

Nokia Customer Care

SERVICE MANUAL

Level 1 and 2

RM-307 Mobile Terminal

2505

Issue 1

COMPANY CONFIDENTIAL

Amendment Record Sheet

Amendment No	Date	Inserted By	Comments
001	04/2007	Frankie Yang	Issue 1

NOKIA

2505

RM-307



Transceiver characteristics:

- 800MHz, IS95, CDMA2000 1xRTT
- 128 x 160 pixel color display with 65K colors
- Removable User Information Module (RUIM), disabled in non-RUIM markets
- Internal antenna
- Internal vibra
- EVRC Vocoder
- 32 polyphonic MIDI and 30 pre-loaded ringtones
- Predictive text
- Speakerphone
- FM Radio
- Flashlight
- 4-way navigation key for easy navigation
- Calendar, alarm clock, calculator, stopwatch, countdown timer and voice memo
- 3 pre-loaded games and 10 pre-loaded wallpapers
- Downloadable ringtones and wallpapers via BREW

Transceiver with BL-4B 700mAh Li-Ion battery pack

Talk time	Standby time	Note
Up to 180 minutes	Up to 168 hours	Depends on network parameters

Environmental characteristics:

- Lead-free soldered

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The availability of particular products may vary by region.

IMPORTANT

This document is intended for use by qualified service personnel only.

Warnings and Cautions

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

Warnings:

1. IF THE DEVICE CAN BE INSTALLED IN A VEHICLE, 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 *PRODUCT* 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. Ensure solder, wire, or foreign matter does not enter the telephone as damage may result.
4. Use only approved components as specified in the parts list.
5. Ensure all components, modules screws and insulators are correctly re-fitted after servicing and alignment. Ensure all cables and wires are repositioned correctly.

For Your safety

QUALIFIED SERVICE

Only qualified personnel may install or repair phone equipment.

ACCESSORIES AND BATTERIES

Use only approved accessories and batteries. Do not connect incompatible products.

CONNECTING TO OTHER DEVICES

When connecting to any other device, read its user's guide for detailed safety instructions. Do not connect incompatible products.

ESD protection



Nokia requires that *product* service points have sufficient ESD protection (against static electricity) when servicing *products*.

Any product of which the covers are removed must be handled with ESD protection. The SIM card can be replaced without ESD protection if the product is otherwise ready for use.

To replace the covers ESD protection must be applied.

All electronic parts of the product are susceptible to ESD. Resistors, too, can be damaged by static electricity discharge.

All ESD sensitive parts must be packed in metallized protective bags during shipping and handling outside any ESD Protected Area (EPA).

Every repair action involving opening the product or handling the product components must be done under ESD protection.

ESD protected spare part packages **MUST NOT** be opened/closed out of an ESD Protected Area.

For more information and local requirements about ESD protection and ESD Protected Area, contact your local Nokia After Market Services representative.

Battery information

Note that a new battery's full performance is achieved only after two or three complete charge and discharge cycles!

The battery can be charged and discharged hundreds of times but it will eventually wear out. When the operating time (talk-time and standby time) is noticeably shorter than normal, it is time to buy a new battery.

Use only batteries approved by the phone manufacturer and recharge the battery only with the chargers approved by the manufacturer. Unplug the charger when not in use. Do not leave the battery connected to a charger for longer than a week, since overcharging may shorten its lifetime. If left unused a fully charged battery will discharge itself over time.

Temperature extremes can affect the ability of your battery to charge.

For good operation times with Ni-Cd/NiMh batteries, discharge the battery from time to time by leaving the product switched on until it turns itself off (or by using the battery discharge facility of any approved accessory available for the product). Do not attempt to discharge the battery by any other means.

Use the battery only for its intended purpose.

Never use any charger or battery that is damaged.

Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object (coin, clip or pen) causes direct connection of the + and – terminals of the battery (metal strips on the battery) for example when you carry a spare battery in your pocket or purse. Short-circuiting the terminals may damage the battery or the connecting object.

Leaving the battery in hot or cold places, such as in a closed car in summer or winter conditions, will reduce the capacity and lifetime of the battery. Always try to keep the battery between 15°C and 25°C (59°F and 77°F). A phone with a hot or cold battery may temporarily not work, even when the battery is fully charged. Batteries' performance is particularly limited in temperatures well below freezing.

Do not dispose of batteries in a fire!

Dispose of batteries according to local regulations (e.g. recycling). Do not dispose as household waste.

Care and Maintenance

The product is a product of superior design and craftsmanship and should be treated with care. The suggestions below will help you to fulfill any warranty obligations and to enjoy this product for many years.

Keep the phone and all its parts and accessories out of the reach of small children.

Keep the phone dry. Precipitation, humidity and all types of liquids or moisture can contain minerals that will corrode electronic circuits.

Do not use or store the phone in dusty, dirty areas. Its moving parts can be damaged.

Do not store the phone in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.

Do not store the phone in cold areas. When it warms up (to its normal temperature), moisture can form inside, which may damage electronic circuit boards.

Do not drop, knock or shake the phone. Rough handling can break internal circuit boards.

Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the phone.

Do not paint the phone. Paint can clog the moving parts and prevent proper operation.

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications or attachments could damage the phone and may violate regulations governing radio devices.

All of the above suggestions apply equally to the product, battery, charger or any accessory.

Company Policy

Our policy is of continuous development; details of all technical modifications will be included with service bulletins.

While every endeavour has been made to ensure the accuracy of this document, some errors may exist. If any errors are found by the reader, NOKIA MOBILE PHONES Business Group should be notified in writing.

Please state:

Title of the Document + Issue Number/Date of publication

Latest Amendment Number (if applicable)

Page(s) and/or Figure(s) in error

Please send to:

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Nokia Mobile Phones Business Group
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Finland

General Repair Hints

This section provides general hints on repairs:

Read the tutorials or user guide on www.Nokia.com > **Choose your location > Support > Product Support**. Select the appropriate mobile terminal model to become familiar with the Nokia product.

- Take adequate ESD precautions before starting repairs, e.g. work in an ESD Protected Area, and that an anti-static wrist strap is worn.
- Use gloves to avoid corrosion and fingerprints.
- Protect windows and displays with a film to avoid dust and scratches.
- Use a lint-free cloth when cleaning the LCD module (e.g. Micro-Fiber cloth).
- Use a soft cloth/ESD brush and Isopropanol when cleaning the pads. Do not use a glass fiber pencil as it will scratch the surface and will lead to corrosion.
- Reuse mechanical parts that are not soldered if they did not repair the failure (except shielding lids and bent parts).
- Make sure to replace the shielding lids with new ones when removing them, so that the high-frequency leakage does not affect the device.
- Always use original Nokia spare parts.
- Check the soldering joints of the parts causing problems (e.g. soldered connectors or switches) and resolder them if necessary (Level 2 only).
- Remove redundant soldering flux after repair.
- Meet the torque requirements when assembling the terminal (see also "Torques for transceiver assembly" document found on Nokia Online).
- Always use properly functioning test equipment to test to be sure if it is the mobile terminal and not faulty equipment causing the malfunction.
- A UIM card is required for all Go-No-Go tests.
- Make a note of the Item code causing the malfunction when making fault log entries. Also complete the appropriate part code from the assembly if needed.
- Note that some malfunctions could be software related and resolved by a software update.
- Refer to additional documents available on Nokia Online (NOL).

Note: Check Nokia Online (NOL) for latest news and files on a regular basis.

Pathfinder on Nokia Online for Technicians

Support Library

In addition to the information in this Service Manual, refer to the main documentation database [Nokia Online](#) (NOL) that houses additional information, such as multimedia content (video clips and interactive tutorials).

Navigate to the Support Library section as follows:

Nokia Online > Care Services > Support Library > Under the **Select Category** pulldown menu select > **Support Library**. Under the **Subcategory** pull-down menu select the appropriate product number. Under the second the **Subcategory** pull-down menu select **Field Service Bulletins**. Download the latest Service Bulletins available.

Available product documentation for each product may include:

- Instructions
- General Service Bulletins
- Product related documents
- Spare Part Service Bulletins
- Service Tools Service Bulletins
- Common Software Service Bulletins

Note: Reviewing the Service Bulletins will indicate if existing documents have become obsolete. All new information must be processed and implemented as soon as possible.

Training

Level 1 and 2 e-learning

Content formerly found on Nokia CarePoint, such as **Online Troubleshooting, Product Information, Videos - Disassembly/Reassembly** can now be found on the [Nokia Online](#) website.

