SIEMENS
mobile

ST55

Level 2.5

Repair Documentation

V 1.0

Table of Content

1 Introduction

ST55 product family, consists of 1 tripleband (GSM900, GSM1800 and GSM1900) handset

Partnumber on IMEI label:

ST55: S36880-S6850-T100

This manual is intended to help you carry out repairs on level 2.5, meaning limited component repairs. The documented failure highlights should be repaired in the local workshops.

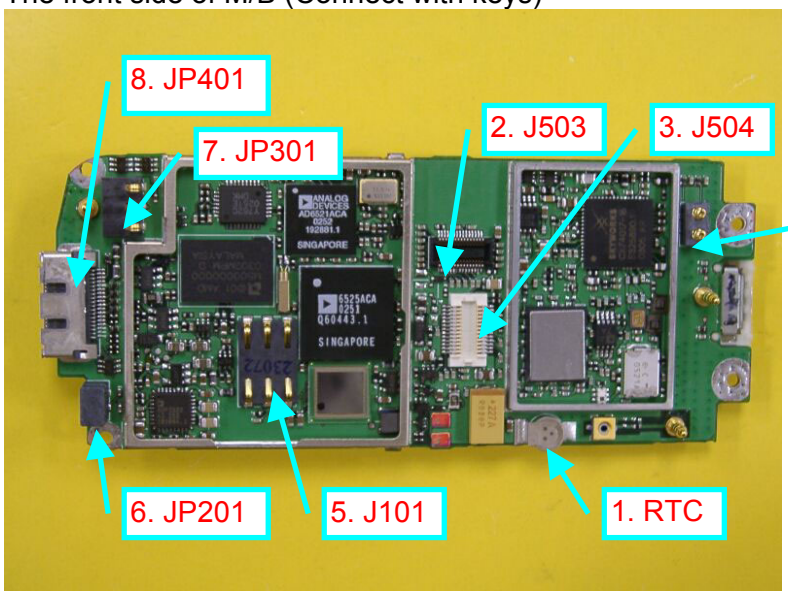
All repairs have to be carried out in an environment set up according to the ESD (Electrostatic Discharge Sensitive Devices) regulations defined in international standards.

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

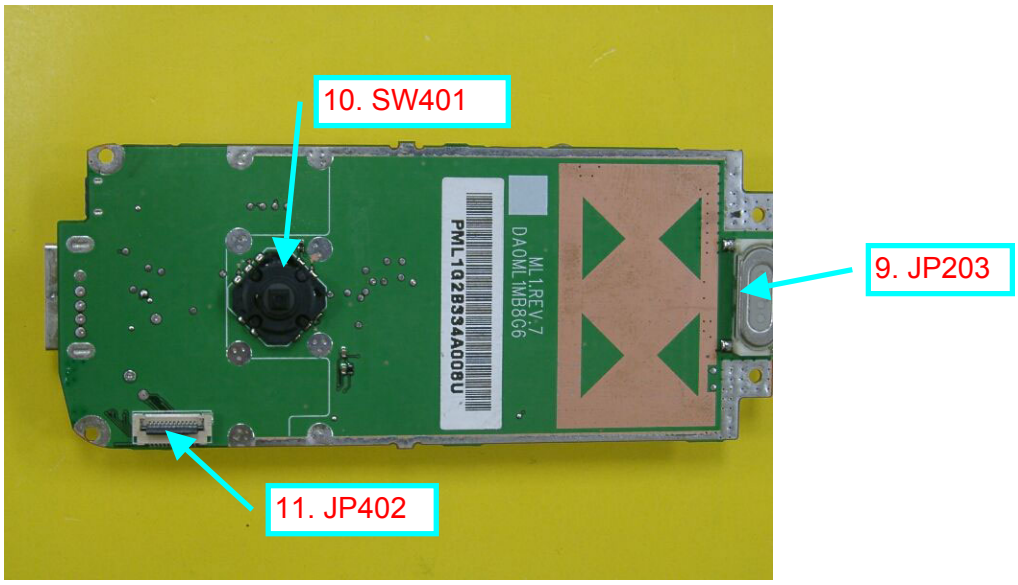
Tel.: +49 2842 95 4666
Fax: +49 2842 95 4302
E-mail: st-support@klf.siemens.de

2 Repair Location Code

The front side of M/B (Connect with keys)



The rear side of M/B



2.1.1 Code Description

1	RTC	RTC	7	JP301	BATT Connector
2	J503	LCD Connector	8	JP401	IO Connector
3	J504	Camera Connector	9	JP203	Receiver
4	JP202	Speaker Spring	10	SW401	Joystick
5	J101	SIM Connector	11	JP402	Keypad Connector
6	JP201	MIC Connector			

3 RTC (RTC Battery)

1.1 Affected Units

1.1.1 Type: ST55

1.1.2 Affected IMEIs / Date Codes: All/All

1.1.3 Affected SW-Versions: All

1.2 Fault Description

1.2.1 Fault Symptoms for customers:

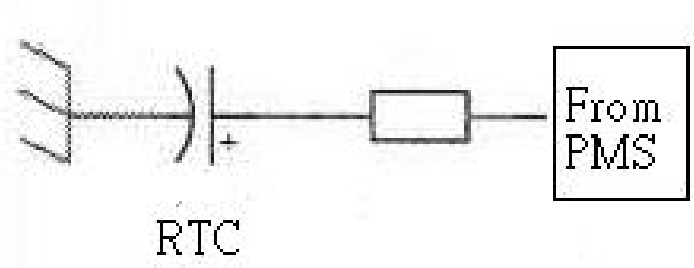
Time/Clock will reset each time power on.
No call records can be saved.

1.2.2 Fault Symptom on GSM-Tester:

None

1.2.3 Component Information

The RTC is a capacitor that supplies the power to the system to make the real time clock go on counting about 45minutes after the main battery of phone is taken off. Besides, the RTC battery will always be charged from the PMS when the main battery is inside the phone. See drawing below.



PMS: Power Management System

1.3 Priority

☐ ····· Mandatory
■ ····· Repair
☐ ····· Optional
☐ ····· Not Yet Defined

1.4 Repair Document

1.4.1 Description of procedure

1.4.1.1 Diagnosis

Visual check and measure with a multimeter to detect if the RTC is oxidized or deformed.

1.4.1.2 Repair by component change

1. Remove the defected RTC by Hot Air Blower (350°C ~ 400 °C) (350~400 °C).
2. Put on new RTC and add solder at the "+" side first.
3. Then add solder at the "-" side.
4.

1.4.1.3 Repair by SW-Booting

Not possible!

1.4.1.4 Test

Retest handset after repair procedure as described above

1.4.2 List of needed material

1.4.2.1 Components

ST55 RTC battery
Part Number: L36385-F505-X

1.4.2.2 Jigs and Tools

Hot Air Blower (350°C ~ 400 °C)
Soldering Iron (350°C ± 20 °C)

1.4.2.3 Special Tools:

Multimeter

1.4.2.4 Working materials

Desolder Wick / Braid
Solder

1.4.3 Drawings

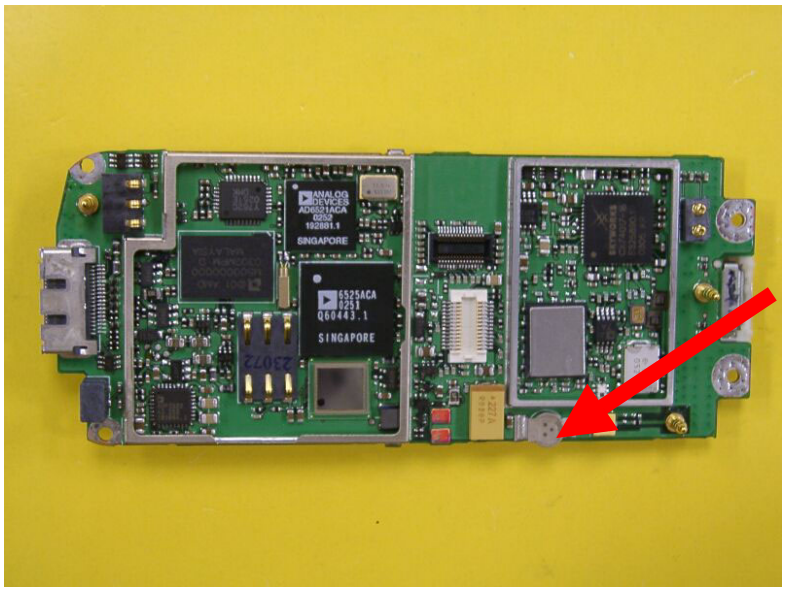


Figure 1.1: ST55 Board RTC Side (Top View)

