Approved 3.0

CMO Operations & Logistics

MGR

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NOKIA 770
Internet Tablet

SU-18

Transceiver characteristics:

- **Display:** High-resolution (800x480) touch screen with up to 65,536 colors
- **Bluetooth**
- **WLAN**
- **Connector:**
    - o Mini USB
    - o 3.5mm stereo audio out

Transceiver with BP-5L 1500mAh Li-Ion battery pack

Browsing time	Standby	Note
3h	7 days	Depends on network parameters

Environmental characteristics:

- Lead-free soldered

SERVICE MANUAL

Service Level 1&2

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CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	24.05.2005	Initial draft
Approved	1.0	15.08.2005	Approved
Approved	2.0	29.09.2005	Minor changes in naming of keymats and Domesheets
Approved	3.0	29.08.2005	Disassembly instructions updated

1. INTRODUCTION

The purpose of this document is to help NOKIA service levels 1 and 2 workshop technicians to carry out service to NOKIA products. This Service Manual is to be used **only** by authorized NOKIA service suppliers, and the content of it is confidential. Please note that NOKIA provides also other guidance documents (e.g. Service Bulletins) for service suppliers, follow these regularly and comply with the given instructions.

While every endeavor has been made to ensure the accuracy of this document, some errors may exist.
If you find any errors or if you have further suggestions, please notify NOKIA using the address below:
mailto:cc-ts-rc.documentation@nokia.com

Please keep in mind also that this documentation is continuously being updated and modified, so watch always out for the newest version.

Warnings and Cautions

Please refer to the phone's user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

Warnings:

1. CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI–SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.
2. THE HANDPORTABLE TELEPHONE MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES EG PETROL STATIONS (SERVICE STATIONS), BLASTING AREAS ETC.
3. OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. CONSULT A PHYSICIAN OR THE MANUFACTURER OF THE MEDICAL DEVICE IF YOU HAVE ANY QUESTIONS. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.

Cautions:

1. Servicing and alignment must be undertaken by qualified personnel only.
2. Ensure all work is carried out at an anti–static workstation and that an anti–static wrist strap is worn.
3. Use only approved components as specified in the parts list.
4. Ensure all components, modules screws and insulators are correctly re–fitted after servicing and alignment.
5. Ensure all cables and wires are repositioned correctly.

Electrostatic discharge can easily damage the sensitive components of electronic products. Therefore every Service Supplier has to take care of all precautions, which are mentioned in the service level related "Service Partner Requirements", available on NOKIA Online. Also see ESD Protection Requirements in this Service Manual.

2. GENERAL REPAIR INFORMATION

In this section the technician will get some general hints how to carry out repairs:

o   To familiarize oneself with NOKIA product read the tutorials or user guide on www.nokia.com -->Support--> Phones, by selecting the Phone Model.
o   Before starting the repair you must take care of ESD precautions like being in your ESD Protected Area and connecting your wristband.
o   Use gloves to avoid corrosion and fingerprints.
o   Protect windows and displays with a film to avoid dust and scratches.
o   When cleaning the LCD Module any lint-free cloth can be used (e.g. Micro-Fibre cloth).
o   When cleaning the pads you have to use a soft cloth/ESD brush and Isopropanol. It is not allowed to use a glass fiber pencil because it scratches the surface and will lead later on to corrosion.
o   Mechanical parts (except shielding lids and bent parts), which didn't repair the failure, can be reused, if they are not soldered.
o   When removing the shielding lids make sure to replace them with new ones, otherwise the high-frequency leakage can have an influence on the device.
o   Always use original NOKIA spare parts.
o   Check the soldering joints of the parts, which are concerned regarding the indicated error (e.g. soldered connectors or switches) and resolder them if necessary (Level 2 only).
o   Remove redundant soldering flux after repair.
o   Meet the torque requirements when assembling the unit (see also the document "torques for transceiver assembly" on NOKIA Partner Web Site/NOKIA Online).
o   Always use your own equipment for testing where you are sure that it works. E.g. if the customer complains about charger function, please test the phone with your own charger to be sure if phone or charger causes the malfunction.
o   A SIM card is needed for all GoNoGo tests.
o   When doing the fault log entries, always note the Item code, which caused the malfunction. Also, fill in the appropriate part code from the assembly, if needed.
o   Please be aware that some malfunctions could be software related and solved by an update.

o   There are several documents available on NOL, which have to be followed:

o   First, take care for the latest content pages of Service Bulletins, which are always available for each folder on NOKIA Online. This is also important to recognize, if existing documents have become invalid.

o   The service level indicator at the bottom of each document tells the appropriate destination.

Downloads > Support Library >

> 1. **Instructions**
> 2. **General Service Bulletins**
> 3. **Product related documents**
> 4. **Spare Part Service Bulletins**
> 5. **Service Tools Service Bulletins**
> 6. **Common Software Service Bulletins**
>   **etc,...**

Use General SB-217 as a reference or overview.

Please also check NOKIA Online (NOL) for latest news and files on a regular basis.

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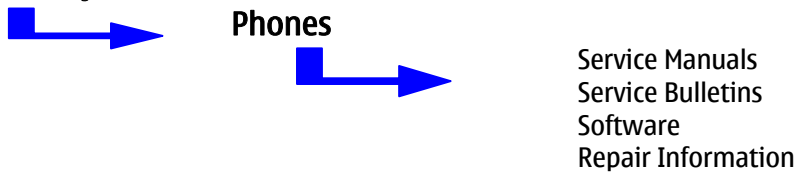Multimedia Creation & Support   CONFIDENTIAL   29.9.2005

3. PATHFINDER FOR WORKSHOP STAFF

In addition to the information in this Service Manual, there are several instructions and information, which have to be followed. Main documentation database is NOKIA Online with the purpose of serving different multimedia content, like video clips or interactive tutorials.