Navigate to the Training section as follows:

Nokia Online > Care Services > Training



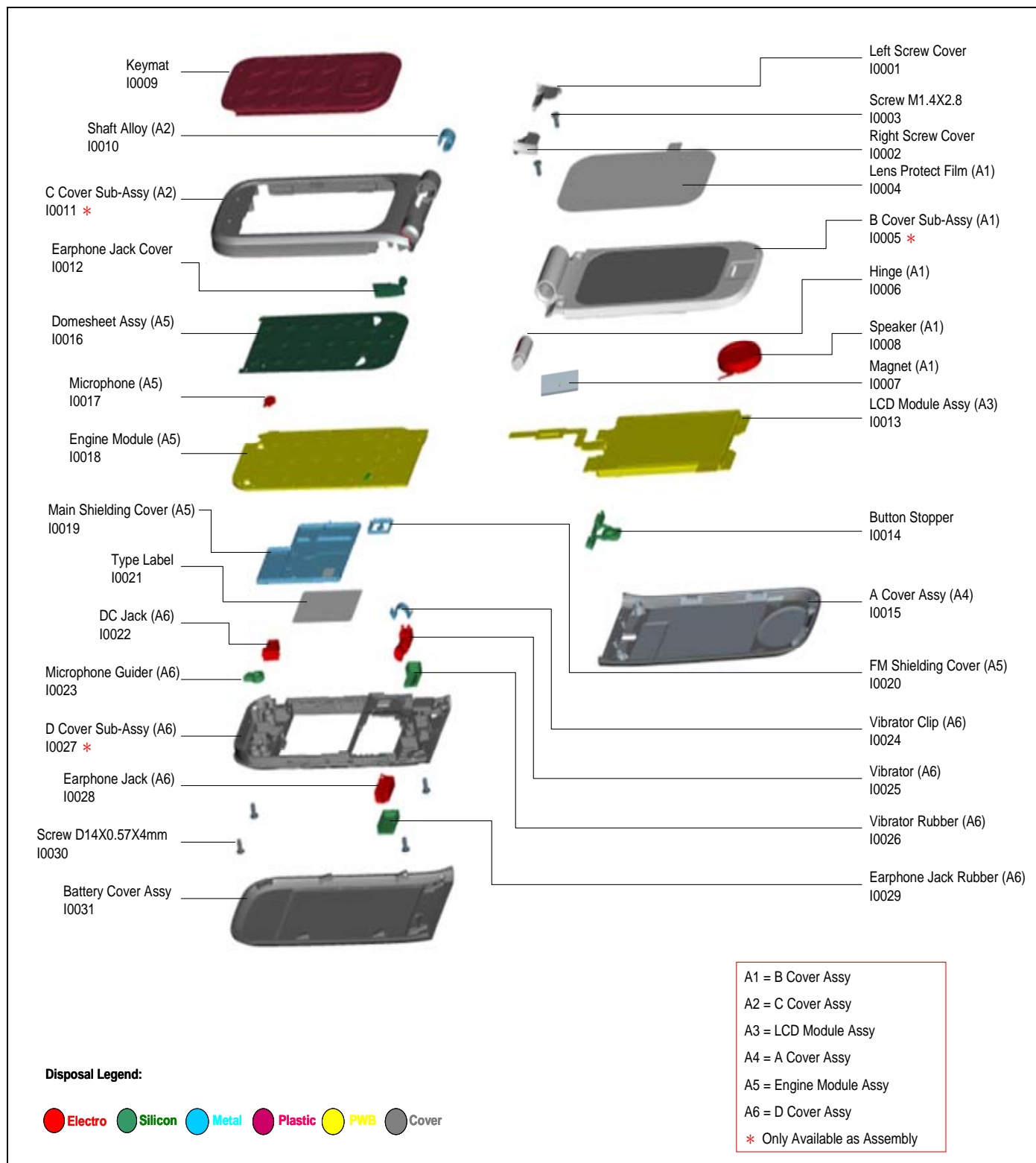
Level 1 and 2 e-learning courses offer quick product overviews and support on repair and use of Nokia mobile terminals:

Overview and Guides	Disassembly and Assembly	Troubleshooting
Basic information about the mobile terminal, features and technologies	Instructions on disassembling and reassembling the mobile terminal	Step-by-step instructions on locating and repairing the most common problems with the mobile terminal

Recommendation: Download the newest versions of very large files, e.g. videos, Phoenix packages or Service Manuals only once and distribute them for further use.

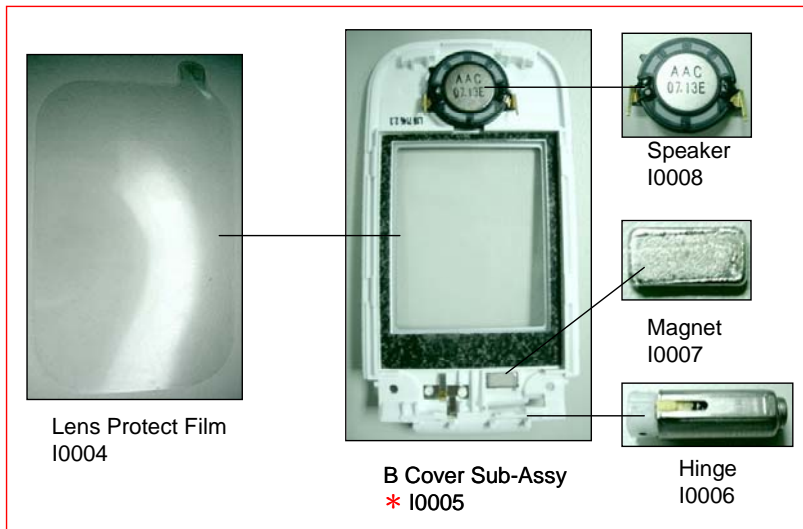
Exploded View and Component Disposal

Refer to the image below for the recommended ecologically sound disposal of components. Colorized components show the different categories.



Spare Parts Overview

A1 = B Cover Assy



Left Screw Cover
I0001



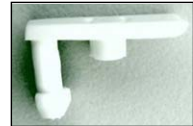
Right Screw Cover
I0002



Screw M1.4x2.8
I0003



Keymat
I0009

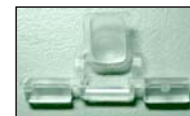
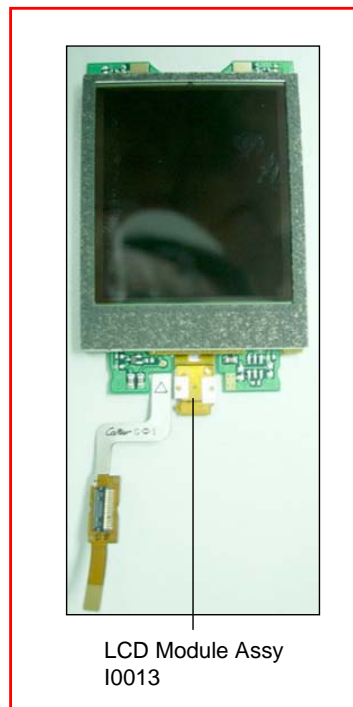


Earphone Jack Cover
I0012

A2 = C Cover Assy



A3 = LCD Module Assy



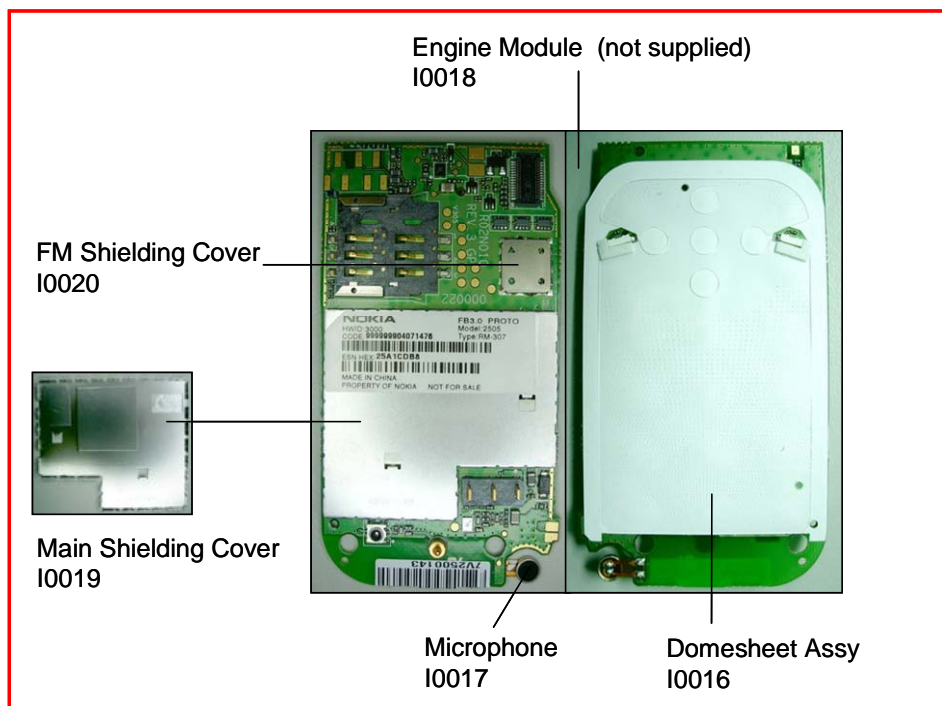
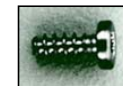
Button Stopper
I0014