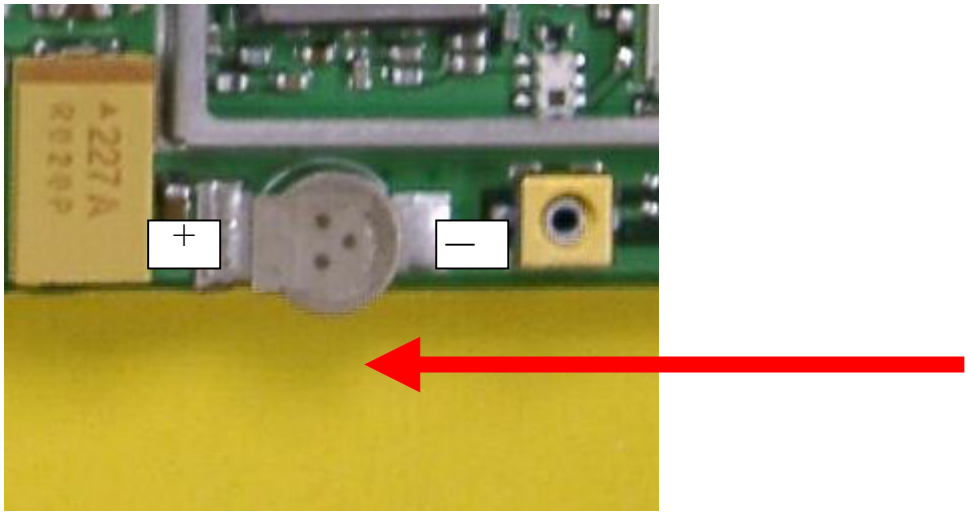


Figure 1.2: ST55 Board RTC Placement (RTC) (Top View)

4 LCD Connector (J503)

1.5 Affected Units

1.5.1 Type: ST55

1.5.2 Affected IMEIs / Date Codes: All/All

1.5.3 Affected SW-Versions: All

1.6 Fault Description

1.6.1 Fault Symptoms for customers:

No screen or wrong display.

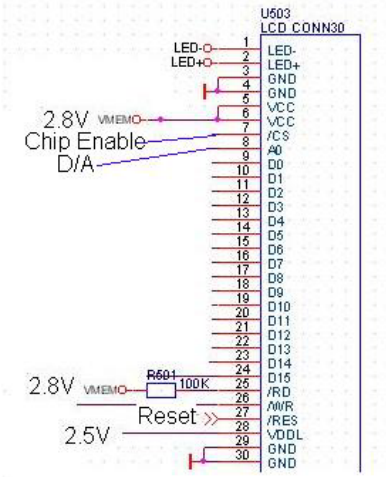
1.6.2 Fault Symptom on GSM-Tester:

None

1.6.3 Component Information

The LCD Cable Connector is a 30-pins contact type socket. There are 2 type signals transmitted through this connector.

1. LCD signal:
   A2, D0~D15, WR, REST, VDD 2.8V,VDDL 2.5V are used to transmitted the address signal, data signal, control signal and power signal of LCD.
2. Backlight LED signal:
   There is 11V power supplied to the anode of backlight LED via D303. LCDlight - connects the cathode of backlight LED and the resister that can limit the current passing through the LED.



1.7 Priority

- ☐ ····· Mandatory
- ■ ····· Repair
- ☐ ····· Optional
- ☐ ····· Not Yet Defined

1.8 Repair Document

1.8.1 Description of procedure

1.8.1.1 Diagnosis

Visual check and measure with a multimeter to detect if pins are cold, insufficient soldering, oxidized or deformed.

1.8.1.2 Repair by component change

1.Re-solder this connector if cold or insufficient soldering.
2.Use hot blower to remove defective connector and add solder on pads.
Avoid excessive heat! Watch surrounding component!
3.Heat and put on a new connector to enhance adhesion.
4.Re-solder new connector afterwards.

1.8.1.3 Repair by SW-Booting

Not possible!

1.8.1.4 Test

After repair procedure as described above, power on handset and check the display.

1.8.2 List of needed material

1.8.2.1 Components

ST55 LCD Connector
Part Number: L36334-Z97-C311

1.8.2.2 Jigs and Tools

Hot Air Blower (350°C ~ 400 °C)
Soldering Iron (350°C ± 20 °C)

1.8.2.3 Special Tools:

Multimeter

1.8.2.4 Working materials

Solder; Desolder Wick / Braid

1.8.3 Drawings

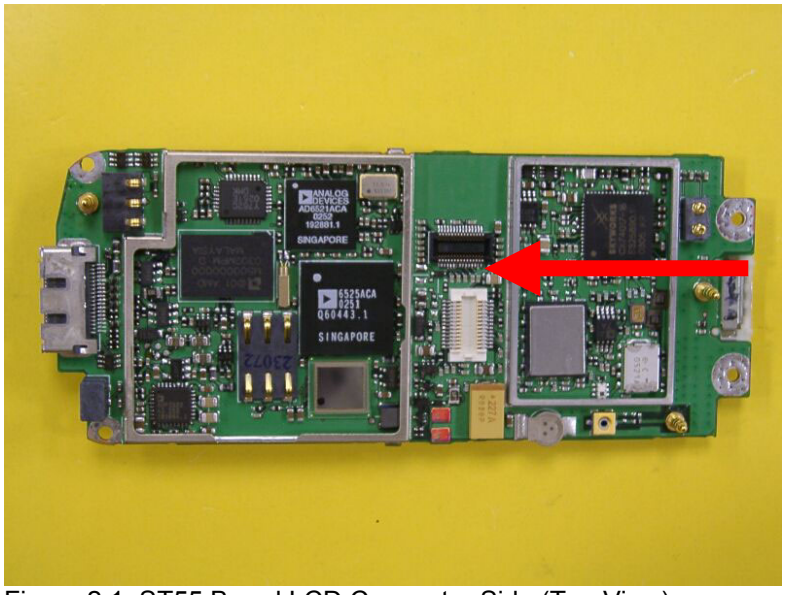


Figure 2.1: ST55 Board LCD Connector Side (Top View)

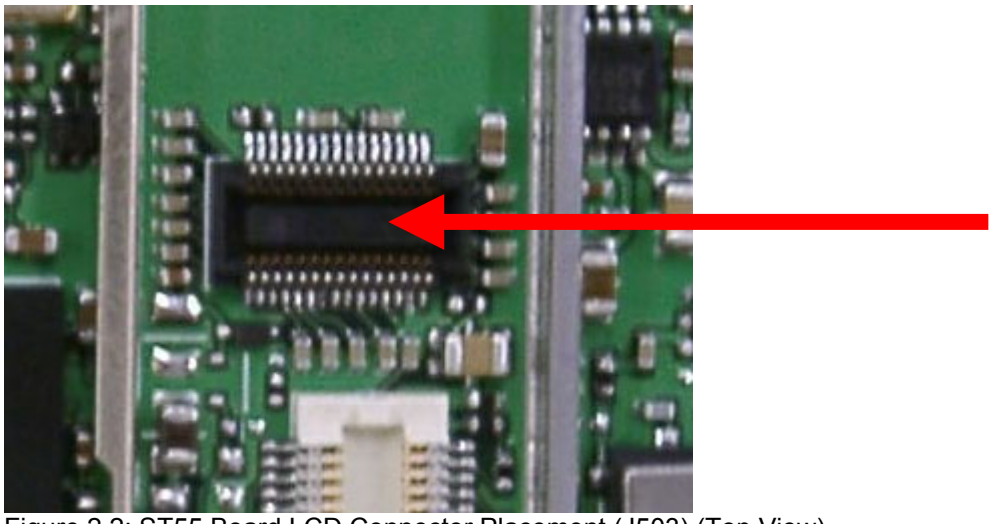


Figure 2.2: ST55 Board LCD Connector Placement (J503) (Top View)

5 Camera Connector (J504)

1.9 Affected Units

1.9.1 Type:	ST55
1.9.2 Affected IMEIs / Date Codes:	All/All
1.9.3 Affected SW-Versions:	All

1.10 Fault Description

1.10.1 Fault Symptoms for customers:

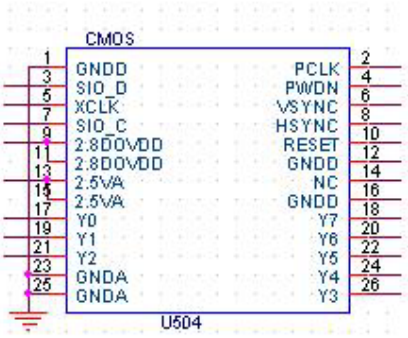
The picture captured by camera can't be shown on screen or abnormal display.