It is mandatory to watch for newest technical and organizational information on a daily basis to be updated as required (see **"Latest files in Support Library"**). Every new information has to be processed and implemented as soon as possible.
When logged into NOL you can also find needed information in different folder like:

Support Library

> **Phones**

> > Service Manuals
> > Service Bulletins
> > Software
> > Repair Information

Level 1&2 e-learning (former NOKIA CarePoint) on NOKIA Online

Former NOKIA CarePoint content, such as	• **Online Troubleshooting** • **Product information** • **Videos – Disassembly/Assembly**	can be found on **NOKIA Online**
		NOKIA Online **Care Services** **Training** **Phone Models**

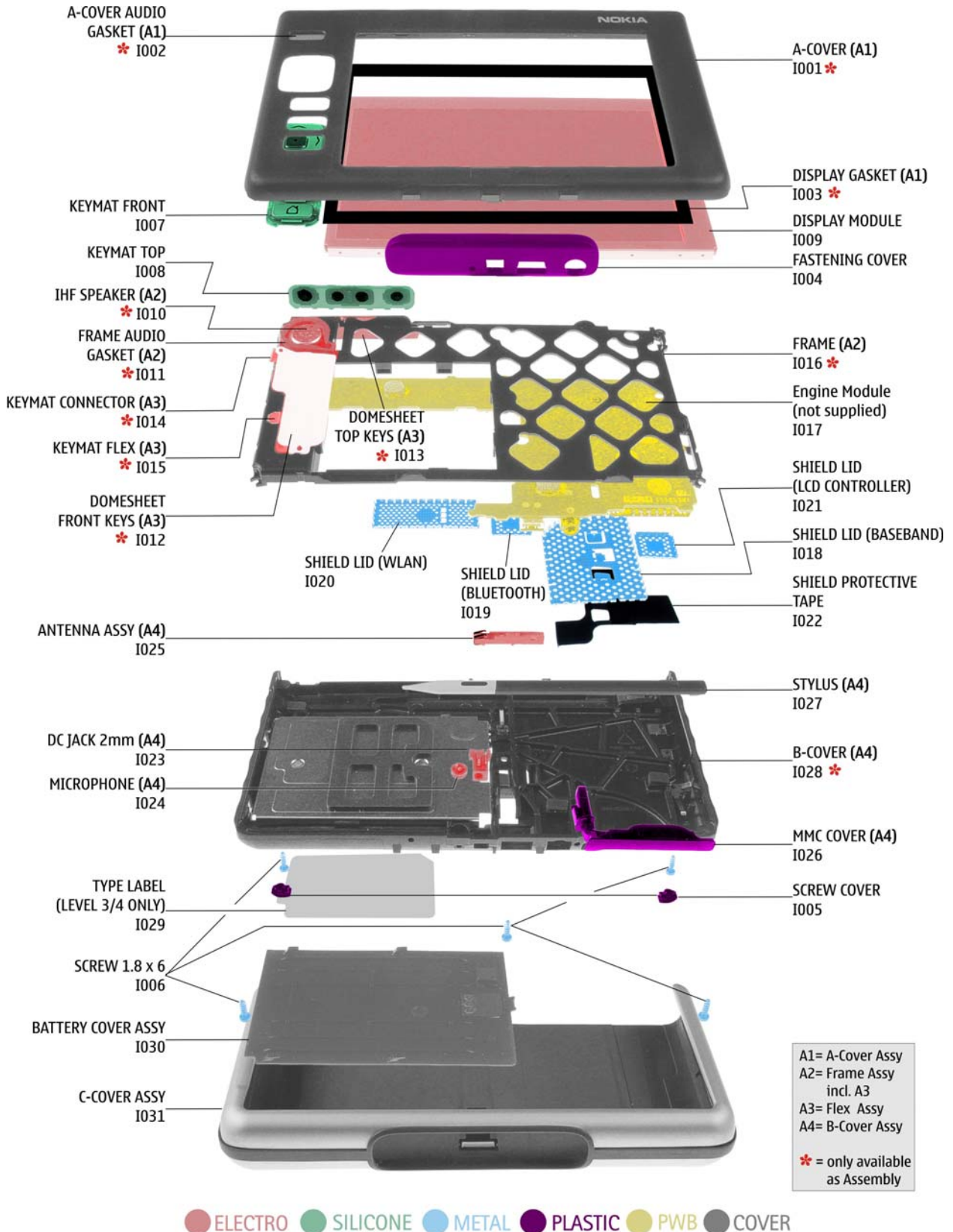**Level 1&2 e-learning** courses offer a quick overview of the NOKIA phone and support for how to repair and use the phone:

Overview & Guides	Disassembly & Assembly	Troubleshooting
Basic information about the phone, features and technologies	Instructions how to disassemble and assemble the phone	Step-by-step instructions on how to locate and repair the most common problems with the phone

To reduce the server traffic it is recommended to download newest version of huge files like videos, Phoenix packages or Service Manuals only once and distribute it internally for further use.

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4. EXPLODED VIEW AND COMPONENT DISPOSAL

Recommendation for the ecologically friendly disposal of components. Colorized components show the different categories. See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on NOL.
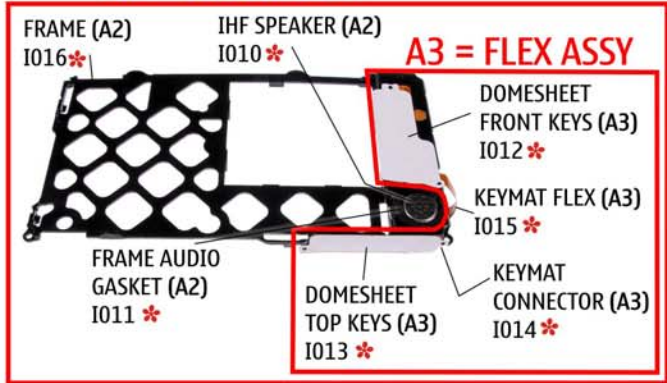