A4 = A Cover Assy

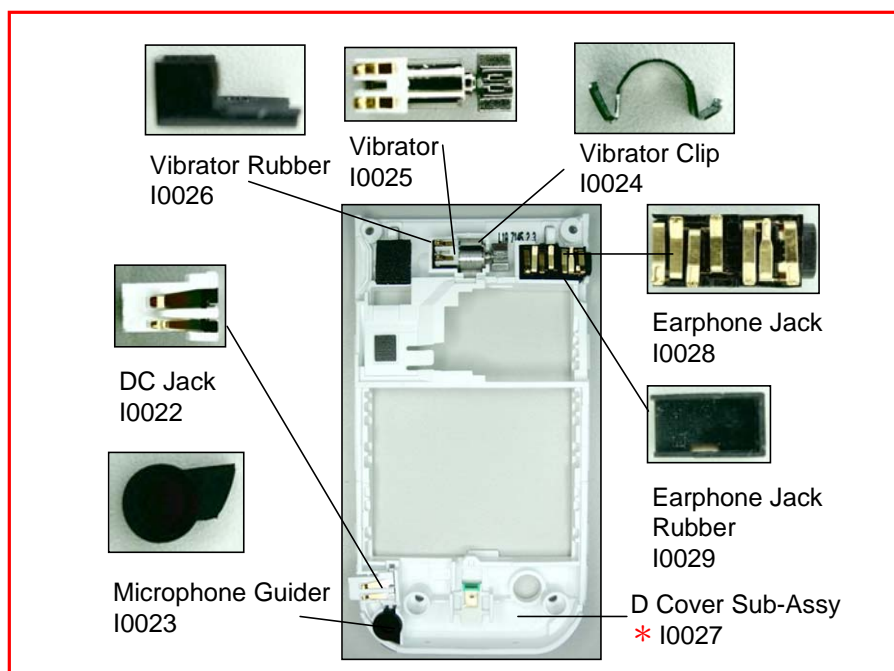


A Cover Assy
I0015

A1 = B Cover Assy
A2 = C Cover Assy
A3 = LCD Module Assy
A4 = A Cover Assy
* Only Available as Assembly

A5= Engine Module Assy

 Type Label
 I0021

 Screw
 D14X0.57X4mm
 I0030

 Battery Cover Assy
 I0031

A6= D Cover Assy


A5 = Engine Module Assy

A6 = D Cover Assy



* Only Available as Assembly

Spare Parts List

Refer to the latest Service Bulletins (spare parts, SWAP units and service tools) on the [Nokia Online](#) website for the 2505.

Note: Service Bulletins must be checked on daily basis to ensure that up-to-date order codes are used.

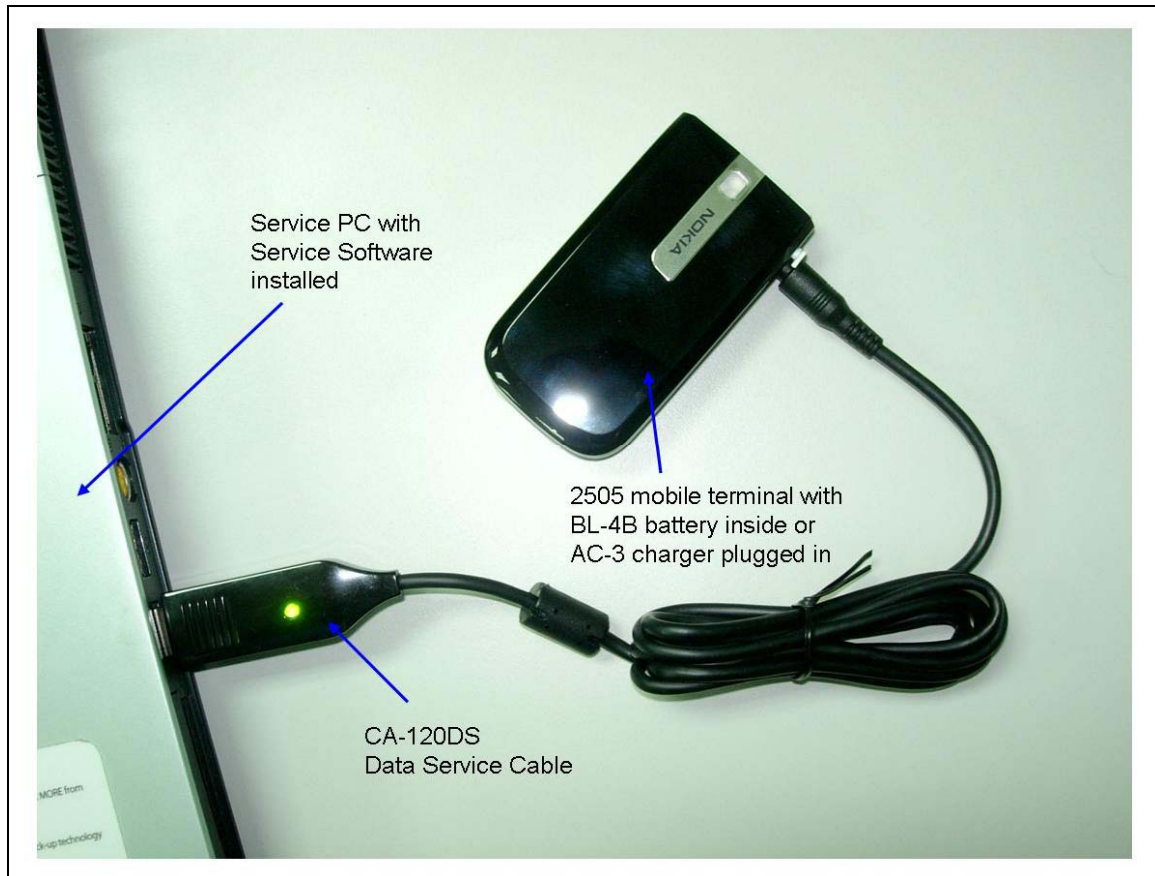
Service Tools

	<p>CA-120DS Data Service Cable This device allows Point of Sale (POS) locations to flash the mobile terminal.</p>
	<p>SS-134 Domesheet Alignment Jig This jig is used to align the adhesive domesheet assembly onto the PWB in the proper location during domesheet replacement.</p>

Software Update

Point of Sales Flashing

Please follow the service manual to use the Flash Cable. Check always for the latest version of flash software, which is available on [NOKIA Online](#).



Flashing function in Service Software is used for software upgrade to download mobile terminal images from PC to target mobile terminal. Mobile terminal images include ARMPRG, Boot Code, Application Code, Language Pack and File System. Users only need to select the necessary images to upgrade but not all images every time. Before the upgrade process, user can select the "automatic backup/restore user data" function to backup or restore files of phonebook, messages and call register, if necessary.

Login Account

To start flashing, user has to login by entering a pair of user name and password. Service software will provide appropriate functions according to the log in information based on different service level. If user wants to log in via different username and password, please log out first. See below table for login account information.

Service Level	User name	Password
Level 1	chuck	delta
Level 2	captain	toc toc

Login and logout

- Three ways to access login screen:

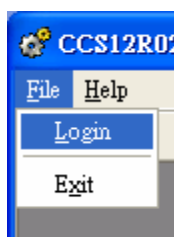
Initiate Service Software by launching **CCS12RXXX.exe**.