1.10.2 Fault Symptom on GSM-Tester:

None

1.10.3 Component Information

The camera connector is a 26-pins contact type socket. It had 2 kinds of working voltage (2.8 and 2.5V), 13MHz-working frequency. Using the YUV data format.



1.11 Priority

☐ ····· Mandatory
■ ····· Repair
☐ ····· Optional
☐ ····· Not Yet Defined

1.12 Repair Document

1.12.1 Description of procedure

1.12.1.1 Diagnosis

Visual check and measure with a multimeter to detect if the pins are cold, insufficient soldering, oxidized or deformed.

1.12.1.2 Repair by component change

1.Re-solder this connector if cold or insufficient soldering.
2.Use hot blower to remove defective connector and add solder on pads.
Avoid excessive heat! Watch surrounding component!
3.Heat and put on a new connector to enhance adhesion.
4.Re-solder new connector afterwards.

1.12.1.3 Repair by SW-Booting

Not possible!

1.12.1.4 Test

After repair procedure as described above, power on handset and check the camera function.

1.12.2 List of needed material

1.12.2.1 Components

ST55 Camera Connector
Part Number: L36334-Z97-C323

1.12.2.2 Jigs and Tools

Hot Air Blower (350°C ~ 400 °C) (350~400 °C)
Soldering Iron (350°C ± 20 °C)

1.12.2.3 Special Tools:

Multimeter

1.12.2.4 Working materials

Solder

1.12.3 Drawings

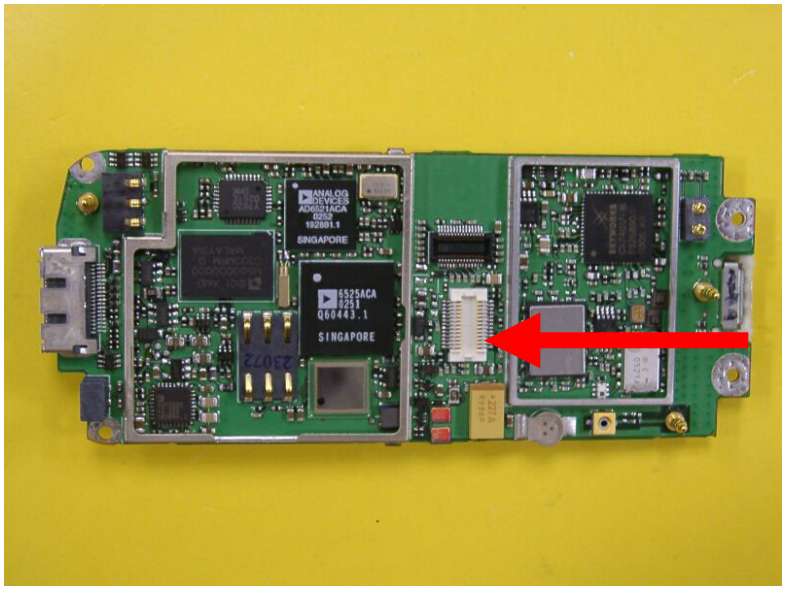


Figure 3.1: ST55 Board Camera Connector Side (Top View)

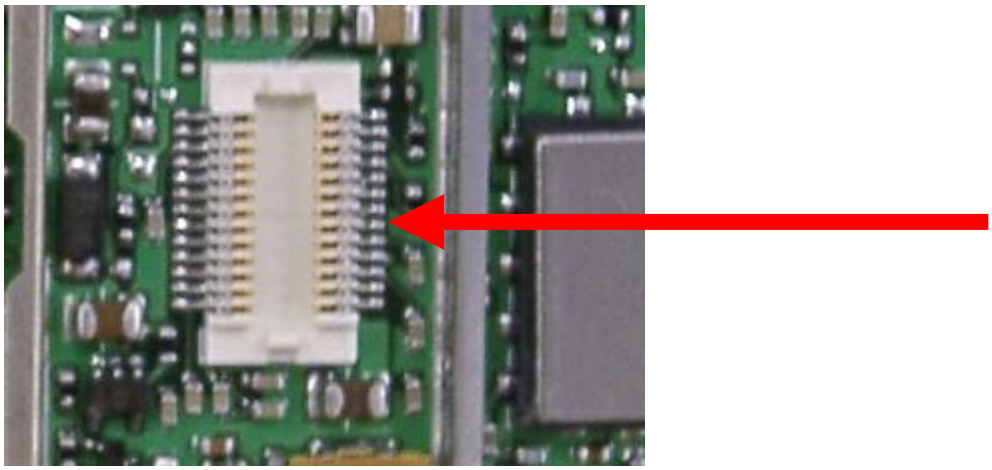


Figure 3.2: ST55 Board Camera Connector Placement (J504) (Top View)

6 Speaker Spring (JP202)

1.13 Affected Units

1.13.1 Type: ST55

1.13.2 Affected IMEIs / Date Codes: All/All

1.13.3 Affected SW-Versions: All

1.14 Fault Description

1.14.1 Fault Symptoms for customers:

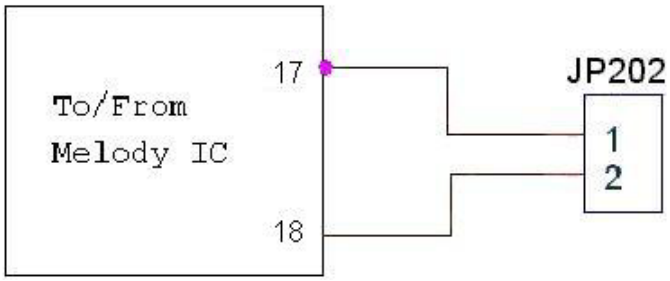
No ring tone while setting and a call coming.

1.14.2 Fault Symptom on GSM-Tester:

None

1.14.3 Component Information

The speaker spring connector is used to contact a 8ohm speaker. It provides two contact trace for the melody signal from the Melody IC. See drawing below.



1.15 Priority

☐ ····· Mandatory
■ ····· Repair
☐ ····· Optional
☐ ····· Not Yet Defined

1.16 Repair Document

1.16.1 Description of procedure

1.16.1.1 Diagnosis

Visual check if the springs are oxidized or deformed.

1.16.1.2 Repair by component change

1.Use hot blower to remove the defective connector.
Avoid excessive heat! Watch surrounding components!
2.Add solder on pads.
3.Heat and put on a new connector to enhance adhesion.

1.16.1.3 Repair by SW-Booting

Not possible!

1.16.1.4 Test

After repair procedure as described above, retest handset by '*#369#'.

