Order Number: MCUK980101C8

Service Manual

G600 Personal Cellular Telephone

Handheld Portable
EB-G600
Battery Packs
EB-BS600
EB-BM600
EB-BL600
Handsfree Car Mount Kit
EB-HF600Z
Easy Fit Car Kit
EB-HF601Z
Hands Free Car Kit
EB-HF600
Simple Car Kit
EB-KD600
DC Adaptor
EB-CD600
Dual Charger
EB-CR600
AC Adaptor
EB-CA600
Data Interface Cable
EB-PA600
SMS Interface Cable
EB-RS600

Panasonic
GSM

Issue 1
Revision 0

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TABLE OF CONTENTS

1 INTRODUCTION

1.1 Purpose of this Manual . . . 1-1
1.2 Structure of the Manual . . . 1-1
1.3 Servicing Responsibilities . . . 1-1

2 GENERAL DESCRIPTION

2.1 General . . . 2-1
2.2 Handportable Main Kit . . . 2-1
2.3 Handsfree Car Mount Kit . . . 2-2
2.4 Easy Fit Car Kit . . . 2-3
2.5 Simple Car Kit . . . 2-4
2.6 AC Adaptor . . . 2-4
2.7 SMS Interface Cable . . . 2-5
2.8 DC Adaptor . . . 2-5
2.9 Holder Kit . . . 2-6
2.10 Dual Charger and Carry Case . . . 2-6
2.11 Battery Packs . . . 2-7
2.12 PC Card . . . 2-7
2.13 Documentation . . . 2-8
2.14 Accessories . . . 2-8

3 OPERATING INSTRUCTIONS

3.1 General . . . 3-1
3.2 LCD Display . . . 3-1
3.3 Location of Controls . . . 3-2
3.4 Concept of Operation . . . 3-3
3.5 Alpha Entry . . . 3-3
3.6 Incoming Calling Line Identification (CLI) . . . 3-4
3.7 Features Menu Structure . . . 3-4
3.8 Public Man Machine Interface (MMI) . . . 3-5
3.9 Troubleshooting . . . 3-8
3.10 Important Error Messages . . . 3-9
3.11 Security Codes . . . 3-10
3.12 GSM Services Supported by PC Card . . . 3-10
3.13 GSM Network Codes and Names . . . 3-11
3.14 Glossary of Terms . . . 3-15

4 INSTALLATION GUIDE

4.1 General . . . 4-1
4.2 Handsfree Car Mount Kit . . . 4-1
4.3 DC Adaptor . . . 4-6
4.4 Simple Car Kit . . . 4-6

5 DISASSEMBLY/REASSEMBLY INSTRUCTIONS

5.1 General . . . 5-1
5.2 Handportable Unit . . . 5-2
5.3 Dual Charger . . . 5-6
5.4 Handsfree Unit . . . 5-8
5.5 Easy Fit Unit . . . 5-11

6 TECHNICAL SPECIFICATIONS

6.1 General . . . 6-1
6.2 Handportable Unit . . . 6-1
6.3 Handsfree Unit . . . 6-5
6.4 Dual Charger . . . 6-5
6.5 AC Adaptor . . . 6-6
6.6 DC Adaptor . . . 6-6
6.7 Battery Packs . . . 6-7
6.8 Features of Lithium-Ion (Li-Ion) batteries . . . 6-8

7 TEST AND MEASUREMENT

7.1 Introduction . . . 7-1
7.2 External Testing . . . 7-1
7.3 Complete Unit Test Setup . . . 7-3
7.4 Channel Box Test Commands . . . 7-7
7.5 Adjustment Mode . . . 7-9
7.6 Lock Code . . . 7-21
7.7 SIM Personalisation . . . 7-22

8 CIRCUIT DIAGRAMS

8.1 Handheld Unit . . . 8-1
8.2 Handsfree . . . 8-5
8.3 Easy-Fit Handsfree . . . 8-6

9 PCB LAYOUT DIAGRAMS

9.1 Handheld Unit . . . 9-1
9.2 Handsfree . . . 9-3
9.3 Easy-Fit Handsfree . . . 9-4

10 PARTS LIST

10.1 Handheld Unit . . . 10-1
10.2 Handsfree Unit . . . 10-2
10.3 Handheld Replacement Parts List . . . 10-3
10.4 Handsfree Replacement Parts List . . . 10-15
10.5 Printed Material . . . 10-22
10.6 Dual Charger . . . 10-22
10.7 DC Adaptor . . . 10-22
10.8 PC Card . . . 10-22

WARNINGS AND CAUTIONS

WARNING

The equipment described in this manual contains polarized capacitors utilising liquid electrolyte. These devices are entirely safe provided that neither a short-circuit nor a reverse polarity connection is made across the capacitor terminals. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN DAMAGE TO THE EQUIPMENT OR, AT WORST, POSSIBLE INJURY TO PERSONNEL RESULTING FROM ELECTRIC SHOCK OR THE AFFECTED CAPACITOR EXPLODING. EXTREME CARE MUST BE EXERCISED AT ALL TIMES WHEN HANDLING THESE DEVICES.

Caution

The equipment described in this manual contains electrostatic sensitive devices (ESDs). Damage can occur to these devices if the appropriate handling procedure is not adhered to.

ESD Handling precautions:

A working area where ESDs may be safely handled without undue risk of damage from electrostatic discharge, must be available. The area must be equipped as follows:

Working Surfaces - All working surfaces must have a dissipative bench mat, SAFE for use with live equipment, connected via a 1M2 resistor (usually built into the lead) to a common ground point.

Wrist Strap - A quick release skin contact device with a flexible cord, which has a built in safety resistor of between 5k2 and 1M2 shall be used. The flexible cord must be attached to a dissipative earth point.

Containers - All containers and storage must be of the conductive type.

Batteries

This equipment may contain an internal battery in addition to the external battery packs. These batteries are recyclable and should be disposed of in accordance with local legislation. They must not be incinerated, or disposed of as ordinary rubbish.

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1 INTRODUCTION

1.1 Purpose of this Manual

This Service Manual contains the information and procedures required for installing, operating and servicing the Panasonic GSM Personal Cellular Mobile Telephone system operating on the GSM Digital Cellular Network.

1.2 Structure of the Manual

The manual is structured to provide service engineering personnel with the following information and procedures:

1. General and technical information - provides a basic understanding of the equipment, kits and options, together with detailed information for each of the major component parts.
2. Installation and operating information - provides instructions for unpacking, installing and operating the equipment.
3. Servicing information - provides complete instructions for the testing, disassembly, repair and reassembly of each major component part. Step-by-step troubleshooting information is given to enable the isolation and identification of a malfunction, and thus determine what corrective action should be taken. The test information enables verification of the integrity of the equipment after any remedial action has been carried out.
4. Illustrated parts list - provided to enable the identification of all equipment components, for the ordering of spare/replacement parts.

1.3 Servicing Responsibilities

The procedures described in this manual must be performed by qualified service engineering personnel, at an authorised service centre.

The service engineering personnel are responsible for fault diagnosis and repair of all equipment described in this manual.

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2 GENERAL DESCRIPTION

2.1 General

This section provides a general description and kit composition details for the GSM Handportable Telephone system and optional kits.

The GSM handportable may be configured as:

1. Handportable unit.
2. Vehicle-powered (DC adaptor) handportable unit.
3. Handsfree vehicle-mounted unit.
4. PC fax: send and receive (via PCMCIA Interface card).

2.2 Handportable Main Kit

The handportable main kit provides a standalone class 4 GSM telephone. The plug-in SIM contains the subscriber and network information necessary to operate the phone on a GSM network.

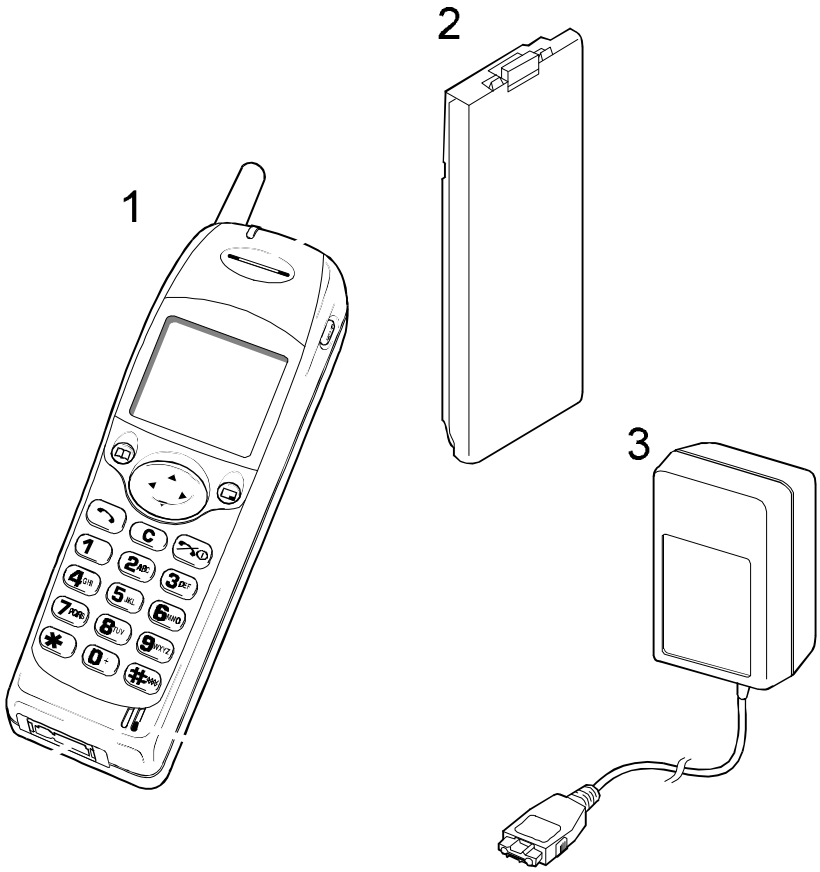

Figure 1: Handportable Main Unit Kit *600-0201*

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	Main unit	EB-G600
2	Battery	EB-BS600
3	Adaptor	EB-CA600
—	Documentation	See Section 2.13

2.3 Handsfree Car Mount Kit

The Handsfree Car Mount Kit enables the handportable to be mounted in a vehicle, and to operate in handsfree mode.

The Handsfree Unit contains a speaker, with separate volume control. Speech is via a microphone mounted on the dashboard or the sun visor.

The telephone can be operated in handheld mode by removing it from the Holder. This will use the external antenna and power from the Handsfree Unit.

The handsfree unit also provides external power for the handheld internal charger.

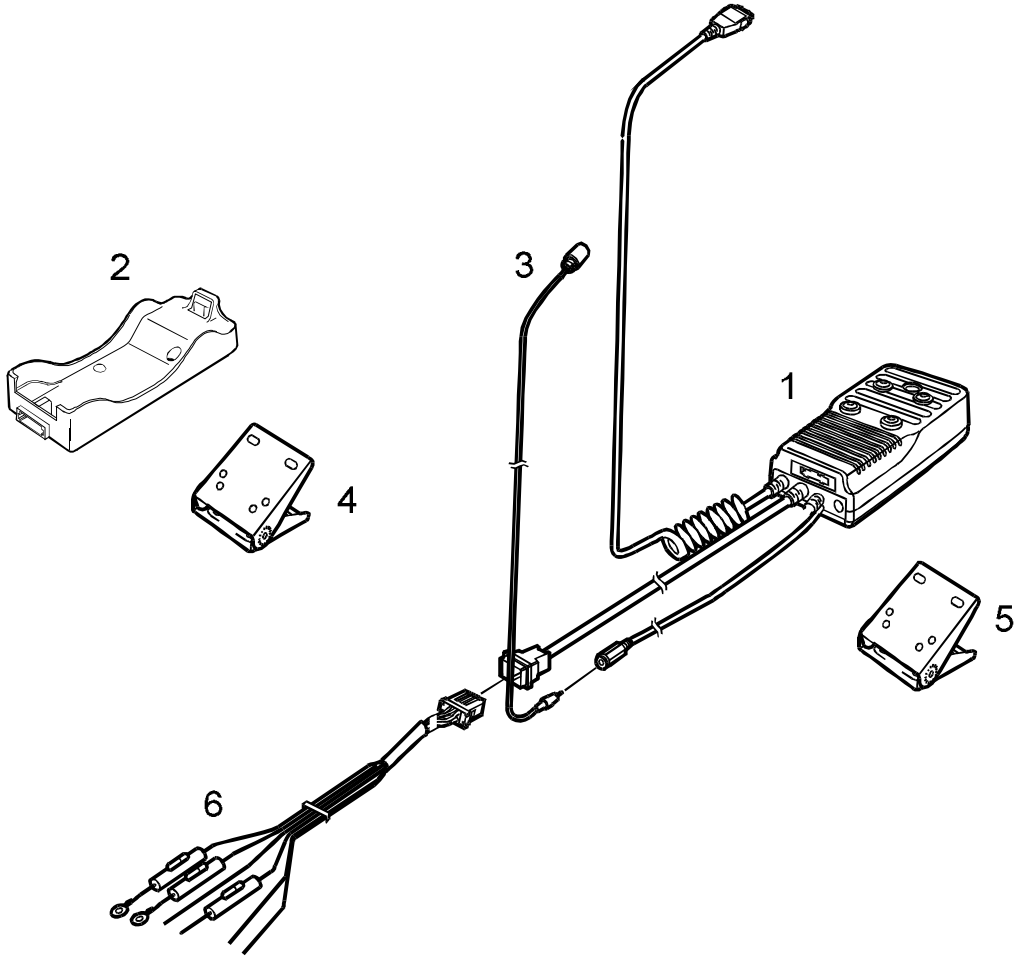

Figure 2: Handsfree Car Mount Kit 600-0202

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	Handsfree unit	EB-HF600
2	Holder	EB-KA600
3	Handsfree microphone	EBM1177
4	Adjustable angle bracket	EBN0001
5	Adjustable angle bracket	EBN0002
6	Power supply cable	EBW70090

2.4 Easy Fit Car Kit

The Easy Fit Car Mount Kit is very similar to the Handsfree Car Mount Kit. The main difference with the Easy Fit Car Mount kit is the addition of a cigar lighter adaptor for the supply of power. The cigar lighter adaptor makes installation of the kit very simple.

The Handsfree Unit contains a speaker, with separate volume control. Speech is via a microphone mounted on the dashboard or the sun visor.

Due to the length of cable from the Handsfree Unit to the telephone the telephone can only be used in handsfree mode.

The Handsfree Unit also provides external power for the handheld internal charger.

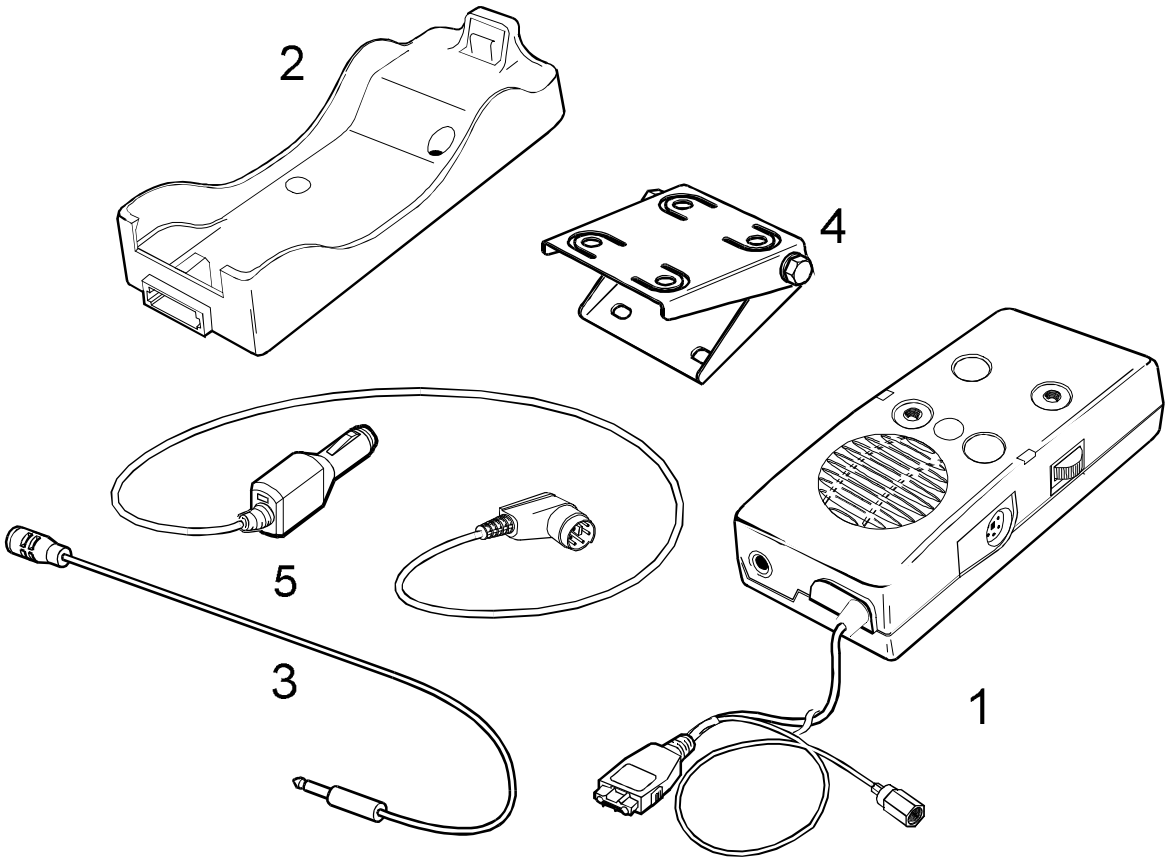

Figure 4: Easy Fit Car Mount Kit 600-0203

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	Handsfree unit	EB-HF601
2	Holder	EB-KA600
3	Handsfree microphone	EBM1177
4	Adjustable angle bracket	EBN0001
5	Car lighter adaptor	WC70187A

2.5 Simple Car Kit

The Simple Car Kit enables the handportable unit to be powered from a vehicle battery, provided that the vehicle has a cigar lighter socket, and also has an external antenna connector for better signal quality when in a vehicle.

One end of the DC adaptor plugs into the handportable with the telephone battery connected. The other end of the adaptor is pushed into the cigar lighter socket. The external antenna connector is an FME type.

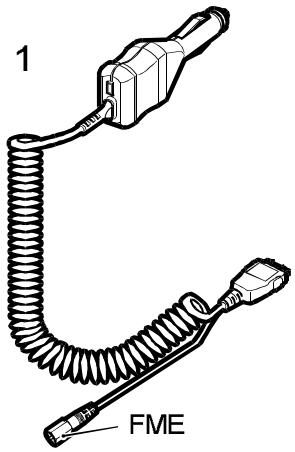

Figure 5: Simple Car Kit 600-0208

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	Simple Car Kit	EB-KD600

2.6 AC Adaptor

The AC Adaptor kit is supplied with UK or European input plug type; other country specific types are available. The adaptor enables the handportable unit to be powered from a 230/110/100 VAC supply.

One end of the AC adaptor plugs into the handportable with the telephone battery connected. The other end of the adaptor is pushed into the electrical supply socket.

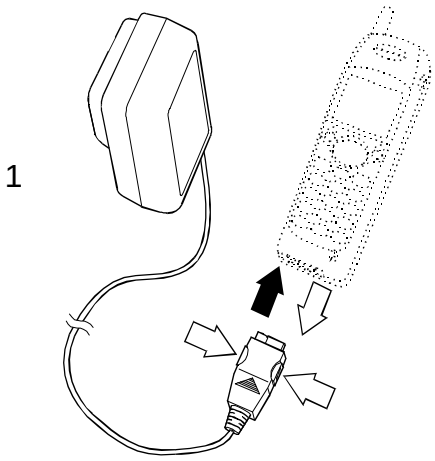

Figure 2: AC Adaptor 600-0212

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	AC Adaptor	EB-CA600

2.7 SMS Interface Cable

The SMS Interface Cable enables Short Text Messages (SMS) and Phonebook data to be edited, stored and created.

One end of the SMS Interface Cable is connected to the standalone class 4 GSM telephone and the other end of the SMS Interface Cable is connected to the RS232 serial port on an IBM compatible PC.

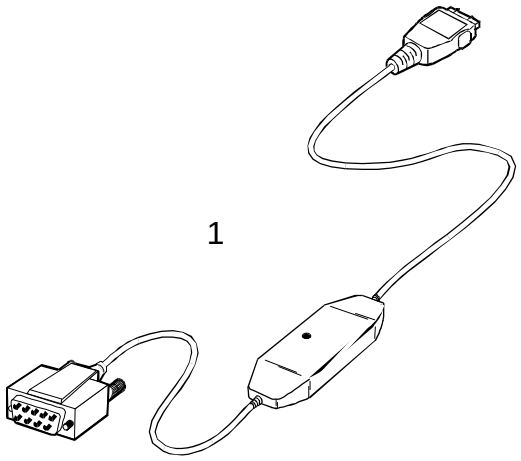

Figure 3: SMS Interface Cable 600-0213

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	SMS I/F Cable	EB-RS600

2.8 DC Adaptor

The DC Adaptor kit enables the handportable unit to be powered from a vehicle battery, provided that the vehicle has a cigar lighter socket.

One end of the DC adaptor plugs into the handportable with the telephone battery connected. The other end of the adaptor is pushed into the cigar lighter socket.

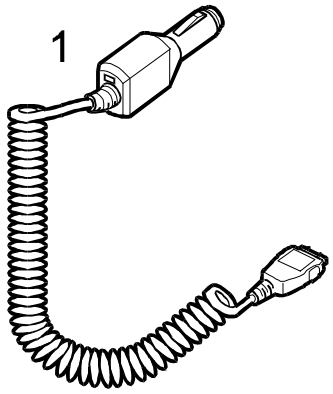

Figure 6: DC Adaptor 600-0209

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	DC Adaptor unit	EB-CD600

2.9 Holder Kit

The holder kit allows convenient mounting of the telephone in a vehicle. In conjunction with the DC adaptor this can make a simple car mount kit. The adjustable angle bracket and telephone holder are attached to a convenient fixing point in the vehicle.

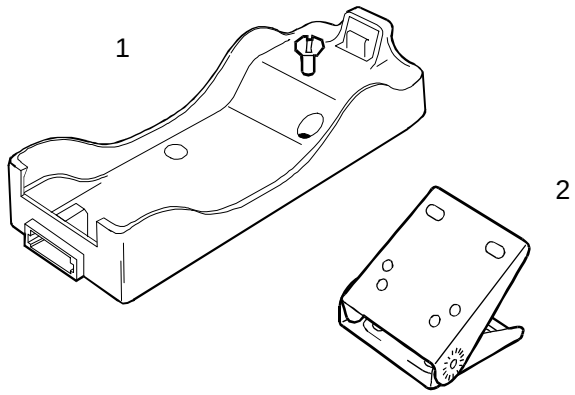

Figure 7: Holder Kit 600-0204

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	Holder	EB-KA600
2	Adjustable Angle Bracket	EBN0002

2.10 Dual Charger and Carry Case

The dual charger has two charging slots, enabling the telephone battery to be charged individually or as a part of the whole telephone assembly.

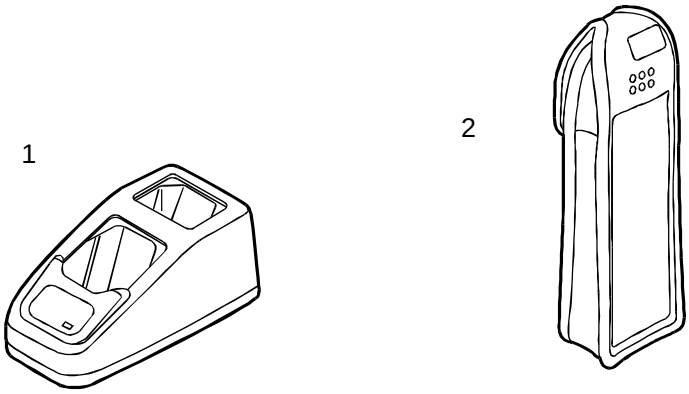

Figure 8: Dual Charger and Carry Case 500-0205

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	Dual charger	EB-CR600
2	Carry case	EB-YK400

2.11 Battery Packs

There is a choice of three battery packs available. The Battery Pack (S) is 400mAh (Li-Ion); the Battery Pack (M) is 650mAh (Ni-MH and the Battery Pack (L) is 1200mAh (Li-Ion).

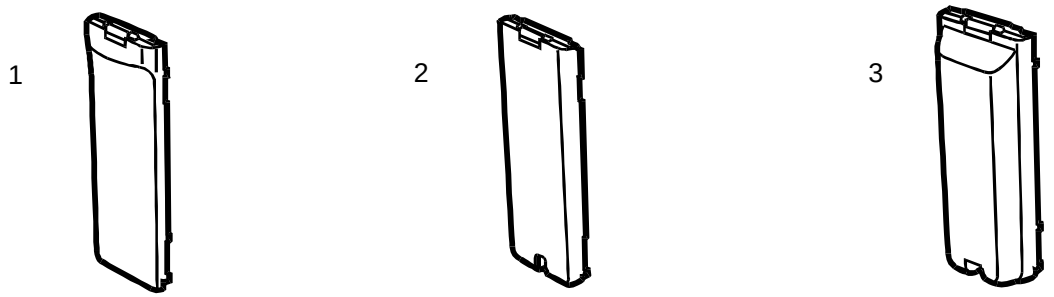

Figure 9: Battery Packs 600-0211

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	Battery Pack (S)	EB-BS600
2	Battery Pack (M)	EB-BM600
3	Battery Pack (L)	EB-BL600

2.12 PC Card

The PC Card interface is used with the handportable and a laptop personal computer to provide a PC fax and modem facility.

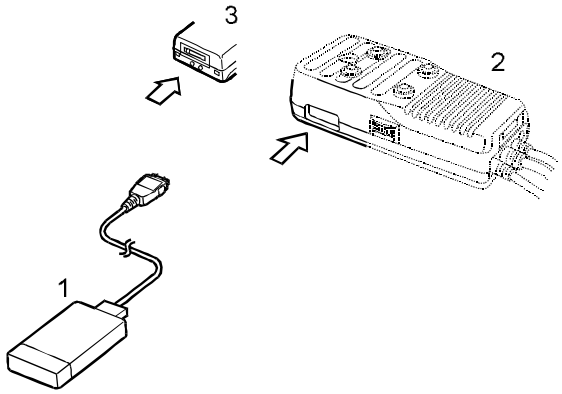

Figure 10: PC Card 600-0207

IDENTIFICATION NUMBER	DESCRIPTION	PART NUMBER
1	PC Card	EB-PA600
2	Handsfree unit – connection	—
3	Telephone – connection	—

2.13 Documentation

The following documentation packs are available and contain Operating Instructions, Quick Start information and warranty information. Some markets may require additional documentation, e.g. a specific warranty, that is not listed.

DOCUMENTATION PACKS	
Austria	G600DOCAS
Belgium	G600DOCBE
Czech Republic	G600DOCCZ
Denmark	G600DOCDE
Finland	G600DOCFI
France	G600DOCFR
Germany	G600DOCGE
Greece	G600DOCGR
Italy	G600DOCIT
Kuwait	G600DOCKU
Lebanon	G600DOCLE
Netherlands	G600DOCNL
Poland	G600DOCPL
Portugal	G600DOCPO
Russia	G600DOCRU
Slovakia	G600DOCSK
Spain	G600DOCES
Sweden	G600DOCSW
Switzerland	G600DOCCH
Turkey	G600DOCTU
United Kingdom	G600DOCUK
Yugoslav Republic	G600DOCYU

2.14 Accessories

In addition to the kit contents listed in this section, all kits also contain user documentation. Some markets may require additional documentation, e.g. a specific warranty, that is not listed.

OPTIONAL ACCESSORIES	
Handsfree Car Mount Kit	EB-HF600
Car Mount Kit	EBHF600Z
Easy Fit Car Mount Kit	EB-HF601Z
Simple Car Kit	EB-KD600
DC Adaptor	EB-CD600
Holder Kit	EB-KA600
Dual Charger	EB-CR600
Carry Case	EB-YK600
Battery Pack (S)	EB-BS600
Battery Pack (M)	EB-BM600
Battery Pack (L)	EB-BL600
AC Adaptor	EB-CA600
SMS Interface Cable	EB-RS600
Data Interface Card	EB-PA600

3 OPERATING INSTRUCTIONS

3.1 General

This section provides a brief guide to the operation and facilities available on the G600 handportable unit. Refer to the Operating Instructions for full operational information.

3.2 LCD Display

The G600 handportable unit has a graphical chip on glass liquid crystal display in conjunction with the following icons:

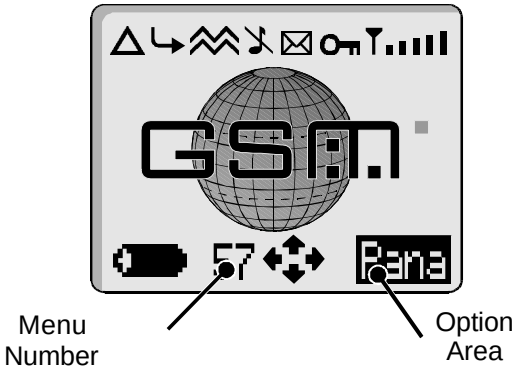

Figure 1: LCD display 600-0301

▪▪▪▪▪	Indicates received signal strength: ▪▪▪▪▪ strong signal area; ▪ weak signal area.
Y	Indicates that it is possible to make an emergency call.
Menu Number	The number of the feature pointed to by the pointer. To access a feature enter the menu number on the keypad.
	Displays the battery charge level: Battery requires recharging; The battery icon flashes during charging. During car mount use, when the battery is fully charged, the battery icon will not light.
Menu Icon	Displays a small icon related to the current status of the telephone: △ telephone is roaming on a none home network; ↳ using the "Call Divert" feature or the telephone has Call Divert set; ↳1 Call Divert profile 1 is set; shows that the vibration alert is switched on; shows that telephone is in silent mode - no tones; ✉ indicates there are unread Short Text Messages (SMS.). Lit when SMS area is full; the telephone is locked; ABC shows that normal character have been entered in Alpha Entry; ABΓ shows that Greek character have been entered in Alpha Entry; AÄÅ shows that extended character have been entered in Alpha Entry; 0–9 shows that numbers have been entered in Alpha Entry.
	Indicates that the navigation key ( ) can be pressed. Each arrow will light individually to indicate which direction is valid.
Option Area	Pressing the select key ( ) will select the option displayed in the option area of the display.

Following some operations the display will automatically clear after three seconds or after pressing any key except .

3.3 Location of Controls

Incoming/Charge indicator:
Green – incoming call.
Red – charging battery pack.

External connector:
Used to connect to external accessories or charging equipment.

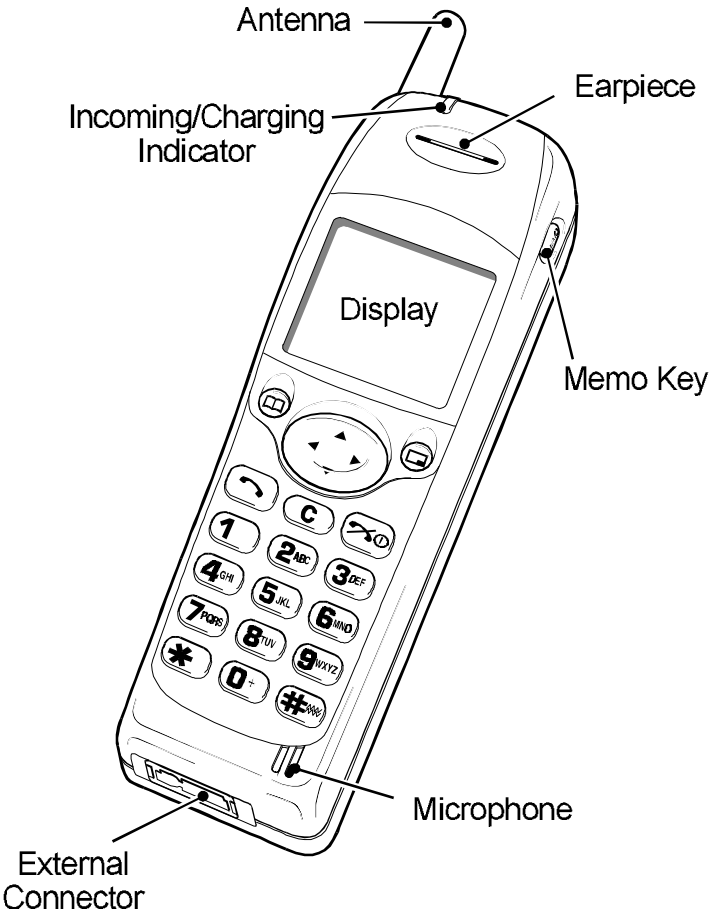

Figure 2: Location of controls for G600 600-0302

MEMO	Memo Key. Record a conversation for approximately 40 seconds during a call.
	Navigation Key. Scrolls through options or features menu and increases or decreases volume.
	Select Key. Selects option shown in the Option Area of the display.
	Phonebook Key. Browses through the Phonebook or stores a number in the Phonebook. Changes the type of characters entered during Alpha Entry.
	Send Key. Makes a call.
C	Clear Key. Clears the last digit entered, clears all digits when pressed and held or returns to the previous display.
	End Key. Ends a call or switches the telephone on/off when pressed and held.
Digit keys 0+ to 9WXYZ, and where appropriate the 0+ key will enter the international access code "+", wild numbers or pauses when pressed and held. The # key, when pressed and held, enables or disables the vibrator.	

3.4 Concept of Operation

There is a close relationship between the Select Key, Navigation Key and display.

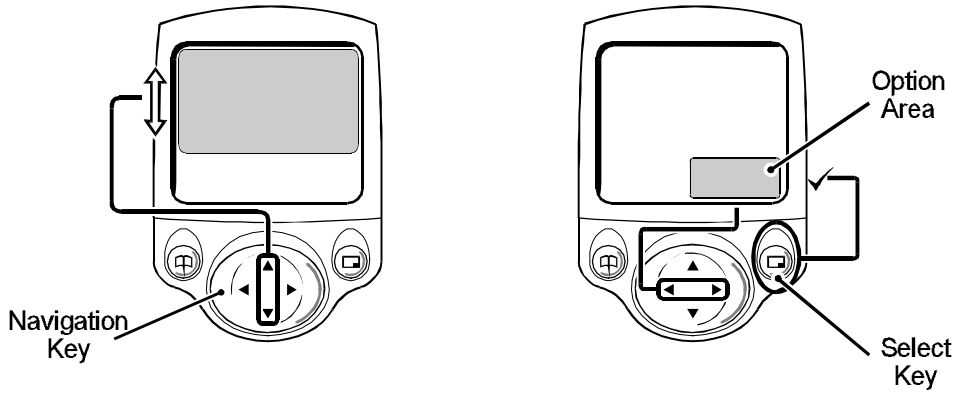

Figure 3: Concept of Operation 600-0303

Pressing up and down (↕) will move the pointer up and down and scroll through more information in the main area of the display.

Pressing left and right (↔) will scroll through options in the option area of the display. To choose the option press the Select Key (⊡).

3.5 Alpha Entry

Alpha Entry is used to enter alphanumeric characters into Phonebook, Short Messages and the Greeting Message.

