaphragm of the earphone could be affected by deposits with increasing age. There will be a higher attenuation when measuring RLR (receiving loudness rating). In most cases the earphone capsule is defective. If there is no noise audible on the earphone when making a sidetone check it's also possible that the wire of the coil is broken. Check the resistance of the coil with a multimeter. The typical resistance is appr. 120 ohm +/- 20%. In other cases replace it.

Repair:

Replace receiver.

Test:

Put the repaired board in a testhousing.
Make a sidetone check by blowing into the microphone and checking the volume of the noise on the earphone.
If there is a telephone tester with acoustic testhead make a RLR-test and check whether the attenuation is o.k..

6.8 Loudspeaker faulty

Affected unit: Handset

Diagnosis code IRIS: 72200 (ACOUSTICS / RECEIVING / LOUDSPEAKER)

Repair level: Level 1

Components: Loudspeaker

Needed equipment: Multimeter

Working material: None

Diagnosis:

Do a sidetone check (service-menu) in order to check the sound of the speaker.
If there is no sound, check the resistance of the coil with a multimeter.
The typical resistance is appr. 4 ohm. In other cases replace it.

Repair:

Replace loudspeaker.

Test:

Put the repaired board in a testhousing.
Do a sidetone check by blowing into the microphone and checking the volume of the noise on the loudspeaker.

6.9 Display cover broken or scratched

Affected unit: Handset

Diagnosis code IRIS: 23100 (DISPLAY / MECHANICAL DEFECT / SCRATCHES)

Repair level: Level 1

Components: Display cover

Needed equipment: small screwdriver

Working material: None

Diagnosis:

Display cover broken or scratched.

Repair:

Replace display cover.

Open the 2 latches on one side with a small screwdriver.

Then turn the display cover carefully to the side until the other 2 latches open.

To reassemble the display you just need to press the new cover gently on its place.

Test:

Do a display test after replacement.

6.10 Display module faulty

Affected unit: Handset

Diagnosis code IRIS: 21100 (DISPLAY / PERFORMANCE / NO LETTERS)
21200 (DISPLAY / PERFORMANCE / LINE-/COLUMN ERROR)
23200 (DISPLAY / MECHANICAL DEFECT / DISPLAY BROKEN)

Repair level: Level 2.5

Components: Display module

Needed equipment: 50 watts soldering station Weller WTCP 50 or WS (D) 50,
Soldering tip FP7, small soldering tip

Working material: Flux Kester 952 S, scotch tape

Diagnosis:

Missing lines, columns, display does not work at all or display (LCD) broken.

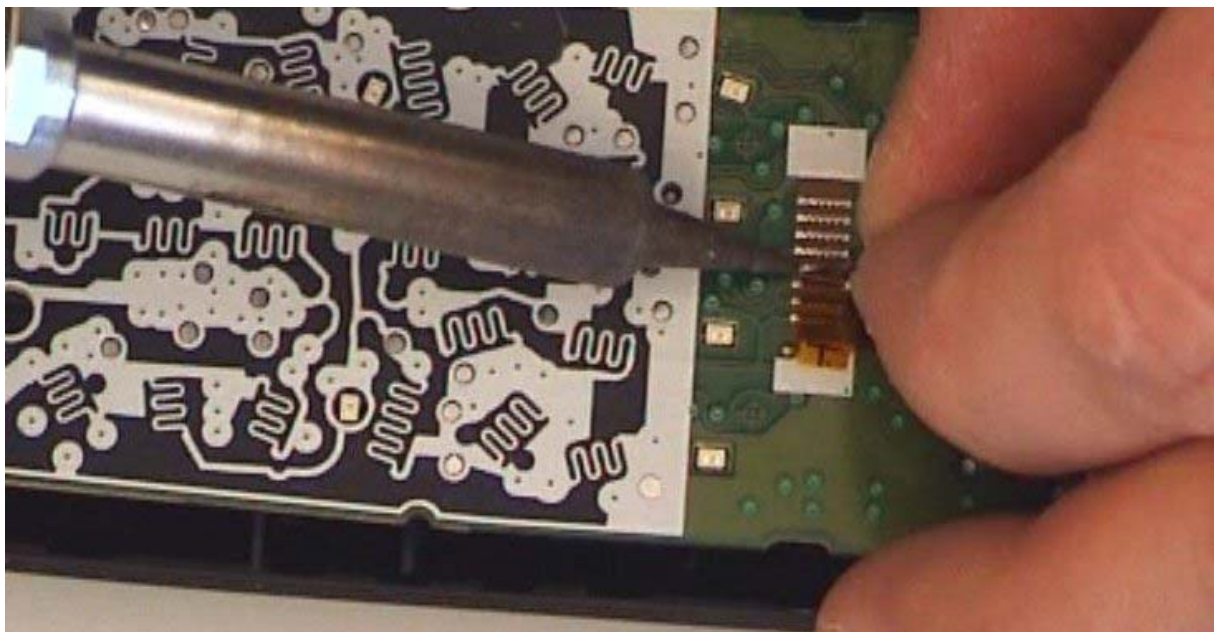
Repair:

Adjust the soldering station to 370°C (only for WS(D) 50).

Insert board in testhousing case shell (see chapter 6.1).

