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Service Manual

Gigaset A160 (CL6010, C360, AC160), A165 (CL6015, C365, AC165), A260 (C360 HF), A265 (C365 HF, AC265)

Table of Content

1. Introduction

This document describes the service procedures and test instructions of an A160/65 and A260/65 system.
The construction of the A160 is identical with CL6010 and C360. The PCB is different.
The PCBs of the AC 160/165/265 system are identical with the A160/165/265 system.
The construction of the A165 is identical with CL6015 and C365. The PCB is different.
The construction of the A260 is identical with C360 HF. The PCB is different.
The construction of the A265 is identical with C365 HF. The PCB is different.

1.1 Purpose

This document enables a workshop to check the above mentioned systems.
The test is necessary to decide whether this unit is faulty.

1.2 Scope

Scopes of the document are service procedures and test steps.

1.3 Terms and Abbreviations

1.3.1 Terms

1.3.2 Abbreviations

2 Requirements

2.1 Software requirements

- none

2.2 Hardware requirements

- Gigaset 4170 or 4175 to be used as a PBX
- Gigaset handset which is registered on Gigaset 4175
- Gigaset A160, A260, A165 or A265 base station to test customer‘s handset
- Gigaset A16 and A26 handset to test customer‘s base station
- 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
- 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

2.3 Special equipment and tools

- none

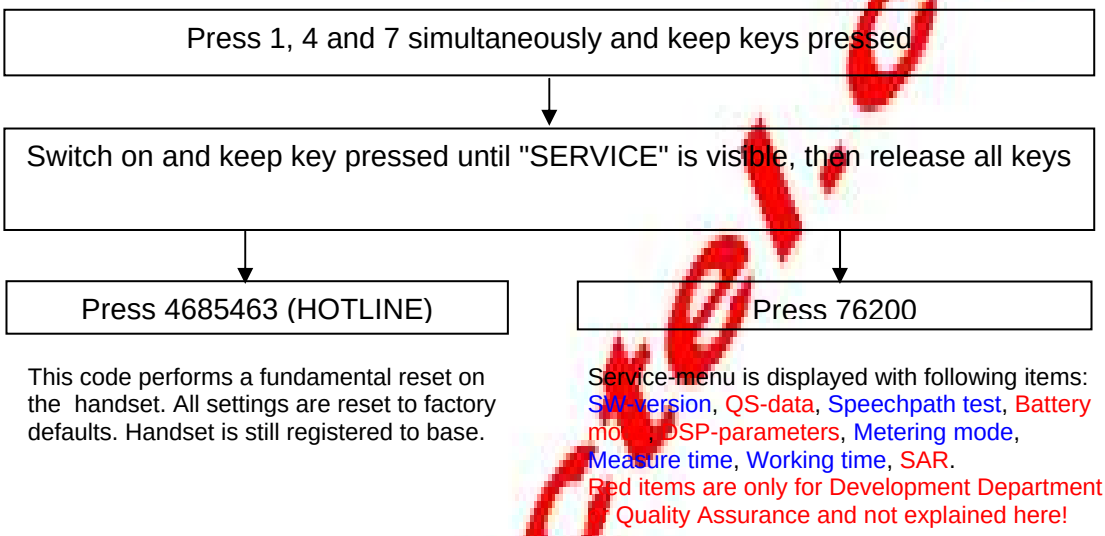
3 Procedures

3.1 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.

3.2 Service procedures for A16 and A26 handset

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



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.

3.3 Service procedures for A160/65 and A260/65 base

Press: "menu-key", 3, 3, 9, X, Setting: Service Pin = 76200 (if required), Y, option (see table), o.k.
Pos. acknowledges tone (rising sequence of notes) = Procedure has been accepted.

Note: The service procedures are confidential!