Key	Character/Operation			
	ABC	ΑΒΓ	AÄÅ	0–9
1	" @ – , . ; : ! ¡ ? ¿ ( ) ' & % + – / < > = £ $ ¥ ¤ §			1
2 ABC	A B C a b c	Α Β Γ	A Ä Å Æ B C Ç a à b c	2
3 DEF	D E F d e f	Δ E Z	D E É F d e è é f	3
4 GHI	G H I g h i	Η Θ I	G H I g h i ì	4
5 JKL	J K L j k l	Κ Λ M	J K L j k l	5
6 MNO	M N O m n o	Ν Ξ Ο	M N Ñ O Ö ø m n ñ o ò ö	6
7 PQRS	P Q R S p q r s	Π Ρ Σ	P Q R S p q r s ß	7
8 TUV	T U V t u v	Τ Υ Φ	T U Ü V t u ù ü v	8
9 WXYZ	W X Y Z w x y z	Ξ Ψ Ω	W X Y Z w x y z	9
C	Deletes the character above the cursor, deletes the character to the left when at the end of the line or clears the entire entry when pressed and held.			

Each time a key is pressed it will display the next character. When another key is pressed or no key is pressed for a short time the cursor will move to the next position.

To cycle between Greek characters (ΑΒΓ), extended characters (AÄÅ), numerals (0–9) and normal characters (ABC) press ⊡.

3.5.1 Editing Alpha Entry

Pressing ↕ will move you up or down one line. Pressing ↔ will move you left or right one character. When the cursor is moved over a character and another key pressed this will insert the new character.

Pressing C will delete the character to the left of the cursor.

3.6 Incoming Calling Line Identification (CLI)

When a call is received the last 6 digits of the CLI information is matched with the phonebook. Therefore an incoming call could match to the wrong phonebook entry.

3.7 Features Menu Structure

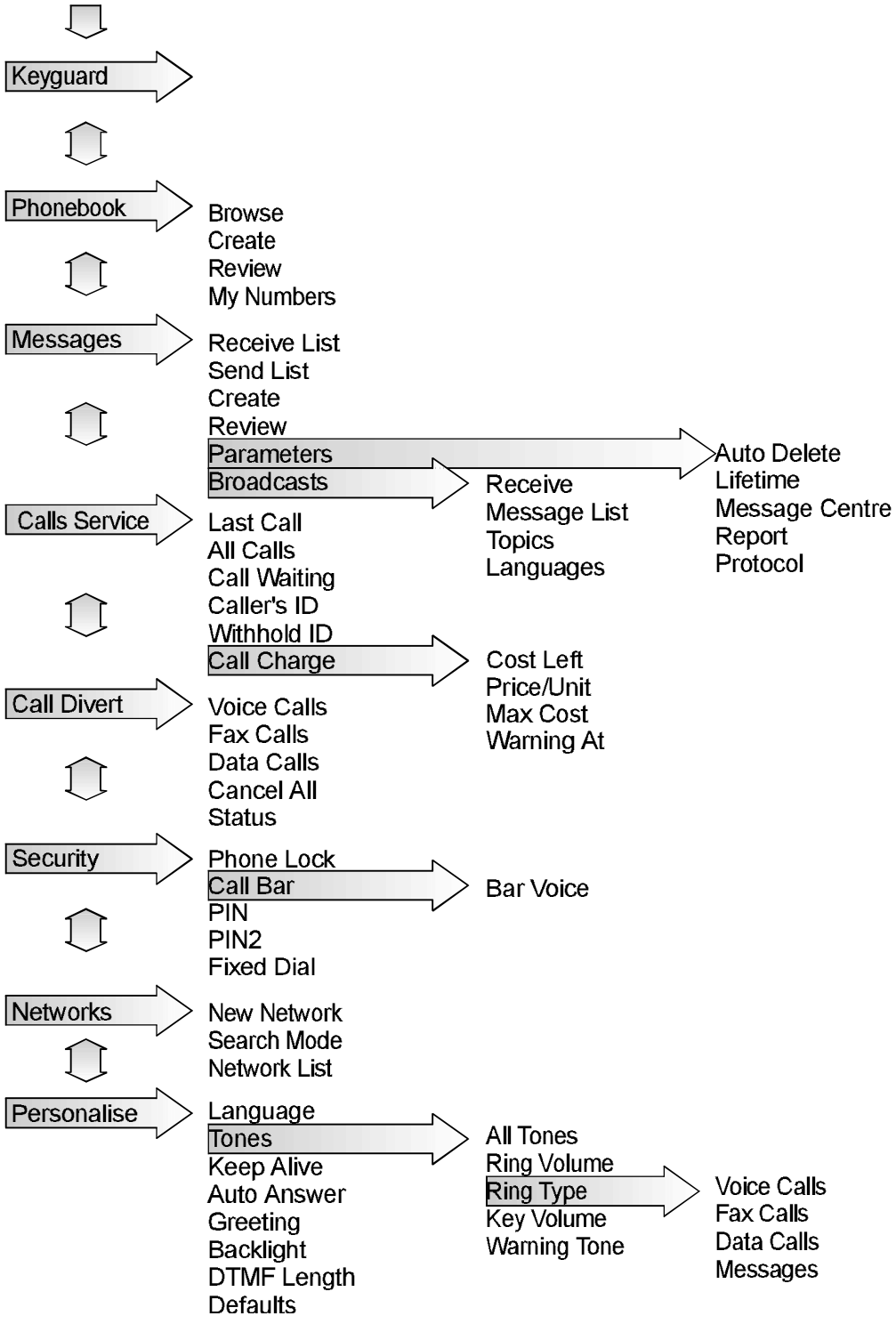

Figure 4: Feature Menu 600-0304

3.8 Public Man Machine Interface (MMI)

It is possible to operate all GSM telephones in the same way using the Public MMI. The following operations will work with all GSM telephones. However, this information is restricted to those operations that are supported by G600.

The * and # in the following procedures should be replaced by (*) and (#), respectively. Also <SND> and <END> should be replaced with (↶) and (↷) keys.

3.8.1 Reading Phonebook Memory Location

<MEMORY LOCATION>
Leading zeros can be left out of the location number, e.g. 007 can be 7.

3.8.2 Presentation of IMEI

* # 0 6 #

3.8.3 Security

Change PIN

* * 0 4 * <OLD PIN> * <NEW PIN> * <NEW PIN> #

Change PIN2

* * 0 4 2 * <OLD PIN2> * <NEW PIN2> * <NEW PIN2> #

Unblock PIN

* * 0 5 * <PIN UNBLOCKING KEY> * <NEW PIN> * <NEW PIN> #

Unblock PIN2

* * 0 5 2 * <PIN2 UNBLOCKING KEY> * <NEW PIN2> * <NEW PIN2> #

3.8.4 Call Hold

Place a call on hold

2 <SND>

Recall a held call

2 <SND>

Make a second call

<TELEPHONE NUMBER> <SND>

Swap between two held calls

2 <SND>

End held call

O <SND>

End active call

1 <SND>

Reject incoming call

0 <SND>

3.8.5 Call Waiting

Enable Call Waiting

* 4 3 * # <SND>

Disable Call Waiting

4 3 * # <SND>

Call Waiting Status

* # 4 3 * # <SND>

3.8.6 Calling Line Identification

Calling Line Identification Feature	Service Code
Calling Line Identification Presentation (CLIP)	30
Calling Line Identification Restriction (CLIR)	31
Connected Line Presentation (CLOP)	76
Connected Line Restriction (CLOR)	77

Enable
* <SERVICE CODE> * # <SND>

Disable
<SERVICE CODE> * # <SND>

Temporary suppress identification
3 1 # <TELEPHONE NUMBER> <SND>

Temporary display identification * 3 1 # <TELEPHONE NUMBER> <SND>

3.8.7 Call Divert

Call Divert Type	Service Code
Divert all calls	21
Divert calls if busy	67
Divert calls if no reply	61
Divert if not reachable	62

Set (except “No Reply” Call Bar
* * <SERVICE CODE> * <FORWARD TELEPHONE NUMBER> * <TELECOMMUNICATION SERVICE> # <SND>
Set “No Reply” Call Bar
* * <SERVICE CODE> * <FORWARD TELEPHONE NUMBER> * <TELECOMMUNICATION SERVICE> *
<TIME TO RING (seconds) # <SND>

Clear
<SERVICE CODE> * <TELECOMMUNICATION SERVICE> * # <SND>

Status
* # <SERVICE CODE> * <TELECOMMUNICATION SERVICE> * # <SND>

Clear all Call Diverts
0 0 2

3.8.8 Call Bar

Call Bar Type	Service Code
All outgoing calls	33
Outgoing international calls	331
Outgoing international calls except those to your PLMN country	332
All incoming calls	35
Incoming international calls when roaming	351

Set
* <PASSWORD> * <TELECOMMUNICATION SERVICE> # <SND>

Clear
<PASSWORD> * <TELECOMMUNICATION SERVICE> # <SND>

Status
* # <TELECOMMUNICATION SERVICE> # <SND>

Clear all Call Bar Types
3 3 0 * <PASSWORD> # <SND>

Change Call Bar Password
* * 0 3 * * <OLD PASSWORD> * <NEW PASSWORD> * <NEW PASSWORD> # <SND>

3.8.9 Telecommunication Services Used for Public MMI

Teleservice

Service	MMI Service Code
All teleservices	10
Telephony	11
All data teleservices	12
Facsimile services	13
Short Message Services (SMS)	16
All teleservices except SMS	19
Voice group services	17

Bearer Service

Service	MMI Service Code
All bearer services	20
All asynchronous services	21
All synchronous services	22
All data synchronous services	24
All data asynchronous services	25
All dedicated packet access	26
All dedicated PAD access	27

3.9 Troubleshooting

The user is given the following information and advised to contact the dealer if the problems persist:

Problem	Cause	Remedy
Telephone will not switch on		Check that the battery pack is fully charged and correctly connected to the telephone
Extremely short battery life for a new battery pack	The network you are using and the condition of the battery pack can affect battery life	Avoid areas of poor reception. Ensure batteries are fully charged. Additionally, for NiMH batteries, ensure batteries are also discharged fully before recharging.
Short battery life for an old battery pack	The battery pack was worn out	Replace with a new one
Short battery life for Ni-MH battery pack	The life of the battery pack is affected by improper charging, this is inherent in all Ni-MH batteries	To maintain maximum performance always use until the Low Battery Warning and then fully recharge the battery pack To revive the Battery Pack use the telephone until the Low Battery Warning and then fully recharge three times. However, if the battery life still is short, the battery pack has eventually worn out. Replace with a new one
The battery level indicator does not light when charging	If a battery is deeply discharged it will take a short time before there is sufficient power in the telephone to light the battery level indicator	Leave to charge for several minutes in temperatures between +5°C and +35°C
Calls cannot be made	The telephone is locked	Unlock the telephone (Menu: Security: Phone Lock)
	Outgoing calls are barred	Disable the outgoing call barring (Menu: Security: Call Bar)
	The telephone is not registered to a network	Move to a coverage area and operate your telephone after it has registered with a network
Calls cannot be made from Fixed Dial Store		Check your SIM supports Fixed Dial Check if the Fixed Dial is switched on (Menu: Security: Fixed Dial) Check the telephone number is stored in the Fixed Dial
Calls cannot be received	The telephone is not switched on	Switch the telephone on
	Incoming calls are barred	Disable the incoming call barring (Menu: Security: Call Bar)
	The telephone is not registered to a network	Move to a coverage area and operate your telephone after it has registered with a network
Emergency calls cannot be made	You are not in a GSM coverage area	Check that the antenna symbol is displayed. Move to a coverage area and operate your telephone when the antenna symbol is displayed
Telephone numbers cannot be recalled	The telephone is locked	Unlock the telephone (Menu: Security: Phone Lock)
	Fixed Dial is switched on	Switch off Fixed Dial (Menu: Security: Fixed Dial)

3.10 Important Error Messages

The following table is a list of error messages that may occur during use of the telephone, with a description and suggested course of action:

Area not Allowed	Roaming in the selected area is not allowed
Network not Allowed	Roaming with the selected network is not allowed
Security Failure	The network has detected authentication failure because your SIM is not registered with that network. Contact your Service Provider
SIM Blocked	The SIM is blocked because the wrong PUK has been entered ten times. Contact your Service Provider
SIM Error	The telephone has detected a problem with the SIM. Switch the telephone off and then back on. If the message does not disappear contact your Service Provider
Message Rejected Store Full	A message has been received but the message store is full. To receive messages, delete some of the currently stored messages or set messages to automatically clear (Menu: Messages: Parameters: Auto Delete)
PIN2 Invalidated	The PIN2 is blocked permanently because the wrong PUK2 has been entered 10 times. Services controlled by PIN2 cannot be used. Contact your Service Provider
Warning Store Full Continue?	The message area is full. Your messages cannot be stored until some of the currently stored messages are deleted
Auto Redial List Full	Redial list of unsuccessfully dialled numbers is full. Switch the telephone off and then on again

3.11 Security Codes

CODE TYPE	NUMBER OF DIGITS	DESCRIPTION
Personal Identification Number (PIN)	4 to 8	Controls SIM security. Supplied by the service provider.
PIN 2	4 to 8	Controls memory security. Supplied by the service provider.
PIN/PIN 2 Unblocking Key (PUK/PUK 2)	8	Used to unblock PIN and PIN 2. A PIN or PIN 2 will become blocked if the wrong PIN or PIN 2 is entered three times. When the blocked PIN or PIN 2 is unblocked, a new PIN or PIN 2 must be entered. If the wrong PUK or PUK 2 is entered 10 times, your SIM will be unusable. Supplied by the service provider.
Password	4	Controls the call bar function. If the wrong password is entered three times, this service will be revoked. Supplied by the service provider.
Lock Code	4	Controls telephone security. Factory set to “0000”.

3.12 GSM Services Supported by PC Card

Bearer Service Number	Bearer Service Rate	Access Structure	Access Rate	Information Transfer	Error Correction Options
21	Asynchronous 300 bps	Asynch	300 bps	UDI or modem	T or NT
22	Asynchronous 1.2 kbps	Asynch	1.2 kbps	UDI or modem	T or NT
23	Asynchronous 1200/75 bps	Asynch	1200/75 bps	UDI or modem	T or NT
24	Asynchronous 2.4 kbps	Asynch	2.4 kbps	UDI or modem	T or NT
25	Asynchronous 4.8 kbps	Asynch	4.8 kbps	UDI or modem	T or NT
26	Asynchronous 9.6 kbps	Asynch	9.6 kbps	UDI or modem	T or NT
41	Dedicated PAD Access 300 bps	Asynch	300 bps	UDI	T or NT
42	Dedicated PAD Access 1.2 kbps	Asynch	1.2 kbps	UDI	T or NT
44	Dedicated PAD Access 2.4 kbps	Asynch	2.4 kbps	UDI	T or NT
45	Dedicated PAD Access 4.8 kbps	Asynch	4.8 kbps	UDI	T or NT
46	Dedicated PAD Access 9.6 kbps	Asynch	9.6 kbps	UDI	T or NT

3.13 GSM Network Codes and Names

Country	Access Code	Network Operator	Network Code
Albania	+355	AMC	276 01
Andorra	+376	STA -Mobiland	213 03
Australia	+61	TELECOM Australia	505 01
		OPTUS Communications Pty Ltd.	505 02
		Vodafone PTY	505 03
Austria	+43	Mobilkom Austria	232 01
		max.mobil	232 03
Azerbaijan	+994	Azercell	400 01
Bosnia & Herzegowina	+387	Cronet	218 01
		PTT Bosnia	218 19
Belgium	+32	Belgacom Mobile	206 01
		Mobistar	206 10
Bulgaria	+359	MOBILTEL AD	284 01
Bahrein	+973	BAHREIN Telecommunications Co.	426 01
Brunei Darussalam	+673	DSTCom	528 11
		Jabatan Telekom	528 01
Canada	+1	Microcell	302 37
China	+86	Guangdong MCC	460 00
		China United Telecommuni-cations Corporation	460 01
Cameroon	+237	PTT Cameroon Cellnet	624 01
Cyprus	+357	Cyprus Telecommunication Authority	280 01
Czech Republic	+42	Eurotel Praha	230 02
		Radio Mobil	230 01
Germany	+49	DeTeMobil GmbH	262 01
		Mannesmann Mobilfunk	262 02
Denmark	+45	TELE Danmark Mobile	238 01
		Dansk Mobil Telefon DMT	238 02
Estonia	+372	Eesti Mobiiltelefon	248 01
		RADIOLINJA EESTI AS	248 02
Egypt	+20	Arento	602 01
Ethiopia	+251	ETA	636 01
France	+33	France Telecom	208 01
		SFR	208 10
		Bouygues Telekom	208 20
		SRR	647 10
		TIKIPHONE	547 20
Finland	+358	Telecom Finland	244 91
		Finnet	244 09
		OY Radiolinja AB	244 05
Fiji	+679	Vodafone	542 01
Georgia	+995	Geocell	282 01
		Magticom	282 02

Ghana	+233	ScanCom	620	01
Gibralta	+350	GIBTEL	266	01
Greece	+30	Panafon S.A	202	05
		STET HELLAS	202	10
Hungary	+36	Westel 900 GSM RT	216	30
		Pannon GSM RT	216	01
Hongkong	+852	Hong Kong Telecom CSL Ltd.	454	00
		Hutchison Telephone Co. Ltd.	454	04
		SmarTone Mobile Communications Ltd.	454	06
Myanmar	+95	HPT	219	01
Italy	+39	OMNITEL PRONTO ITALIA	222	10
		TELECOM ITALIA MOBILE	222	01
India	+91	Bharti Cellular Limited	404	10
		BPL SYSTEMS & PROJECTS LTD. INDIA	404	21
		Skycell	404	40
Indonesia	+62	PT Telekomunikasi Indonesia	510	10
		PT. SATELIT PALAPA INDONESIA	510	01
		PT EXCELCOMINDO PRATAMA	510	11
Iran (Islamic Republic of)	+98	T.C.I	432	11
Ireland	+353	Telecom Ireland	272	01
		Digifone	272	02
Iceland	+354	Post & Simi	274	01
Ivory Coast	+225	Comstr	612	01
		Ivoiris	612	03
		Loteny Telecom	612	05
Jordan	+962	JMTS	416	01
Kuwait	+965	Mobile Telecommunications Co.	419	02
Luxembourg	+352	P & T Luxembourg	270	01
Lao (People's Democratic Republic)	+856	Lao Shinawatra	457	01
Lebanon	+961	Libancell	415	03
		Cellis	415	01
Liechtenstein	+4175	Natel-D	228	01
Lithuania	+370	Bite GSM	246	02
		Omnitel	246	01
Lesotho	+266	Vodacom	651	01
Luxembourg	+352	P&T LUXGSM	270	01
Latvia	+371	Latvian Mobile Telephone Co.Ltd.	247	01
Macau	+853	C.T.M.	455	01
Monaco	+377	France Telecom	208	01
		SFR	208	10
Macedonia	+389	PTT Makedonija	294	01
Malta	+356	Telecell	278	01
Morocco	+212	ONPT MOROCCO	604	01
Mauritius	+60	MAURITIUS TELECOM LTD.	617	01

Malawi	+265	TNL	650	01
Malaysia	+60	Celcom	502	19
		BINARIANG COMMUNICATIONS SDN BHD.	502	12
Norway	+47	Telenor Mobil AS	242	01
		NetCom GSM A/S	242	02
Namibia	+264	MTC	649	01
New Caledonia	+687	Mobilis	546	01
Netherlands	+31	LIBERTEL	204	04
		PTT Telecom	204	08
Newzealand	+64	BELLSOUTH	530	01
Oman	+968	General Telecoms	422	02
Portugal	+351	Telecomunicaçoes Moveis Nacionais (TMN)	268	06
		TELECEL	268	01
Pakistan	+92	Mobilink	410	01
Papua New Guinea	+675	Pacific	310	01
Philippines	+63	Globe Telecom GMCR Inc	515	02
		Isla Communications Co. Inc.	515	01
Poland	+48	Plus GSM	260	01
		ERA GSM	260	02
Qatar	+974	Q-TEL	427	01
Reunion	+262	SRR	647	10
Romania	+40	MobiFon	226	01
		MobilRom	226	10
Russian Federation	+701	Mobile Telesystems	250	01
	+701	North-West GSM	250	02
Sweden	+46	Telia Mobitel	240	01
		COMVIQ GSM AB	240	07
		EUROPOLITAN AB	240	08
South Africa	+27	VODACOM	655	01
		Mobile Telephone Networks	655	10
Saudi Arabia	+966	Al Jawal	420	01
		EAE	420	07
Sudan	+249	Mobitel	634	01
Senegal	+221	Sonatel	608	01
Singapore	+65	Singapore Telecom	525	01
		MobileOne	525	03
San Marino	+378	Omnitel	222	10
		Telecom Italia Mobile	222	01
Saudi Arabia	+966	ELECTRONIC APPLICATIONS ESTABLISHMENT	420	07
Seychelles	+248	SEZ SEYCEL	633	01
Slovakia (Slovak Republic)	+42	Eurotel	231	02
		Globtel	231	01
Slovenia	+386	Mobitel	293	41
South Africa	+27	Vodacom	655	01
		MTN	655	10
Sri Lanka	+94	MTN NETWORKS (PVT) SRI LANKA	413	02

Spain	+34	TELEFONICA MOVILES	214	07
		AIRTEL SPAIN	214	01
Switzerland	+41	Swiss Telecom PTT	228	01
Syria	+963	Mobile Syria	417	09
Taiwan	+886	LDTA	466	92
Thailand	+66	Advanced Info Service Public Company Limited	520	01
Turkey	+90	PTT Turkey	286	01
		PTT Turkey	286	02
Tanazania (United Republic of)	+255	Tritel	640	01
Ukraine	+380	Mobile comms	255	01
		Golden Telecom	255	05
United Arab Emirates	+971	ETISALAT	424	02
Uganda	+256	Celtel Cellular	641	01
United Kingdom (Guernsey) (Jersey) (Isle of Man)	+44	Vodafone	234	15
		Cellnet	234	10
		GUERNSEY TELECOMS	234	55
		Jersey Telecoms	234	50
		MANX TELECOM	234	58
Uzbekistan	+7	Daewoo GSM	434	04
		Coscom	434	05
Viet Nam	+84	MTSC	452	01
		DGPT	452	02
Yugoslavia	+381	Mobile Telekom	220	01
Zimbabwe	+263	NET ONE	648	01

3.14 Glossary of Terms

DTMF	Dual Tone Multiple Frequency tones. The numeric keys 0 to 9, and ∗ and # will generate different DTMF tones when pressed during conversation. These are used to access voice mail, paging and computerised home banking.
GSM	Global System for Mobile communications. The name given to the advanced digital technology that your telephone uses.
Home country	The country where your home network operates.
Home network	The GSM network on which your subscription details are held.
Lock code	Used for security of your telephone. Factory set to “0000”.
Message Centre	Where messages are sent before they are forwarded onto their destination. The Message Centre telephone number may be programmed into your SIM or supplied by your service provider.
Network operator	The organisation responsible for operating a GSM network. Each country will have at least one network operator.
Password	Used for the control of the call bar function. Supplied by your service provider.
PIN	Personal Identification Number used for SIM security. Supplied by your service provider.
PIN2	Personal Identification Number used for the control of Fixed Dial Memory and call charge metering. Supplied by your service provider.
PUK/ PUK2	PIN/PIN2 Unblocking Key. Used to unblock the PIN/PIN2. Supplied by your service provider.
Registration	The act of locking on to a GSM network. This is usually performed automatically by your telephone.
Roaming	The ability to use your telephone on networks other than your Home network.
Service provider	The organisation responsible for providing access to the GSM network.
SIM	Subscriber Identification Module. A small smart-card which stores unique subscriber and user-entered information such as Phone Book, Fixed Dial Memory and short messages. Supplied by your service provider.
Supplementary service	Network-controlled GSM functions which your telephone will support. Supplementary services may only be available on a subscription bases.
Wild numbers	Spaces in a stored telephone number. When the telephone number is recalled pressing a numeric key will fill in a space. This can be used to restrict dialling to a specific area.

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4 INSTALLATION GUIDE

4.1 General

This section describes the procedure used to install the GSM handportable unit into a negative-grounded vehicle.

Caution:

Do not attempt to install this equipment into a positive-grounded vehicle.

Do not attempt to supply power to the equipment from a positive-grounded vehicle.

Installation will be performed using one of the following kits:

1. Handsfree car mount kit
2. DC adaptor
3. Simple car kit

4.2 Handsfree Car Mount Kit

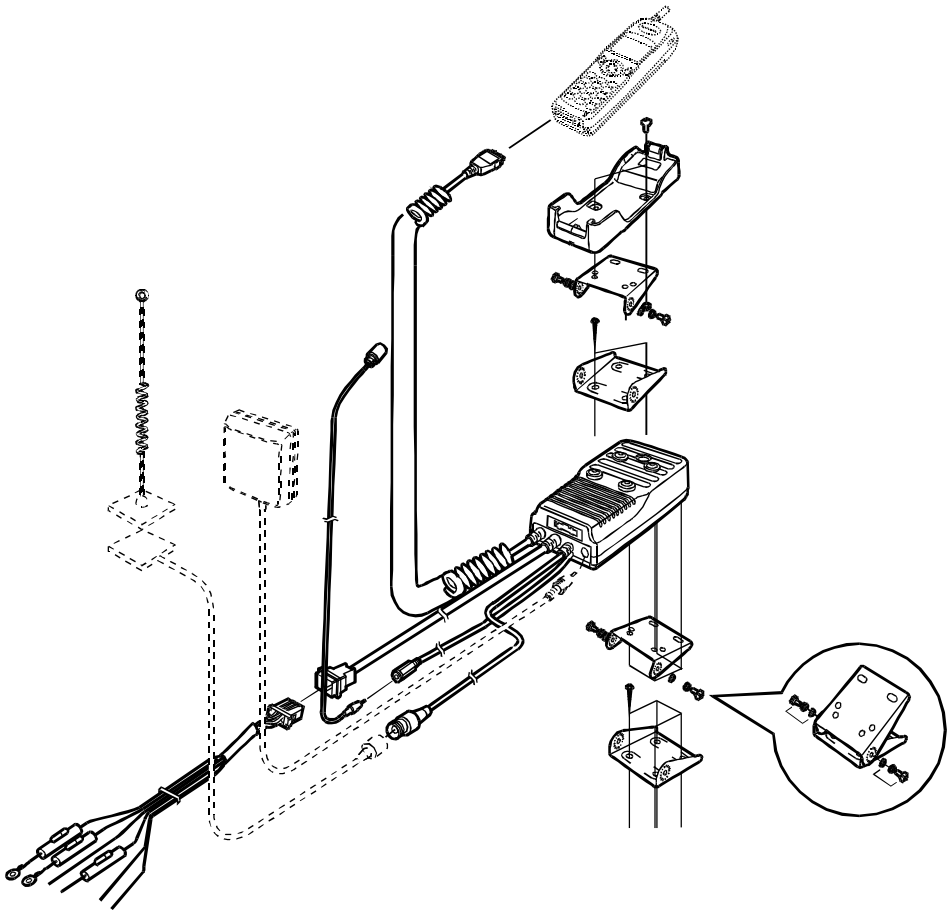


Figure 1: Handsfree Car Mount Kit 600-0401

4.2.1 Selecting the Location for the Handsfree Unit

The following points should be considered when choosing a location for the handsfree unit:

- Ensure that the location does not obstruct normal operation/functioning of the vehicle.
- Ensure that the location does not affect passenger accommodation, or is subject to excessive shocks.
- Ensure that the location will allow easy operation of the unit.
- Ensure that the location provides a secure fixing for the unit.
- Avoid direct exposure to the sun's rays, or to rain.
- Ensure that the location takes due consideration of cable routing requirements.
- Considering the points listed above, the recommended locations for mounting the handsfree unit are the Dashboard, Arm Rest Storage Compartment or the Centre Console.

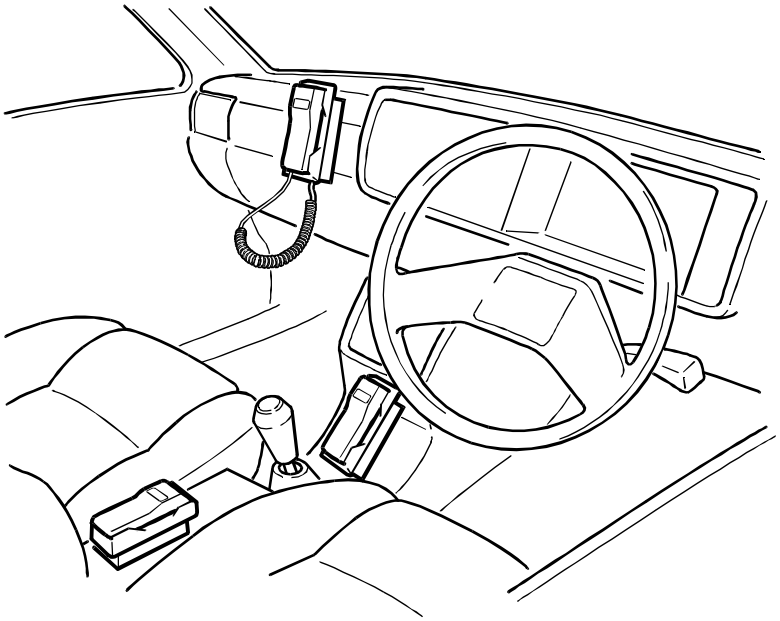


Figure 2: Handsfree Cradle Unit Locations 600-0402

4.2.2 Wiring

Locations for the handsfree unit will vary according to the type of vehicle, as will the routing of power and interconnecting cables. The following precautions should be observed:

- DO NOT install or connect the unit into a positive (+) grounded vehicle. This equipment must be installed into a 12V negative (-) ground vehicle.
- Mount cables to the vehicle so that they are not prone to displacement or disconnection through vibration.
- Route cables through existing holes in the dashboard, bulkheads etc. where possible.
- Site cables so that contact with moving parts (brake/clutch pedals, seat mechanisms etc.) is avoided.
- Site cables as far away as possible from existing cabling, to avoid electrical induction.
- Shield cables to protect interference with the vehicle electronics.
- When connecting cables to the vehicle circuitry, ensure that the vehicle functions are not affected.

A typical car installation is illustrated below, the actual location of units may vary according to vehicle type.:

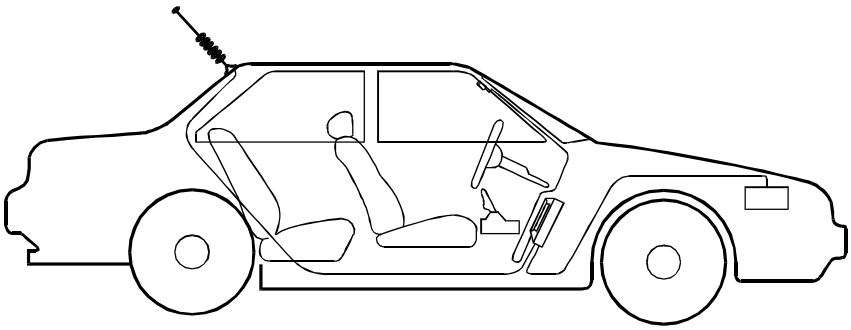


Figure 3: Car installation 600-0403

Wiring guide

Colour	**Connection**	**Fuse**
Black	Ground	4A
Blue	Ignition	3A
Red	Battery (+)	3A
Yellow	Radio Mute	—

4.2.3 Installation with the Adjustable Angle Bracket

The Adjustable Angle Bracket can be used to install the Handsfree Unit in the following configurations:

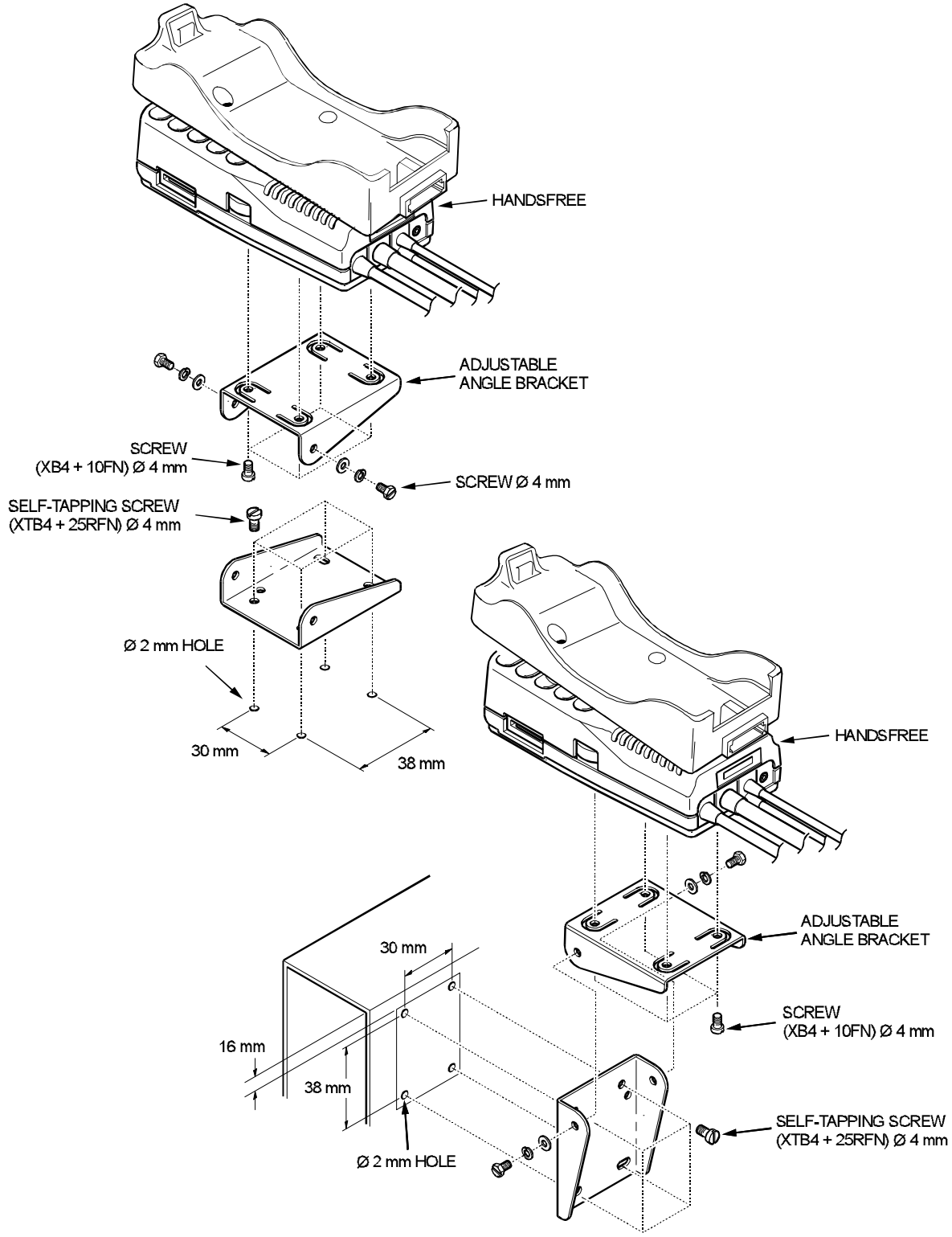


Figure 4: Adjustable angle bracket configurations 600-0404

4.2.4 Installing the Handsfree Microphone

The following points should be considered when installing the handsfree microphone:

That it does not obstruct the operation of the vehicle.