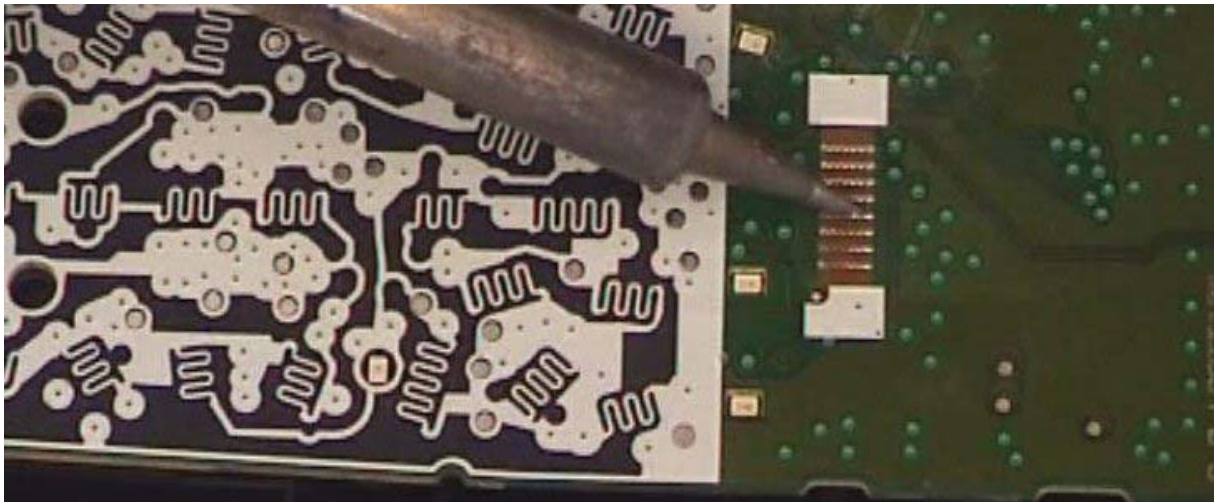
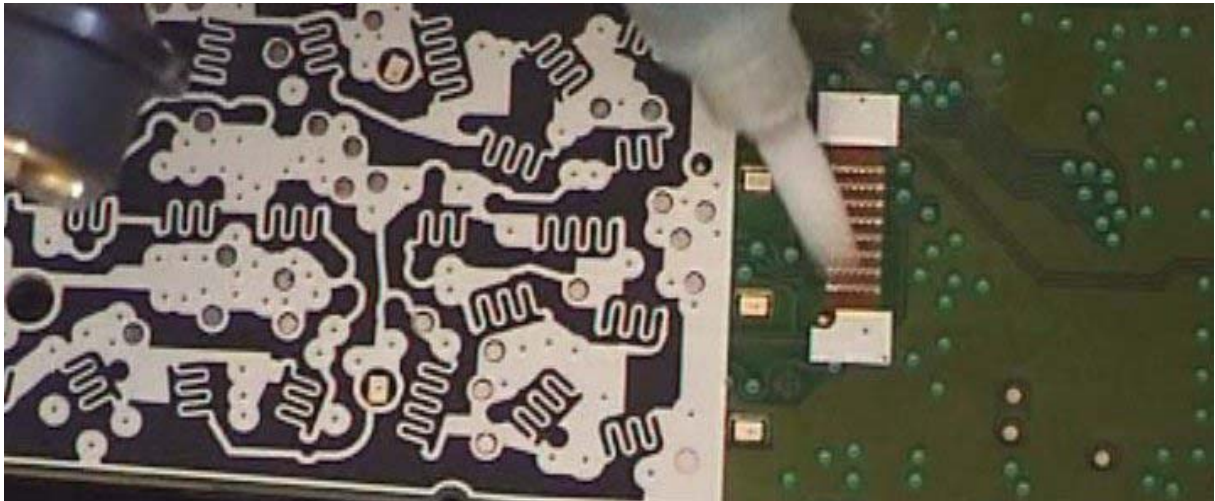
Fix case shell in foam shape.

Release faulty display by soldering the soldered joints and pulling the display foil as described on the picture below.

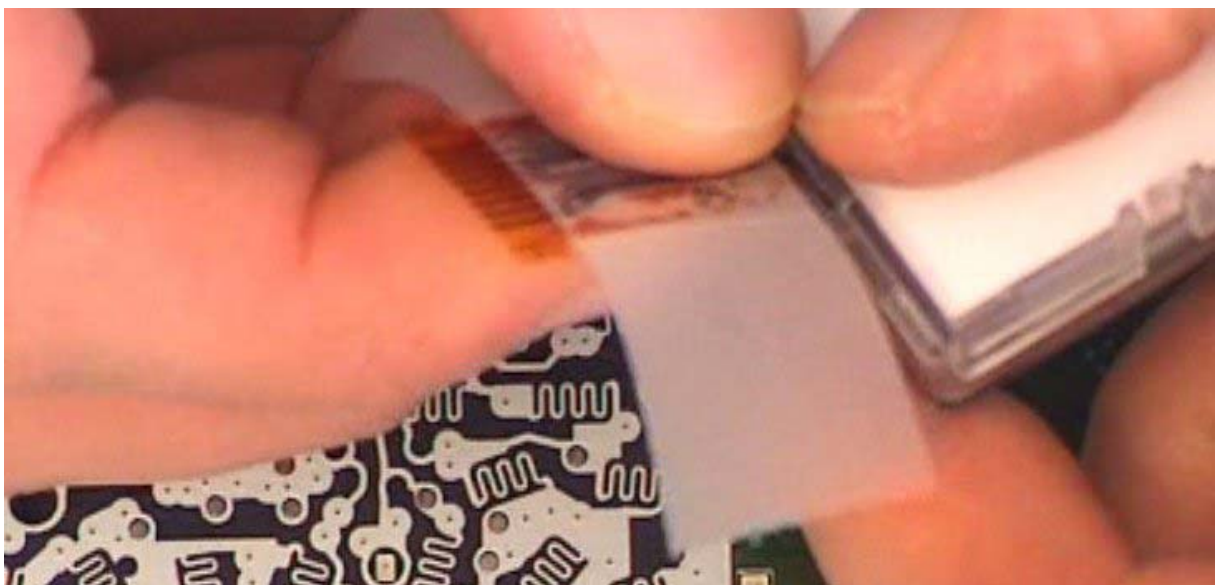


Pictures are taken from G5000.