A-COVER AUDIO GASKET (A1)
✱ I002

A-COVER (A1)
I001 ✱

DISPLAY GASKET (A1)
I003 ✱

KEYMAT FRONT
I007

DISPLAY MODULE
I009

KEYMAT TOP
I008

FASTENING COVER
I004

IHF SPEAKER (A2)
✱ I010

FRAME AUDIO GASKET (A2)
✱ I011

FRAME (A2)
I016 ✱

Engine Module (not supplied)
I017

KEYMAT CONNECTOR (A3)
✱ I014

KEYMAT FLEX (A3)
✱ I015

DOMESHEET TOP KEYS (A3)
✱ I013

DOMESHEET FRONT KEYS (A3)
✱ I012

SHIELD LID (LCD CONTROLLER)
I021

SHIELD LID (WLAN)
I020

SHIELD LID (BLUETOOTH)
I019

SHIELD LID (BASEBAND)
I018

SHIELD PROTECTIVE TAPE
I022

ANTENNA ASSY (A4)
I025

STYLUS (A4)
I027

DC JACK 2mm (A4)
I023

MICROPHONE (A4)
I024

B-COVER (A4)
I028 ✱

MMC COVER (A4)
I026

TYPE LABEL (LEVEL 3/4 ONLY)
I029

SCREW COVER
I005

SCREW 1.8 x 6
I006

BATTERY COVER ASSY
I030

C-COVER ASSY
I031

A1= A-Cover Assy
A2= Frame Assy incl. A3
A3= Flex Assy
A4= B-Cover Assy

✱ = only available as Assembly

● ELECTRO ● SILICONE ● METAL ● PLASTIC ● PWB ● COVER

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5. SPARE PARTS OVERVIEW

A1 = A-COVER ASSY

A-COVER AUDIO GASKET (A1) I002 *

A-COVER (A1) I001 *

DISPLAY GASKET (A1) I003 *

A2 = FRAME ASSY

FRAME (A2) I016 *

IHF SPEAKER (A2) I010 *

A3 = FLEX ASSY

DOMESHEET FRONT KEYS (A3) I012 *

KEYMAT FLEX (A3) I015 *

FRAME AUDIO GASKET (A2) I011 *

DOMESHEET TOP KEYS (A3) I013 *

KEYMAT CONNECTOR (A3) I014 *

FASTENING COVER I004

SCREW COVER I005

SCREW 1.8 x 6 I006

KEYMAT TOP I008

KEYMAT FRONT I007

DISPLAY MODULE I009
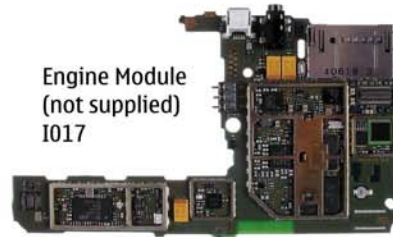
Engine Module (not supplied) I017

SHIELD LID (LCD CONTROLLER) I021

SHIELD LID (WLAN) I020

SHIELD LID (BLUETOOTH) I019

SHIELD LID (BASEBAND) I018

SHIELD PROTECTIVE TAPE I022

A4 = B-COVER ASSY

STYLUS (A4) I027

ANTENNA ASSY (A4) I025

B-COVER (A4) I028 *

MICROPHONE (A4) I024

DC JACK 2mm (A4) I023

MMC COVER (A4) I026

TYPE LABEL (LEVEL 3/4 ONLY) I029

BATTERY COVER ASSY I030

C-COVER ASSY I031

A1= A-Cover Assy
A2= Frame Assy
    incl. A3
A3= Flex Assy
A4= B-Cover Assy

* = only available as Assembly

6. SPARE PARTS LIST

Please exchange this page (placeholder) with latest corresponding Service Bulletins (spare parts, SWAP units and service tools) from NOL!

This will ensure, that you are using up-to-date order codes only.

Therefore Service Bulletins have to be checked from NOL on daily basis.

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7. SERVICE TOOLS
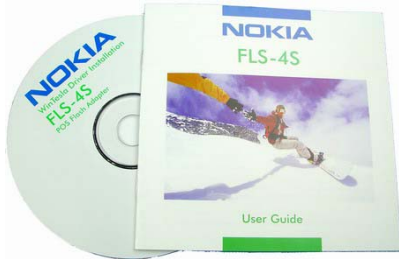
	FLS-4S incl. ACF-8, Driver and User Guide Dongle and flash device incorporated into one package, developed specifically for POS use. **ACF-8** Universal Power Supply is used to power FLS-4S.
	Internal Battery BP-5L Inserted under the back cover, this Li-Ion 1500 mAh battery provides power in a lightweight package.
	Travel Charger AC-4 Small and lightweight charger for fast charging of your phone battery.
	DKE-2 USB- cable
	Standard Stereo Headset Standard Stereo Headset with 3,5mm plug.
	RJ-78 Soldering Jig
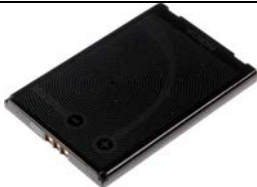
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Lead-free Solder Wire
Mandatory for lead-free products (Level 2 only).

0772040   **NMP Standard Toolkit**

- NOKIA opening tool SRT-6 NOKIA No. 0770431
- Tonichi torque driver NOKIA No. 6901525
- Hoya micro fibre cloth MX304
- Dastex gloves S, M, XL
- Artilux goggles AH166
- Wera bit T5 867/4TX 5x50
- Wera 867/4 6IP; 50mm (Torx 6 PLUS®)
- Wera bit T6 867/4TX 6x50
- Wera 867/1 5IP; 25mm (Torx 5 PLUS®)
- Wera bit T6 PLUS® 867/4TX 6IP
- Facom side cutter 416E
- Facom T5 driver SP.14032
- Facom T6 driver SP.14033
- Facom slot screwdriver AEF. 2x35.E
- Wetec tweezers 7abb SA-ESD
- Wetec tweezers 22 SA-ESD
- Wetec tweezers 13 SA-SMD ESD
- Wetec tweezers PSF SA-ESD
- Wetec ESD brush E1211
- Kaiser Fototechnik airbrush 6315
- Wetec dental tool DEM83266/0
- RS Components Scissors 323-5732

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8. SW-UPDATE

Flash Concept – (Point of Sales)

To use FLS-4S Flash Dongle you have to follow the user guide inside the sales package. Please check always for the latest version of flash software, which is available on
NOKIA Online.