That it does not affect the normal passenger accommodation.

That the microphone should face the driver's mouth, at a distance of approximately 30cm.

Mounting the Microphone to the Sun Visor

1. Mount the microphone onto the sun visor clip by inserting the projection of the clip into the hole of the microphone base.
2. Mount the microphone onto the sun visor as shown in figure 5.
3. Connect the microphone to the flying lead from the handsfree cradle.

Mounting the Microphone to the Dashboard

1. Attach the adhesive pad to the dashboard clip.
2. Drill a 1mm hole at the mounting location and mount the clip using a M2.5 self-tapping screw.
3. Insert the projection of the clip into the microphone base, ensuring that it points towards the drivers mouth.
4. Connect the handsfree microphone to the handsfree cradle.

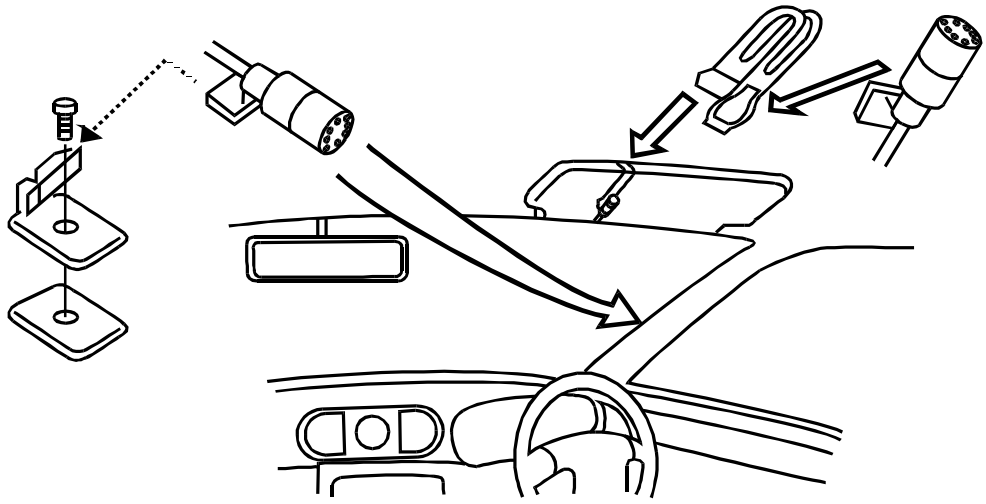


Figure 5: Microphone Installation 600-0405

4.3 DC Adaptor

The telephone is powered directly from the +12V cigar lighter socket. Switch the telephone power off and fit the DC power cable.

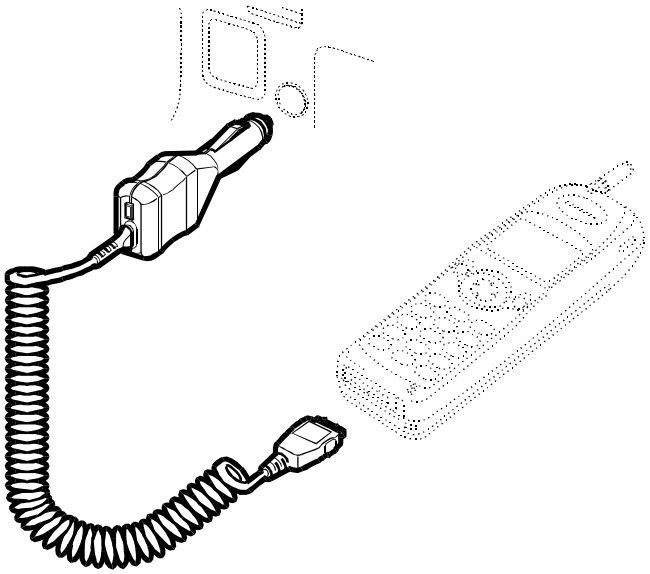


Figure 6: DC Adaptor Installation 600-0406

4.4 Simple Car Kit

The telephone is powered directly from the +12V cigar lighter socket. To improve signal quality the external antenna is connected to the FME type connector.

Switch the power off and fit the connector to the telephone.

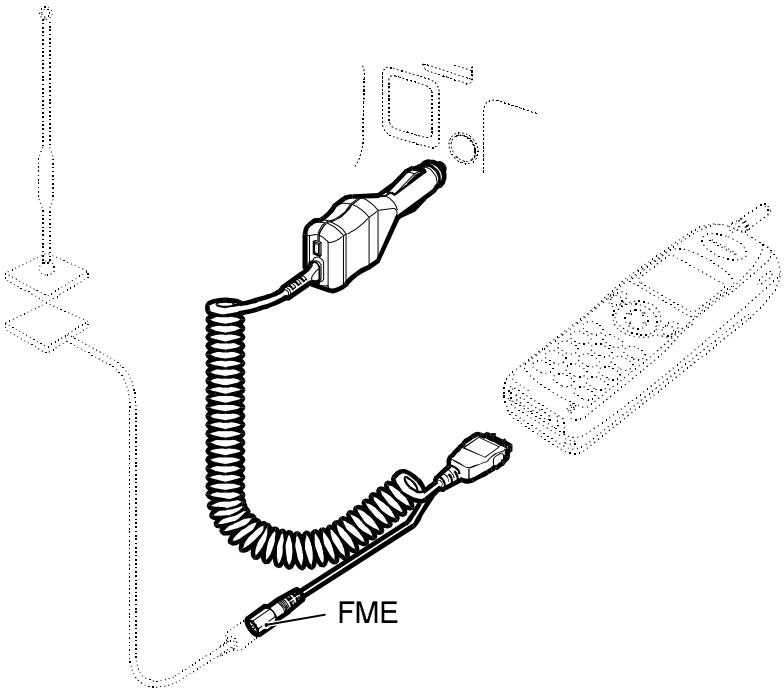


Figure 7: Simple Car Kit Installation 600-0407

5 DISASSEMBLY/REASSEMBLY INSTRUCTIONS

5.1 General

This section provides disassembly and reassembly procedures for the main components of the G600 system.

These procedures MUST be performed by qualified service personnel, at an authorized service centre.

The following warnings and precautions MUST be observed during ALL disassembly/reassembly operations:

WARNING

The equipment described in this manual contains polarised capacitors utilising liquid electrolyte. These devices are entirely safe provided that neither a short-circuit nor a reverse polarity connection is made across the capacitor terminals. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN DAMAGE TO THE EQUIPMENT OR, AT WORST, POSSIBLE INJURY TO PERSONNEL RESULTING FROM ELECTRIC SHOCK OR THE AFFECTED CAPACITOR EXPLODING. EXTREME CARE MUST BE EXERCISED AT ALL TIMES WHEN HANDLING THESE DEVICES.

Caution

The equipment described in this manual contains electrostatic sensitive devices (ESDs). Damage can occur to these devices if the appropriate handling procedure is not adhered to.

ESD Handling precautions:

A working area where ESDs may be safely handled without undue risk of damage from electrostatic discharge, must be available. The area must be equipped as follows:

Working Surfaces - All working surfaces must have a dissipative bench mat, SAFE for use with live equipment, connected via a 1M2 resistor (usually built into the lead) to a common ground point.

Wrist Strap - A quick release skin contact device with a flexible cord, which has a built in safety resistor of between 5k2 and 1M2 shall be used. The flexible cord must be attached to a dissipative earth point.

Containers - All containers and storage must be of the conductive type.

5.2 Handportable Unit

5.2.1 Disassembly

1. (Figure 1) Press the release clip, then tilt upwards to remove the battery from the telephone.

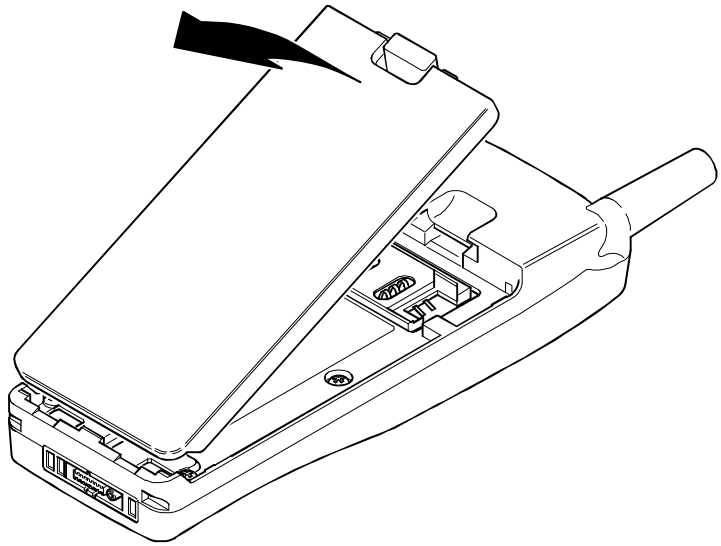


Figure 1: Battery removal 600-0501

2. (Figure 2) Remove the back from the telephone case (4 screws).

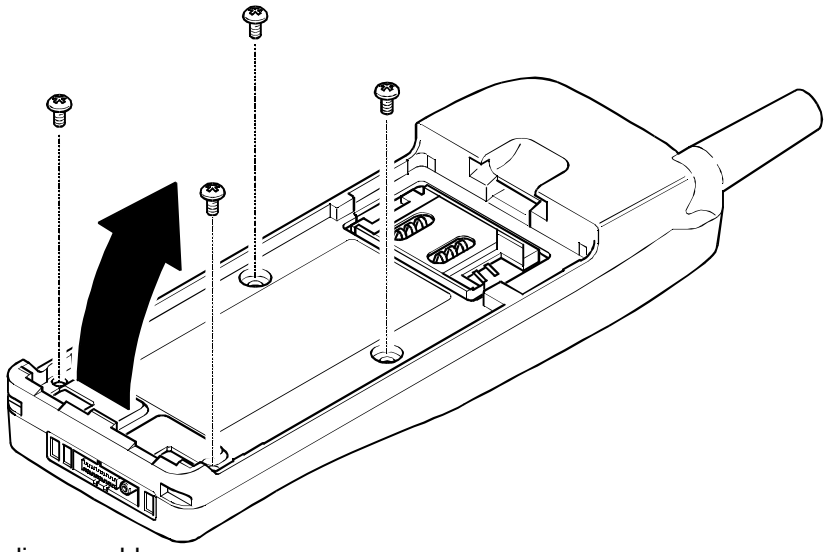


Figure 2: Case disassembly 600-0502

3. **(**Figure 3) Remove the PCB assembly.

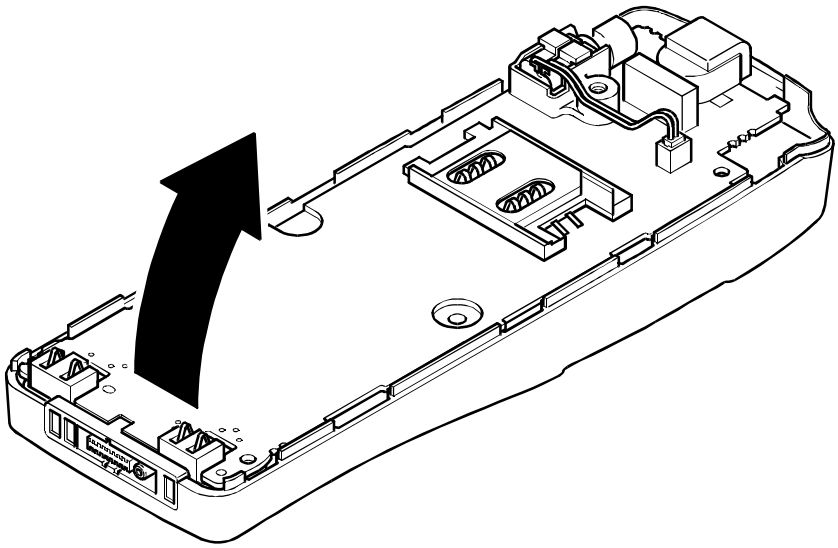


Figure 3: PCB assembly removal 600-0503

4. (Figure 4) Separate the RF board from the Logic board.

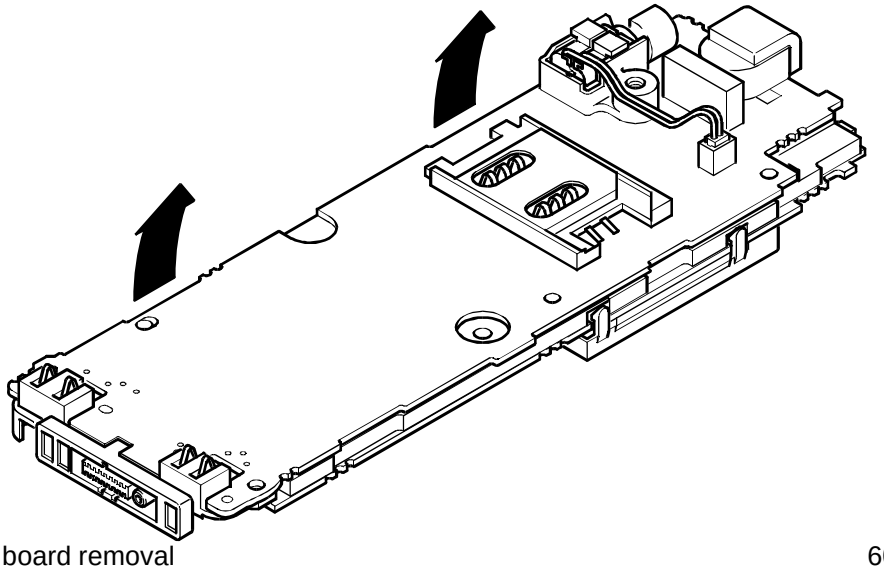


Figure 4: RF board removal 600-0504

5. (Figure 5) Remove the screw attaching the Vibrator assembly to the Logic board (1 screw).

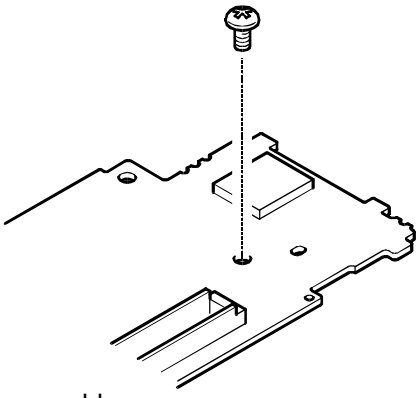


Figure 5: Releasing the Vibrator assembly 600-00505

6. (Figure 6) Unclip the Vibrator power connect and remove the assembly from the RF board.

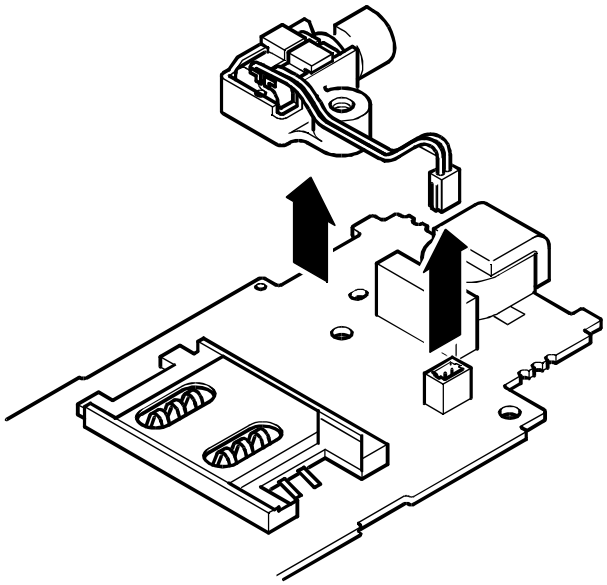


Figure 6: Vibrator assembly removal 600-0506

9. (Figure 7) Unplug the speaker connector from the logic PCB.

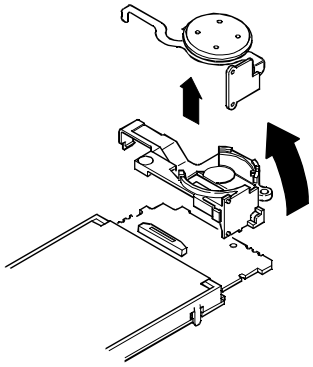


Figure 7: Speaker removal 600-0508

10. (Figure 8) Gently bend the lugs on the LCD holder outwards and lift from the logic PCB.

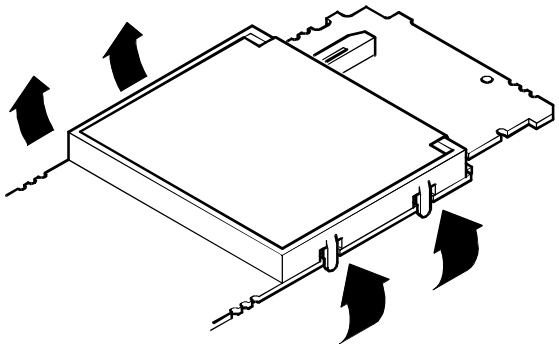


Figure 8: LCD/earpiece holder removal 600-0509

11. (Figure 9) Disconnect the LCD from the logic PCB.

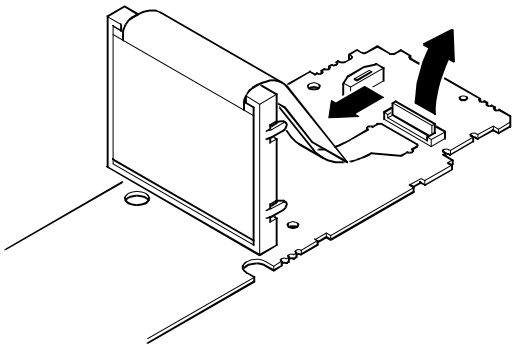


Figure 9: LCD disassembly (2) 600-0510

5.2.2 Reassembly

1. (Figure 10) Care must be taken when reinstalling the back onto the telephone case. Ensure that the securing screws are not over-tightened as this may affect the operation of the keypad.

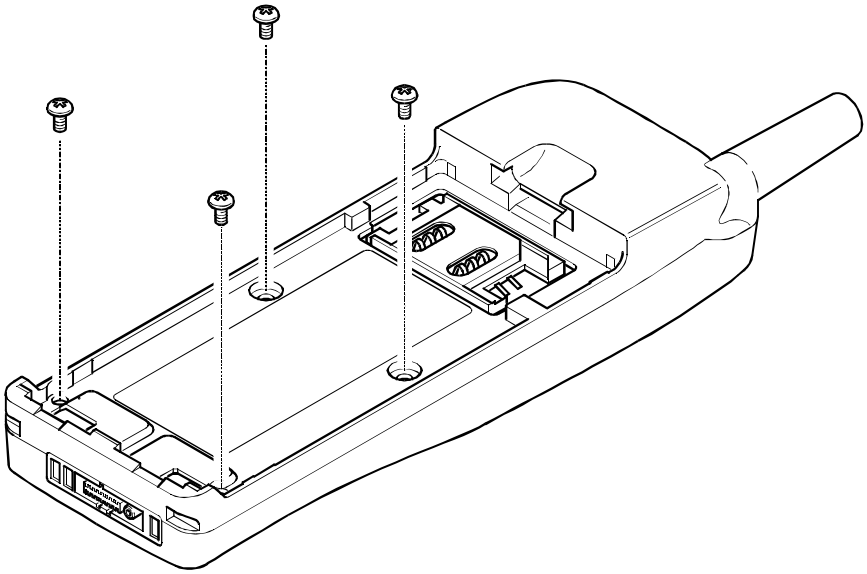


Figure 10: Case reassembly 600-0512

5.3 Dual Charger

5.3.1 Disassembly

1. (Figure 11) Place the Dual Charger upside-down on a flat work surface. Remove the two case screws.

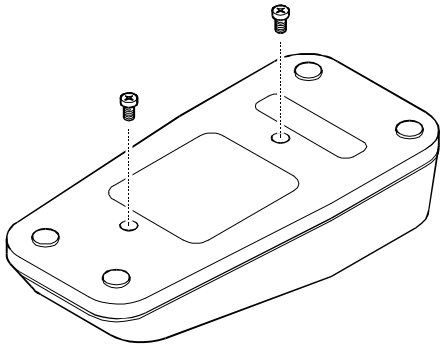


Figure 11: Case screw removal 600-0518

2. (Figure 12) Remove the case from the cover assembly.

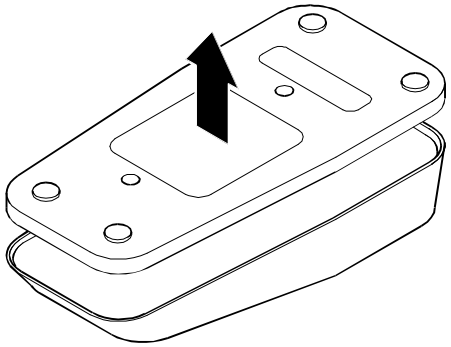


Figure 12: Case removal 600-0519

3. (Figure 13) Remove the PCB assembly fixing screws.

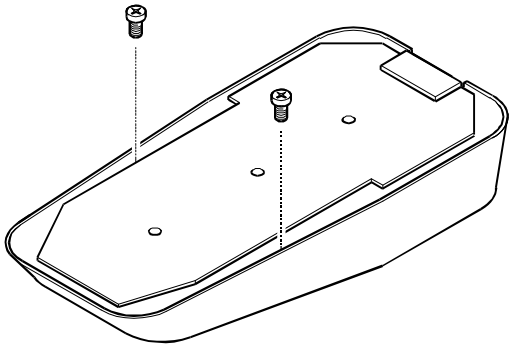


Figure 13: Screw removal 600-0520

4. (Figure 14) Raise and tilt the charger PCB to expose the connector cable.

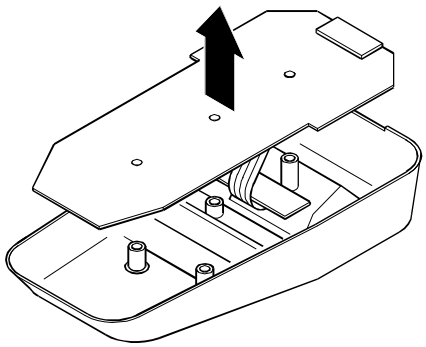


Figure 14: Charger PCB removal (1) 600-0521

5. (Figure 15) Disconnect and remove the charger PCB.

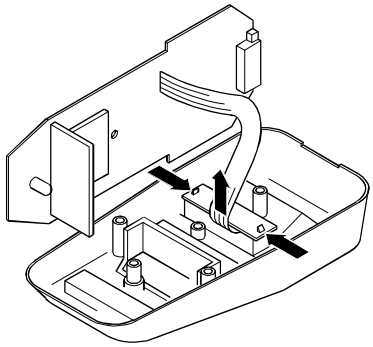


Figure 15: Charger PCB removal (2) 600-0522

5.4 Handsfree Unit

5.4.1 Disassembly

1. (Figure 16) Remove the holder from the handsfree unit (2 screws).

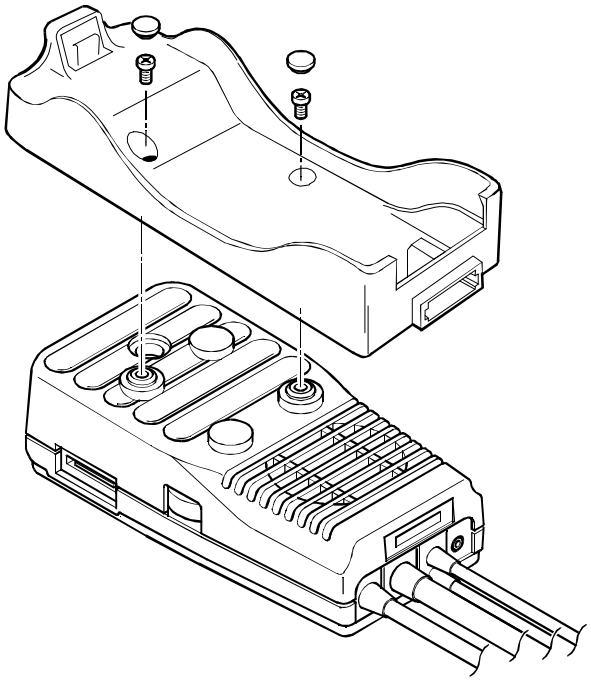


Figure 16: Holder removal 600-0513

2. (Figure 17) Remove the front cover from the handsfree assembly by removing the cover securing screw and disconnecting the speaker lead from the handsfree PCB.

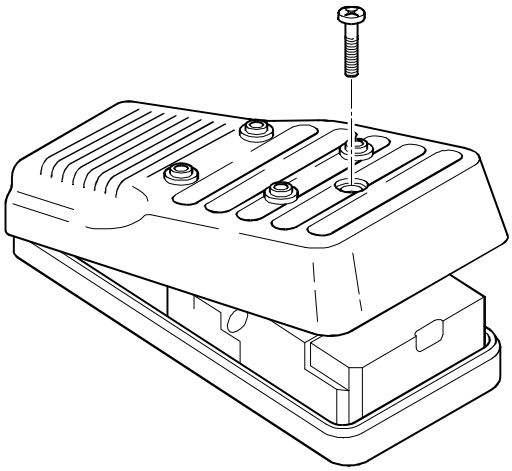


Figure 17: Handsfree cover removal 600-0514

3. (Figure 18) Remove the handsfree PCB (3 screws).

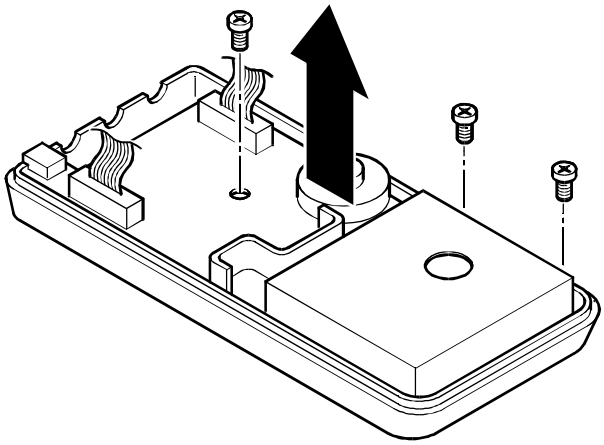


Figure 18: Handsfree PCB removal 600-0515

5.4.2 Reassembly

1. (Figure 19) Reinstall the handsfree PCB into the case (3 screws).

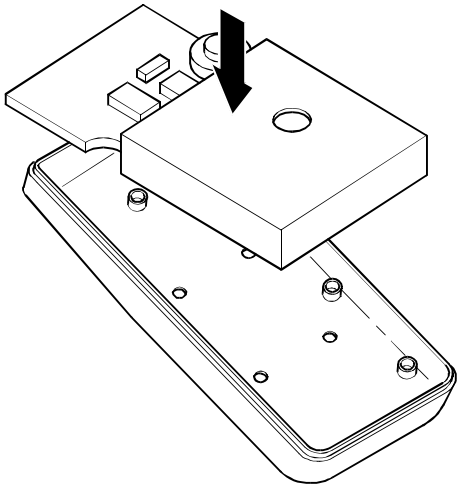


Figure 19: Handsfree PCB reinstallation 600-0516

2. (Figure 20) Position the cables into the case moulding.

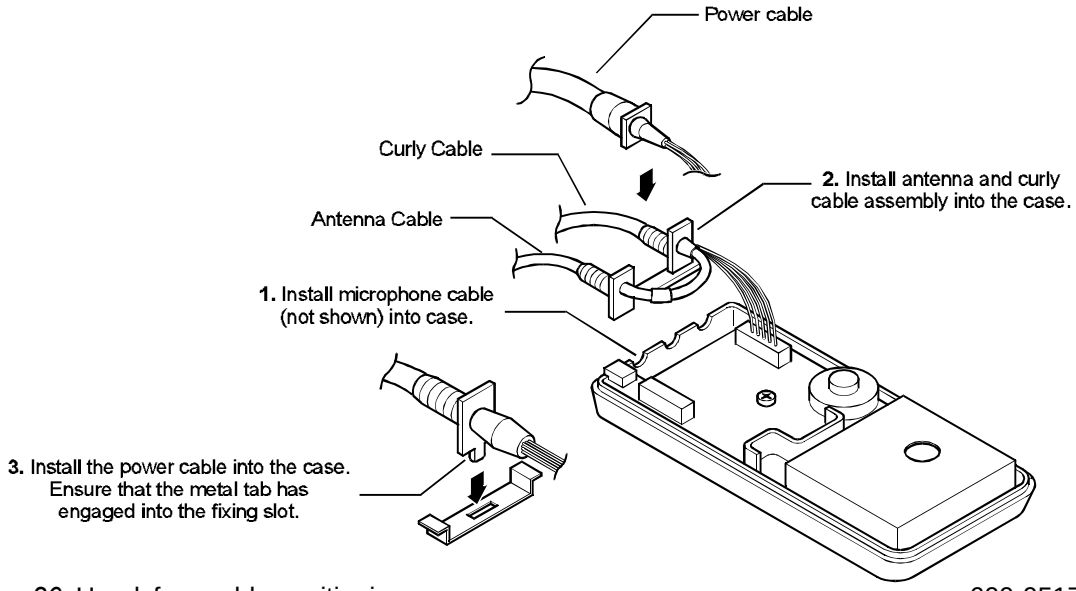


Figure 20: Handsfree cable positioning 600-0517

1. (Figure 21) Reinstall the front cover onto the handsfree assembly by reconnecting the speaker lead onto the handsfree PCB and reinstalling the cover securing screw.

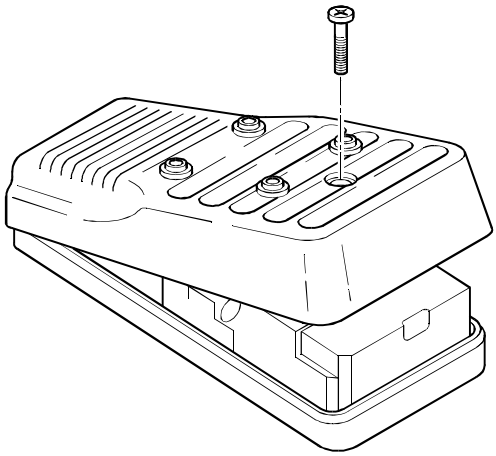


Figure 21: Handsfree cover replacement 600-0514

2. (Figure 22) Reinstall the holder onto the handsfree unit (2 screws).

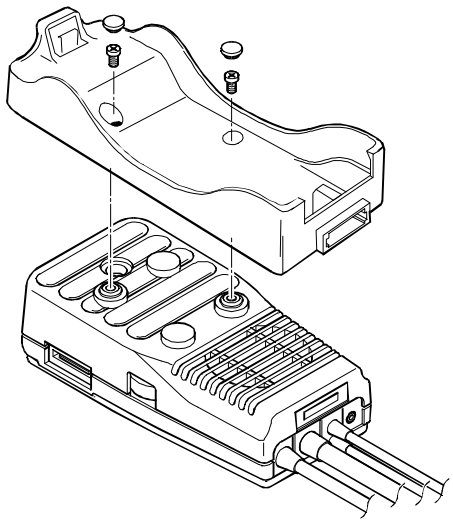


Figure 22: Holder replacement 600-0513

5.5 Easy Fit Unit

5.5.1 Disassembly

1. (Figure 21) Remove the holder from the unit (2 screws).

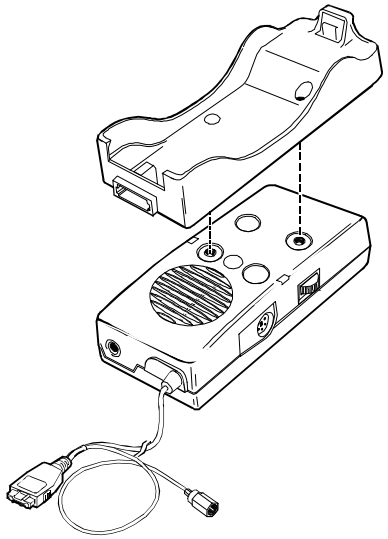


Figure 21: Holder removal 600-0523

2. (Figure 22) Remove the back cover from the unit by removing the cover securing screw.

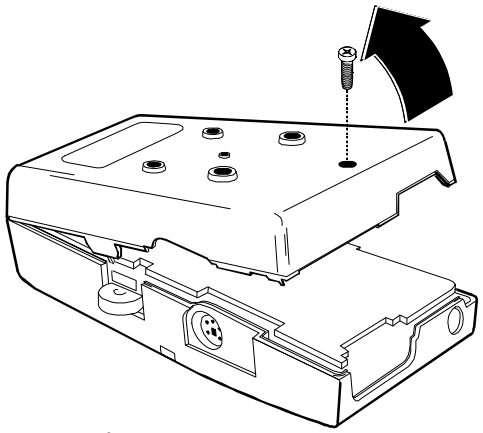


Figure 22: Easy Fit unit, cover removal *600-0524*

3. (Figure 23) Pull back on the PCB retaining clip and lift the PCB. Disconnect the phone interface cable and speaker cable from the PCB.

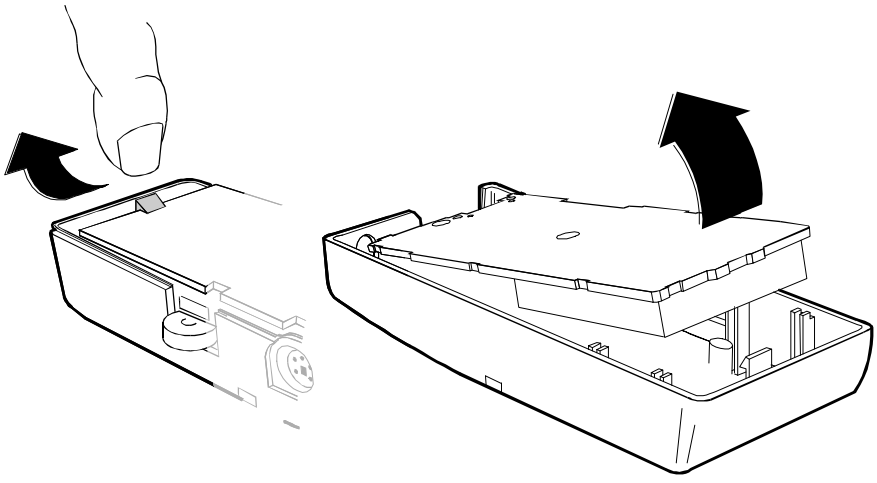


Figure 23: Easy Fit unit, PCB removal *600-0525*

5.5.2 Reassembly

1. (Figure 24) Position the cables into the case moulding; ensuring the interface cable grommet is seated securely in the case moulding and the microphone socket is also located in the case moulding.

