E398 DebugGuide

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Modified	Date	By

1.0 - Preamble

This Document was created to assist Analyzers, when fixing Problems on Motorola GSM Phones. All Information was collected during the Repair in the Repair Entitlement Group Flensburg.

2.0 - Some Basic Tips

2.1 Software upgrade
   - always use the latest Software available for the phone (Software-bugs are excluded)

2.2 Visual inspection
   - check for liquid damage (water indicator)
   - check for missing, broken or unsoldered parts
   - check for mechanical damage (board twisted, tracks defect etc.)

2.3 Cross check
   - before beginning to replace/change parts or soldering anything try to consider the failure from all sides.

2.4 Solder process
   - the soldering process of lead-free products always must be done with the aid of a bottom-heater and flux for lead-free soldering
   - always cover sensitive parts with shields

3.0 - Top 10 Defective Parts

This is the Analysis of the repaired Phones in NPI-Process, related to the first repair works at all.

Count	Part
164	U700
115	PCB
103	U50
78	U800
52	NFF
49	U900
24	U1400
22	SW-UPDATE
20	Y900
12	RE-FLASH

Search Result   Top 10 Defect Parts
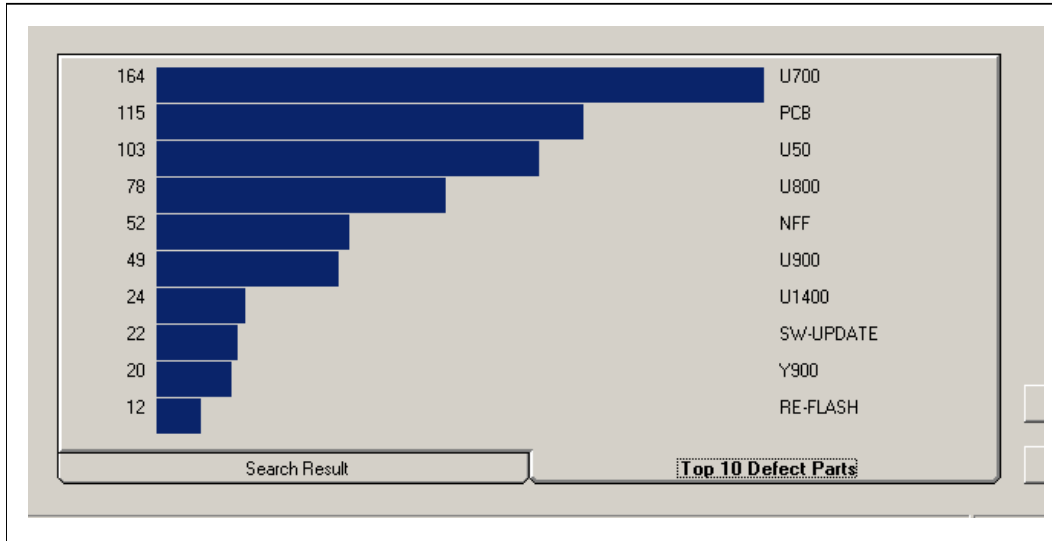
4.0 - Most frequently Failure Codes and Root Causes