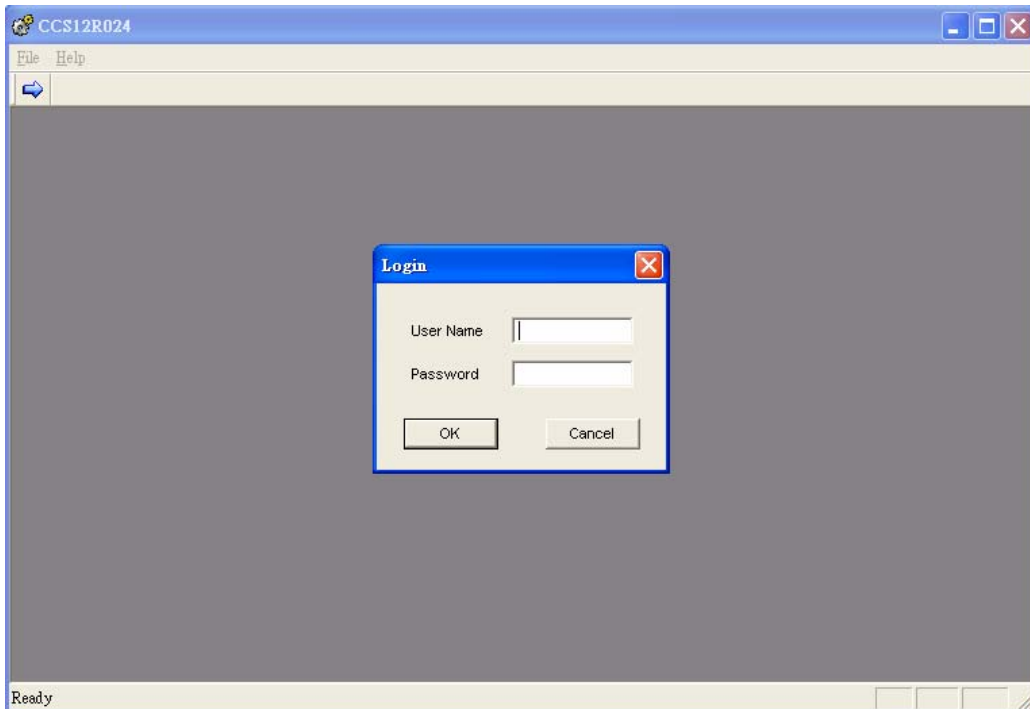
Or click on login icon



Or select **Login** from **File** menu



- Login screen appears (level 1 and 2 only):

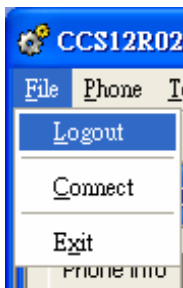


- Two ways to logout:

Click on **logout** icon.



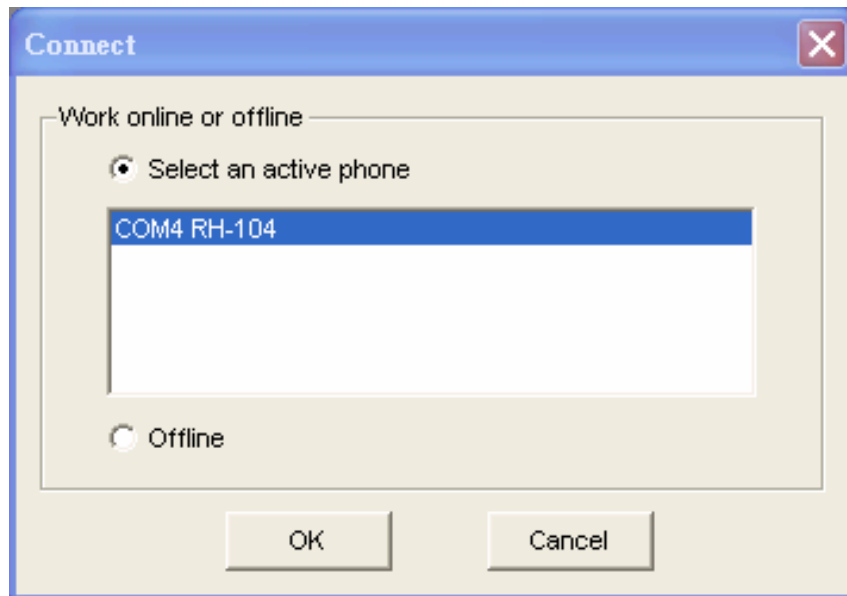
Or select **Logout** from **File** menu.



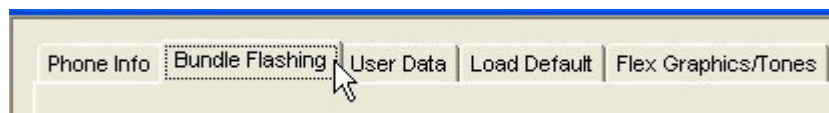
Flashing Instructions

- How to access Flashing screen

Select an active phone. Note that 'Offline' means you can use service software functions while the mobile terminal is not connected, e.g. edit phonebook and data which is saved in local drive of your service PC or Notebook.



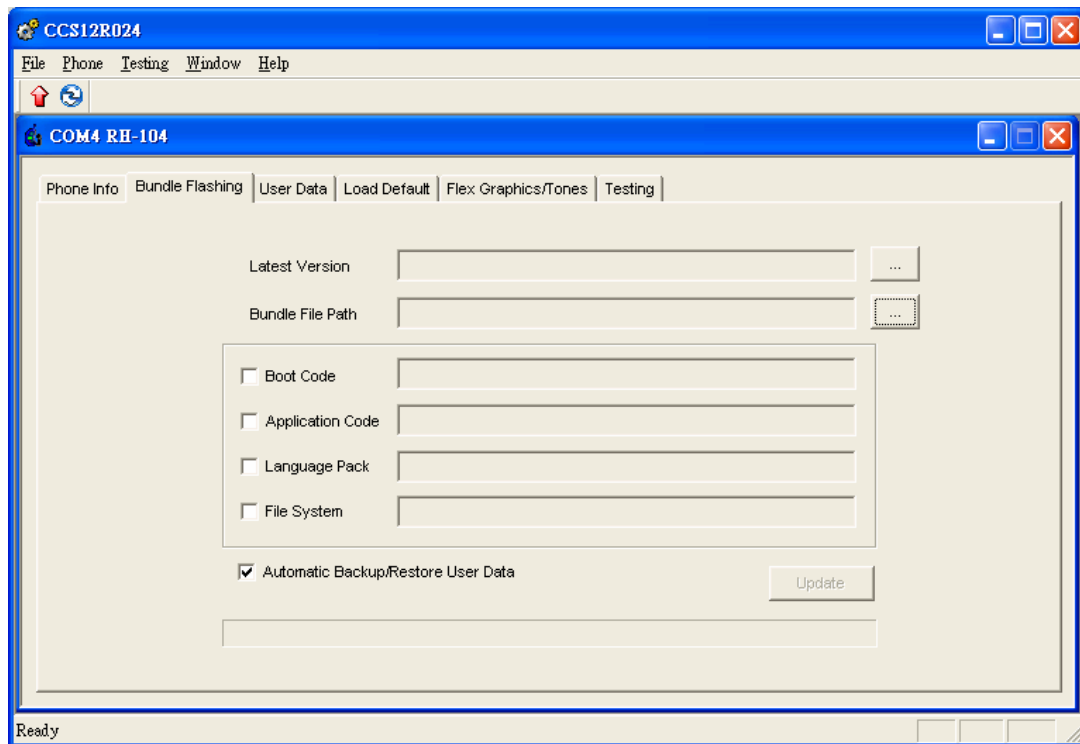
Click on **Bundle Flashing** tab.



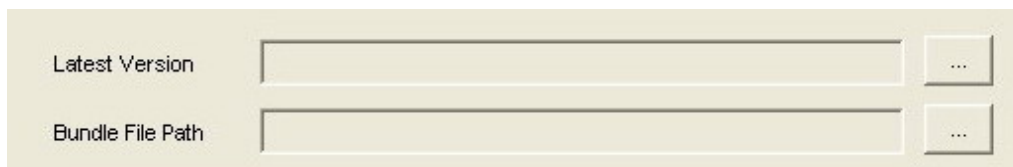
Or select **Bundle Flashing** in Phone menu.