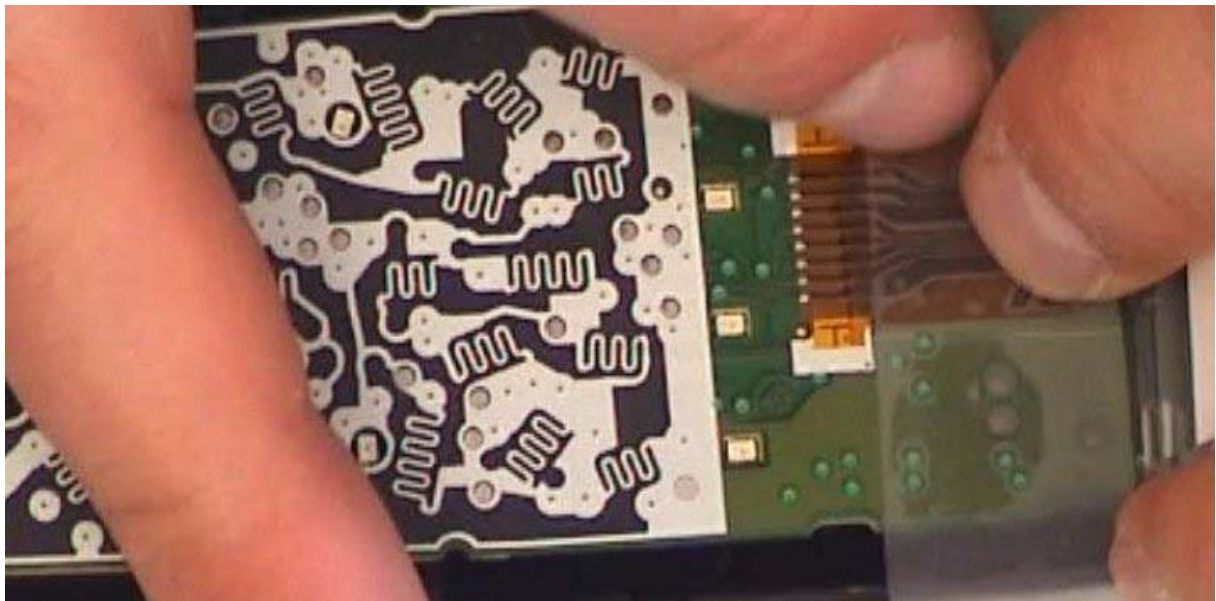
Put some flux on the pads and resolder them until the surface is even.



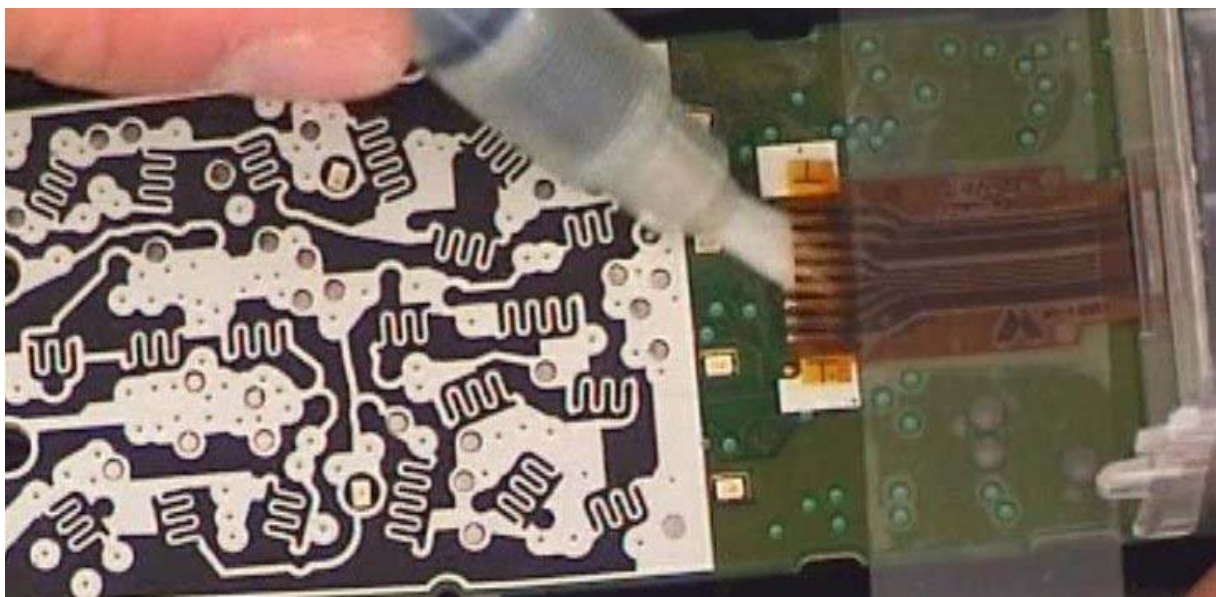
Take a new display and a piece of tape and fix it on the display foil.



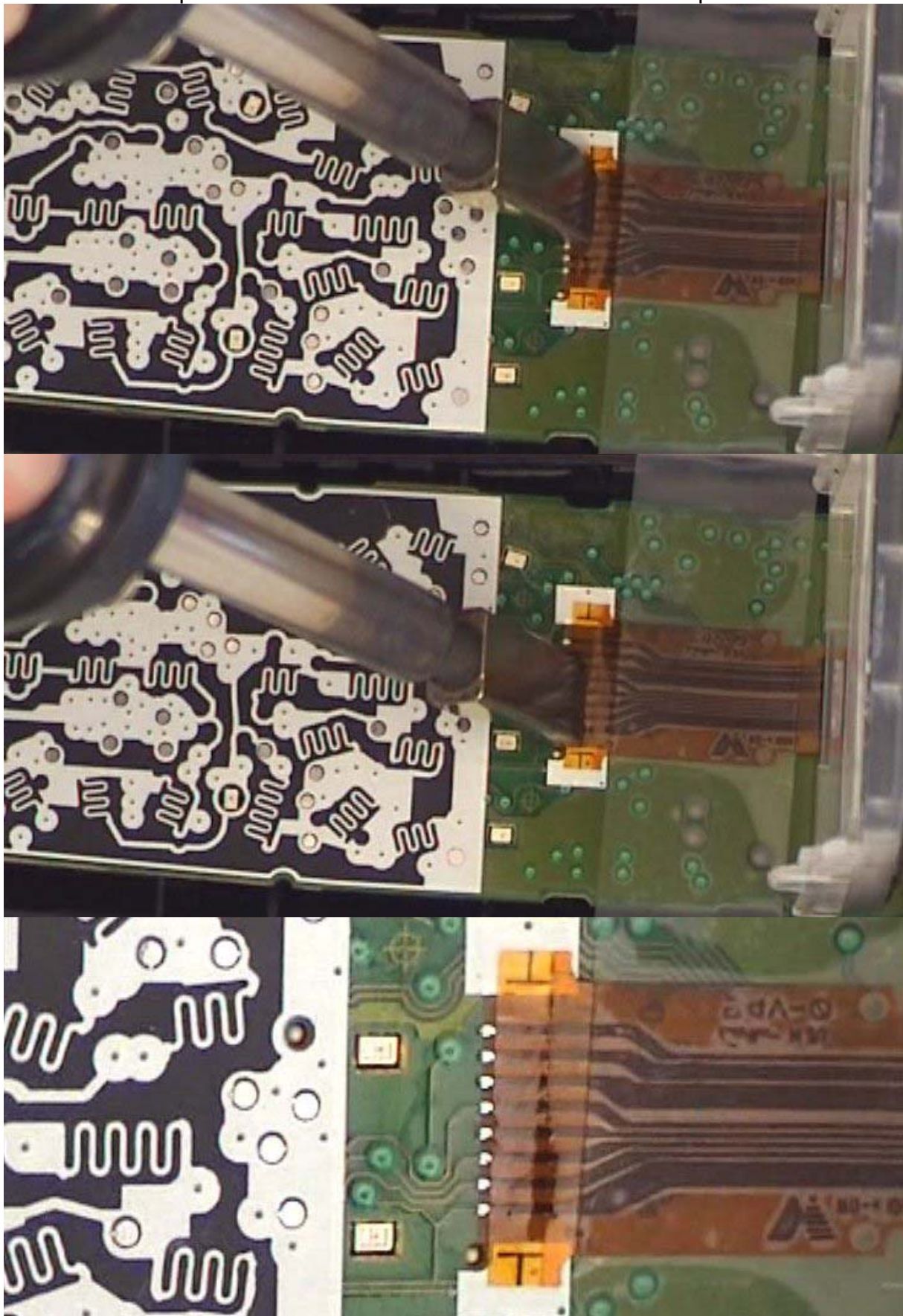
Align the display foil on the PCB and fix it.



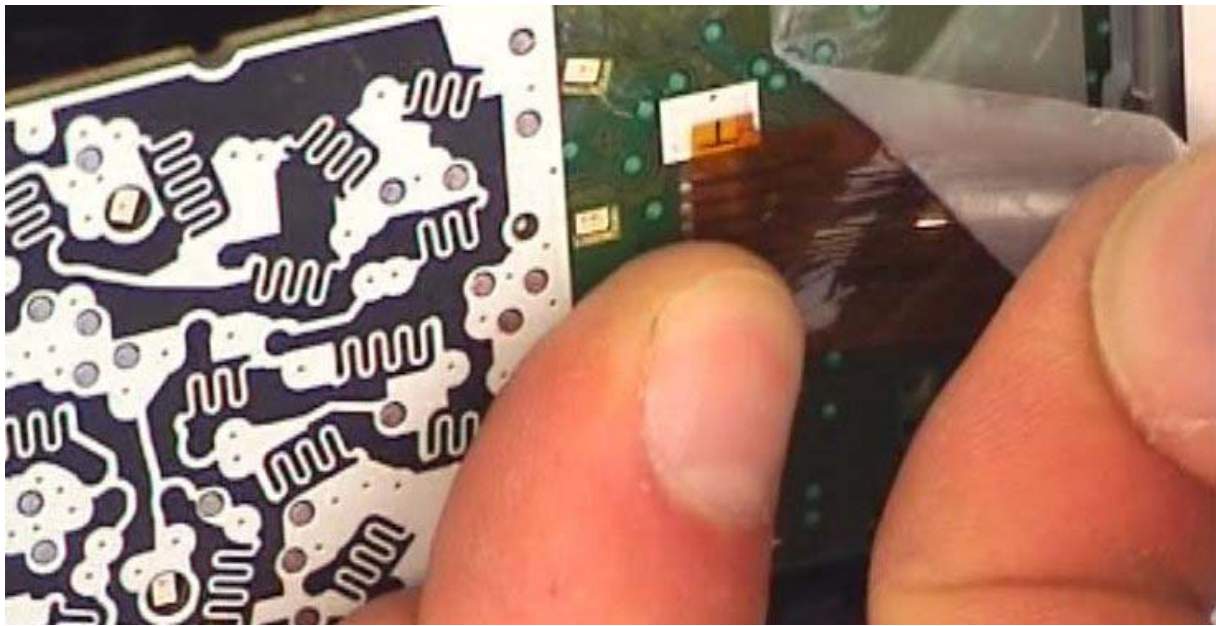
Put some flux between foil and pads.