ALTxx   - U900

AUDxx   - Microphone, J2000, U900, U800

BATxx   - U50

CHGxx   - J1400, FI1400, U900, J950, CR900, U900

DIMxx   - J1301, L960, D960

MKPxx   - Keyboard, J1401, J1301, U1400, U1401, S1460, SW100, SW1402, U800

TON01   - Y900, U900, Y805, U800, U700

TON03   - Y900, U900

CPRxx   - U50, U150, J40

5.0 - Troubleshooting

5.1 - Alert - Customer Complaint: ALTxx

1.) If the Alert is not working
        check:- Chassis Speaker Assy
                        - J1261
                                - the Components around D961
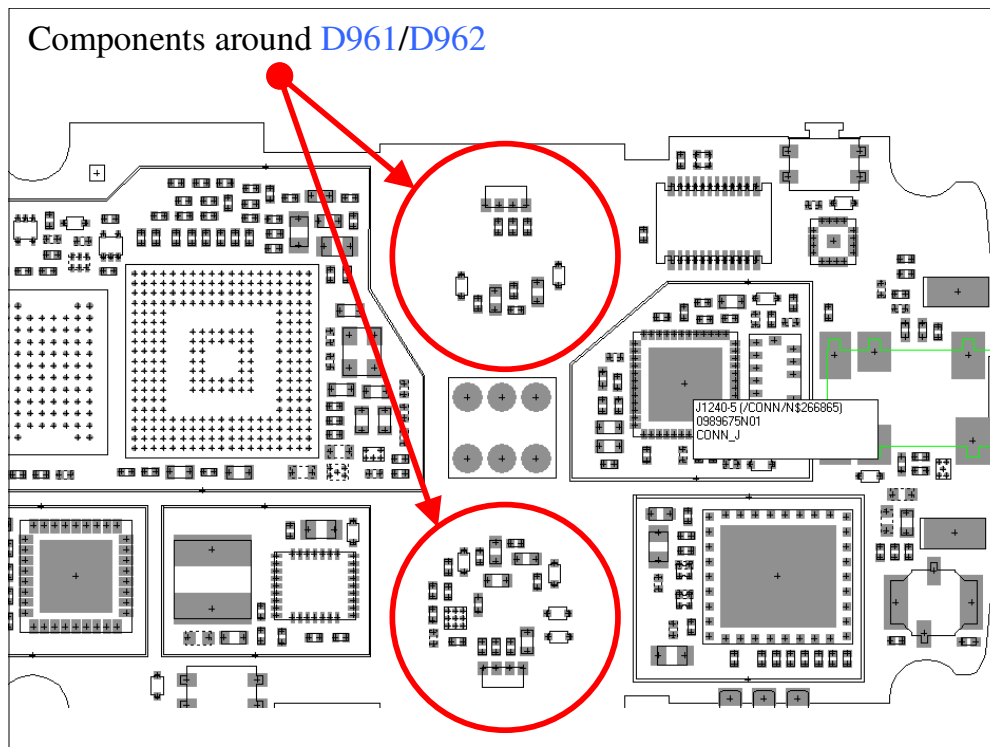   - the Components around D962
- for Dry Joints, Solder Shorts, damaged and skewed Parts
- replace missing or damaged Components

2.) If the Alert is still not working
        replace: - U900

Components around D961/D962

5.2 - Audio - Customer Complaint: AUDxx

1.) If Audio is not working

       check:- the Microphone

                 - J2000

                 - the Components around the Microphone

                 - the Components around TP1200

                 - the Components around TP1201

                 - the Components around U900

2.) If Audio is still not working

       check at TP1200 and TP1201 ≈ 1,4V DC

       replace: - U900 (if not effective)

                      - U800
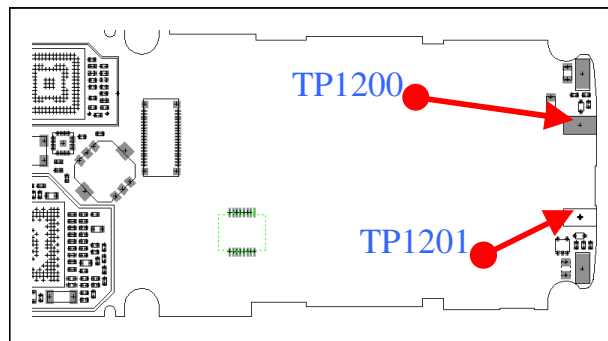
5.3 - Battery - Customer Complaint: BATxx

1.) If the Battery and/or the PA-Area is getting hot

       replace: - U50

5.4 - Charging - Customer Complaint:CHGxx

1.) If charging is not possible
      check:- J1400
                  - FL1400
                  - U900
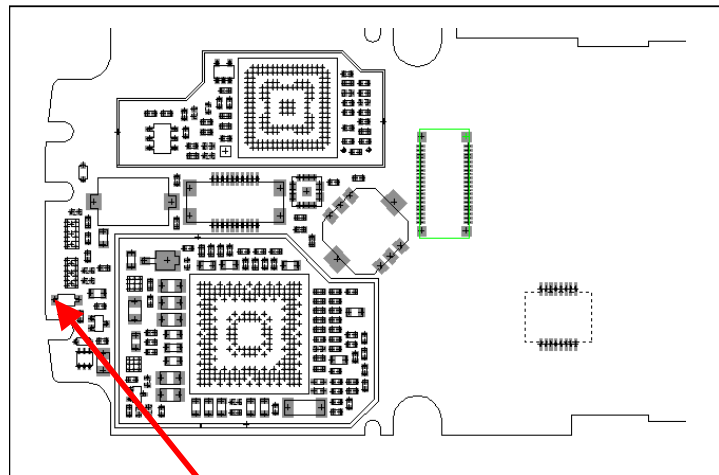   - J950
                  - CR900
- for Dry Joints, Solder Shorts, damaged and skewed Parts
- replace missing or damaged Components