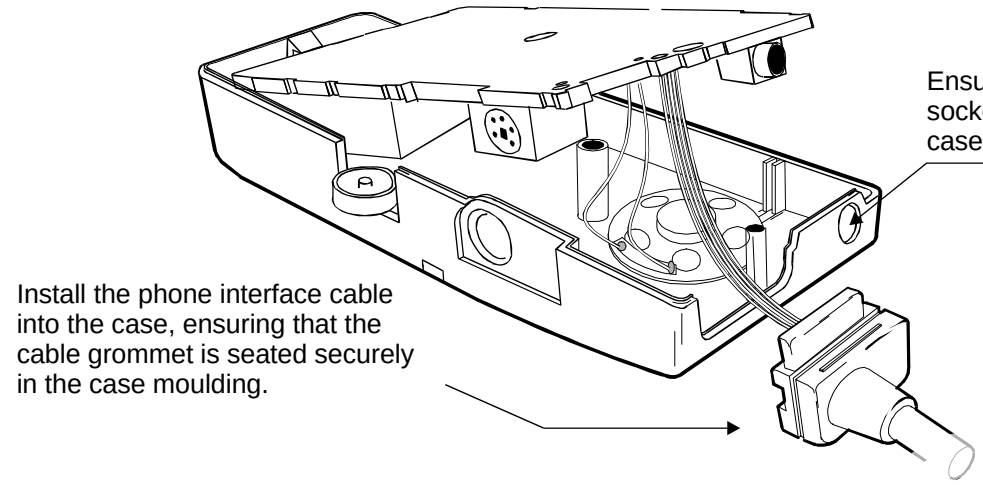


Figure 24: Easy Fit unit, cable positioning *600-0527*

2. (Figure 22) Replace the back cover of the unit and tighten the cover securing screw (1 screw).

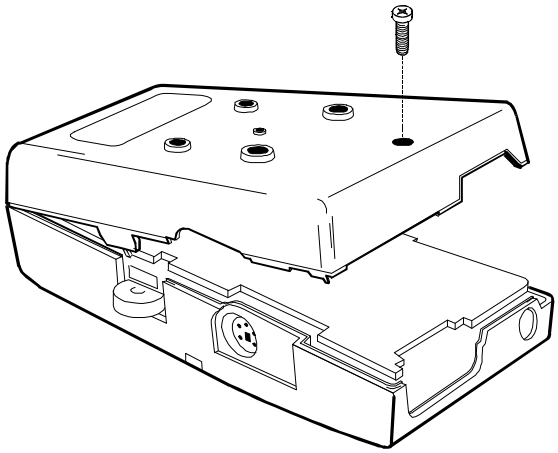


Figure 22: Easy Fit unit, cover replacement *600-0524*

6 TECHNICAL SPECIFICATIONS

6.1 General

1	Frequency range	Tx: 890 - 915MHz Rx: 935 - 960MHz
2	Tx/Rx frequency separation	45MHz
3	RF channel bandwidth	200kHz
4	Number of RF channels	124
5	Speech coding	Full rate/Half rate
6	Operating temperature	-20°C to +55°C

6.2 Handportable Unit

6.2.1 General

Unless stated these specifications are with Battery Pack (EB-BS600) fitted.

Battery life figures are dependent on network conditions.

1	Type	Class 4 Handheld (GSM Phase 2)
2	Dimensions	Height: 132mm Width: 45.5mm Depth: 18mm
3	Volume	120cc
4	Weight	128g
5	Display	Graphical chip on glass liquid crystal, Alphanumeric 16 x 3 characters, 5 icons and 6 x 1 characters
6	Illumination	Green: 4 LEDs for the LCD 10 LEDs for the keyboards 1 LED Incoming call Red: 1 LED Charging indicator
7	Keypad	17 keys, Navigation key, Memo key on side
8	SIM	Plug-in type only
9	Battery	4.8V Ni-MH 7.2V Li-Ion
10	Standby Battery Life DRX 5 – ECTEL recommendation	Battery Pack (EB-BS600): 74h Battery Pack (EB-BM600): 80h Battery Pack (EB-BL600): 220h
11	Conversation Battery Life PL 7, DTX 50% – ECTEL recommendation	Battery Pack (EB-BS600): 3h Battery Pack (EB-BM600): 4h Battery Pack (EB-BL600): 10h
12	External DC Supply Voltage	6.7V
13	Antenna Terminal Impedance	50Ω
14	Antenna VSWR	<2.1 : 1
15	RF Output Power	2W maximum (GSM class 4)
16	Modulation	GMSK (BT = 0.3)
17	Connection	8 ch/TDMA

18	Voice digitizing	13kbps RPE-LTP
19	Transmission speed	270.3 kbps
20	Diversity	Frequency hopping
21	Signal Reception	Double superheterodyne
22	Intermediate Frequency	1st: 1136 - 1161 MHz 2nd: Tx 246 MHz, Rx 201 MHz

6.2.2 Tx Characteristics

1. Frequency error: ±0.1ppm max., relative to base station frequency.

2. Modulation phase error: RMS: ≤5°
Peak: ≤20°

3. Output RF Spectrum due to Modulation:

Offset from Centre Frequency (kHz)	**Maximum Level Relative to the Carrier (dB)**
±100	+0.5
±200	-30
±250	-33
±400 to 1800	-54 (Integral antenna)

4. Output RF Spectrum due to Switching Transients:

Offset from Centre Frequency (kHz)	**Maximum Level (dBm)**
±400	-23
±600	-26
±1200	-32
±1800	-36

Measurement conditions for output RF spectrum measurements:

Frequency Span: 0Hz
Measurement Bandwidth: 30kHz
Video Bandwidth: 100kHz
Peak Hold

5. Spurious Emissions at the Antenna Connector:

Frequency (MHz)	**Limits (dBm)**		**Measurement BW (kHz)**	**Video BW (kHz)**
	Active Mode	**Idle Mode**		
Offset from carrier (in Tx band)				
≥1.8	≤ -36	—	30	100
≥6.0	≤ -36	—	100	300
Offset from Tx band edge				
≥2.0	≤ -36	—	30	100
≥5.0	≤ -36	—	100	300
≥10.0	≤ -36	—	300	1MHz
≥20.0	≤ -36	—	1MHz	3MHz
≥30.0	≤ -36	—	3MHz	10MHz
Frequency bands				
935 - 960		—	100	100
925 - 935		—	100	100
1805 - 1880	≤ -79 (a&b)	—	100	100
0.009 - 1000	≤ -67 (a&b)	≤ -57	100	100
1710 - 1785	≤ -71 (a&b)	≤ -57	100	100
1805 - 1880		≤ -57	100	100
1000 - 12750		≤ -47	100	100

Measurement conditions:
Peak Hold
Modulated Carrier

a) Measurement averaged over a burst and then averaged again over 50 bursts.
b) In each of the bands 925-960 MHz and 1805-1880 MHz up to 5 spurious measurements can fail these limits, in which case the limit ≤ -36dBm shall apply.

6. Output Level, Dynamic Operation:

Power Control Level (defined by GSM 05.05)	**Peak Power (dBm)**	**Tolerance for Conditions (dB)**	
		Normal	**Extreme**
5	33	±2	±2.5
6	31	±3	±4
7	29	±3	±4
8	27	±3	±4
9	25	±3	±4
10	23	±3	±4
11	21	±3	±4
12	19	±3	±4
13	17	±3	±4
14	15	±3	±4
15	13	±3	±4

7. Residual Peak Power: ≤70dBc (BW = 300kHz)

6.2.3 Rx Characteristics

1. Sensitivity

The reference sensitivity performance in terms of frame erasure, bit error, or residual bit error rates (whichever is appropriate) is specified in the following table, according to the propagation conditions.

PROPAGATION CONDITIONS					
Type of Channel	Static	TU50 (no FH)	TU50 (ideal FH)	RA250 (no FH)	HT100 (no FH)
TCH/FS (FER) Class Ib (RBER) Class II (RBER)	0.1α% 0.4/α% 2%	6α% 0.4/α% 8%	3α% 0.3/α% 8%	2α% 0.2/α% 7%	7α% 0.5/α% 9%

The reference sensitivity level is <-102dBm.

NOTE:

$1 \leq \alpha \leq 1.6$. The value of α can be different for each channel condition but must remain the same for FER and class Ib RBER measurements for the same channel condition.

2. Blocking:

Interferer Frequency (MHz)	Interferer Level (dBm)
Offset from wanted carrier (in band 915 - 980MHz) ≥600kHz ≥800kHz ≥1.6MHz	 -43 -33 -23
Out of band frequency bands 0.1 - 915 980 - 12750	 0 0

Measurement Conditions:
Wanted carrier is 3dB above reference sensitivity.
Interferer is CW

Spurious response exceptions:
6 exceptions are permitted IN band 915 - 980MHz
24 exceptions are permitted OUTSIDE band 915 - 980MHz.

3. Intermodulation Characteristics:

Interferer Level (f1 & f2) dBm	Interferer Frequencies (f1 & f2)
-49	Wanted frequency = 2f1 - f2, and | f2 - f1 | = 800kHz

6.3 Handsfree Unit

This specification is applicable to the Handsfree Car Kit and Easy Fit Handsfree Car Kit

Input voltage	13.8V ± 20%
Over voltage protection	18 ± 1.0V
Current consumption	Operation: 2.0A max. (normal sound) Idle mode: 150mA max. (no sound) Standby: 1mA max. (logic power off)
Ignition signal	H Level: ON L Level: OFF
Speaker output power	1.5W
Speaker impedance	8Ω
Antenna (H/F mode)	External antenna
Operating temperature range	-10 to +55 °C
Storage temperature range	-20 to +60 °C
Charging temperature range	-5 to +35 °C

6.4 Dual Charger

Input voltage	9.2V maximum
Input current	700mA
Charging slots	Front: Main unit Rear: Battery pack only
Charge time (front slot)	Battery Pack (EB-BS600): 100m Battery Pack (EB-BM600): 175m Battery Pack (EB-BL600): 240m
Charge time (rear slot)	Battery Pack (EB-BS600): 100m Battery Pack (EB-BM600): 175m Battery Pack (EB-BL600): 240m
Charge indicator (front slot) Telephone display	 : Charging  : End of charge – telephone ON OFF: End of charge – telephone OFF
Charge indicator (rear slot)	Red LED: Charging Orange LED: Discharging Green LED: End of charge
Charge voltage	9.2V ± 0.2V
Charge current	440 ± 30 mA
Operating temperature range	+5 to +35 °C
Storage temperature range	-20 to +60 °C
Charging temperature range	+5 to +35 °C

6.5 AC Adaptor

Input voltage	UK, EU: 230VAC ±10% TW: 110VAC ±10% CH: 100VAC ±10%
Input current	20mA maximum
Input plug type	UK: Type BF EU: Type C-4/C-7 Other: Country specific
Output voltage	9.2VDC
Output current	400mAh
Ripple voltage	50mV peak to peak, at 600mAh
Charge time	Battery Pack (EB-BS600): 90m Battery Pack (EB-BM600): 160m Battery Pack (EB-BL600): 240m
Output connector	MQ138-MA75-165-CVL
Operating temperature range	+5 to +40 °C
Storage temperature range	-20 to +60 °C
Charging temperature range	+5 to +35 °C

6.6 DC Adaptor

This specification is applicable to the DC Adaptor and Simple Car Kit.

Input voltage	13.8VDC ±20% Negative earth only
Output voltage	9.2VDC
Current consumption	Operation: 500mA Standby: 34mA max (no load)
Charge time	Battery Pack (EB-BS600): 90m Battery Pack (EB-BM600): 160m Battery Pack (EB-BL600): 240m
Display	Red LED (power status)
Reverse voltage protection	Diode across input
Short circuit protection	Input: 2A fuse Output: 8.2V zener diode
Operating temperature range	+5 to +60 °C
Storage temperature range	-20 to +80 °C
Charging temperature range	+5 to +35 °C

6.7 Battery Packs

6.7.1 Battery Pack (EB-BS600)

Type	Li-Ion (2 cells)
Weight	44 ±2g
Voltage	7.2V
Capacity	400mAh
Storage temperature range	-20 to +40 °C (6 months)

6.7.2 Battery Pack (EB-BM600)

Type	Ni-MH (4 cells)
Weight	75 ±2g
Voltage	4.8V
Capacity	650mAh
Storage temperature range	-20 to +40 °C (6 months)

6.7.3 Battery Pack (EB-BL600)

Type	Li-Ion (2 cells)
Weight	95 ±2g
Voltage	7.2V
Capacity	1200mAh
Storage temperature range	-20 to +40 °C (6 months)

6.7.4 Circuit diagram of Ni-MH battery

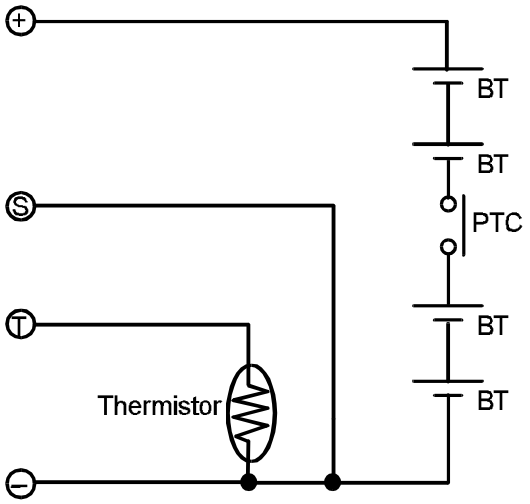


Figure 1: Circuit diagram of Ni-MH battery *600-0606*

6.8 Features of Lithium-Ion (Li-Ion) batteries

Lithium-Ion batteries have several features that make them more suitable for use in portable handphones than other materials used, such as Nickel Hydride.

Lithium-Ion batteries are better for the environment as they do not contain any regulated materials, such as mercury, cadmium, lead etc.

You may be mistakenly lead to believe by the name that Lithium-Ion batteries contain Lithium metal. In fact they contain no Lithium metal and are therefore safe to carry by air transport.

A great advantage of Lithium-Ion batteries is their ability to be recharged for between 300 and 500 times. Lithium-Ion batteries exhibit no “memory effect”, as is observed with repetitive shallow discharge and charging of Ni-Cad batteries

6.8.1 Circuit diagram of Li-Ion battery

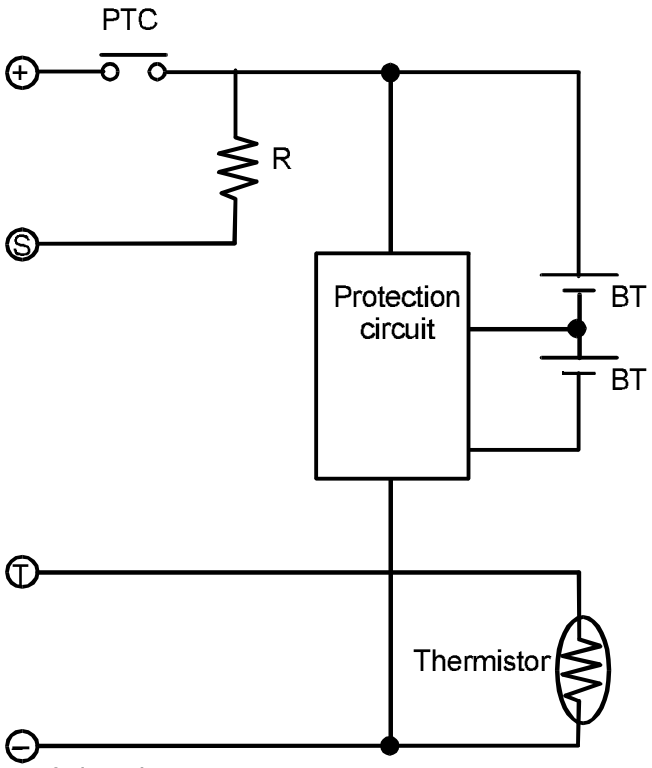


Figure 2: Circuit diagram of Li-Ion battery 600-0607

6.8.2 Charging Li-Ion batteries

The following points should be born in mind for the charging of Li-Ion batteries:

Li-Ion batteries require a constant charge voltage of 8.4V for all G600 battery chargers (dual charger EB-CR600 and handsfree charger).

Charging will be at 1.5CmA (where C is the nominal capacity of the battery). The charging current will naturally decrease to OA while the battery voltage remains constant.

6.8.3 Characteristics of Li-Ion batteries

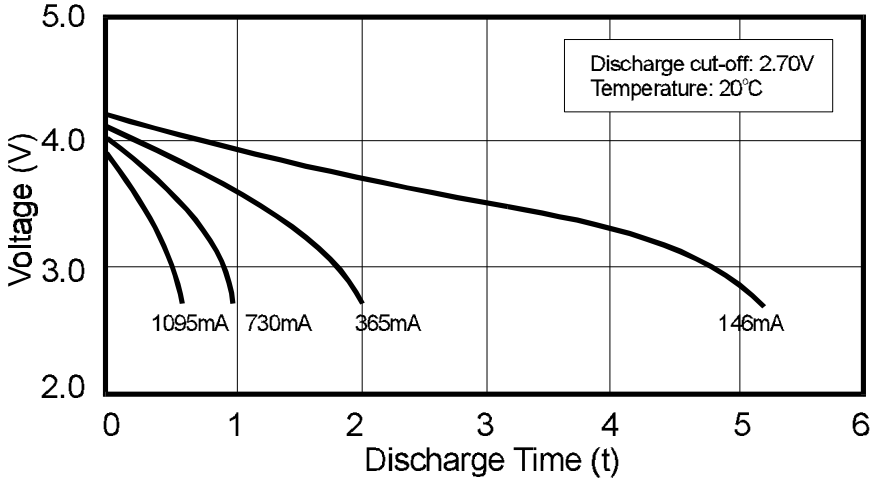


Figure 3: Voltage/Time discharge characteristics 600-0601

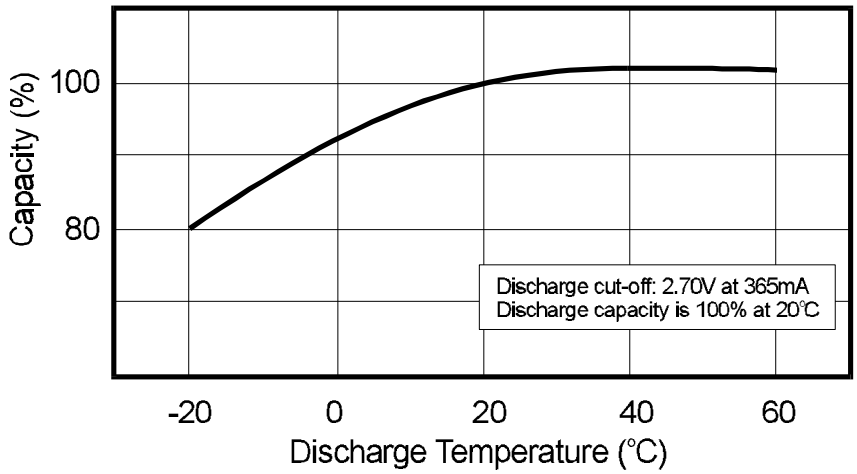


Figure 4: Capacity/Temperature discharge characteristics 600-0602

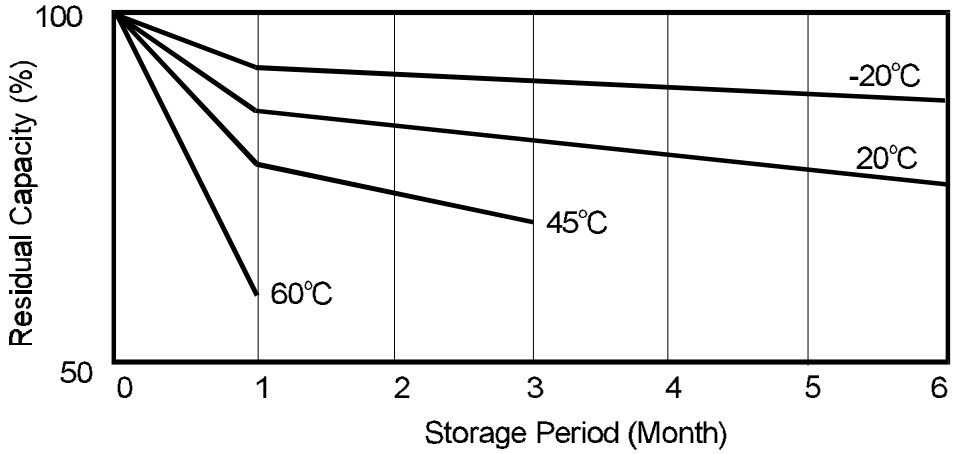


Figure 5: Residual Capacity/Storage Period characteristics 600-0603

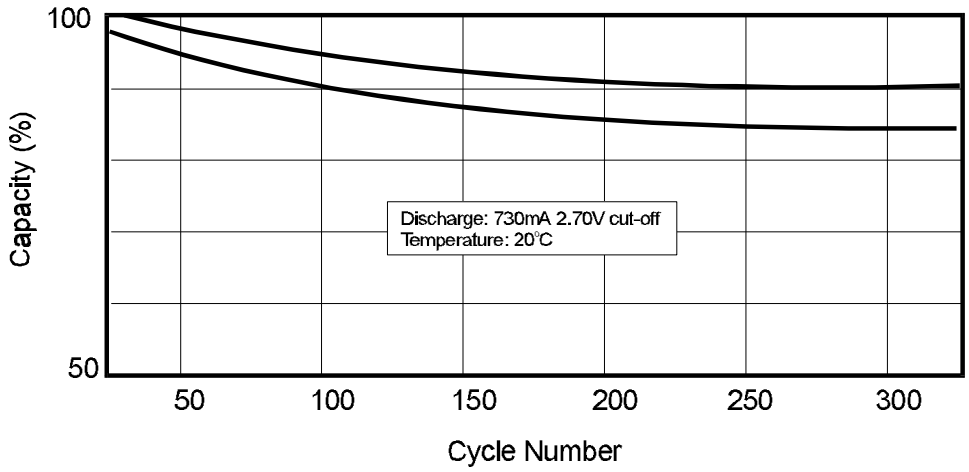


Figure 6: Capacity/Charging Cycle characteristics 600-0605

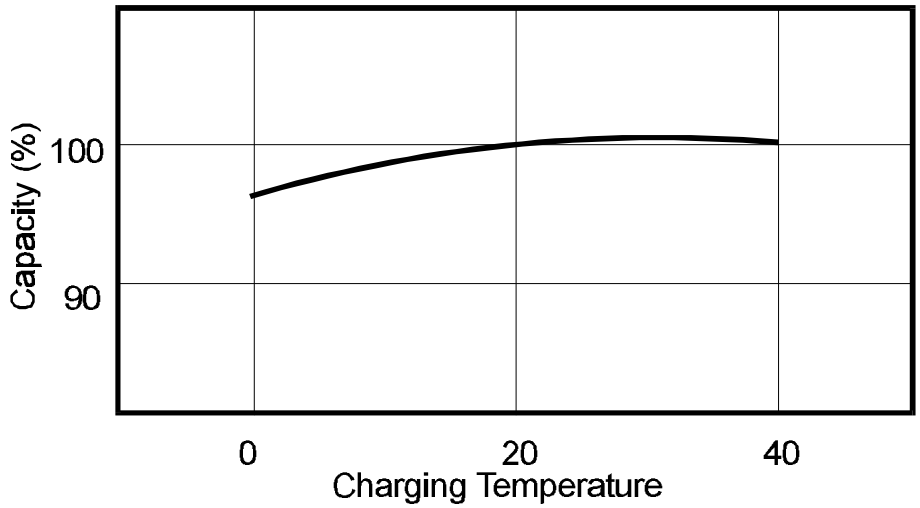


Figure 7: Capacity/Charging Temperature characteristics *600-0604*

7 TEST AND MEASUREMENT

7.1 Introduction

This section provides information on testing the G600 telephone. The layout is as follows:

1. Section 7.2 External testing: describes equipment requirements and general set up procedure.
2. Section 7.3 Channel box test commands: provides detailed explanation of the different commands available using the test equipment and channel-box software.
3. Section 7.4 Adjustment mode: describes adjustments available on the G600 handheld unit.
4. Section 7.5 Lock code: describes the procedure to check or reset the lock code using the Channel box software.
5. Section 7.6 SIM personalisation: describes the procedure to personalise the telephone to a particular SIM.

7.2 External Testing

The G600 unit can be connected to a compatible personal computer for electronic adjustment and fault diagnosis. This section provides a description of the equipment required to perform those tasks.

Testing and adjustment of the handheld unit can be performed with the outer case in place. For in-depth fault finding the unit should be disassembled (section 5), and the extended card used to connect the PCBs together externally as they would be found in normal use. Fault tracing can then be performed on the PCBs using suitable test equipment, such as spectrum analysers and oscilloscopes.

7.2.1 Jigs and Tools

Test Equipment Descriptions

1. Interface box, Part No. IFB002 (Figure 1)

The IFB002 provides:

a) Voltage regulation for +7.2V, +5.6V or 4.8V DC outputs. The +7.2V switch setting is used as a supply to Li-Ion type batteries, the 5.6V switch setting is used for PCB testing and the 4.8V switch setting is used for testing the complete unit.

b) RS 232 interface. Ensures that the Unit Under Test is supplied with the correct signal levels and format.

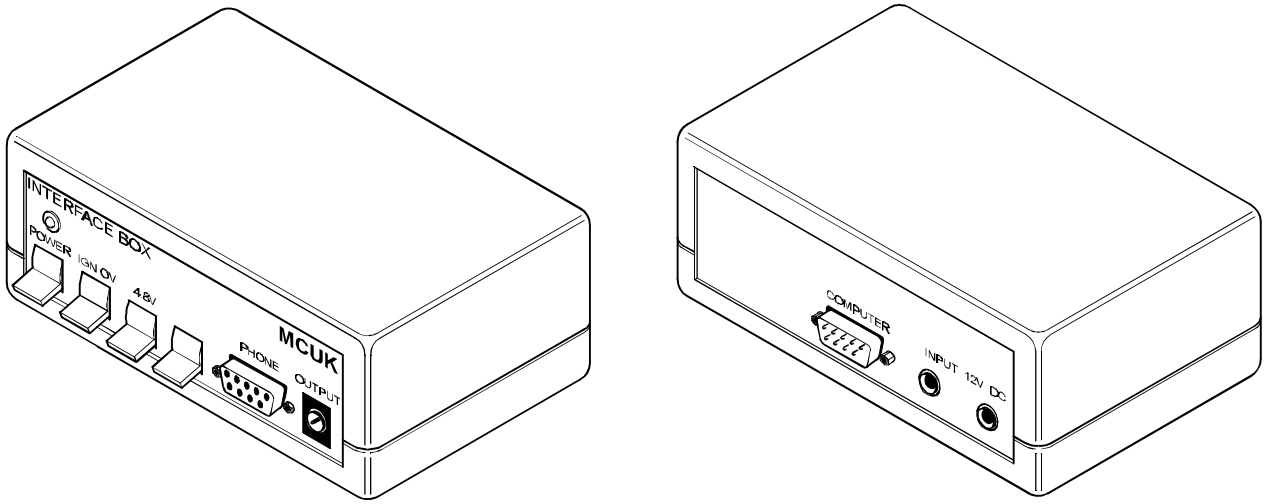


Figure 1: Interface Box IFB002

2. Personal Computer (PC)

The PC (IBM compatible) is used as a Unit Under Test controller. This in conjunction with the channel box software, allows all of the test facilities normally provided through the keypad of the Unit Under Test.

3. Power Supply (not shown - see complete unit test setup)

Provides 12V DC supply to the Interface Box IFB002

4. External Battery Supply Unit (Figure 2)

Provides 7.2V DC supply to the Interface Box IFB002 to compensate for the current drain when the Unit Under Test is used at full transmit power.

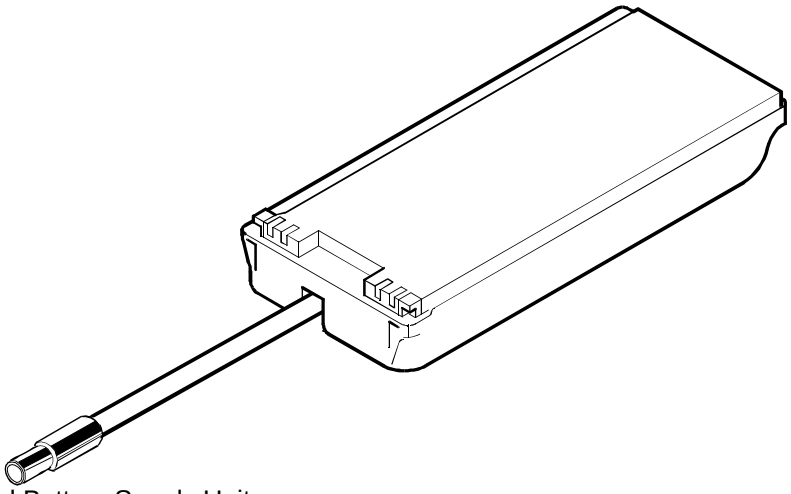


Figure 2: External Battery Supply Unit 600-0702

5. Extender PCB, Part No. G6EXT PCB 001 (Figure 3).

The extender PCB is provided to allow connection of the logic PCB to the RF PCB when the PCBs have been removed from the main unit.

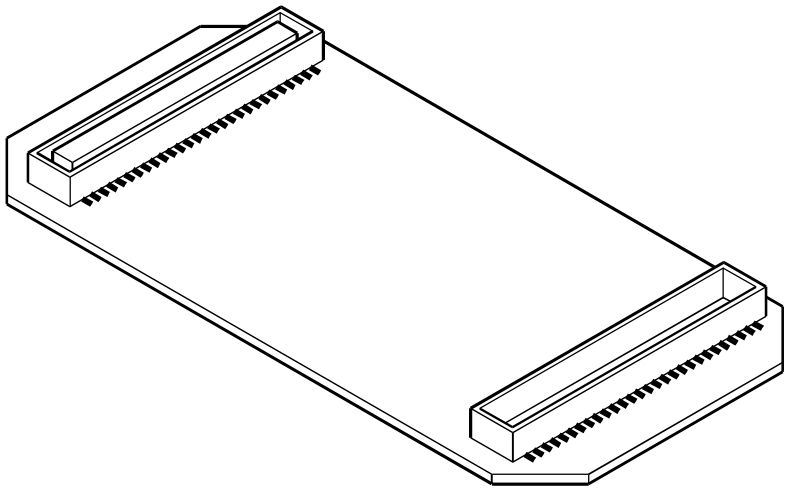


Figure 3: Extender PCB 600-0703

6. GSM Tester

This unit acts as a base station providing all the necessary GSM signalling requirements and also provides GSM signal measuring facilities.

7. Channel Box Software

This is the test software for the G600 unit and should be installed onto the personal computer used for testing.

7.3 Complete Unit Test Setup

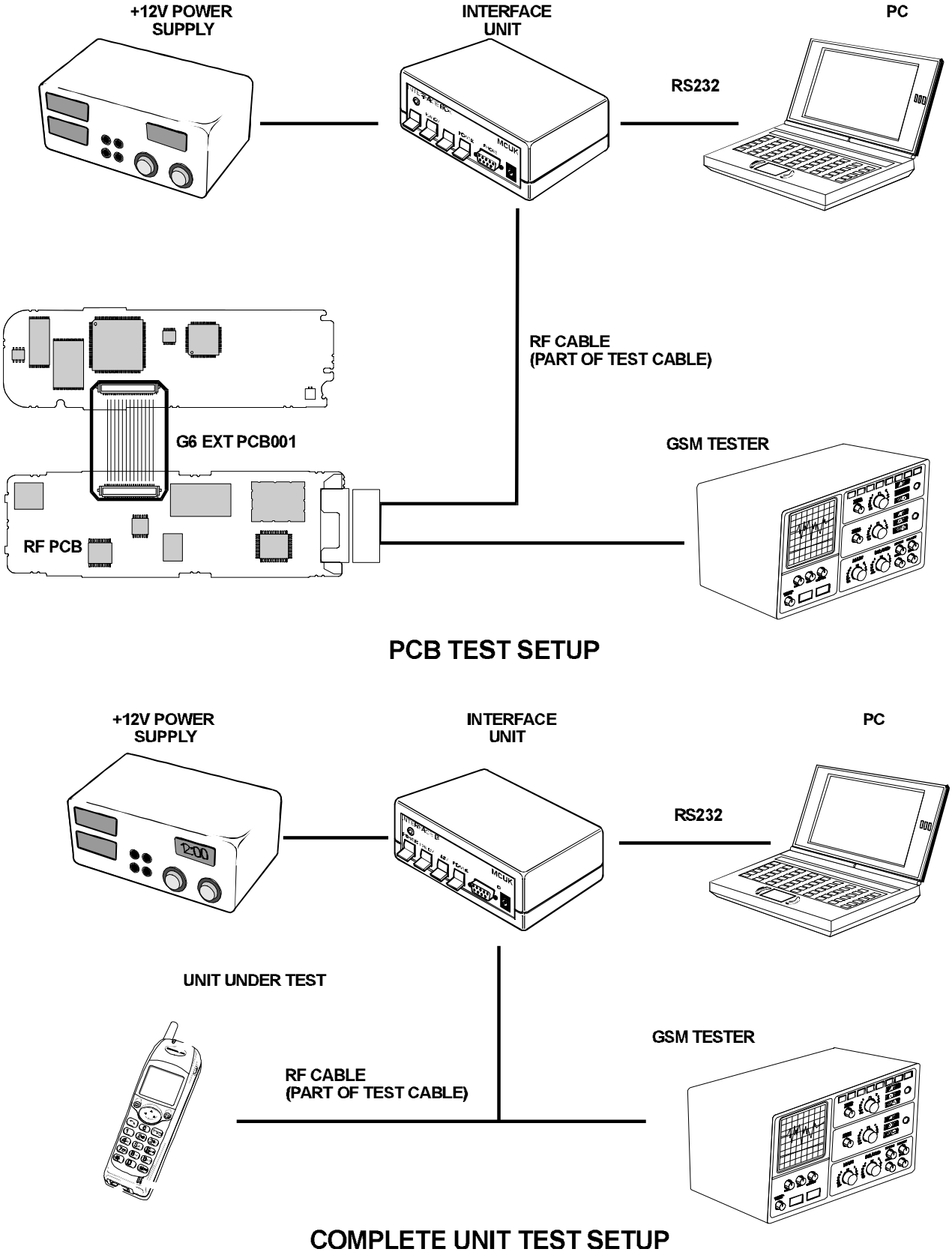


Figure 4: Complete unit test setup 600-0705

7.3.1 External Testing Setup Procedure

IMPORTANT NOTE:
To allow accurate measurement of the complete unit the test equipment must be connected as shown (figure 5). The PCB Test Setup must be used to enable repair to PCBs. Once repair/replacement is complete, the assembled unit must be tested and calibrated with the jigs and tools connected as shown in figure 5.

Full Test Equipment Requirements

For testing the handheld unit the following equipment is required:

1. Interface box
2. 12V power supply
3. Personal computer (IBM compatible) with RS232 interface
4. RS232 interface cable (9 pin straight through connection)
5. GSM test station

Figure 5 shows a typical setup for testing the G600 unit. The channel box software (supplied on floppy disk) should be installed onto the main drive of the personal computer.
The RF cable is connected to the GSM test station via a suitable adapter. The 12V supply is connected to the rear socket of the Interface box.
Two modes are available for testing the handheld unit:

1. Test Mode.
   The Test Mode facility allows various sections of the handheld unit to be individually activated.
2. Normal Mode.
   The Normal Mode facility allows the handheld unit to be powered externally for call origination/receiving operations.
   NOTE: A suitable test SIM card will be required which is compatible with the GSM test station.