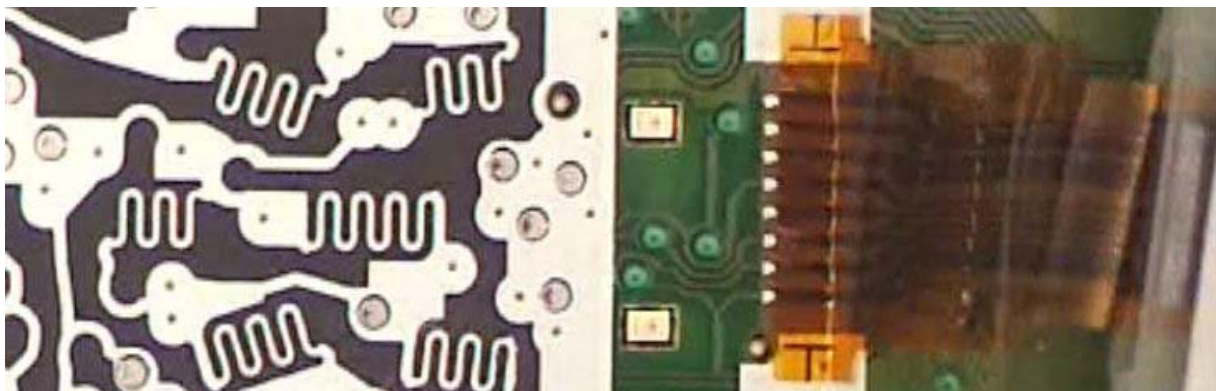
Put the soldering tip FP7 on the soldering iron and solder the display in 2 steps as described in the picture below. The result should look like the last picture.



Fix the display foil with a finger and gently remove the tape.



Test the soldered connection by gently pulling the display foil.



Test:

Do a display test. Press 1,4 and 7 simultaneously and keep pressed while switching on the handset. Release all keys.

Press a key. You must test patterns on the display. Press another key in order to change test patterns. Do this a few times until the first test pattern is visible.

6.11 Microphone faulty

Affected unit: Handset

Diagnosis code IRIS:

73110 (ACOUSTICS / TRANSMITTING / MICROPHONE / NO FUNCTION)

73170 (ACOUSTICS / TRANSMITTING / MICROPHONE / LOW VOICE LEVEL)

Repair level: Level 2.5

Components: Microphone

Needed equipment: Soldering iron

Working material: Desolder wick, solder

Diagnosis:

The diaphragm of the microphone is affected by humidity or nicotine with increasing age or the microphone could be electrically faulty. There will be a higher attenuation when measuring SLR (sending loudness rating). In most cases the microphone is defective.

Repair:

Remove the microphone by desoldering the 2 solder joints.

You can also heat up both pins simultaneously with a broad soldering iron tip and turn the board upside down, letting the microphone fall out.

Clean pads with desoldering wick and replace it by a new component afterwards.

Attention: Avoid excessive heat (2 seconds maximum)!

Test:

Put the repaired board in a testhousing.

Make a sidetone check by blowing into the microphone and checking the volume of the noise on the earphone.

If there is a telephone tester with acoustic testhead make a SLR-test and check whether the attenuation is o.k..

7 Repair of basestation

7.1 Disassembling of base stations C450 and CX450 isdn

ESD regulations have to be followed in the complete repair process!

Needed material: Suitable screw driver with cross recess,
Opening-tool G2000/4000 F30032-P175-A1

Unscrew the 3 screws of the lower case shell.



Insert the opening tool G2000/4000 between both case shells and turn it upwards until the latch opens (click noise).



Do the same on the other side.



Open the housing as described on the picture below.



7.2 Disassembling of base station C455

Needed material:

Suitable screw driver with cross recess

Unscrew the 6 screws in the lower case shell and lift the case shell.

7.3 Assembling of base stations

Needed material:

Suitable screw driver with cross recess

Put charger contact springs in upper case shell.

Insert keypad.

Put PCB in upper case shell.

C450 and CX450 isdn:

Attach the other case shell and close the device by closing the latches and screwing the 3 screws in the lower case shell.

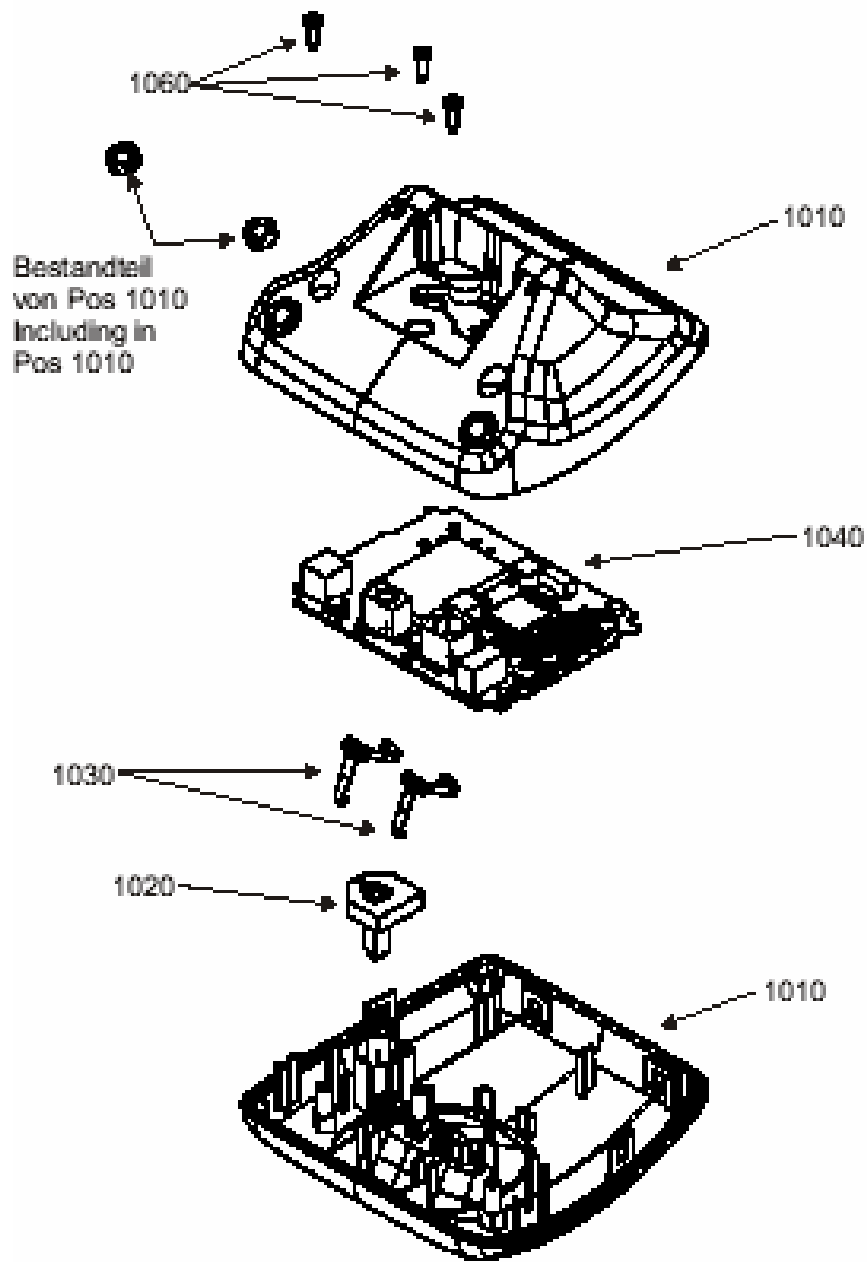
C455:

Insert loudspeaker.