1.16.2 List of needed material

1.16.2.1 Components

ST55 Speaker Spring
Part Number: L36334-Z97-C324

1.16.2.2 Jigs and Tools

Soldering Iron (350°C ± 20 °C)

1.16.2.3 Special Tools:

Multimeter

1.16.2.4 Working materials

Solder

1.16.3 Drawings

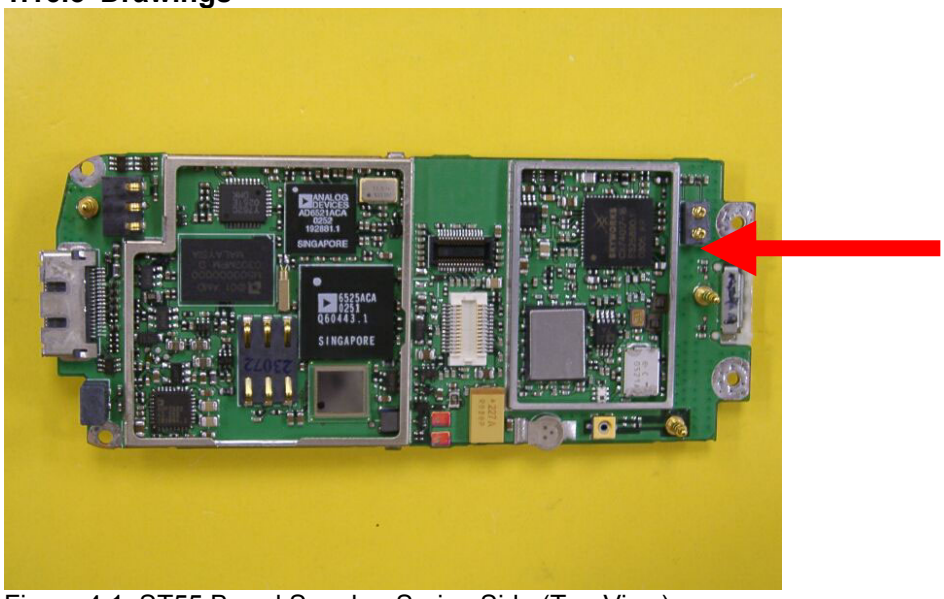


Figure 4.1: ST55 Board Speaker Spring Side (Top View)

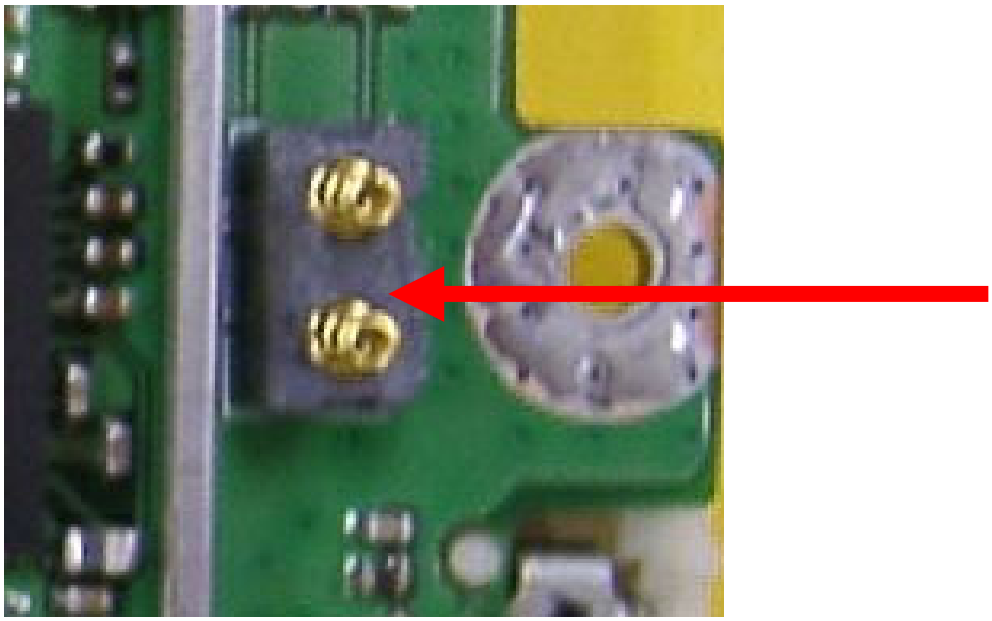


Figure 4.2: ST55 Board Speaker Spring Placement (JP202) (Top View)

7 SIM Connector (J101)

1.17 Affected Units

1.17.1 Type:	ST55
1.17.2 Affected IMEIs / Date Codes:	All/All
1.17.3 Affected SW-Versions:	All

1.18 Fault Description

1.18.1 Fault Symptoms for customers:

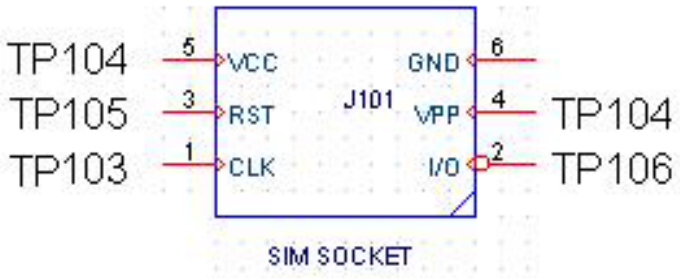
Always “Insert SIM card” showed under normal operation.

1.18.2 Fault Symptom on GSM-Tester:

No response!

1.18.3 Component Information

The SIM connector is a mechanical part designed to make a connection with SIM Card (GSM 11.11). The power will be supplied into VCC and VPP. The signal of RESET, CLOCK and DATA from DBP transmit to RST, CLK, and I/O.



1.19 Priority

☐ ····· Mandatory
■ ····· Repair
☐ ····· Optional
☐ ····· Not Yet Defined

1.20 Repair Document

1.20.1 Description of procedure

1.20.1.1 Diagnosis

Visual check and measure with multimeter if pins are cold, insufficient soldering, oxidized or deformed.

1.20.1.2 Repair by component change

1. Re-solder this connector if cold or insufficient soldering.
2. Use hot blower to remove the defective connector if oxidized or deformed and absorb remaining tin on pads.
3. Put on new connector and add solder on pins in diagonal sequence.

1.20.1.3 Repair by SW-Booting

Not possible!

1.20.1.4 Test

After repair procedure as described above, insert SIM card.

1.20.2 List of needed material

1.20.2.1 Components

ST55 SIM Connector
Part Number: L36334-Z97-C325

1.20.2.2 Jigs and Tools

Hot Air Blower (350°C ~ 400 °C)
Soldering Iron (350°C ± 20 °C)

1.20.2.3 Special Tools:

Multimeter

1.20.2.4 Working materials

Desolder Wick / Braid
Solder

1.20.3 Drawings

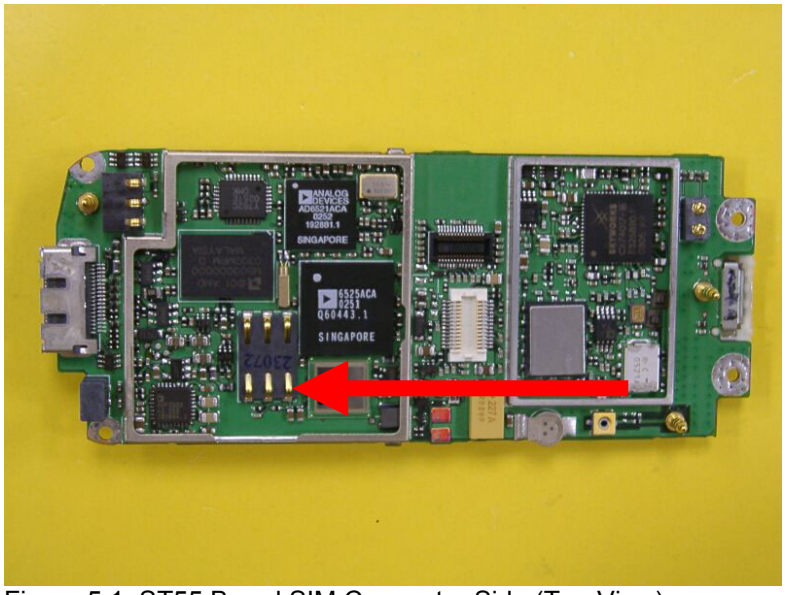


Figure 5.1: ST55 Board SIM Connector Side (Top View)