X / Y	Action	Options / description	Setting
1 / 0	Call list setting	0 = MCL 1 = CLL	Customer (no PIN input)
1 / 1	Dial mode	0 = MFV (Tone) 1 = IWV (Pulse)	Customer (no PIN input)
1 / 2	Flashtime	0 = 80ms 1 = 100ms 2 = 120ms 3 = 400ms 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)

X / Y	Action	Options / description
3 / -	PIN Reset	Set only system Pin to default (0000)
4 / 1	Write to EEPROM address	coded string consists of 15 bytes and holds checksum, mask, data, offset and segment
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
4 / 3	Ring detection frequency	0 = 20-60 Hz 1 = 15-75 Hz 2 = other factory setting
4 / 4	DP behaviour pulse pause	0 = 1.5 : 1 1 = 2 : 1
4 / 5	CLIP list activated	0 = on 1 = off
4 / 6	Off-hook CLIP activated	0 = off 1 = on
6 / 2	Exception Place and Code	
6 / 5	Approval test	will stay activated until power on reset

Read out RFPI, working time counter of base station, SW version of base station:

Precondition: Line seized, number dialled out, connection is set up for at least 8 seconds

1. RFPI of base station
2. IPUI of current handset
3. Working time counter
4. SW version of base station

4 Test setup recommendation

- Gigaset 4170 or 4175 to be used as a PBX

- Gigaset handset which is registered on Gigaset 4175

- Gigaset A160, A260, A165 or A265 base station to test customer‘s Handset

- Gigaset A16 and A26 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 (picture shows C450 instead of A160).

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 carge current

golden device handset for testing customer‘s base station

Measurement of PSTN voltage

system or base station test

customer’s system

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. 90 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).

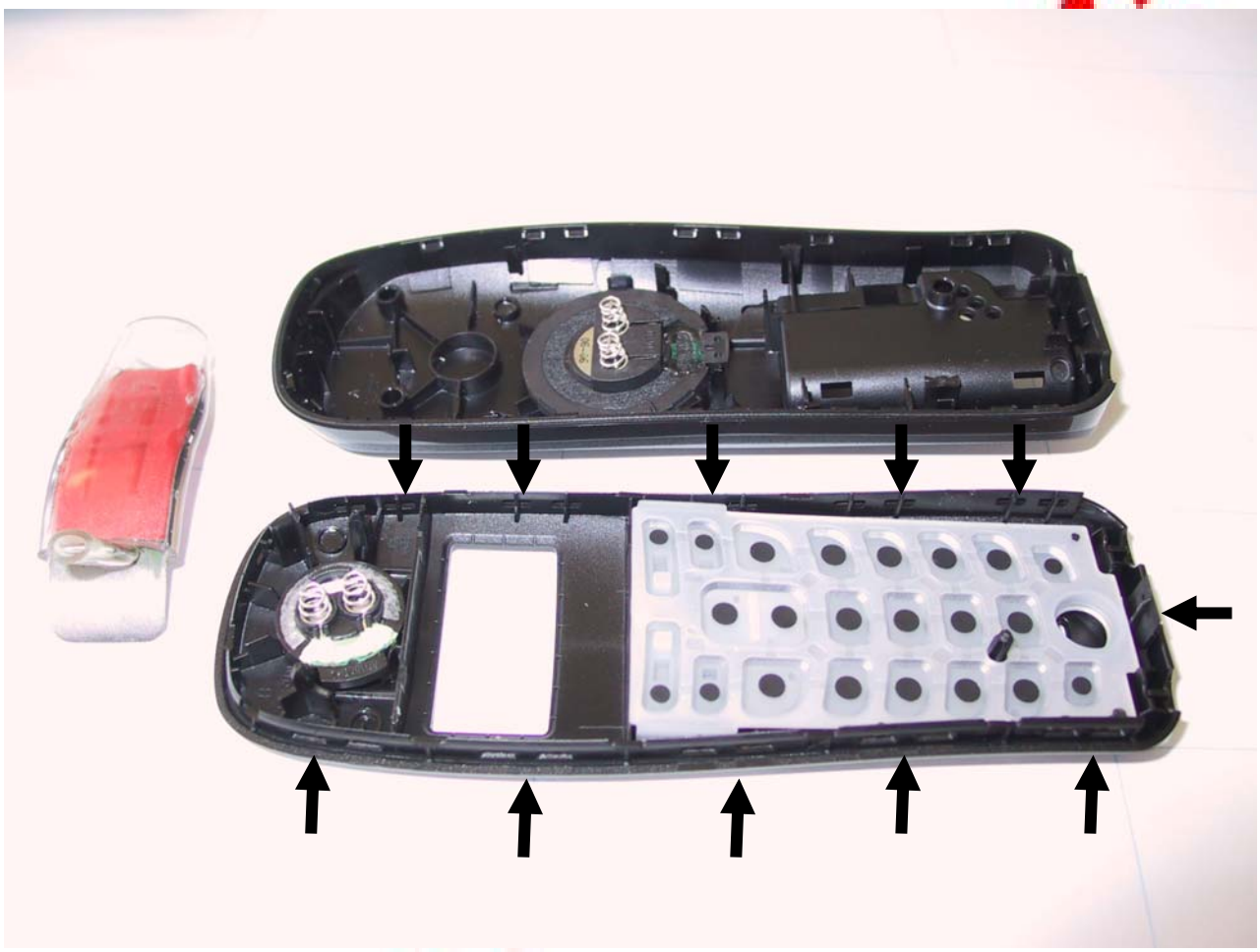
- Complete test (e.g. if no customer‘s fault description available)
- Check the current consumption of the customer‘s base station.
- Control the PSTN voltage.
- Register golden device handset on customer‘s base station.
- Pick up the handset and check the PSTN voltage.
- Set up an external call to the 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. 90 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 Repair