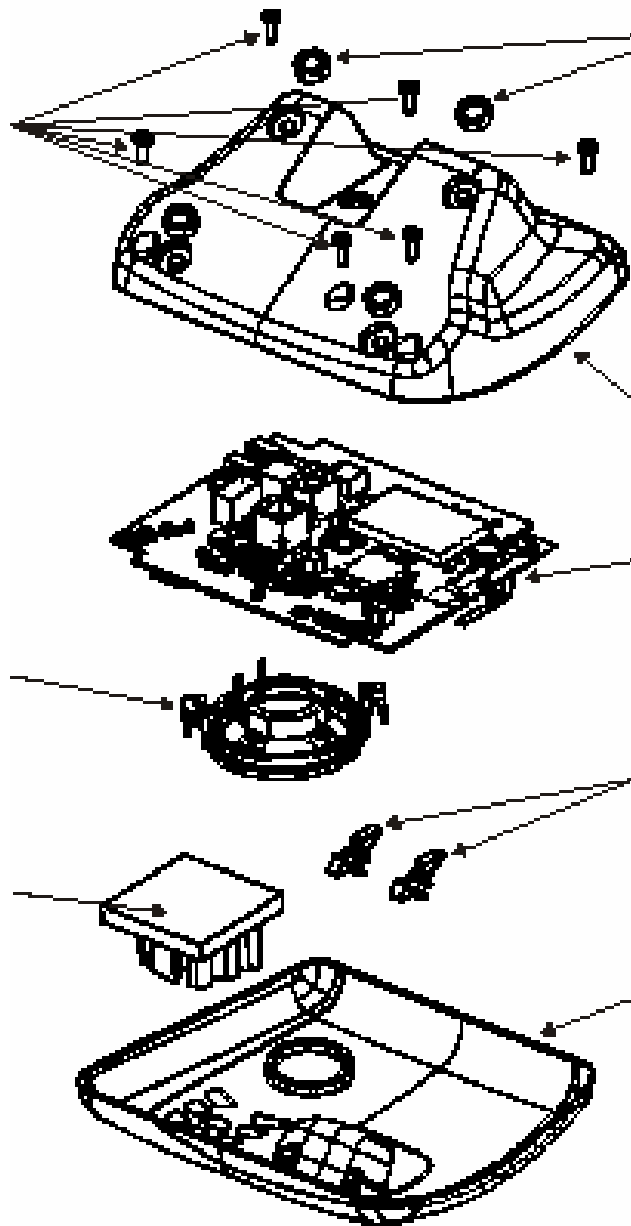
Attach the other case shell and close the device by fixing the 6 screws in the lower case shell.

Make sure that the charging contact springs are fixed correctly.

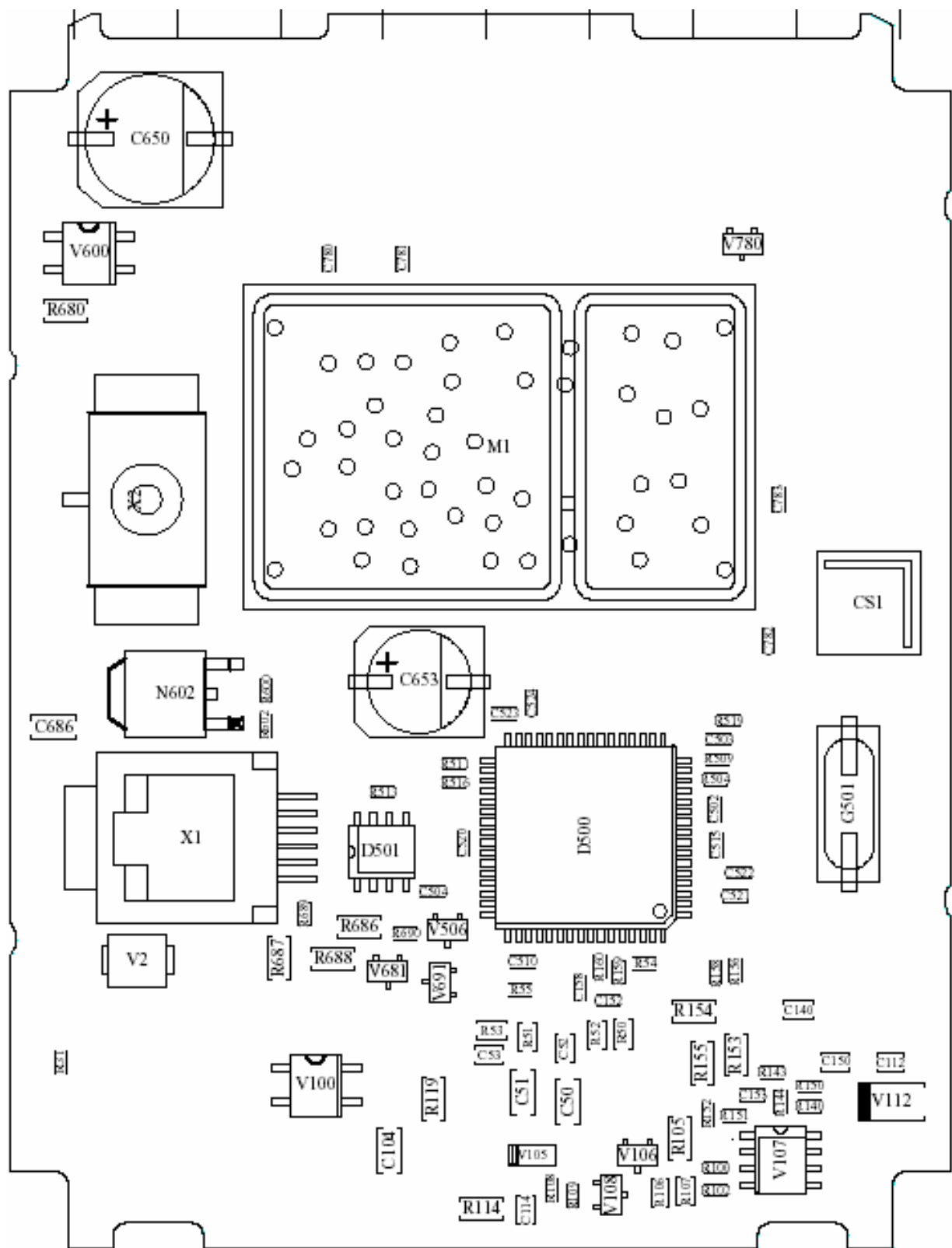
7.4 Exploded view of C450 and CX450 isdn