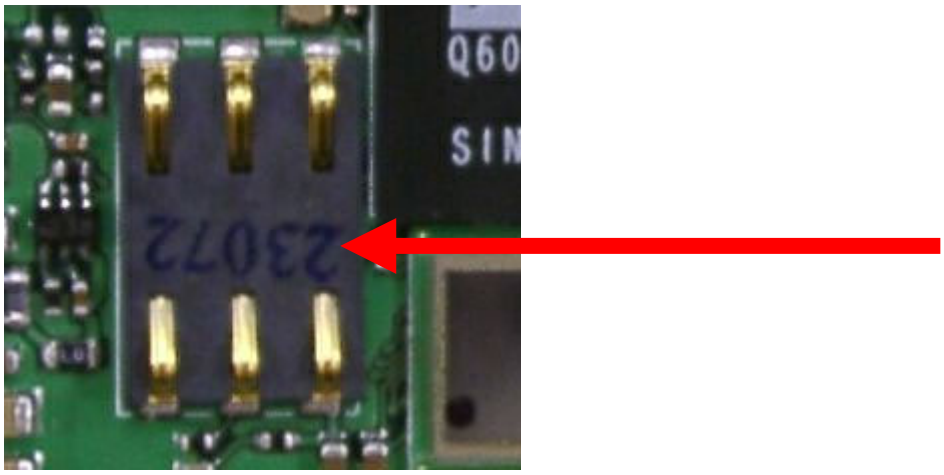


Figure 5.2: ST55 Board SIM Connector Placement (J101) (Top View)

8 MIC Connector (JP201)

1.21 Affected Units

1.21.1 Type: ST55

1.21.2 Affected IMEIs / Date Codes: All/All

1.21.3 Affected SW-Versions: All

1.22 Fault Description

1.22.1 Fault Symptoms for customers:

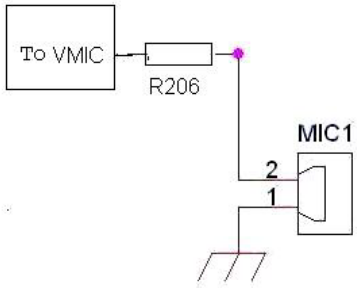
The called party can't hear any voice.

1.22.2 Fault Symptom on GSM-Tester:

None

1.22.3 Component Information

The MIC connector is a two pins holder. See drawing below. There will be about 1.2V bias on PIN-2 as the system is power on. The voice trace here is single end structure. Voice signal will be received by the microphone and goes to the VBC via PIN-2.



1.23 Priority

☐ ····· Mandatory
■ ····· Repair
☐ ····· Optional
☐ ····· Not Yet Defined

1.24 Repair Document

1.24.1 Description of procedure

1.24.1.1 Diagnosis

Measure pin2 to R206 with multimeter to check cold or insufficient soldering.

1.24.1.2 Repair by component change

1.Use hot blower to remove the defective connector.
Avoid excessive heat! Watch surrounding components!
2.Add solder on pads.
3.Heat and put on a new connector to enhance adhesion.

1.24.1.3 Repair by SW-Booting

Not possible!

1.24.1.4 Test

Retest handset after repair procedure as described above

1.24.2 List of needed material

1.24.2.1 Components

ST55 MIC Connector
Part Number: L36334-Z97-C326

1.24.2.2 Jigs and Tools

Hot Air Blower (350°C ~ 400 °C)
Soldering Iron (350°C ± 20 °C)

1.24.2.3 Special Tools:

Multimeter

1.24.2.4 Working materials

Solder

1.24.3 Drawings

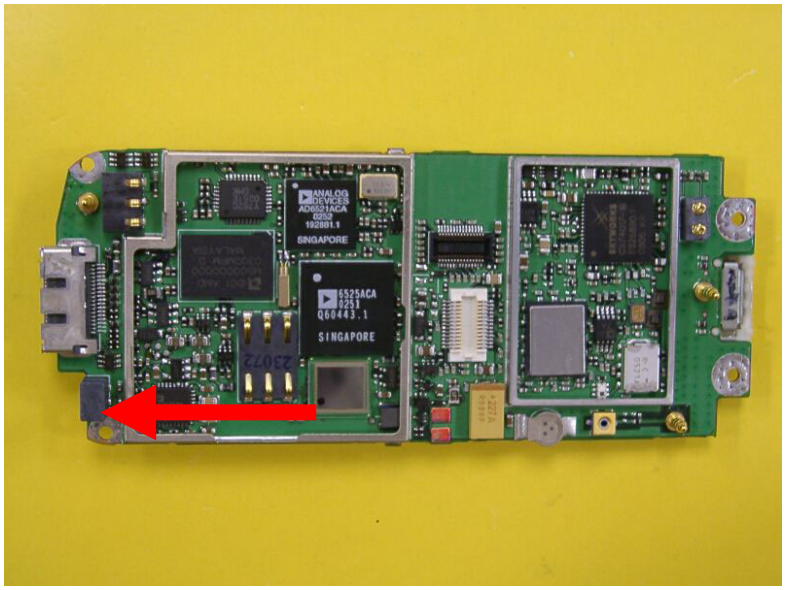


Figure 6.1: ST55 Board MIC Connector Side (Top View)

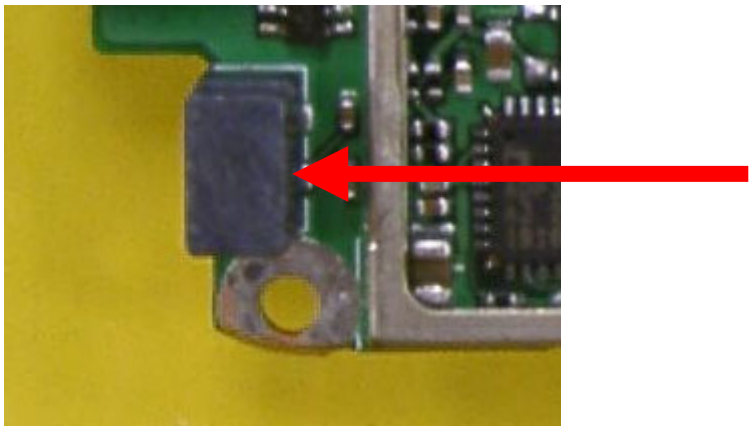


Figure 6.2: ST55 Board MIC Connector Placement (JP201) (Top View)

9 Battery Connector (JP301)

1.25 Affected Units

1.25.1 Type: ST55

1.25.2 Affected IMEIs / Date Codes: II/All

1.25.3 Affected SW-Versions: II

1.26 Fault Description

1.26.1 Fault Symptoms for customers:

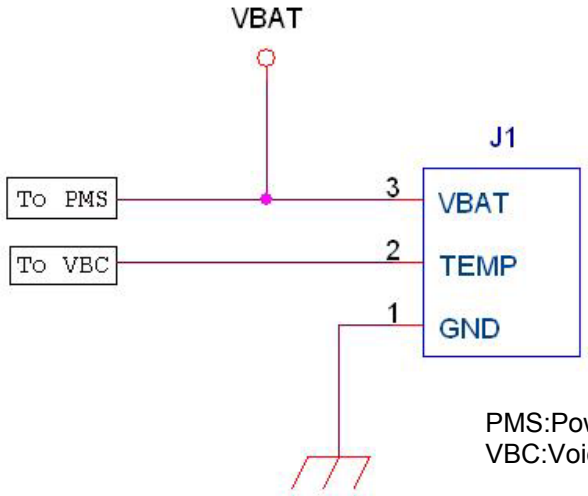
Can't power on under normal operation.
Can't charge by this mobile when power off.

1.26.2 Fault Symptom on GSM-Tester:

No response!

1.26.3 Component Information

J1 is a battery connector with 3 battery contacts as power supply portion. Normally while power on, the 3.6~4.2V voltage is provided to the handset via VBAT. Temperature is detected via TEMP.



PMS:Power Management System
VBC:Voiceband Codec

1.27 Priority

☐ ····· Mandatory
■ ····· Repair
☐ ····· Optional
☐ ····· Not Yet Defined

1.28 Repair Document

1.28.1 Description of procedure

1.28.1.1 Diagnosis

Eye check pins if oxidized or deformed.
Measure pins to test points (VBAT, GND) by the multimeter to check conductivity.

1.28.1.2 Repair by component change

1.Use hot blower to remove the defective connector.
Avoid excessive heat! Watch surrounding components!
2.Add solder.
3. Heat and put on a new connector to enhance adhesion.
4. Re-solder if needed.

1.28.1.3 Repair by SW-Booting

Not possible!

1.28.1.4 Test

After repair procedure as described above, insert the battery and power on.