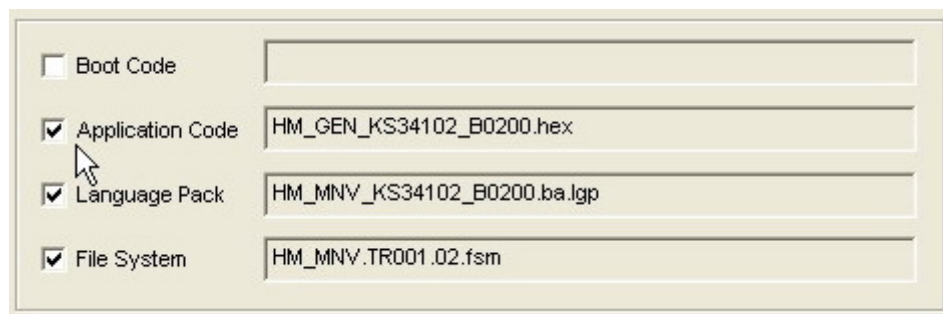
- Window displaying requirements for Bundle Flashing



- Select image files
Click button which is next to “Latest Version” to browse a folder in your PC. Service software would automatically find the latest version bundle image in this folder. Or click button which is next to “Bundle File Path” to browse a bundle image file in your PC.
Note that the users can only flash file system and language pack images which are compatible with the operator setting value of the connected phone, i.e. a Unicom phone can’t flash Vivo’s language or file system images.



- Decide which images are to be updated
Activate or deactivate check boxes in front of the image texts to check the one you want to update, and uncheck the one don’t need to update.



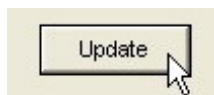
A screenshot of a software window with a light beige background. It contains four rows of settings. Each row has a checkbox on the left and a text input field on the right. The first row has an unchecked checkbox labeled 'Boot Code' and an empty text field. The second row has a checked checkbox labeled 'Application Code' and a text field containing 'HM_GEN_KS34102_B0200.hex'. The third row has a checked checkbox labeled 'Language Pack' and a text field containing 'HM_MNV_KS34102_B0200.ba.lgp'. The fourth row has a checked checkbox labeled 'File System' and a text field containing 'HM_MNV.TR001.02.fsm'. A mouse cursor is pointing at the 'Language Pack' checkbox.

<input type="checkbox"/> Boot Code	
<input checked="" type="checkbox"/> Application Code	HM_GEN_KS34102_B0200.hex
<input checked="" type="checkbox"/> Language Pack	HM_MNV_KS34102_B0200.ba.lgp
<input checked="" type="checkbox"/> File System	HM_MNV.TR001.02.fsm

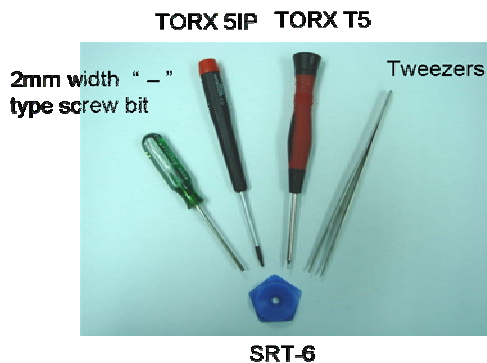
- Automatic Backup/Restore User Data is checked as default. If you do not want to backup/restore user data, please uncheck it.



- Start to upgrade
Click the **Update** button.



Disassembly Instructions



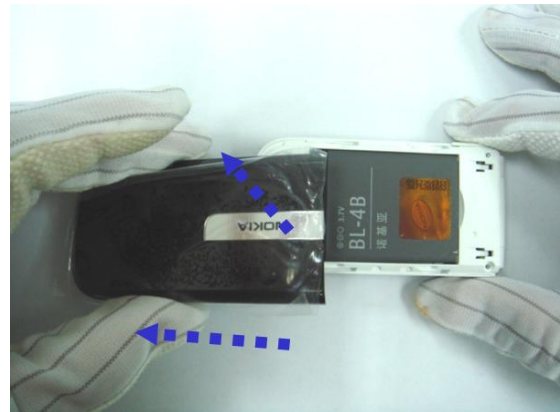
1. Tools for disassembly and reassembly.



2. Protect the main display surface with a film.



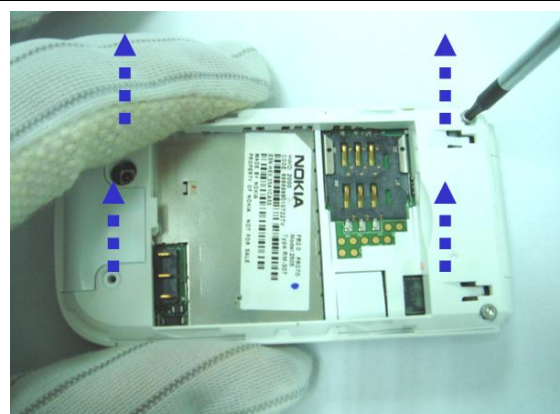
3. Protect the A-Cover and Battery Cover surface with a film.



4. Press and slip off Battery Cover.



5. Pull upward to remove Battery.



6. Use a TORX 5IP screwdriver to loosen and remove the four Torx screws (T1.4x4). When using torque driver, set torque to 9 Ncm @ 450 rpm. The tolerance is +/-2Ncm.



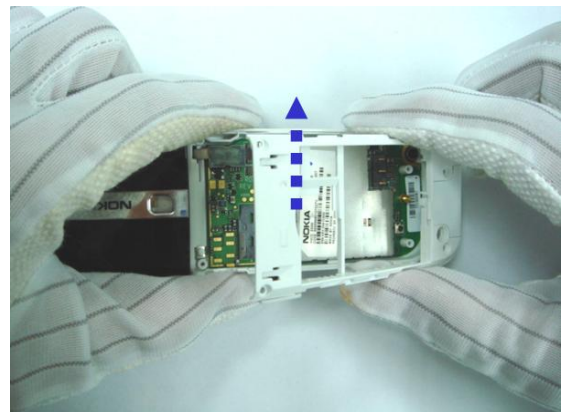
7. Place the SRT-6 into the gap between C-Cover and D-Cover, move along with perimeter and lever the snaps to separate C-Cover and D-Cover. (Left Side)



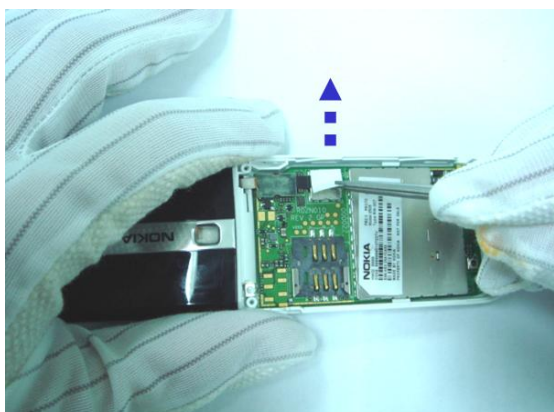
8. Place the SRT-6 into the gap between C-Cover and D-Cover, move along with perimeter and lever the snaps to separate C-Cover and D-Cover. (Right Side)



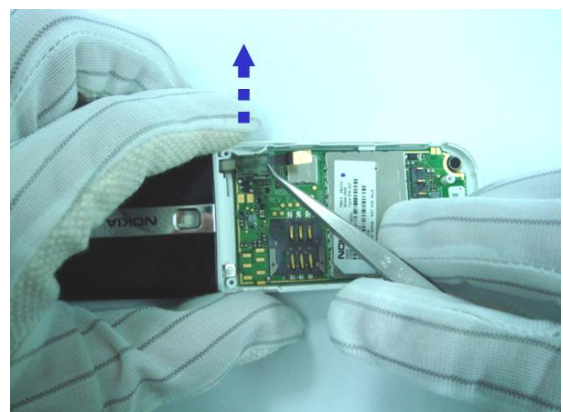
9. Place the SRT-6 into the gap between C-Cover and D-Cover, move along with perimeter and lever the snaps to separate C-Cover and D-Cover. (Bottom Side).



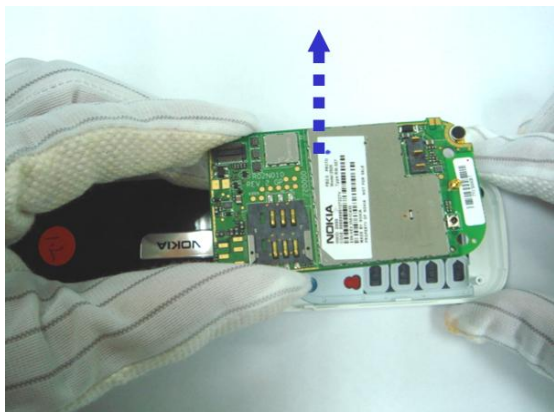
10. Pull D-Cover away from hook of C-Cover.