It is very important to follow this insertion and removal procedure, otherwise the contact pins of Flash Adapter will be damaged.

9.   DISASSEMBLY INSTRUCTIONS

1.) Needed tools for disassembly and assembly.

2.) Remove the **C-Cover Assy**.
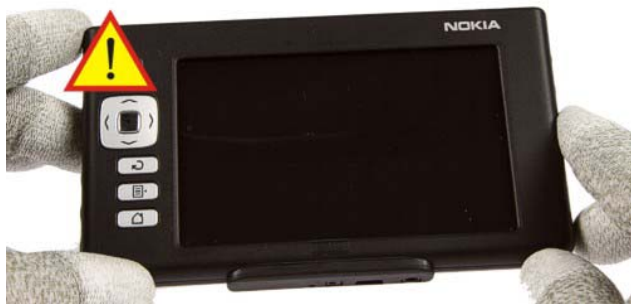
3.) Do not use protection foil, as removing of the foil may damage the touchpad. Take special care to the Display Module during disassembly and assembly.

4.) Push down the Battery Cover Release Button and remove the **Battery Cover**. Always remove the battery before continuing disassembly.

5.) Remove the **Stylus.**

6.) Two of five screws are covered with the **Screw Covers**.

7.) Remove the **Screw Covers** by using the dental tool. Always use new **Screw Covers** when reassembling the device.

8.) Unscrew the five, Torx Plus® size 6 screws in the shown order. For assembly, use the reverse order and a Torx Plus® size 6 driver with a torque setting of 30Ncm.

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9.) Use a clean cloth when opening the **A-Cover** and **B-Cover**.

10.) Remove the **A-Cover Assy** by twisting it from the **Fastening Cover**.

11.) Remove the **Keymat Front** and the **Keymat Top**. **Display Module** needs to be supported all the time when turning over the device!

12.) Release the clips of the Battery Holder carefully. **Note! It is not allowed to bend the Battery Holder Metals.**
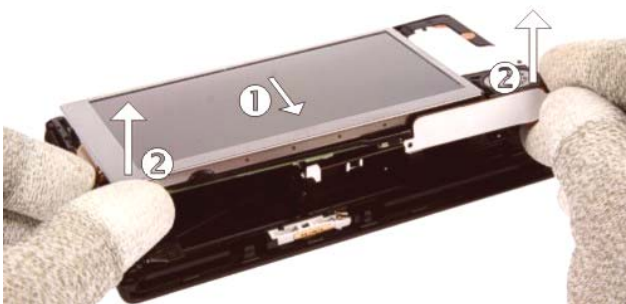
13.) Remove the **Frame Assy** with the **Engine Module** and the **Display Module** from the **B-Cover**.
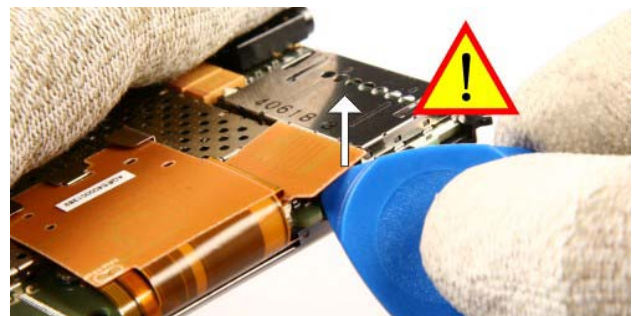
14.) Unplug the Display Connector carefully with the SRT-6.
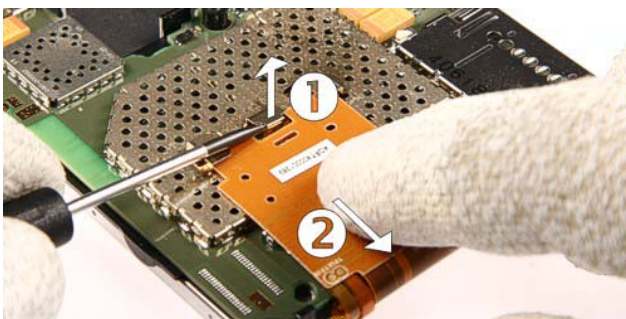
15.) Release the Flex of the Display using a slotted screwdriver.

16.) Unplug the Keymat Flex Connector carefully by using the SRT-6.
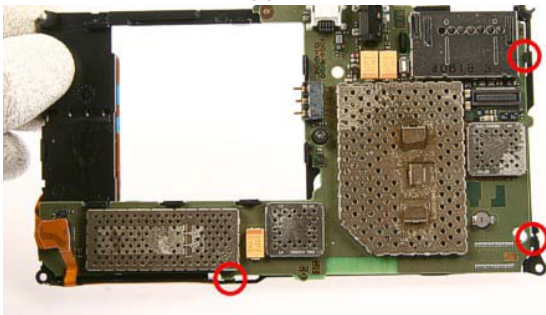
17.) The **Engine Module** is secured with three snaps to the **Frame Assy**. Release the snaps carefully.
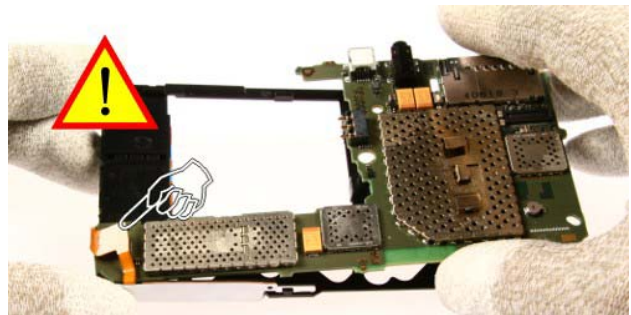
18.) Remove the **Engine Module** paying attention to the Keymat Flex Connector.
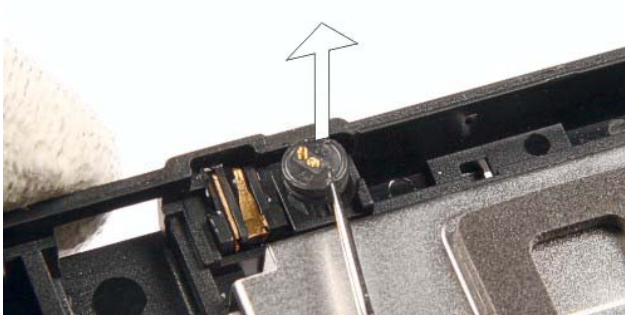
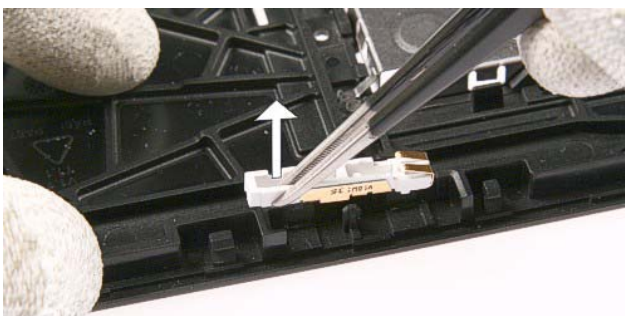19.) Remove the **Microphone** with the dental tool.
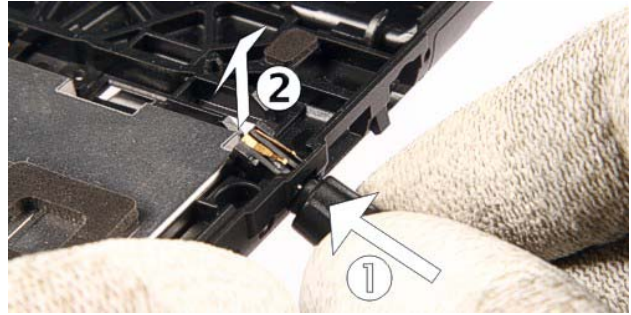
20.) Press out the **DC-Jack** by using DC-plug.

21.) Unlock the first snap. Push the **Antenna Assy** with a slotted screwdriver and lift it using the SRT-6 as a lever.

22.) Now, unlock the other side of the **Antenna Assy**.

23.) Remove the **Antenna Assy** carefully with tweezers.
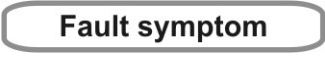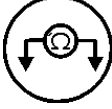
24.) Remove the **MMC Cover** by pushing it out and position it in the middle of its guidance.

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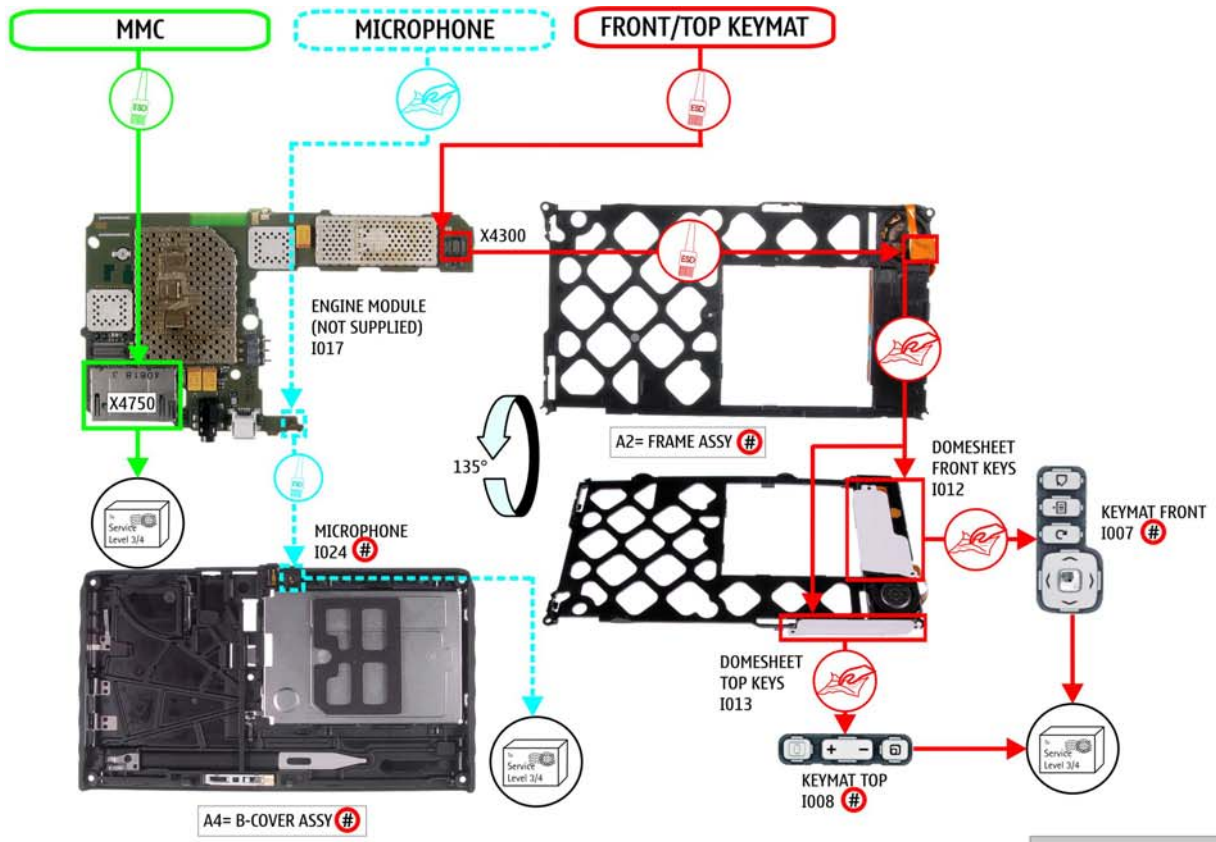25.) Turn over the **MMC Cover** to 180° and remove it.

10. LEGEND FOR QUICK TROUBLE SHOOTER

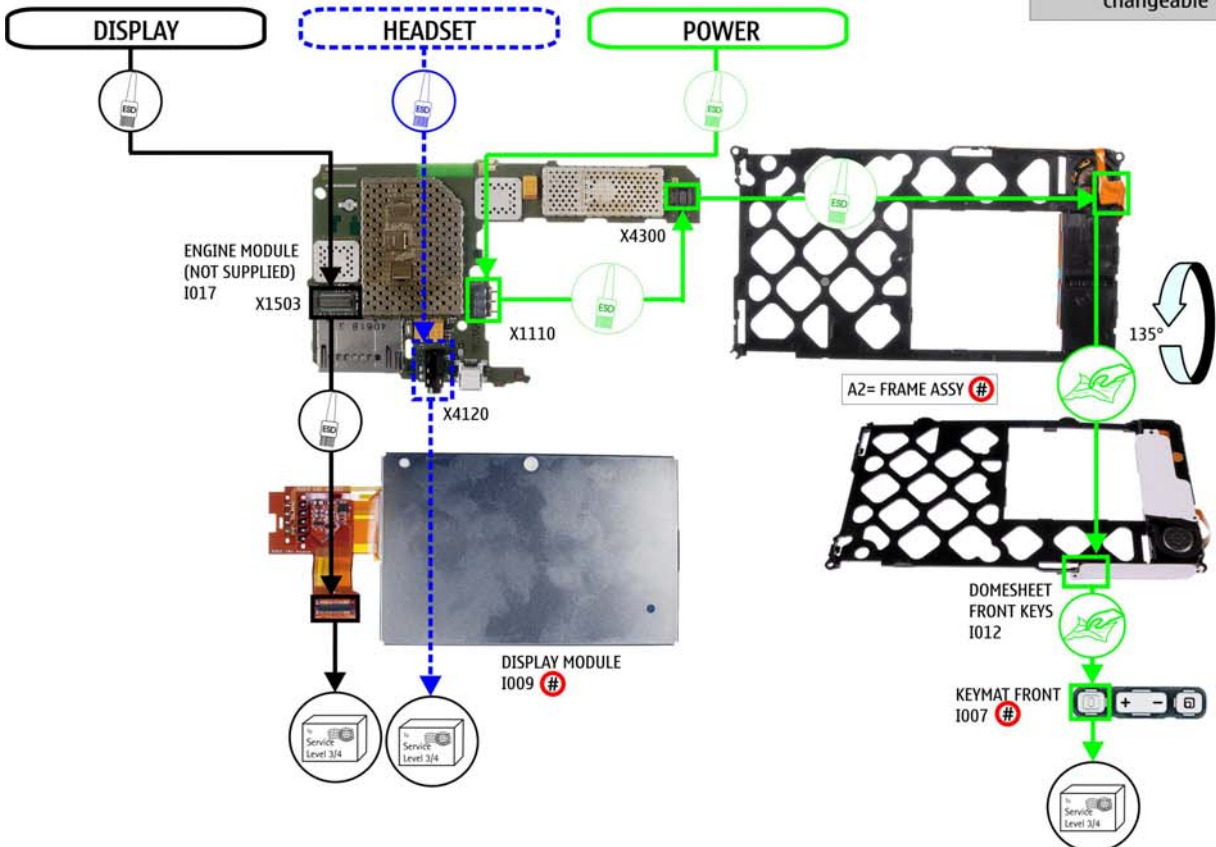This legend is valid for all parts of the **Quick Trouble Shooter**

Follow the steps until the problem is solved. If this doesn't help, you are not authorized to go forward.	
#	Only marked components (e.g. I002 #) can be changed.
Fault symptom	The start point of repair activities regarding the appeared fault symptoms.
⟶	Follow the arrows step by step
	Pads or contacts: Check optical and mechanical condition particularly regarding to corrosion. Clean if necessary.
	Measure component for electrical functionality and change, if needed. (Level 2 only)
ESD	Pads or contacts: Check optical and mechanical condition particularly regarding to corrosion. Clean with ESD brush only, if necessary.
To Service Level 3/4	No more actions possible send product to the appropriate service supplier with higher service level.

![NOKIA Connecting People]

11. QUICK TROUBLE SHOOTER PART 1

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12. QUICK TROUBLE SHOOTER PART 2

CHARGING

ENGINE MODULE
(NOT SUPPLIED)
I017

X1110

$\Omega \approx 0\Omega$

Fuse F1100 #

only Level 2

DC JACK 2mm
I023 #

A4= B-COVER ASSY #

IHF SPEAKER

ENGINE MODULE
(NOT SUPPLIED)
I017

IHF SPEAKER
I010

A2= FRAME ASSY #

= Component
changeable

FLASHING

WLAN

ENGINE MODULE
(NOT SUPPLIED)
I017

A4= B-COVER ASSY #

X1220

ANTENNA ASSY
I025 #
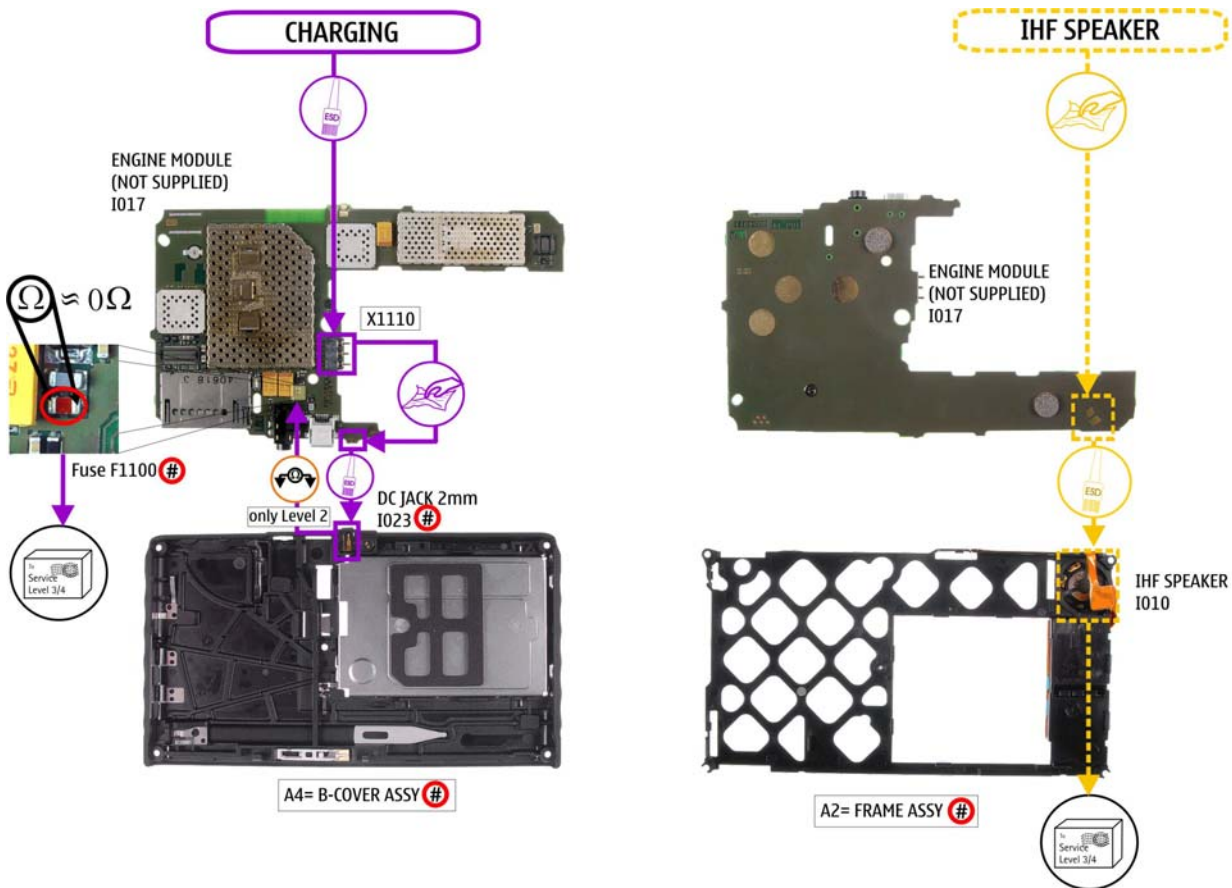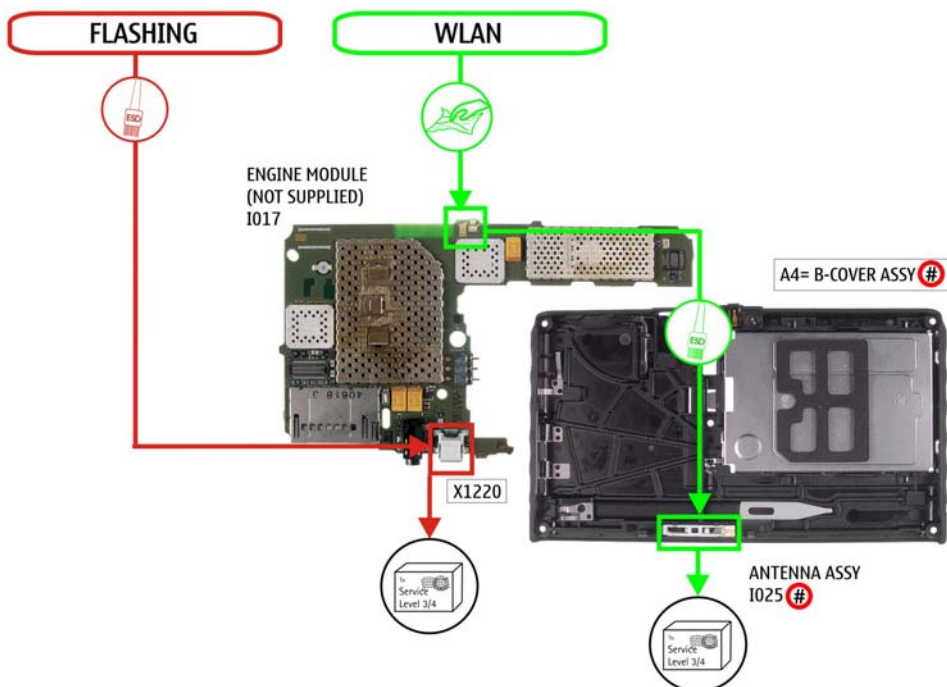
13. BLUETOOTH TEST