Power On into Test Mode

1. (Figure 5) Connect the test equipment into test mode configuration.

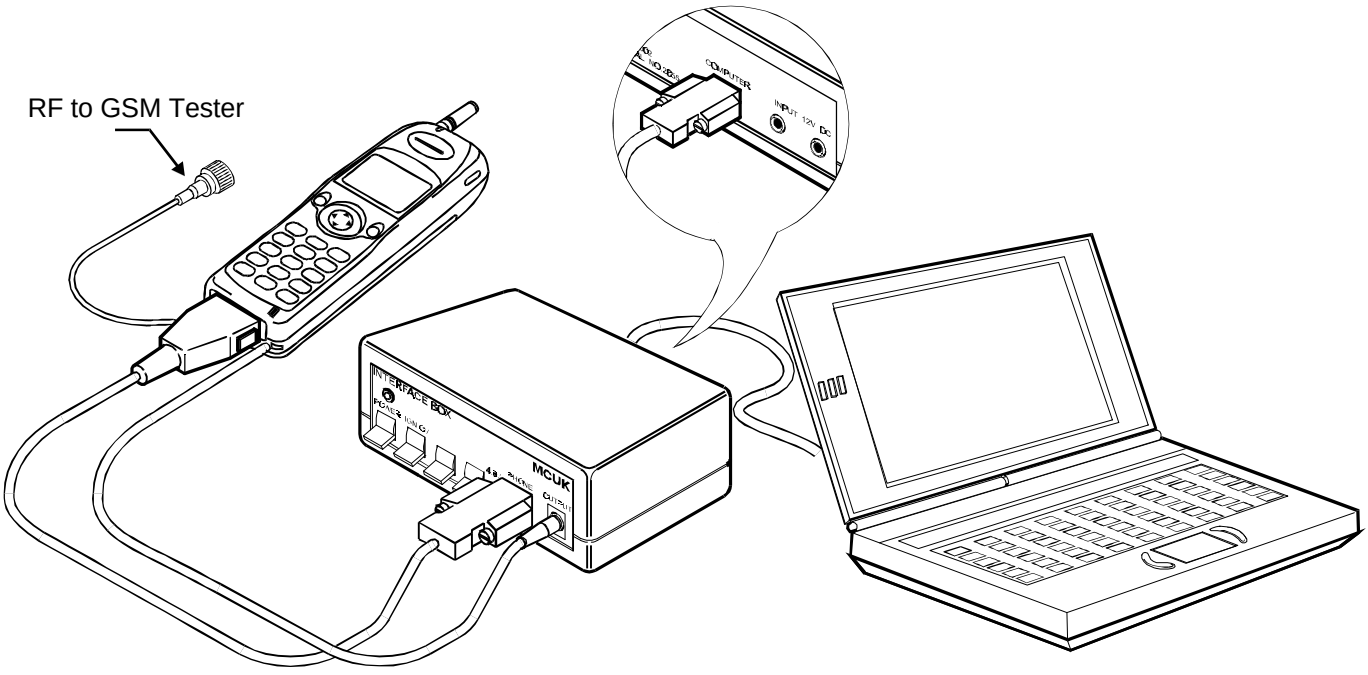


Figure 5: External test equipment setup 600-0706

2. Ensure that the following settings are made:

a) Interface box IFB002

Power:	UP position
IGN:	DOWN position
Mode	UP position
Voltage	Dependent upon operation: 7.2V for Lithium Ion battery 5.6V for PCB testing 4.8V for Nickel Metal Hydride battery

b) Power supply

+12V DC:	OFF

c) PC

Channel box software loaded and the screen indicating as shown (figure 6):

Figure 6: PC Screen (SCRN10) 600-0720

3. Press ENTER on the PC keyboard.

4. Switch on the +12V supply.

5. At the PC press F10.

6. At the Interface box switch the power to ON.

7. Steps 5 and 6 above must be carried out within 1 second or power ON will time-out.

NOTE:
The display will read:

GET STATION
ADDRESS = _ _
INFO = _ _

The back light will be illuminated and all LEDs will be lit.

Go to section 7.4 (Channel Box Test Commands) for further testing information.

Power On in Normal Mode

1. (Figure 7) Connect together the test equipment.

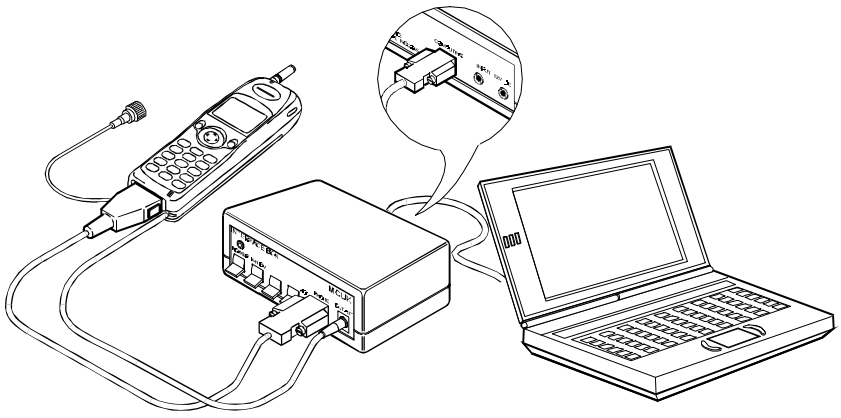


Figure 7: External test equipment setup *600-0706*

2. Ensure that the following settings are made:

a) Interface box IFB002

Power:	DOWN position
IGN:	DOWN position
HH/HF:	DOWN HH position
MODE:	UP position

b) Power supply

+12V DC:	OFF

c) PC

Channel box software loaded and the screen indicating as shown (figure 8):

Figure 8: PC Screen (SCRN9) 600-0720

3. On the PC press ENTER.

4. Switch on the 12V supply.

5. At the PC press F10.

6. At the Interface box switch the POWER to ON.

Entering Call Mode from Test Mode

The screen of the PC will resemble the one shown in figure 8:

Figure 9: PC Screen (SCRN11) 500-0721

1. At the PC change the SOFT SIM field to read <ENB>. Press ENTER.

2. At the PC change the TEST field to read <TERM>. Press ENTER.

The UUT will power down and up again. If the UUT is connected to a GSM test set, after a delay of approximately 5 seconds the UUT will register service.

3. To return to test mode, set SOFT SIM field to <DIS> and set TEST field to <Test>. Press ENTER.

7.4 Channel Box Test Commands

The following table outlines the commands available using the channel-box software.

After the handheld unit has been switched on (section 7.3), use the up/down scroll keys on the personal computer keyboard to select the channel-box command. Use the left/right scroll keys to display the required indication and press the ENTER key to select the displayed function.

CHANNEL BOX COMMAND	INDICATION	FUNCTION
TEST MODE	<TERM> <ReST>	Terminates test mode. Restarts test mode.
INITIALIZE	<INIT>	When RETURN is pressed this will reset the default channel settings.
CHANGE CH	<xxx>	Sets up predefined channel settings.
POWER LEVEL	<xxx>	Allows a specified power level to be set at the UUT.
TX DATA	<NRL 0> <NRL 1> <NRL R> <ACC R>	Sets TX Modulation to: Normal burst DATA all 0s Normal burst DATA all 1s Normal burst DATA all random Access burst DATA random
RSSI (DBM)	<xxx>	Provides an RSSI reading on the User specified channel.
SET AGC 1 SET AGC 2 SET AGC 3	<xxx> <xxx> <xxx>	Allows changes to AGC levels on LOW, MIDDLE, HIGH channels.
SP LOOP BACK	<START> <STOP>	Provides an audio path for use with the GSM test station. Sets audio loop-back from TX audio to RX audio without processing by the CODEC
PATH CONT	<MOSO> <MESI> <MESE> <MISI> <MISE>	Sets audio paths: MIC off speaker off MIC external speaker internal MIC external speaker external MIC internal speaker internal MIC internal speaker external
VOL. BUZZ	<xx>	Sets buzzer volume between values 0 to 3 (Min to Max)
VOL. SIDE	<xx>	Sets 4 side tone volume levels between 0dB and -18dB
VOL. MIC	<xx>	Sets 8 MIC volume levels between 26dB and 40dB
TAM CONT	PLAY ON PLAY OFF REC ON REC OFF	Switches on Voice Memo Playback Switches off Voice Memo Playback Record Voice Memo on Record Voice Memo off
VOL. SP1	<xx>	Sets speaker pre-amp volume levels
VOL. SP2	<xx>	Sets speaker volume levels
GET KEY CODE	<ENABLE><DISABLE>	Displays the value of a key pressed on the keypad

CHANNEL BOX COMMAND	**INDICATION**	**FUNCTION**
CONTROL OUT	<LED R> <LED B> <CHARGE ON> <LED C> <HF ON> <ALL OFF> <ALL ON>	Switches on Incoming LED Switches on Backlight LEDs Switches charge sequence on LCD Switches on Charging LED Switches on handsfree mode Switches off all above Switches on all above
CHECK LCD1	<P1> <P2>	Provides 50% visual display of check pattern on the UUT LCD Provides 50% visual display of check pattern on the UUT LCD
SET ER.DISP	<ENABLE> <DISABLE>	Unit error codes will be displayed on the UUT display Unit error codes will not be displayed on the UUT display
SOFT SIM	<ENABLE> <DISABLE>	With ENABLE set and TEST MODE <TERM> the UUT is removed from test mode and can be placed into call mode
TEST MODE	<TERM>	With SOFT SIM <ENABLED> the UUT will be removed from test mode and can be placed into a call
SIM STATUS	<SHOW>	Checks and displays the SIM status
CHECK SUM	<SHOW>	Displays the software checksum

7.5 Adjustment Mode

NOTE:
See section 7.2.1 for a list of the equipment and setup procedures required to perform the following adjustment and calibration procedures.

The following procedures MUST be performed after replacement or repair of one or both of the PCBs in the handheld unit. Failure to do so may result in incorrect operation of the telephone.

The following adjustments MUST be made on BOARD PAIRS.

There are four distinct calibration procedures to adjust RF performance. These procedures are:
1. Ramping gain (Section 7.5.1)
2. RSSI (Section 7.5.2)
3. I and Q values (Section 7.5.3)

The adjustment data selected during calibration is stored in the telephone EEPROM.

NOTE:

As G600 has two battery types available, Lithium Ion and Nickel Metal Hydride, all calibration procedures must be carried out for each battery type.

Figure 10: Test software screen 600-0721

7.5.1 Ramping Gain

The carrier power must be measured and calibrated for each power level at channel 62.

Target Power Level	Peak Power (dBm)	Tolerance (dB)	Initial Calibration Value		Change per dB	
			4.8V	7.2V	4.8V	7.2V
PL5	33	±2	192	170	14.29	40.00
PL6	31	±3	157	150	12.50	20.00
PL7	29	±3	134	130	5.56	10.00
PL8	27	±3	118	116	7.69	7.14
PL9	25	±3	106	104	5.88	6.25
PL10	23	±3	96	94	5.00	5.26
PL11	21	±3	87	85	4.00	4.25
PL12	19	±3	117	115	5.00	5.00
PL13	17	±3	108	106	4.00	4.35
PL14	15	±3	101	99	3.45	3.57
PL15	13	±3	95	93	2.94	3.03
PL16	11	±5	90	87	2.56	2.63
PL17	9	±5	85	83	2.17	2.22

Target Power Level	Peak Power (dBm)	Tolerance (dB)	Initial Calibration Value		Change per dB	
PL18	7	±5	82	79	1.89	2.04
PL19	5	±5	78	76	1.67	1.72

Calibration of output power on each power level

To be able to calibrate the ramping gain it is first necessary to switch the unit into Test Mode (section 7.3).

This procedure must be followed for all power levels PL5-PL19, for low, medium and high channels:

1. Set the Channel box controls to Channel 62 at Power Level 5, normal burst modulated with random data as follows:

a) Press the down arrow until CHANGE CH <62> is highlighted and then press ENTER.

b) Press the down arrow until PL <L19> is highlighted. Press the move left arrow until <5> appears in the highlighted field. Press ENTER.

c) (Figure 11) Press the down arrow until TX DATA <OFF> is highlighted.

Press the move arrow until <NRL R> appears in the highlighted field. Press ENTER.

Figure 11: Tx data field 600-0722

2. At the GSM test unit measure the Peak Power.

3. If the measured power is in the range of the target power (see previous table), then proceed to step 10.

4. **(**Figure 12) At the Channel box press F7 to view the TRIM for the mid-channel.

Figure 12: Power level view 1. 600-0723

5. (Figure 13) Select VIEW TRIM PL MCH, and make a note of this value.

Figure 13: Power level view 2 600-0724

6. Perform the following calculation:

Set RGAIN - PL% = Value recorded in step 5 (± change in PL to meet specified value for change per dB). Make a note of the result.

7. (Figure 14) At the Channel box press F6 to program the TRIM for the mid-channel.

Figure 14: Power level selection 1. 600-0725

Figure Power level selection 1.

8. (Figure 15) Select PROGRAM TRIM PL MCH.

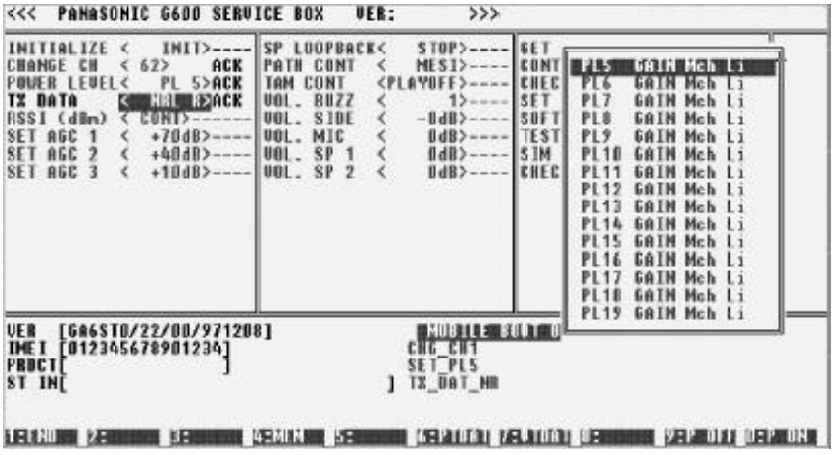


Figure 15: Power level selection 2. 600-0727

9. (Figure 16) Highlight the PL5 field and press ENTER.

Figure 16: Power level selection 3. 600-0728

10. Enter the value calculated in step 6 into the data field and then press ENTER.
11. Press ESC.
12. At the GSM test unit re-measure the peak power.
13. Repeat steps 2 to 11 of this procedure for power levels PL6 to PL19.
14. After calibrating at channel 62, the carrier power must be measured and calibrated at low and high channels for power levels 5 to 19.
15. Repeat step 2 to 14 for the Ni-MH battery settings.

7.5.2 RSSI

This procedure describes the calibration of RSSI on the mid channel (Mch = Ch 62). This process must be carried out for Low Channel, Mid Channel and High Channel. The following channel settings are used in this procedure:

1. Set up the test equipment as described in Section 7.3 and switch the unit into test mode as described.
2. Apply a carrier frequency of +68KHz to the UUT (for Ch 62 = 947.468MHz) at an input level of -60dBm.
3. At the Channel box highlight the CHANGE CH <62> field and press ENTER.
4. Highlight the SET AGC 2 field and change the set value to 36dB and press ENTER.
5. (Figure 17) Highlight the RSSI dBm <> field and press ENTER.

Figure 17: RSSI dB field 600-0729

6. If the measured value is not 60 ±2 then make the following calculation:
   RSSI offset value = -(60+MEASURED RSSI VALUE) for example -(60+(-75)) = 15
   Record the result.
7. (Figure 18) At the Channel box press F7 to view data.

Figure 18: RSSI reading 1 600-0730

8. (Figure 19) Select TRIM OTHER and make a note of the RSSI on the measured channel reading.

Figure 19: RSSI reading 2. 600-0731

9. Press ESC.

10. (Figure 20) At the Channel box press F6 to program data.

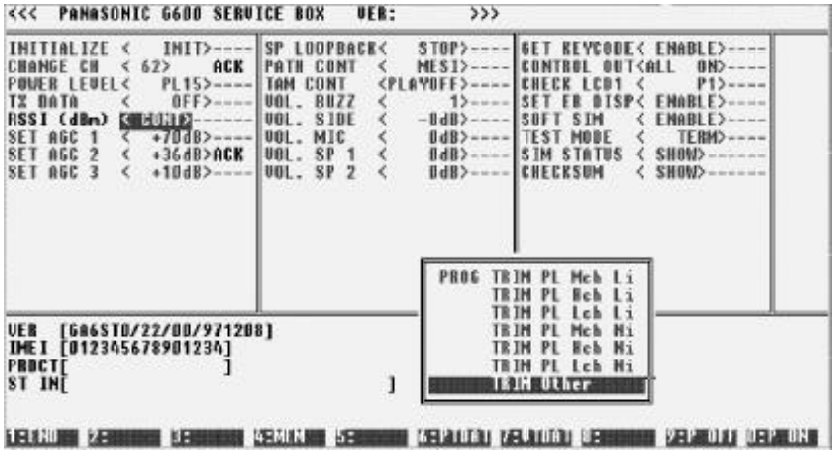


Figure 20: RSSI reading 3. 600-0732

11. Select TRIM OTHER and press ENTER.

12. Make the following calculation:

RSSI offset value (from step 11) + reading noted in step 6. Enter the result into RSSI M field (Figure 21) for example: 15 + 5 = 20.

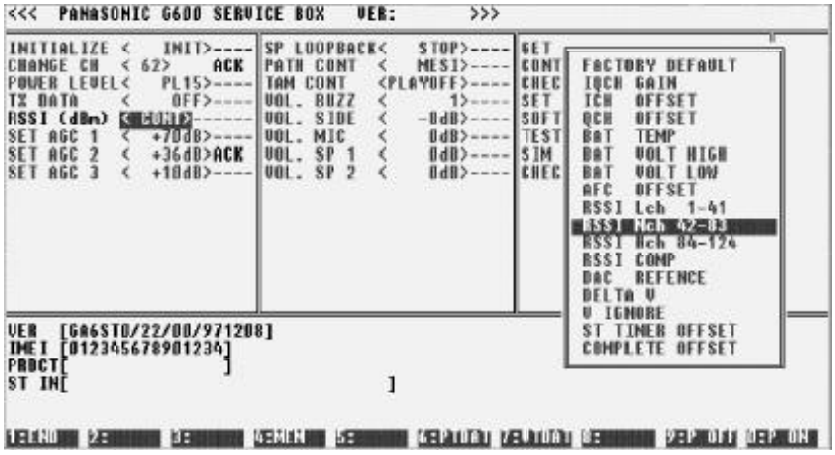


Figure 21: RSSI reading 4. 600-0733

13. Press ENTER.

14. Press ESC.

15. Measure the RSSI level again by highlighting the RSSI dBm field and press ENTER.

16. Steps 6 to 15 must be repeated for both LOW and HIGH channels.

7.5.3 I and Q Values

NOTE:
With the I, Qch adjustment procedures the transmitter must be set to Power Level 5 (this presents the worst case of non-linearity) so care must be taken that the spectrum analyser used can accept a signal input of 33dBm. If not an appropriate attenuator must be used.

I, Q ch Offsets

Spectrum Analyser setup
centre frequency = 902.4MHz
RBW = 10kHz
VBW = 1kHz
span = 1MHz
sweep time = 2sec

1. Set the Channel box controls to channel 62 at power level 5, normal burst modulated with all 0's.

a) Press the down arrow until CHANGE CH > is highlighted and then press ENTER.

b) Press the down arrow until PL is highlighted. Press ENTER.

c) (Figure 22) Press the down arrow until TX DATA is highlighted. Press the move arrow until "NRL 0" appears in the highlighted field. Press ENTER.

Figure 22: Channel box setup 600-0735

2. (Figure 23) On the spectrum analyser measure the carrier leakage ratio. Carrier leakage ratio is measured as the ratio of peak power and the power at 68kHz below peak frequency.
Example:
peak power (902.468MHz) = 33dBm
power at 68kHz below peak power = 0dBm
carrier leakage ratio = 33dBm - 0dBm = 33dBm

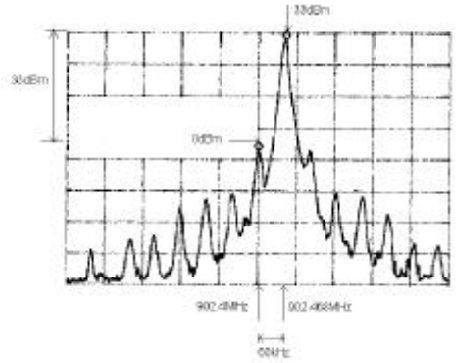


Figure 23: Carrier leakage ratio 600-0726

3. If carrier leakage ratio is greater than 30dBc then unit is OK. (offset calibration is complete).

4. If carrier leakage ratio less than 30dBc then go to Ich check.

Ich check

1. **(**Figure 24) At the Channel box check Ich offset data by selecting F7 then VIEW TRIM OTHER.

Figure 24: I, Q data field selection 1. 600-0736

2. **(**Figure 25) At the Channel box set Ich offset to 147, press F6 to program TRIM OTHER.

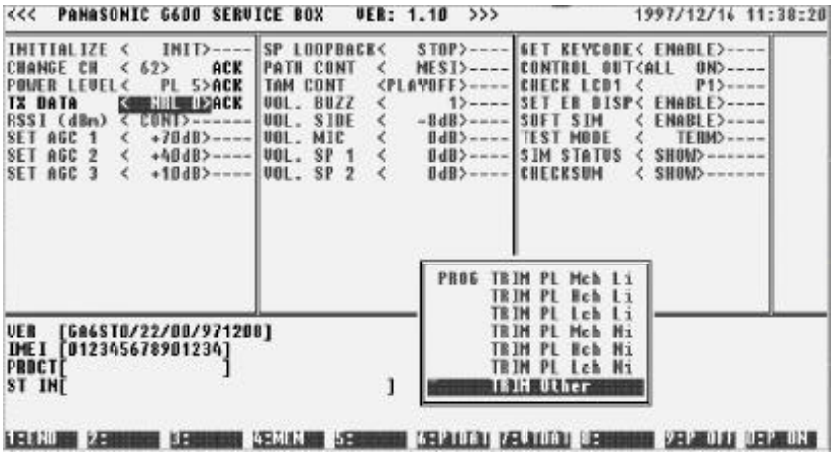


Figure 25: I,Q data field selection 2. 600-0737

3. (Figure 26) Select Ich OFFSET

Figure 26: I,Q data field selection 3. 600-0738

4. (Figure 27) Enter 147 for Ich OFFSET and press ENTER.

Figure 27: I,Q data field selection 4. 600-0739

5. Using the Spectrum Analyser, measure the new carrier leakage ratio.

6. If the new carrier leakage ratio is greater than 30dBc then the unit is OK (offset calibration is complete).

7. If the original carrier leakage ration (see I,Q OFFSETS step 2) is greater than the new carrier leakage ratio go to I Dec Calibration.

8. If the original carrier leakage ratio is less than the new carrier leakage ratio go to I Inc Calibration.

I Dec Calibration

1. Set Ich offset to 107 (see Ich Check step 2).

2. Using the spectrum analyser measure the new carrier leakage ratio.

3. If the carrier leakage ratio is greater than 30dBc then unit is OK (offset calibration is complete).

4. If not then repeat steps 1, 2 and 3 above for Ich offset values: 87, 67, 47, 27 and 7.

5. If the carrier leakage ratio is still not greater than 30dBc then go to Qch Check.

I Inc Calibration

1. Set Ich offset to 167 (see Ich check step 2).

2. Using the spectrum analyser measure the carrier leakage ratio.

3. If the carrier leakage ratio is greater than 30dBc then the unit is OK. (offset calibration is complete).

4. If not then repeat steps 1, 2 and 3 above for Ich offset values: 187, 207, 227, 247.

5. If the carrier leakage ratio is still not greater than 30dBc then go to Qch Check.

Qch Check

1. Set Ich offset to 127.

2. Set Qch offset to 147.

a) At the Channel box press F6.

b) (Figure 26) Press move down arrow until QCH OFFSET appears in the field. Press ENTER.

c) (Figure 27) Enter 3 into the data field and press enter.

3. Measure the new carrier leakage ratio.

4. If the carrier leakage ratio is greater than 30dBc the unit is OK. (offset calibration is complete).

5. If the original carrier leakage ratio (see I, Q ch Offsets step 2) is greater than new carrier leakage ratio then go to Q Dec Calibration.

6. If the original carrier leakage ratio is less than new carrier leakage ratio then go to Q Inc Calibration.

Q Dec Calibration

1. Set Qch offset to 107 (see Qch Check step 2).

2. Measure carrier leakage ratio.

3. If the carrier leakage ratio is greater than 30dBc then unit is OK. (offset calibration is complete).

4. If not then repeat steps 1, 2 and 3 above for Qch offset values: 87, 67, 47, 27, 7.

5. If the carrier leakage ratio is still less than 30dBc then unit is a fail.

Q Inc Calibration

1. Set Qch offset to 167 (see Qch Check step 2).

2. Measure carrier leakage ratio.

3. If carrier leakage ratio is greater than 30dBc then unit is OK. (offset calibration is complete).

4. If carrier leakage ratio is less than 30dBc then repeat steps 1, 2 and 3 above for Qch offset values:187, 207, 227, 247.

5. If carrier leakage ratio is less than 30dBc then unit is a fail.

I, Qch Gain

IMPORTANT: I, Qch offset calibration should be done before this calibration.
Spectrum Analyser Setup.
centre frequency = 902.4MHz
RBW = 10kHz
VBW = 1kHz
span = 1MHz
sweep time = 2sec

1. Set the Channel box controls to channel 62 at power level 5, normal burst modulated with all 0's.

a) Press the down arrow until CHANGE CH > is highlighted and then press ENTER.

b) Press the down arrow until PL is highlighted. Press ENTER.

c) Press the down arrow until TX DATA is highlighted. Press the move arrow until O appears in the highlighted field. Press ENTER

2. (Figure 28) Using the spectrum analyser measure the image leak ratio. Image leak ratio is the measured ratio of peak power and the power at 135kHz below peak frequency.
Example:
peak power (902.468Mhz) = 33dBm
power at 135kHz below peak power = -9dBm
image leak ratio = 33dBm - (-9dBm) = 42dBm

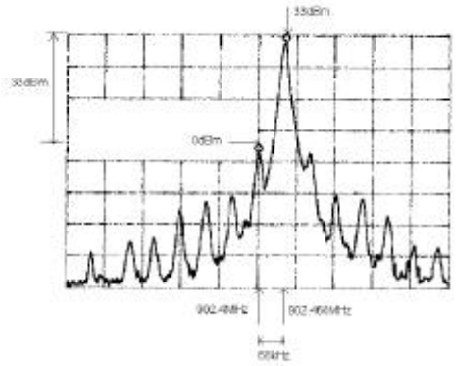


Figure 28: Image leak ratio 600-0726

3. If image leak ratio is greater than 30dBc then unit is OK. (offset calibration is complete).

4. If image leak ratio is less than 30dBc then go to Ich gain calibration.

IQch Gain Calibration

1. Set IQch gain to -0.25dB.

a) On the Channel box press F6.

b) (Figure 26) Press move left arrow until IQCH GAIN field is highlighted. Press ENTER.

c) (Figure 27) Enter 2 into the data field. Press ENTER.

2. Measure the image leak ratio.

3. If image leak ratio is greater than 30dBc then unit is OK. (offset calibration is complete)

4. If image leak ratio is less than 30dBc then repeat steps 1, 2 and 3 above with IQch gain values: -0.50dB, -0.75dB.

5. If image leak ratio is still less than 30dBc then the unit is a fail.

7.5.4 Simple Receiver Test

The following procedure gives a method by which the Unit Under Test (UUT) can be placed into a condition allowing the service technician to probe the entire receive RF path. Input level and frequency can also be specified.

To perform the following procedure the UUT must first be placed into Test Mode. Perform the following steps:

1. At the Channel box highlight the CHANGE CH field and set the required test channel. Press ENTER.

2. Highlight the SET AGC 1,2,3 field and enter the required gain value.

3. At the GSM test unit input an RF signal at the required frequency and level.

The unit has now been placed in a state which will allow the received signal path to be monitored.

7.5.5 Simple Transmitter Test

The following procedure gives a method by which the Unit Under Test (UUT) can be placed into a condition allowing the service technician to probe the entire transmit RF path. Input level and frequency can also be specified.

To perform the following procedure the UUT must first be placed into Test Mode. Perform the following steps:

1. At the Channel box highlight the CHANGE CH field and set the required test channel.

2. Press ENTER.

3. Highlight the PL field and set the required test power level.

4. Press ENTER.

5. Highlight the TX_DATA field and select the required modulation type and data.

6. Press ENTER.

The UUT is now in the required state to allow probing of the transmit RF path.

7.6 Lock Code

NOTE:
See section 7.2.1 for a list of the equipment and setup procedures required to perform the following adjustment and calibration procedures.

To perform the following procedures the UUT must be placed into Test Mode.

7.6.1 Check current lock code

1. **(**Figure 29) At the Channel box press F4 and highlight VIEW LOCK CONDITION. Press ENTER.

Figure 29: View lock code 600-0740

2. The display will show the current lock status and lock code for the UUT.

7.6.2 Change current lock code

1. At the Channel box press SHIFT and F4 and highlight PROG LOCK CONDITION. Press ENTER.

2. (Figure 30) Press ENTER to unlock the UUT. The current lock code will be used.

Figure 30: Program lock code 600-0741

3. Enter “0000” to reset the UUT to factory defaults. The UUT will be locked using the lock code “0000”.

7.7 SIM Personalisation

7.7.1 Introduction

SIM personalisation will limit the use of G600 to a single SIM, a SIM supplied by one Network/Sub-network/Service Provider or a SIM purchased by a company (corporation). If a personalised G600 contains a SIM that is from a different source it will display the message “SIM ERROR” when switched on. This personalisation of G600 is sometimes referred to as SIM lock or SIM latch.

7.7.2 Testing

To test a personalised G600, when the user has not supplied the SIM, a SIM configured for test purposes (e.g. test SIM or soft SIM) should be used. The mobile will recognise that the SIM is for testing purposes only and operate as normal.

7.7.3 Personalisation Function

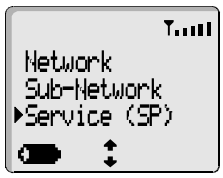
Personalisation is activated during manufacture and then enabled at a later stage. Enabling/disabling is available by entering a special key sequence immediately after power on. Once the enable/disable menu is shown it is possible to select the type of personalisation. When personalisation is enabled it is only possible to disable it if the mobile contains an illegal SIM and the sixteen digit Control Key (CK) is known. When enabled the CK is withheld from the user and cannot be read, for security reasons.

There are two special key sequences to enter the enable/disable menu:

Key sequence	Notes
7PQRS 4GHI 6MNO ⊡ ⊡	Can only disable personalisation
5JKL 2ABC 8TUV 2ABC 4GHI ⊡ ⊡	Can both enable and disable personalisation

7.7.4 Disabling Procedure

1. 7PQRS 4GHI 6MNO ⊡ ⊡ or 5JKL 2ABC 8TUV 2ABC 4GHI ⊡ ⊡
2. ⊕ to point at;
   “SIM” for SIM Personalisation
   ”Network” for Network Personalisation
   “Subnetwork” for Subnetwork Personalisation
   ”SP” for Service Provider Personalisation or
   ”Corporate” for Company Personalisation



600-0707

3. ⊡
4. the 16 digit Control Key
5. ⊡
6. the 16 digit Control Key
7. ⊡

The display will confirm which type of Personalisation has been disabled.

7.7.5 Enabling Procedure

1. 5JKL 2ABC 8TUV 2ABC 4GHI ⊡ ⊡

2. ↕ to point at;
   “SIM” for SIM Personalisation
   ”Network” for Network Personalisation
   “Subnetwork” for Subnetwork Personalisation
   ”SP” for Service Provider Personalisation or
   ”Corporate” for Company Personalisation

600-0707

3. ⊡

4. the 16 digit Control Key

5. ⊡

6. the 16 digit Control Key

7. ⊡

The display will confirm which type of Personalisation has been enabled.

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8 CIRCUIT DIAGRAMS

8.1 Handheld Unit

8.1.1 RF

The waveforms shown below relate to the RF circuit diagrams on the following pages. The waveforms shown are for reference purposes only.

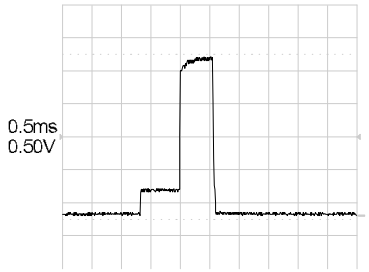

Figure 1: WF1 600-0802

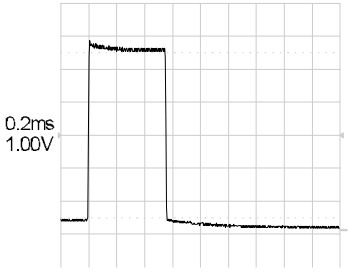

Figure 2: WF2 600-0803

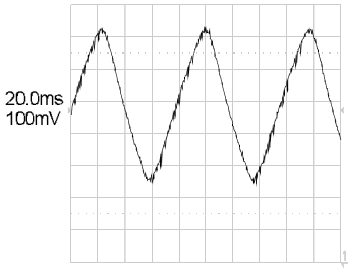

Figure 3: WF3 *600-0804*

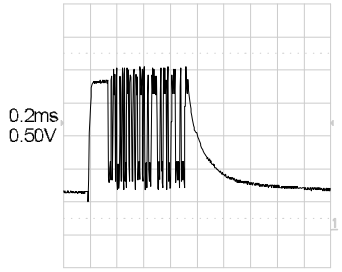

Figure 4: WF4 600-0805

8.1.2 Logic

The waveform shown below relates to the logic circuit diagram on the following pages. The waveform is for reference purposes only.