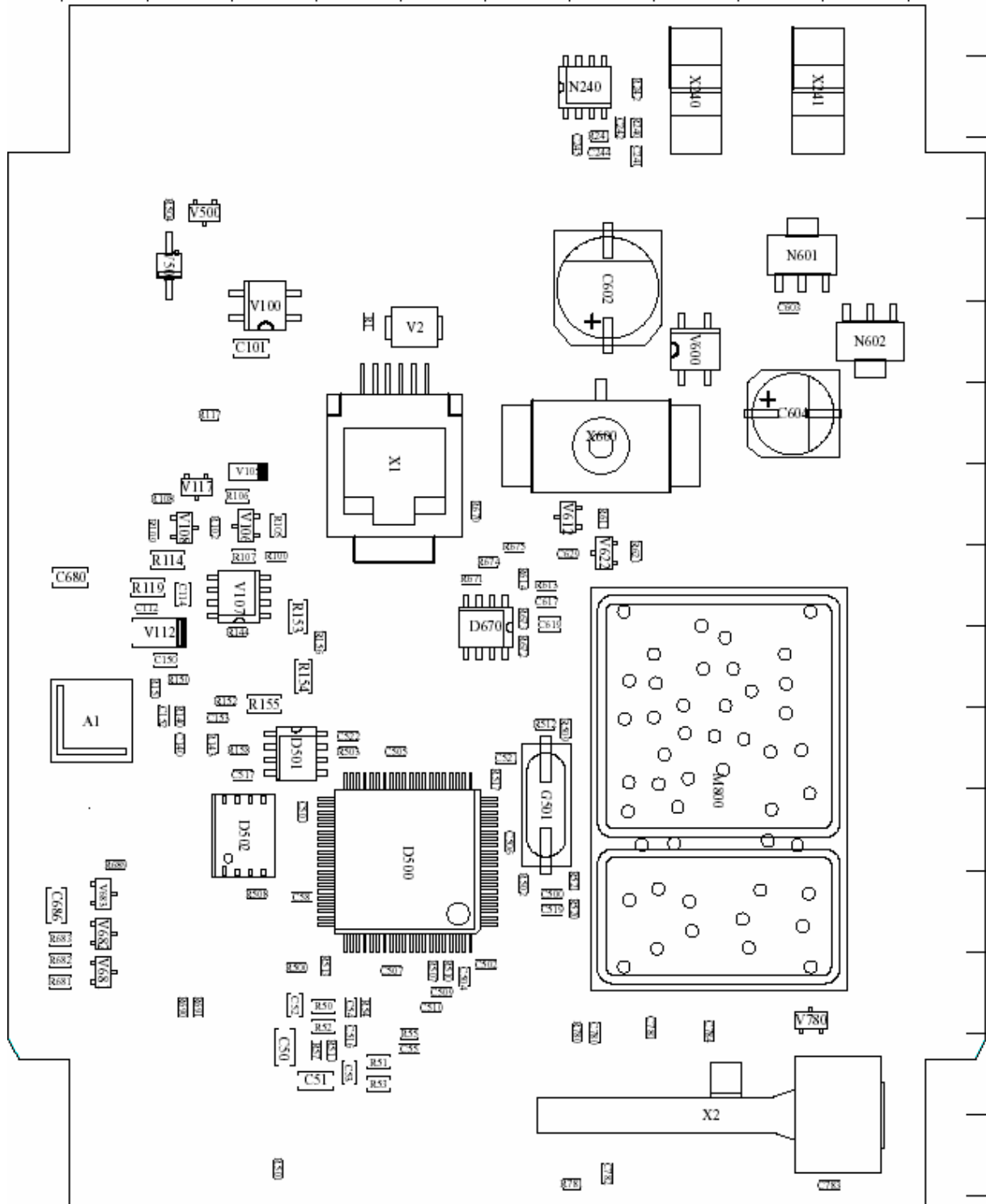
7.5 Exploded view of C455



7.6 PCB layout of C450



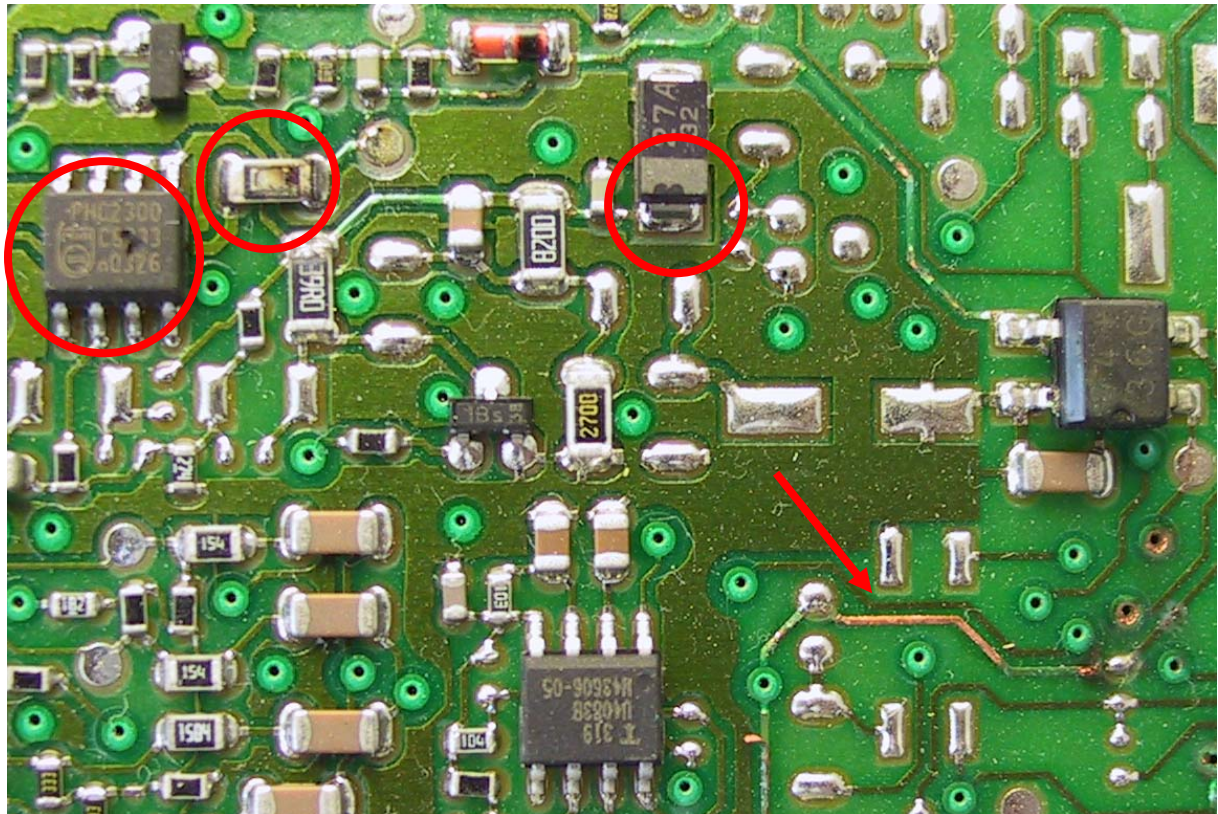
7.8 PCB layout of C455



7.9 Lightning stroke damage

Diagnosis code IRIS: 62000 (DEVICE / LIGHTNING/OVER VOLTAGE)

Scrap all base stations with lightning stroke damage.
Inspect the board regarding chipped components, black soot on the board or components that look like those on the picture below.



7.10 Charging problems

<u>Affected unit:</u>	Gigaset C450, CX450 isdn
<u>Diagnosis code IRIS:</u>	97000 (FUNCTIONALITY / DEVICE NO CHARGING)
<u>Repair level:</u>	Level 1
<u>Components:</u>	Charger contact springs, charger pads
<u>Needed equipment:</u>	Soldering iron, glass fibre pen
<u>Working material:</u>	Desolder wick, solder

Diagnosis:

The battery segment on the handset display doesn't start blinking when charging. Inspect the charger pads looking for small black holes on the surface. Check charger contact springs.

Repair:

Roughen the surface with a glass fibre pen.
Solder the charger pads so that there is a thin layer of new solder on the joints.
Suck away surplus solder with desolder wick.
Roughen the surface with a glass fibre pen.
Replace charger contact springs.

If charger pads look o.k. only replace charger contact springs.

Test:

Assemble the base station.