5.1 Disassembling handset

Tools: Opening tool G2000/4000



Insert the tool at first on the microphone latch and turn it to open the latch a little. Continue with the other latches (start at the microphone area and continue until you reach the receiver area). The procedure is similar to the one of the C45 handset.

5.2 Repair of receiver

Affected unit: Handset

Diagnosis code IRIS: 72100 (ACOUSTICS / RECEIVING / EARCAP)

Repair level: Level 1

Components: Receiver

Needed equipment: Multimeter

Working material: 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..

5.3 Disassembling of base stations

A160/ 260:

Tools: Screwdriver with cross recess, opening tool G2000/ 4000 (see picture below)

Unscrew the 2 screws.

Insert opening tool G2000/ 4000 in one side and turn it upwards.

Do the same on the other side.

Pull on both case shells while bending one case shell a little to both sides.

A165/ 265:

Tools: Screwdriver with cross recess

Unscrew the 6 screws.

5.4 Repair of C104

Affected unit: A160/ 260, AC160 base station

Diagnosis code IRIS: 4N100 (Interfaces / Analogue / No Function)

Repair level: Level 2.2

Components: C104

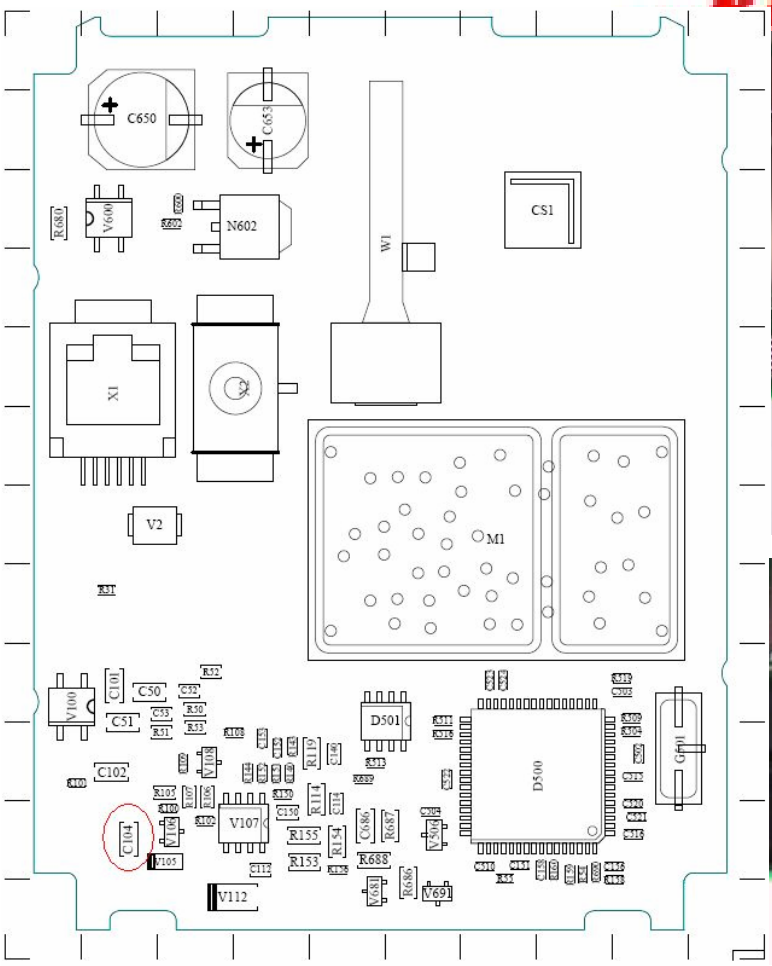
Needed equipment: Hot air blower, tweezers