Bluetooth test

You need another Bluetooth device (e.g. 6230) to do a GoNoGo test.
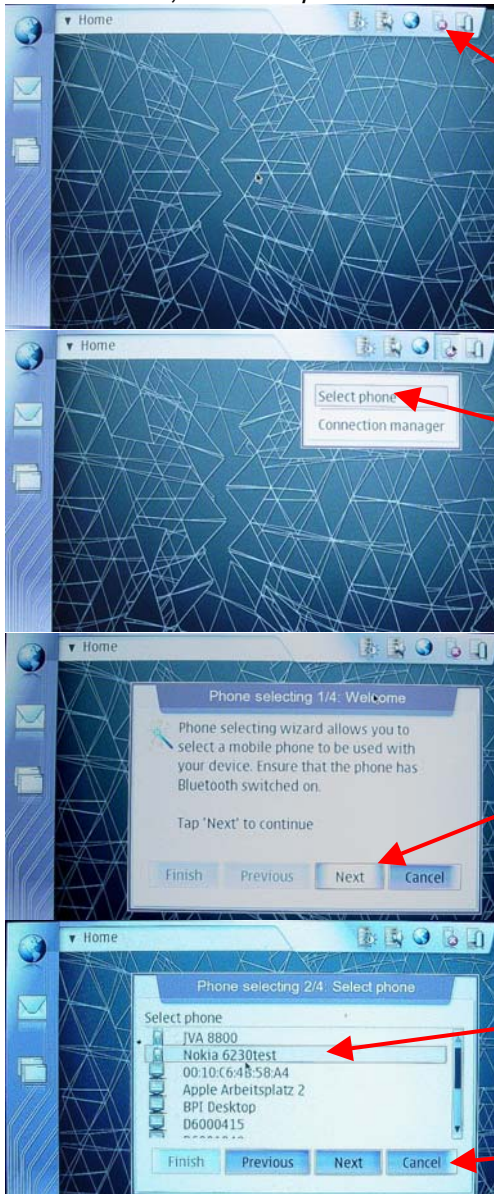Make sure that Bluetooth is activated in the reference unit. The distance of the devices should be not more than 5m from each other.

Bluetooth connection

Reference unit, Bluetooth /infrared activated

Test unit

Settings on the test unit:

- Use the stylus and select the phone icon on the right upper side.

- **Select phone**

- Select **Next** to start the search modus

- Search window appears, if all Bluetooth devices in range will be displayed, the test is successful!

- Press the **Cancel** button to reach the Home Menu.

14. GONOGO TEST

After the optical check, a GoNoGo test has to be carried out if the unit has been unscrewed to guarantee the functionality of the phone.

Please refer to the actual information on NOKIA Online. When using delivered tester support files, take care of the right setup according to the tester type and product type.
Please refer to "Recommended Service Equipment" on NOKIA Online.
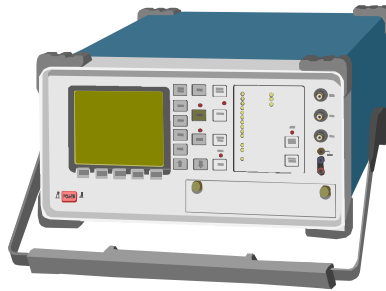
Mobile Phone Tester

15. BATTERY TEST

A battery tester lets you test the capacity of NOKIA batteries.

Please refer to the actual information on NOKIA Online.

http://www.astratec.co.uk/   http://www.cadex.com/

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16. FORWARDING OF REPAIRS

When it is necessary to forward of repairs to appropriate service supplier with higher service level we recommend using the offered swap phone cartons as described in Spare Parts SB-004.

Do not protect the Display Module of the NOKIA 770 Internet Table with a protection film!!!

Put the unit under the stretch film.

Add repair documentation e.g. filled-in service note into the swap carton.

Fold the swap carton as shown in Spare Parts SB-004.

There are two different sizes of swap cartons for common mobile phones.

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17. ESD PROTECTION REQUIREMENTS

Please refer to the NOKIA Online document **Service Supplier Requirements** in folder General instructions.
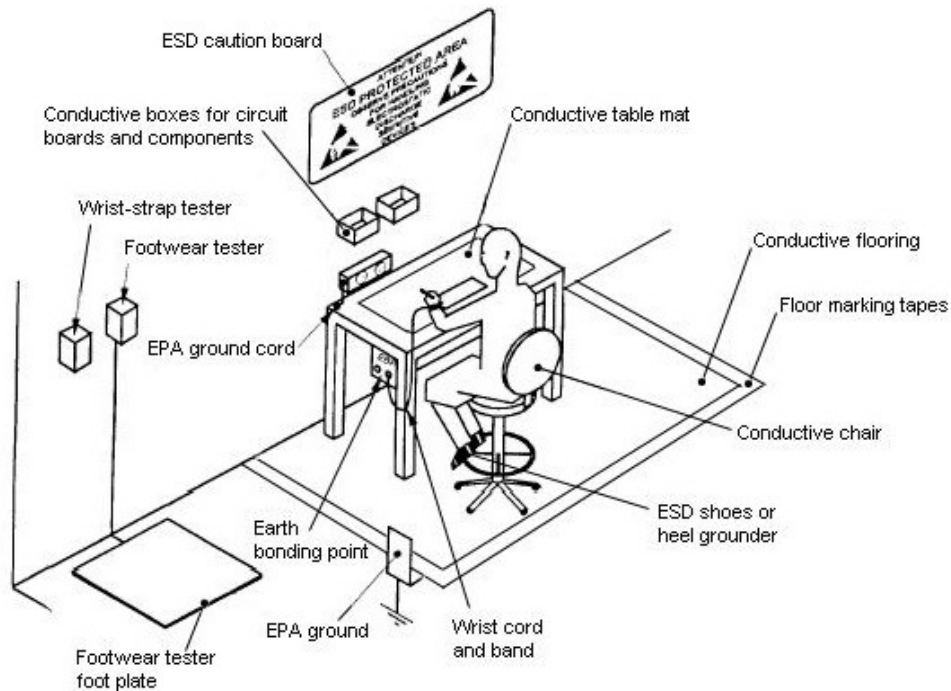
USE Conductive bags and boxes   NO Smoking
USE ESD compatible service tools   NO Drinking
USE Conductive wastebaskets   NO Eating
USE ESD gloves when handling PWBs/PCBs   NO Dust
USE Cleaning material without changing el. Characteristics   NO Useless Items
USE Grounded service equipment, i.e. soldering station   NO Normal pressured air for cleaning
USE ESD clothes such as coat or frock   modules/displays

The video covers general issues concerning Electro-Static Discharge (ESD)