1.28.2 List of needed material

1.28.2.1 Components

ST55 Battery Connector
Part Number: L36334-Z97-C329

1.28.2.2 Jigs and Tools

Hot Air Blower (350°C ~ 400 °C)
Soldering Iron (350°C ± 20 °C)

1.28.2.3 Special Tools:

Multimeter

1.28.2.4 Working materials

Solder

1.28.3 Drawings

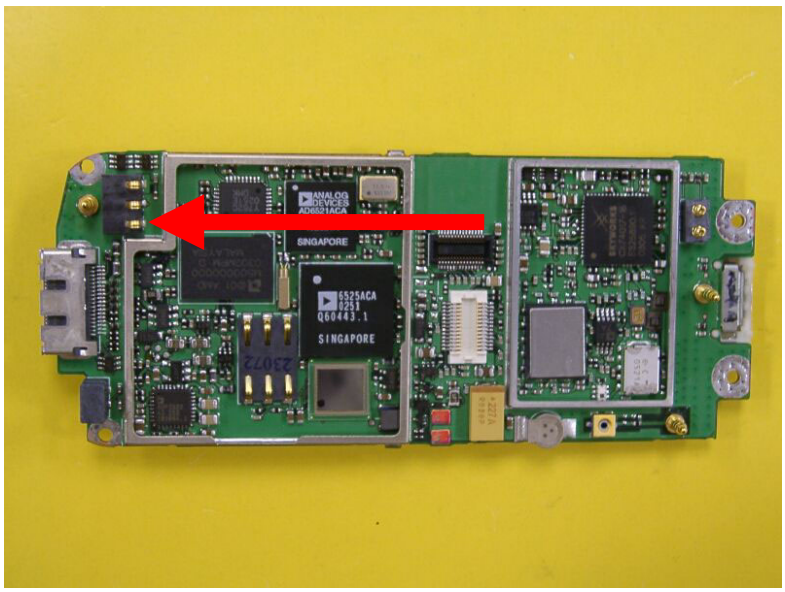


Figure 7.1: ST55 Board Battery Connector Side (Top View)

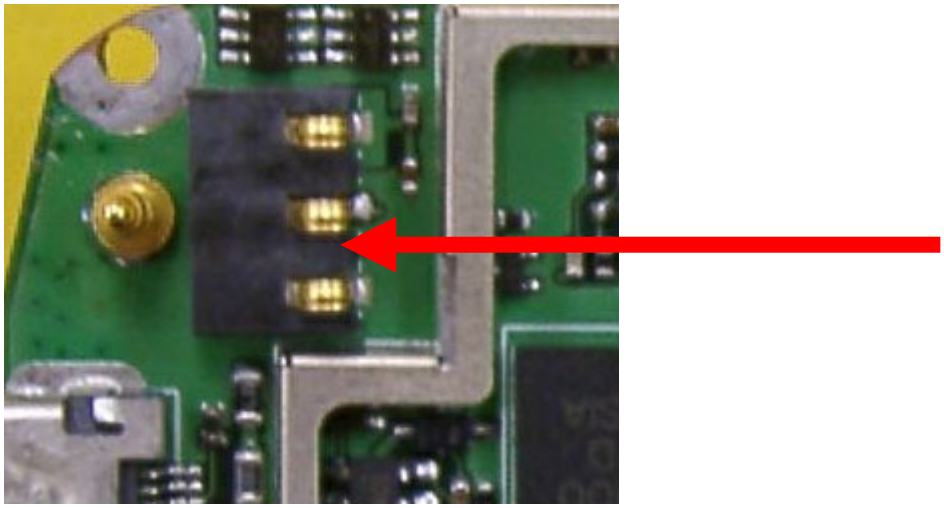


Figure 7.2: ST55 Board Battery Connector Placement (JP301) (Top View)

10 IO Connector (JP401)

1.29 Affected Units

1.29.1 Type:	ST55
1.29.2 Affected IMEIs / Date Codes:	All/All
1.29.3 Affected SW-Versions:	All

1.30 Fault Description

1.30.1 Fault Symptoms for customers:

Can't charge. No charging icon shown when plugging the charger in. Earphones can't be used.

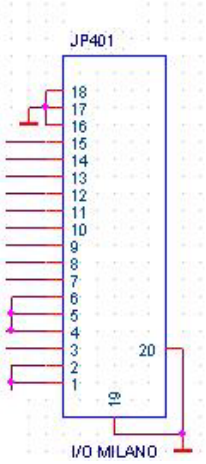
1.30.2 Fault Symptom on GSM-Tester:

None

1.30.3 Component Information

The I/O connector including charging power input, headset and download port. There will be about 530mA current flowing into the system in the beginning of charging. The fuse will be burned as soon as the charging current is lager than 1A. See drawing below.

Pin 3,15 Headset function
Pin 4,5,6 were charging pin
Pin 9,13 for download



1.31 Priority

☐ ····· Mandatory
■ ····· Repair
☐ ····· Optional
☐ ····· Not Yet Defined

1.32 Repair Document

1.32.1 Description of procedure

1.32.1.1 Diagnosis

Visual check and measure with multimeter if pins are cold, insufficient soldering, oxidized or deformed.

1.32.1.2 Repair by component change

1.Re-solder this connector if cold or insufficient soldering.
2. Use hot blower to remove the defective connector.
Avoid excessive heat! Watch surrounding components!
3. Add solder.
4. Heat and put on a new connector to enhance adhesion.
5. Re-solder if needed.

1.32.1.3 Repair by SW-Booting

Not possible!

1.32.1.4 Test

Recharge the handset after repair procedure as described above.

1.32.2 List of needed material

1.32.2.1 Components

ST55 IO Connector
Part Number: L36334-Z97-C327

1.32.2.2 Jigs and Tools

Hot Air Blower (350°C ~ 400 °C)
Soldering Iron (350°C ± 20 °C)

1.32.2.3 Special Tools:

Multimeter

1.32.2.4 Working materials

Solder

1.32.3 Drawings

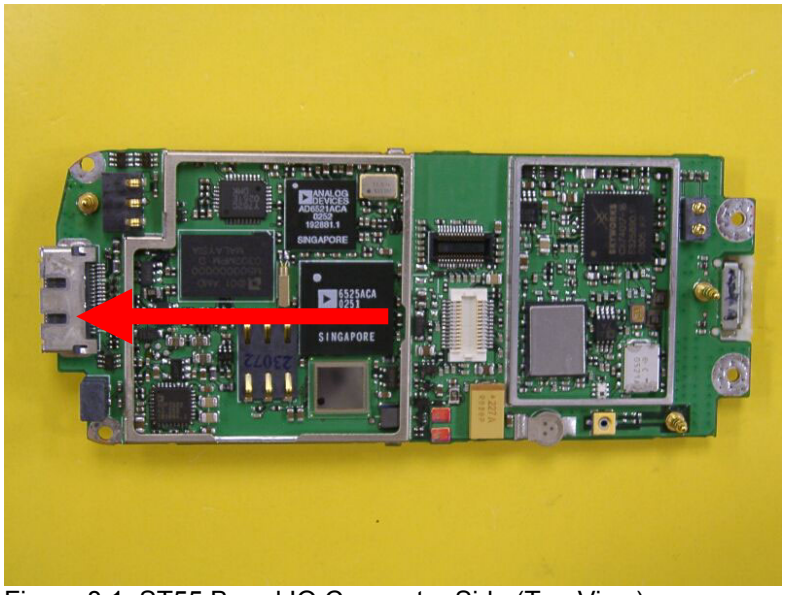


Figure 8.1: ST55 Board IO Connector Side (Top View)

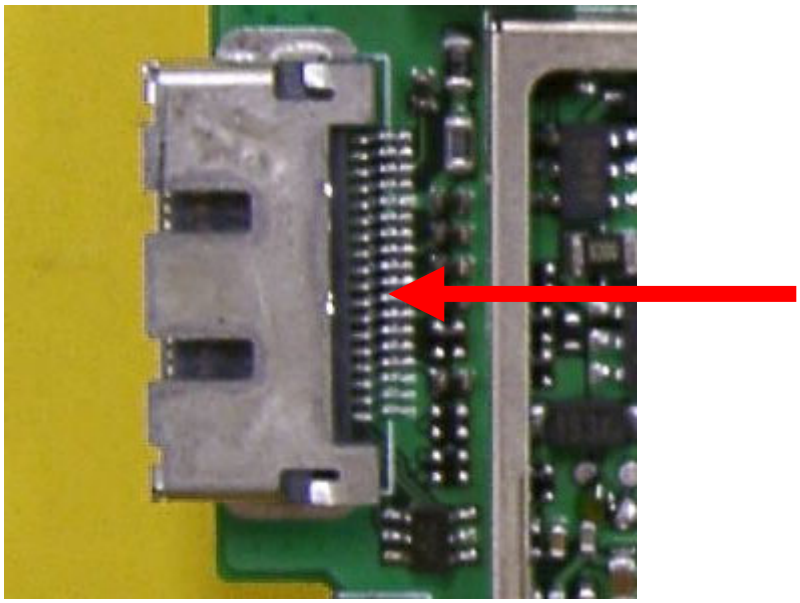


Figure 8.2: ST55 Board IO Connector Placement (JP401) (Top View)