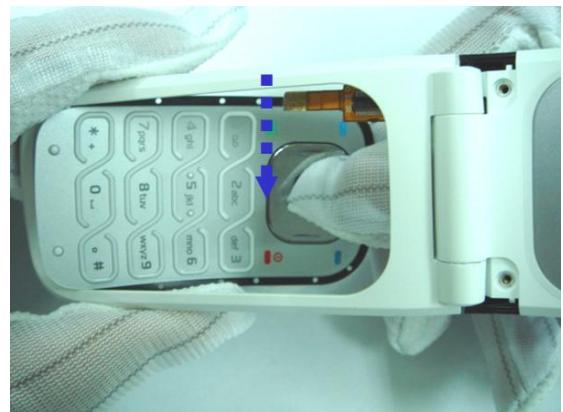
11. Use tweezers to clip white paper sticker away from FM Shielding Cover.



12. Use tweezers to clip FPC Cable connector and pull upward to remove it.



13. Release two hooks of C-Cover and carefully grip both sides of the mobile terminal and gently pulls out the Engine Module vertically, so as to free it from C-Cover.



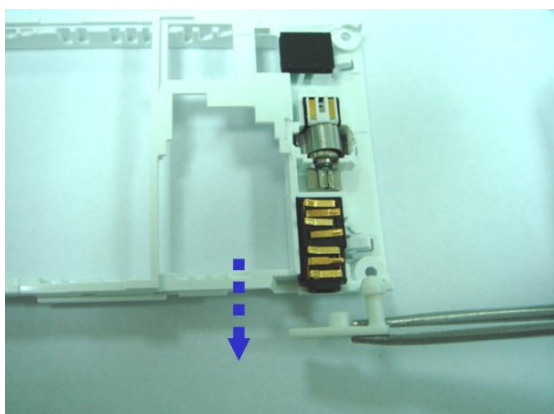
14. Press Keymat downward.



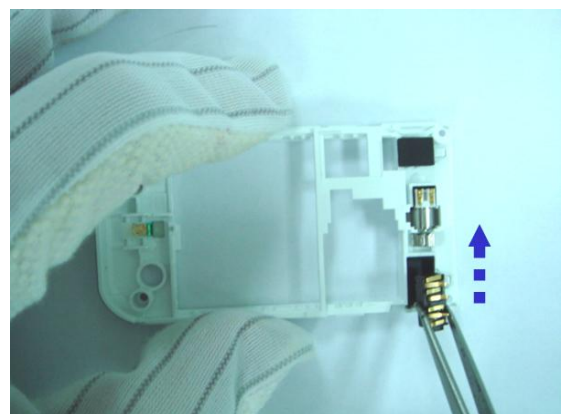
15. Pull Keymat upward to remove it.



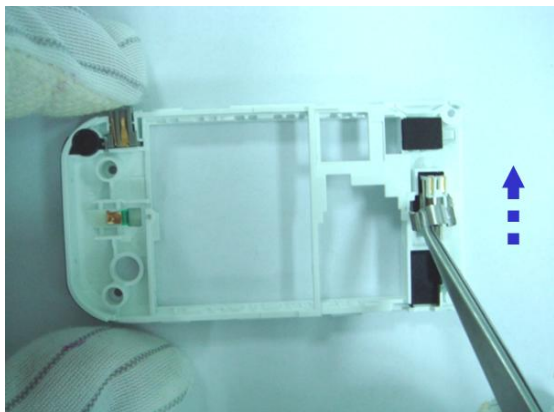
16. Piece parts list.



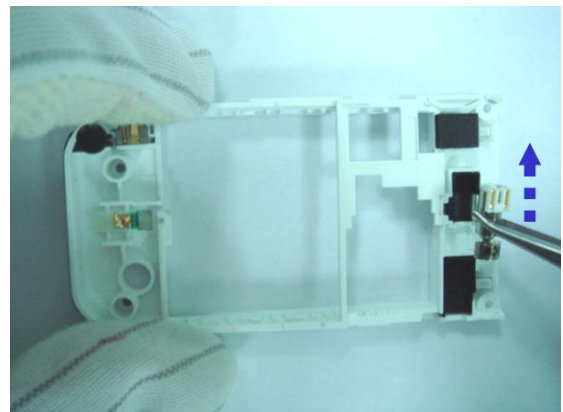
17. Use tweezers to clip Earphone Jack Rubber and pull out it from the D-Cover.



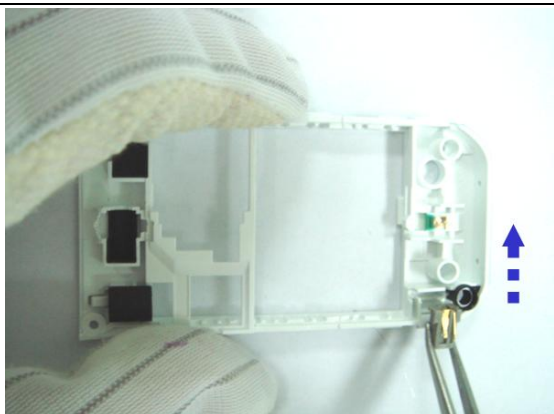
18. Use tweezers to clip Earphone and pull upward to remove it from the D-Cover.



19. Use tweezers to clip Vibrator holder and pull upward to remove it from the D-Cover.



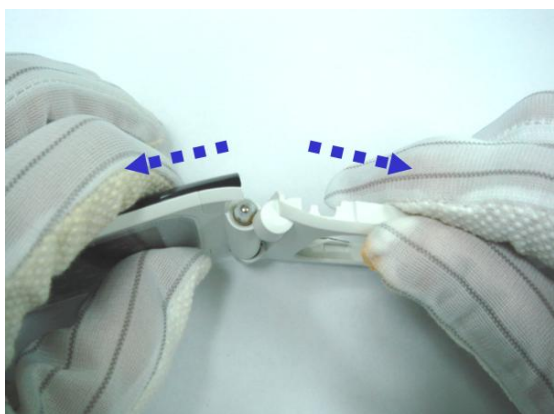
20. Use tweezers to clip Vibrator and pull upward to remove it from the D-Cover.



21. Use tweezers to clip DC Jack and pull upward to remove it from the D-Cover.



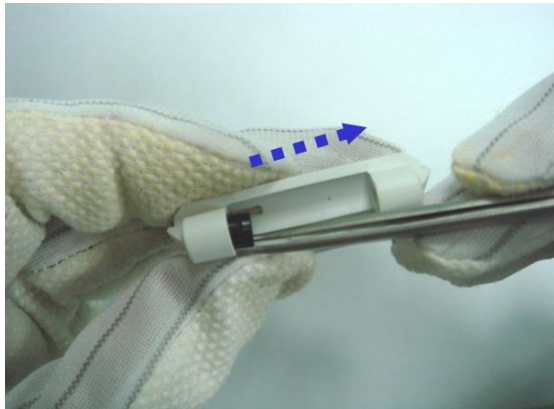
22. Use 2mm width " — " type screw bit press the hinge inward to remove A-Cover/B-Cover Assy from the C-Cover.



23. Pull A-Cover/B-Cover Assy away from C-Cover.



24. Pull FPC Cable connector away from C-Cover.



25. Use tweezers to clip Shaft Alloy part away from the hinge hole of C-Cover.



26. Place SRT-6 into the gap between A-Cover and Screw-Cove to remove Screw-Cover. (Left)



27. Place the SRT-6 into the gap between A-cover and Screw Cove to remove Screw Cover. (Right)



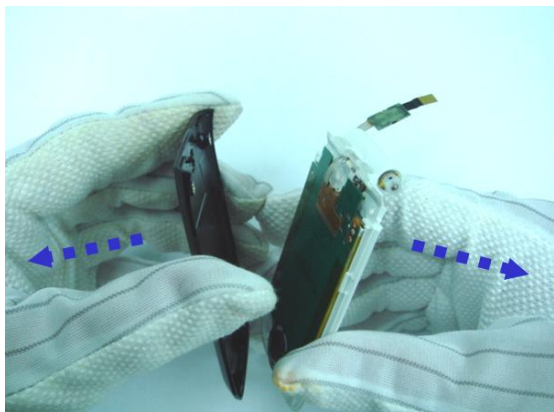
28. Use a TORX T5 screwdriver to loosen and remove the Torx screw (M1.4x2). When using torque driver, set torque to 9 Ncm @ 450 rpm. The tolerance is +/-2Ncm.