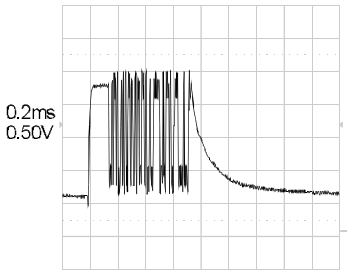

Figure 5: WF5 600-0801

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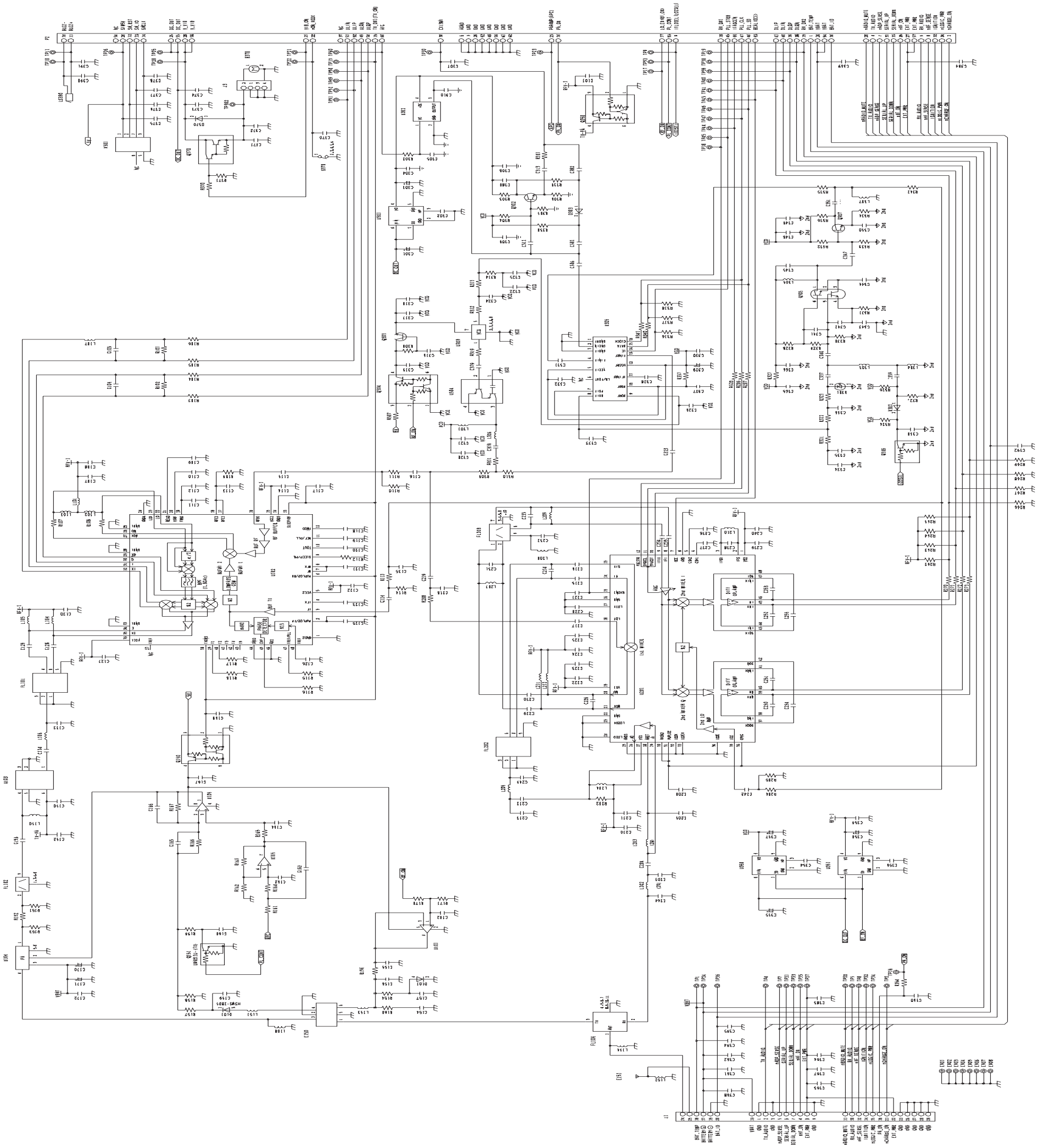
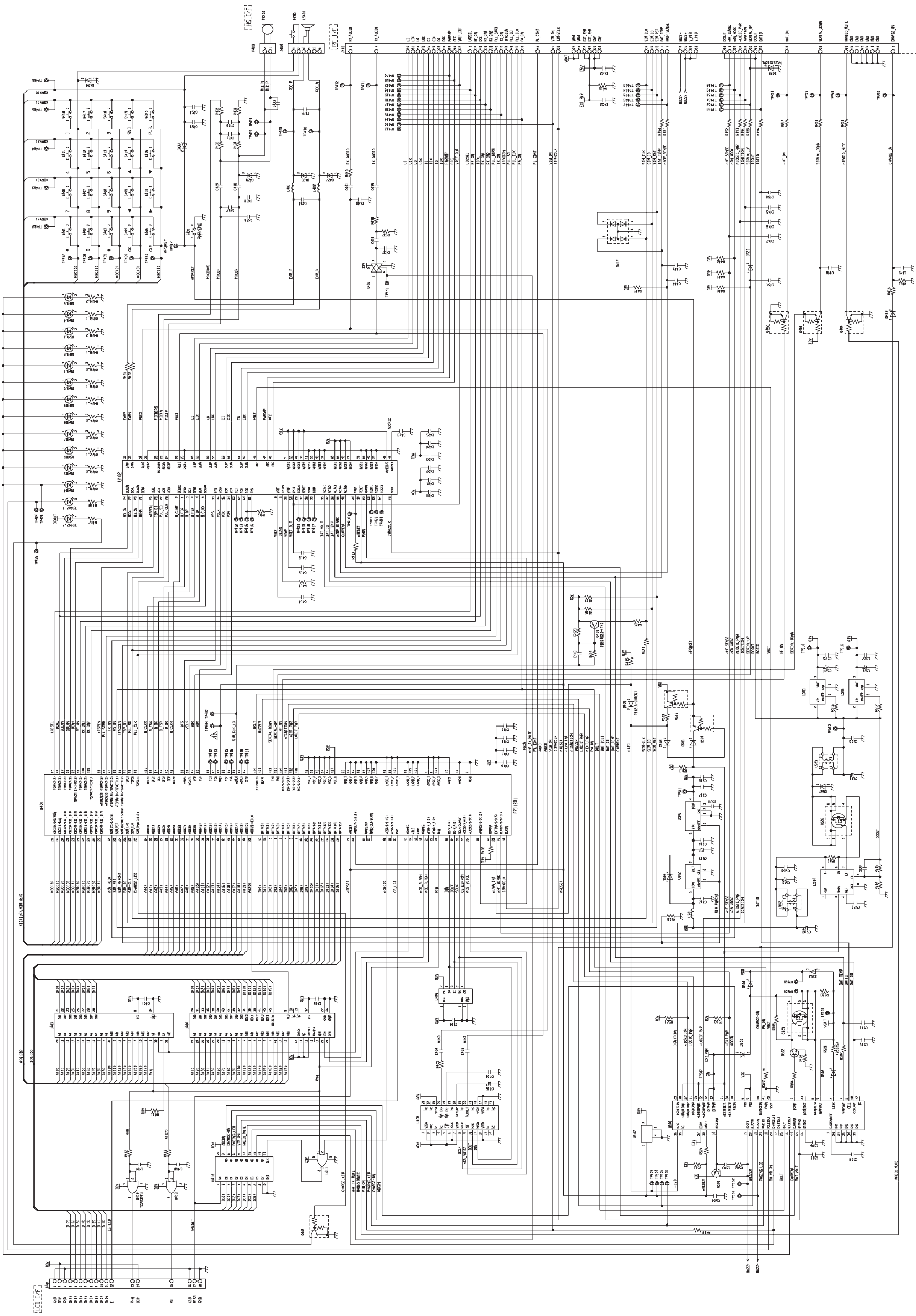
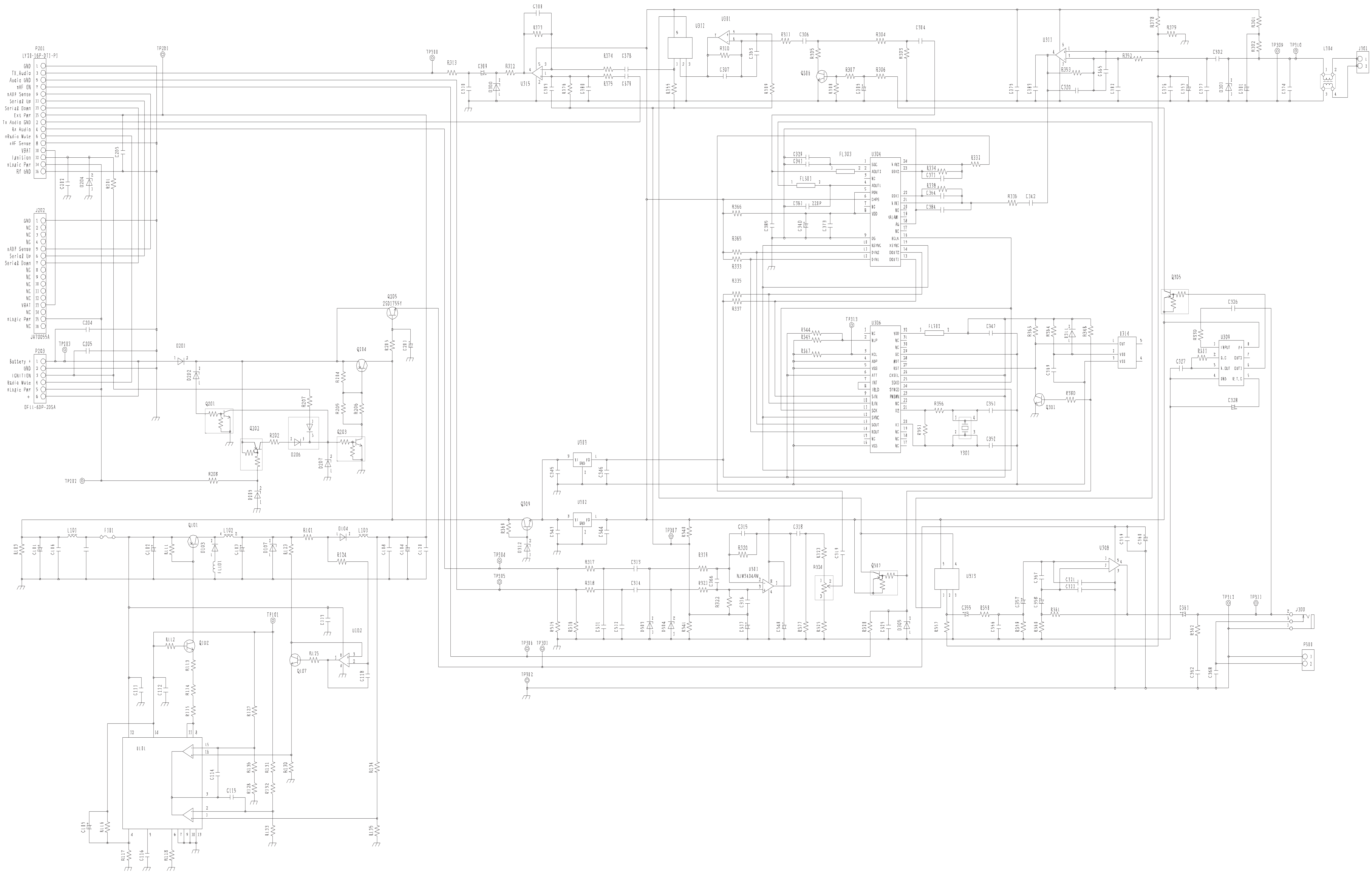


ogic

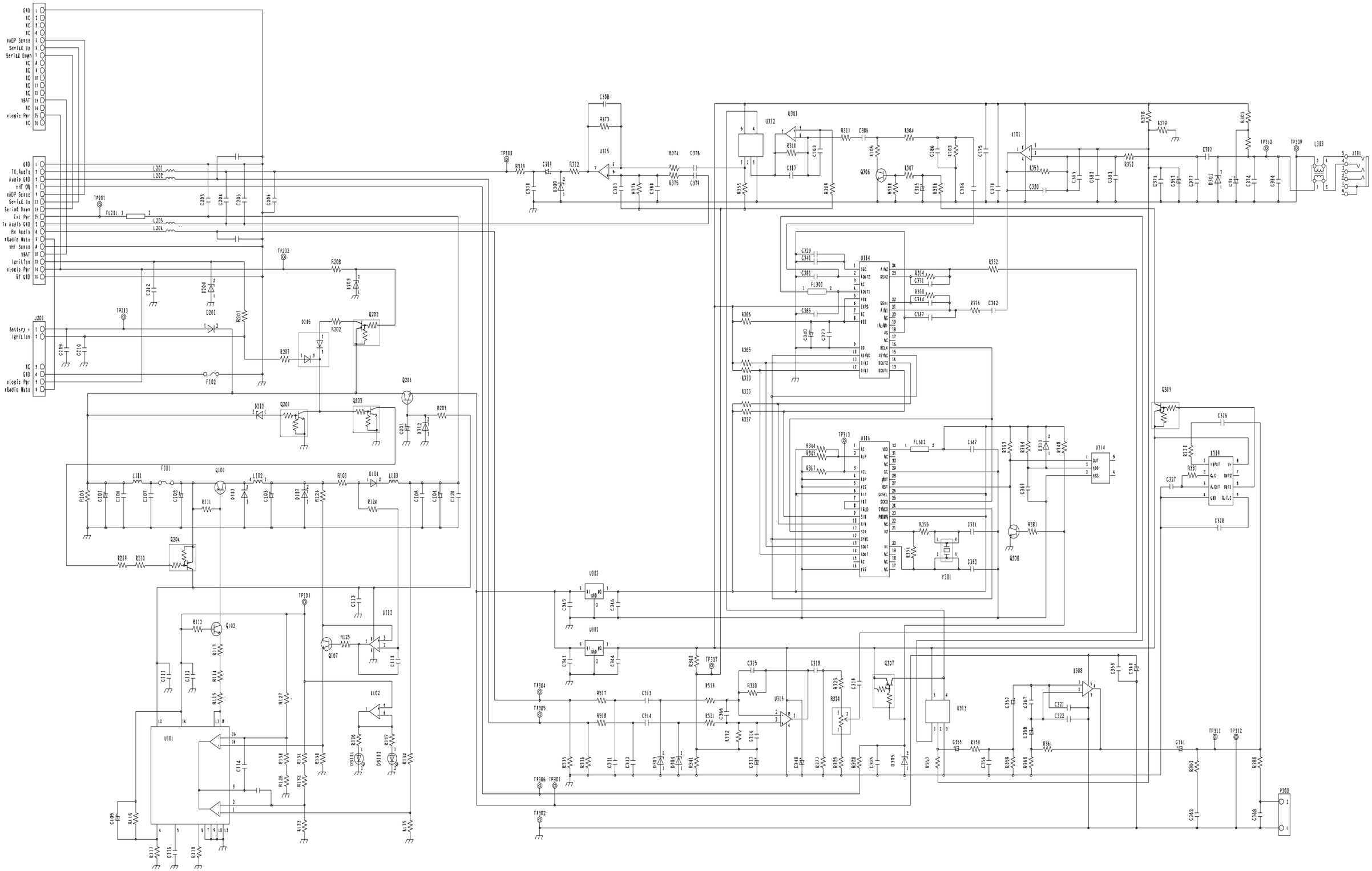


8 2 H



EG 0696d

83 E F H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nRadio Mute
J202
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nHF ON
nADP Sense
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SerialC Down
Ext Pwr
Tx Audio GND
Rx Audio
nRadio Mute
nHF Sense
VBAT
Ignition
nLogic Pwr
Rf GND
J203
GND
NC
NC
NC
nADP Sense
SerialC Up
SerialC Down
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VBAT
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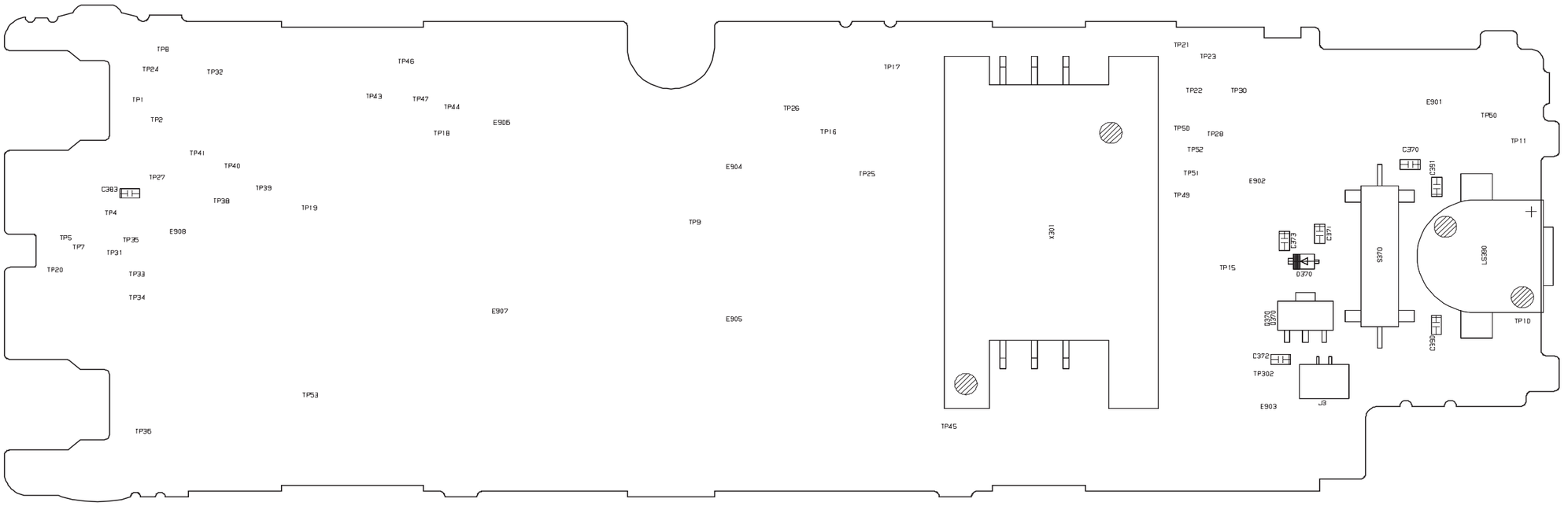
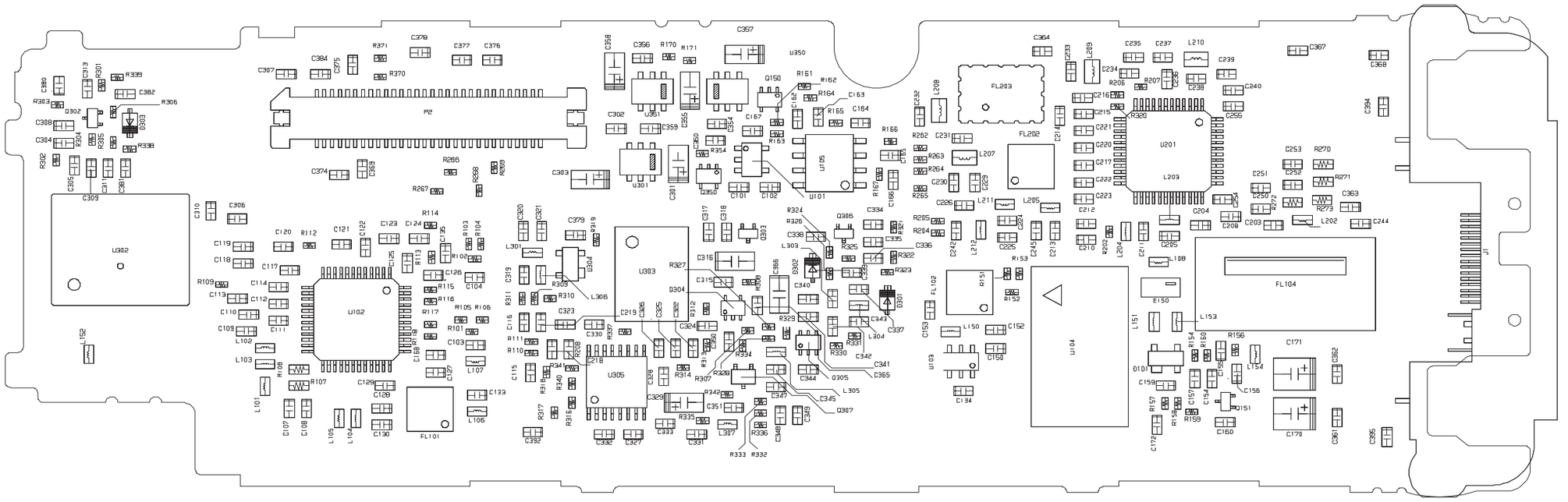
9 PCB LAYOUT DIAGRAMS

9 1 H U

1 1 RF

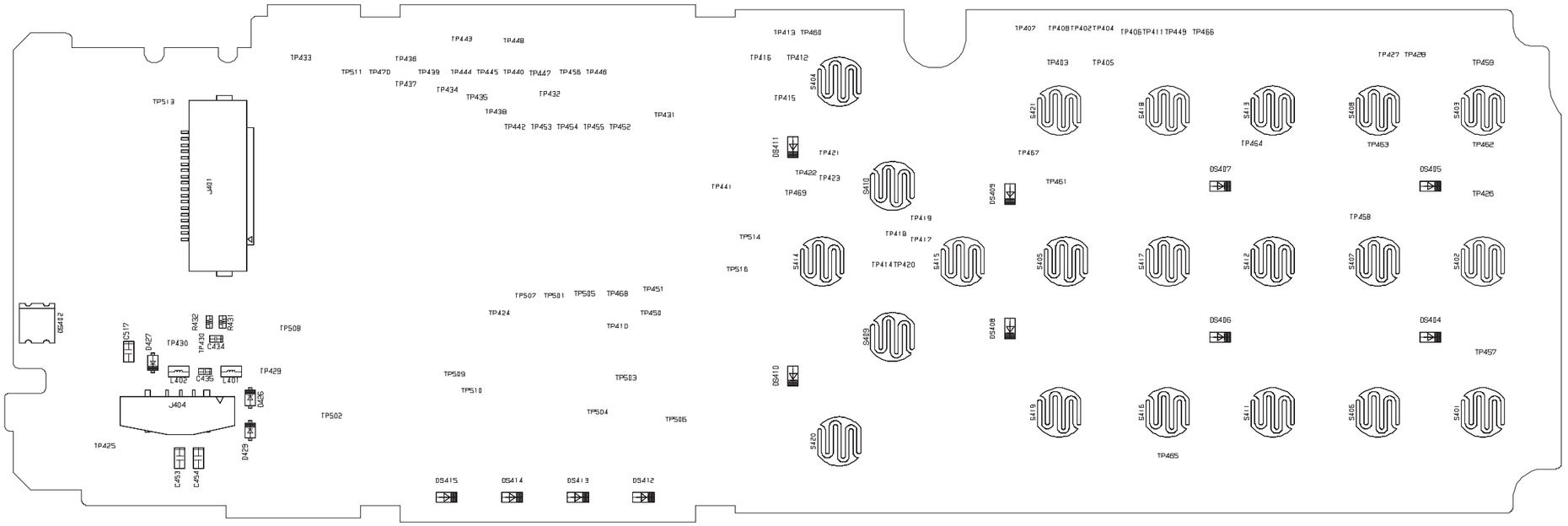


EG 060 h - back

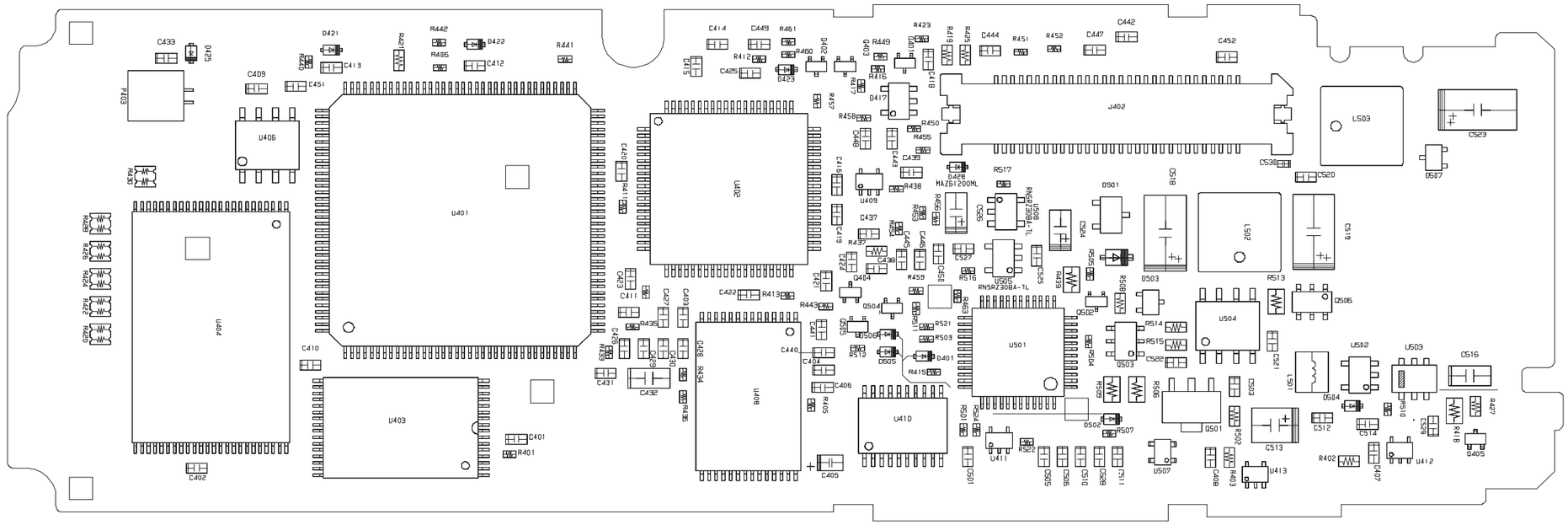


EG 06 8h - front

1 Logic

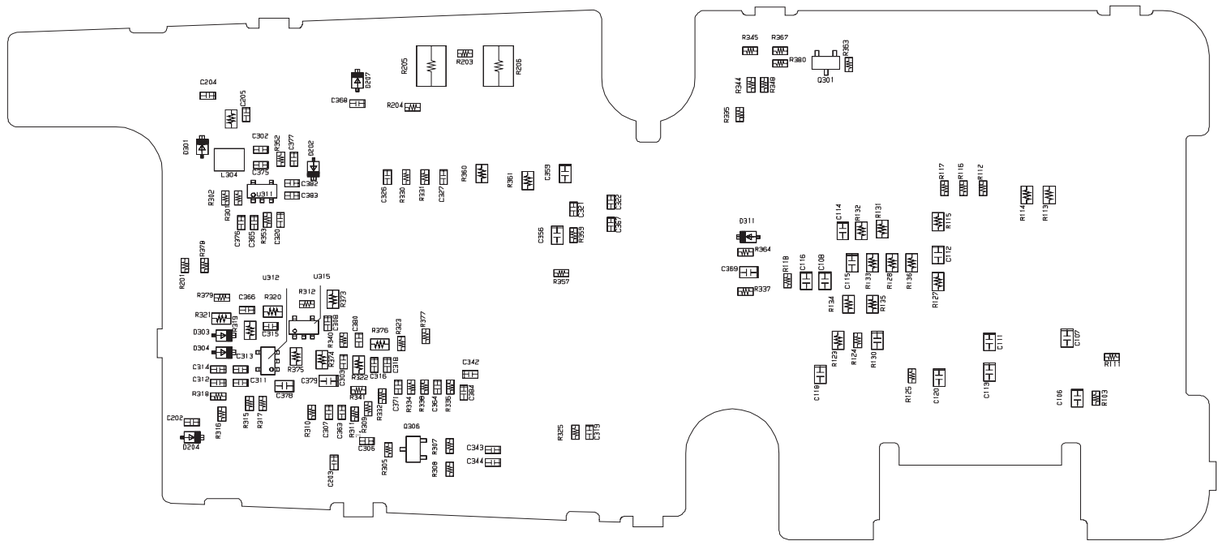


EG 06 8h - back

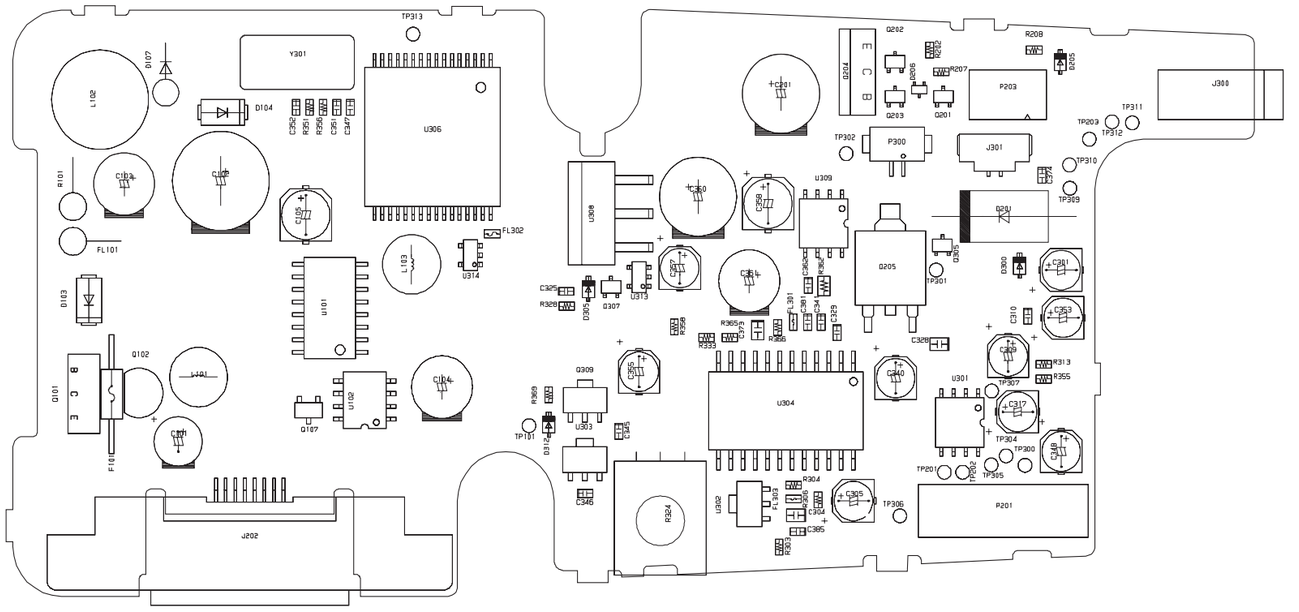


EG 06 8h - front

9 2 H

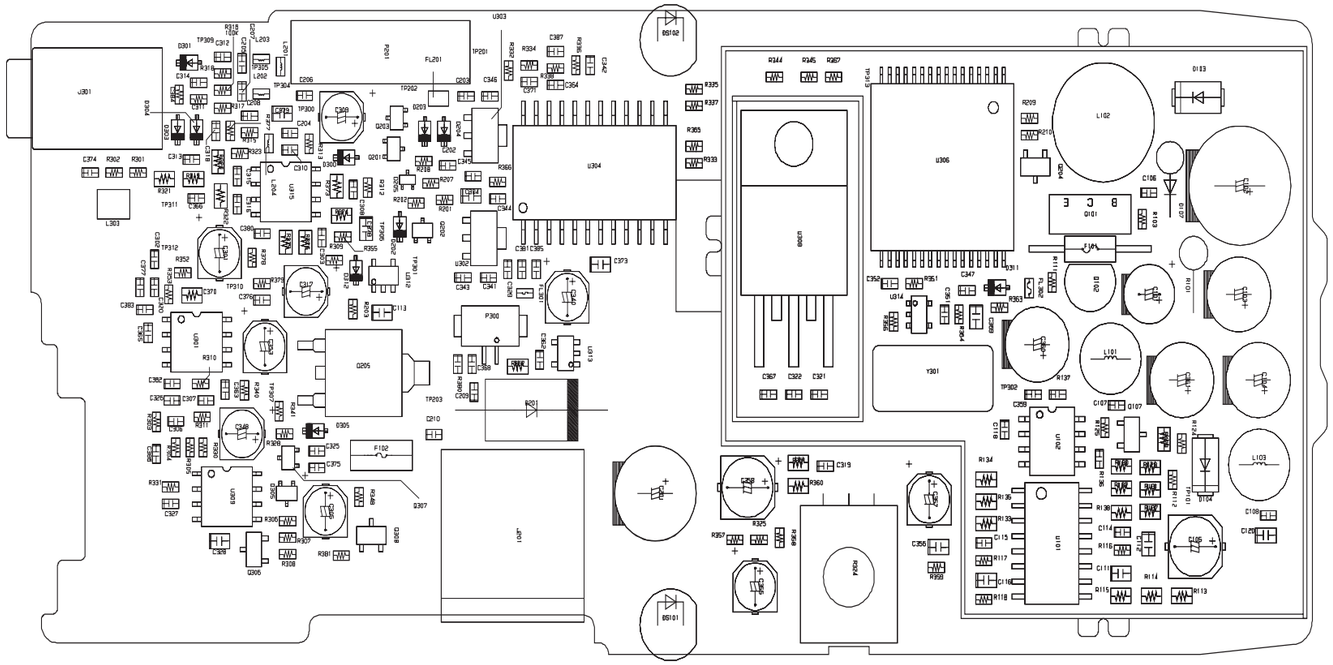


EG 0696d- back



EG 0696d- front

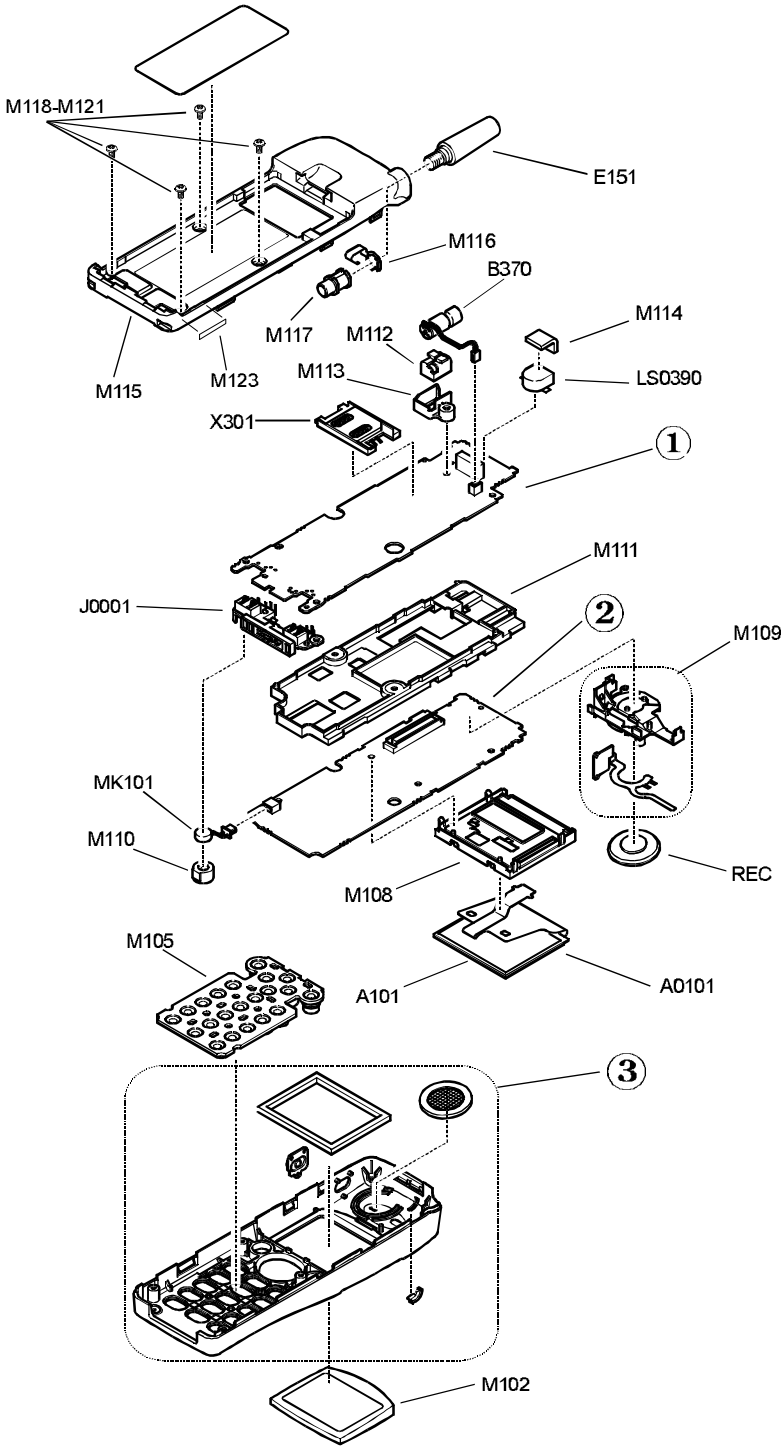
93 E F H



EG 0 16f - front (Singe sided)