11 Earpiece (JP203)

1.33 Affected Units

1.33.1 Type: ST55

1.33.2 Affected IMEIs / Date Codes: All/All

1.33.3 Affected SW-Versions: All

1.34 Fault Description

1.34.1 Fault Symptoms for customers:

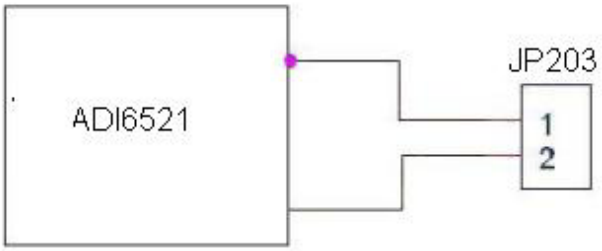
The caller can't hear any voice.

1.34.2 Fault Symptom on GSM-Tester:

None

1.34.3 Component Information

The speaker connector is used to contact a 32ohm earpiece.
It provides two traces for the dlink signal from the ADI6521 IC. See drawing below.



1.35 Priority

☐ ····· Mandatory
■ ····· Repair
☐ ····· Optional
☐ ····· Not Yet Defined

1.36 Repair Document

1.36.1 Description of procedure

1.36.1.1 Diagnosis

Visual check and measure with multimeter to detect if pins are cold, insufficient soldering, oxidized or deformed.

1.36.1.2 Repair by component change

1. Re-solder this connector if cold or insufficient soldering.
2. Heat and remove the defective earpiece by Soldering Iron (350°C ± 20 °C) from the topside.
3. Put on a new earpiece.
4. Heat and press the earpiece to the right position gently.
   Avoid excessive heat! Watch surrounding component!
5. Re-solder if needed.

1.36.1.3 Repair by SW-Booting

Not possible!

1.36.1.4 Test

Retest handset by '*#369#' after repair procedure as described above

1.36.2 List of needed material

1.36.2.1 Components

ST55 Earpiece
Part Number: L36104-F3090-X907

1.36.2.2 Jigs and Tools

Hot Air Blower (350°C ~ 400 °C)
Soldering Iron (350°C ± 20 °C)

1.36.2.3 Special Tools:

Multimeter

1.36.2.4 Working materials

Desolder Wick / Braid
Solder

1.36.3 Drawings

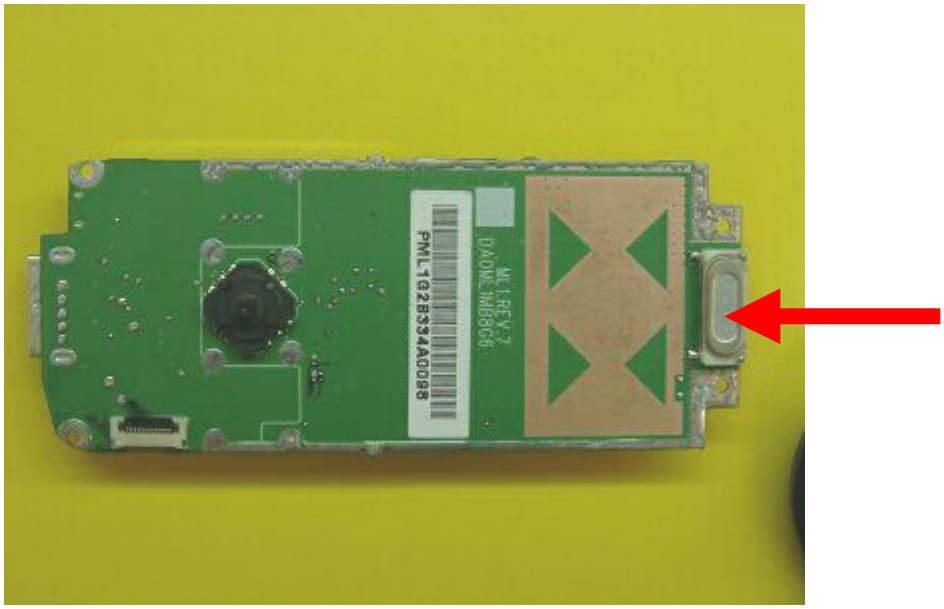


Figure 9.1: ST55 Board Earpiece Side (Top View)

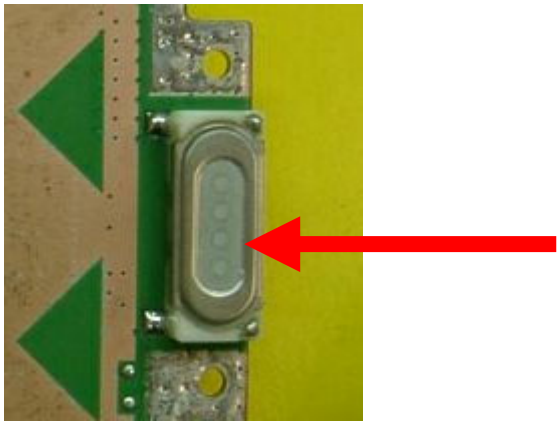


Figure 9.2: ST55 Board Earpiece Placement (JP203) (Top View)

12 Joystick (SW401)

1.37 Affected Units

1.37.1	**Type:**	ST55
1.37.2	**Affected IMEIs / Date Codes:**	All/All
1.37.3	**Affected SW-Versions:**	All

1.38 Fault Description

1.38.1 Fault Symptoms for customers:

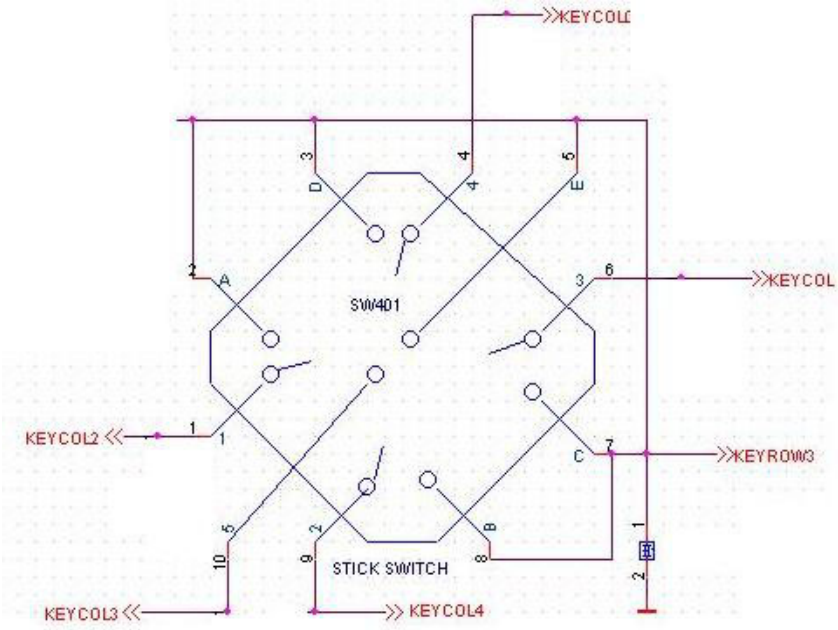
The joystick will be no function under normal operation.

1.38.2 Fault Symptom on GSM-Tester:

None

1.38.3 Component Information

This is a five-way joystick which ROW3, COL0~COL4, used to transmitted the ROW signal, COLUMN signal.



1.39 Priority

☐ ····· Mandatory
■ ····· Repair
☐ ····· Optional
☐ ····· Not Yet Defined

1.40 Repair Document

1.40.1 Description of procedure

1.40.1.1 Diagnosis

Visual check and measure with multimeter if pins are cold, insufficient soldering, oxidized or deformed.