29. Place SRT-6 into the gap between A-Cover and B-Cover, move along with perimeter and lever the snaps to separate A-Cover and B-Cover. (Left Side)



30. Place SRT-6 into the gap between A-Cover and B-Cover, move along with perimeter and lever the snaps to separate A-Cover and B-Cover. (Right Side)



31. Pull A-Cover away from the hook of B-Cover.



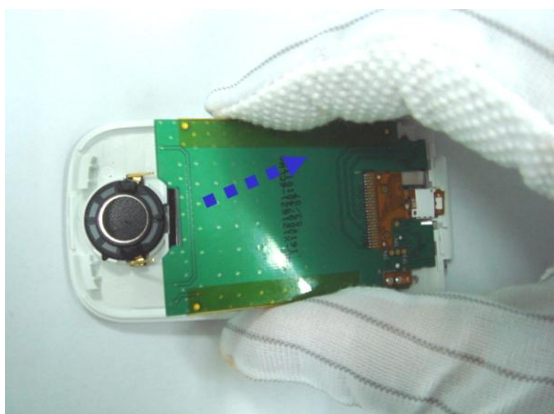
32. Open A-Cover.



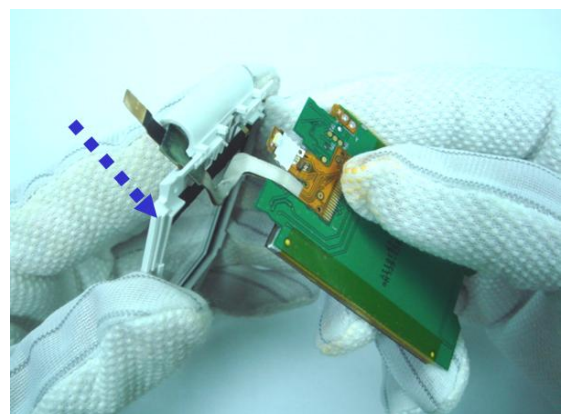
33. Use tweezers to clip Button Stopper away from LCD Module Assy.



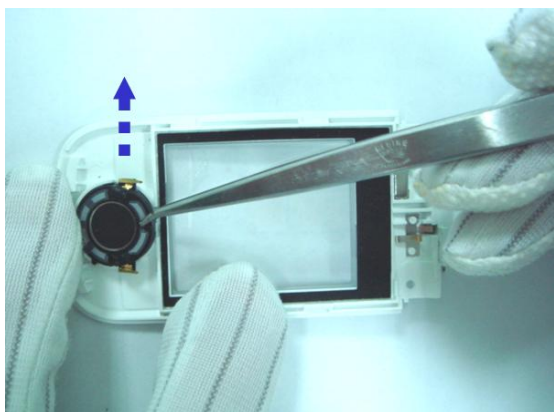
34. Place SRT-6 into the gap between B-Cover and LCD Module Assy.



35. Pull upward to remove LCD Module Assy.



36. Pull FPC Cable connector away from the hole of B-Cover.



37. Use tweezers clip Speaker away from B-Cover.

Domesheet Exchange Instructions



1. Use the tweezers to peel the domesheet



2. Remove the domesheet.



3. Place a new domesheet on the Domesheet Alignment Jig.



4. Align the guide pins and place the PWB on the Jig.



5. Press firmly on the PWB to ensure correct bonding of the domesheet..




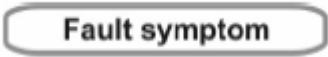


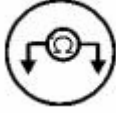


6. Inspect to ensure proper adhesion of domesheet to PWB.

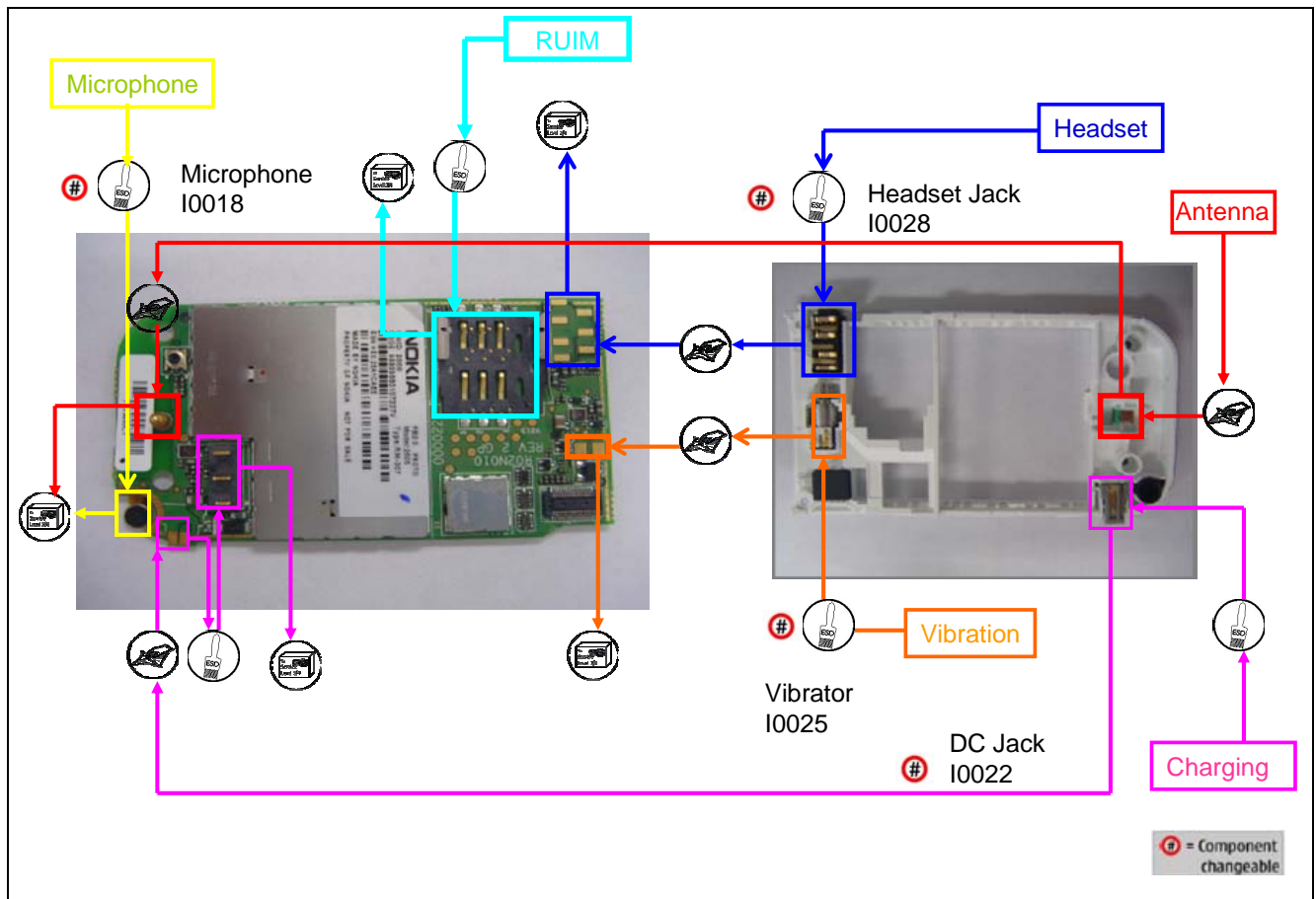
Note: After using the heatgun, the domesheet needs to be replaced.