10 PARTS LIST

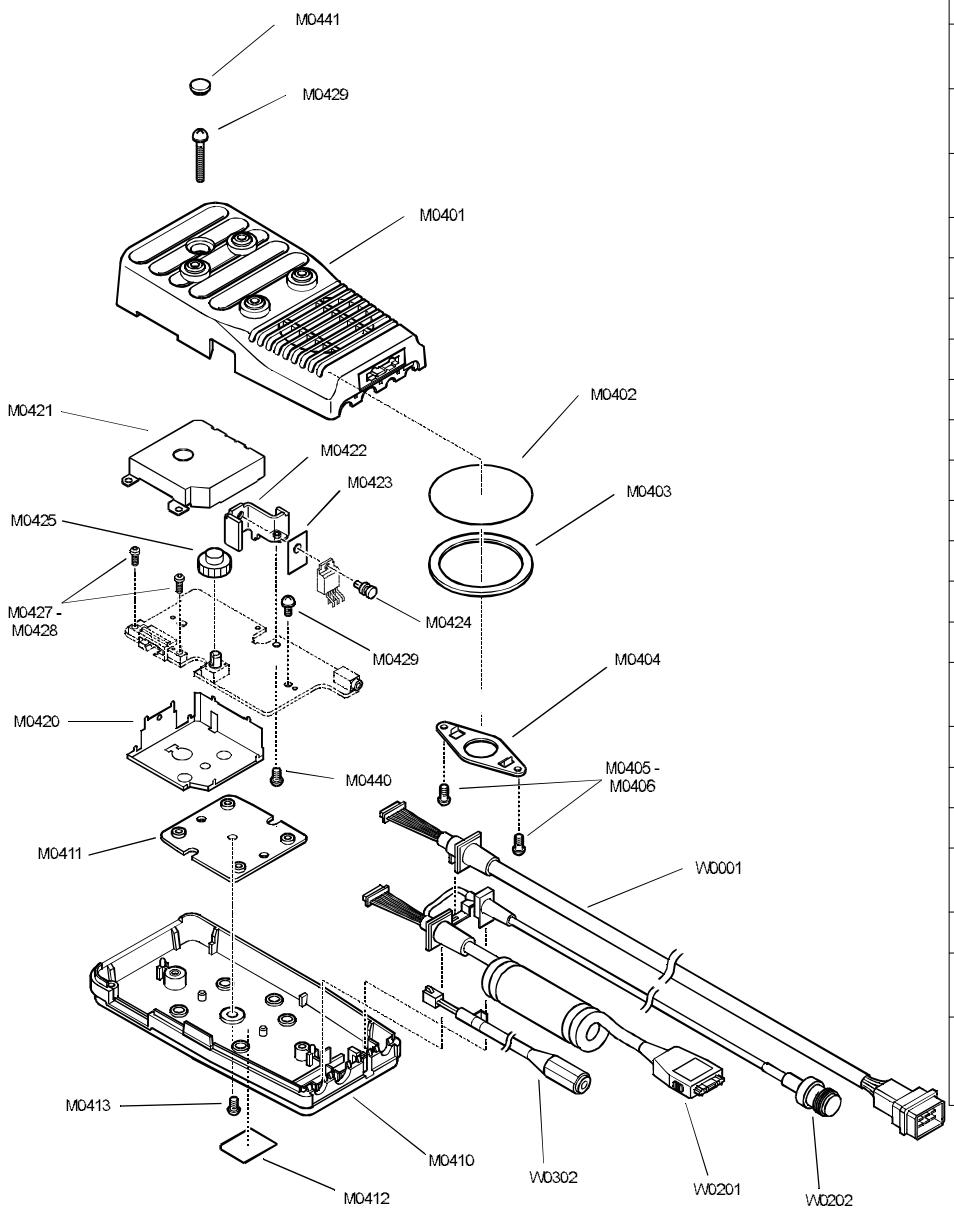
10.1 Handheld Unit



Ref.	Parts No	Name
1	G600RFAS01	Assembled RF PCB
2	G600LOGAS01	Assembled Logic PCB
3	G600CVR01G G600CVR01B	Cover Assy – Black Cover Assy – Blue
A0101	AA70048A	LCD Module
B370	BD70025A	Vibrator Motor Assembly
E151	AN70073A	Fixed Antenna
REC	HH70007A	Receiver
X301	JS8A00005	SIM Holder
J0001	JA70047A	I/O Connector
LS0390	HB70010A	Buzzer
M102	5P70094A	LCD Panel
M105	5V70105AB 5V70105AA	Key Sheet - Gold Key Sheet - Blue
M108	5S70070A	LCD Backlight
M109	5670019A	Receiver Holder
M110	5X70019A	Mic Bushing
M111	5Q70055A	Chassis
M112	5Y70110A	Vibrator Holder
M113	5X70020A	Vibrator Bushing
M114	5E70164A	Buzzer Cushion
M115	5M70145B	Case
M116	1D70220A	Antenna Terminal
M117	4G70003B	Antenna Holder
M123	G5MDS002C	Patent Label
M118 - M121	3Z70027A	Screw
MK101	WM62CCT505	Microphone Assy

Figure 1: Handheld Unit 600-1001

10.2 Handsfree Unit



Ref.	Parts No	Name
M0401	5N70086A	Cover
M0402	6V10031A	Speaker net
M0403	4R8209B	Speaker packing
M0404	1B70071A	Speaker bracket
M0405 –M0406	XTB256GFX	Screw (x2)
M0410	5M70076A	Case
M0411	1BC5819A	Plate
M0412	7X70119A	Name plate
M0413	XSB35FX	Screw
M0420	1C70128A	Shield Case 1
M0421	1C70129A	Shield Case 2
M0422	1E70008A	Radiator
M0423	5G10500A	Insulator
M0424	1M270900102	Clamp
M0425	5FJ5129AB	Volume knob
M0426	XYN3J6FX	Screw
M0427 –M0428	XTB2510GFX	Screw (x2)
M0429	XTB256GFX	Screw
M0440	XYN3F30FN	Screw
M0441	5U70008B	Top cushion
W0001	WP70005AZ	Power Supply Cable
W0201	WC70109A	Curly Cord
W0202	WC70110A	Interconnecting Cable
W0302	WG70003A	External Microphone Cable

Figure 2: Handsfree Unit 600-1002

10.3 Handheld Replacement Parts List

10.3.1 Logic

Model :	EB-G600	NAME :	Logic
Reference	**Part Number**	**Description**	**Remarks**
C0401	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0402	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0403	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0404	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0405	YCSJ3009M105	CAPACITOR 1uF + - 20% 16V TANTALUM TMCM-A	
C0406	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0407	YGM1C221J1HT	CAPACITOR	
C0408	YGM1C271J1HT	CAP CERAMIC 270pF +/-5% 50V SM 1608	
C0409	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0410	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0411	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0412	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0413	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0414	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0415	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0416	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0418	YGM1C470J1HT	CAPACITOR CHIP 47PF +/-5%	
C0419	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0420	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0421	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0422	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0423	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0424	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0425	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0426	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0427	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0428	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	

Model :	EB-G600	NAME :	Logic
Reference	**Part Number**	**Description**	**Remarks**
C0429	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0430	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0431	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0432	YGM3F475Z1AT	CAP CERAMIC 4.7UF 10V SM 1608	
C0433	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0434	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0434	YGM5C101J1HT	CAP 100PF +/-5% 50V CERAMIC SM1005	
C0434	YGM5C101K1HT	CAP 100PF +/-10% 50V CERAMIC SM 1005	
C0435	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0435	YGM5C101J1HT	CAP 100PF +/-5% 50V CERAMIC SM1005	
C0435	YGM5C101K1HT	CAP 100PF +/-10% 50V CERAMIC SM 1005	
C0436	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0436	YGM5C101J1HT	CAP 100PF +/-5% 50V CERAMIC SM1005	
C0436	YGM5C101K1HT	CAP 100PF +/-10% 50V CERAMIC SM 1005	
C0437	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0438	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0439	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0440	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0441	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0442	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0443	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0444	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0445	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0446	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0447	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0448	ECUV1H102KBV	CAP 1nF +/-10% 50V X7R SM 0603	
C0449	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0450	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0451	ECUV1H102KBV	CAP 1nF +/-10% 50V X7R SM 0603	
C0452	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0501	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	

Model :	EB-G600	NAME :	Logic
Reference	**Part Number**	**Description**	**Remarks**
C0503	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0505	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0506	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0510	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0511	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0512	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0513	YCSJ3007M226	CAPACITOR 22uF + - 20% 16V TANTALUM TMCM-A	
C0514	YGM1C101J1HT	CAP CERAMIC 100pF +/-5% 50V SM 1608	
C0516	YCCSM028Z106	CAPACITOR 10uF 10V SM3216	
C0517	YGM1C470J1HT	CAPACITOR CHIP 47PF +/-5%	
C0518	YCSJ3010M156	CAPACITOR 15uF + - 20% 16V TANTALUM TMCM-A	
C0519	YCSJ3010M156	CAPACITOR 15uF + - 20% 16V TANTALUM TMCM-A	
C0520	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0521	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0522	YGM1C221J1HT	CAPACITOR	
C0523	YCSJ3006M686	CAPACITOR 68uF + - 20% 16V TANTALUM TMCM-A	
C0524	YCSJ3004M156	CAPACITOR 15uF + - 20% 7V TANTALUM TMCM-A	
C0525	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0526	YCSJ3004M156	CAPACITOR 15uF + - 20% 7V TANTALUM TMCM-A	
C0527	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0528	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0529	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
D0401	YDRTU0005	30V 200mA DIODE	
D0417	YHZM6.8FATR	6.8V 200mW DIODE	
D0421	YDRTU0005	30V 200mA DIODE	
D0422	YDRTU0005	30V 200mA DIODE	
D0423	YDRTU0005	30V 200mA DIODE	

Model :	EB-G600	NAME :	Logic
Reference	**Part Number**	**Description**	**Remarks**
D0425	MAZS0470GL	ZENER DIODE 4V7 SM 1608	
D0428	MAZS0470GL	ZENER DIODE 4V7 SM 1608	
D0501	YRB491DT146	20V 1A DIODE	
D0502	YDRTU0005	30V 200mA DIODE	
D0503	YRB461FT106	20V 700mA DIODE	
D0504	YDRTU0005	30V 200mA DIODE	
D0505	YDRTU0005	30V 200mA DIODE	
D0506	YDRTU0005	30V 200mA DIODE	
D0507	YRB461FT106	20V 700mA DIODE	
DS0402	CL155URGDT	2 COLOUR LED 5V 25mA 3.2Lx2.7Wx1.1H	
DS0404	SML310MWT86	2.2V 20mA GREEN LED	
DS0405	SML310MWT86	2.2V 20mA GREEN LED	
DS0406	SML310MWT86	2.2V 20mA GREEN LED	
DS0407	SML310MWT86	2.2V 20mA GREEN LED	
DS0408	SML310MWT86	2.2V 20mA GREEN LED	
DS0409	SML310MWT86	2.2V 20mA GREEN LED	
DS0410	SML310MWT86	2.2V 20mA GREEN LED	
DS0411	SML310MWT86	2.2V 20mA GREEN LED	
DS0412	SML310MWT86	2.2V 20mA GREEN LED	
DS0413	SML310MWT86	2.2V 20mA GREEN LED	
DS0414	SML310MWT86	2.2V 20mA GREEN LED	
DS0415	SML310MWT86	2.2V 20mA GREEN LED	
DS0426	MAZS0470GL	ZENER DIODE 4V7 SM 1608	
DS0427	MAZS0470GL	ZENER DIODE 4V7 SM 1608	
FLASH	G600ROM01	G600 FLASH ROM (PROGRAMMED)	
J0401	528931890	CONNECTOR 18WAY MOLEX	
J0402	528830608	60 PIN 500mA CONNECTOR	
J0404	525590692	6 PIN FPCB CONNECTOR	
L0401	LL1608FH82NK	INDUCTOR 82nH +/-10% SM1608	
L0402	LL1608FH82NK	INDUCTOR 82nH +/-10% SM1608	
L0501	LQH3C101KT	CHIP COIL 100uH +/-10% SM 3.2Lx2.5Wx2.0H	

Model :	EB-G600	NAME :	Logic
Reference	**Part Number**	**Description**	**Remarks**
L0502	LC70005A	10UH 712mA INDUCTOR	
L0503	LC70006A	68UH 320mA INDUCTOR	
LCD	G600LCDPA01	G500 LCD PRE ASSEMBLY	
LOGIC	G600LOG02	G6 LOGIC SIDE 1 & 2 COMPLETE	
LOGIC	G600LOG01	G6 LOGIC SIDE 1 COMPLETE	
MIC	G600MICPA01	G600 HANDHELD MICROPHONE ASSEMBLY	
P0403	PAMU00001	2 PIN 700 mA CONNECTOR	
PCB	EG70638F	G600 LOGIC BARE PCB	
Q0401	2SA1774TLR	TRANSISTOR PNP EM3	
Q0401	2SB1462JTX	TRANSISTOR PNP SS-MINI	
Q0402	UN9213JTX	150MHz 50V 125mW TRANSISTOR	
Q0403	UN921MJTX	150MHz 50V 125mW TRANSISTOR	
Q0404	UN9213JTX	150MHz 50V 125mW TRANSISTOR	
Q0405	UN9213JTX	150MHz 50V 125mW TRANSISTOR	
Q0501	2SB1073QRTX	TRANSISTOR	
Q0502	2SD2216TX	150MHz 50V 125mW NPN TRANSISTOR	
Q0503	YSI3441DVT1	TRANSISTOR PWR MOSFET -20V 2W	
Q0504	UN9213JTX	150MHz 50V 125mW TRANSISTOR	
Q0505	UN9113JTX	150MHz 50V 125mW TRANSISTOR	
Q0506	YSI3455DVT1	TRANSISTOR PWR MOSFET -30V 2W	
R0401	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0402	ERJ3GEYJ221V	CHIP RESISTOR 220 OHM +/-5% 1/16W SM1608	
R0403	ERJ3GEYJ221V	CHIP RESISTOR 220 OHM +/-5% 1/16W SM1608	
R0405	ERJ2GEJ473X	CHIP RESISTOR 47K OHM +/-5% 1/16W SM 1005	
R0406	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0411	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0412	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0413	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0414	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0415	ERJ2GEJ223X	CHIP RESISTOR 22K OHM 1005 +/-5% 1/16W	

Model :	EB-G600	NAME :	Logic
Reference	**Part Number**	**Description**	**Remarks**
R0416	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0417	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0418	ERJ6GEYJ151V	CHIP RESISTOR 150 OHM +/-5% 1/10W SM 2012	
R0419	ERJ3GEYJ182V	CHIP RESISTOR 1K8 OHM +/-5% 1/16W SM 1608	
R0419	ERJ3GEYJ332V	CHIP RESISTOR 3K3 OHM +/-5% 1/16W SM 1608	
R0420	EXBV4V331JV	CHIP 2 RESISTOR ARRAY 330 OHM +/-5% 62.5MW 1608	
R0421	ERJ3GEYJ470V	CHIP RESISTOR 47 OHM +/-5% 1/16W SM1608	
R0422	EXBV4V331JV	CHIP 2 RESISTOR ARRAY 330 OHM +/-5% 62.5MW 1608	
R0423	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0423	ERJ3GEYJ181V	CHIP RESISTOR 180 OHM +/-5% 1/16W SM1608	
R0424	EXBV4V331JV	CHIP 2 RESISTOR ARRAY 330 OHM +/-5% 62.5MW 1608	
R0425	ERJ2GEJ391X	CHIP RESISTOR 390 OHM +/-5% 1/16W SM1005	
R0425	ERJ3GEYJ221V	CHIP RESISTOR 220 OHM +/-5% 1/16W SM1608	
R0426	EXBV4V331JV	CHIP 2 RESISTOR ARRAY 330 OHM +/-5% 62.5MW 1608	
R0427	ERJ3GEYJ271V	CHIP RESISTOR 270 OHM +/-5% 1/16W SM 1608	
R0428	EXBV4V331JV	CHIP 2 RESISTOR ARRAY 330 OHM +/-5% 62.5MW 1608	
R0430	EXBV4V331JV	CHIP 2 RESISTOR ARRAY 330 OHM +/-5% 62.5MW 1608	
R0431	ERJ3GEYJ120V	CHIP RESISTOR 12 OHM +/-5% 1/16W SM1608	
R0431	ERJ2GEJ120X	CHIP RESISTOR 12 OHM +/-5% 1/16W SM 1005	
R0432	ERJ3GEYJ120V	CHIP RESISTOR 12 OHM +/-5% 1/16W SM1608	
R0432	ERJ2GEJ120X	CHIP RESISTOR 12 OHM +/-5% 1/16W SM 1005	
R0433	ERJ2GEJ152X	CHIP RESISTOR 1K5 OHM +/-5% 1/16W SM1005	
R0434	ERJ2GEJ152X	CHIP RESISTOR 1K5 OHM +/-5% 1/16W SM1005	
R0435	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0436	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	

Model :	EB-G600	NAME :	Logic
Reference	**Part Number**	**Description**	**Remarks**
R0437	ERJ3GEYJ332V	CHIP RESISTOR 3K3 OHM +/-5% 1/16W SM 1608	
R0438	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0439	ERJ6GEYJ102V	CHIP RESISTOR 1K OHM +/-5% 1/10W SM 2012	
R0440	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0441	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0442	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0443	ERJ2GEJ561X	CHIP RESISTOR 560 OHM +/-5% 1/16W SM 1005	
R0449	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0450	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0451	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0452	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0453	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0454	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0455	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0456	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0457	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0458	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0459	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0460	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0461	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0501	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0502	ERJ3GEYJ470V	CHIP RESISTOR 47 OHM +/-5% 1/16W SM1608	
R0503	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0504	ERJ2GEJ473X	CHIP RESISTOR 47K OHM +/-5% 1/16W SM 1005	
R0505	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0506	ERJ6GEYJ470V	CHIP RESISTOR 47 OHM +/-5% 1/10W SM 2012	
R0507	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0508	ERJ3GEYJ123V	CHIP RESISTOR 12K OHM +/-5% 1/16W SM1608	
R0509	YRNHP001FR15	250mW 0.15 OHM RESISTOR	

Model :	EB-G600	NAME :	Logic
Reference	**Part Number**	**Description**	**Remarks**
R0510	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0511	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0512	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0513	YRNHP001FR15	250mW 0.15 OHM RESISTOR	
R0514	ERJ3GEYF204V	CHIP RESISTOR 200K OHM +/-1% 1/16W SM 1608	
R0515	ERJ3GEYF334V	CHIP RESISTOR 330K OHM +/-1% 1/16W SM 1608	
R0516	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0517	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0521	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0523	ERJ2GE0R00X	CHIP RESISTOR 0 OHM 1/16W SM 1005	
RECEIVER	G600RECPA01	G600 RECEIVER PRE-ASSEMBLY	
U0401	YF711801	GSM BASEBAND CONTROLLER (GEMMINI) TQFP144	
U0402	UY70102A	GSM/DCS BASEBAND/RF IF (VEGA3+) TQFP80	
U0403	YUMSC0053	2MBIT 3V SRAM	
U0404	YUMQI0057	FLASH MEMORY 8Mb TSOP48	
U0404	YUMQI0070	FLASH MEMORY 16Mb TSOP48	
U0406	UM70023B	EEPROM G500 8 PIN SOIC	
U0408	YUY0B0001	CHIPCORDER IC	
U0409	YULLW0031	IC C2MOS BILATERAL SWITCH 200MW SSOP5-P-A	
U0410	YULLW0150	OCTAL D-FLIP FLOP	
U0410	YULT00004	OCTAL D-FLIP FLOP	
U0411	YULLW0039	NOR GATE	
U0412	YULLW0051	IC 2-INPUT OR GATE 200MW SSOP5-P-A	
U0413	YULLW0051	IC 2-INPUT OR GATE 200MW SSOP5-P-A	
U0501	UY70092A	BA3896KV CHARGING IC	
U0502	YURIH0022	REGULATOR STEP UP SM SOT23-5	
U0503	YURT00027	5.0V REGULATOR	
U0503	YTK11250BMCL	VOLTAGE REGULATOR 5.0V	
U0504	YMAX1627ESAT	DC-DC CONVERTER	

Model :	EB-G600	NAME :	Logic
Reference	**Part Number**	**Description**	**Remarks**
U0505	YRN5RZ30BATL	VOLTAGE REGULATOR 3.0V	
U0506	YRN5RZ30BATL	VOLTAGE REGULATOR 3.0V	
U0507	YURIH0028	VOLTAGE REGULATOR 2.7V	
U1	YTCM4400	GSM/DCS BASEBAND/RF IF (VEGA3) TQFP80	

10.3.2 RF

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
C0101	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0102	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0103	ECUV1H181JCV	CAPACITOR 180P	
C0104	ECUV1H181JCV	CAPACITOR 180P	
C0107	YGM1C390J1HT	CAPACITOR 39PF 1608 +/-5% 50V	
C0108	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0109	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0110	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0111	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0112	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0113	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0114	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0115	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0116	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0117	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0118	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0119	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0120	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0121	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0122	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0123	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0124	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0125	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0126	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0127	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0128	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0129	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
C0130	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0133	YGM1C030C1HT	CAPACITOR 3PF 1608 +/- .25PF 50V	
C0134	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0135	YGM1C030C1HT	CAPACITOR 3PF 1608 +/- .25PF 50V	
C0150	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0152	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0153	YGM1C100D1HT	CAPACITOR 10PF 1608 +/- .5PF 50V	
C0154	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0155	ECUV1C333KBV	CAP 33nF +/-10% 16V X7R SM 0603	
C0156	ECUV1H221JCV	CAP 220pF +/-5% 50V NPO SM 0603	
C0157	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0158	YGM1C070D1HT	CAPACITOR	
C0159	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0160	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0162	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0163	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0164	ECUV1H561JCV	CAPACITOR 560P	
C0165	ECUV1H271JCV	CAP 270pF +/-5% 50V NPO SM 0603	
C0166	ECUV1H331JCV	CAP 330pF +/-5% 50V NPO SM 0603	
C0167	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0168	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0170	YCSJ3008M106	CAPACITOR 10uF + - 20% 16V TANTALUM TMCM-A	
C0171	YCSJ3008M106	CAPACITOR 10uF + - 20% 16V TANTALUM TMCM-A	
C0172	YGM1C070D1HT	CAPACITOR	
C0203	YGM1C010C1HT	CAPACITOR 1PF 1608 +/- .25PF 50V	
C0204	YGM1C040C1HT	CAPACITOR	
C0205	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0208	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0210	ECUV1H102KBV	CAP 1nF +/-10% 50V X7R SM 0603	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
C0211	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0212	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0214	YGM1C020C1HT	CAPACITOR 2PF 1608 +/- .25PF 50V	
C0215	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0216	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0217	YGM1C100D1HT	CAPACITOR 10PF 1608 +/- .5PF 50V	
C0219	ECUV1H102KBV	CAP 1nF +/-10% 50V X7R SM 0603	
C0220	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0221	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0222	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0223	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0224	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0225	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0226	YGM1C020C1HT	CAPACITOR 2PF 1608 +/- .25PF 50V	
C0229	YGM1C020C1HT	CAPACITOR 2PF 1608 +/- .25PF 50V	
C0230	YGM1C020C1HT	CAPACITOR 2PF 1608 +/- .25PF 50V	
C0232	YGM1C0R5C1HT	0.5PF CAPACITOR 1608 +/-.25PF	
C0234	YGM1C080D1HT	CAPACITOR 8PF 1608 +/- .5PF 50V	
C0235	YGM1C080D1HT	CAPACITOR 8PF 1608 +/- .5PF 50V	
C0236	ECUV1C333KBV	CAP 33nF +/-10% 16V X7R SM 0603	
C0237	ECUV1C333KBV	CAP 33nF +/-10% 16V X7R SM 0603	
C0238	YGM1C030C1HT	CAPACITOR 3PF 1608 +/- .25PF 50V	
C0239	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0240	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0242	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0244	YGM1C020C1HT	CAPACITOR 2PF 1608 +/- .25PF 50V	
C0245	YGM1C030C1HT	CAPACITOR 3PF 1608 +/- .25PF 50V	
C0250	YGM1C070D1HT	CAPACITOR	
C0251	YGM1C070D1HT	CAPACITOR	
C0252	YGM1C070D1HT	CAPACITOR	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
C0253	YGM1C070D1HT	CAPACITOR	
C0254	ECUV1H471JCV	CAP 470pF +/-5% 50V NPO SM 0603	
C0255	ECUV1H471JCV	CAP 470pF +/-5% 50V NPO SM 0603	
C0301	YCSPP001M335	CAP 3.3uF 16V TANT SM	
C0302	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0303	YCSJ3004M156	CAPACITOR 15uF + - 20% 7V TANTALUM TMCM-A	
C0304	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0305	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0306	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0307	YGM1C100D1HT	CAPACITOR 10PF 1608 +/- .5PF 50V	
C0308	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0309	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0310	YGM1C040C1HT	CAPACITOR	
C0311	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0313	ECUV1H561JCV	CAPACITOR 560P	
C0315	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0316	YGM3B225K1AT	CAP CERAMIC 2.2UF 10V SM	
C0317	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0318	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0319	YGM1C330J1HT	CAPACITOR 33PF 1608 +/-5% 50V	
C0320	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0321	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0322	ECUV1C393KBV	CAP 39nF +/-10% 16V X7R SM 0603	
C0323	YGM1C100D1HT	CAPACITOR 10PF 1608 +/- .5PF 50V	
C0324	ECUV1H271JCV	CAP 270pF +/-5% 50V NPO SM 0603	
C0325	ECUV1H562KBV	CAP 5n6 +/-10% 50V X7R SM 0603	
C0326	ECUV1H472KBV	CAP 4n7F +/-10% 50V X7R SM 0603	
C0327	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0328	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
C0329	YCSJ3002M106	CAPACITOR 10uF + - 20% 10V TANTALUM TMCM-A	
C0330	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0331	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0332	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0333	ECUV1C333KBV	CAP 33nF +/-10% 16V X7R SM 0603	
C0334	ECUV1C333KBV	CAP 33nF +/-10% 16V X7R SM 0603	
C0335	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0336	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0337	YGM1C150J1HT	CAPACITOR 15PF 1608 +/-5% 50V	
C0338	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0339	ECUV1H102KBV	CAP 1nF +/-10% 50V X7R SM 0603	
C0340	YGM1C120J1HT	CAPACITOR 12pF +/-5% 50V SM1608	
C0341	YGM1C030C1HT	CAPACITOR 3PF 1608 +/- .25PF 50V	
C0342	YGM1C100D1HT	CAPACITOR 10PF 1608 +/- .5PF 50V	
C0343	YGM1C100D1HT	CAPACITOR 10PF 1608 +/- .5PF 50V	
C0344	ECUV1H102KBV	CAP 1nF +/-10% 50V X7R SM 0603	
C0347	YGM1C030C1HT	CAPACITOR 3PF 1608 +/- .25PF 50V	
C0348	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0349	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0350	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0351	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0354	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0355	YCSPP001M335	CAP 3.3uF 16V TANT SM	
C0356	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0357	YCSJ3002M106	CAPACITOR 10uF + - 20% 10V TANTALUM TMCM-A	
C0358	YCSJ3002M106	CAPACITOR 10uF + - 20% 10V TANTALUM TMCM-A	
C0359	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0360	ECUV1H331JCV	CAP 330pF +/-5% 50V NPO SM 0603	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
C0361	YGM1C070D1HT	CAPACITOR	
C0362	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0363	YGM1C470J1HT	CAPACITOR CHIP 47PF +/-5%	
C0364	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0365	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0366	YGM3B225K1AT	CAP CERAMIC 2.2UF 10V SM	
C0367	YGM1F105Z1AT	CAP CERAMIC 1UF 10V SM 1608	
C0368	YGM1C070D1HT	CAPACITOR	
C0370	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0371	ECUV1C104KBV	CAP 100nF +/-10% 16V X7R SM 0603	
C0372	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0373	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0374	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0375	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0376	ECUV1H102KBV	CAP 1nF +/-10% 50V X7R SM 0603	
C0377	YGM1C820J1HT	CAP 82pF 5% 50V X7R SM1608	
C0378	YGM1C150J1HT	CAPACITOR 15PF 1608 +/-5% 50V	
C0379	YGM1C030C1HT	CAPACITOR 3PF 1608 +/- .25PF 50V	
C0380	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0381	ECUV1H103KBV	CAP 10nF +/-10% 50V X7R SM 0603	
C0382	ECUV1H102KBV	CAP 1nF +/-10% 50V X7R SM 0603	
C0383	YGM1C150J1HT	CAPACITOR 15PF 1608 +/-5% 50V	
C0384	YGM1C070D1HT	CAPACITOR	
C0390	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0391	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
C0392	YGM1C030C1HT	CAPACITOR 3PF 1608 +/- .25PF 50V	
C0394	YGM1C070D1HT	CAPACITOR	
C0395	ECUV1H101JCV	CAP 100pF +/-5% 50V NPO SM 0603	
CO345	YGM1C100D1HT	CAPACITOR 10PF 1608 +/- .5PF 50V	
D0101	YHSMS2805L31	DIODE	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
D0301	MA376TX	VARI CAP DOIDE S-MINI 2 PINS	
D0302	MA77TX	DIODE S-MINI 2 PINS	
D0303	MA77TX	DIODE S-MINI 2 PINS	
D0370	MA112TX	DIODE SWITCHING 40V 200MA SM 2-PIN S-MINI	
E0150	EYSM00012	G600 COUPLER	
FL0101	EFCH902MMNY5	SAW FILTER TX 902MHZ	
FL0102	EFCH902MMTY4	SAW FILTER TX 902MHZ	
FL0104	HWYN205	902MHz SAW FILTER	
FL0202	EFCH947MMNY6	SAW FILTER 947MHz SM 3.8 X 3.8	
FL0203	EFCH201MDQP1	SAW FILTER 201MHz -20 +70oC SM 10PIN	
J0001	JA70047A	G600 I/O CONNECTOR	
J0003	JAMU00001	G600 2 PIN 700mA CONNECTOR	
L0101	ELJRE39NJF2	INDUCTOR 39nH +/-5% SM1608	
L0102	ELJRE6N8ZF2	INDUCTOR 6n8H +/-0n2H SM1608	
L0103	ELJRE6N8ZF2	INDUCTOR 6n8H +/-0n2H SM1608	
L0104	ELJRE39NJF2	INDUCTOR 39nH +/-5% SM1608	
L0105	ELJRE39NJF2	INDUCTOR 39nH +/-5% SM1608	
L0106	ELJRE2N7DF2	INDUCTOR 3200MHZ 2.7NH	
L0107	ELJRE15NJF2	INDUCTOR 15nH +/-5% SM1608	
L0108	ELJRE10NJF2	INDUCTOR 2800MHZ 10NH	
L0150	ELJRE5N6ZF2	INDUCTOR 5n6H +/- 0n2H SM1608	
L0151	ELJRE15NJF2	INDUCTOR 15nH +/-5% SM1608	
L0152	ELJRE27NJF2	INDUCTOR 2000MHZ 27NH	
L0202	ELJRE3N9ZF2	INDUCTOR 3n9H 3100MHz SM1608	
L0203	ELJRE5N6ZF2	INDUCTOR 5n6H +/- 0n2H SM1608	
L0204	ELJRE22NJF2	INDUCTOR 22nH +/-5% SM1608	
L0205	ELJRE22NJF2	INDUCTOR 22nH +/-5% SM1608	
L0207	ELJNDR15JF	INDUCTOR	
L0208	ELJNDR10JF	INDUCTOR	
L0209	ELJND82NJF	INDUCTOR 82NH 800MHZ +/-5%	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
L0210	ELJNDR15JF	INDUCTOR	
L0211	ELJRE56NJF3	INDUCTOR 56nH 1500MHz SM1608	
L0211	ELJRE68NJF3	INDUCTOR 68nH 1500MHz SM1608	
L0212	ELJRE56NJF3	INDUCTOR 56nH 1500MHz SM1608	
L0212	ELJRE68NJF3	INDUCTOR 68nH 1500MHz SM1608	
L0301	ELJRE15NJF2	INDUCTOR 15nH +/-5% SM1608	
L0303	ELJRE3N9ZF2	INDUCTOR 3n9H 3100MHz SM1608	
L0304	ELJRE5N6ZF2	INDUCTOR 5n6H +/- 0n2H SM1608	
L0305	ELJRE8N2JF2	INDUCTOR 8n2H +/-5% SM1608	
L0306	ELJRE18NJF2	INDUCTOR 18nH +/-5% SM1608	
L0307	ELJRE39NJF2	INDUCTOR 39nH +/-5% SM1608	
LS0390	HB70010A	G600 BUZZER	
M0112	5X70020A	VIBRATOR BUSHING (CUSHION) G600	
M0113	5Y70110A	G600 VIBRATOR HOLDER	
M0114	5E70164A	BUZZER CUSHION G600	
P0002	536230608	60 PIN 500mA CONNECTOR	
Q0150	XP0331200L	DUAL TRANSISTOR NPN PNP 150mW S-MINI 5 TERMINALS	
Q0151	UN9213JTX	150MHz 50V 125mW TRANSISTOR	
Q0302	2SD2216TX	150MHz 50V 125mW NPN TRANSISTOR	
Q0303	2SD2345STTX	TRANSISTOR	
Q0304	XP0331200L	DUAL TRANSISTOR NPN PNP 150mW S-MINI 5 TERMINALS	
Q0305	YUPA801TT1	1GHz 20V 200mW TRANSISTOR	
Q0306	UN9213JTX	150MHz 50V 125mW TRANSISTOR	
Q0307	2SC4226T1B01	TRANSISTOR NPN SOT323	
Q0350	XP0338300L	TRANSISTOR NPN/PNP DUAL S-MINI 5 TERMS	
Q0370	2SD1511RSTX	TRANSISTOR NPN (DARLINGTON CONNECTION) SM	
R0101	ERJ2GEJ392X	CHIP RESISTOR 3K9 OHM +/-5% 1/16W SM 1005	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
R0102	ERJ2GEJ392X	CHIP RESISTOR 3K9 OHM +/-5% 1/16W SM 1005	
R0103	ERJ2GEJ153X	CHIP RESISTOR 15K OHM +/-5% 1/16W SM 1005	
R0104	ERJ2GEJ153X	CHIP RESISTOR 15K OHM +/-5% 1/16W SM 1005	
R0105	ERJ2GEJ153X	CHIP RESISTOR 15K OHM +/-5% 1/16W SM 1005	
R0106	ERJ2GEJ153X	CHIP RESISTOR 15K OHM +/-5% 1/16W SM 1005	
R0107	ERJ3GEY0R00V	CHIP RESISTOR 0 OHM 1/16W SM 1608	
R0108	ERJ3GEY0R00V	CHIP RESISTOR 0 OHM 1/16W SM 1608	
R0109	ERJ2GEJ151X	CHIP RESISTOR 150 OHM +/-5% 1/16W SM 1005	
R0110	ERJ2GEJ391X	CHIP RESISTOR 390 OHM +/-5% 1/16W SM1005	
R0111	ERJ2GEJ270X	CHIP RESISTOR 27 OHM +/-5% 1/16W SM 1005	
R0112	ERJ2GEJ222X	CHIP RESISTOR 2K2 OHM +/-5% 1/16W SM 1005	
R0113	ERJ2GEJ150X	CHIP RESISTOR 15 OHM +/-5% 1/16W SM 1005	
R0114	ERJ2GEJ122X	CHIP RESISTOR 1K2 OHM +/-5% 1/16W SM 1005	
R0115	ERJ2GEJ222X	CHIP RESISTOR 2K2 OHM +/-5% 1/16W SM 1005	
R0116	ERJ2GEJ222X	CHIP RESISTOR 2K2 OHM +/-5% 1/16W SM 1005	
R0117	ERJ2GEJ331X	CHIP RESISTOR 330 OHM 1005 +/-5% 1/16W	
R0118	ERJ2GE0R00X	CHIP RESISTOR 0 OHM 1/16W SM 1005	
R0151	ERJ2GEJ471X	CHIP RESISTOR 470 OHM 1005 +/-5% 1/16W	
R0152	ERJ2GEJ120X	CHIP RESISTOR 12 OHM +/-5% 1/16W SM 1005	
R0153	ERJ2GEJ471X	CHIP RESISTOR 470 OHM 1005 +/-5% 1/16W	
R0154	ERJ2GEJ472X	CHIP RESISTOR 3K7 OHM +/-5% 1/16W SM 1005	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
R0156	ERJ2GEJ561X	CHIP RESISTOR 560 OHM +/-5% 1/16W SM 1005	
R0157	ERJ2GEJ332X	CHIP RESISTOR 3K3 OHM +/-5% 1/16W SM1005	
R0158	ERJ2GEJ123X	CHIP RESISTOR 12K OHM +/-5% 1/16W SM 1005	
R0159	ERJ2GEJ472X	CHIP RESISTOR 3K7 OHM +/-5% 1/16W SM 1005	
R0161	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0162	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0163	ERJ2GEJ562X	CHIP RESISTOR 5.6K OHM 1005 +/-5% 1/16W	
R0164	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0165	ERJ2GEJ102X	CHIP RESISTOR 1K OHM 1005 +/-1% 1/16W	
R0166	ERJ2GEJ332X	CHIP RESISTOR 3K3 OHM +/-5% 1/16W SM1005	
R0167	ERJ2GEJ153X	CHIP RESISTOR 15K OHM +/-5% 1/16W SM 1005	
R0170	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0171	ERJ2GEJ823X	CHIP RESISTOR 82K OHM +/-5% 1/16W SM 1005	
R0202	ERJ2GEJ102X	CHIP RESISTOR 1K OHM 1005 +/-1% 1/16W	
R0204	ERJ2GEJ101X	CHIP RESISTOR 100 OHM +/-5% 1/16W SM 1005	
R0205	ERJ2GEJ101X	CHIP RESISTOR 100 OHM +/-5% 1/16W SM 1005	
R0206	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0207	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0208	ERJ3GEY0R00V	CHIP RESISTOR 0 OHM 1/16W SM 1608	
R0262	ERJ2GEJ273X	CHIP RESISTOR 27K OHM +/-5% 1/16W SM 1005	
R0263	ERJ2GEJ273X	CHIP RESISTOR 27K OHM +/-5% 1/16W SM 1005	
R0264	ERJ2GEJ273X	CHIP RESISTOR 27K OHM +/-5% 1/16W SM 1005	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
R0265	ERJ2GEJ273X	CHIP RESISTOR 27K OHM +/-5% 1/16W SM 1005	
R0266	ERJ2GEJ684X	CHIP RESISTOR 680K OHM +/-5% 1/16W SM 1005	
R0267	ERJ2GEJ684X	CHIP RESISTOR 680K OHM +/-5% 1/16W SM 1005	
R0268	ERJ2GEJ684X	CHIP RESISTOR 680K OHM +/-5% 1/16W SM 1005	
R0269	ERJ2GEJ684X	CHIP RESISTOR 680K OHM +/-5% 1/16W SM 1005	
R0270	ERJ3GEYJ682V	CHIP RESISTOR 6K8 OHM +/-5% 1/16W SM1608	
R0271	ERJ3GEYJ682V	CHIP RESISTOR 6K8 OHM +/-5% 1/16W SM1608	
R0272	ERJ3GEYJ682V	CHIP RESISTOR 6K8 OHM +/-5% 1/16W SM1608	
R0273	ERJ3GEYJ682V	CHIP RESISTOR 6K8 OHM +/-5% 1/16W SM1608	
R0301	ERJ2GEJ101X	CHIP RESISTOR 100 OHM +/-5% 1/16W SM 1005	
R0302	ERJ2GEJ472X	CHIP RESISTOR 3K7 OHM +/-5% 1/16W SM 1005	
R0303	ERJ2GEJ471X	CHIP RESISTOR 470 OHM 1005 +/-5% 1/16W	
R0304	ERJ2GEJ123X	CHIP RESISTOR 12K OHM +/-5% 1/16W SM 1005	
R0305	ERJ2GEJ153X	CHIP RESISTOR 15K OHM +/-5% 1/16W SM 1005	
R0306	ERJ2GEJ391X	CHIP RESISTOR 390 OHM +/-5% 1/16W SM1005	
R0307	ERJ2GEJ101X	CHIP RESISTOR 100 OHM +/-5% 1/16W SM 1005	
R0308	ERJ2GEJ151X	CHIP RESISTOR 150 OHM +/-5% 1/16W SM 1005	
R0309	ERJ2GEJ150X	CHIP RESISTOR 15 OHM +/-5% 1/16W SM 1005	
R0310	ERJ2GEJ150X	CHIP RESISTOR 15 OHM +/-5% 1/16W SM 1005	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
R0311	ERJ2GEJ150X	CHIP RESISTOR 15 OHM +/-5% 1/16W SM 1005	
R0312	ERJ2GEJ472X	CHIP RESISTOR 3K7 OHM +/-5% 1/16W SM 1005	
R0313	ERJ2GEJ123X	CHIP RESISTOR 12K OHM +/-5% 1/16W SM 1005	
R0314	ERJ2GEJ821X	CHIP RESISTOR 820 OHM +/-5% 1/16W SM 1005	
R0316	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0317	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0318	ERJ2GEJ104X	CHIP RESISTOR 100K OHM 1005 +/-1% 1/16W	
R0319	ERJ2GEJ470X	CHIP RESISTOR 47 OHM 1005 +/-5% 1/16W	
R0320	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0321	ERJ2GEJ221X	CHIP RESISTOR 220 OHM +/-5% 1/16W SM 1005	
R0322	ERJ2GEJ822X	CHIP RESISTOR 8K2 OHM +/-5% 1/16W SM 1005	
R0323	ERJ2GEJ472X	CHIP RESISTOR 3K7 OHM +/-5% 1/16W SM 1005	
R0324	ERJ2GEJ393X	CHIP RESISTOR 39K OHM +/-5% 1/16W SM 1005	
R0325	ERJ2GEJ392X	CHIP RESISTOR 3K9 OHM +/-5% 1/16W SM 1005	
R0326	ERJ2GEJ392X	CHIP RESISTOR 3K9 OHM +/-5% 1/16W SM 1005	
R0327	ERJ2GEJ151X	CHIP RESISTOR 150 OHM +/-5% 1/16W SM 1005	
R0328	ERJ2GEJ222X	CHIP RESISTOR 2K2 OHM +/-5% 1/16W SM 1005	
R0329	ERJ2GEJ222X	CHIP RESISTOR 2K2 OHM +/-5% 1/16W SM 1005	
R0330	ERJ2GEJ822X	CHIP RESISTOR 8K2 OHM +/-5% 1/16W SM 1005	
R0331	ERJ2GEJ221X	CHIP RESISTOR 220 OHM +/-5% 1/16W SM 1005	
R0332	ERJ2GEJ222X	CHIP RESISTOR 2K2 OHM +/-5% 1/16W SM 1005	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
R0333	ERJ2GEJ222X	CHIP RESISTOR 2K2 OHM +/-5% 1/16W SM 1005	
R0334	ERJ2GEJ121X	CHIP RESISTOR 120 OHM +/-5% 1/16W SM 1005	
R0335	ERJ2GEJ270X	CHIP RESISTOR 27 OHM +/-5% 1/16W SM 1005	
R0336	ERJ2GEJ181X	CHIP RESISTOR 180 OHM +/-5% 1/16W SM 1005	
R0337	ERJ2GEJ682X	CHIP RESISTOR 6K8 OHM +/-5% 1/16W SM 1005	
R0338	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0339	ERJ2GEJ682X	CHIP RESISTOR 6K8 OHM +/-5% 1/16W SM 1005	
R0340	ERJ2GEJ392X	CHIP RESISTOR 3K9 OHM +/-5% 1/16W SM 1005	
R0341	ERJ2GEJ392X	CHIP RESISTOR 3K9 OHM +/-5% 1/16W SM 1005	
R0342	ERJ2GEJ270X	CHIP RESISTOR 27 OHM +/-5% 1/16W SM 1005	
R0354	ERJ2GEJ103X	CHIP RESISTOR 10K OHM 1005 +/-5% 1/16W	
R0370	ERJ2GEJ182X	CHIP RESISTOR 1K8 OHM +/-5% 1/16W SM 1005	
R0371	ERJ2GEJ183X	CHIP RESISTOR 18K OHM +/-5% 1/16W SM 1005	
R160	ERJ2GEJ560X	CHIP RESISTOR 56 OHM +/-5% 1/16W SM 1005	
RF PCB	G600RF02	G6 RF SIDE 1 & 2 COMPLETE	
RF PCB	G600RF01	G600 RF SIDE 1 COMPLETE	
S0370	SY70049A	G600 SM REED SWITCH	
U0101	YUALW0001	IC SINGLE OP AMP +/-6V DC SSOP5-P	
U0102	YPMB2240F	IC GSM TX P-TQFP-48	
U0103	YUPC2771TE3	TRANSISTOR BIPOLAR SM 8 PIN MINI	
U0104	YPF01413TB	PA MODULE	
U0105	YMC33072D	IC QUAD OP-AMPS SINGLE SUPPLY SM SO8	
U0201	YPMB2450V1.1	RX IC	

MODEL:	EB-G600	NAME :	RF
Reference	**Part Number**	**Description**	**Remarks**
BARE-PCB	EG70607G	G600 RF BARE PCB	
U0301	YTK11230BMCL	3V REGULATOR	
U0302	YMAA3137A	13MHz TCXO	
U0302	YMAA3132A	13MHz TCXO	
U0303	UY70123A	G600 VCO	
U0304	YMRF1C0916T1	RF AMPLIFIER 6V 100mW	
U0305	YUYQI0005	IC PLL 1.2GHz SM SSOP16	
U0350	YTK11230BMCL	3V REGULATOR	
U0351	YTK11230BMCL	3V REGULATOR	
VIBRATOR	G600VIBPA01	G600 VIBRATOR PRE ASSEMBLY	
X0301	JS8A00005	G600 SIM HOLDER	

10.3.3 Mechanical

MODEL:	EB-G600	**NAME:**	Mechanical
Reference	**Part Number**	**Description**	**Remarks**
A0101	AA70048A	LCD MODULE G600	
E0151	AN70073A	FIXED ANTENNA	
FLEXI	EF70037A	G600 BUZZER ASSEMBLY FLEXI	
LOGIC	G600LOGAS01	G600 LOGIC COMPLETE	
M0108	5S70070A	LCD BACKLIGHT G600	
M0109	5Y70109A	G600 RECEIVER HOLDER	
M0110	5X70019A	MIC BUSHING (HOLDER)	
M0111	5Q70055A	G600 CHASSIS	
M0115	5M70145A	CASE G600	
M0116	1D70220A	G600 ANTENNA TERMINAL	
M0117	4G70003B	ANTENNA HOLDER G600	
M0122	G5MDS002	PATENT LABEL	
M0123	G5MDS002B	PATENT LABEL	
MK0101	WM62CCT505	MICROPHONE 2.2K 44DB	
RECEIVER	HH70007A	G600 RECEIVER	
RF PCB	G600RFAS01	G600 RF COMPLETE	

10.4 Handsfree Replacement Parts List

10.4.1 Handsfree Unit

MODEL	EB-HF600 EB-HF450	**NAME**:			Handsfree Unit
Ref.	**Part No.**	**Description**			**Remarks**
C0101	ECA1HFQ330	CAPACITOR	1µF	50V	
C0102	EEUFA1H121E	CAPACITOR	1µF	50V	
C0103	ECA1CFQ121	CAPACITOR	120nF	16V	
C0104	ECA1CFQ121	CAPACITOR	120nF	16V	
C0105	ECEA0JKG330	CAPACITOR	1µF	6.3V	
C0106	YGM2B103K1HT	CAPACITOR	10nF	50V	
C0107	YGM2B103K1HT	CAPACITOR	10nF	50V	
C0108	YGM2B103K1HT	CAPACITOR	10nF	50V	
C0111	YGM2F104Z1HT	CAPACITOR	100nF	50V	
C0112	YGM2F104Z1HT	CAPACITOR	100nF	50V	
C0113	YGM2F104Z1HT	CAPACITOR	100nF	50V	
C0114	YGM2B104K1ET	CAPACITOR	0.1µF	25V	
C0115	YGM2B104K1ET	CAPACITOR	0.1µF	25V	
C0116	YGM2B102K1HT	CAPACITOR	1nF	50V	
C0117	YGM2B103K1HT	CAPACITOR	10nF	50V	
C0118	YGM2B103K1HT	CAPACITOR	10nF	50V	
C0120	YGM2F104Z1HT	CAPACITOR	100nF	50V	
C0201	ECEA1EGE331	CAPACITOR	330µF	25V	
C0202	YGM1B103K1HT	CAPACITOR	10nF	50V	
C0301	ECEV1CG100GR	CAPACITOR	10µF	16V	
C0302	ECUV1H472KBV	CAPACITOR	0.47µF	50V	
C0304	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0305	ECEV1HG010GR	CAPACITOR	1µF	50V	
C0306	YGM1B222K1HT	CAPACITOR	2.2nF	50V	
C0307	YGM1B821K1HT	CAPACITOR	820pF	50V	

MODEL	EB-HF600 EB-HF450	**NAME**:			Handsfree Unit
Ref.	**Part No.**	**Description**			**Remarks**
C0308	ECEV1CG100GR	CAPACITOR	10µF	16V	
C0309	ECEV1HG010GR	CAPACITOR	1µF	50V	
C0310	YGM1C101J1HT	CAPACITOR	100pF	50V	
C0311	YGM1C101J1HT	CAPACITOR	100pF	50V	
C0312	YGM1C101J1HT	CAPACITOR	100pF	50V	
C0313	YGM1B103K1HT	CAPACITOR	0.01µF	50V	
C0314	YGM1B103K1HT	CAPACITOR	0.01µF	50V	
C0315	YGM1B332K1HT	CAPACITOR	3.3nF	50V	
C0316	YGM1B332K1HT	CAPACITOR	3.3nF	50V	
C0317	ECEV1CG100GR	CAPACITOR	10µF	16V	
C0318	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0319	YGM2B474K1CT	CAPACITOR	0.47µF	25V	
C0325	YGM1C101J1HT	CAPACITOR	100pF	50V	
C0326	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0327	YGM1B102K1HT	CAPACITOR	1nF	50V	
C0328	ECEV1HGR33GR	CAPACITOR	0.33µF	50V	
C0329	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0340	ECEV1CG100GR	CAPACITOR	10µF	16V	
C0341	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0342	ECEV1CG100GR	CAPACITOR	10µF	16V	
C0343	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0344	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0345	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0346	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0347	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0348	ECEV1CG100GR	CAPACITOR	10µF	16V	
C0349	YGM1B102K1HT	CAPACITOR	1nF	50V	
C0351	YGM1C100D1HT	CAPACITOR	10pF	50V	

MODEL	EB-HF600 EB-HF450	**NAME**:			Handsfree Unit
Ref.	**Part No.**	**Description**			**Remarks**
C0352	YGM1C100D1HT	CAPACITOR	10pF	50V	
C0353	ECEV1CG100GR	CAPACITOR	10µF	16V	
C0355	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0356	YGM1B183K1CT	CAPACITOR	0.01µF	16V	
C0357	ECEV1HG010GR	CAPACITOR	1µF	50V	
C0358	ECEV0JG220GR	CAPACITOR	22µF	6.3V	
C0359	YGM2F104Z1HT	CAPACITOR	100nF	50V	
C0360	ECEA1EGE221	CAPACITOR	220µF	25V	
C0361	ECEA1EGE221	CAPACITOR	220µF	25V	
C0362	YGM1B104K1CT	CAPACITOR	0.1µF	25V	
C0363	YGM1C220J1HT	CAPACITOR	22pF	50V	
C0364	YGM1C220J1HT	CAPACITOR	22pF	50V	
C0365	YGM1C220J1HT	CAPACITOR	22pF	50V	
C0366	YGM1C220J1HT	CAPACITOR	22pF	50V	
C0367	YGM1C220J1HT	CAPACITOR	22pF	50V	
C0368	YGM1C220J1HT	CAPACITOR	22pF	50V	
C0369	YGM2B474K1CT	CAPACITOR	0.47µF	25V	
C0371	YGM1C220J1HT	CAPACITOR	22pF	50V	
C0372	YGM2B474K1CT	CAPACITOR	0.47µF	25V	
C0373	YGM2B474K1CT	CAPACITOR	0.47µF	25V	
C0374	YGM1C101J1HT	CAPACITOR	100pF	50V	
C0375	YGM1C101J1HT	CAPACITOR	100pF	50V	
C0376	YGM1C220J1HT	CAPACITOR	22pF	50V	
C0377	YGM1C101J1HT	CAPACITOR	100pF	50V	
C0378	YGM1B104K1CT	CAPACITOR	0.1µF	16V	
C0379	YGM1B104K1CT	CAPACITOR	0.1µF	16V	
C0380	YGM1C101J1HT	CAPACITOR	100pF	50V	

MODEL	EB-HF600 EB-HF450	NAME:			Handsfree Unit
Ref.	**Part No.**	**Description**			**Remarks**
D0103	YSFPB64V	DIODE			
D0104	YSFPB64V	DIODE			
D0107	MA7100ATR	DIODE			
D0201	YRM3LF014102	DIODE			
D0202	MA8160MTX	ZENER DIODE			
D0204	MA8120TX	DIODE			
D0205	MA8330TX	DIODE			
D0206	MA132ΩKTX	DIODE			
D0207	MA8330TX	DIODE			
D0300	MA8120TX	DIODE			
D0301	MA8120TX	DIODE			
D0303	MA8120TX	DIODE			
D0304	MA8120TX	DIODE			
D0305	MA8120TX	DIODE			
D0311	MA732TX	DIODE			
D0312	MA8120TX	DIODE			
F0101	U25	FUSE	2.5A		
FL0101	BL02RN1R62	OCTAL BUS DRV			
J0300	HSJ1080110	FILTER			
L0101	RCH664470K	INDUCTOR	47µH	12MHz	
L0102	RCR110D221L	INDUCTOR	220µH	3.1MHz	
L0103	RCH664470K	INDUCTOR	47µH	12MHz	
LS0301	VS45U0208	SPEAKER			
P0201	LY2016PDT1P1	PLUG	16WAY	3A	

MODEL	EB-HF600 EB-HF450	NAME:		Handsfree Unit
Ref.	**Part No.**	**Description**		**Remarks**
P0202	JA70028A	CONNECTOR		
P0203	DF116DP2DSA	CONNECTOR	6WAY	
P0300	PAPS00218	CONNECTOR		
P0301	533980290	CONNECTOR		
Q0101	2SB1142RS	TRANSISTOR		
Q0102	2SD1835ST	TRANSISTOR		
Q0107	2SD601AQSTX	TRANSISTOR		
Q0201	YDTC144EUTX	TRANSISTOR		
Q0202	YDTA144EUTX	TRANSISTOR		
Q0203	YDTC114EUTX	TRANSISTOR		
Q0204	2SB931PQR	TRANSISTOR		
Q0205	2SD1755PYTX	TRANSISTOR		
Q0305	YDTA144EUTX	TRANSISTOR		
Q0306	2SD602ATX	TRANSISTOR		
Q0307	YDTA144EUTX	TRANSISTOR		
Q0308	YDTC144EUTX	TRANSISTOR		
Q0309	2SD874AQSTX	TRANSISTOR		
R0101	ERX1SGR68U	RESISTOR	0.68Ω	
R0102	EVM7LSX00B53	RESISTOR	5kΩ	
R0103	ERJ3GEYJ334V	RESISTOR	330kΩ	
R0111	ERJ3GEYJ102V	RESISTOR	1kΩ	
R0112	ERJ3GEYJ102V	RESISTOR	1kΩ	
R0113	ERJ6GEYJ390V	RESISTOR	30Ω	
R0114	ERJ6GEYJ390V	RESISTOR	30Ω	
R0115	ERJ6GEYJ390V	RESISTOR	30Ω	
R0116	ERJ3GEYJ473V	RESISTOR	47kΩ	

MODEL	EB-HF600 EB-HF450	NAME:	Handsfree Unit
Ref.	**Part No.**	**Description**	**Remarks**
R0117	ERJ3GEYJ102V	RESISTOR 1kΩ	
R0118	ERJ3GEYJ223V	RESISTOR 22kΩ	
R0119	YRR1220P103D	RESISTOR 10kΩ	
R0120	YRR1220P103D	RESISTOR 10kΩ	
R0121	YRR1220P123D	RESISTOR 12kΩ	
R0122	YRR1220P103D	RESISTOR 10kΩ	
R0123	YRR1220P103D	RESISTOR 10kΩ	
R0124	ERJ3GEYJ472V	RESISTOR 4.7kΩ	
R0125	ERJ3GEYJ334V	RESISTOR 330kΩ	
R0127	YRR1220P243D	RESISTOR 24kΩ	
R0128	YRR1220P242D	RESISTOR 2k4Ω	
R0130	YRR1220P103D	RESISTOR 10kΩ	
R0131	YRR1220P183D	RESISTOR 18kΩ	
R0132	YRR1220P122D	RESISTOR 10kΩ	
R0133	YRR1220P683D	RESISTOR 68kΩ	
R0134	YRR1220P153D	RESISTOR 15kΩ	
R0135	YRR1220P153D	RESISTOR 15kΩ	
R0144	EVM7LSX00B14	RESISTOR 10KΩ	
R0201	ERJ3GEYJ104V	RESISTOR 100kΩ	
R0202	ERJ3GEYJ103V	RESISTOR 10kΩ	
R0203	ERJ3GEYJ221V	RESISTOR 220Ω	
R0204	ERJ3GEYJ471V	RESISTOR 470Ω	
R0205	ERJ12YJ102H	RESISTOR 1kΩ	
R0206	ERJ12YJ102H	RESISTOR 1kΩ	
R0207	ERJ3GEYJ103V	RESISTOR 10kΩ	
R0208	ERJ3GEYJ222V	RESISTOR 2.2kΩ	
R0301	ERJ3GEYJ392V	RESISTOR 3.9kΩ	

MODEL	EB-HF600 EB-HF450	NAME:	Handsfree Unit
Ref.	**Part No.**	**Description**	**Remarks**
R0302	ERJ3GEYJ681V	RESISTOR 680Ω	
R0303	ERJ3GEYJ104V	RESISTOR 100kΩ	
R0304	ERJ3GEYJ223V	RESISTOR 22kΩ	
R0305	ERJ3GEYJ472V	RESISTOR 4.7kΩ	
R0306	ERJ3GEYJ472V	RESISTOR 4.7kΩ	
R0307	ERJ3GEYJ472V	RESISTOR 4.7kΩ	
R0308	ERJ3GEYJ103V	RESISTOR 10kΩ	
R0309	ERJ3GEYJ104V	RESISTOR 100kΩ	
R0310	ERJ3GEYJ104V	RESISTOR 100kΩ	
R0311	ERJ3GEYJ103V	RESISTOR 10kΩ	
R0312	ERJ3GEYJ471V	RESISTOR 470Ω	
R0313	ERJ3GEYJ101V	RESISTOR 100Ω	
R0315	ERJ3GEYJ104V	RESISTOR 100kΩ	
R0316	ERJ3GEYJ104V	RESISTOR 100kΩ	
R0317	ERJ3GEYJ101V	RESISTOR 100Ω	
R0318	ERJ3GEYJ101V	RESISTOR 100Ω	
R0319	ERJ3GEYJ103V	RESISTOR 10kΩ	
R0320	ERJ3GEYJ103V	RESISTOR 10kΩ	
R0321	ERJ3GEYJ103V	RESISTOR 10kΩ	
R0322	ERJ3GEYJ103V	RESISTOR 10kΩ	
R0323	ERJ3GEYJ102V	RESISTOR 1kΩ	
R0324	EVUF2AF15B54	RESISTOR 50kΩ	
R0325	ERJ3GEYJ682V	RESISTOR 6.8kΩ	
R0328	ERJ3GEYJ101V	RESISTOR 100Ω	
R0330	ERJ3GEYJ824V	RESISTOR 820kΩ	
R0331	ERJ3GEYJ153V	RESISTOR 15kΩ	
R0332	ERJ3GEYJ563V	RESISTOR 56kΩ	

MODEL	EB-HF600 EB-HF450	NAME:		Handsfree Unit
Ref.	**Part No.**	**Description**		**Remarks**
R0333	ERJ3GEYJ104V	RESISTOR	100kΩ	
R0334	ERJ3GEYJ104V	RESISTOR	100kΩ	
R0335	ERJ3GEYJ222V	RESISTOR	2.2kΩ	
R0336	ERJ3GEYJ563V	RESISTOR	56kΩ	
R0337	ERJ3GEYJ683V	RESISTOR	68kΩ	
R0338	ERJ3GEYJ333V	RESISTOR	33kΩ	
R0339	ERJ3GEYJ222V	RESISTOR	2.2kΩ	
R0340	ERJ3GEYJ103V	RESISTOR	10kΩ	
R0341	ERJ3GEYJ103V	RESISTOR	10kΩ	
R0345	ERJ3GEY0R00V	RESISTOR	0Ω	
R0346	ERJ3GEY0R00V	RESISTOR	0Ω	
R0348	ERJ3GEYJ473V	RESISTOR	47kΩ	
R0349	ERJ3GEYJ472V	RESISTOR	4.7kΩ	
R0351	ERJ3GEYJ105V	RESISTOR	1MΩ	
R0352	ERJ3GEYJ104V	RESISTOR	100kΩ	
R0353	ERJ3GEYJ682V	RESISTOR	6.8kΩ	
R0354	ERJ3GEYJ104V	RESISTOR	100kΩ	
R0355	ERJ3GEYJ104V	RESISTOR	100kΩ	
R0356	ERJ3GEY0R00V	RESISTOR	0Ω	
R0357	ERJ3GEYJ104V	RESISTOR	100kΩ	
R0358	ERJ3GEYJ223V	RESISTOR	22kΩ	
R0359	ERJ3GEYJ682V	RESISTOR	6.8kΩ	
R0360	ERJ6GEYJ100V	RESISTOR	10Ω	
R0361	ERJ6GEYJ471V	RESISTOR	470Ω	
R0362	ERJ6GEYJ2R2V	RESISTOR	2.2Ω	
R0363	ERJ3GEYJ473V	RESISTOR	47kΩ	
R0364	ERJ3GEYJ223V	RESISTOR	22kΩ	

MODEL	EB-HF600 EB-HF450	NAME:		Handsfree Unit
Ref.	**Part No.**	**Description**		**Remarks**
R0365	ERJ3GEYJ103V	RESISTOR	10kΩ	
R0366	ERJ3GEYJ103V	RESISTOR	10kΩ	
R0367	ERJ3GEYJ472V	RESISTOR	4.7kΩ	
R0369	ERJ3GEYJ102V	RESISTOR	1kΩ	
R0373	ERJ3GEYJ473V	RESISTOR	47kΩ	
R0374	ERJ3GEYJ473V	RESISTOR	47kΩ	
R0375	ERJ3GEYJ473V	RESISTOR	47kΩ	
R0376	ERJ3GEYJ473V	RESISTOR	47kΩ	
R0377	ERJ3GEYJ562V	RESISTOR	5.6kΩ	
R0378	ERJ3GEYJ103V	RESISTOR	10kΩ	
R0379	ERJ3GEYJ103V	RESISTOR	10kΩ	
U0101	YUPC494GSE2	IC		
U0102	YNJM3404AMT1	IC		
U0301	YNJM3404AMT1	IC		
U0302	YURHH0002	REGULATOR		
U0303	YURHH0002	REGULATOR		
U0304	YULCS0003	IC		
U0305	YULCS0003	IC		
U0306	YULCS0004	IC		
U0308	YTDA2003V	IC		
U0309	YNJM2072MTE1	IC		
U0310	YUPD74HC123G	IC		
U0311	YNJM2107FTE1	IC		
U0312	YSC14S66FEL	ANALOGUE SWITCH		
U0313	YSC14S66FEL	ANALOGUE SWITCH		
U0314	YRN5VL45AATL	REGULATOR		
U0315	YNJM2107FTE1	IC		

MODEL	EB-HF600 EB-HF450	NAME:	Handsfree Unit
Ref.	**Part No.**	**Description**	**Remarks**
W0001	WP70005AZ	POWER SUPPLY CABLE	
W0201	WC70109A	CURLY CORD	
W0202	WC70110A	INTERCONNECTING CABLE	
W0301	WC70152A	SPEAKER CABLE	
W0302	WG70003A	EXTERNAL MIC CABLE	
Y0301	CM30918MHZ	CRYSTAL	

10.4.2 Mechanical

MODEL	EB-HF600 EB-HF450	NAME	Mechanical
Ref.	**Part No.**	**Description**	**Remarks**
M0401	5N70086A	HANDSFREE COVER	
M0402	6V10031A	SPEAKER NET	
M0403	4R8209B	SPEAKER PACKING	
M0404	1B70071A	SPEAKER BRACKET	
M0405	XTB256GFX	SCREW	
M0406	XTB256GFX	SCREW	
M0410	5M70076A	HANDSFREE CASE	
M0411	1BC5819A	PLATE	
M0412	7X70119A	HANDSFREE NAME PLATE	
M0413	XSB35FX	SCREW	
M0420	1C70128A	SHIELD CASE 1	
M0421	1C70129A	SHIELD CASE 2	
M0422	1E70008A	RADIATOR	
M0423	5G10500A	INSULATOR	
M0424	1M270900102	CLAMP	

MODEL	EB-HF600 EB-HF450	NAME	Mechanical
Ref.	**Part No.**	**Description**	**Remarks**
M0425	5FJ5129AB	VOLUME KNOB	
M0426	XYN3J6FX	SCREW	
M0427	XTB2510GFX	SCREW	
M0428	XTB2510GFX	SCREW	
M0429	XTB256GFX	SCREW	
M0440	XYN3F30FN	SCREW	
M0441	5U70008B	TOP COVER	

10.4.3 Holder

MODEL	EB-KA500	NAME	Holder
Ref.	**Part No.**	**Description**	**Remarks**
M0501	5M70115A	HOLDER CASE	
M0502	FM6X6X12	MAGNET	
M0503	4Z70016A	HOOK SPRING	
M0504	5Y70066A	HOOK	
M0505	XTB256GFX	SCREW	
M0506	XTB256GFX	SCREW	
M0507	XTB256GFX	SCREW	
M0508	5U70049B	HOLDER CUSHION 1	
M0509	7D70164A	HOLDER NAME PLATE	
M0510	7D70120A	HOLDER CAUTION LABEL	

10.4.4 Microphone

MODEL	EBM1177	NAME	Microphone
Ref.	**Part No.**	**Description**	**Remarks**
M0101	4G31674B	MIC HOLDER	
M0102	4G32105	MIC HOLDER	

MODEL	EBM1177	NAME	Microphone
Ref.	**Part No.**	**Description**	**Remarks**
M0103	4R13358	MIC CUSHION	
M0104	7C10096A	MIC NAME PLATE	
M0105	7C10096A	MIC NAME PLATE	
M0107	XTB2510AFN	SCREW	
MK0101	WM4108D	MICROPHONE	

10.4.5 Adjustable Angle Bracket 1

MODEL	EBN0001	NAME	Adjustable Angle Bracket
Ref.	**Part No.**	**Description**	**Remarks**
M0701	3G24152B	BRACKET	
M0702	XVG4X8FZ	SCREW	
M0703	XWA4FXK	SPRING WASHER	
M0704	XWG4FXK	WASHER	
M0705	XVG4X8FZ	SCREW	
M0706	XWA4FXK	SPRING WASHER	
M0707	XWG4FXK	WASHER	
M0708	3G24157B	BRACKET	
M0709	XSB410FXK	SCREW	
M0710	XSB410FXK	SCREW	
M0711	XSB410FXK	SCREW	
M0712	XSB410FXK	SCREW	
M0713	XTB425RFXK	SCREW	
M0714	XTB425RFXK	SCREW	
M0715	XTB425RFXK	SCREW	
M0716	XTB425RFXK	SCREW	

10.4.6 Adjustable Angle Bracket 2

MODEL	EBN0002	NAME	Adjustable Angle Bracket
Ref.	**Part No.**	**Description**	**Remarks**
M0701	3G24152B	BRACKET	
M0702	XVG4X8FZ	SCREW	
M0703	XWA4FXK	SPRING WASHER	
M0704	XWG4FXK	WASHER	
M0705	XVG4X8FZ	SCREW	
M0706	XWA4FXK	SPRING WASHER	
M0707	XWG4FXK	WASHER	
M0708	3G24157B	BRACKET	
M0709	XSB410FXK	SCREW	
M0710	XSB410FXK	SCREW	
M0711	XSB410FXK	SCREW	
M0712	XSB410FXK	SCREW	
M0713	XTB425RFXK	SCREW	
M0714	XTB425RFXK	SCREW	
M0715	XTB425RFXK	SCREW	
M0716	XTB425RFXK	SCREW	
M0718	XNG4AFXK	NUT	
M0719	XNG4AFXK	NUT	
M0720	XNG4AFXK	NUT	
M0721	XNG4AFXK	NUT	

10.5 Printed Material

Part numbers for documentation are shown on page 2-8 (General Information).

10.6 Dual Charger

The Dual Charger is not a serviceable item.

10.7 DC Adaptor

The DC Adaptor is not a serviceable item.

10.8 PC Card

MODEL	EB-PA500	**NAME**	PC Card
Ref.	**Part No.**	**Description**	**Remarks**
—		INTERFACE CARD	