Check if battery segment on display starts blinking when charging.

7.11 Line seizure problems

Affected unit: Gigaset C450, C455

Diagnosis code IRIS: 93000 (FUNCTIONALITY / CALLING PROBLEMS)

Repair level: Level 2.5

Components: Philips IC PHC2300 or alternative component

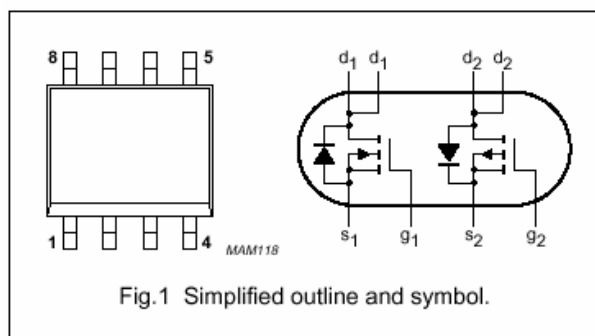
Needed equipment: Hot air blower, soldering iron, multimeter

Working material: Flux, solder

Diagnosis:

Line seizure is not possible or connection can not be released. The IC PHC2300 (or alternative component) consists of 2 transistors and is responsible for line seizure. Measure the 2 transistors with a multimeter.

PIN	SYMBOL	DESCRIPTION
1	s ₁	source 1
2	g ₁	gate 1
3	s ₂	source 2
4	g ₂	gate 2
5	d ₂	drain 2
6	d ₂	drain 2
7	d ₁	drain 1
8	d ₁	drain 1



Repair:

Desolder the IC and solder a new component with a hot air blower.
Put some flux on the joints and resolder them with a soldering iron.
If necessary put additional solder on the joints.

Test:

Assemble the base station and connect it to a PBX or PSTN line.
Pick up the handset and dial the extension of another phone connected to the PBX or PSTN. Establish a connection, test the speech path and release it afterwards.
Pick up the other phone and dial the extension of the repaired phone.
Accept the call on the repaired phone.
If the line seizure in both ways works the base station is o.k.