Quick Troubleshooter

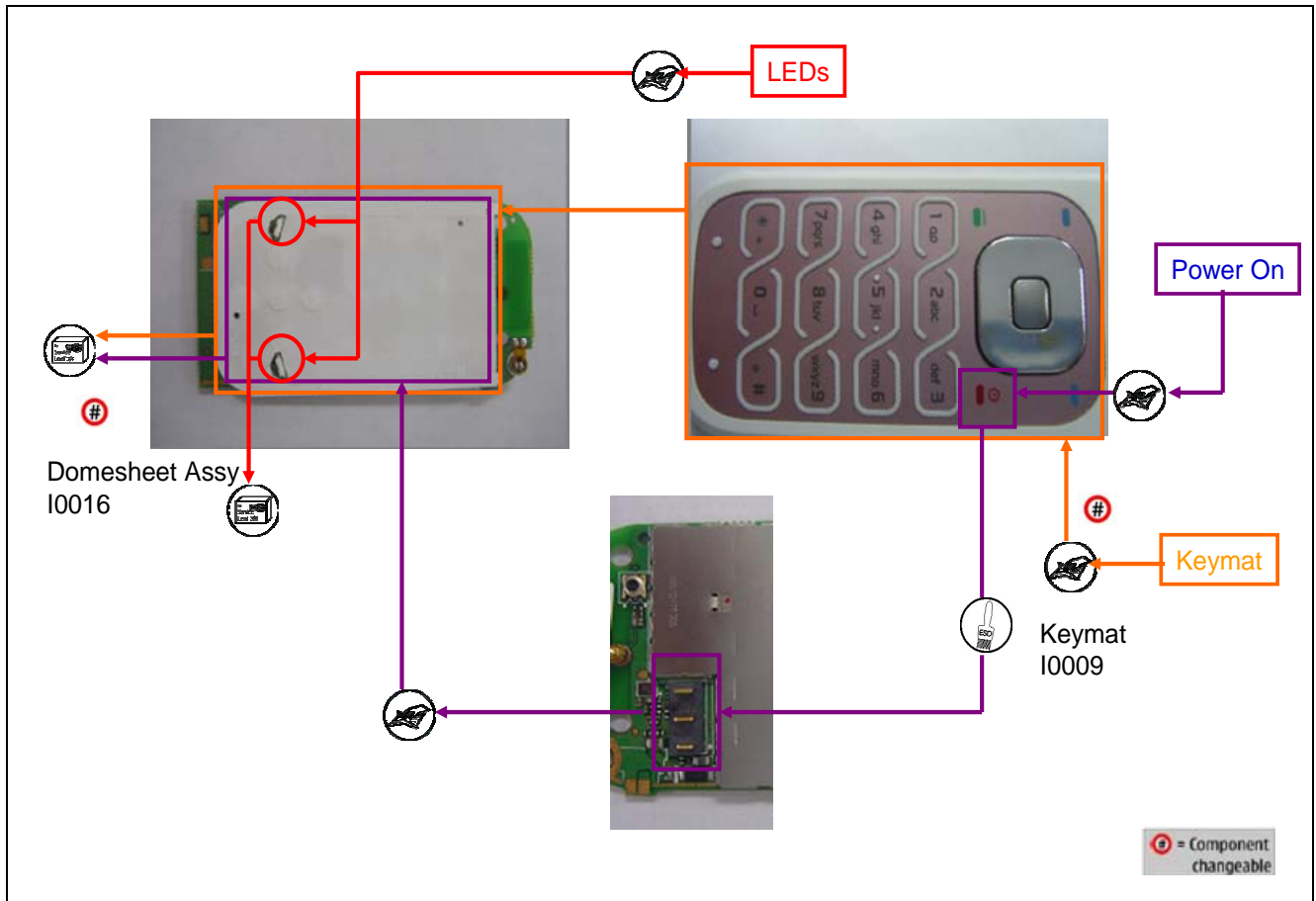
Legend for Quick Troubleshooter

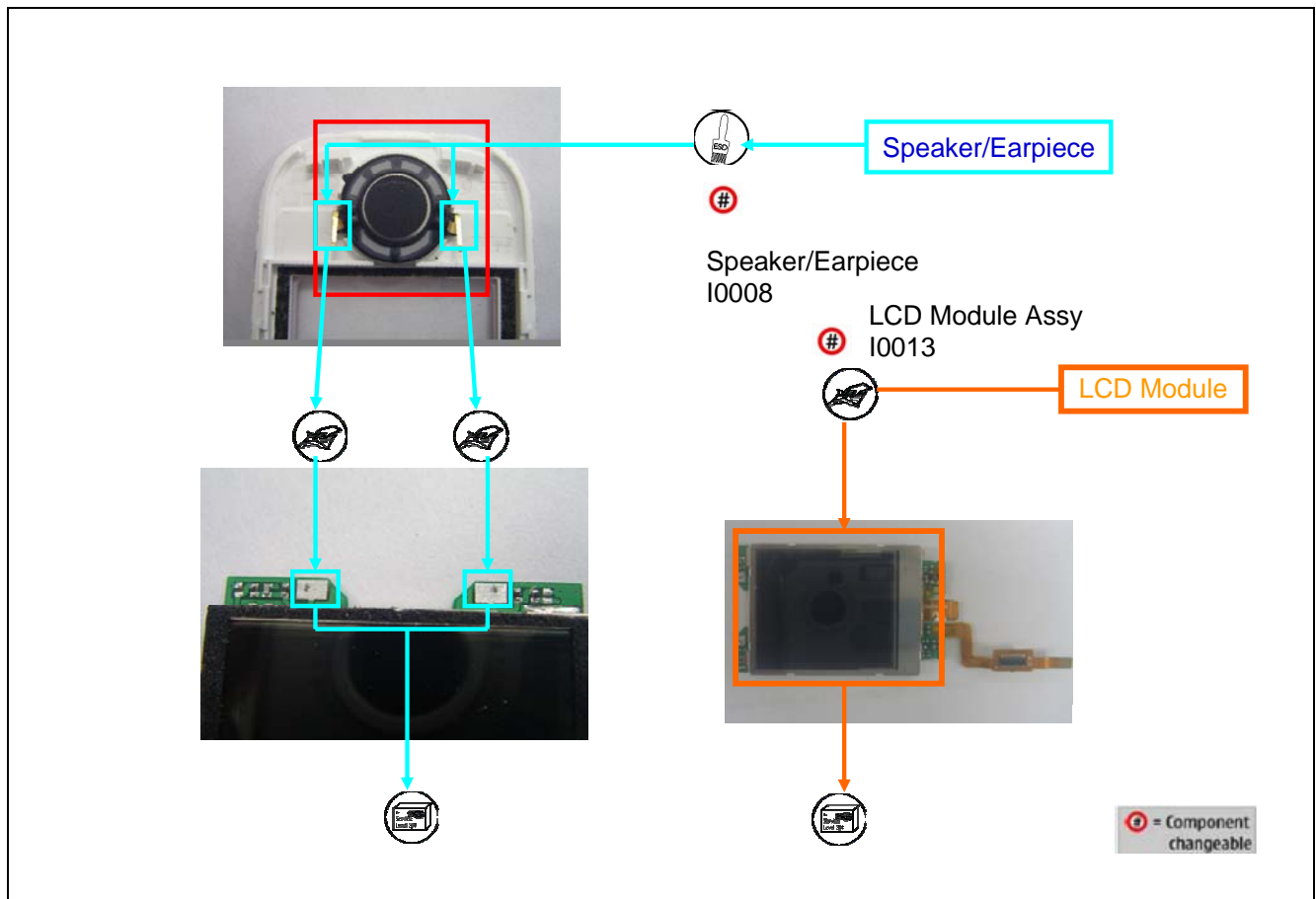
This legend is valid for all parts of the Quick Troubleshooter. Follow the steps until the problem is solved. If these steps do not resolve the problem, you are not authorized to proceed.

	Only marked components can be changed.
	Starting point of repair activities regarding the observed fault symptoms.
	Follow the arrows step by step.
	Pads or contacts: Check optical and mechanical condition particularly for corrosion. Clean if necessary.
	Measure component for electrical functionality and change if needed (Level 2 only).
	Pads or contacts: Check optical and mechanical condition particularly for corrosion. Clean with ESD brush only, if necessary.
	No more actions possible. Send product to the appropriate service supplier with higher service level.

Quick Troubleshooter – Part 1


Quick Troubleshooter – Part 2



Quick Troubleshooter – Part 3

Go-No-Go Test

After a visual check, a Go-No-Go test must be carried out to guarantee the functionality of the mobile terminal if the unit has been opened.



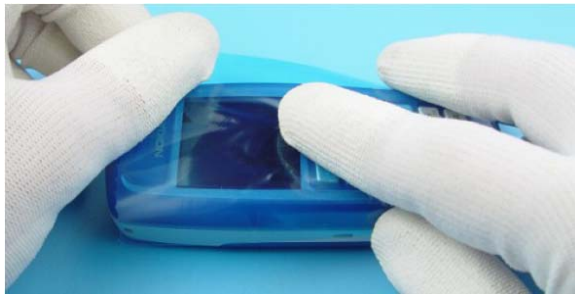
Battery Test

A battery tester allows you test the capacity of Nokia batteries. Refer to the information on the [Nokia Online](http://www.nokia.com) website.



Forwarding Repairs

When forwarding the mobile terminal for repairs to a higher level service supplier use a swap carton as shown below.



1. Always Protect the window with a protection film.



2. Put the unit under the stretch film.



3. Add repair documentation to the swap carton, e.g. completed service note.



4. Fold the swap carton as shown.



Note: There are two different sizes of swap cartons for common mobile terminals.