1.40.1.2 Repair by component change

1.Re-solder this connector if cold or insufficient soldering.
2.Use hot blower to remove the defective connector if oxidized or deformed and absorb remaining tin on pads.
3. Put on new connector and add solder on pins in diagonal sequence.

1.40.1.3 Repair by SW-Booting

Not possible!

1.40.1.4 Test

After repair procedure as described above, retest handset by '*#369#'.

1.40.2 List of needed material

1.40.2.1 Components

ST55 Joystick
Part Number: L36315-Z77-C221

1.40.2.2 Jigs and Tools

Hot Air Blower (350°C ~ 400 °C)
Soldering Iron (350°C ± 20 °C)

1.40.2.3 Special Tools:

Multimeter

1.40.2.4 Working materials

Desolder Wick / Braid Solder

1.40.3 Drawings

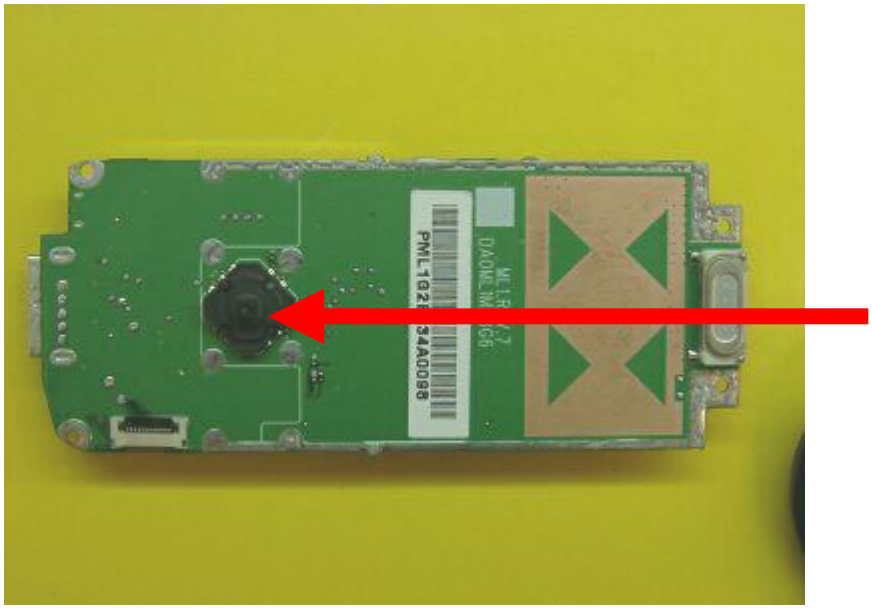


Figure 10.1: ST55 Board Joystick Side (Top View)

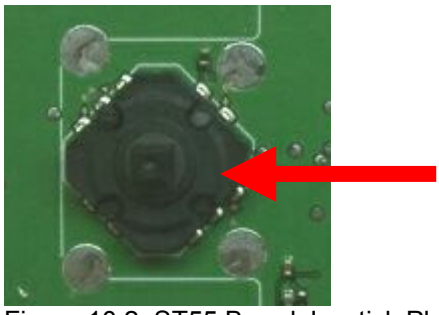


Figure 10.2: ST55 Board Joystick Placement (SW401) (Top View)

13 Keypad Connector (JP402)

1.41 Affected Units

1.41.1	**Type:**	ST55
1.41.2	**Affected IMEIs / Date Codes:**	All/All
1.41.3	**Affected SW-Versions:**	All

1.42 Fault Description

1.42.1 Fault Symptoms for customers:

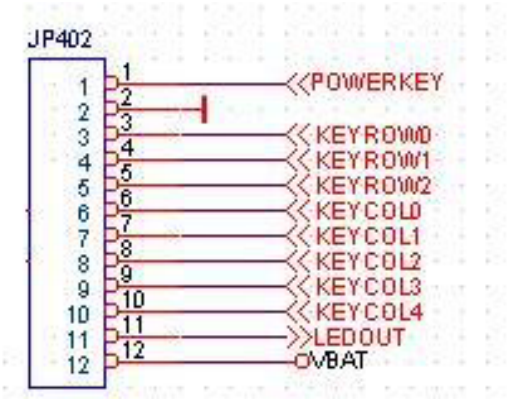
Can't power on/off.
No response while pressing keys under normal operation.

1.42.2 Fault Symptom on GSM-Tester:

None

1.42.3 Component Information

The keypad connector is a 12-pins contact type socket. There are 2 type signals transmitted through this connector.
1. Key signal:
ROW0~ROW2, COL0~COL4, and PWR are used to transmitted the ROW signal, COLUMN signal, and POWER ON signal of key.
2. Keypad backlight signal:
There are 8 pieces LED used in the keypad FPC. The power is supplied to the LED via VBAT (PIN-12). The signal coming from DBP to LED (PIN-11) will control the ON/OFF of LED.
See drawing below.



1.43 Priority

☐ ····· Mandatory
■ ····· Repair
☐ ····· Optional
☐ ····· Not Yet Defined

1.44 Repair Document

1.44.1 Description of procedure

1.44.1.1 Diagnosis

Visual check and measure with multimeter if pins are cold, insufficient soldering, oxidized or deformed.

1.44.1.2 Repair by component change

1.Re-solder this connector if cold or insufficient soldering.
2. Use hot blower to remove the defective connector.
Avoid excessive heat! Watch surrounding components!
3. Add solder.
4. Heat and put on a new connector to enhance adhesion.
5. Re-solder if needed.

1.44.1.3 Repair by SW-Booting

Not possible!

1.44.1.4 Test

Retest handset by '*#369#' after repair procedure as described above

1.44.2 List of needed material

1.44.2.1 Components

ST55 Keypad Connector
Part Number: L36334-Z97-C328

1.44.2.2 Jigs and Tools

Hot Air Blower (350°C ~ 400 °C)
Soldering Iron (350°C ± 20 °C)

1.44.2.3 Special Tools:

Multimeter

1.44.2.4 Working materials

Solder

1.44.3 Drawings

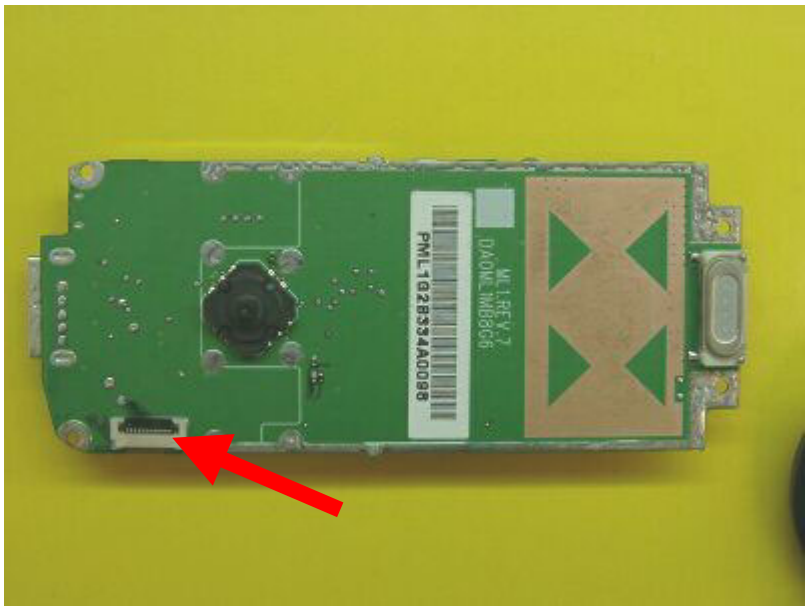


Figure 11.1: ST55 Board Keypad Connector Side (Top View)

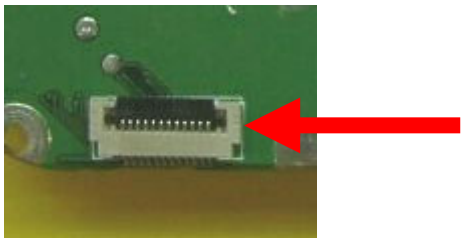


Figure 11.2: ST55 Board Keypad Connector Placement (JP402) (Top View)