2.) If charging is still not possible
      check "BATT FDBK" at CR900 (if not effective)

      replace: - U900

BATT FDBK

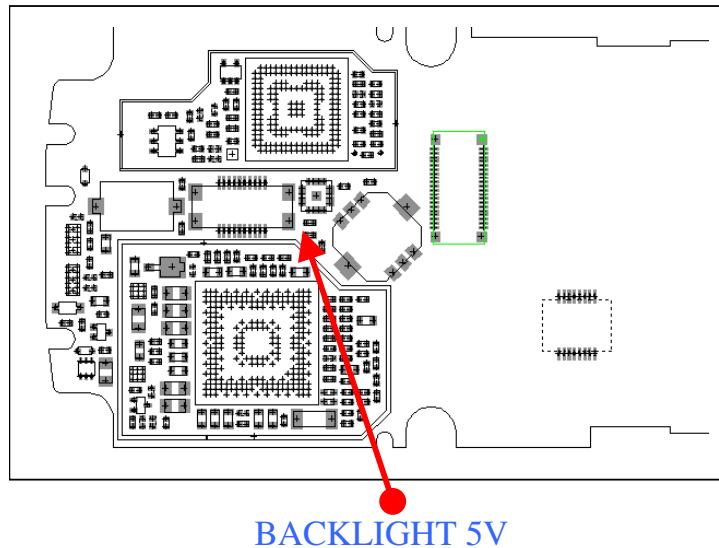## 5.5 Display Backlight - Customer Complaint: DIMxx

1.) If the Display Backlight is not working
      check:- J1301
- for Dry Joints, Solder Shorts, damaged and skewed Parts
- replace missing or damaged Components

2.) If the Display Backlight is still not working
      check the "BACKLIGHT 5V" at C1454

      replace: - L960 (if not effective)
                    - D960

BACKLIGHT 5V

5.6 - Main Keypad - Customer Complaint: MKPxx

1.) If the Main Keypad is not working
        check:- the Keyboard
                        - J1401
                        - J1301
                        - U1400
                        - U1401
                        - S1460
                        - SW1400
                        - SW1402
- for Dry Joints, Solder Shorts, damaged and skewed Parts
- replace missing or damaged Components

2.) If the Main Keypad is still not working
        replace: - U1400 (if not effective)
                        - U1401 (if not effective)
                        - U800

5.7 - Power Up - Customer Complaint: TON01

1.) If the PCB doesn't start up
        check the 32kHz at Y900

        replace: - Y900 (if not effective)
                        - U900

        check the 26MHz at Y805

        replace: - Y805 (if not effective)
                        - U800

2.) If the PCB starts Up in Flashmode

        replace: - U700 (current drain ~ 1,5mA)

3.) If the PCB doesn't start up

        check VBOOST (5,6V) at L922, L921, CR921 and U900
        replace if suspect

        check VBUCK (1,9V) at L920, CR920, R920, C927 and U900
        replace if suspect

5.8 - Power Up - Customer Complaint: TON03

1.) If the PCB switches itself off in Standby
check 32kHz at Y900

replace: - Y900 (if not effective)
              - U900

5.9 - TX - Customer Complaint: CPRxx

1.) If TX is not working
check:- U50
              - U150
              - J40
              - the Components around U50
- for Dry Joints, Solder Shorts, damaged and skewed Parts
- replace missing or damaged Components

2.) If TX is still not working
check TX-Output at A1, L1, C7, J40, C45 and L47
check TX-Input at R80 (GSM) and R81 (DCS)

replace: - U50 (if not effective)
              - U150