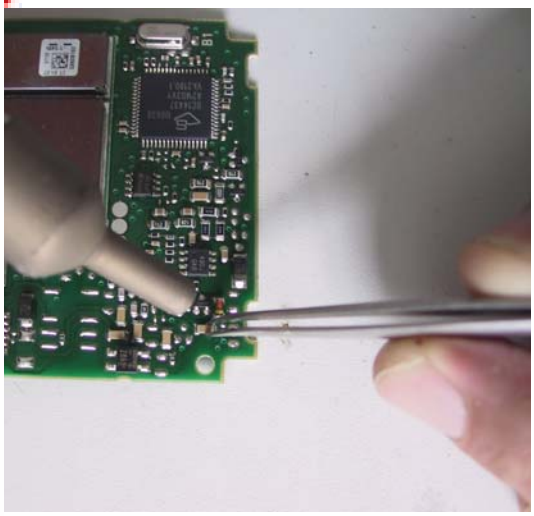
Working material: None

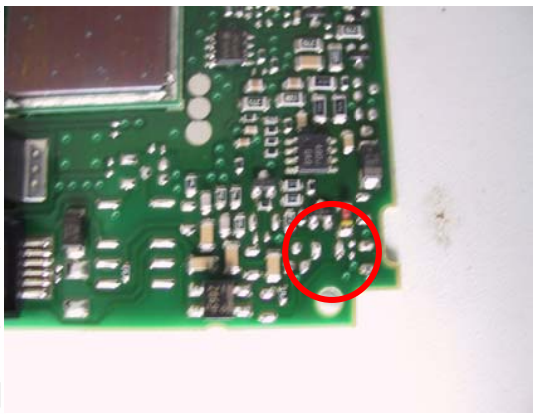
Diagnosis:
The line is always busy. No incoming and no outgoing calls possible. Line voltage breaks down. Sometimes the behaviour is sporadically.

Repair:
Replace C104 (marked with a red circle on the left bottom corner).

Test:
Make a call.







5.5 Repair of N602

Affected unit: A165/ 265, AC165/ 265 base station

Diagnosis code IRIS: 81000 (Radio/ No contact)

Repair level: Level 2.2

Components: N602 (3.3V regulator from supplier Infineon)

Needed equipment: Hot air blower, tweezers

Working material: None

Diagnosis:
Infineon chip could cause voltage drops when the RF part is busy. This should appear often shortly after picking up the handset to accept or make a call but could in some cases also appear during a call. Before replacing the regulator it has to be made sure that the problem is caused by the base station.

Repair:
Replace N602 if Infineon is equipped (see picture below to identify Infineon) by one of the supplier Fairchild or ST. The part number for L2.2 is: EFW: V-REGC686-D671

Test:
Make a call.

Infineon chip: