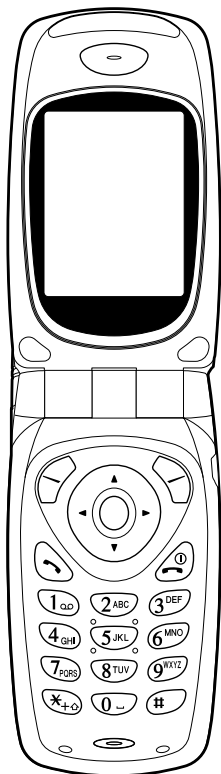


SHARP SERVICE MANUAL

No. S4305TQGX15/A

DIGITAL MOBILE PHONE

MODEL GX10i



(INTERNAL MODEL NAME:
TQ-GX15E/G/R/T/S/H/EP/PP/W/B/D/A/Z/Q)

E : For U.K.	G : For Germany
R : For Ireland	T : For Italy
S : For Spain	H : For Netherlands
EP : For U.K. (Prepaid)	PP : For Portugal (Prepaid)
W : For Sweden	B : For Hungary
D : For Greece	A : For Australia
Z : For New Zealand	Q : For Egypt

• In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified should be used.

• Caution
Risk of explosion if battery is replaced by an incorrect type, dispose of used batteries according to the instruction.

CONTENTS

CHAPTER 1. GENERAL DESCRIPTION

- [1] Specifications1-1
- [2] Names of parts1-2
- [3] Operation manual1-2

CHAPTER 2. ADJUSTMENTS

- [1] Adjustments
SHARP Program Support Tool (SPST)2-1
- [2] SHARP RF Test tool manual2-30
- [3] Adjustment procedures after replacement
of the parts2-36
- [4] Test points2-38
- [5] Troubleshooting2-42
- [6] Specification for function test2-56

CHAPTER 3. DISASSEMBLY AND REASSEMBLY

- [1] Servicing concerns3-1
- [2] Disassembly and reassembly3-2

CHAPTER 4. DIAGRAMS

- [1] Block diagram4-1

CHAPTER 5. SCHEMATIC DIAGRAM AND WIRING SIDE OF P.W.BOARD

- [1] Notes on schematic diagram5-1
- [2] Types of transistor and LED5-1
- [3] Waveforms of circuit5-2
- [4] Schematic diagram/
wiring side of P.W.Board5-6

CHAPTER 6. OTHERS

- [1] Function table of IC6-1

PARTS GUIDE

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT,
PLEASE REFER TO THE OPERATION MANUAL.

CHAPTER 1. GENERAL DESCRIPTION

[1] Specifications

General:	Tri - band (GSM 900 MHz/DCS 1800 MHz/ PCS 1900MHz) GPRS-enabled WAP, MMS, SMS	Sound:	16-polyphonic ring melodies
Dimensions (folded, excluding the aerial)		Status LED:	Green and red
(H x W x D):	94 x 49 x 27 mm	External DC	
Weight:	110 g	supply voltage:	5.2 V
Battery operating		Battery:	3.7 V, 720 mAh, Li-Ion
temperature:	0°C - 40°C	Standby time:	100 ~ 250 hours
Main-screen		Talk time:	150 ~ 240 min.
display:	Display dimensions: 160 x 120 dots LCD display: TFT 65,536 colours with backlight LCD backlight: LED backlight white colour LEDs	Others:	Side key Infrared port 1.2 L/P (maximum distance 20 cm) Connector for AC charger and data cable Standard hands free connector (ø2.5)
Sub-screen			
display:	Display dimensions: 26 x 96 dots LCD display: STN monochrome LCD with backlight		
Camera:	CMOS 110K pixels built-in camera Zoom: Wide and zoom mode (Supported 2x zoom) Lens: F2.0, f = 1.8 mm		

Battery running time depends on the battery and SIM card as well as the network conditions and usage.

Specifications for this model are subject to change without prior notice.

Powered by JBlend®, ©1997-2003 Aplix Corporation. All rights reserved.
Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries.
JBlend and all JBlend-based trademarks and logos are trademarks or registered trademarks of Aplix Corporation in Japan and other countries.

Licensed by Inter Digital Technology Corporation under one or more of the following United States Patents and/or their domestic or foreign counterparts and other patents pending, including U.S. Patents: 4,675,863; 4,779,262; 4,785,450 & 4,811,420.

Licensed under U.S. Patent 4,558,302 and foreign counterparts.

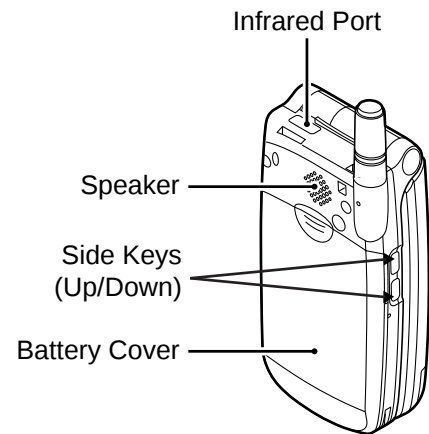
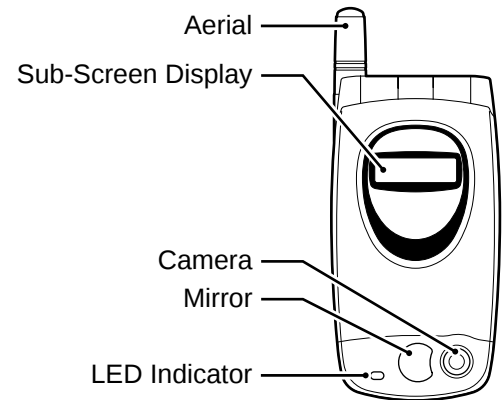
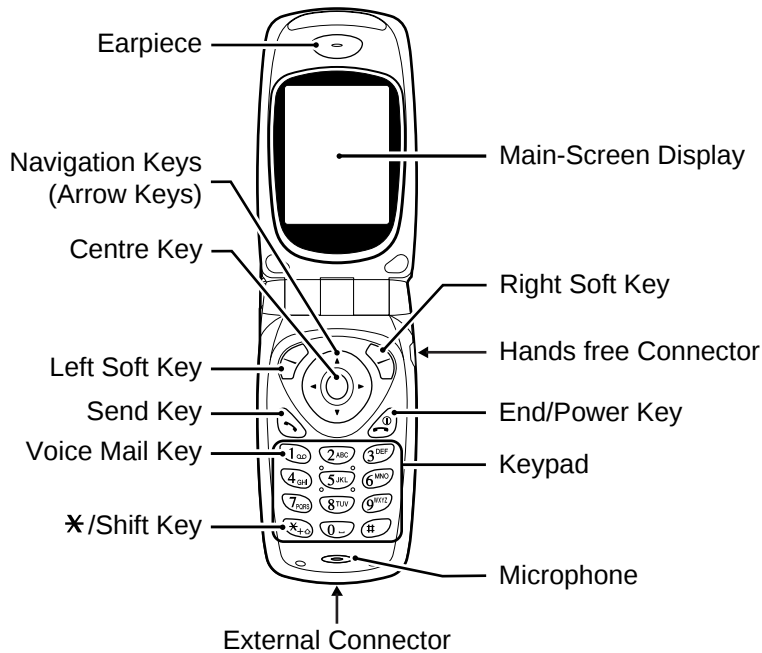
In this product, JBlend® is incorporated.
JBlend® is a Java execution environment that Aplix developed for implementing advanced performance and fast operation on small-memory systems. JBlend and JBlend logo are trademarks or registered trademarks of Aplix Corporation in Japan and other countries.



T9 Text input is licensed under one or more of the following:
U.S. Pat. Nos. 5,818,437, 5,953,541, 5,187,480, 5,945,928, and 6,011,554; Australian Pat. No. 727539; Canadian Pat. No. 1,331,057; United Kingdom Pat. No. 2238414B; Hong Kong Standard Pat. No. HK0940329; Republic of Singapore Pat. No. 51383; Euro. Pat. No. 0 842 463 (96927260.8) DE/DK, FI, FR, IT, NL, PT, ES, SE, GB; Republic of Korea Pat. Nos. KR201211B1 and KR226206B1; and additional patents are pending worldwide.

Powered by Mascot Capsule®/Micro3D Edition™
Mascot Capsule® is a registered trademark of HI Corporation
©2002-2003 HI Corporation. All Rights Reserved.

[2] Names of parts



[3] Operation manual (Page numbers refer to the user guide)

Accessories (optional)

- Li-ion spare battery (XN-1BT11)
- Cigarette lighter charger (XN-1CL10)
- Car holder (XN-1CH11)
- Data cable (RS232C cable: XN-1DC10)

Some of the above accessories may not be offered by every region.

For details, please contact your dealer.

QUICKSTART GUIDE: INTRODUCTION

More than voice and text – now it's pictures, music and games!

Congratulations on your new Sharp GX10i. With this advanced handset, you will be able to do far more than "talk and text". Now you can take full advantage of all the new Vodafone live! services.



- Taking and sending colour photos
- Playing arcade quality games
- Amusing your friends with polyphonic ringtones
- Accessing the mobile internet quickly and easily

How to do all this is described in detail inside this manual. But if you are already familiar with how a mobile phone works, you probably want to try out the new features straight away – the things you couldn't do before.



- In which case, the next three pages will show you how to:
- Take your first picture with the camera
- Send it as a multimedia message with text
- Try out a Java™ game using animation, 2D and 3D effects
- Experiment with ringtones, and...



Access the Vodafone live! portal

We'll also show you how to connect up to the Vodafone live! portal, to discover what the world's largest mobile community has to offer you and your phone: from new ringtones to games, entertainment and news services.

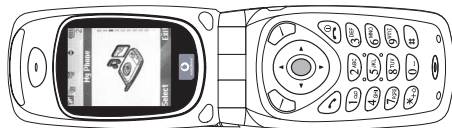


134

135

QUICKSTART GUIDE: NAVIGATION & CAMERA

Trying out your phone



OK. Your SIM card's in the handset, and you've charged the battery (see "Getting Started", p.8).

Turning it on: Press and hold the red key for two seconds (the same to turn off).

Navigation and selection:

The GX10i uses icons to help you navigate (like on your PC).

- Press the central silver key to access the icons on the Main Menu.
- Use to move up and down the on-screen menus, and the key or to select.
- takes you back to a previous menu.
- The 'soft' keys select whatever is at the bottom left and right of the screen – often as an alternative to the menu keys.



Using the camera

Taking a photo:

1. From the start-up screen, press and hold for two seconds to go into Camera mode (see Section M1: Camera, p.34 for full details).
2. Press to capture the image on screen.
3. Press [Save] ("Save to My Phone" is shown), or press to send your picture to someone else (see next page). Or press [Back] instead to re-take.

Note: always returns you to Phone mode.

Viewing photos:

1. In Camera mode, press [Options],
2. Select "Existing Pictures", then press .
3. Go to the picture file you want to view (they're named by time and date), and press .

Using a photo as wallpaper:

1. Go to the Main Menu.
2. Select "Settings" "Phone Settings" "Wallpaper" "On" "My Pictures".
3. Press , and select your photo from the list
4. Press [Select].

135

QUICKSTART GUIDE: MESSAGING & GAMES

Picture Messaging

Use the MMS (Multi Media Messaging) function to send your photo together with a text message.

1. From the Main Menu scroll up to "Messages".
2. Press and select "MMS".
3. Press and select "Compose".
4. Press and write your text message.



Attaching your photo:

1. Press [Options]. Select "Picture" and press .
2. Choose the photo you want. Press .
3. Press [Back] to go back to your message.

Note: Repeat the same steps, choosing "Sound" instead of "Picture" to attach a sound – for instance a voice memo from yourself (see Section M5-4, p.75 on how to record).

Sending: From the text entry screen:

1. Press , and key in a mobile number (or an email address: to enter text first press and hold – to get the @ symbol, press the key 3 times).
2. Press , choose "Send" and press [Select].

136

QUICKSTART GUIDE: RINGTONES & PORTAL



Polyphonic Ringtones

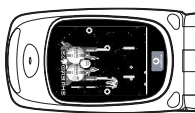
The Sharp GX10i comes with a range of amazing ringtones already loaded for you to try out.

Choosing a ringtone:

1. From the Main Menu select "Profiles" select "Normal", then go to "Edit" and press .
2. Select "Assign Melody" then "Preset Melody" and press . Choose a melody.
3. To hear it, select [Play]. To stop, press [Stop].
4. If you like it, you can press to select. Or try out another ringtone.

Download a new ringtone: You can also download one of the many amazing new polyphonic ringtones, which the download will store in the "My Sounds" folder in the "My Phone" section of the Main Menu.

First you need to access the Vodafone live! portal.



Playing games

Your phone comes with two built-in games and one pre-loaded Java™ game: **Stormy**

Sight. To try out the enhanced gameplay of this Java™ game, go to the Main Menu:

1. Select "Fun & Games", and press .
2. Select "Java™ Games", and press .
3. Select "Saved Games", and press .
4. Select "Stormy Sight", and press to play.

You can download further Java™ games by selecting "Download More" in the "Java™ Games" menu. This will take you to the Vodafone live! portal (see next page).

137

Accessing the Vodafone live! portal

1. Your phone is already set up to use the mobile internet browser. On the start-up screen you'll see the Vodafone live! logo at the bottom right. Press to select it, and this will start the connection process (see the Vodafone section, p.105).
2. Once connected you'll see a menu of icons which take you to different areas of the portal for you to explore.

3. To download a ringtone, go to "Downloads" and follow the prompts to listen to and download a new ringtone. You can now choose it on your phone as before.



The tip of the iceberg: This portal has a whole world of news and entertainment to offer you. For more details, please refer to the Vodafone live! guide.

CHAPTER 2. ADJUSTMENTS

[1] Adjustments

SHARP Program Support Tool (SPST)

1. Outline

This document provides user information required to install and use GX10i Program Support Tool (SPST).

2. System requirements

- IBM PC compatible personal computer (standard COM1 serial port (115,200 bps) and USB required)
Supporting OS: Windows 98/98SE/2000/XP (except for Windows 95/ME/NT)
(English, German, Italian, Spanish, French and Chinese versions)
- Data cable
- Full charged battery

<During RF adjustment>

- RF test instrument: CMU200, CMD55
- GPIB interface: National Instruments USB-GPIB cable
Model No.: NI GPIB-USB-B
- The battery should be fully charged.

3. Introduction

3.1 Functions

SPST offers five key functions:

1. Software download
2. User data transfer (processes all data at once but not individually)
3. RF calibration
4. Default setting
5. Identification

SPST functions as **a launcher for these independent software programs.**

3.2 Installation

The SPST software is distributed in CD-ROM format.

- (1) Use Windows Explorer and copy "UpgradingTool.zip" and "SPST.zip" to the desktop.
- (2) Unzip and install "UpgradingTool.zip" following the procedures below.
- (3) Unzip the "SPST.zip".

Hereinafter, procedures are carried out in the SPST folder.

3.2.1 Starting up

Connect GX10i to an operable serial port of the PC with the supplied data cable. Connect the AC charger to the data cable. Execute the GX10i SPST.exe program in the SPST folder.

- (1) The SPC input screen appears. Input SPC (2968) and press "OK".
If you do not know SPC, press "Cancel" to close.

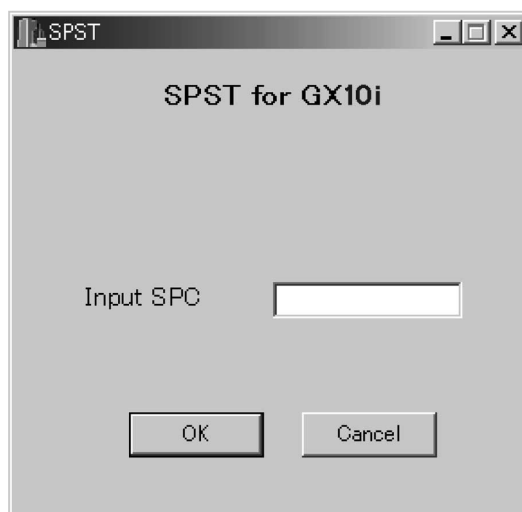


Figure 1

(2) If SPC is correct, the following screen appears.



Figure 2

The software for each function is independent and thus multi-bootable. However, you can only activate single software at a time. To start another software, exit the current one.

3.3. Functions

3.3.1 Identification

SPST downloads and displays the main data configured in GX10i.

<Operation>

(1) On the SPST startup screen, press "Identity".

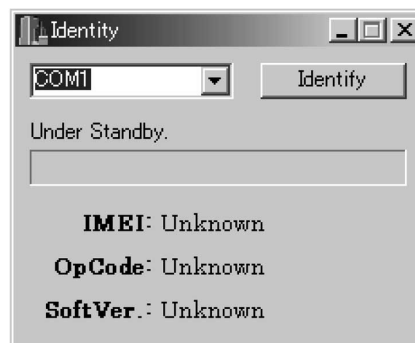


Figure 3

- (2) Connect PC and MS with a Data cable.
- (3) Remove the SIM card and turn on the phone. → Regular display.
- (4) Select the COM port.
- (5) Press "Get Identity". → The information will be displayed.
- (6) IMEI will be displayed, and the following dialog box appears.



Figure 4

- (7) Make sure GX10i is turned off and press the power key.
- (8) Press "OK" when **** appears on the GX10i display.

(9) Make sure "Success!!" appears. Check the data and exit.

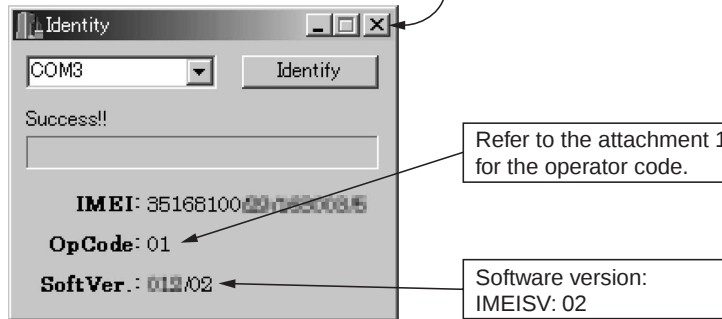


Figure 5

Attachment 1 Operator Code Chart

No.	Operator name	Country	Model name
01	Vodafone UK Post-Paid	UK	A4TQGX15E
02	Airtel	Spain	A4TQGX15S
04	Vodafone Omnitel	Italy	A4TQGX15T
05	Vodafone D2	Germany	A4TQGX15G
06	Vodafone NL	Netherlands(Holland)	A4TQGX15H
08	Vodafone Ireland	Ireland	A4TQGX15R
10	Vodafone Greece	Greece	A4TQGX15D
48	Vodafone PT Pre-Paid	Portugal	A4TQGX15PP
50	Vodafone UK Pre-Paid	UK	A4TQGX15EP
12	Vodafone Australia	Australia	A4TQGX15A
13	Vodafone New Zealand	New Zealand	A4TQGX15Z
15	Vodafone Egypt Post-Paid	Egypt	A4TQGX15Q
14	Vodafone Sweden Post-Paid	Sweden	A4TQGX15W
11	Vodafone Hungary	Hungary	A4TQGX15B

3.3.2 User data transfer

SPST saves and downloads all the following user data.

- (1) Connect PC and MS with a Data cable and turn on MS.
- (2) Activate the software.

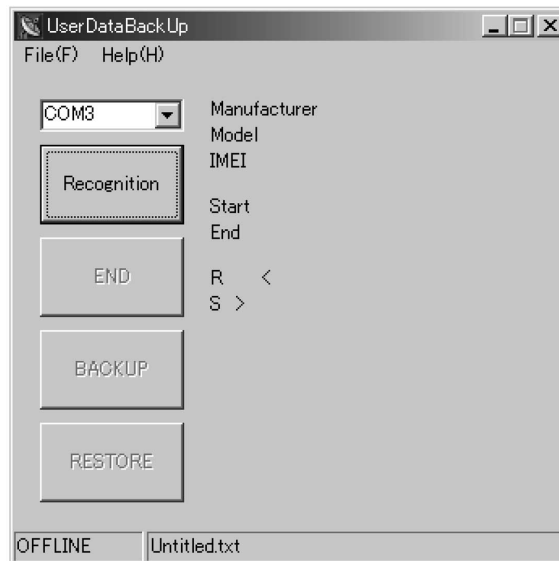


Figure 6

1. Select the COM port. You cannot specify the communication protocol. (115 kbps)
2. Press "Recognition".
Do not press "Recognition" until "InsertSIM" appears.

(3) Press either “BACKUP”, “RESTORE” or “END”.

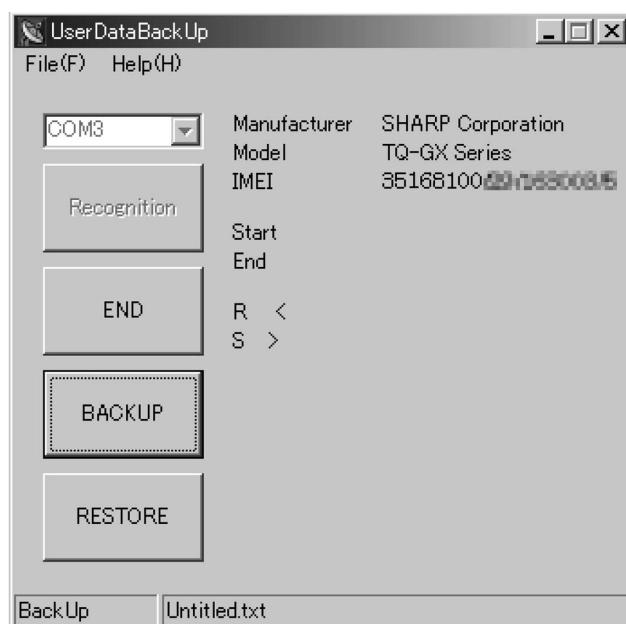


Figure 7

(4) If “BACKUP” is pressed, the dialog box for file selection appears. Select the file and press “Save”.

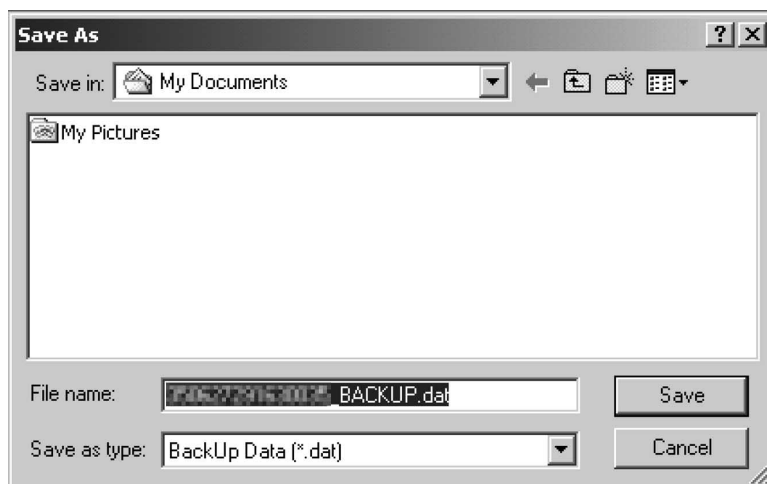


Figure 8

The buttons are grayed out during the process.



Figure 9

When they return to black, the process is complete. Press "END" to exit.



Figure 10

(5) If “RESTORE” is pressed, the following confirmation dialog box appears. Press “OK” to confirm.

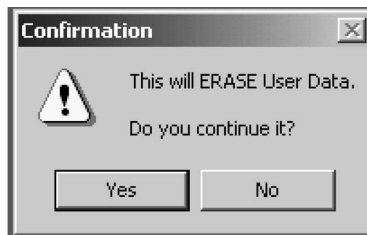


Figure 11

The dialog box for file selection appears. Select the file and press “Open”.

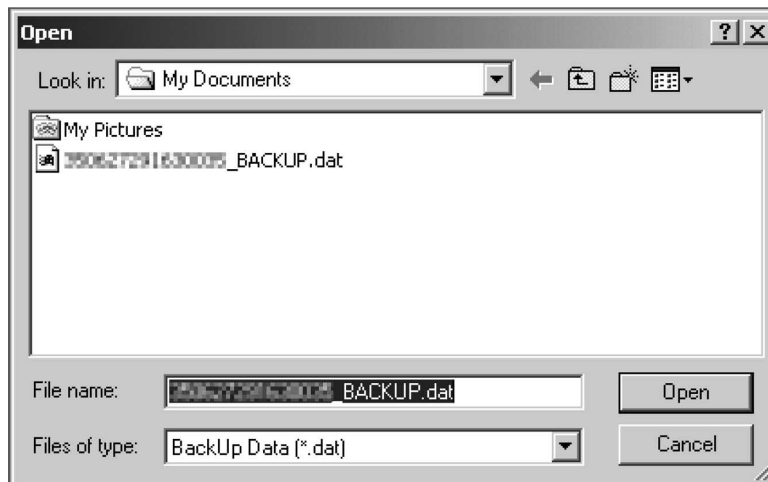


Figure 12

The buttons are grayed out during the process.
The process is complete when the buttons turn black.

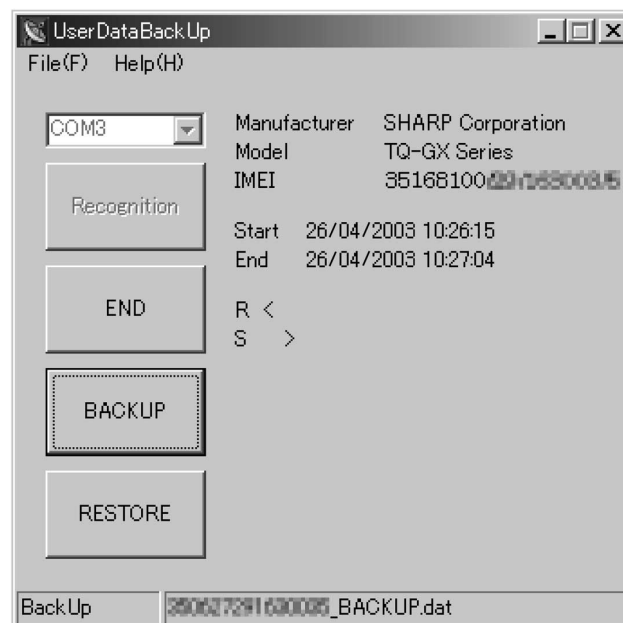


Figure 13

3.3.3 Default setting

SPST can restore the factory settings by default setting.

This function

1. deletes all user data in the file system;
2. restores the values set by the user to default;
3. restores all WAP and MMS settings to default; and
4. restores all MEP_LOCK to default.

<Operation>

- (1) Connect the phone to a cable.
- (2) Turn on the phone and wait until it enters the idle mode.
- (3) Press "Set to Default".

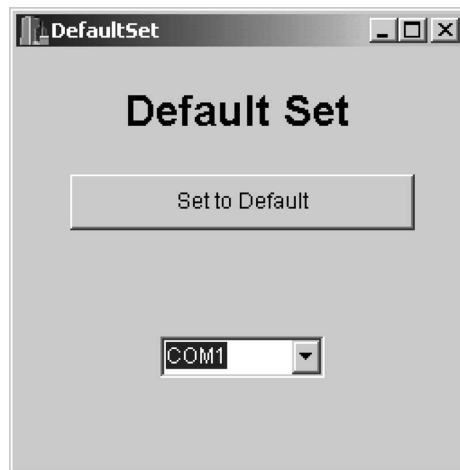


Figure 14

- (4) The phone turns off and the following message appears.

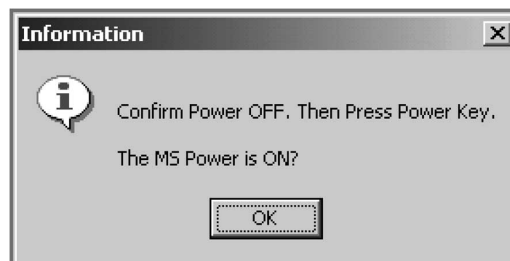


Figure 15

- (5) When the power key is pressed, the screen display will display "****".
- (6) When "OK" is pressed on the PC screen, the following confirmation message appears.

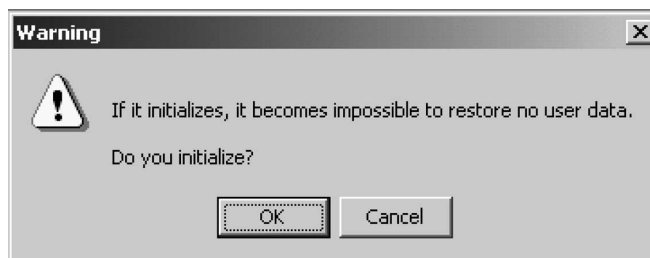


Figure 16

(7) Press "OK". You will see the following display on the screen display.

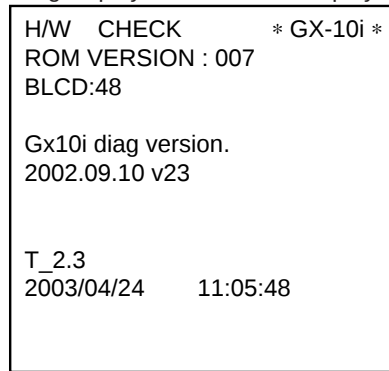


Figure 17

Check the version. Initialization takes approx. 35 seconds.

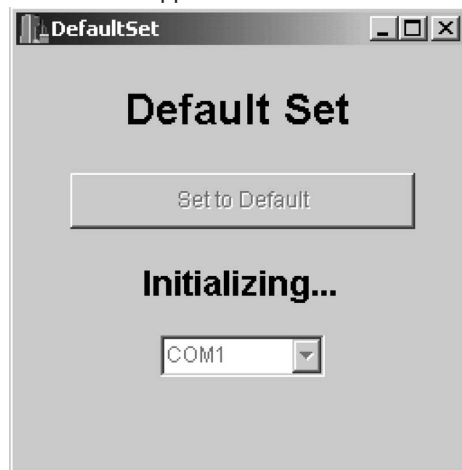


Figure 18

(8) When initialization is complete, the following message appears and the phone turns off.

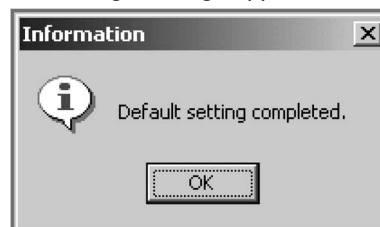


Figure 19

(9) Press "OK" to proceed. Disconnect the cable.

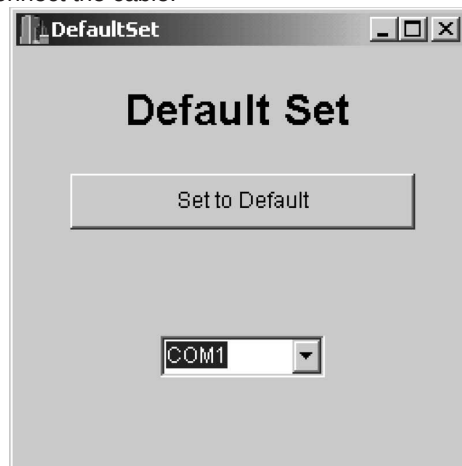


Figure 20

The process is now completed.

3.3.4 RF Adjustment Tool

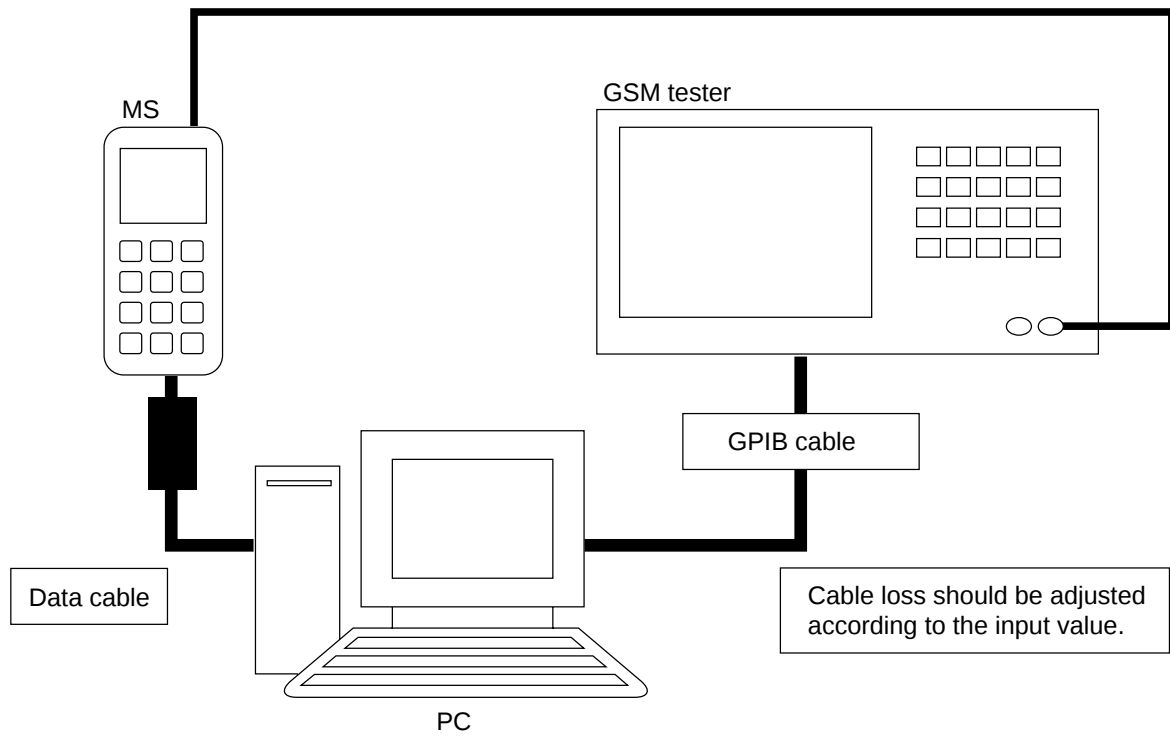


Figure 21

3.3.4.1. Preparation

- Connect PC and GSM tester with a GPIB cable.
- Connect PC and MS with a Data cable. (Use a full charged battery or one close.)
- Connect an antenna input/output cable of GSM tester to MS.

3.3.4.2. Default setting for the program.

- Activate the program and set defaults.

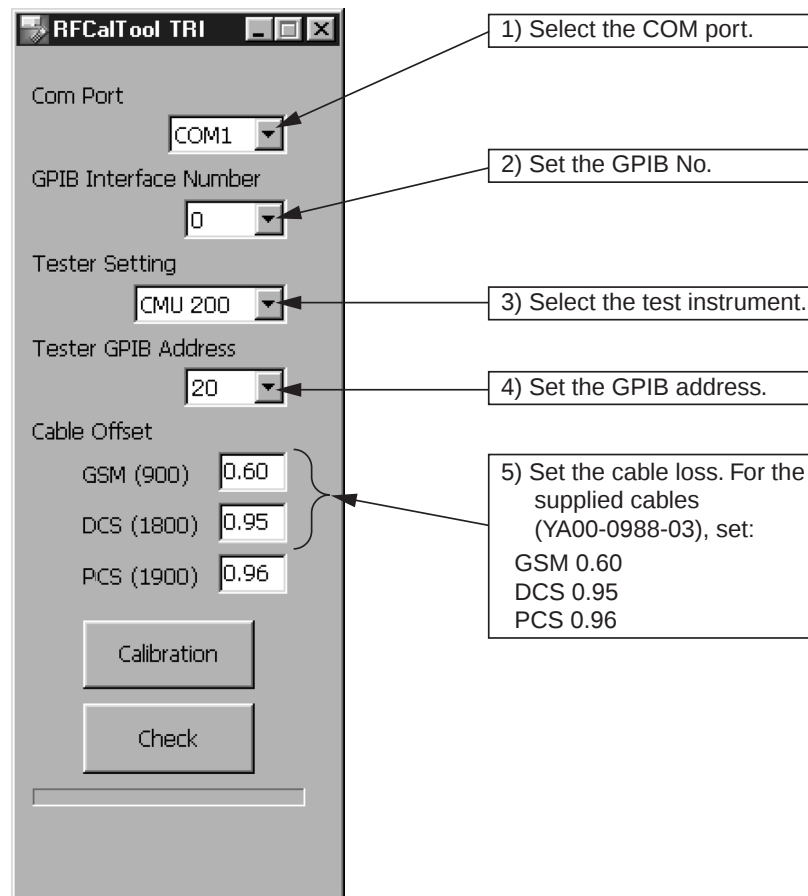


Figure 22

3.3.4.3 RF adjustment (CMU200 only)

1. Press "Calibration".
2. When initialization is complete, press "OK".



Figure 23

3. Turn on the phone and press "OK".



Figure 24

4. Make sure that the phone is in the idle mode and press "OK". (Adjustments start.)

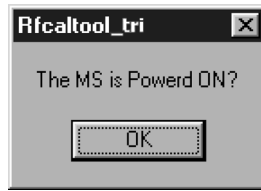


Figure 25

5. Turn on the phone and press "OK".



Figure 26

6. Make sure the phone is turned on and press "OK".

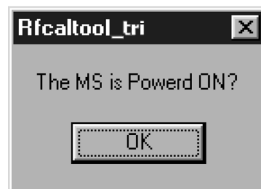


Figure 27

7. Press "OK".



Figure 28

8. The startup screen appears.

3.3.4.4 RF performance check

Press "Check".

1. When initialization is complete, press "OK".



Figure 29

2. Turn on the phone, enter the PIN code and press "OK".



Figure 30

3. Make sure that the phone is in the idle mode and press "OK".

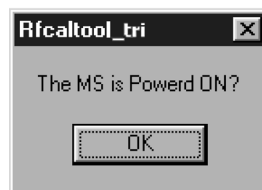


Figure 31

4. Press the keys 1, 2, 3 and Send and press "OK".



Figure 32

5. Make sure the terminal display is "In Call" and press "OK".
(RF performance check starts.)



Figure 33

6. The following message appears during the check. Press the keys 1, 2, 3 and Send again and press "OK".



Figure 34

7. Make sure the terminal display is "In Call" and press "OK".



Figure 35

8. RF performance check is complete. Press "Save As..." and name the file to save the result. Press "OK" to exit.

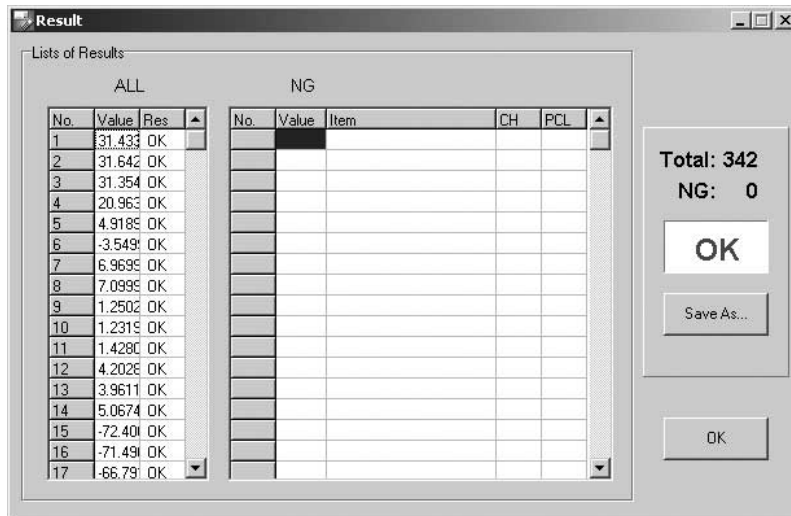


Figure 36

The following will be displayed in case of failure.

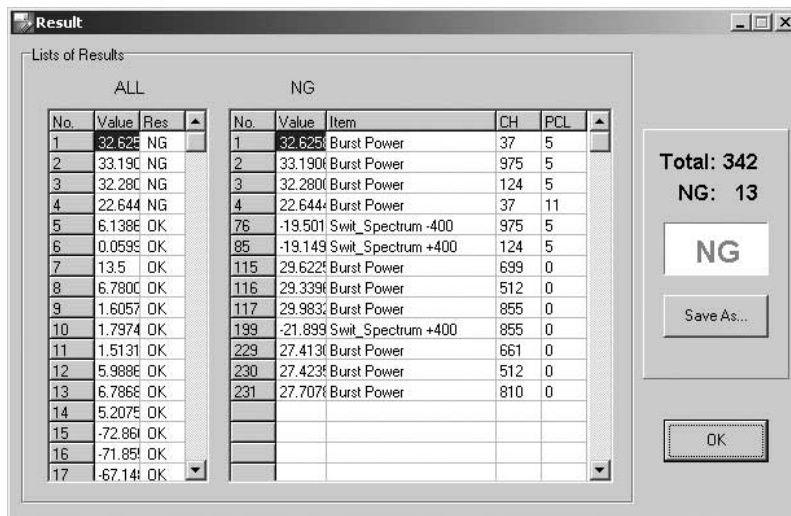


Figure 37

9. Press "OK".



Figure 38

10. The startup screen appears.

Attachment 2

Whole inspection list by RF performance check.

Band	Sending/Receive	No.	Item to be inspected	Channel	PCL
GSM band	Tx	1	Sending output	37CH	PCL5
		2	Sending output	975CH	PCL5
		3	Sending output	124CH	PCL5
		4	Sending output	37CH	PCL11
		5	Sending output	37CH	PCL19
		6	Frequency deviation	37CH	PCL5
		7	Frequency deviation	975CH	PCL5
		8	Frequency deviation	124CH	PCL5
		9	Phase error (RMS)	37CH	PCL5
		10	Phase error (RMS)	975CH	PCL5
		11	Phase error (RMS)	124CH	PCL5
		12	Phase error (Peak)	37CH	PCL5
		13	Phase error (Peak)	975CH	PCL5
		14	Phase error (Peak)	124CH	PCL5
		15	Mod_spectrum -800	37CH	PCL5
		16	Mod_spectrum -600	37CH	PCL5
		17	Mod_spectrum -400	37CH	PCL5
		18	Mod_spectrum -250	37CH	PCL5
		19	Mod_spectrum -200	37CH	PCL5
		20	Mod_spectrum +200	37CH	PCL5
		21	Mod_spectrum +250	37CH	PCL5
		22	Mod_spectrum +400	37CH	PCL5
		23	Mod_spectrum +600	37CH	PCL5
		24	Mod_spectrum +800	37CH	PCL5
		25	Mod_spectrum -800	975CH	PCL5
		26	Mod_spectrum -600	975CH	PCL5
		27	Mod_spectrum -400	975CH	PCL5
		28	Mod_spectrum -250	975CH	PCL5
		29	Mod_spectrum -200	975CH	PCL5
		30	Mod_spectrum +200	975CH	PCL5
		31	Mod_spectrum +250	975CH	PCL5
		32	Mod_spectrum +400	975CH	PCL5
		33	Mod_spectrum +600	975CH	PCL5
		34	Mod_spectrum +800	975CH	PCL5
		35	Mod_spectrum -800	124CH	PCL5
		36	Mod_spectrum -600	124CH	PCL5
		37	Mod_spectrum -400	124CH	PCL5
		38	Mod_spectrum -250	124CH	PCL5
		39	Mod_spectrum -200	124CH	PCL5
		40	Mod_spectrum +200	124CH	PCL5
		41	Mod_spectrum +250	124CH	PCL5
		42	Mod_spectrum +400	124CH	PCL5
		43	Mod_spectrum +600	124CH	PCL5
		44	Mod_spectrum +800	124CH	PCL5
		45	Mod_spectrum -800	37CH	PCL11
		46	Mod_spectrum -600	37CH	PCL11
		47	Mod_spectrum -400	37CH	PCL11
		48	Mod_spectrum -250	37CH	PCL11
		49	Mod_spectrum -200	37CH	PCL11
		50	Mod_spectrum +200	37CH	PCL11
		51	Mod_spectrum +250	37CH	PCL11
		52	Mod_spectrum +400	37CH	PCL11
		53	Mod_spectrum +600	37CH	PCL11
		54	Mod_spectrum +800	37CH	PCL11
		55	Mod_spectrum -800	37CH	PCL19
		56	Mod_spectrum -600	37CH	PCL19
		57	Mod_spectrum -400	37CH	PCL19
		58	Mod_spectrum -250	37CH	PCL19
		59	Mod_spectrum -200	37CH	PCL19
		60	Mod_spectrum +200	37CH	PCL19
		61	Mod_spectrum +250	37CH	PCL19
		62	Mod_spectrum +400	37CH	PCL19
		63	Mod_spectrum +600	37CH	PCL19
		64	Mod_spectrum +800	37CH	PCL19
		65	Switch_Spectrum -1800	37CH	PCL5
		66	Switch_Spectrum -1200	37CH	PCL5
		67	Switch_Spectrum -600	37CH	PCL5
		68	Switch_Spectrum -400	37CH	PCL5

Band	Sending/Receive	No.	Item to be inspected	Channel	PCL
DCS band	Tx	69	Switch_Spectrum +400	37CH	PCL5
		70	Switch_Spectrum +600	37CH	PCL5
		71	Switch_Spectrum +1200	37CH	PCL5
		72	Switch_Spectrum +1800	37CH	PCL5
		73	Switch_Spectrum -1800	975CH	PCL5
		74	Switch_Spectrum -1200	975CH	PCL5
		75	Switch_Spectrum -600	975CH	PCL5
		76	Switch_Spectrum -400	975CH	PCL5
		77	Switch_Spectrum +400	975CH	PCL5
		78	Switch_Spectrum +600	975CH	PCL5
		79	Switch_Spectrum +1200	975CH	PCL5
		80	Switch_Spectrum +1800	975CH	PCL5
		81	Switch_Spectrum -1800	124CH	PCL5
		82	Switch_Spectrum -1200	124CH	PCL5
		83	Switch_Spectrum -600	124CH	PCL5
		84	Switch_Spectrum -400	124CH	PCL5
		85	Switch_Spectrum +400	124CH	PCL5
		86	Switch_Spectrum +600	124CH	PCL5
		87	Switch_Spectrum +1200	124CH	PCL5
		88	Switch_Spectrum +1800	124CH	PCL5
		89	Switch_Spectrum -1800	37CH	PCL11
		90	Switch_Spectrum -1200	37CH	PCL11
		91	Switch_Spectrum -600	37CH	PCL11
		92	Switch_Spectrum -400	37CH	PCL11
		93	Switch_Spectrum +400	37CH	PCL11
		94	Switch_Spectrum +600	37CH	PCL11
		95	Switch_Spectrum +1200	37CH	PCL11
		96	Switch_Spectrum +1800	37CH	PCL11
		97	Switch_Spectrum -1800	37CH	PCL19
		98	Switch_Spectrum -1200	37CH	PCL19
		99	Switch_Spectrum -600	37CH	PCL19
		100	Switch_Spectrum -400	37CH	PCL19
		101	Switch_Spectrum +400	37CH	PCL19
		102	Switch_Spectrum +600	37CH	PCL19
		103	Switch_Spectrum +1200	37CH	PCL19
		104	Switch_Spectrum +1800	37CH	PCL19
		105	Burst Timing	37CH	PCL5
		106	Burst Timing	975CH	PCL5
		107	Burst Timing	124CH	PCL5
		108	Burst Timing	37CH	PCL11
		109	Burst Timing	37CH	PCL19
	Rx	110	Reception sensitivity	37CH	PCL5
		111	Reception sensitivity	975CH	PCL5
		112	Reception sensitivity	124CH	PCL5
		113	Floor sensitivity 2	37CH	PCL5
		114	Reception level report	37CH	PCL5
	Tx	115	Sending output	699CH	PCL0
		116	Sending output	512CH	PCL0
		117	Sending output	855CH	PCL0
		118	Sending output	699CH	PCL5
		119	Sending output	699CH	PCL15
		120	Frequency deviation	699CH	PCL0
		121	Frequency deviation	512CH	PCL0
		122	Frequency deviation	855CH	PCL0
		123	Phase error (RMS)	699CH	PCL0
		124	Phase error (RMS)	512CH	PCL0
		125	Phase error (RMS)	855CH	PCL0
		126	Phase error (Peak)	699CH	PCL0
		127	Phase error (Peak)	512CH	PCL0
		128	Phase error (Peak)	855CH	PCL0
		129	Mod_spectrum -800	699CH	PCL0
		130	Mod_spectrum -600	699CH	PCL0
		131	Mod_spectrum -400	699CH	PCL0
		132	Mod_spectrum -250	699CH	PCL0
		133	Mod_spectrum -200	699CH	PCL0
		134	Mod_spectrum +200	699CH	PCL0
		135	Mod_spectrum +250	699CH	PCL0

Band	Sending/ Receive	No.	Item to be inspected	Channel	PCL
		136	Mod_spectrum +400	699CH	PCL0
		137	Mod_spectrum +600	699CH	PCL0
		138	Mod_spectrum +800	699CH	PCL0
		139	Mod_spectrum -800	512CH	PCL0
		140	Mod_spectrum -600	512CH	PCL0
		141	Mod_spectrum -400	512CH	PCL0
		142	Mod_spectrum -250	512CH	PCL0
		143	Mod_spectrum -200	512CH	PCL0
		144	Mod_spectrum +200	512CH	PCL0
		145	Mod_spectrum +250	512CH	PCL0
		146	Mod_spectrum +400	512CH	PCL0
		147	Mod_spectrum +600	512CH	PCL0
		148	Mod_spectrum +800	512CH	PCL0
		149	Mod_spectrum -800	855CH	PCL0
		150	Mod_spectrum -600	855CH	PCL0
		151	Mod_spectrum -400	855CH	PCL0
		152	Mod_spectrum -250	855CH	PCL0
		153	Mod_spectrum -200	855CH	PCL0
		154	Mod_spectrum +200	855CH	PCL0
		155	Mod_spectrum +250	855CH	PCL0
		156	Mod_spectrum +400	855CH	PCL0
		157	Mod_spectrum +600	855CH	PCL0
		158	Mod_spectrum +800	855CH	PCL0
		159	Mod_spectrum -800	699CH	PCL5
		160	Mod_spectrum -600	699CH	PCL5
		161	Mod_spectrum -400	699CH	PCL5
		162	Mod_spectrum -250	699CH	PCL5
		163	Mod_spectrum -200	699CH	PCL5
		164	Mod_spectrum +200	699CH	PCL5
		165	Mod_spectrum +250	699CH	PCL5
		166	Mod_spectrum +400	699CH	PCL5
		167	Mod_spectrum +600	699CH	PCL5
		168	Mod_spectrum +800	699CH	PCL5
		169	Mod_spectrum -800	699CH	PCL15
		170	Mod_spectrum -600	699CH	PCL15
		171	Mod_spectrum -400	699CH	PCL15
		172	Mod_spectrum -250	699CH	PCL15
		173	Mod_spectrum -200	699CH	PCL15
		174	Mod_spectrum +200	699CH	PCL15
		175	Mod_spectrum +250	699CH	PCL15
		176	Mod_spectrum +400	699CH	PCL15
		177	Mod_spectrum +600	699CH	PCL15
		178	Mod_spectrum +800	699CH	PCL15
		179	Switch_Spectrum -1800	699CH	PCL0
		180	Switch_Spectrum -1200	699CH	PCL0
		181	Switch_Spectrum -600	699CH	PCL0
		182	Switch_Spectrum -400	699CH	PCL0
		183	Switch_Spectrum +400	699CH	PCL0
		184	Switch_Spectrum +600	699CH	PCL0
		185	Switch_Spectrum +1200	699CH	PCL0
		186	Switch_Spectrum +1800	699CH	PCL0
		187	Switch_Spectrum -1800	512CH	PCL0
		188	Switch_Spectrum -1200	512CH	PCL0
		189	Switch_Spectrum -600	512CH	PCL0
		190	Switch_Spectrum -400	512CH	PCL0
		191	Switch_Spectrum +400	512CH	PCL0
		192	Switch_Spectrum +600	512CH	PCL0
		193	Switch_Spectrum +1200	512CH	PCL0
		194	Switch_Spectrum +1800	512CH	PCL0
		195	Switch_Spectrum -1800	855CH	PCL0
		196	Switch_Spectrum -1200	855CH	PCL0
		197	Switch_Spectrum -600	855CH	PCL0
		198	Switch_Spectrum -400	855CH	PCL0
		199	Switch_Spectrum +400	855CH	PCL0
		200	Switch_Spectrum +600	855CH	PCL0
		201	Switch_Spectrum +1200	855CH	PCL0
		202	Switch_Spectrum +1800	855CH	PCL0
		203	Switch_Spectrum -1800	699CH	PCL5

Band	Sending/ Receive	No.	Item to be inspected	Channel	PCL
		204	Switch_Spectrum -1200	699CH	PCL5
		205	Switch_Spectrum -600	699CH	PCL5
		206	Switch_Spectrum -400	699CH	PCL5
		207	Switch_Spectrum +400	699CH	PCL5
		208	Switch_Spectrum +600	699CH	PCL5
		209	Switch_Spectrum +1200	699CH	PCL5
		210	Switch_Spectrum +1800	699CH	PCL5
		211	Switch_Spectrum -1800	699CH	PCL15
		212	Switch_Spectrum -1200	699CH	PCL15
		213	Switch_Spectrum -600	699CH	PCL15
		214	Switch_Spectrum -400	699CH	PCL15
		215	Switch_Spectrum +400	699CH	PCL15
		216	Switch_Spectrum +600	699CH	PCL15
		217	Switch_Spectrum +1200	699CH	PCL15
		218	Switch_Spectrum +1800	699CH	PCL15
		219	Burst Timing	699CH	PCL0
		220	Burst Timing	512CH	PCL0
		221	Burst Timing	855CH	PCL0
		222	Burst Timing	699CH	PCL5
		223	Burst Timing	699CH	PCL15
	Rx	224	Reception sensitivity	699CH	PCL0
		225	Reception sensitivity	512CH	PCL0
		226	Reception sensitivity	855CH	PCL0
		227	Floor sensitivity 2	699CH	PCL0
		228	Reception level report	699CH	PCL0
PCS band (CMU 200 only)	Tx	229	Sending output	661CH	PCL0
		230	Sending output	512CH	PCL0
		231	Sending output	810CH	PCL0
		232	Sending output	661CH	PCL5
		233	Sending output	661CH	PCL15
		234	Frequency deviation	661CH	PCL0
		235	Frequency deviation	512CH	PCL0
		236	Frequency deviation	810CH	PCL0
		237	Phase error (RMS)	661CH	PCL0
		238	Phase error (RMS)	512CH	PCL0
		239	Phase error (RMS)	810CH	PCL0
		240	Phase error (Peak)	661CH	PCL0
		241	Phase error (Peak)	512CH	PCL0
		242	Phase error (Peak)	810CH	PCL0
		243	Mod_spectrum -800	661CH	PCL0
		244	Mod_spectrum -600	661CH	PCL0
		245	Mod_spectrum -400	661CH	PCL0
		246	Mod_spectrum -250	661CH	PCL0
		247	Mod_spectrum -200	661CH	PCL0
		248	Mod_spectrum +200	661CH	PCL0
		249	Mod_spectrum +250	661CH	PCL0
		250	Mod_spectrum +400	661CH	PCL0
		251	Mod_spectrum +600	661CH	PCL0
		252	Mod_spectrum +800	661CH	PCL0
		253	Mod_spectrum -800	512CH	PCL0
		254	Mod_spectrum -600	512CH	PCL0
		255	Mod_spectrum -400	512CH	PCL0
		256	Mod_spectrum -250	512CH	PCL0
		257	Mod_spectrum -200	512CH	PCL0
		258	Mod_spectrum +200	512CH	PCL0
		259	Mod_spectrum +250	512CH	PCL0
		260	Mod_spectrum +400	512CH	PCL0
		261	Mod_spectrum +600	512CH	PCL0
		262	Mod_spectrum +800	512CH	PCL0
		263	Mod_spectrum -800	810CH	PCL0
		264	Mod_spectrum -600	810CH	PCL0
		265	Mod_spectrum -400	810CH	PCL0
		266	Mod_spectrum -250	810CH	PCL0
		267	Mod_spectrum -200	810CH	PCL0
		268	Mod_spectrum +200	810CH	PCL0
		269	Mod_spectrum +250	810CH	PCL0
		270	Mod_spectrum +400	810CH	PCL0

Band	Sending/Receive	No.	Item to be inspected	Channel	PCL
		271	Mod_spectrum +600	810CH	PCL0
		272	Mod_spectrum +800	810CH	PCL0
		273	Mod_spectrum -800	661CH	PCL5
		274	Mod_spectrum -600	661CH	PCL5
		275	Mod_spectrum -400	661CH	PCL5
		276	Mod_spectrum -250	661CH	PCL5
		277	Mod_spectrum -200	661CH	PCL5
		278	Mod_spectrum +200	661CH	PCL5
		279	Mod_spectrum +250	661CH	PCL5
		280	Mod_spectrum +400	661CH	PCL5
		281	Mod_spectrum +600	661CH	PCL5
		282	Mod_spectrum +800	661CH	PCL5
		283	Mod_spectrum -800	661CH	PCL15
		284	Mod_spectrum -600	661CH	PCL15
		285	Mod_spectrum -400	661CH	PCL15
		286	Mod_spectrum -250	661CH	PCL15
		287	Mod_spectrum -200	661CH	PCL15
		288	Mod_spectrum +200	661CH	PCL15
		289	Mod_spectrum +250	661CH	PCL15
		290	Mod_spectrum +400	661CH	PCL15
		291	Mod_spectrum +600	661CH	PCL15
		292	Mod_spectrum +800	661CH	PCL15
		293	Switch_Spectrum -1800	661CH	PCL0
		294	Switch_Spectrum -1200	661CH	PCL0
		295	Switch_Spectrum -600	661CH	PCL0
		296	Switch_Spectrum -400	661CH	PCL0
		297	Switch_Spectrum +400	661CH	PCL0
		298	Switch_Spectrum +600	661CH	PCL0
		299	Switch_Spectrum +1200	661CH	PCL0
		300	Switch_Spectrum +1800	661CH	PCL0
		301	Switch_Spectrum -1800	512CH	PCL0
		302	Switch_Spectrum -1200	512CH	PCL0
		303	Switch_Spectrum -600	512CH	PCL0
		304	Switch_Spectrum -400	512CH	PCL0
		305	Switch_Spectrum +400	512CH	PCL0
		306	Switch_Spectrum +600	512CH	PCL0

Band	Sending/Receive	No.	Item to be inspected	Channel	PCL
		307	Switch_Spectrum +1200	512CH	PCL0
		308	Switch_Spectrum +1800	512CH	PCL0
		309	Switch_Spectrum -1800	810CH	PCL0
		310	Switch_Spectrum -1200	810CH	PCL0
		311	Switch_Spectrum -600	810CH	PCL0
		312	Switch_Spectrum -400	810CH	PCL0
		313	Switch_Spectrum +400	810CH	PCL0
		314	Switch_Spectrum +600	810CH	PCL0
		315	Switch_Spectrum +1200	810CH	PCL0
		316	Switch_Spectrum +1800	810CH	PCL0
		317	Switch_Spectrum -1800	661CH	PCL5
		318	Switch_Spectrum -1200	661CH	PCL5
		319	Switch_Spectrum -600	661CH	PCL5
		320	Switch_Spectrum -400	661CH	PCL5
		321	Switch_Spectrum +400	661CH	PCL5
		322	Switch_Spectrum +600	661CH	PCL5
		323	Switch_Spectrum +1200	661CH	PCL5
		324	Switch_Spectrum +1800	661CH	PCL5
		325	Switch_Spectrum -1800	661CH	PCL15
		326	Switch_Spectrum -1200	661CH	PCL15
		327	Switch_Spectrum -600	661CH	PCL15
		328	Switch_Spectrum -400	661CH	PCL15
		329	Switch_Spectrum +400	661CH	PCL15
		330	Switch_Spectrum +600	661CH	PCL15
		331	Switch_Spectrum +1200	661CH	PCL15
		332	Switch_Spectrum +1800	661CH	PCL15
		333	Burst Timing	661CH	PCL0
		334	Burst Timing	512CH	PCL0
		335	Burst Timing	810CH	PCL0
		336	Burst Timing	661CH	PCL5
		337	Burst Timing	661CH	PCL15
	RX	338	Reception sensitivity	661CH	PCL0
		339	Reception sensitivity	512CH	PCL0
		340	Reception sensitivity	810CH	PCL0
		341	Floor sensitivity 2	661CH	PCL0
		342	Reception level report	661CH	PCL0

Troubleshooting list according to the results of RF performance check.

Test item		Check parts for GSM	Check parts for DCS
Tx	Sending output	IC831, IC881, FL811, FL801	IC831, IC881, FL816, FL801
	Frequency deviation	TCX951	TCX951
	Phase error	VCO971, IC901, VCO851	VCO971, IC901, VCO851
	Mod_spectrum	VCO971, IC901, VCO851	VCO971, IC901, VCO851
	Switch_spectrum	VCO971, IC901, VCO851	VCO971, IC901, VCO851
	Burst Timing	IC881	IC881
Spurious	Not tested		
Rx	Reception sensitivity	FL801, FL901	FL801, FL902
	Floor sensitivity	FL801, FL901	FL801, FL902
	Reception level report	FL801, FL901	FL801, FL902

3.3.5 Software download

(1) Overview

This document describes the specification of the Flash-downloading tool (an upgrading tool) for user service.

(2) Purpose of this document

The aim of this document is to provide a sufficient description of the GX10i Upgrading Tool for readers.

(3) Scope

This document covers the description of the Flash-downloading tool specification for user service.

(4) Operating environment

Operating environment for the upgrading tool

OS: Windows 98, 98SE, 2000 or XP
 Downloadable file: Motorola format files only
 Communication mode: Asynchronous mode
 Data length: 8 bit
 Parity bit: None
 Stop bit length: 1 bit
 Baud rate: 9600 bps (only at the time of activation)
 28800 bps (While downloading the loader)
 115200 bps (While in the normal operation)

Operating environment for the loader

Phone: GX10i
 Communication mode: Asynchronous mode
 Data length: 8 bit
 Parity bit: None
 Stop bit length: 1 bit
 Baud rate: 9600 bps (only when activating)/115200 bps (While in the normal operation)

3.3.5.1 Description of the screens.

(1) Activation

You can start the application either from the short cut on your desktop or Start menu.

(2) The Upgrading Tool (on the PC)

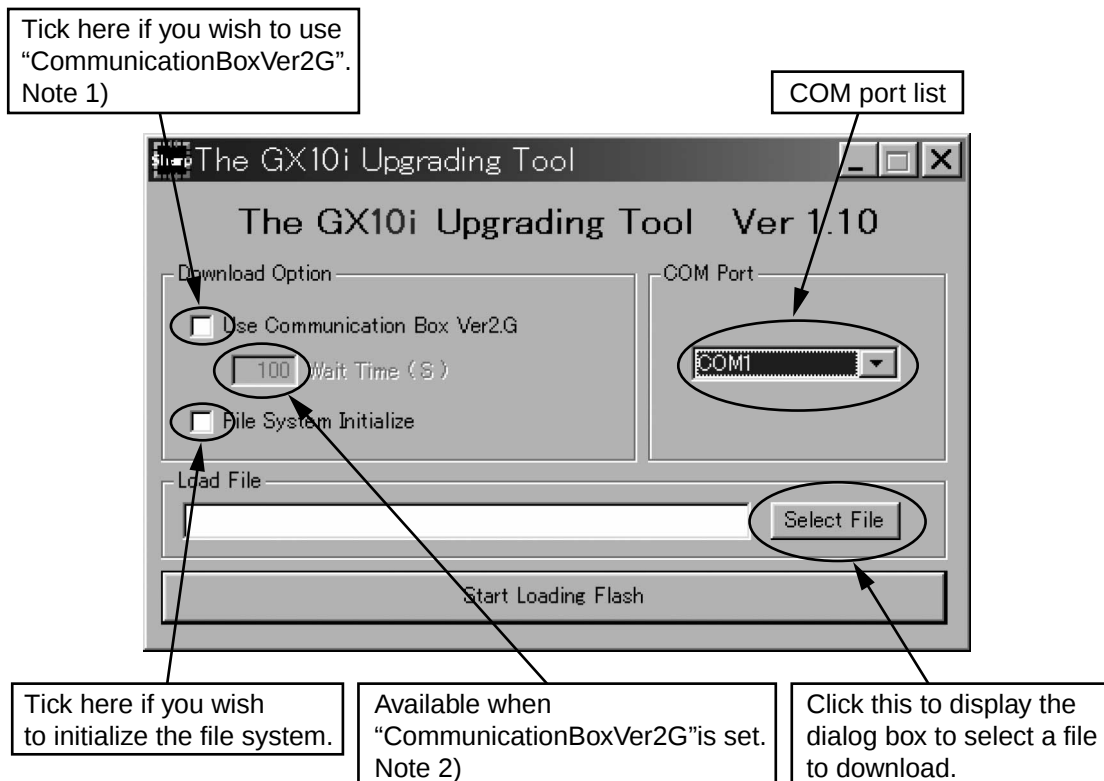


Figure 39

Note 1)

If using "communicationBoxVer. 2G", you can control only the phone connected to No.1 cable.

Note2)

Time displayed in this dialog box indicates a margin of processing time taken to download the data to phones that are connected to cable No.2 to No.10 of the "communicationBoxVer. 2G". If an error occurs, increase this margin. For details, see the section 3.3.5.2 (3) "Using the Communication Box Ver. 2G" on page 2-20.

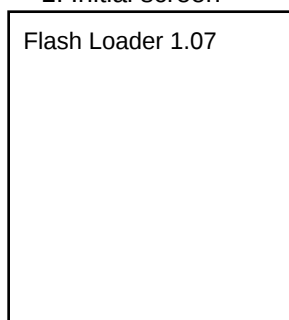
[Caution!]

- If you wish to download using "communicationBoxVer. 2G", turn on No.10 to No.1 after "Sending Sync Byte.../Press Power Button" message appears.
- To downloading by "communicationBoxVer. 2G", remove the battery first. There will be no damage to the phone even if the battery is inserted. However, the software on the phone may not terminate. In this case, remove the battery to turn off the phone after the download is ended.
- Use a fully charged battery for the downloading operation.
Remove the battery from the phone to terminate the software after the download is completed.
- Start downloading after phone is properly turned off in order to clear the Backup RAM.
- Note that if you select "FileSystem Initialize", the data stored in the phone will be deleted.

(3) The loader (in the phone)

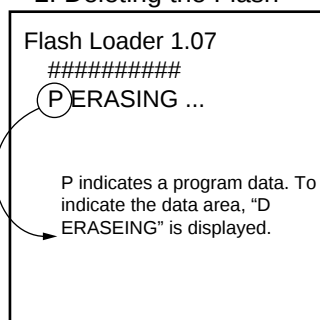
The operation progress indication and error status are displayed on the phone.
The following are example screens.

1. Initial screen



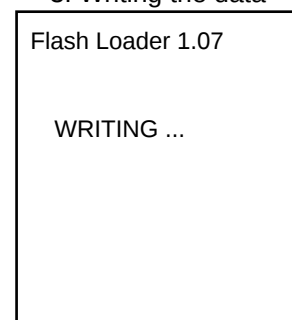
The version of the loader is displayed when it is successfully expanded.

2. Deleting the Flash



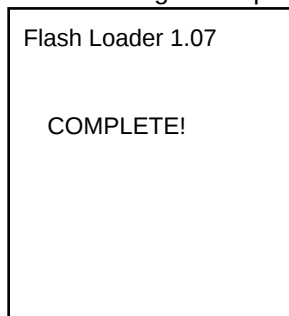
The Flash is being erased. "#" decreases as the erasing operation proceeds, and disappears when it is completed.

3. Writing the data



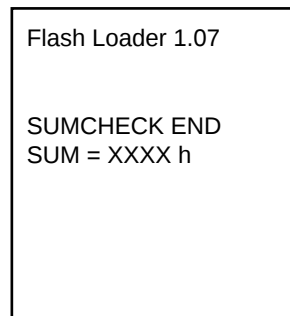
The data is being written into the handset.

4. Data writing is completed



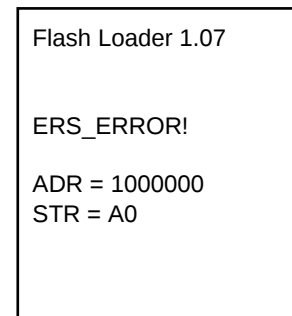
The program data is successfully loaded.

5. SUM value is indicated Note 1)



SUM value is displayed a few seconds after the program data is successfully loaded.
The value is displayed at "XXXX".

6. Error screen Note 2)



An error occurred.
ADR: Address the location of the error.
STR: Flash Status information

Note 1)

You can check if the loaded program data is correct by comparing the SUM values displayed on the PC and the phone shown on the screen 5. If both values are the same, the correct program data is loaded.

Note 2)

The screen 6 shows an error which occurred while erasing the Flash.

"ADR" and "STR" appear only for Flash-oriented errors. Other errors are described in the latter section.

3.3.5.2 Operational specification

(1) Selecting a file

Press "Select File" to open the dialog box. Select a file you wish to download.
You can select only the file in Motorola format.

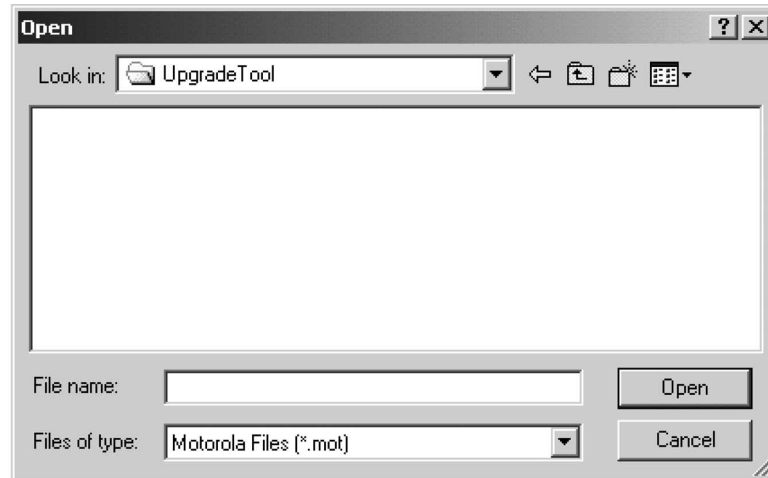


Figure 40 The dialog box to select a file

(2) Selecting COM port.

Select the COM port from COM1 to COM9 that connects the PC and phone (or "communicationBoxVer . 2G").



Figure 41 COM Port selecting screen

(3) Using the Communication Box Ver. 2G.

Tick "Use Communication Box Ver.2G" in the dialog box if using "Communication Box Ver.2G". For details, see the section 3.3.5.1 (2) "The Upgrading Tool (on the PC)" on page 2-17.

You can select wait time from 0 to 999 seconds since the access latency differs depending on the phone if using "Communication Box Ver.2G". (Default value is set to 100 seconds). For details on setting the wait time, see the section 3.3.5.1 (2) "The Upgrading Tool (on the PC)" on page 2-17.

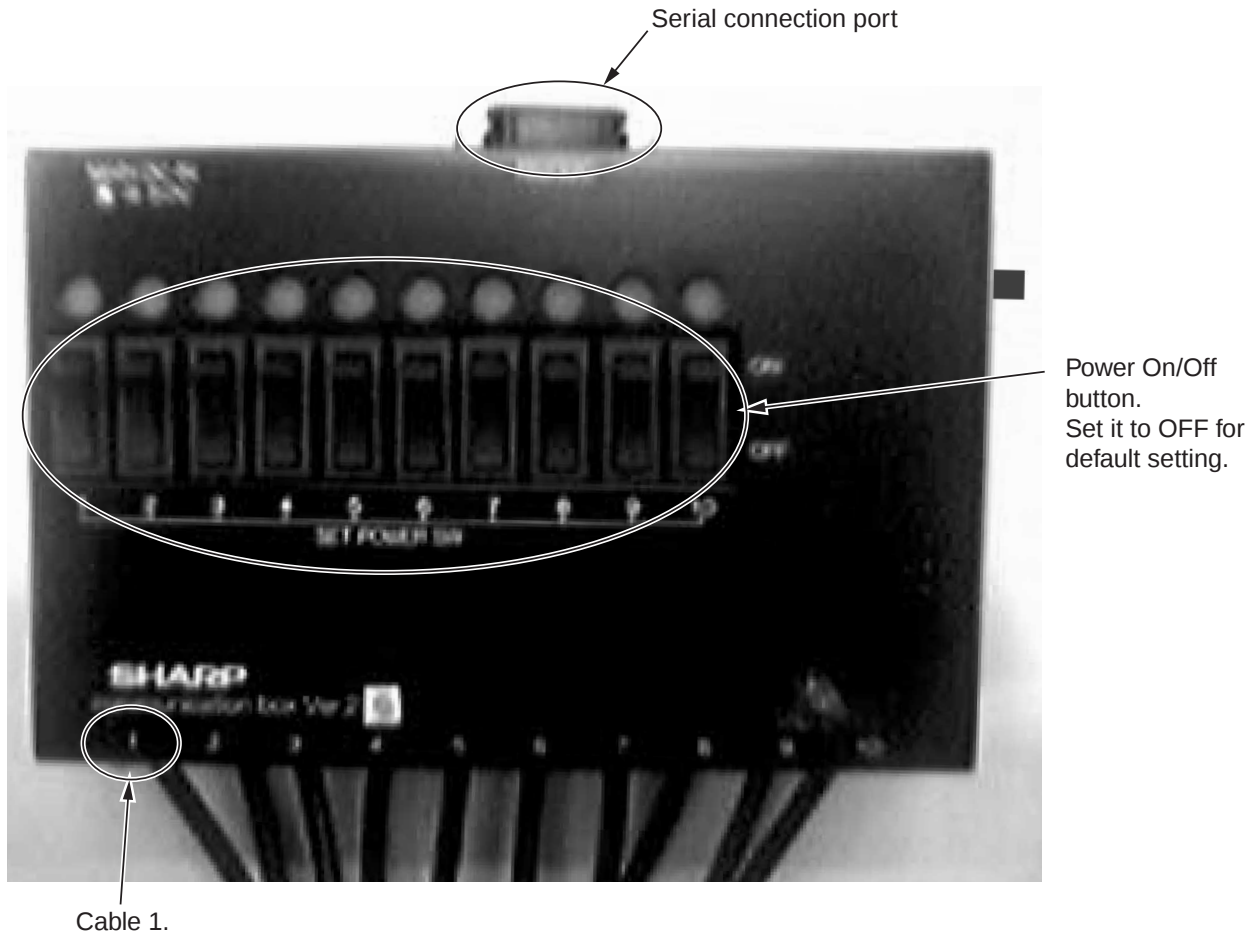


Figure 42 Image of Communication Box Ver. 2G

[Caution]

Cable 1 is used for handshaking between the PC and phone. Make sure the cable is properly connected to the phone during the handshaking if using "Communication Box Ver.2G".

Switch on the power buttons No.10 to No.1 when "Sending Sync Byte.../Press Power Button" appears.

(4) Starting the downloading operation

Press [Start Loading Flash] button after you select the file to download.

The downloading operation starts. The message below appears if no file is selected.



Figure 43

[Using a Data cable]

If using a Data cable for the downloading operation, press Power button of the phone after [Please remove AC charger, when you use PCableSending Sync Byte.../Press Power Button!] appears. The loader starts to activate.

[Using "Communication Box Ver. 2G"]

If using "Communication Box Ver. 2G", switch on the power buttons No.10 to No.1 after [Please remove AC charger, when you use PCableSending Sync Byte.../Press Power Button!] appears. The loader starts to activate.

[Caution]

If using a Data cable, [Sync received ; Sending RAM Loader.../Keep Power Button!] message will appear after the power button of the phone is pressed. Hold down the button until this disappears. The message disappears and the following screen will appear after the loader is completely expanded.

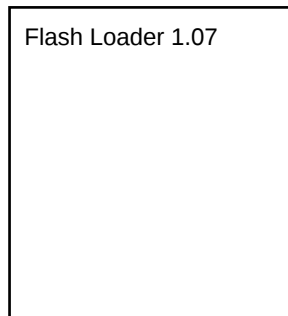


Figure 44

(5) Completing the download

When the program data is successfully downloaded, [Download completed] appears, and then the SUM value of the data loaded into the Flash is displayed. If the operation is not properly completed, an error message will appear. For details, refer to [Error message chart] on pages 2-22, 2-23.

[Caution!]

After the downloading operation, a SUM value is displayed on the phone.

You can check if the program data is successfully downloaded by comparing the SUM values displayed on the phone and PC.

If both values are not the same, the program data may not be successfully downloaded. Start over the entire downloading operation.

(6) Matters to be attended to the downloading operation.

[If using a Data cable:]

1. Make sure to remove the AC charger from the Data cable. Otherwise it may cause the charging application to be activated, resulting in failure to download.
2. Use a fully charged battery for the downloading operation.
Remove the battery from the phone to terminate software after the download is completed.
3. If the battery is not charged enough, the downloading operation may not be completed. Make sure to fully charge the battery before downloading.
4. If the downloading operation is cancelled or interrupted due to an error, remove the battery, attach it back, and start over the operation.
5. Start downloading after the phone is properly turned off in order to clear the Backup RAM.
6. Note that if you select "FileSystem Initialize" for the downloading operation, the data stored in the phone will be deleted.

[If using "communicationBoxVer . 2G":]

1. Switch on the Power buttons on the Box No.10 to No.1 in descending order when "Sending Sync Byte.../Press Power Button" appears. If the button 1 is switched on first, it results in failure of the downloading operation on phones that are connected to the cable 2 to 10.
2. Remove the battery. There is no damage to the phone even if the battery is inserted. However, the software of the phone may not terminate. In this case, remove the battery to turn off the phone after the download is completed.
3. The time to erase the program data differs depending on the phone.

If for the erasing operation fails after 100 seconds of wait time, increase "Wait Time", although it takes more time to finish downloading.
4. Start downloading after turning off the phone in order to clear the Backup RAM.
5. Note that if you select "FileSystem Initialize" for the download, the data stored in the phone will be deleted.

3.3.5.3 Error message chart

(1) Error messages for the upgrading tool (on the PC)

No.	Message	Description
1	Unable to open file	File open error Failed to open MOT file to download.
2	Unable to receive Sync Byte	Communication error Could not be synchronized with Boot ROM
3	Cannot communicate to port	Serial setting error Wrong serial port was selected.
4	RAM Loader not responding to commands	Communication error No response from the downloaded loader.
5	RAM Loader cannot understand commands	Communication error Received undefined response from the loader.
6	Unable to program flash	Flash operation error Failed to write or erase the Flash ROM.
7	Unable to reconfigure port	Serial setting Error Selected COM port is still in use.



Figure 45 An example of the error message

(2) Loader error message table (on the phone)

No.	Message	Description
1	COMPLETE!	The downloading operation is completed.
2	ERASE READY	Preparing for the erasing operation.
3	WRITE READY	Preparing for the program data.
4	BRT CHANGING	Changing the baud rate.
5	P ERASING ...	Erasing the program data.
6	WRITING ...	Loading the program data.
7	FLASH ERS OK!	The program data is successfully erased.
8	SUMCHECK ...	Calculating the SUM value of the written data.
9	SUMCHECK END	The calculation of the SUM value of the written data is completed.
10	SUM = XXXX h	The SUM value of the written data.
11	SUM ERROR!	Serial communication error (Check SUM error).
12	PARITYERR!	Serial communication error (Parity bit error).
13	FRAMINGERR!	Serial communication error (Framing error).
14	OVERFLOW!	Serial communication error (Buffer overflow error).
15	ERS_REC_ERROR	Serial communication error (Failed to receive the erase record).
16	BRT_REC_ERROR	Serial communication error (Failed to receive the change record of baud rate).
17	DAT_REC_ERROR	Serial communication error (Failed to receive the data record).
18	ADR_REC_ERROR	Serial communication error (Failed to receive the address record).
19	END_REC_ERROR	Serial communication error (Failed to receive the end record).
20	HDR_ERROR!	Serial communication error (Received the undefined record).
21	ODD_ERROR!	Serial communication error (Odd error).
22	SEQ_ERROR!	The Flash operation was failed (Sequence error).
23	VPP_ERROR!	The Flash operation was failed (VppLow error).
24	PRT_ERROR!	The Flash operation was failed (Protect error).
25	ERS_ERROR!	The Flash operation was failed (Erase error).
26	WRT_ERROR!	The Flash operation was failed (Write error).
27	ERASE CHK ERR	An error occurred while verifying the erasure.
28	WRITE CHK ERR	An error occurred while writing the data.
29	ADR = XXXXXXXX	The location of the error is displayed.
30	STR =XX	The time of the error occurrence is displayed.

- No.1 to No.10 are information messages. These messages are displayed in the normal operation.
No.11 to 30 are error messages. Messages No.22 to No.28 indicate Flash-oriented errors. The error address (No.29) and status (No.30) are also displayed at the same time.

3.3.5.4 Installation / Uninstallation

(1) Installation

Execute "setup.exe" and activate the setup wizard.



Figure 46

Select a folder you wish to install to.

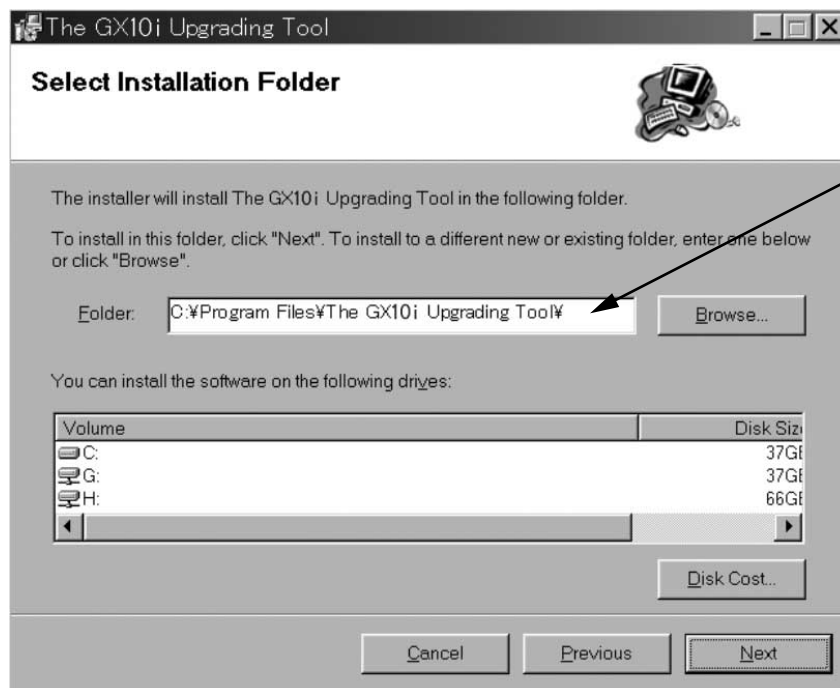


Figure 47

The confirmation screen appears. Select [Next].

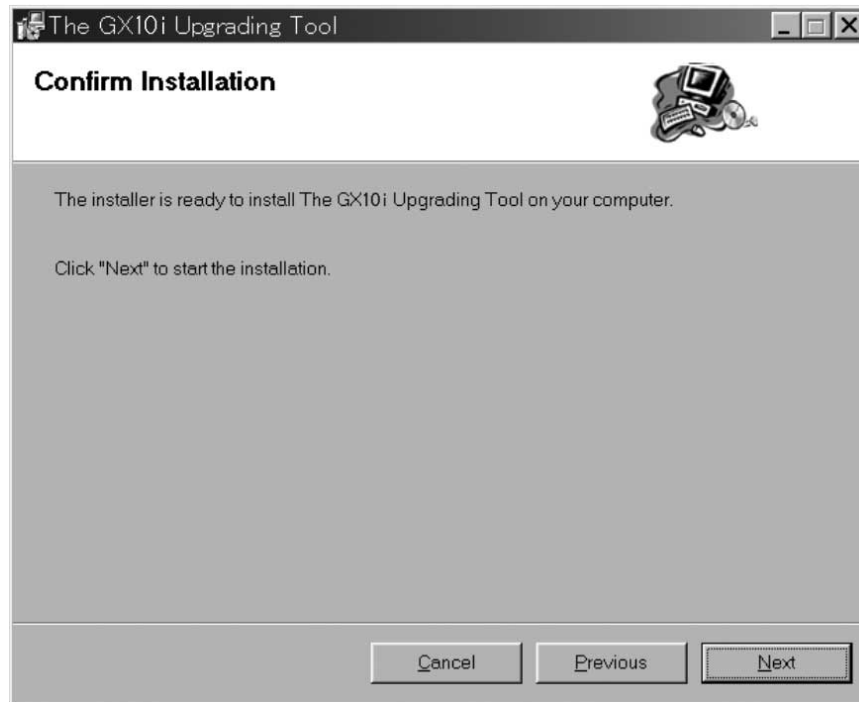


Figure 48

The Upgrading Tool is being installed.



Figure 49

The installation is complete.

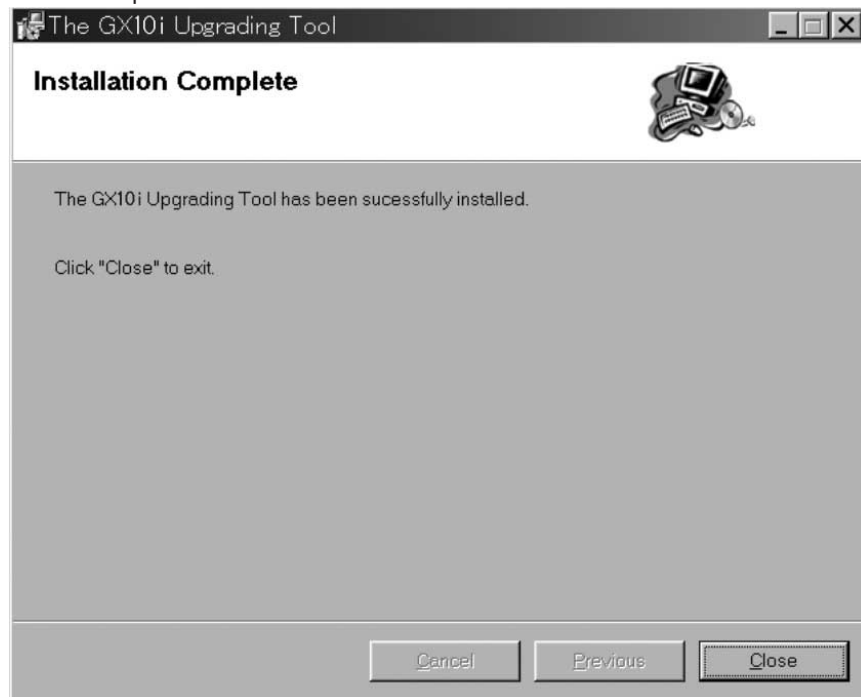


Figure 50

The Upgrading Tool icon shown below is configured on your desktop.
You can also activate this application by selecting "The GX10i Upgrading Tool" from Start menu.



Figure 51 The Upgrading Tool icon

(2) Uninstallation

Execute "setup.exe" and activate the setup wizard.
Running "setup.exe" uninstalls the preloaded program.



Figure 52

The preloaded program is being uninstalled.

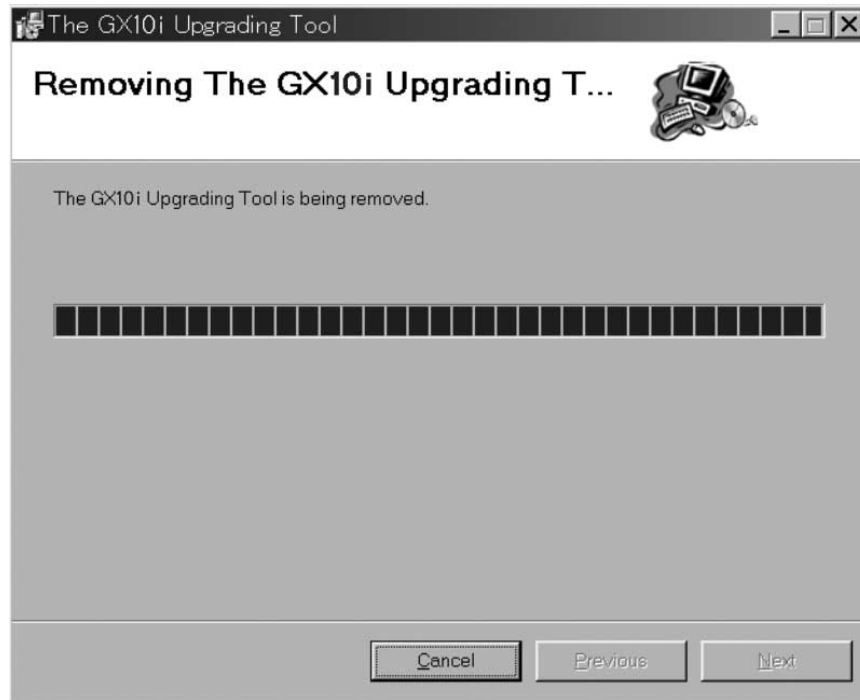


Figure 53

The uninstallation is complete.

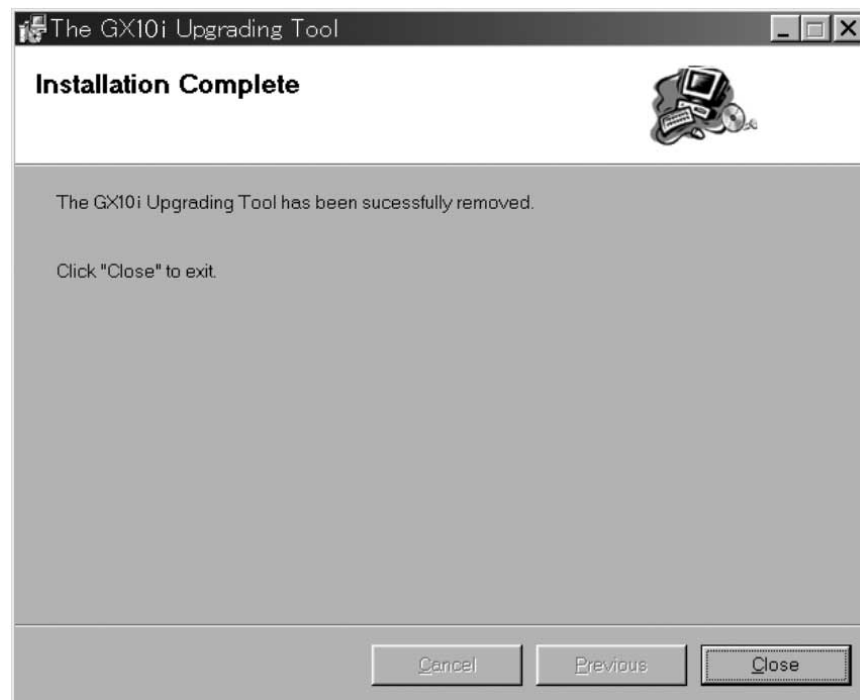


Figure 54

3.3.6 Matters to be attended to the Installation /Uninstallation

- To install the upgrading tool to the PC that already has one, uninstall the preloaded tool first, and then install the program again.
- If you are operating the upgrading tool on Windows 98, 98SE or Me operation system, a message may ask you to restart the operation system during the installation. In this case, do so according to the instruction. Even if such a message does not appear, restart your operation system after the installation is completed.

Note) If you are trying to activate the upgrading tool on Windows 98 without restarting it, the following message may appear. In this case, you need to restart the operation system to operate the upgrading tool properly.

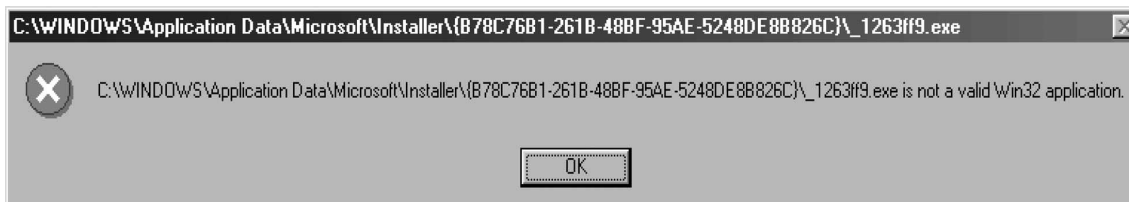


Figure 55

Attachment 3 Reset Tool for the phone code

<Description>

Reset the phone code to "0000".

<Operation>

- (1) Connect the Reset tool to the cable.
- (2) Execute "PWDinit.exe".
- (3) Press the power key to access the idle mode. ("InsertSIM" is displayed.)
- (4) Press "Set to Default".

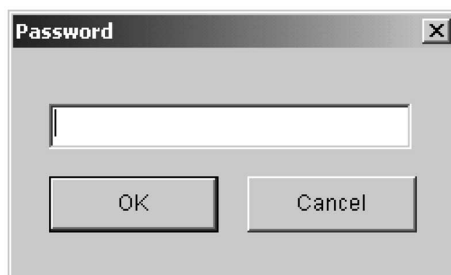


Figure 56

- (5) Enter "2968" and press "OK".



Figure 57

(6) Press “Reset”. The following confirmation message appears.



Figure 58

(7) Press “Yes” .

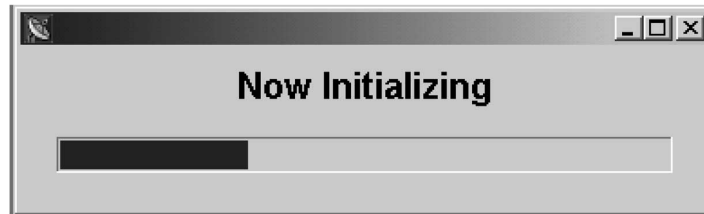


Figure 59

(8) When initialization is complete, the dialog box below appears. Press “OK” to turn off the phone.

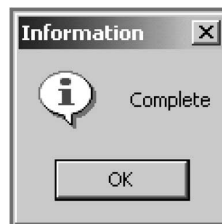


Figure 60

[2] SHARP RF Test tool manual

1. Requirements

- PC with COM port
- Mouse
- TQ-GX10i Data Cable
- PWB repair jig

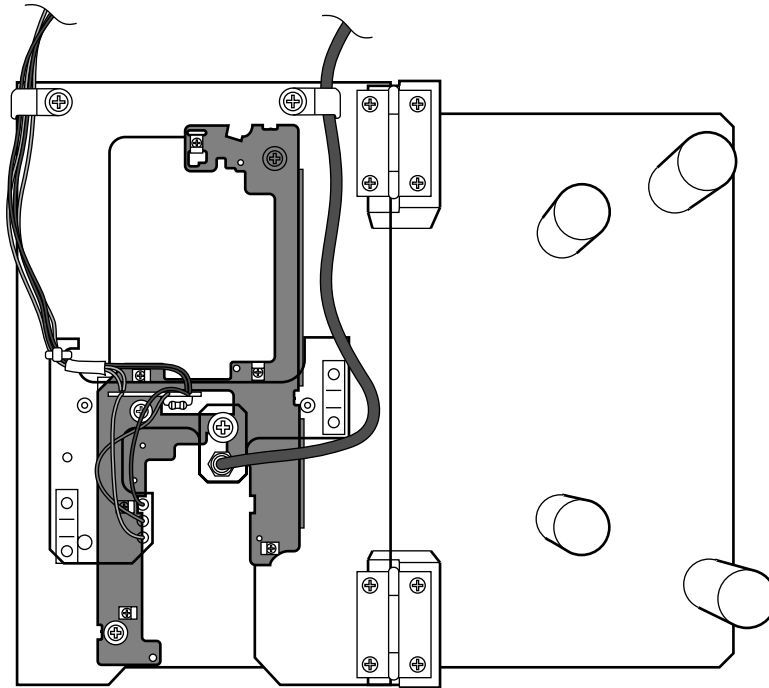


Figure 61 PWB repair jig

2. Setup

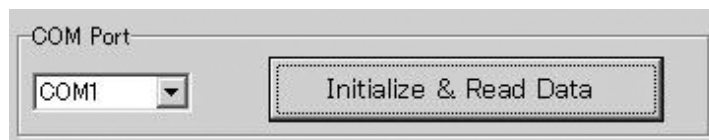


Figure 62

1. Set PWB and make connections as shown in Figures 64 and 65.
Make sure connections are correct at the points shown in Figure 66.
2. Connect PC and TQ-GX10i with Data Cable.
3. Turn on the phone.
4. Start RF Test Tool.
5. Select a COM port to which Data Cable is connected.
6. Press the "Initialize & Read Data" Button.
7. Figure 69 appears.
8. Click OK to proceed.



Figure 63

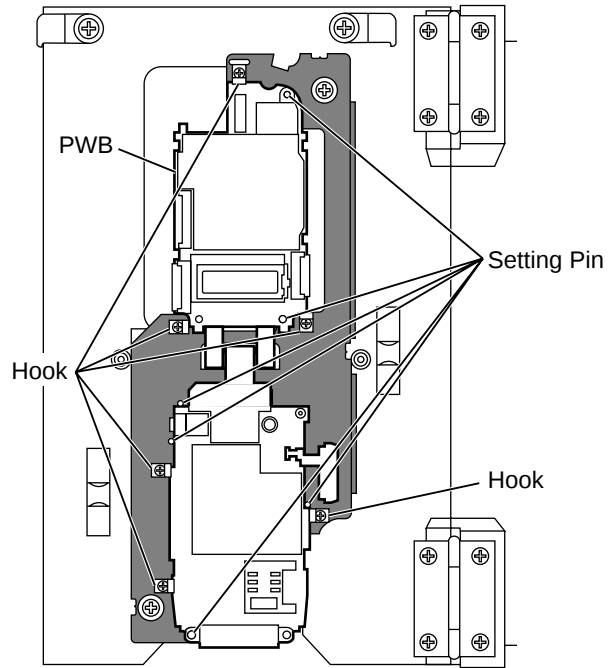


Figure 64 PWB installation

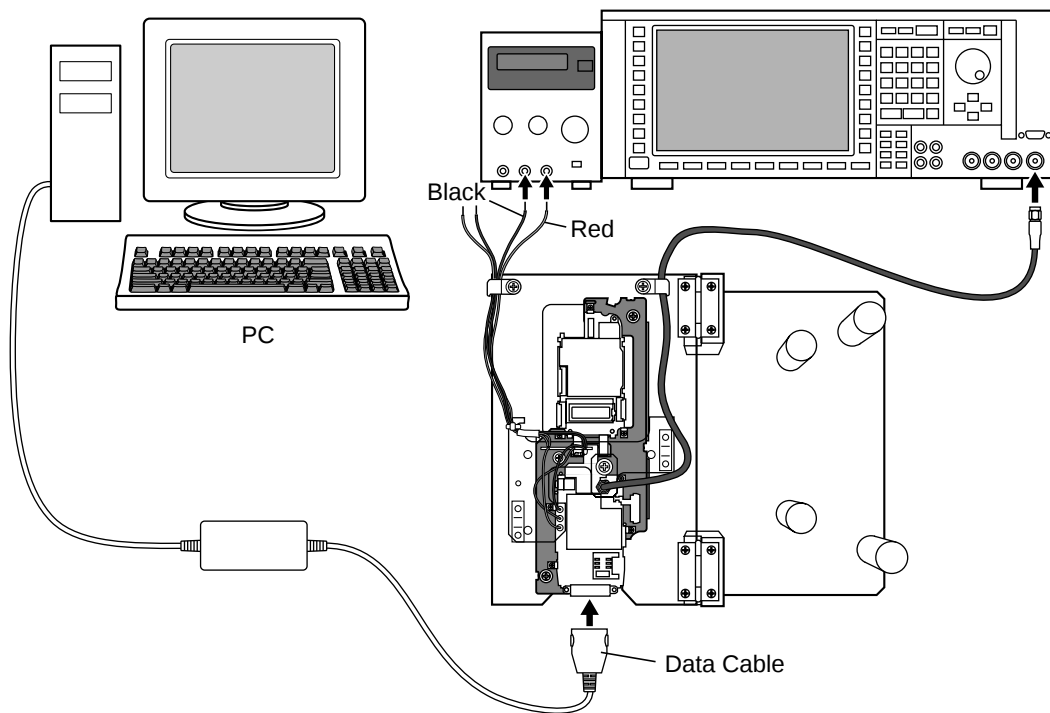


Figure 65 Connections

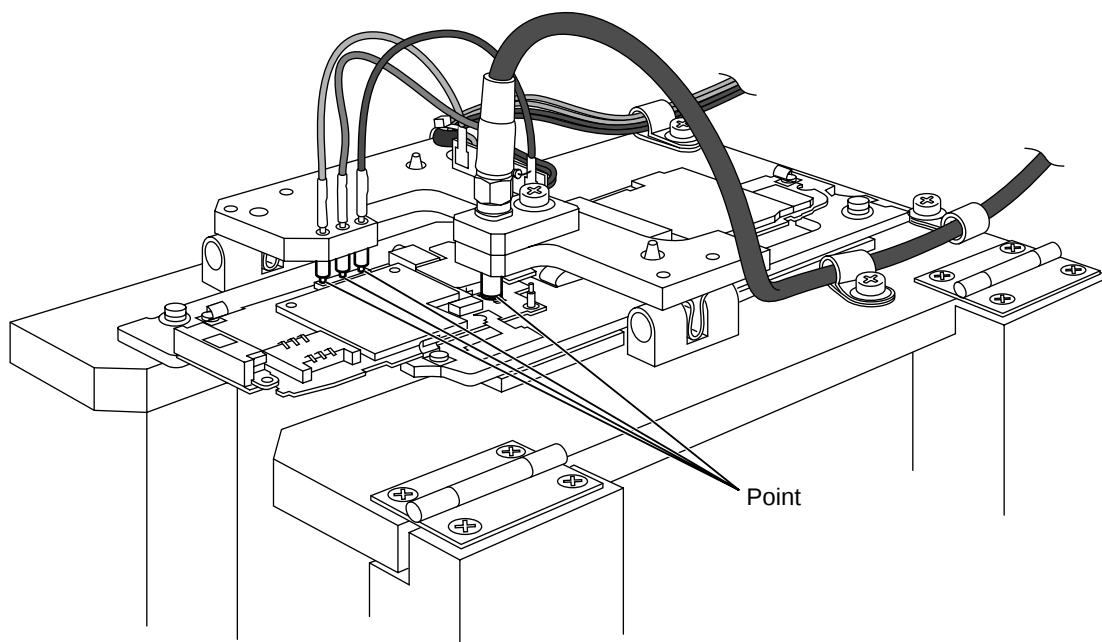


Figure 66 Contact points

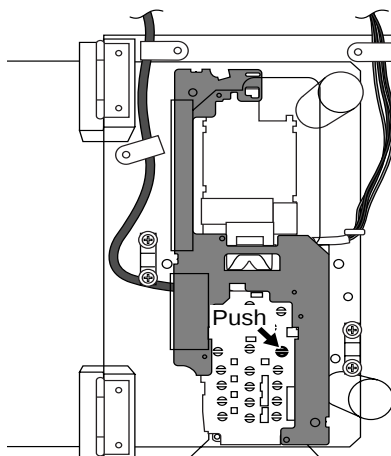


Figure 67 Turning power on

3. Tests

3.1 BAND Select & Channel

Select a band and a channel to test. Settings are applied to all tests.

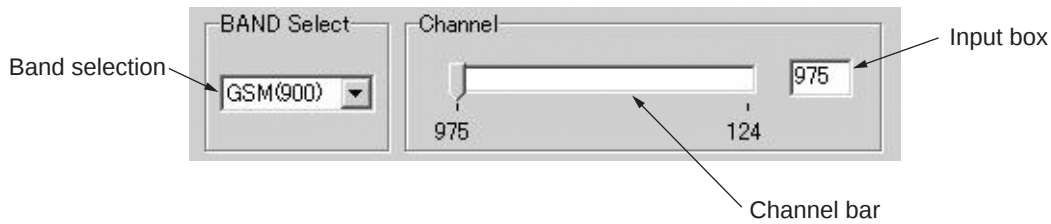


Figure 68

[Procedure]

1. Select a band. (GSM or DCS)
2. Select or enter a channel using Channel bar or Input box.

3.2 TX test

Test burst transmission.

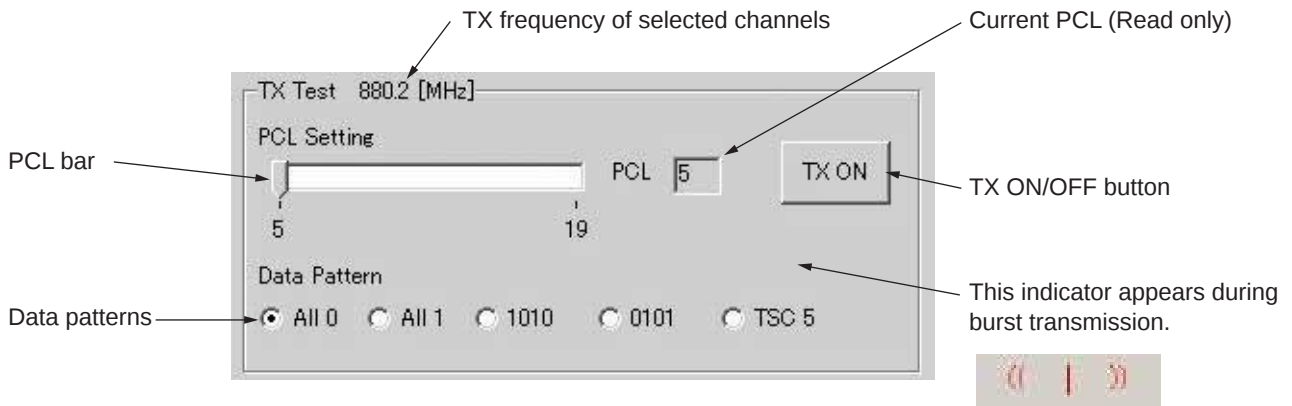


Figure 69

[Procedure]

1. Select a band and channel. (see 3.1)
2. Select PCL (Power Control Level) using PCL bar.
3. Select Data pattern.
4. Click TX ON to start burst transmission.
(You can check each part in this state.)
5. Click TX OFF to end burst transmission.

* Data pattern (TSC 5) includes Training Sequence GSM 5, and other part is pseudo random data.

* There may be a slight difference between the power of burst transmission with this tool and that of actual calls. (approximately 0.1dB within PCS bandwidth.)

GX10i TX power Table (Target power during calibration, supply voltage: 3.7[V])

GSM

PCL	TX Power [dBm]
5	31.6
6	30.0
7	29.0
8	27.0
9	25.0
10	23.0
11	21.0
12	19.0
13	17.0
14	15.0
15	13.0
16	11.0
17	9.0
18	7.0
19	5.0

DCS

PCL	TX Power [dBm]
0	28.6
1	27.0
2	26.0
3	24.0
4	22.0
5	20.0
6	18.0
7	16.0
8	14.0
9	12.0
10	10.0
11	8.0
12	6.0
13	4.0
14	2.0
15	0.0

3.3 RX test

The phone receives burst signals in this test.

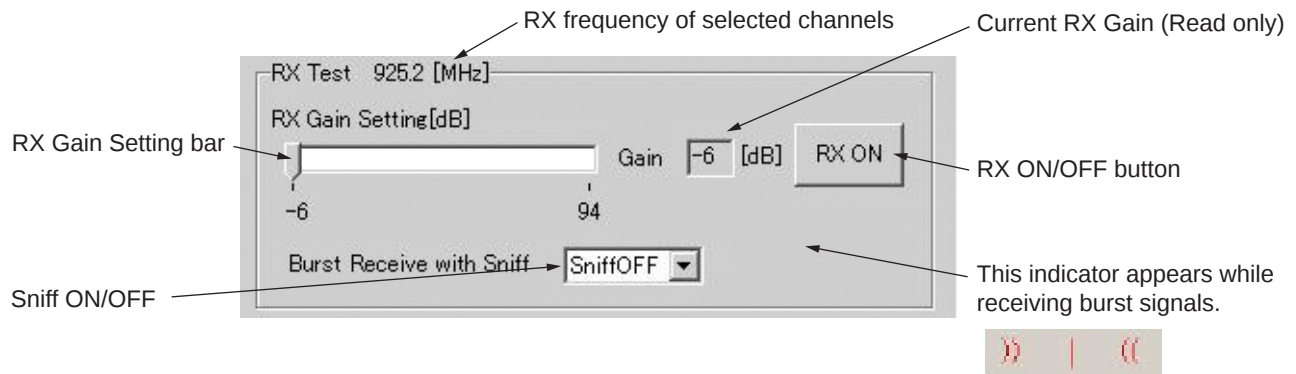


Figure 70

[Procedure]

1. Select a channel and band. (see 3.1)
2. Select RX Gain using RX Gain Setting bar.
3. Choose Sniff ON or OFF.
4. Click RX ON to start receiving burst signals.
5. In continuous mode, transmit burst signals from GSM tester.
(You can check each part in this state.)
6. Click RX OFF to end receiving burst signals.

* In this test, the reception timing cannot be synchronized with burst signals from Signal Generator, etc.

* The standard RX Gain Setting is:

(Input power at the antenna connector of the phone) + (RX Gain) = -16 dBm

Excessive Input power or RX Gain may cause damage to the phone.

3.4 RSSI Measure

The phone notifies you of input power value at the antenna connector.

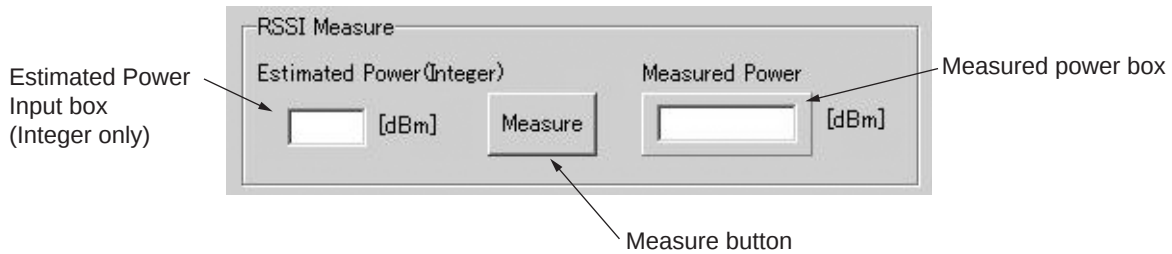


Figure 71

[Procedure]

1. Connect the phone and GSM tester (or Signal Generator) with RF cable.
2. Select a band and channel. (see 3.1)
3. Send signals (*) from GSM tester.
4. Enter the value of input power from GSM tester in integers (from -10 to -110) considering RF cable loss.
5. Press the Measure button.
6. The result appears in Measured Power box.

* The signal type from GSM tester must be either of two:

1. Continuous sine wave (without modulation) with the frequency as follows:
(Frequency of the measured channel) + 67.708kHz.
(Ex. channel: GSM 37ch → the result: 942.467708 MHz)
Power: -110 to -10 dBm
2. BCCH signal of the measured channel
Power: -110 to -10 dBm

Result

When the phone is properly calibrated, the error between "Estimated Power" and "Measured Power" is less than 2dB.

4. Termination

Turn off the phone to ensure proper operations.

[3] Adjustment procedures after replacement of the parts

Be sure to make adjustments to the parts as shown in the table below.

	1. Adjustment to camera temperature	2. Adjustment to battery temperature	3. Flicker adjustment	4. White defect correction	5. Optical axis adjustment
IC105	○	×	×	×	×
IC307	×	○	×	×	×
Camera FPC A'ssy	×	×	×	○	○
Main-screen Display	×	×	○	×	×

1. Adjustment procedures of camera temperature

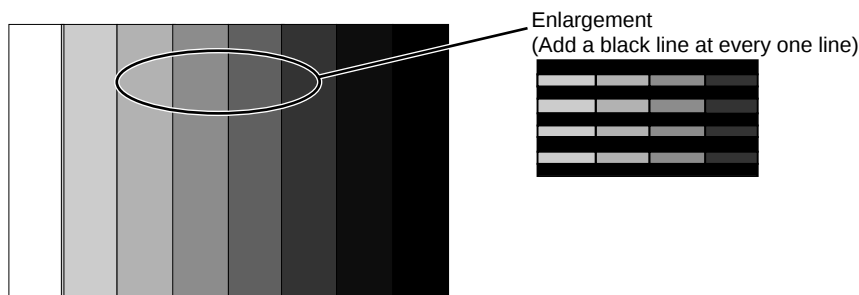
1. Place a thermometer near the unit to be adjusted. Make sure the room temperature is over 0°C.
2. Attach the battery pack.
3. Access the normal mode by holding down the power key.
4. Transmit the [AT+XDIAG] command.
5. Make sure the screen for the function test mode is displayed.
6. Access the TEMP ADJ mode by pressing the “*” key, and push the “1” (1. CAM TEMP) key.
7. Temperature detected by the sensor is displayed after “Temp:”. Compare the displayed value to the room temperature. Enter the difference as a corrected value with the “▼” key if the displayed value is higher, and use the “▲” key if it is lower. The corrected value is displayed after “Correct:”.
8. Press the “#” key. [Param Save OK.] will be displayed to notify the corrected value is registered.
9. Press the “0” key to access the initial screen of the function test mode.
10. Press the “Power” key to exit this mode.

2. Adjustment procedures of battery temperature

1. Perform steps 1 – 5 of “Camera temperature adjustment procedure”.
2. Access the TEMP ADJ mode by pressing the “*” key, and push the “2” (2.BAT TEMP) key.
3. Perform steps 7 – 10 of “Camera temperature adjustment procedure”.

3. Flicker adjustment procedure

1. Attach the battery pack.
2. Access the manual testmode
3. Access the manual testmodeF81 (LCD Setting) by pressing the “8”, “1” and “Right Soft” keys in this order.
4. Press the “2” (2. VCOM Adjust) key.
5. Adjust the flickers on the screen to the minimum by pressing the “▲” and the “▼” keys. Make sure visually they are minimized at a distance of about 20 cm from the inverter fluorescent lamp. (Fine adjustments to the DC voltage between LCD electrodes)



8 gradation patterns with a black line between each line of the patterns (monochrome pattern)

6. Press the “Centre” key twice. [Diag Param Saving] will be displayed to notify the corrected value is registered.
7. Press the “Power” key to exit this mode.

4. Procedures of white defect correction

1. Attach the battery pack.
 2. Access the normal mode by holding down the power key.
 3. Connect the unit to the PC and send the [AT+XDIAG] command.
 4. Make sure the screen for the function test mode is displayed.
 5. Send the [LDDEVPRM] command.
 6. Block off light completely from the light sensor after receiving the [LDDEVPRMOK]. If the [LDDEVPRMNG] is received, start from step 5.
 7. Transmit the [WHC01540160] command.
 8. 6 digits will be received if the transmission is completed after 20 to 30 seconds. Be sure to continue to block off light during this process.
- <6 digits to be received>
- In case of [LDDEVPRMOK]: aaabbb will be received.
aaa: the number of white defects
bbb: the maximum level of dark current
 - In case of [LDDEVPRMNG]: 000000 will be received.
This indicates light was not blocked completely. Go back to step 7.
9. Send the [WH] command.
 10. If [OK] is received, send the AT [SVDEVPRM] command.
 11. After receiving the [SVDEVPRMOK], block off light completely from the light sensor. If the [SVDEVPRME1] is received, go back to step 10.
 12. Remove the Data cable from the unit. Press the "Power" key to exit.

* White defect correction

White defects indicate pixel defects in the image detected by the light sensor. These appear as white spots even when light is completely blocked off (even on a black background). White defect correction solves this problem.

5. Optical axis adjustment

1. Attach the battery pack.
2. Access the normal mode by holding down the "Power" key.
3. Connect the unit to the PC and send the [AT+XDIAG] command.
4. Make sure the screen for the function test mode is displayed.
5. Press the "6" key. The camera image will appear on the display.
6. Set your face in the center of the camera mirror and press the "Centre" key (for shooting). Correct the image with the "◀" key if it is on the center right, and use the "▶" key if it is on the center left. Press the "Right Soft" key. [Param Save OK.] will be displayed to notify the corrected value is registered. The screen is returned to the shooting screen. The image is moved by 2 dots each time the "◀" or "▶" key is pressed.
7. Make sure the image is set in the center after performing step 6 several times.
8. Press the "0" key to access the initial screen of the function test mode.
9. Press the "Power" key to exit this mode.

[4] Test points

KEY PWB-B (FRONT SIDE)

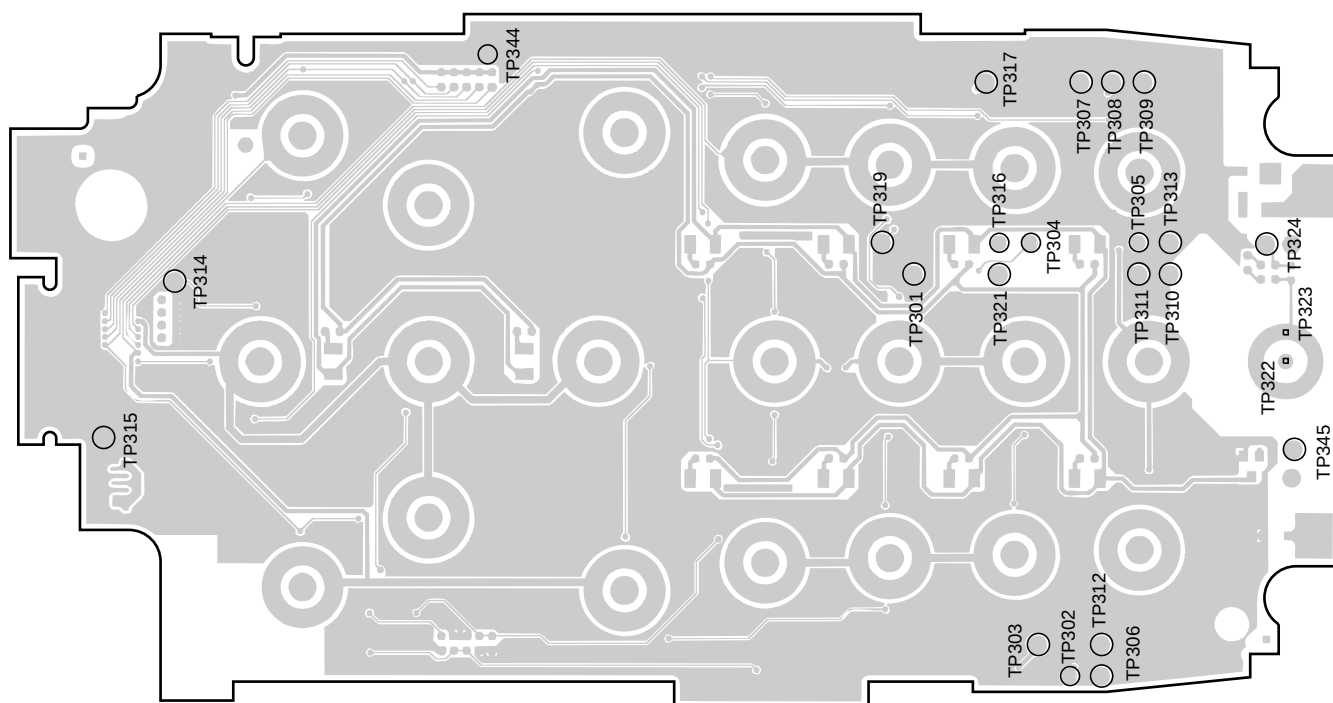


Figure 72 TEST POINT

TP No.	Signal name	TP No.	Signal name
TP301	VSIM (2.85 V)	TP312	TXD
TP302	SIMCLK	TP313	ADP
TP303	SIMRST	TP314	BATT_SENSE
TP304	SIMIO	TP315	DGND
TP305	TDI	TP316	3 V
TP306	RXD	TP317	VTCXO (2.9 V)
TP307	ADPDET	TP319	VRF (2.9 V)
TP308	CONT2	TP321	VBACK (3 V)
TP309	CONT1	TP324	MIC
TP310	RTS	TP344	D GND
TP311	CTS	TP345	KEY_BL_ON

KEY PWB-B (REAR SIDE)

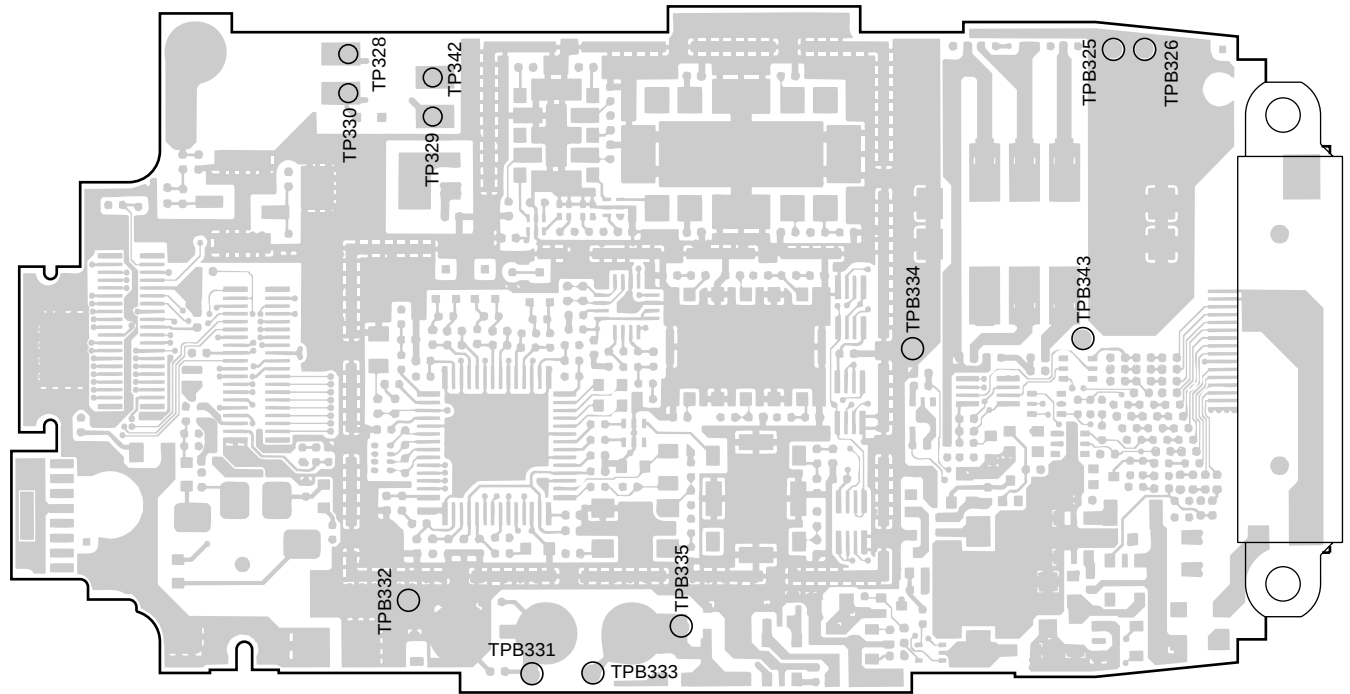


Figure 73 TEST POINT

TP No.	Signal name
TPB325	TXD
TPB326	RXD
TPB331	BATT_SENSE
TPB332	DGND
TPB333	BATT
TPB334	DGND
TPB335	BATT
TPB343	ADPDET

MAIN PWB-A (FRONT SIDE)

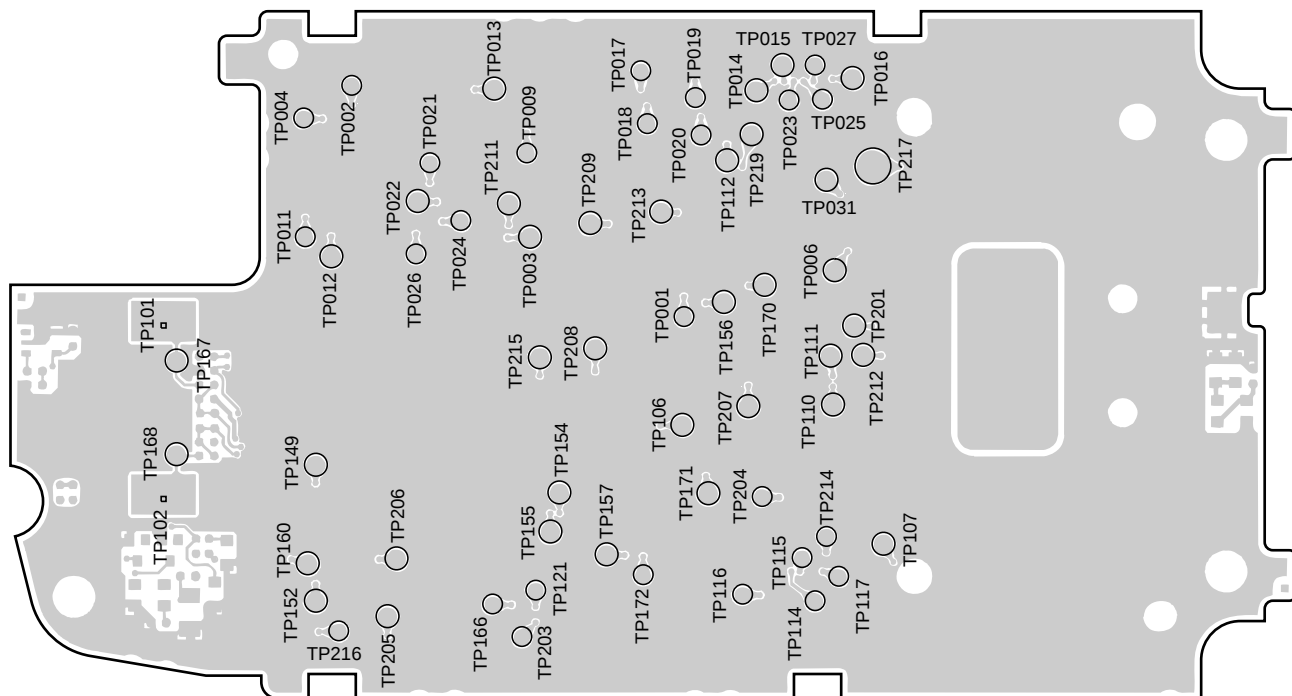


Figure 74 TEST POINT

TP No.	Signal name	TP No.	Signal name	TP No.	Signal name
TP001	/RD	TP026	GCS2	TP167	RECIVER_OUTP
TP002	/WR	TP027	GCS1	TP168	RECIVER_OUTN
TP003	/LCD_RST	TP031	Back light (LED-)	TP170	AUXADC2 (ADIN)
TP004	CS_TFTLCD	TP106	JAKMIC	TP171	AUXADC6
TP006	Back light (LED+)	TP107	JAKEAR	TP172	CLKOUTGATE
TP009	VDDCORE	TP110	SP1	TP201	CHGIN
TP011	13 MHzCLK	TP111	SP2	TP203	VBACK (3 V)
TP012	Terminal for LCDC adhesion check 1	TP112	VVIB	TP204	BATT_SENSE
TP013	Terminal for LCDC adhesion check 2	TP114	TCK	TP205	VRTC (1.8 V)
TP014	LCD 5 V	TP115	TMS	TP206	VCAM (3.1 V)
TP015	LCD 15 V	TP116	TDI	TP207	VCORE (1.8 V)
TP016	LCD -10 V	TP117	TDO	TP208	VANA (2.45 V)
TP017	LS	TP121	H_AMP	TP209	VMEM (2.8 V)
TP018	DCLK	TP149	Terminal for STACK MEMORY adhesion check 1	TP211	VLCD (2.5 V)
TP019	PS2	TP152	Terminal for STACK MEMORY adhesion check 2	TP212	VEXT_CN (2.5 V)
TP020	PS1	TP154	TMS/CHECKER_1	TP213	VINT (3 V)
TP021	SPL	TP155	TCK_/LED_ON	TP214	VINT_SW (3 V)
TP022	GSP	TP156	EXT1	TP215	VT (2.715 V)
TP023	GCK	TP157	CLKOUT	TP216	VIR (2.8 V)
TP024	ALW	TP160	Flash-Vpp	TP217	POWONKEY
TP025	GMODE	TP166	CINT	TP219	VBAT_BB

MAIN PWB-A (REAR SIDE)

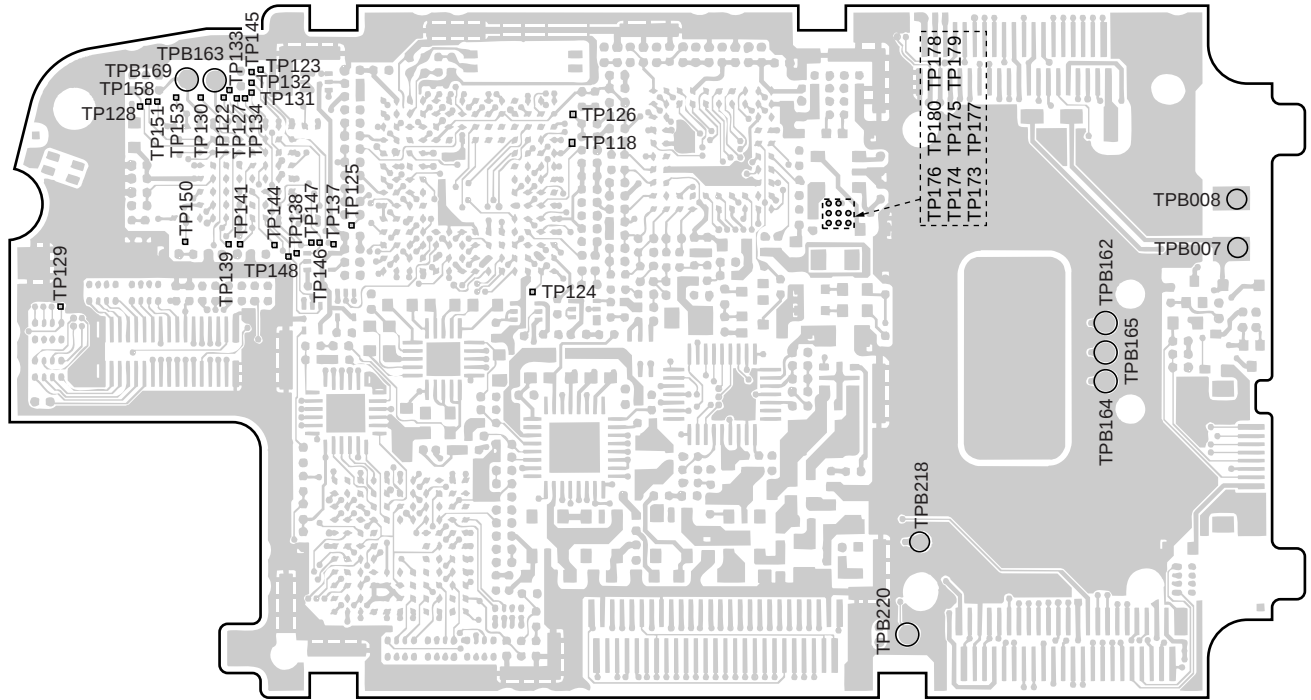
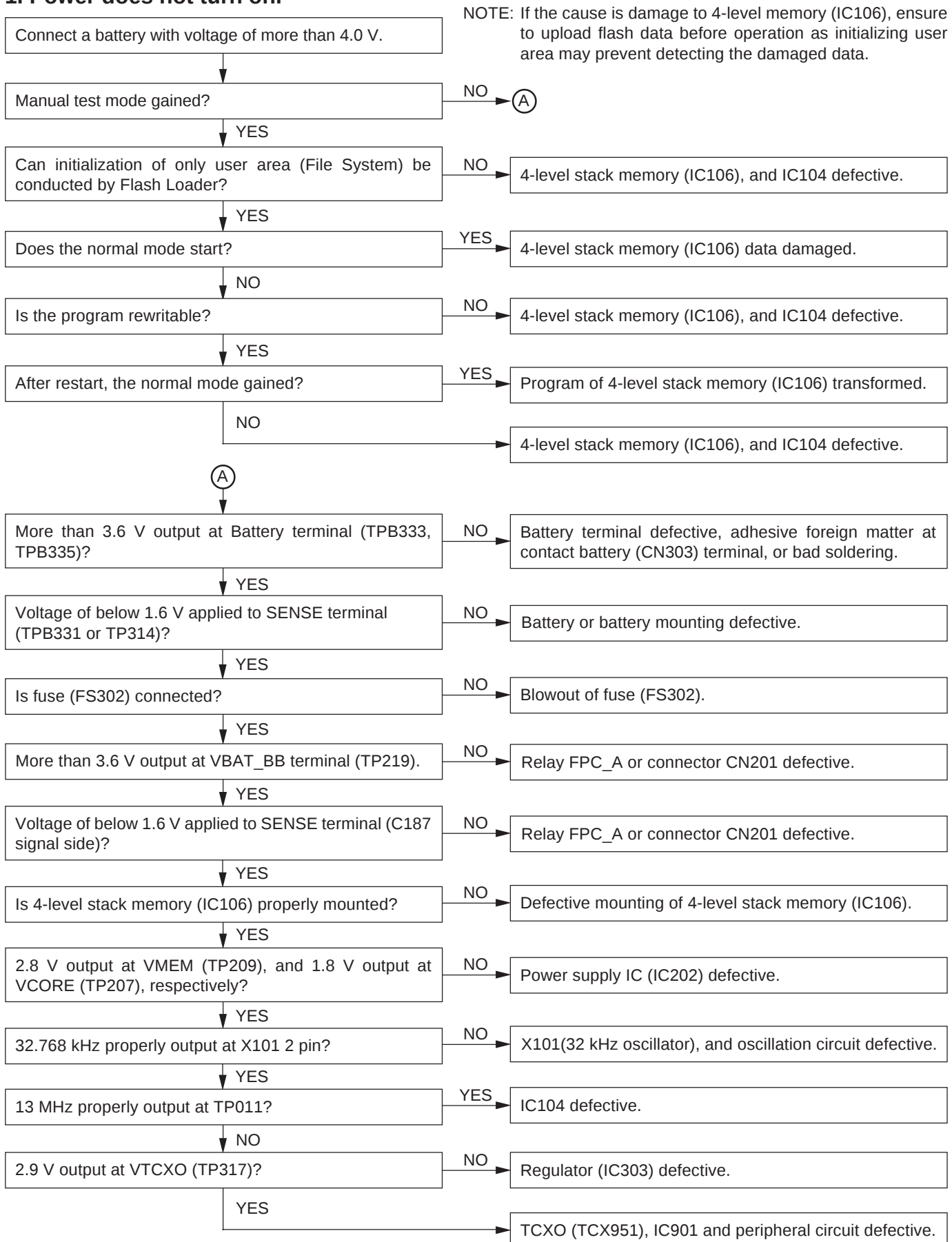


Figure 75 TEST POINT

TP No.	Signal name
TPB162	TCK/LED_ON
TPB163	TDI
TPB164	TDO
TPB165	TMS_CHECKER
TPB169	JTAG (3VINPOT)
TPB218	POWONKEY
TPB220	POWONKEY

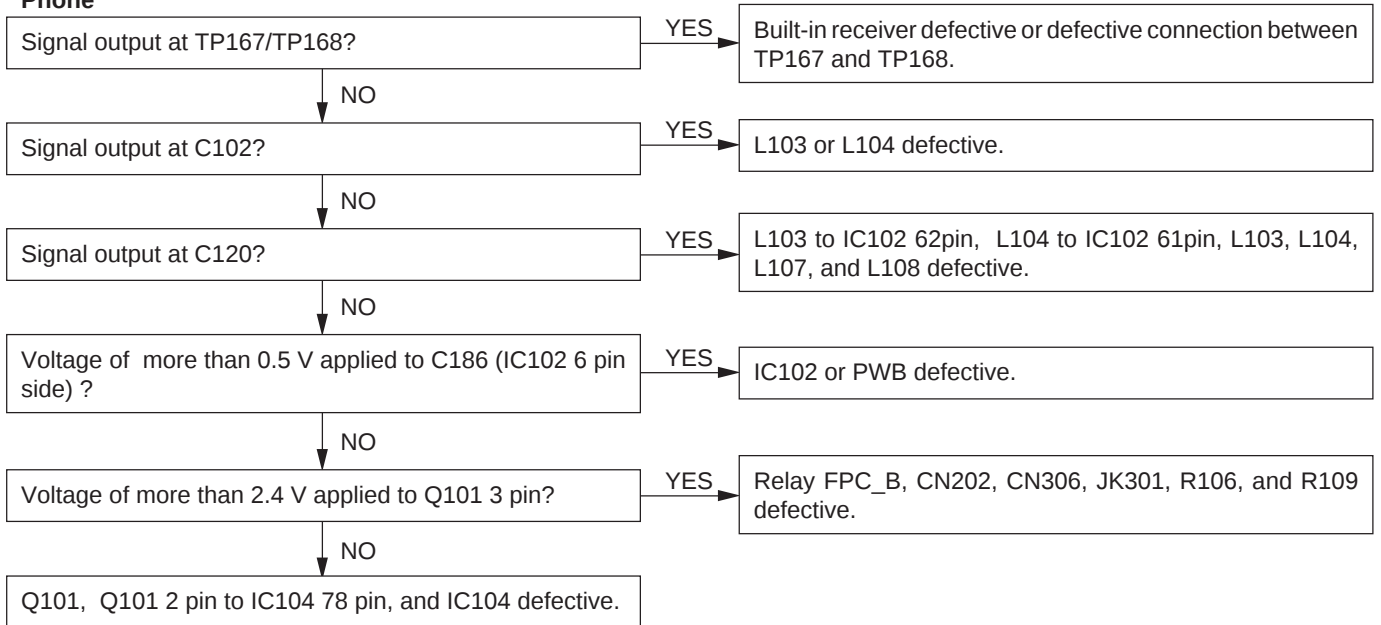
[5] Troubleshooting

1. Power does not turn on.

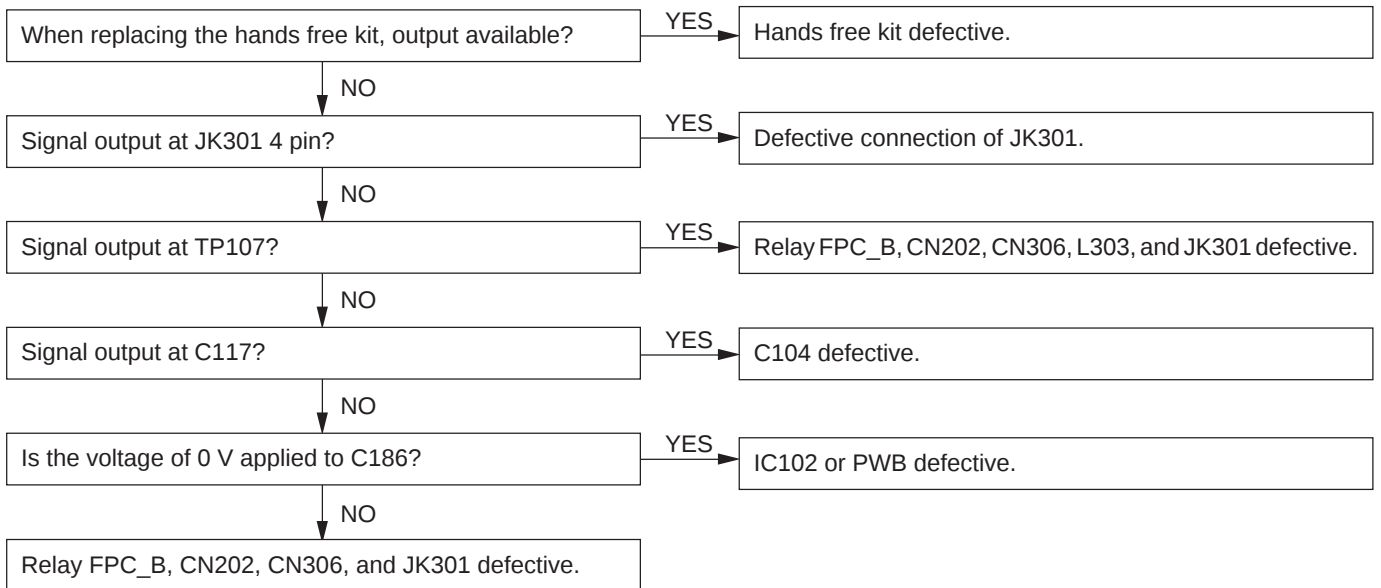


2. Incoming audio cannot be heard.

Phone

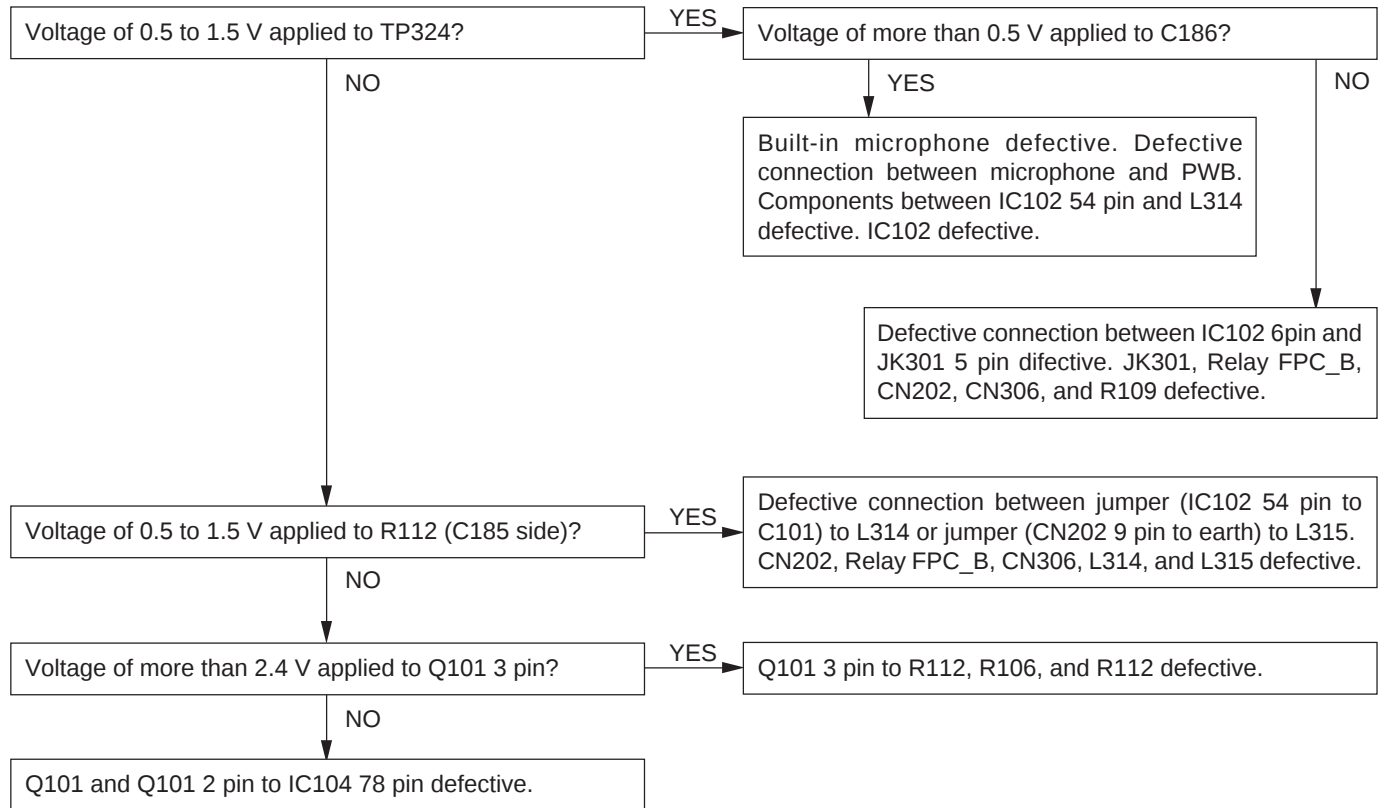


Hands free kit

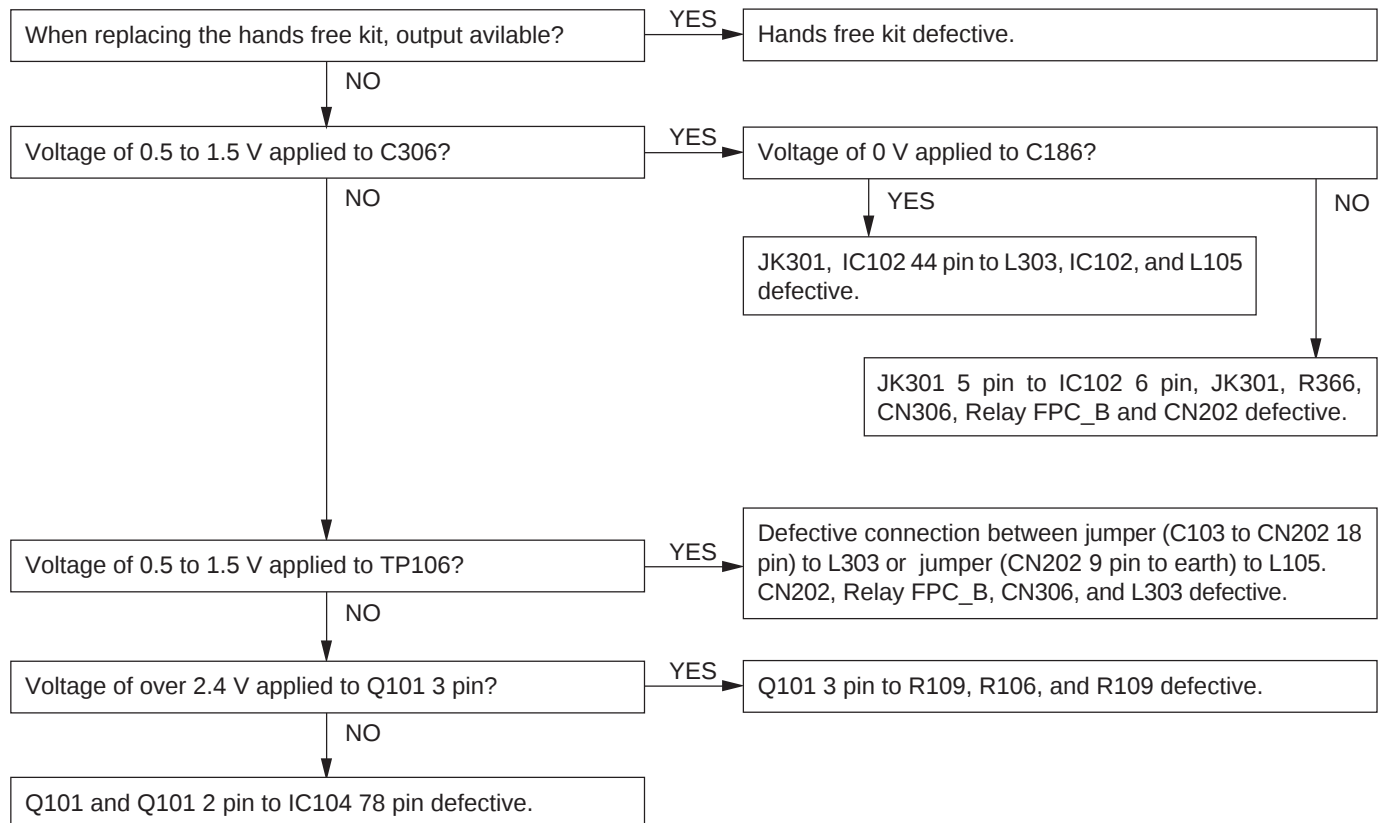


3. Audio cannot be sent/recorded.

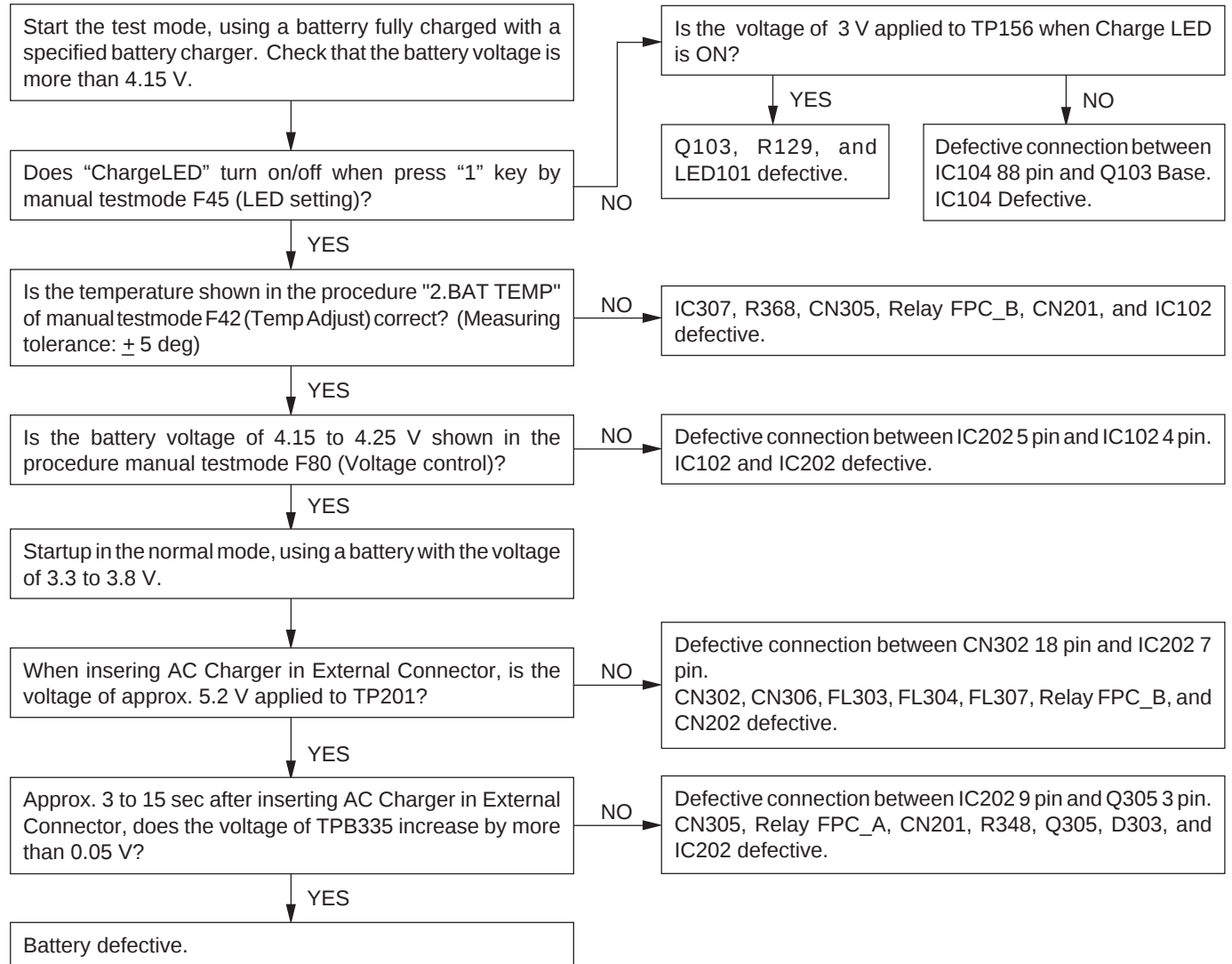
Phone



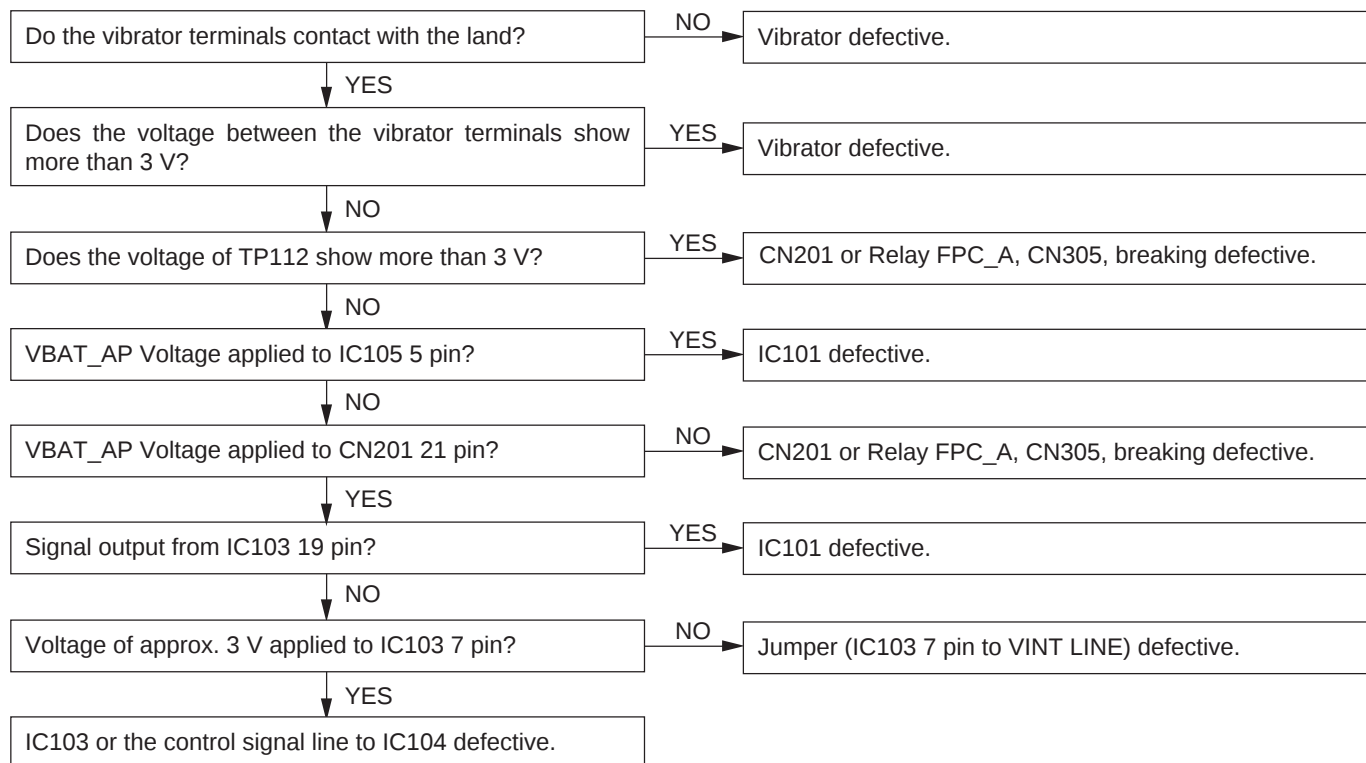
Hands free kit



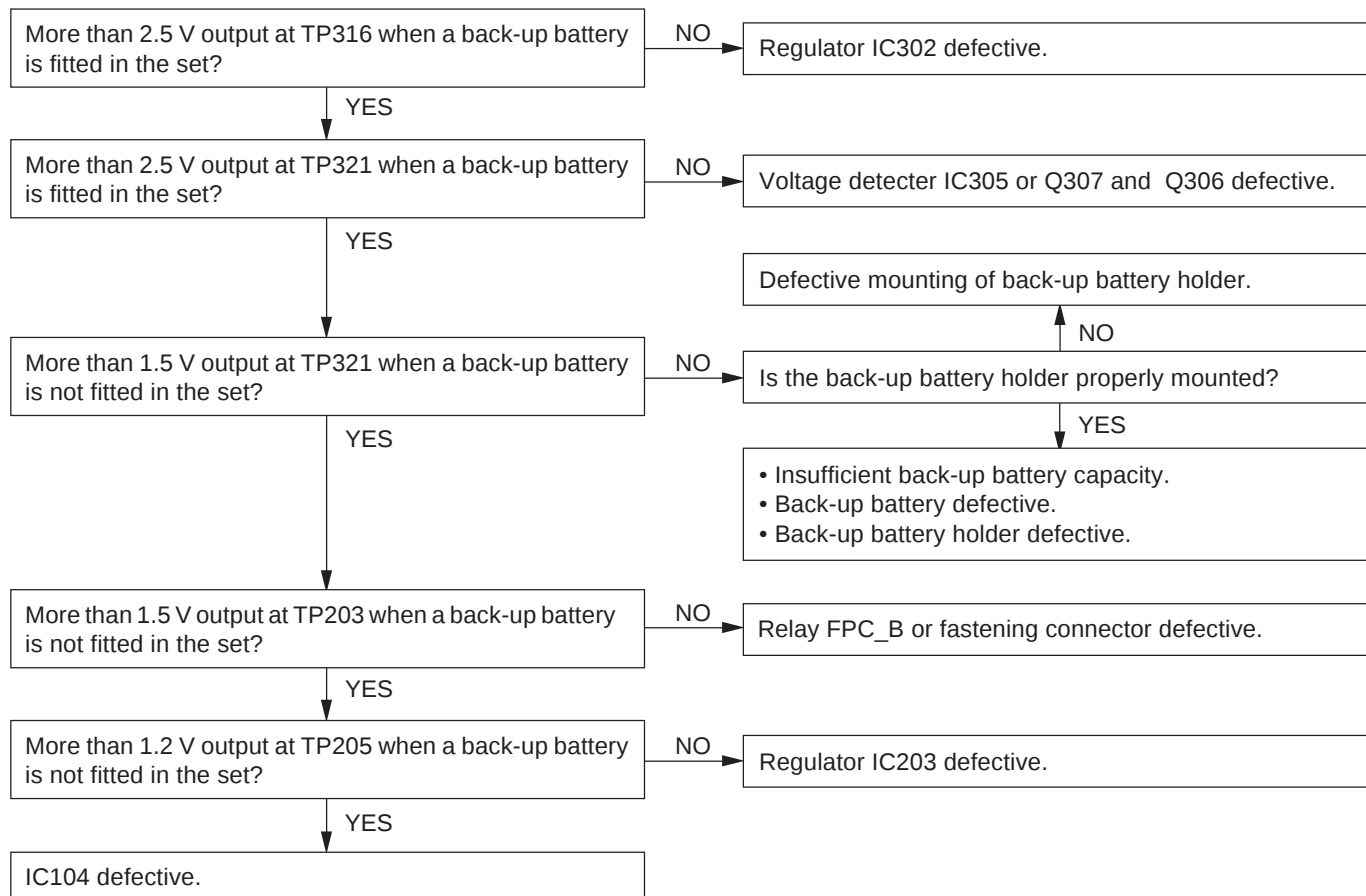
4. Charging impossible.



5. Vibrator does not operate.

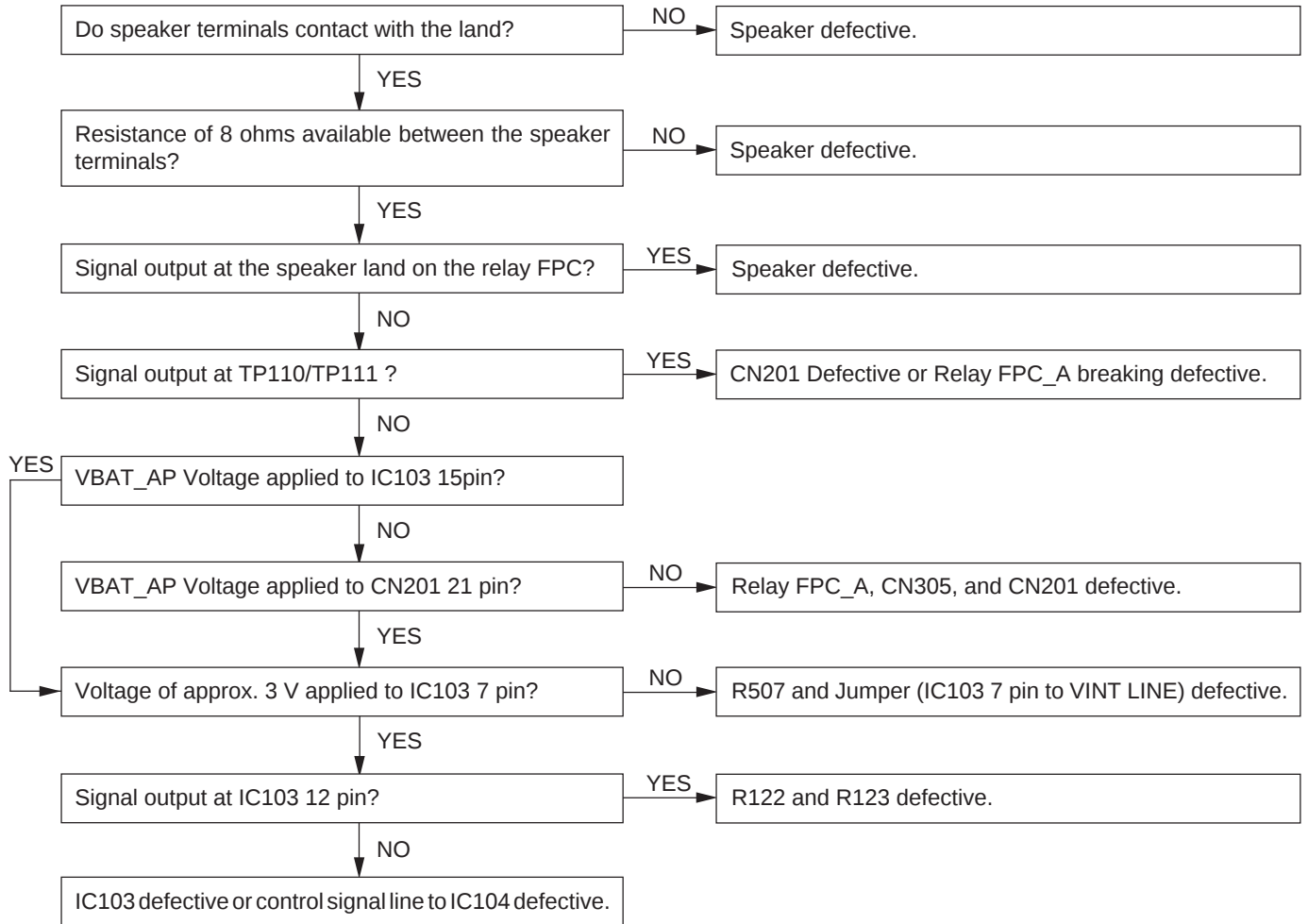


6. Clock is reset.

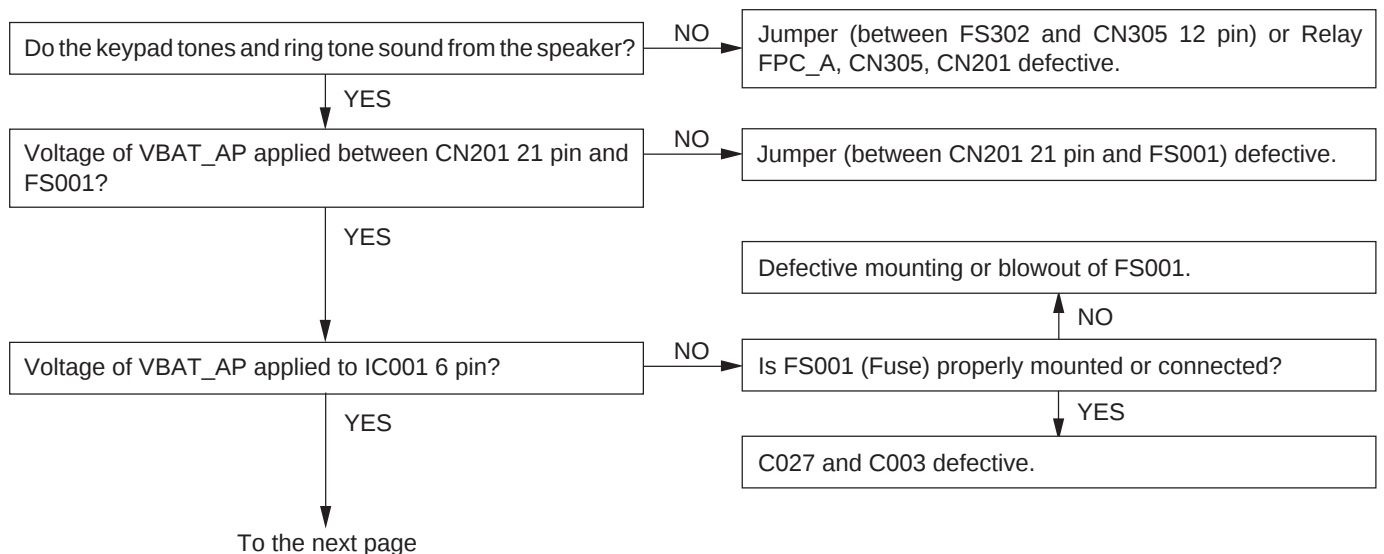


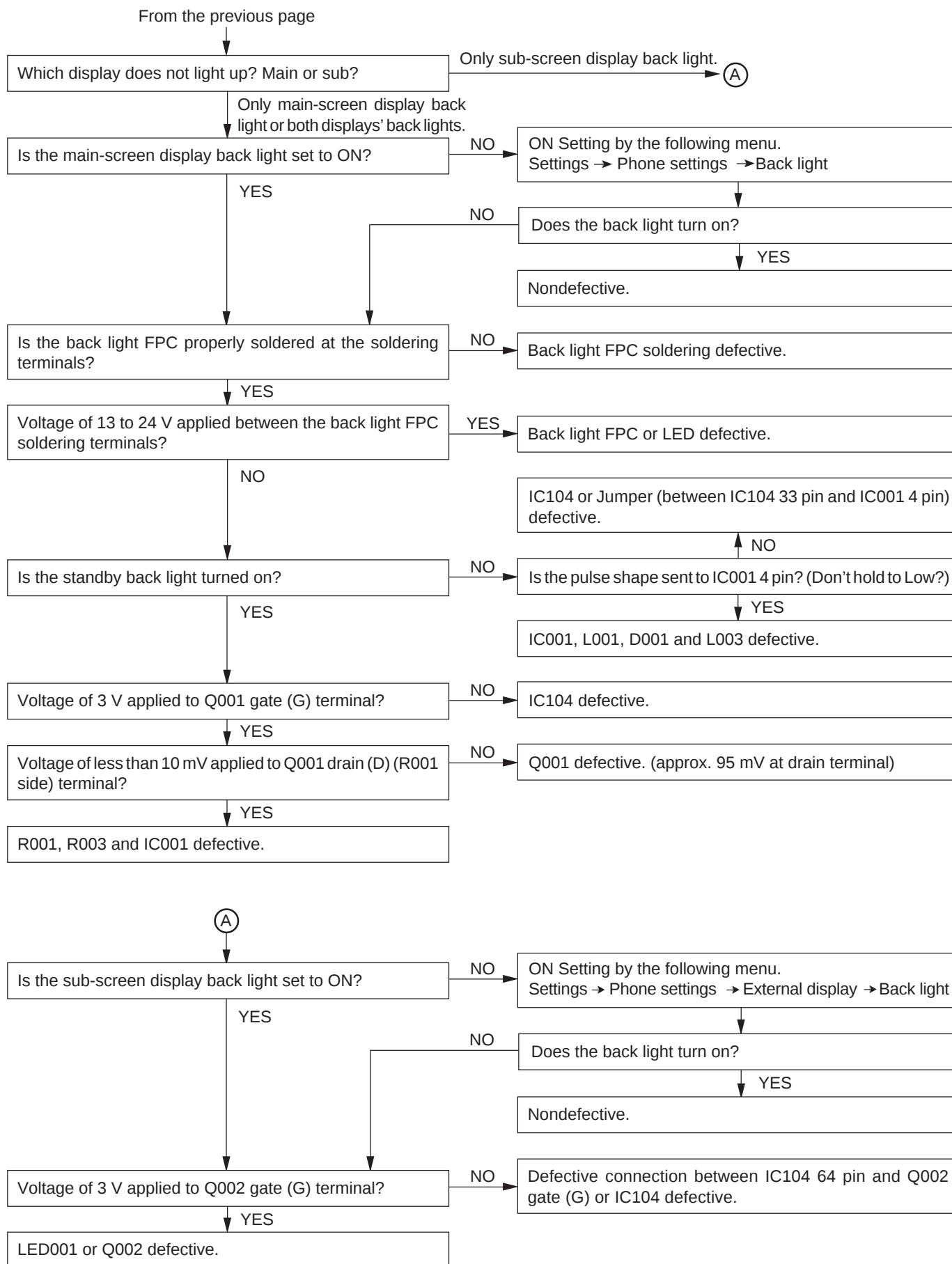
7. Speaker does not operate.

*When ring tones sound but only key touch tones do not, "Keypad Tones" are set to OFF.



8. Back light does not turn on.

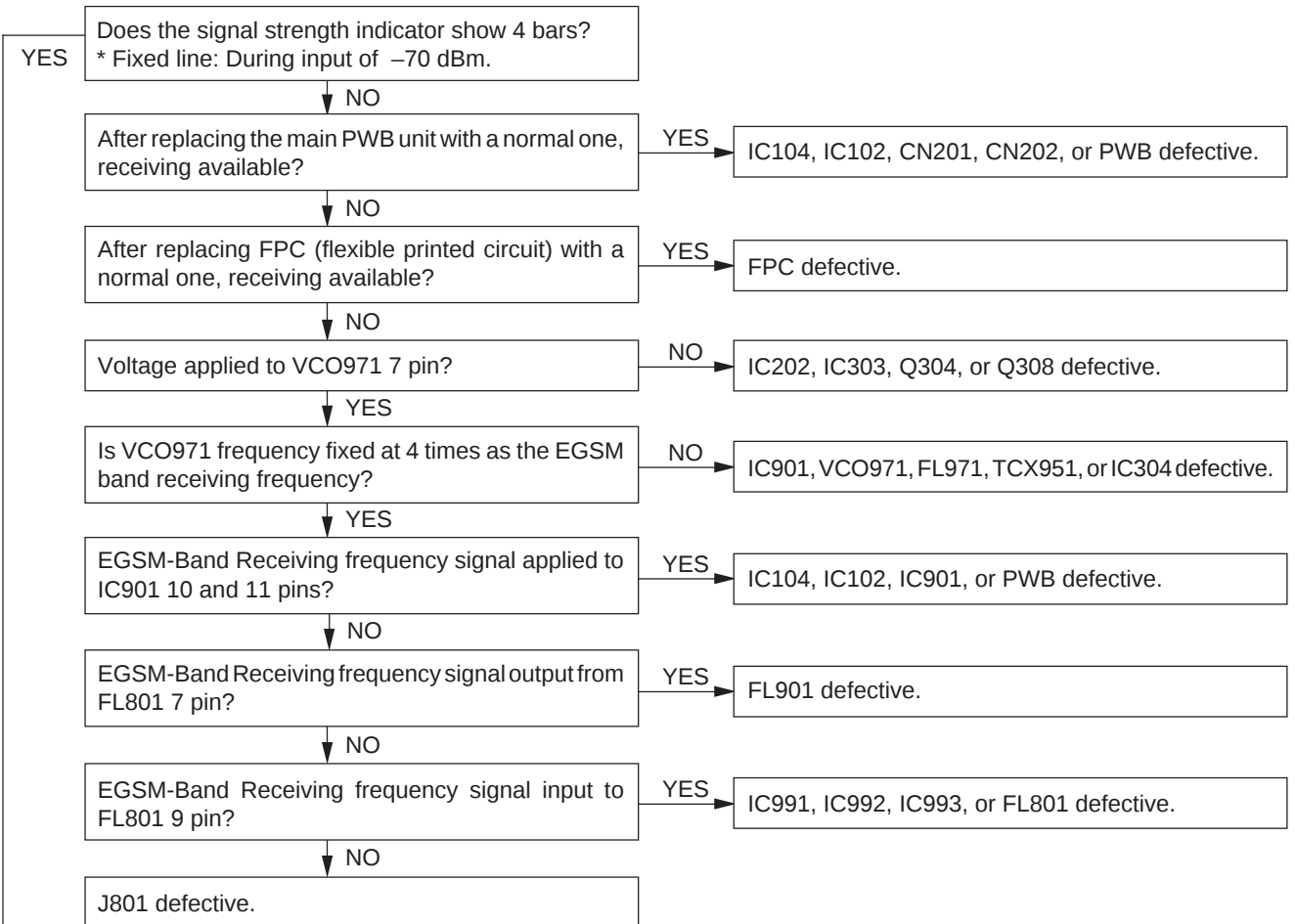




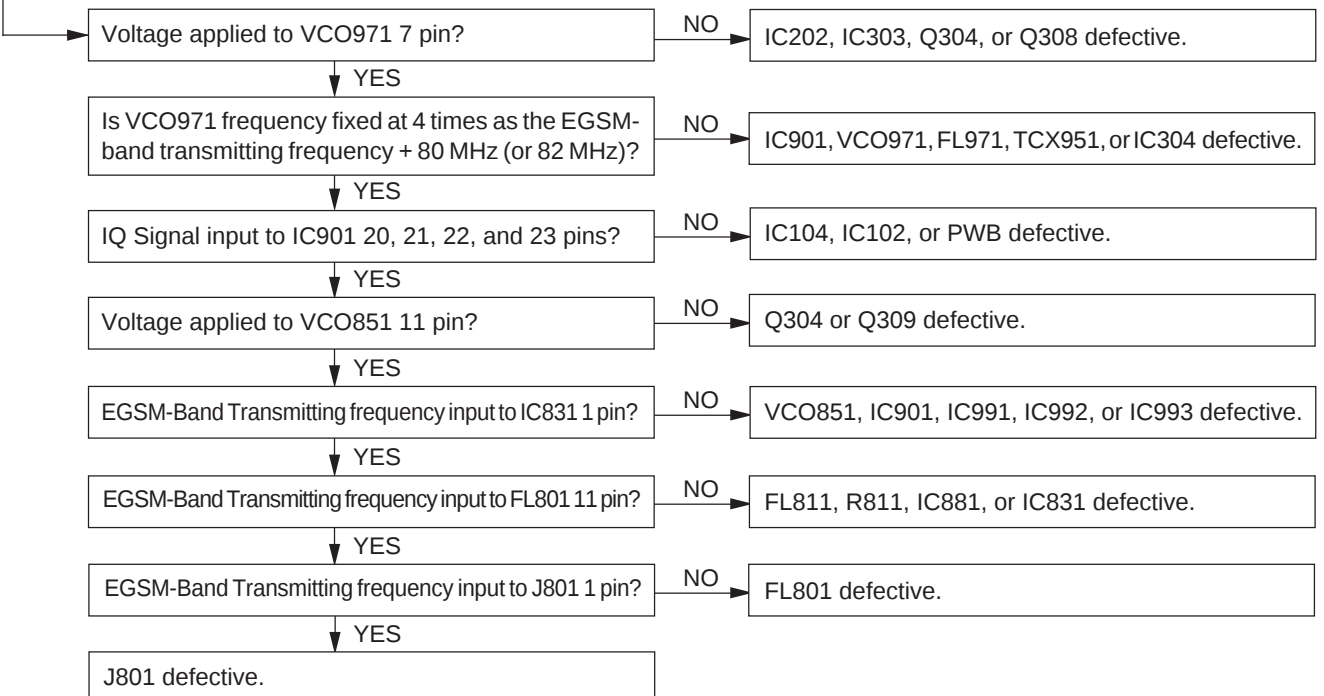
9. "No Service" display and receiving/transmitting do not function.

9. 1 "No Service" display and receiving/transmitting do not function in the EGSM band.

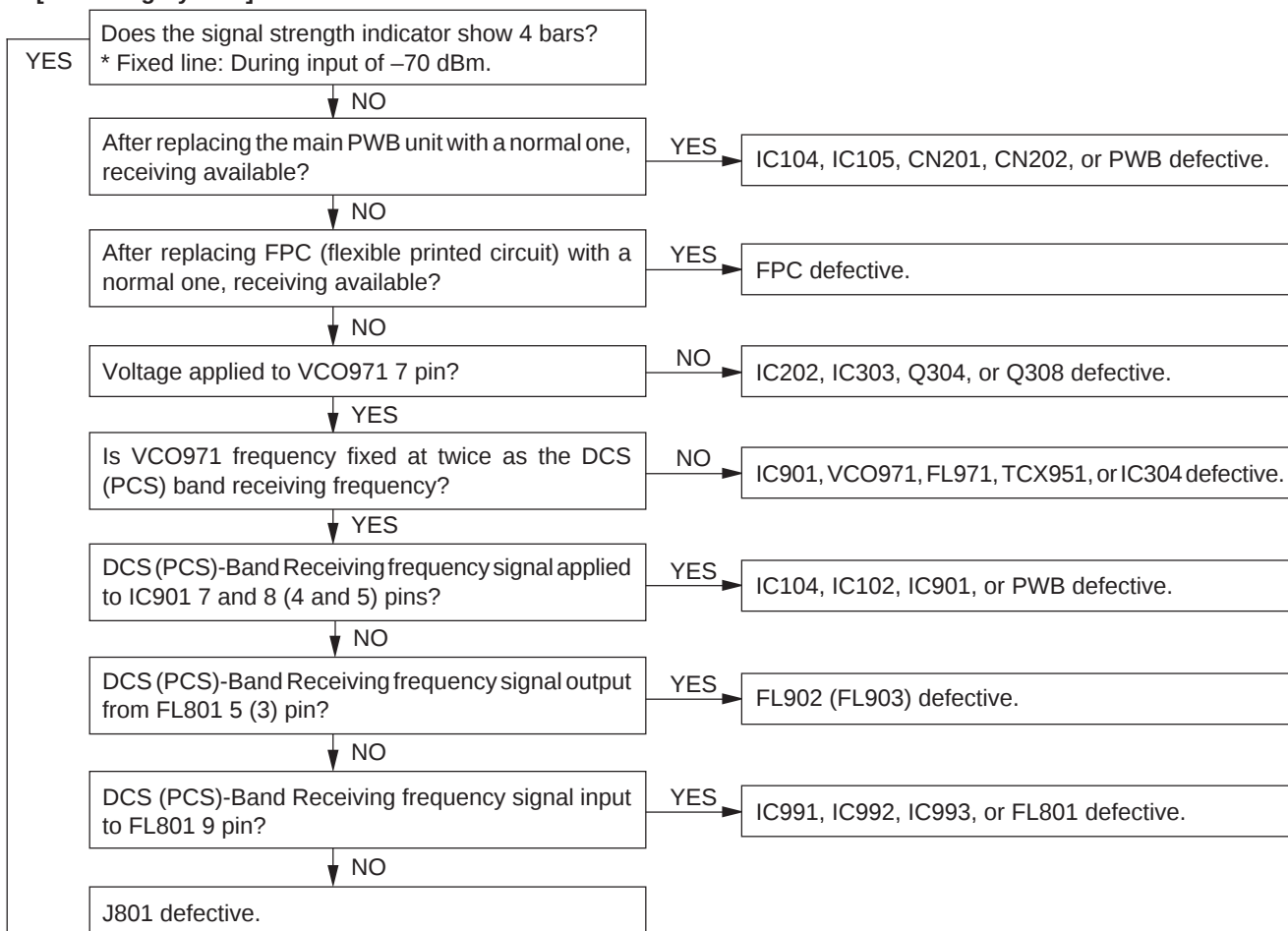
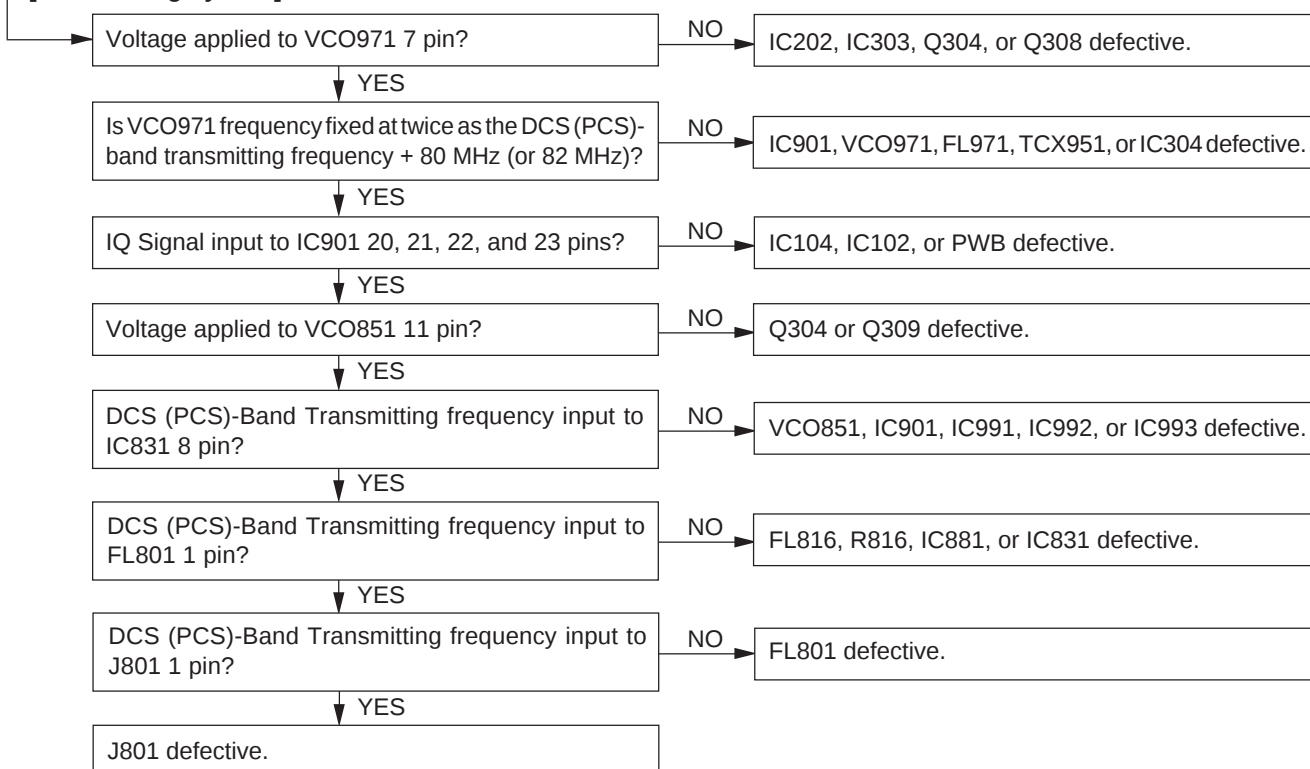
[Receiving System]

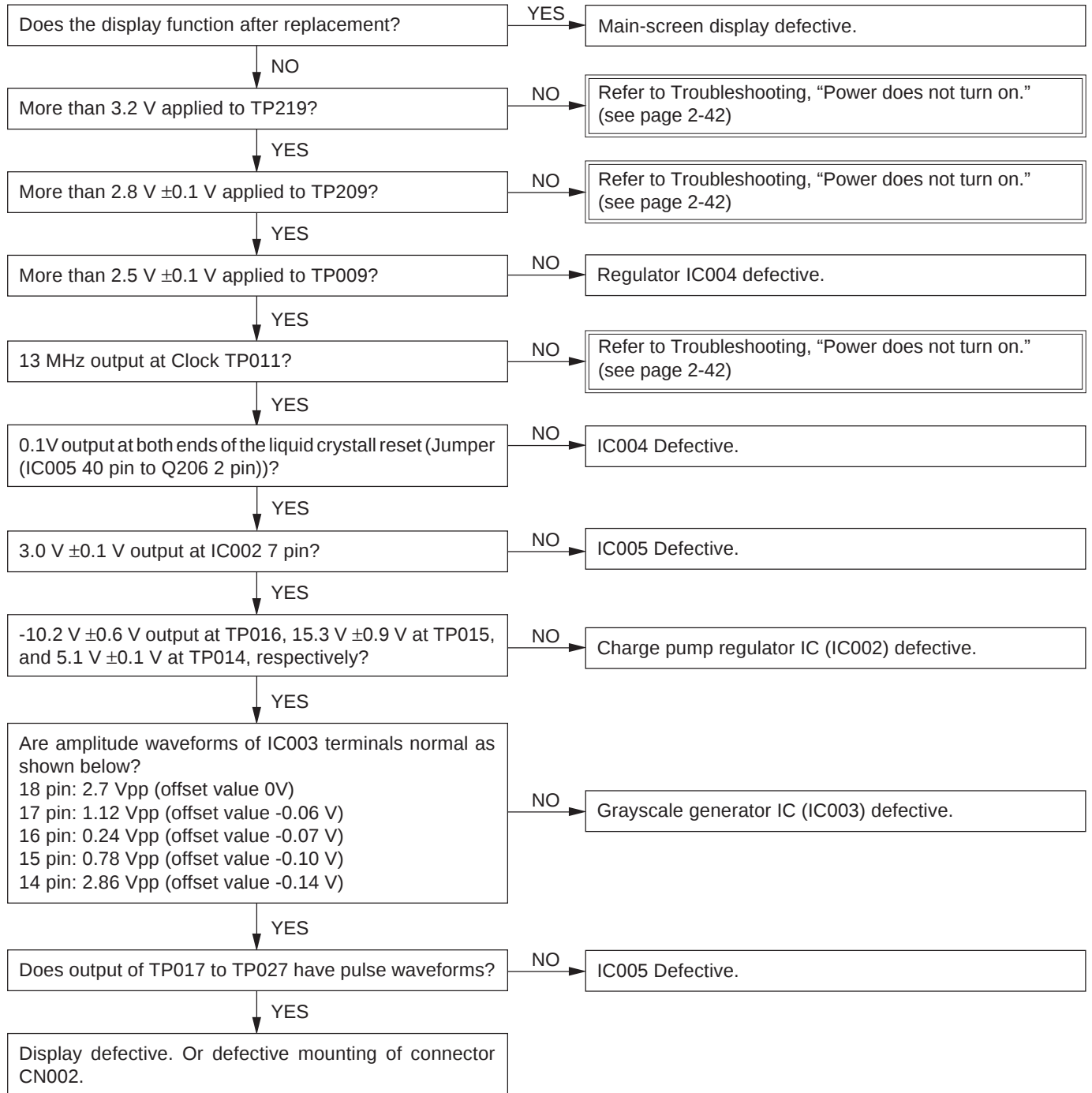


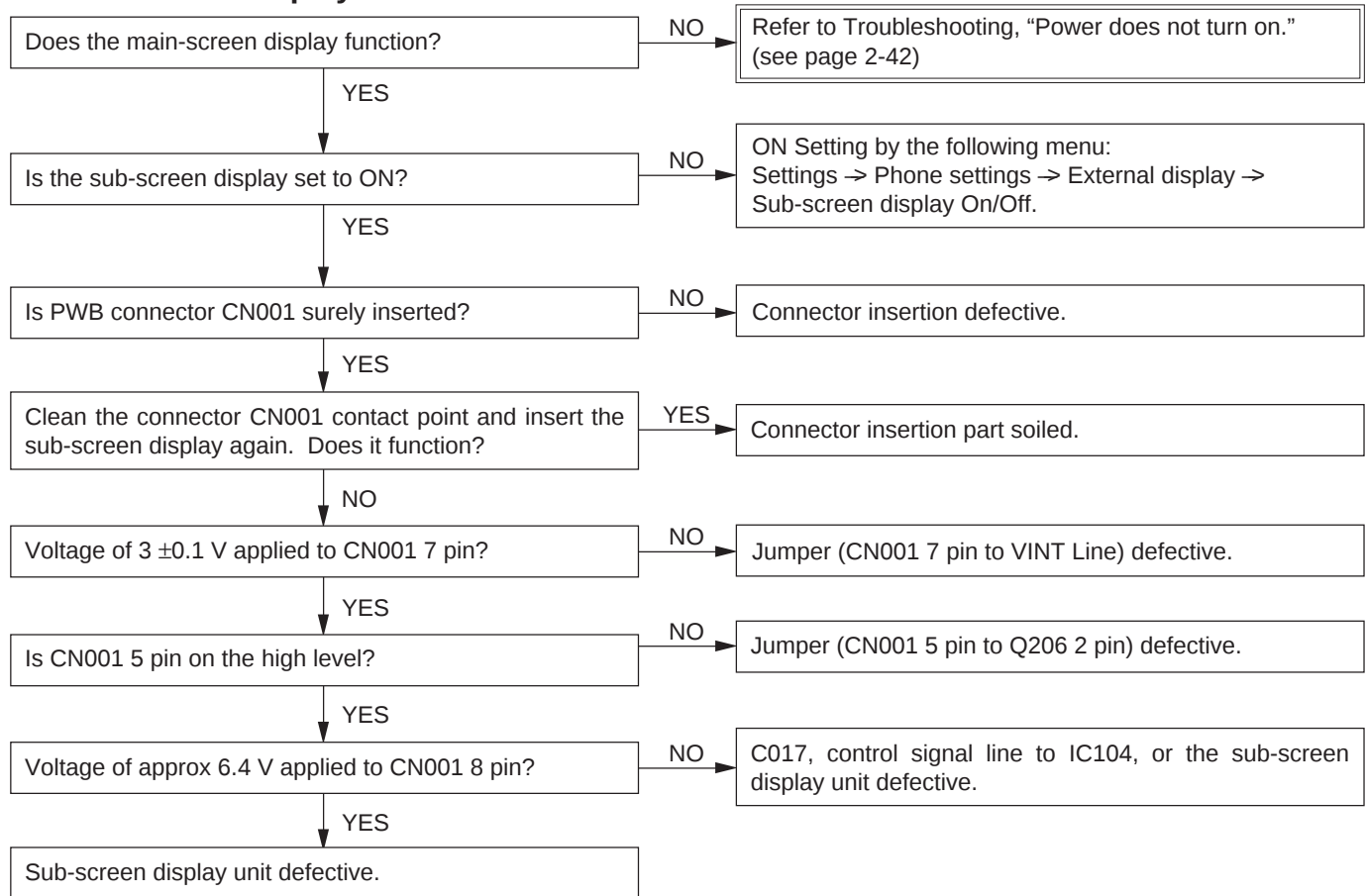
[Transmitting System]

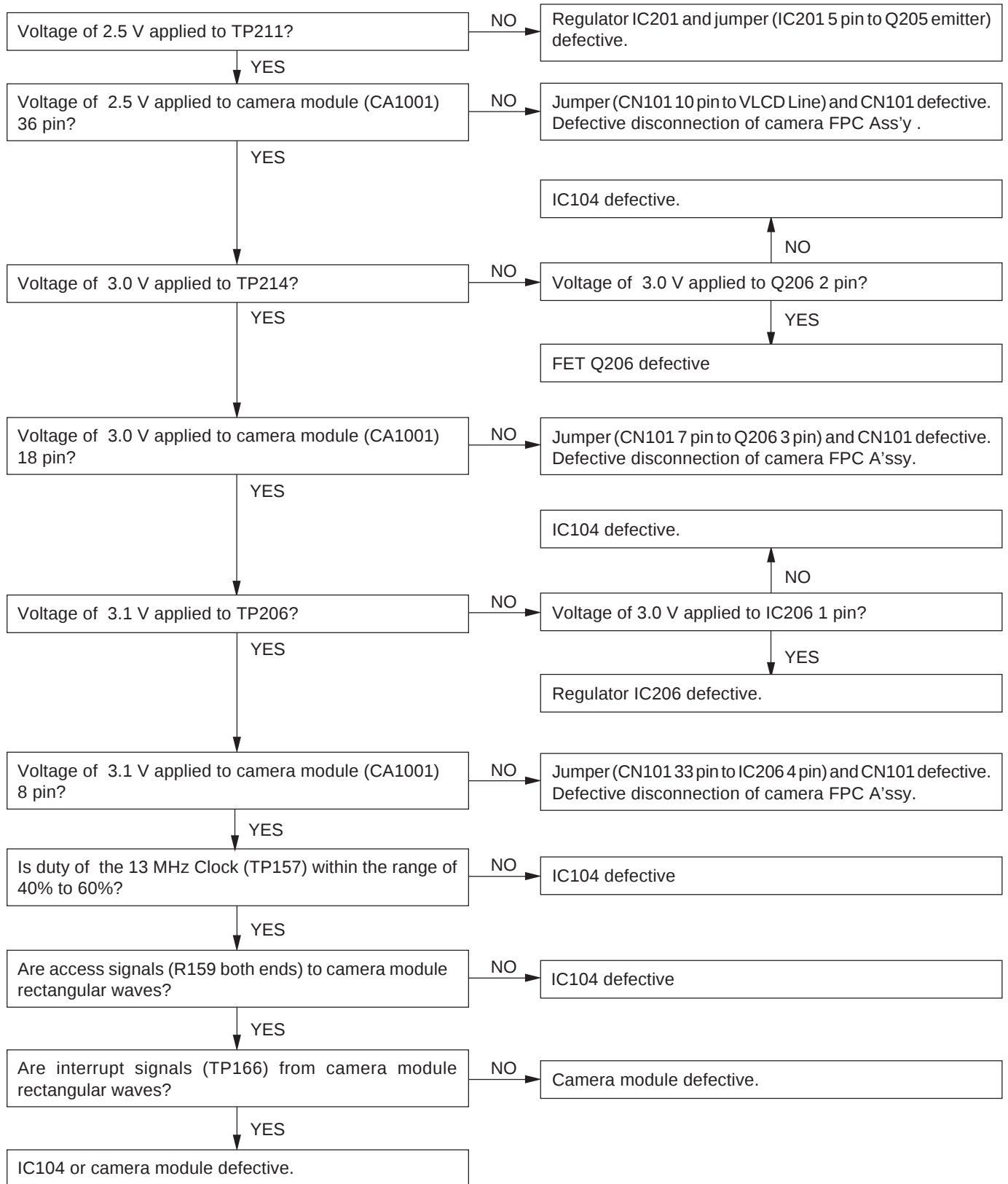


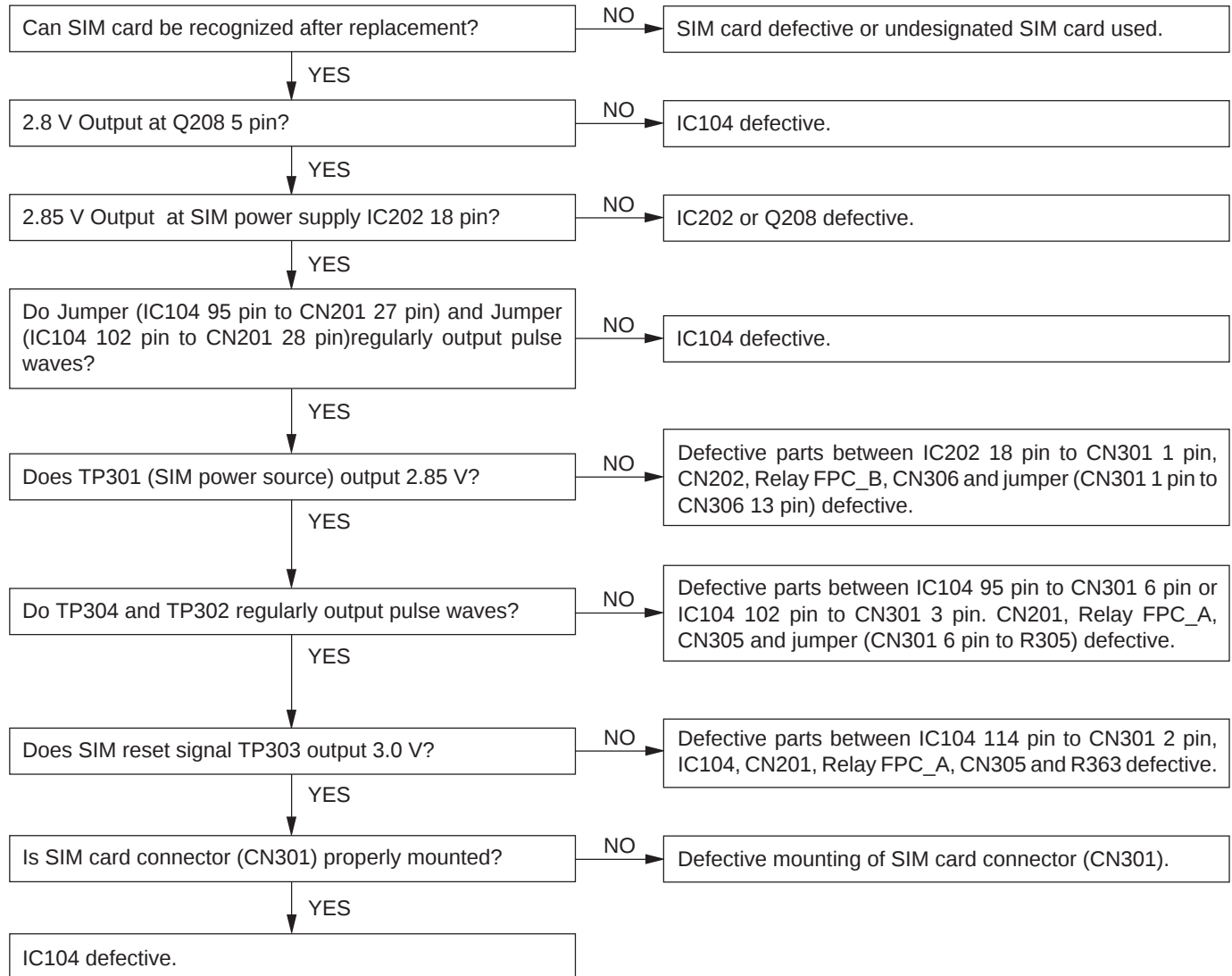
9. 2 "No Service" display and receiving/transmitting do not function in the DCS (PCS) band.

[Receiving System]**[Transmitting System]**

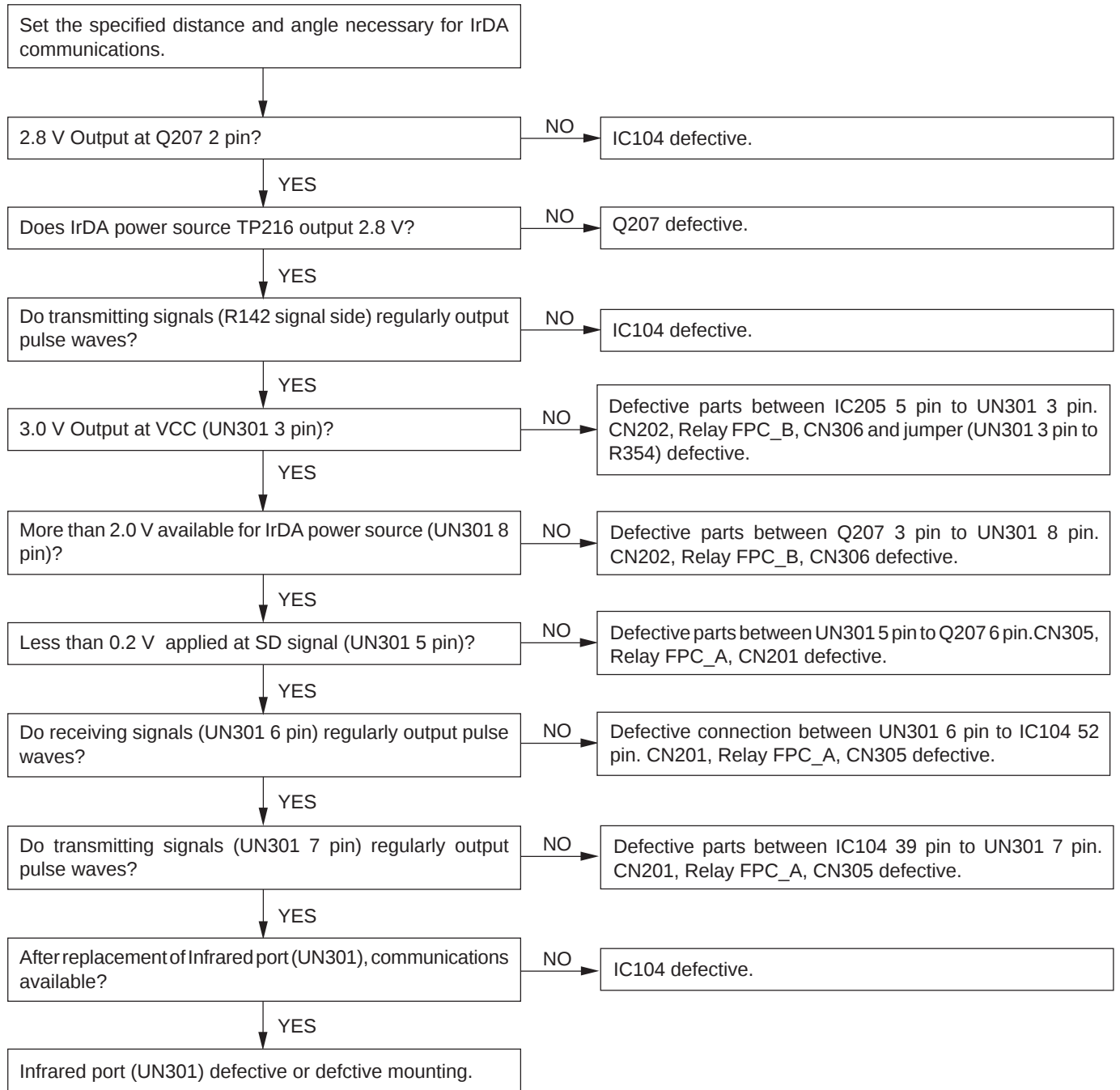
10. Main-screen display does not function.

11. Sub-screen display does not function.

12. Camera does not function.

13. SIM Card is not recognized.

14. IrDA Communications unavailable



[6] Specification for function test

■ Outline

AT commands are used for the function test mode.

To enter the general mode, send the command "AT+XDIAG".

Then the machine can accept all key test functions (see "All Key Test and Others" on page 2-70) and further commands from the computer.

KEY Layout			
Side Up	Left Soft	▲	Right Soft
	◀	Centre	▶ 
Side Down	Send	▼	End/Power
	1 〇〇	2 ABC	3 DEF
	4 GHI	5 JKL	6 MNO
	7 PQRS	8 TUV	9 WXYZ
	* + ⬆	0 ⌵	#

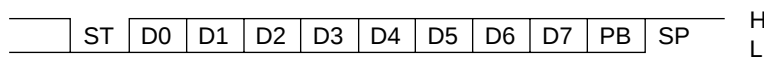
■ Logic of signals

- 1) Setting function (AT Command: AT+XDIAG)

Asynchronous (Consisting of 115200bps, data length 8, start 1, stop 1, and Parity None).

- 2) After shifting to Function Test

Incoming/Outgoing serial signals should be as follows.



ST: Start bit

D0-D7: Data bit

PB: Parity bit

SP: Stop bit

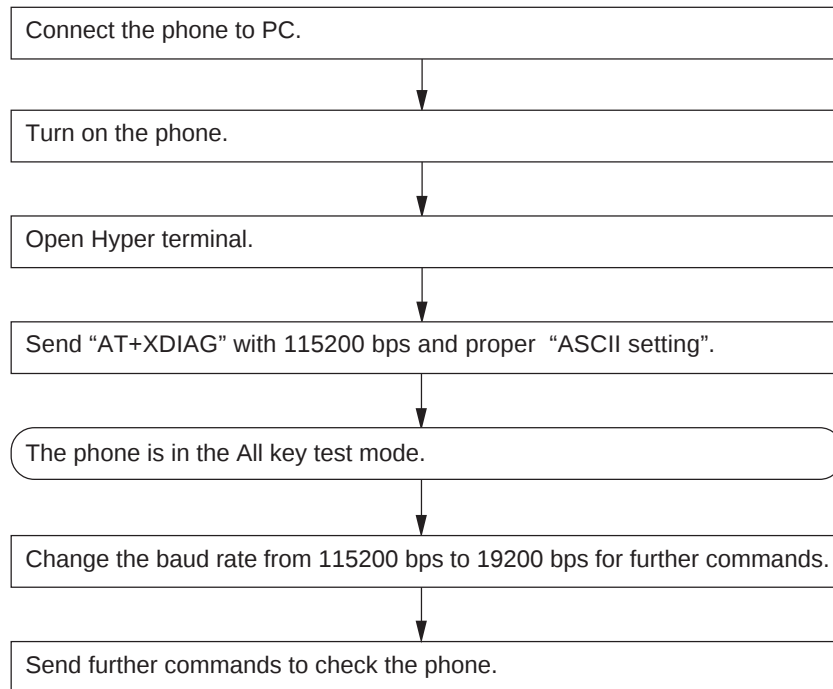
- After AT+XDIAG

1. Transmission rate: 19,200bps

2. Synchro system Asynchronous (Consisting of data length 8, start 1, stop 1, and Parity None)

■ Signal protocol

1. The personal computer requests a response from a mobile machine to establish communications.
2. When keys are pressed, appropriate key codes are transmitted serially.
3. ASCII Characters (only capitals in the case of alphabet) are used for incoming/outgoing serial signals. At the end, return codes (0Dh, 0Ah) are added.
4. Once making a request, the personal computer cannot make another request until the mobile machine returns a certain response. Time-out does not occur.

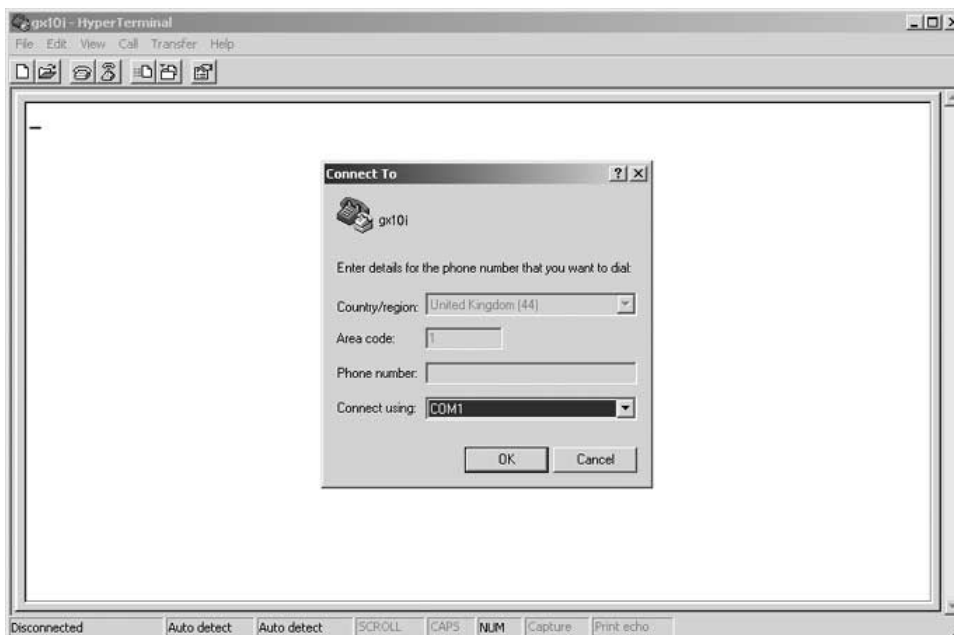
■ Basic procedure (when using Hyper terminal)**Flow chart**

(Details)

1. Connect the phone to the computer via a data cable.
2. Turn on the phone.
3. Open Hyper terminal. (Start→ Program→ Accessory→ Communication→ Hyper terminal)
4. Enter the name and choose the desired icon. Then click “OK”.

**Figure 76**

5. Choose the appropriate COM port for network and click “OK”.

**Figure 77**

6. Adjust the port settings and click “OK”.

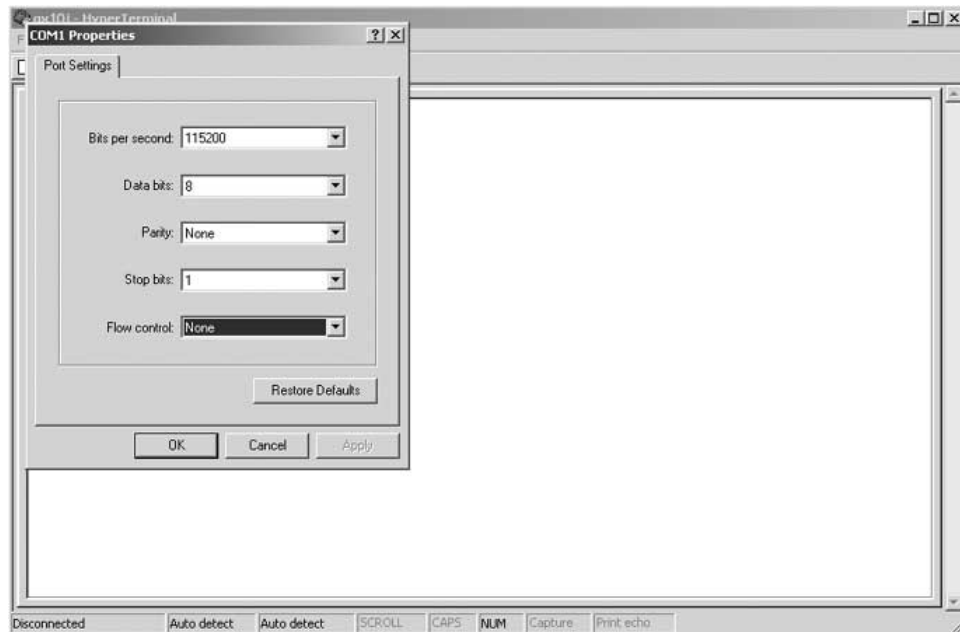


Figure 78

7. From the file menu, select “Properties” and click the Settings tab.

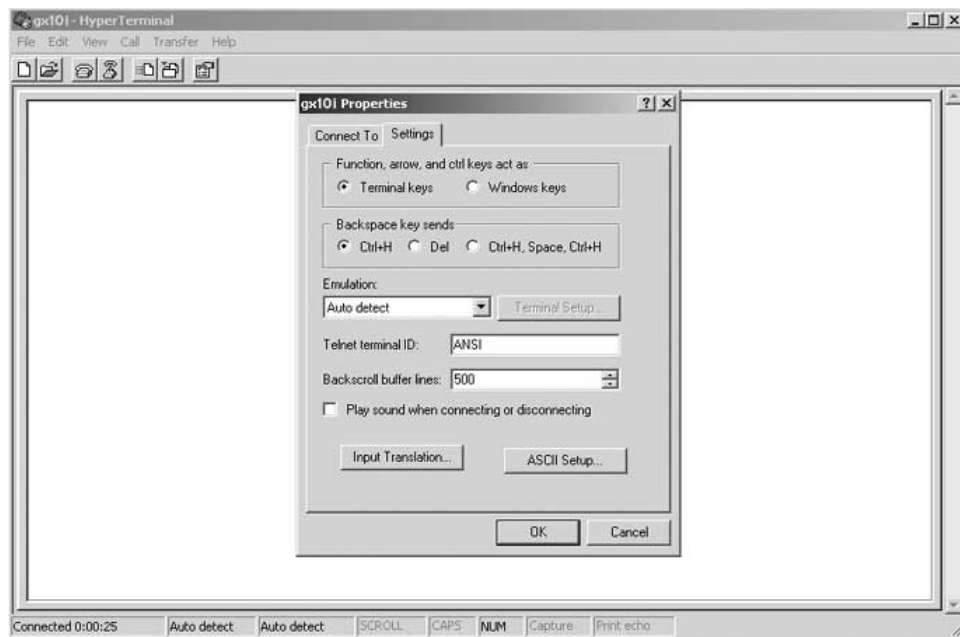


Figure 79

8. Click “ASCII setting” and check “Send line ends with line feeds” and “Echo typed characters locally”.

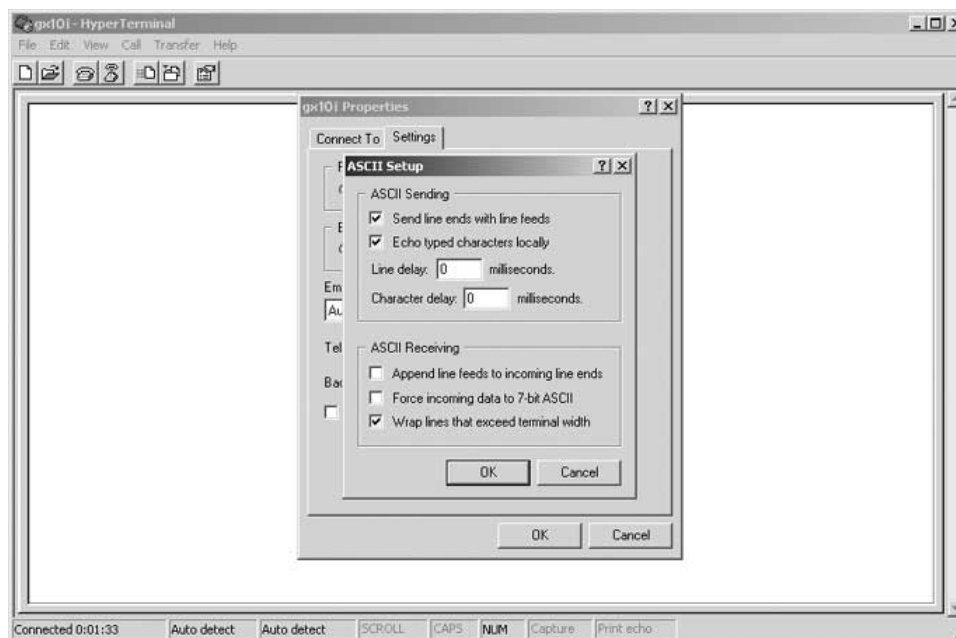


Figure 80

9. Click “OK” for “ASCII setting” and “Properties” to exit.

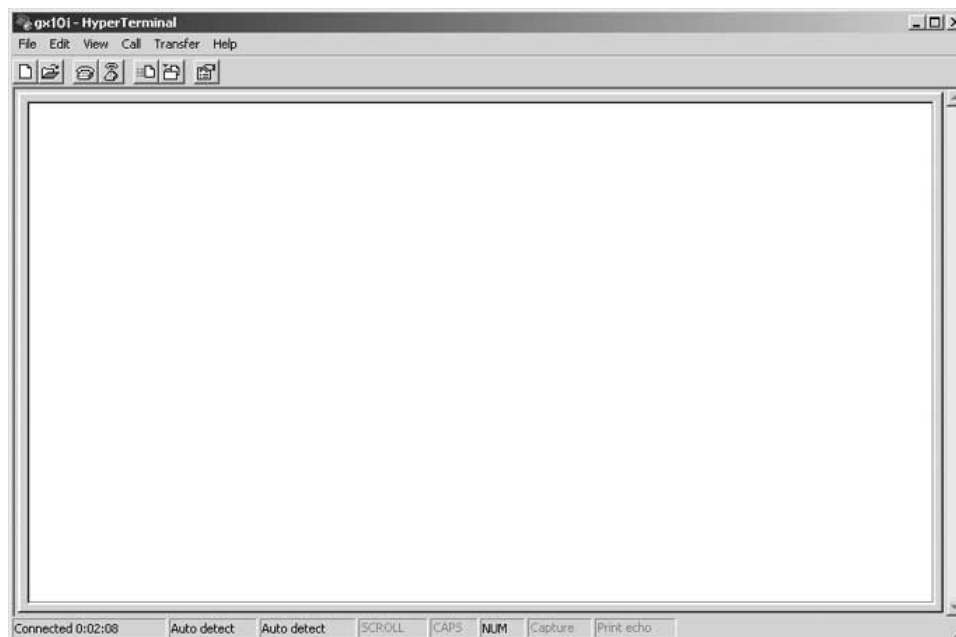


Figure 81

10. Send "AT+XDIAG"

- You will see AATT++XXDDIIAAGG instead of AT+XDIAG as shown below by the Local echo mode, although you input AT+XDIAG.
- After sending you will receive "OK", and the machine should enter the All key test mode (see "All Key Test and Others" on page 2-70).

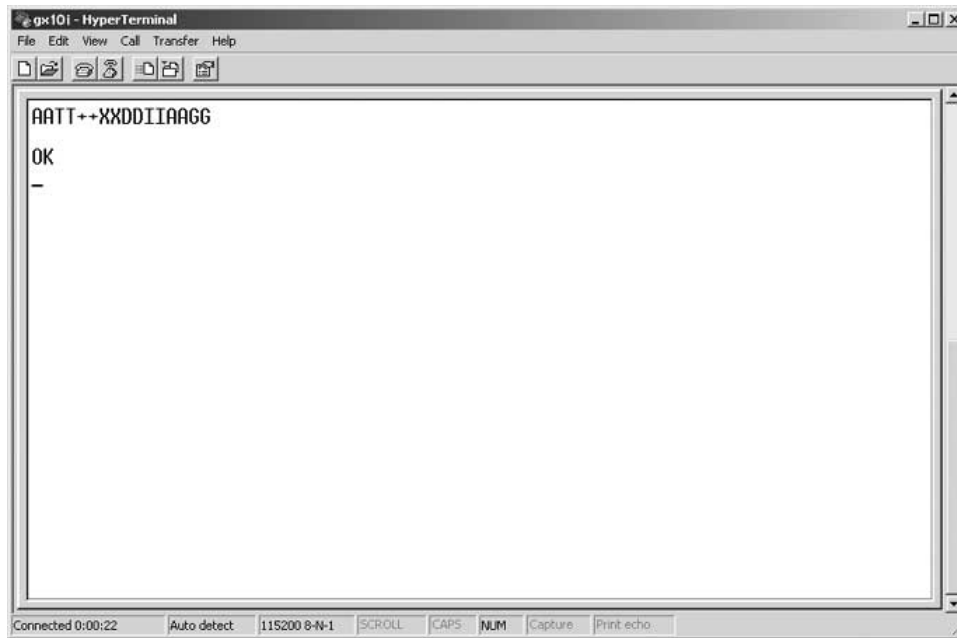


Figure 82

11. If you send further commands, you must change the baud rate from 115200 to 19200 as follows;
11-1. Disconnect communications.

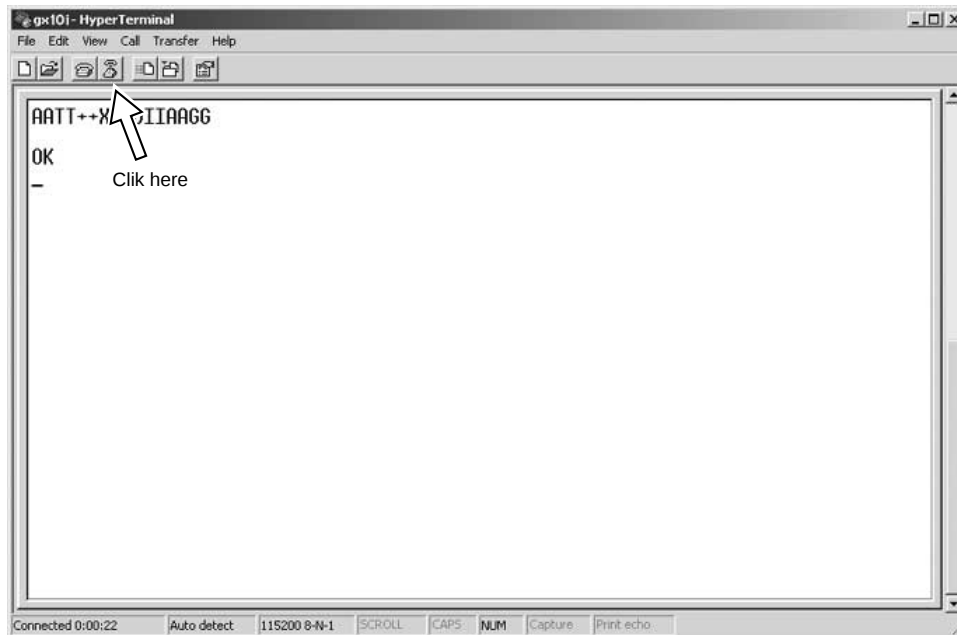
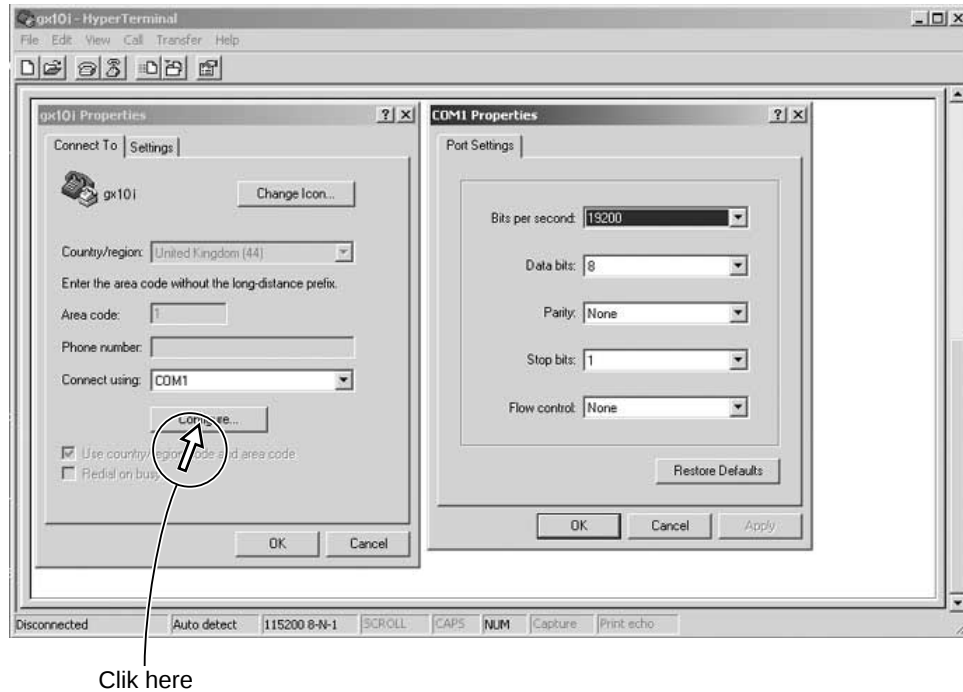
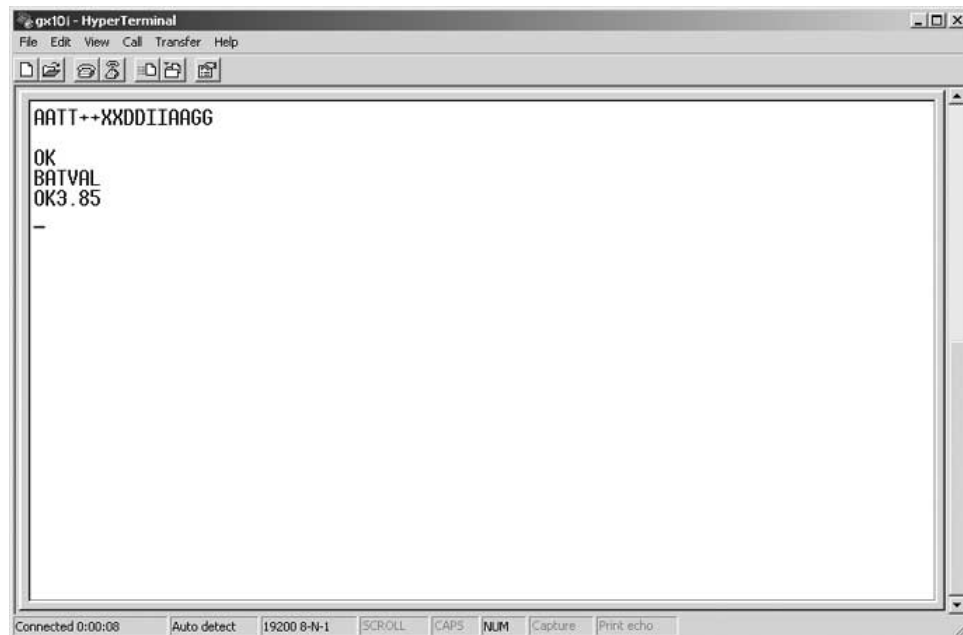


Figure 83

- 11-2. From the file menu, select “Properties” and click “Configure...”.
Then change the baud rate to 19200 as follows;

**Figure 84**

- 11-3. Click “OK” for “Port setting” and “Properties” to exit.
You can now send commands. (See example below for the “BATVAL” command.)

**Figure 85**

1) Basic Operation Test

<Startup and initial condition>

Fit a battery or a dummy battery in the set. Hold down the “End/Power” key to start up in the general mode. Then enter AT+XDIAG without pressing any key. → Start up in the general function test mode. (3 sec. until startup)

- Back light OFF
- After startup, “H/W CHECK * GX-10i *” is displayed.
- When adjusting by the AT command, be sure to perform the LDDEVPRM command before adjustment and the SVDEVPRM command after adjustment.

Incoming/Outgoing Serial Signal Format for Basic Operation Test

Item	Incoming Serial Signal		Outgoing Serial Signal	Contents	Test Method
	Command	n	Response		
FROM to SRAM	LDDEVPRM	None	LDDEVPRM OK LDDEVPRM NG	FROM to SRAM extension. The contents of FROM are damaged.	Before adjustment perform this command to output the adjustment value stored in FROM to SRAM.
Checking LCD back light voltage	LED	5 4 3 2 1 0	LEDn (n=0, 1, 2, 3, 4)	Sub-screen display back light. Key back light LED. Red LED lights up. Green LED lights up. Main-screen display back light lights up. All LEDs light off. *1	Checking that LEDs light up. LED1: Main-screen display back light lights up. LED2: Green LED lights up. LED3: Red LED lights up. LED4: Key back light lights up. LED0: All LEDs light off.
Measuring RTC clock	OUT32K	1 0	OUT32Kn	32 kHz Output (MON Output) 32 kHz Stop (Returned to ALT1)	Checking frequency of the real time clock. Normal: When OUT32K1 is transmitted, TP205 frequency is 32.768 kHz ±1.11 kHz.
Battery voltage check	BATVAL	None	Okn.nn	Reading down to the last two digits of voltage.	Reading the voltage of the battery power line. BATVAL is transmitted, “OK” and the voltage value are returned.
RTC Test (Writing)	RTCWR	yy dd hh mmss	OK	Writing time of day “yymmddhhmmss” to RTC. *2	Writing time to the clock. When RTCWR yymmddhhmmss is transmitted, yy (year), mm (month), mm (hour), and ss (minute) are written.
RTC Test (Reading)	RTCRD	None	RTC yymmddhhmmss	Reading time of day “yymmddhhmmss” from RTC. *2	Reading time of the clock. When RTCRD is transmitted, time of day is read out.
Temperature A/D Adjustment	TMPAD	4 3 2 1	ADSETOK TMPADH <Readout AD value> TMPADL <Readout AD value> TMPADRDY	Adjustment mode ended. *3 2.2 V Measurement started. 0.4 V Measurement started. Adjustment mode started.	Refer to the “Adjustment procedures after replacement of parts” on pages 2 – 36 and 2 – 37.
Temperature check	TMP	n	TMPnxx: Temperature NG: Except 0 – 50 °C	Temperature readout. (0 °C min.) n=1: Camera n=2: Battery	Reading temperature measured by the temperature sensor. When TMP is transmitted, TM and temperature are returned. In case of other than 0 – 50 °C, “NG” is returned.

Item	Incoming Serial Signal		Outgoing Serial Signal	Contents	Test Method
	Command	n	Response		
Temperature correction	TMPADJ	4nn 3nn 2nn 1nn	TMPADJ4nn TMPADJ3nn TMPADJ2nn TMPADJ1nn	Battery side -nn °C. (Not cumulative subtraction) Battery side +nn °C. (Not cumulative addition) Camera side -nn °C. (Not cumulative subtraction) Camera side +nn °C. (Not cumulative addition) “nn”: To input difference from the present temperature. Cumulative addition is unavailable for more than one transmission.	Correcting difference between the ambient temperature and the temperature read by the sensor. Comparing the ambient temperature and the temperature read by the sensor to transmit the corrected value. TMPADJ15: To raise temperature by 5 °C. TMPADJ25: To reduce temperature by 5 °C. * When the same commands are transmitted several times, corrected vales are not added.
IrDA Test	IRDA	1 2 3 4 5 6	OK NG aa NG NODATA	1: 2.4 kbps 2: 9.6 kbps 3: 19.2 kbps 4: 38.4 kbps 5: 57.6 kbps 6: 115.2 kbps “OK” if “5A” is detected. If values other than “5A” are detected, they are returned. Data cannot be received.	Provide the set in the IrDA jig mode to the other end of the line to perform the transmitting/receiving test. When IRDA is transmitted, the set in the IrDA jig mode receives signals and returns “5A”. Detecting “5A”, the tested set returns “OK” to the personal computer. When values are other than “5A”, Ngaa is returned. If data cannot be received, NG NODATA is returned. *4
IrDA Jig Mode	IRDACH	1 2 3 4 5 6	OK	1: 2.4 kbps 2: 9.6 kbps 3: 19.2 kbps 4: 38.4 kbps 5: 57.6 kbps 6: 115.2 kbps IrDA Jig mode entered. After that commands are rejected.	When IRDACH5 is transmitted, using the command to set the IrDA jig mode, the jig mode starts. Reset, or disconnect the power from the set, to release the jig mode. *4
(Vibrator)	VIB	1 0	VIBn	Asynchronous drive. (Always ON) Stop.	Checking vibrator operation. When VIB1 is transmitted, the vibrator operates continuously; when VIB2 is transmitted, it stops operation.
MA2 Test (Sound)	MELO	1 0	MELOn	Melody playback. Stop. *5	Checking melody playback. When MELO1 is transmitted, melody is played back from the speaker; when MELO2 is transmitted, playback stops.
Memory test (SRAM)	MEMCHK1	0000 0000 07FF FE5	MEMCHK1 OK MEMCHK1 NG 0000 0000dddd	Addresses (00000000 to 0007FFFE) are checked. For NG, the address “00000000” and the readout data “dddd” are returned. (dddd: Production Process No)	Checking read/write of 4Mbit SRAM.
Memory test (PSRAM)	MEMCHK2	00300 00000 3FFF FE5	MEMCHK2 OK MEMCHK2 NG 0030 0000dddd	Addresses (00300000 to 003FFFFE) are checked. For NG, the address “00300000” and the readout data “dddd” are returned. (dddd: Production Process No)	Checking read/write of 16 Mbit. Smartcombo RAM.

Item	Incoming Serial Signal		Outgoing Serial Signal	Contents	Test Method
	Command	n	Response		
SRAM to FROM saving	SVDEVPRM	None	SVDEVPRM OK SVDEVPRM E1	SRAM to FROM saving. Garbled SRAM (No saving).*6	After adjustment, adjusted values in SRAM are saved to FROM.
POWER OFF	PWRDOWN	None	None	POWER OFF	POWER OFF when PWRDOWN is transmitted.

*1: The LED test is also available in the manual test mode F45.

<Startup>

1. Fit a battery in the set to start the manual test mode.
2. Press the keys "4" → "5" → "Right Soft" to start the manual test mode F45 (LED Setting).
3. Press the following keys for ON/OFF operation.

Key	Description	Contents
"0"	OFF	All switches OFF
"1"	Charge LED ON/OFF	Charge LED (LED101: RED)
"2"	Incoming call LED ON/OFF	MA2 LED (LED101: GREEN)
"3"	Key LED ON/OFF	Key LED (LED302 to LED309: GREEN)
"4"	Back light ON/OFF	LCD Back light (Back light FPC: WHITE)
"5"	Test LED ON/OFF	Test LED (Not mount)
"6"	Sub back light ON/OFF	Sub Back light (LED001: WHITE)
"Centre"	End	Shifting from this mode to the initial screen

Every time a key is pressed, the operation, "OFF → Brightness 1 → 2 → 3 → 4 → standby light", is repeated.

4. Press the key "Centre" to return to the initial screen with the display, "Diag Param Saving".
5. Press the "End/Power" key to finish operation.

*2: YY=00: Year of 2000

RTC writing is also available in the manual test mode F40.

<Startup>

1. Fit a battery in the set to start the manual test mode.
2. Press the keys, "4" → "0" → "Right Soft", to start the manual test mode F40 (Rtc Setting).
3. Press the following keys to set time of day. (For determination, press the key "Right Soft".)
 - 1: Year 2: Month 3: Day 4: Hours 5: Minutes 6: Seconds
4. Every time the key "Left Soft" is pressed, time of day is displayed in a moment.
5. Press the key "Centre" to return to the initial screen with the display, "Diag Param Saving".
6. Press the "End/Power" key to finish operation.

*3: Only when performing the TMPAD4 command or turning power OFF/ON, A/D adjusted values are reflected in temperature.

*4: The IrDA test is also available in the manual test mode F13.

<Startup in the jig mode>

Provide a set other than the tested set, which has been confirmed to operate normally. Use this set as the IrDA receiver.

1. Fit a battery in the set to start the manual test mode.
2. Press the keys, "1" → "3" → "Right Soft" to start the manual test mode F13 (IrDA Test).
3. Press the key "Left Soft" (S1: Test Device Mode).

* The infinite loop mode for the IrDA data stand-by is started. After finishing the test, remove the battery.

<Startup in the test mode>

Data are transmitted/received by using the tested set.

1. Fit a battery in the set to start the manual test mode.
2. Press the keys, "1" → "3" → "Right Soft", to start the manual test mode F13 (IrDA Test).
3. Direct the IrDA window of the tested set to that of the jig set.
4. Press the key "0" (0: Check IrDA) to transmit "A5" data automatically.
5. When "OK Data: 5A" is displayed, transmitting/receiving is normally completed. When "NG Data: **" is displayed, transmitting/receiving is abnormally ended.
6. Press the key "Centre" to return to the initial screen with the display, "Diag Param Saving".
7. Press the "End/Power" key to finish operation.

*5: The melody playback test is also available in the manual test mode F51.

<Startup>

1. Fit a battery in the set to start the manual test mode.
2. Press the keys, "5" → "1" → "Right Soft", to start the manual test mode F51 (Melody Test).
3. Press the following keys to switch operations.

Key	Description	Contents
"◀"	Selecting melody tone.	Select the next melody by toggling. If the final melody is selected, further selection is unavailable.
"▶"	Selecting melody tone.	Select the preceding melody by toggling. If the default melody is selected, further selection is unavailable.
"0"	Ring tone playback. Playback/Stop.	Toggle the selected ring tone between playback and stop. Default: -16 dB 0: Stop 1: Playback
"Right Soft"	Key touch tone output.	Toggle the key touch tone between ON and OFF. 0: Stop 1: Output (DTMF: -16dB)
"▲"	Volume control.	Turn up the volume by 1 level. During playback of ring tone: Ring tone is changed. During key touch tone output: Incoming audio volume is changed.
"▼"	Volume control.	Turn down the volume by 1 level. During playback of ring tone: Ring tone is changed. During key touch tone output: Incoming audio volume is changed.
"Centre"	End	Shifting from this mode to the initial screen

4. Press the key "Centre" to return to the initial screen with the display, "Diag Param Saving".
5. Press the "End/Power" key to finish operation.

*6: Handling diag calibration data.

Contents of diag calibration data:

1. 4 Kinds of A/D Adjustment values.
2. Camera adjustment data (Dark current, white flaw).

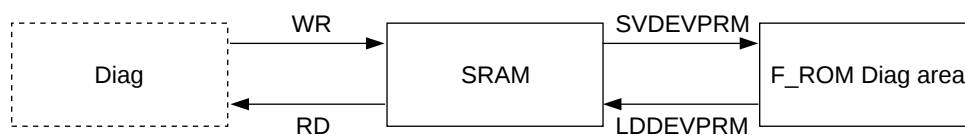


Figure 86 Handling Diag Calibration Data

2) Camera Adjustment/Test

When adjusting by the AT command, be sure to perform the LDDEVPRM command before adjustment and the SVDEVPRM command after adjustment.

Incoming/Outgoing Serial Signal Format for Camera Adjustment

Item	Incoming Serial Signal		Outgoing Serial Signal	Contents	Test Method
	Command	n	Response		
Dark current correction and white flaw check.	WHC (Including initialization)	0154 0160	In the case of OK. AAA, BBB AAA: Number of white flaws BBB: Max. level In the case of NG. COUNT NG (More than 1000 white flaws) 000000: Insufficient light shielding	S: Mode (0 to 3) ww: Dividing ratio (00 to 16) x: Average number (0 to 4) yyy: Threshold detection frequency (000 to 255) z: G Data mode (0 to 3) *1	Refer to the “Adjustment procedures after replacement of parts” on pages 2 – 36 and 2 – 37.
White flaw correction *1	WH (Including initialization)	None	OK	White flaw correction.	Refer to the “Adjustment procedures after replacement of parts” on pages 2 – 36 and 2 – 37.
Camera operation	CAM	1 0	CAMn	ON OFF (Camera display)	Checking photography. When CAM 1 is transmitted, the camera operates; when CAM 2 is transmitted, operation stops.
Optical axis adjustment	CPH	1 2	CPH aa: Value of COFSH *2	Image shifted by 2 dots to the right. Image shifted by 2 dots to the left.	Adjusting deviation of the right and left optical axes.
Shutter ON/OFF	SHT	1 0	SHT n	Shutter ON Shutter OFF	Shutter ON/OFF operation. When SHT 1 is transmitted, the shutter turns ON; when SHT0 (to fix the screen) is transmitted, the shutter is released.
Zoom ON/OFF	ZOOM	1 0	ZOOM n	ZOOM ON (Only double size) ZOOM OFF	Changing zoom. When ZOOM 1 is transmitted, the double size image is displayed; when ZOOM 2 is transmitted, the original state is returned.

*1: Be sure to check white flaw (WHC command) before performing white flaw correction (WH command).

*2: Center value (Initial value): 12 Adjustment range: 04 to 20.

3) LCD Test

When adjusting by the AT command, be sure to perform the LDDEVPRM command before adjustment and the SVDEVPRM command after adjustment.

Main-Screen Display Test

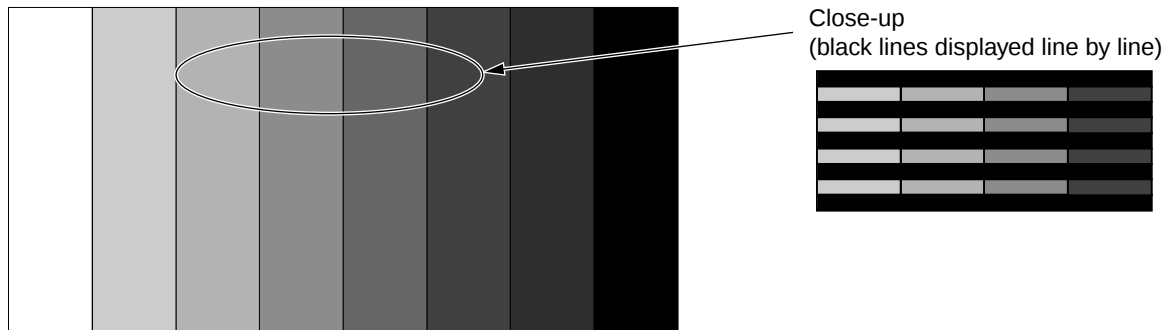
Item	Incoming Serial Signal		Outgoing Serial Signal	Contents	Test Method
	Command	n	Response		
Checking LCD display	LCDDISP	3 2 1 0	LCDDISPn	VCOM adjustment pattern. Color bar (65 k colors). Black display (65 k colors). White display (65 k colors).	LCDDISP3 is the command for flicker adjustment pattern.
Flicker adjustment	VCOM	=nn	nn (nn: 0 to D6)	Changing DL [7 : 0] bit value of SIF1 register (No redrawing).	Flicker adjustment by performing the AT command.
Flicker adjustment	VCOMRD	None	VCOMRD=nn	Read the current data.	Flicker adjustment by performing the AT command.

VCOM Adjustment (Flicker adjustment)

Display the 8-gradation pattern. Seeing from the position within 20 cm from the inverted fluorescent light, adjust the VCOM voltage, performing the VCOM command.

Voltage for the lowest flicker is optimal for VCOMDC.

Flicker can be adjusted manually without using the AT command. (Refer to the, "Adjustment procedures after replacement of parts" on pages 2 – 36 and 2 – 37.)



Black lines are displayed line by line of the 8-gradation pattern
(Black-and-white pattern)

Sub-Screen Display Test

Item	Incoming Serial Signal		Outgoing Serial Signal	Contents	Test Method
	Command	n	Response		
Checking the rear liquid crystal display	SUBLCD	2 1 0	OK	Inverted display of hound's tooth check S. Hound's tooth check. Initial display.	Checking the sub liquid crystal display.

4) Audio Test

Incoming/Outgoing Serial Signal Format for Audio Test

Item	Incoming Serial Signal		Outgoing Serial Signal	Contents	Test Method
	Command	n	Response		
Audio system power source and codec loop-back test.	PCMLP	4xx 3xx 2xx 1xx 0	PCMLPnxx (xx: Volume level)	Mic to JackEar path check. JackMic to Earpiece check. Jack to Jack path check. Mic to Earpiece path check. Path release (Finished)	Loop-back test for codec IC. PCMLP120: Checking that signals from the main unit microphone (TP324) are transmitted to the main unit earpiece (between TP167 and TP168). (In case that the volume level is 20) (Other cases.) PCMLP220: Between the hands free microphone and the hands free earpiece. PCMLP320: Between the hands free microphone and the main unit earpiece. PCMLP420: Between the main unit microphone and the hands free earpiece. PCMLP0: Exiting from the loop-back.
H/S Detection	EAR	None	EARON•EAROFF	Detection of hands free insertion.	Detecting that the hands free is connected to the hands free connector. When "EAR" is transmitted: "EARON" is returned if the hands free is connected, and "EAROFF" returned if not connected.

Gain Table during "Mic to Earpiece" and "JackMic to Earpiece" Path Check.

xx	Table of Audio Volume	DAC Output Gain (dB)	Equivalent to Volume Position for User Setting
00	0x1F	Mute	MUTE
03	0x13	-19.5 dB	VOLUME 1
07	0x11	-16.5 dB	VOLUME 2
11	0x0E	-12.0 dB	VOLUME 3
15	0x09	-4.5 dB	VOLUME 4
20	0x04	+3.0 dB	VOLUME 5

Gain Table during "Jack to Jack" and "Mic to JackEar" Path Check.

xx	Table of Audio Volume	DAC Output Gain (dB)	Equivalent to Volume Position for User Setting
00	0x1F	Mute	MUTE
03	0x12	-18.0 dB	VOLUME 1
07	0x0E	-12.0 dB	VOLUME 2
11	0x0A	-6.0 dB	VOLUME 3
15	0x06	0 dB	VOLUME 4
20	0x02	+6.0 dB	VOLUME 5

5) All Key Test and Others

<Startup and initial condition>

Fit a battery or a dummy battery in the set. Hold down the "End/Power" key to start up in the general mode. Then enter AT + XDIAG.

→ Start up in the function test mode. (3 sec. until startup)

After any key is pressed, the AT command is rejected.

After the start of the test mode, the Data cable can be removed.

Key	Contents	
"Send"	Vibrator operation. "VIBRATOR" Displayed. Stop the vibrator with the key "0" to return to the all key test mode initial screen.	
"▶"	Playback melody at max. volume (MERODY1 in the normal condition). "MELODY" displayed. Press the key "x" to set the volume to the minimum, and the key "#", to the maximum, respectively. Stop melody with the key "0" to return to the all key test mode initial screen.	
"◀"	Playback the ringer at max. volume (Ringer1 in the normal condition). "RINGER" displayed. Press the key "x" to set the volume to the minimum, and the key "#", to the maximum, respectively. Stop melody with the key "0" to return to the all key test mode initial screen.	
"Centre"	Full-rate codec loop-back. "CODEC INT" displayed. Stop loop-back with the key "0" to return to the all key test mode initial screen.	
"1"	Display check mode. Display is as shown below. Green LED lights up. Back light is switched to the main light to turn on. <pre> LED CHECK * GX-10i * ROM VERSION: *** BLCD:48 Gx10i diag version. 2002.**.** v ** T_2.3 2003/**/** **: **: ** </pre>	
	"1" White → Red → Green → Blue → Black → Color bar → (Returning to white.)	
	"6" LED: Orange; Remained as it is until the key "0" is pressed.	
	Press the key "0" to turn off the green LED and return to the all key test mode initial screen.	
	"Side Up": Rear back light ON with no display. Thereafter toggling between test display and no display. "Side Down": Rear back light ON with test display. Thereafter toggling between no display and test display.	
"2"	IrDA Check (115 kbps). Press the key "0" to return to the initial screen.	
"3"	Display changed to CHG CHECK. Press the key "0" to return to the initial screen. AC Charger is inserted to turn on the red LED.	
"8"	Rear liquid crystal contrast check. Press the key "0" to return to the initial screen.	
	"Side Up"	Writing to SRAM by increasing contrast by one level.
	"Side Down"	Writing to SRAM by decreasing contrast by one level.
	"0"	Returning to the all key test initial screen without contrast memory.
"6"	Camera turns ON to display camera image. (Optical axis at the left end) Press the key "Left Soft" to repeat ZOOM ON/OFF operation. Press the key "Centre" to repeat shutter ON/OFF operation. Press the key "◀" to shift the image by 2 dots to the left, and the key "▶", by 2 dots to the right, respectively. Press the key "Right Soft" to write optical axis adjustment value. Press the key "0" to return to the all key test initial screen.	

Key	Contents
"9"	Red LED ON. LCD display is shown below. Back light remains ON. RTC contents are displayed at the time the key "9" is pressed. Clock does not tick. <pre> KEY CHECK * GX-10i * ROM VERSION : *** BLCD:48 2003/**/** **.*. ** Gx10i diag version. 2002.**.* v ** T_2.3 2003/**/** **.*. ** </pre> Press all keys except the key "0" in random order. The first pressing of the key brings white display and red LED OFF. Every pressing makes a bleep. Opening/closing flip also makes a bleep. With flip closed, green LED ON. Press the key "▶" to sound melody. (When pressing the next key, melody stops.) Press the key "◀" so sound ringer at max volume. (When pressing the next key, ringer stops.) Press the key "0" before pressing all keys to return to the all key test initial screen. When pressing all keys except the key "0", ringer sounds at max. volume. Green LED for incoming call blinks and the screen display becomes black. When closing the flip, the ringer stops sounding. (Thereafter the ringer does not sound.) After that open/close the flip to make a bleep. Close it to turn on green LED. Press the key "0" to stop ringer, to turn off green LED for incoming call, and to return to the all key test initial screen.
"#"	Sum check. <pre> SUM CHECK * GX-10i * ROM VERSION : *** BLCD:48 SUM:*** Gx10i diag version. 2002.**.* v ** T_2.3 2003/**/** **.*. ** </pre> Press the key "0" to return to the all key test initial screen.

Key	Contents
"✱"	Shifting to the mode for temperature correction. TEMP ADJ 1. CAM TEMP 2. BAT TEMP 0. EXIT "1" (Selecting the camera side) or "2" (Selecting the battery side) "0" Exit TEMP ADJ (BAT) Temp. 25 Deg. Correct : +00 Deg "▲" KEY: +1 Deg. "▼" KEY: -1 Deg. "▲": +1 °C Correction in the correction mode. "▼": -1 °C Correction in the correction mode. "#": Determination of corrected value. TEMP is not updated automatically. Press the key "0" to return to the all key test initial screen.

Note) LCD Display: No temperature correction during the all key test; Display in the user contrast setting default condition.

Test Display:



The LCD test display shows a row of status icons at the top: signal strength, battery level, a lock icon, a camera icon, a bell icon, a question mark icon, and a battery icon. Below the icons, the date and time are displayed in a large, bold, digital font as "01-08-2002 10:08".

6) Initializing Flash User Domain (Manual Test Mode F99)

Only use the troubleshooting procedure, "Power does not turn on" (page 2 - 42).

Take care that the user setting data will be lost in this operation.

Before starting this mode, be sure to backup the user data, referring to "SOFTWARE DOWNLOAD."

<Startup>

1. Fit a battery in the set to start the manual test mode.
2. Press the keys, "9" → "9" → "Right Soft", to start the manual test mode F99 (User Function).
3. When "Input Mode No: " is displayed on the screen, enter "1" and press the key "Right Soft".
4. "EE_FORMAT START" is displayed on the screen.
5. "FINISHED PLEASE ANY KEY" is displayed on the lower part of the screen.
6. Press the any key to return to the initial screen of the manual test mode.
7. Press the "Centre" key.
8. Press the "End/Power" key to finish operation.

After initialization, start up in the general mode.

CHAPTER 3. DISASSEMBLY AND REASSEMBLY

[1] Servicing Concerns

General

- Before servicing, you must warn the user that the repair may clear the information stored in the memory.
- Before storing or transporting the circuit board, put it into the conductive bag or wrap it in aluminium foil.
(C-MOS IC may be damaged by electrostatic charges.)
- In order not to stain cosmetic parts such as a cabinet, especially clear window parts for main and sub-screen display panels by finger print or whatever, please cover your finger by finger sack.
Also, please take care about surface of main and sub-screen display panels not to stamp finger print.
- To prevent oxidation which cause connection problem, please do not touch any terminal on electric board, microphone, vibrator, earpiece and speaker.
If you have to touch there, please cover your finger by finger sack.
If you touch those parts, please clean by soft dry cloth.
Also, please do not touch shield case on electric board directly without finger sack, otherwise performance of the phone may decline because of oxidation.
- Since FPC is sensitive, please handle FPC careful so that you will not make any damage.
- Please do not wet the moisture sensor.
Once the sheet is wet, red ink is supposed to run. In this case, please replace the sheet with new one.
Please take care about your sweat.
- Be sure to remove the Li-Ion battery from mobilephone.
- Take sufficient care on static electricity of integrated circuits and other circuits by using static electricity prevention bands when servicing.

For disassembling

- Please do not remove the board of base band section by pulling external interface connector, otherwise you will make damage to the board.
- Shield case is attached on shield case holder without clearance. When you remove it, please take care not to remove together with shield case holder. If you remove shield case holder together, you can not attach it again because it is attached by solder and in such a case, you should have taken electric pattern on the board as well.

For reassembling

- Please make sure that all cosmetic parts have no scratch and clean.
- Please make sure that you can open and close handset smoothly and hear tick sound of hinges.
- Please make sure that sub-screen display cushion can not be seen from the window.
- Please make sure that main screen display panel is placed in proper position without inclination.
- Please make sure that all three battery terminals protrude evenly.
- Please make sure that the pawl of aerial is upside.

● FASTENING TORQUE (Referential Value)

PWB/ Front Cabinet, Display	$15.7 \pm 2.0 \text{ N} \cdot \text{cm}$ ($1.6 \pm 0.2 \text{ Kgf} \cdot \text{cm}$)
Back Cabinet, Key/ Display	$17.7 \pm 2.0 \text{ N} \cdot \text{cm}$ ($1.8 \pm 0.2 \text{ Kgf} \cdot \text{cm}$)

The value is for reference when an electric screwdriver is used.

● SOLDERING SPECIFICATION

Soldering iron must be set to 350° C for 3 seconds.

● STANDARD POSITION OF ATTACHMENT

When replacing the Spacer, FPC,A, Spacer, FPC,C, Main - Screen Display, Tape and Sub - Screen Display Cushion shown below (), be sure to attach it to the designated position.

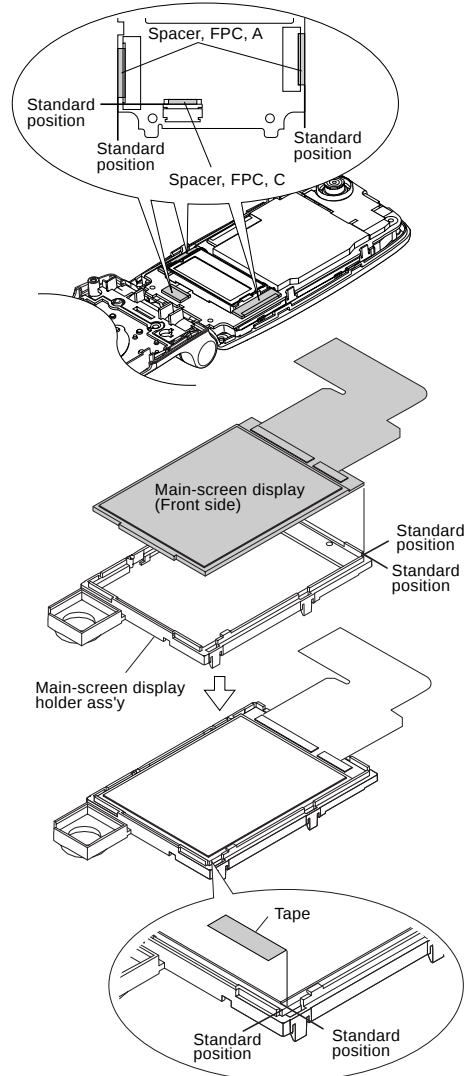


Figure 1

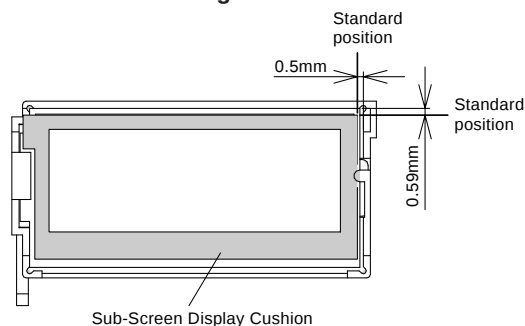


Figure 2

[2] Disassembly and reassembly

- To reassemble, follow the reverse procedure.

STEP	REMOVAL	PROCEDURE	FIGURE
1	Back Cabinet Assembly, Key	1. Battery Cover (A1)x1 2. Li-Ion Battery (A2)x1 3. Screw Cover (A3)x2 4. Screw (A4)x4 5. Hook (A5)x4	3
2	Key PWB-B	1. Socket (B1)x2 2. Solder (B2)x5 3. Hook (B3)x4	4

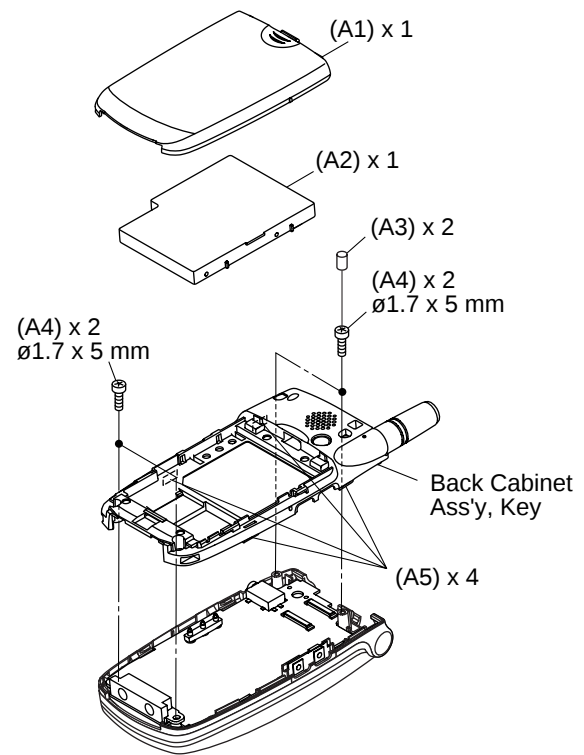


Figure 3

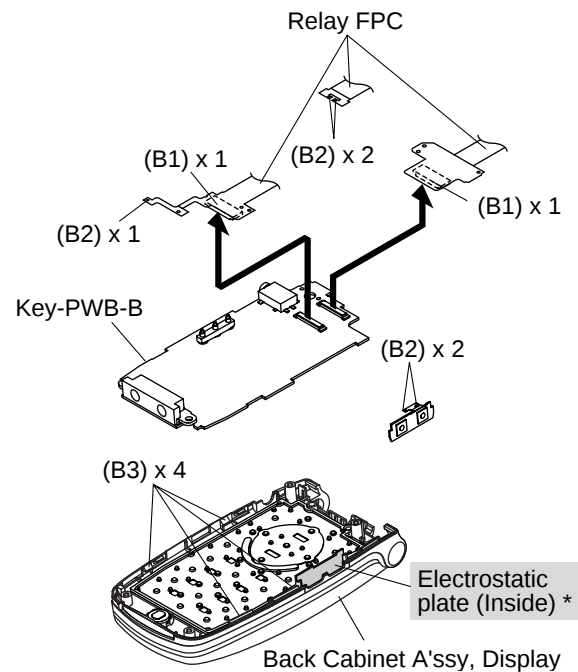


Figure 4

* Be careful not to deform the electrostatic plate (PSLDC3348AFZZ) used to eliminate static electricity when installing/removing the key PWB.

STEP	REMOVAL	PROCEDURE	FIGURE
3	Back Cabinet Assembly, Display	1.Screw Cover (C1)x3 2.Screw (C2)x7 3.Hook (C3)x4	5
4	Main PWB-A	1.Solder (D1)x5 2.Socket (D2)x5 3.Hook (D3)x4	6

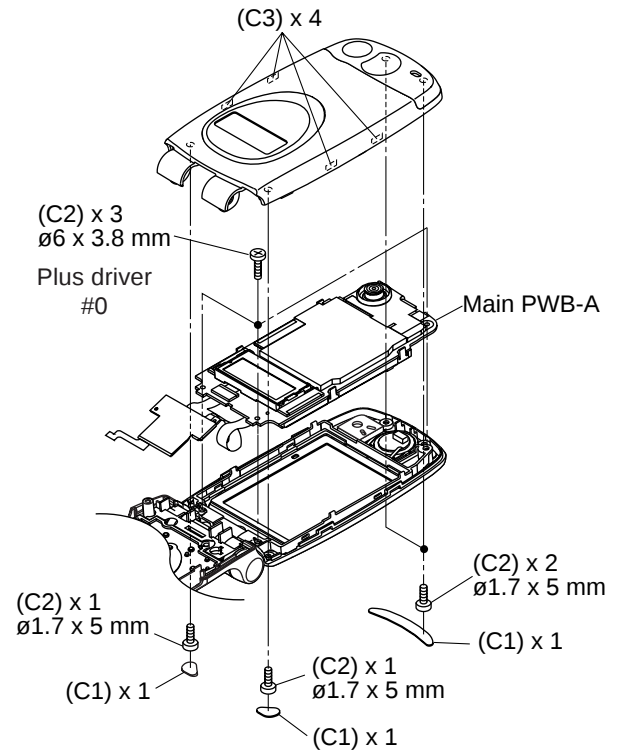


Figure 5

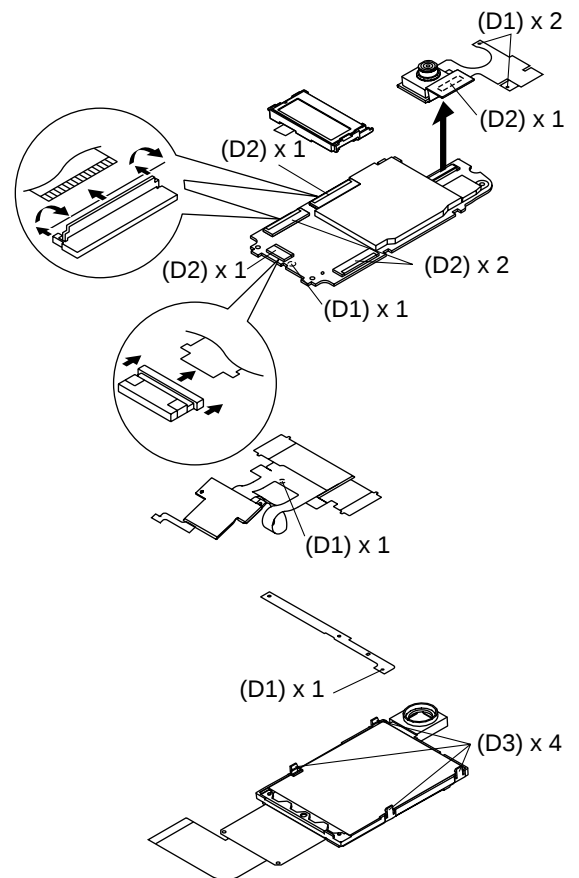


Figure 6

CHAPTER 4. DIAGRAMS

[1] Block diagram

[Main]

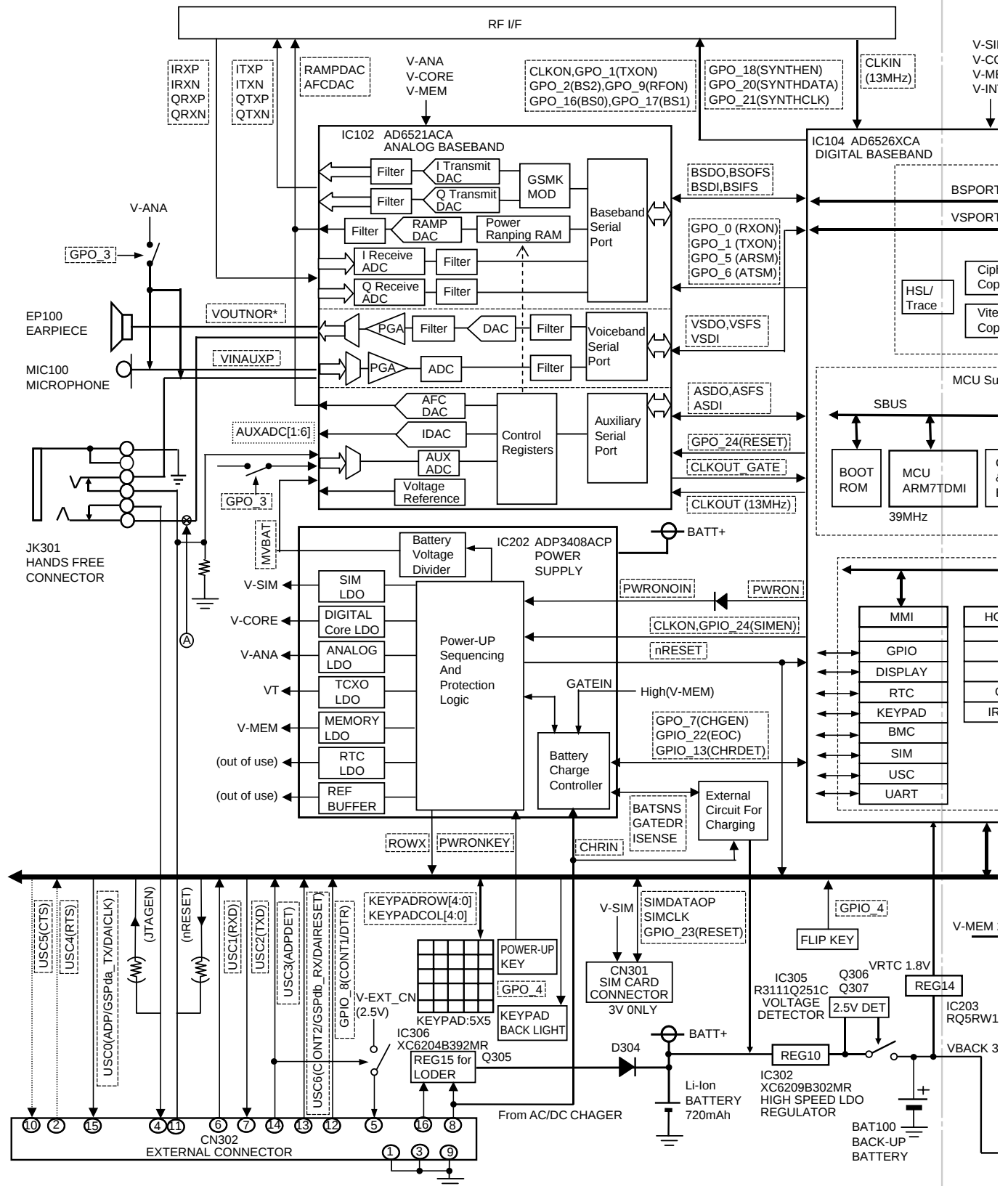


Figure 1 MAIN BLOCK DIAGRAM (1/2)

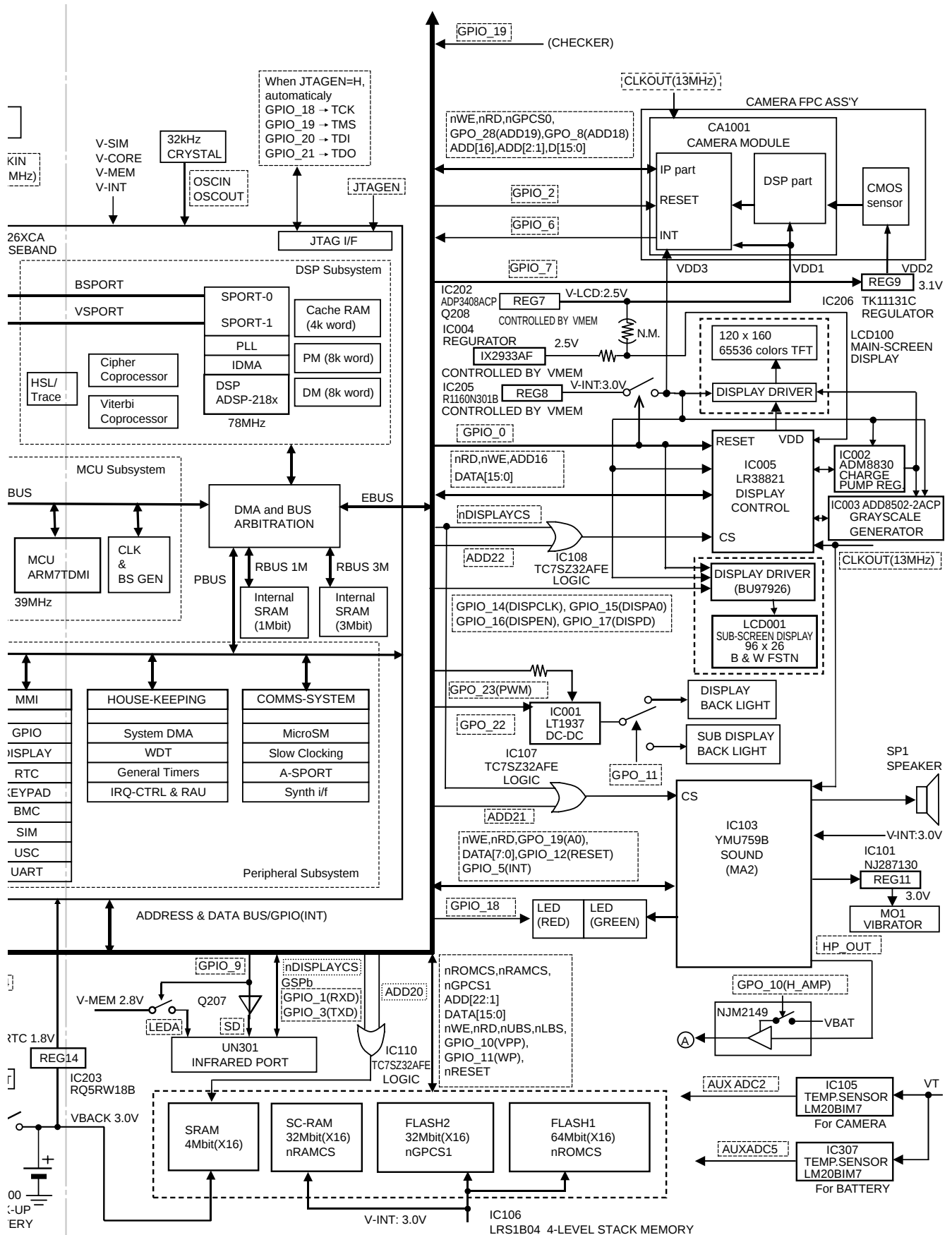


Figure 2 MAIN BLOCK DIAGRAM (2/2)

[illegible]

4 - 3

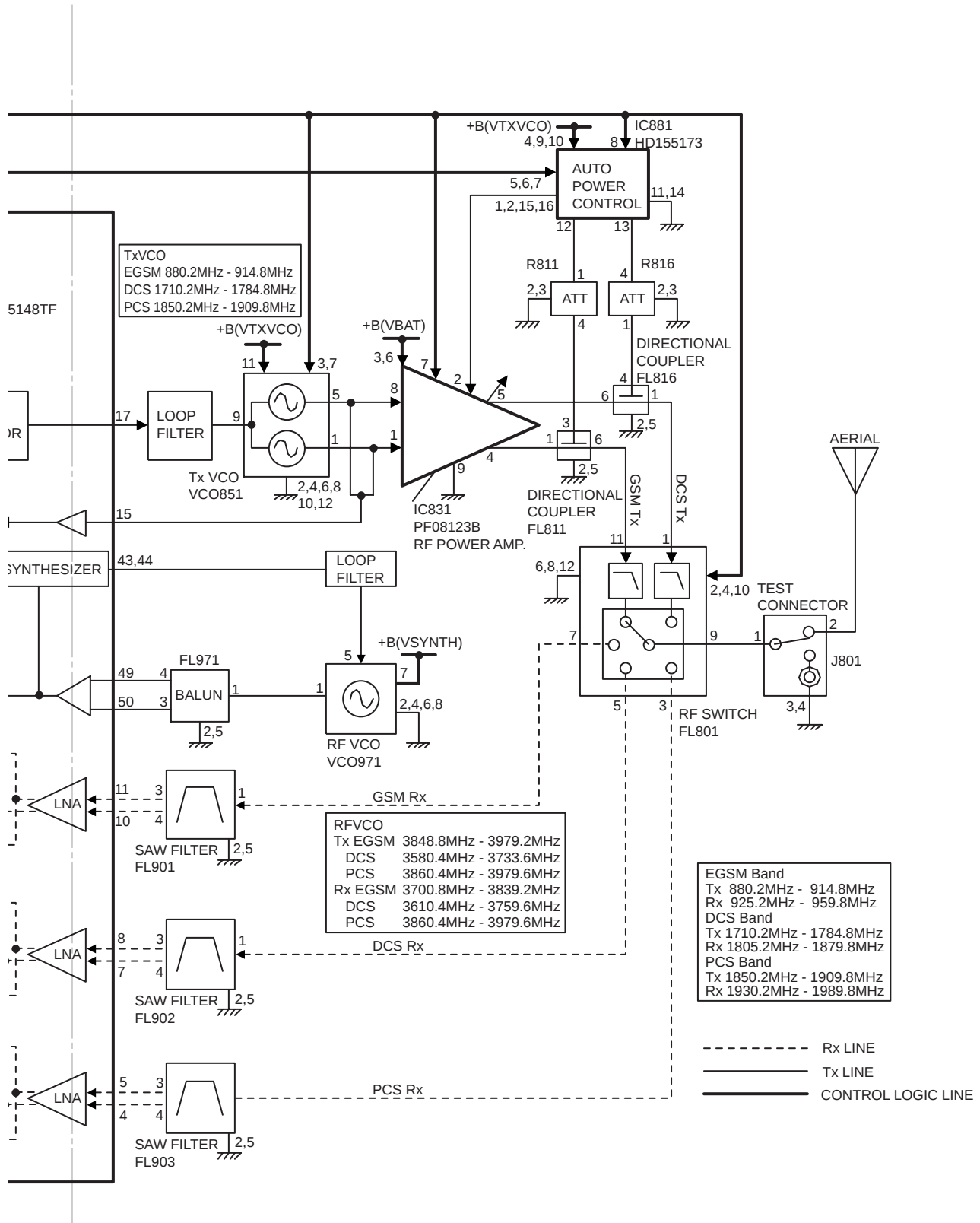


Figure 4 RF BLOCK DIAGRAM (2/2)

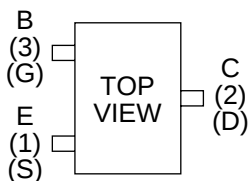
— MEMO —

CHAPTER 5. SCHEMATIC DIAGRAM AND WIRING SIDE OF P.W.BOARD

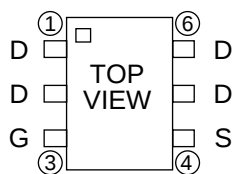
[1] Notes on schematic diagram

- Resistor:
To differentiate the units of resistors, the symbols K and M are used. The symbol K means 1000 ohm and the symbol M means 1000 kohm. The resistor without any symbol is an ohm resistor.
- Capacitor:
To indicate the unit of capacitor, the symbol is used.
The symbol P means pico-farad and the unit of the capacitor without such a symbol is microfarad. As to electrolytic capacitor, the expression "capacitance/withstand voltage" is used.
(CH), (RH), (UJ): Temperature compensation
(ML): Mylar type
(S): Styrol type
(PP): Polypropylene type
- The indicated voltage in each section is the one measured by Digital Multimeter between such a section and the chassis with no signal given.
- Schematic diagram and Wiring Side of P.W. Board for this model are subject to change for improvement without prior notice.
- Parts marked with "△" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

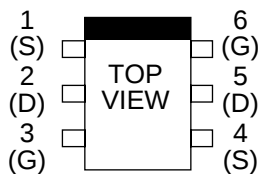
[2] Types of transistor and LED



2SA1955 A
2SA1989 SR
2SK3019
3LP02 M
MCH3443
RT1N144 U
RT1N234 U

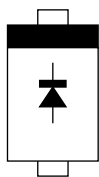


CPH6311



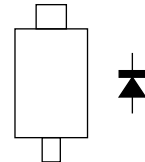
EMD6
EMD9
EMD12
EMG9
MCH6613
UM6K1

TOP VIEW



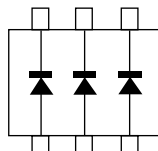
1SS388
RB160M30
RB520S30
RB521S30

TOP VIEW



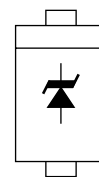
MA2ZD02

TOP VIEW



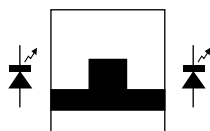
HN2S01FU

TOP VIEW



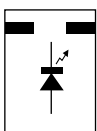
RD22SL
RSB6.8S

BOTTOM VIEW



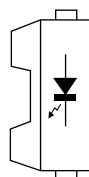
CL165UR

TOP VIEW



YPY1105C

TOP VIEW



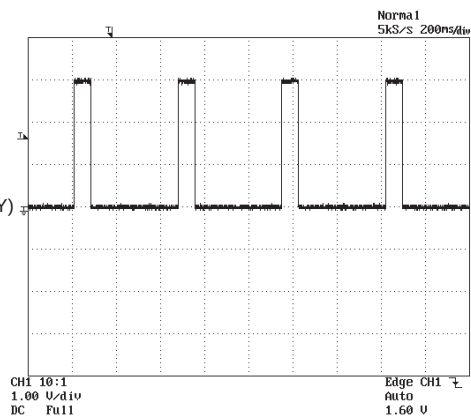
CW215TBS

[3] Waveforms of circuit

RF UNIT PLL_IC SERIAL COMMUNICATION

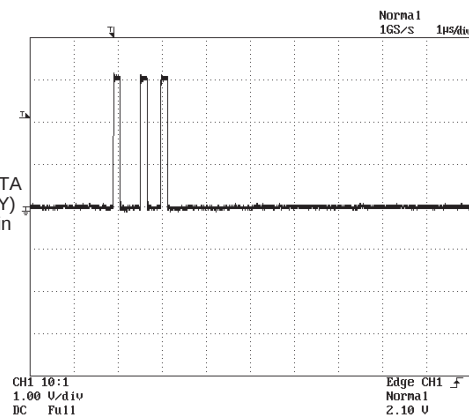
①

TCXOEN
(STAND-BY)
IC304 1Pin



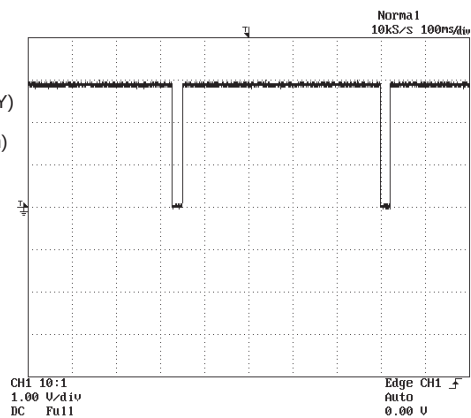
⑤

SYNTHDATA
(STAND-BY)
IC901 39Pin



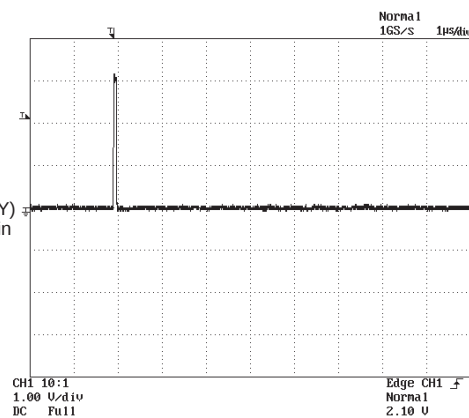
②

RFON_B
(STAND-BY)
R351
(Q304 5Pin)



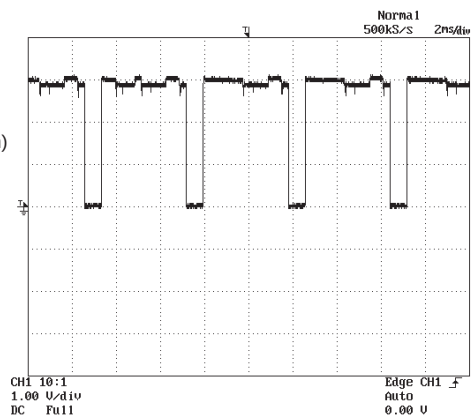
⑥

SYNTHEN
(STAND-BY)
IC901 35Pin



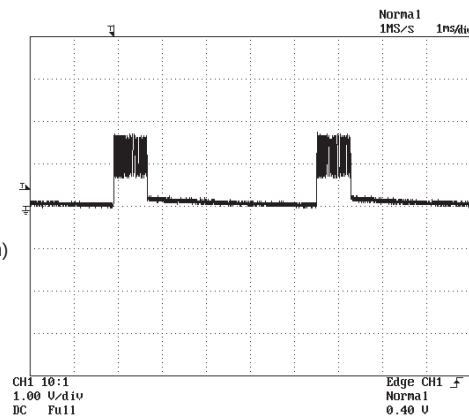
③

TXON_B
(Talking)
R352
(Q304 4Pin)



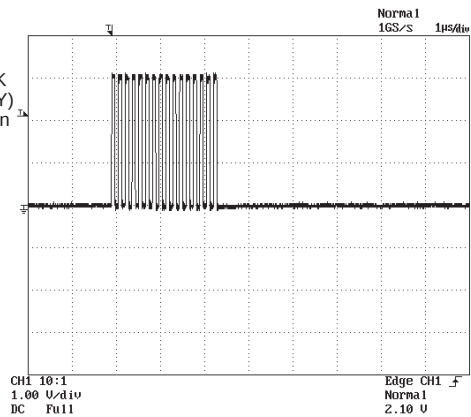
⑦

QTXN
(Talking)
C924
(R923 6Pin)



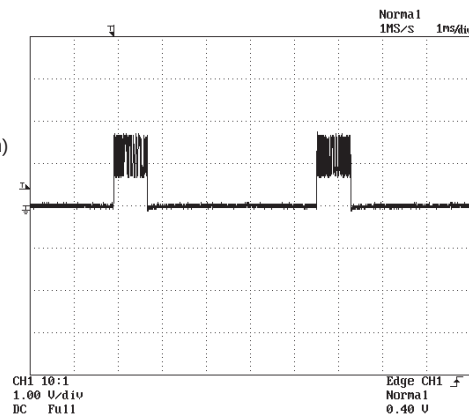
④

SYNTHCLK
(STAND-BY)
IC901 37Pin

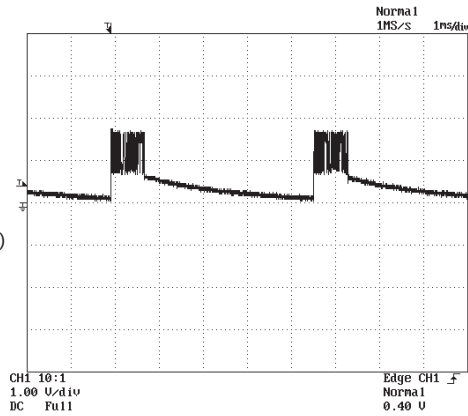


⑧

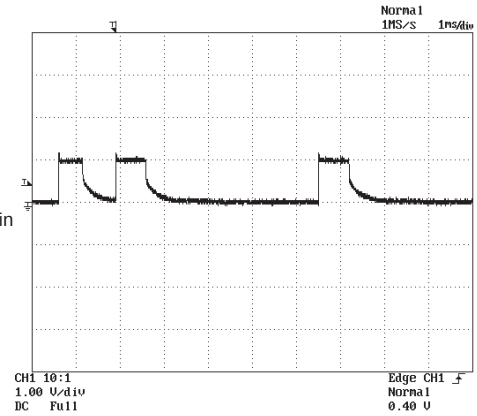
QTXP
(Talking)
C924
(R923 5Pin)



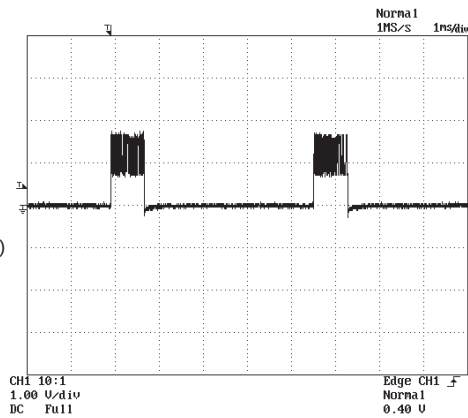
9
ITXN
(Talking)
C923
(R923 8Pin)



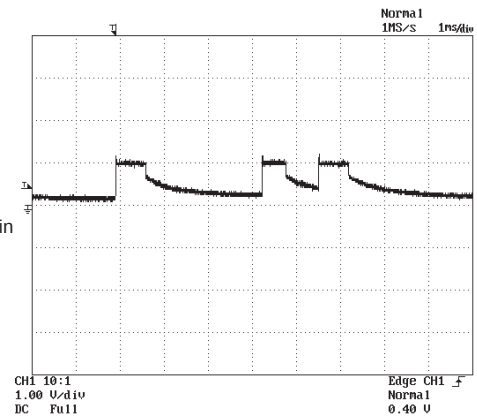
13
IRXN
(Talking)
IC901 27Pin



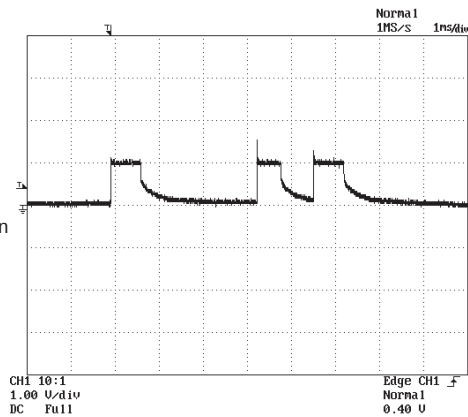
10
ITXP
(Talking)
C923
(R923 7Pin)



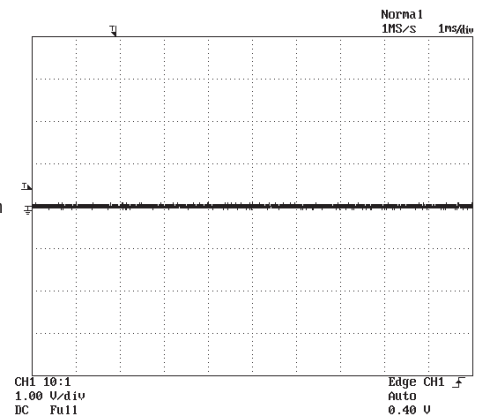
14
IRXP
(Talking)
IC901 26Pin



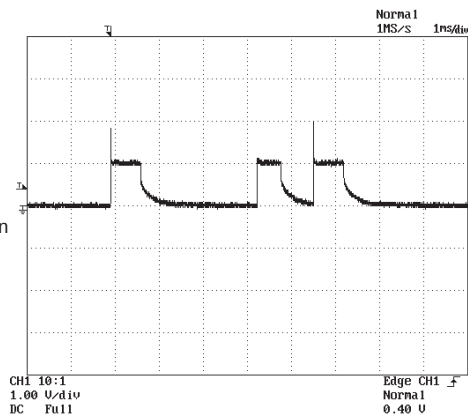
11
QRXN
(Talking)
IC901 24Pin



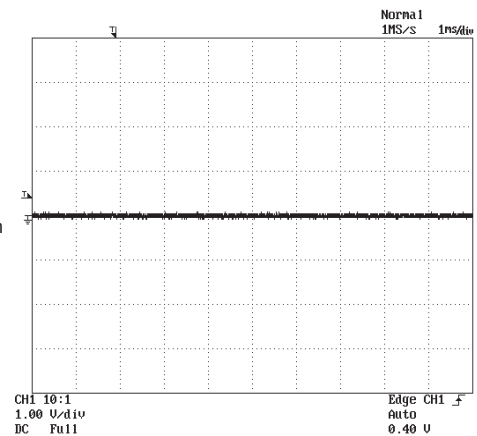
15
BS0(GSM)
(Talking)
IC993 1Pin



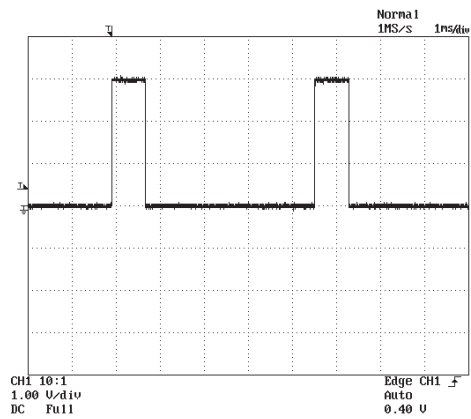
12
QRXP
(Talking)
IC901 25Pin



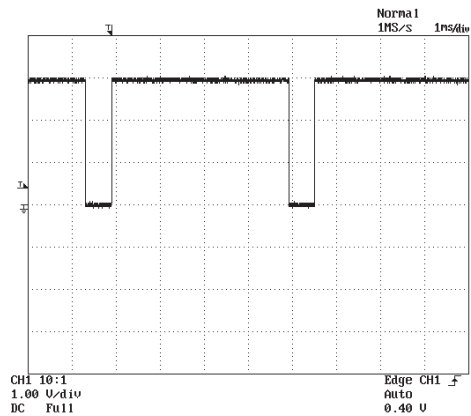
16
BS1(GSM)
(Talking)
IC993 2Pin



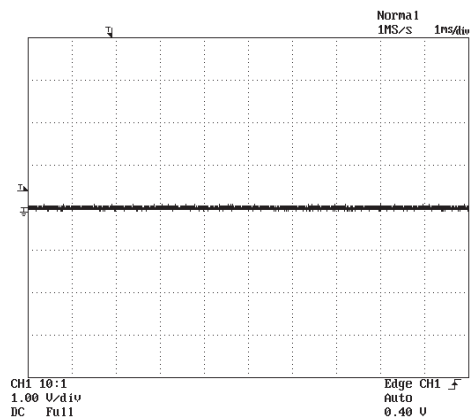
17
BS2(GSM)
(Talking)
IC992 1Pin



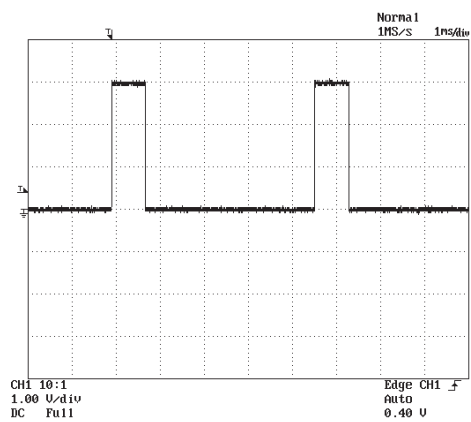
18
BS0(DCS)
(Talking)
IC993 1Pin



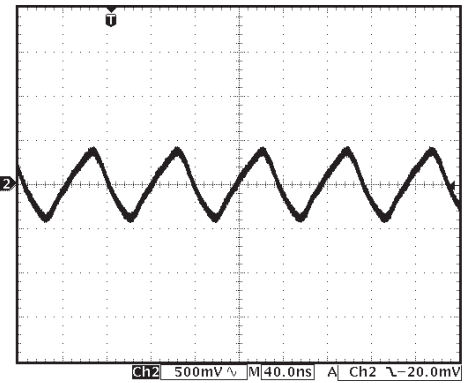
19
BS1(DCS)
(Talking)
IC993 2Pin



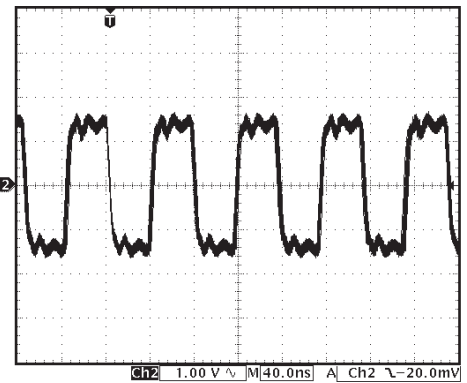
20
BS2(DCS)
(Talking)
IC992 1Pin



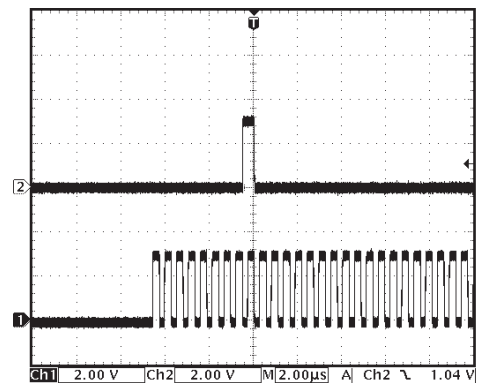
21
CLKIN
C109A
(IC104 116Pin)



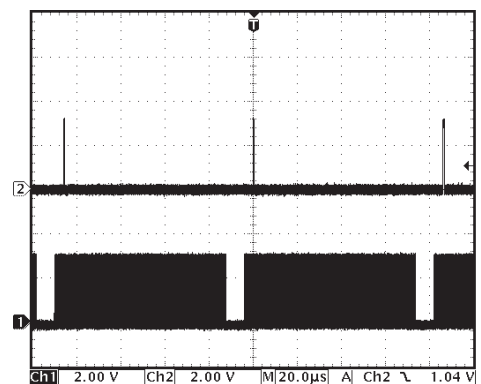
22
CLKOUT
R131
(IC104 43Pin)



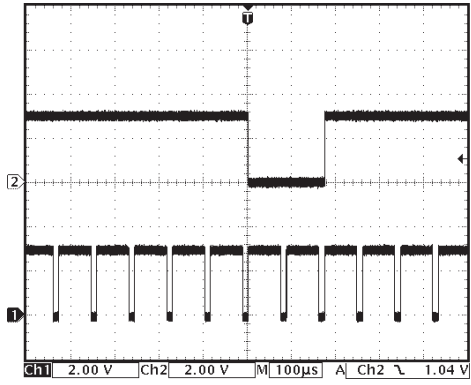
23
SPL
TP021



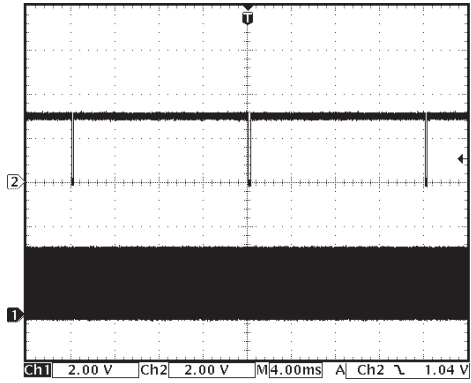
24
DCLK
TP018



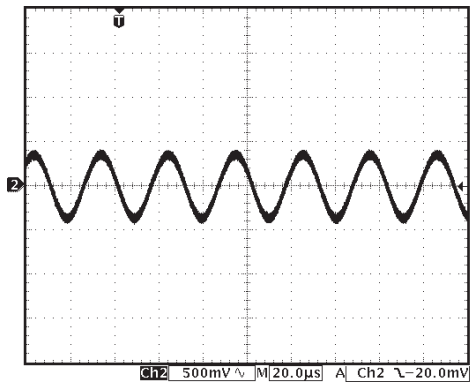
25
GSP
TP022



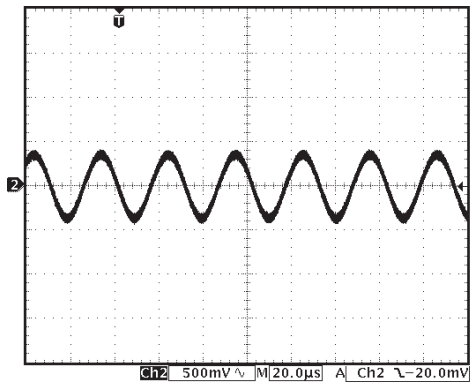
26
GCK
TP023



25
GSP
TP022



27
OSCIN
(32 kHz)
X101
(IC104 3Pin)

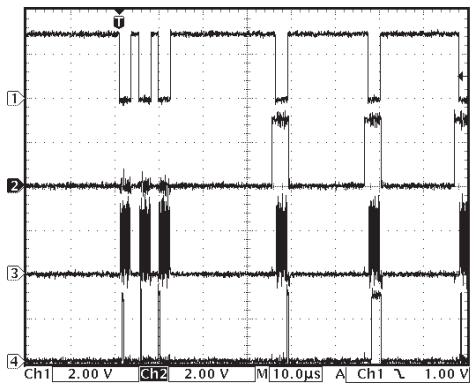


28
DISPEN
CN001 4Pin

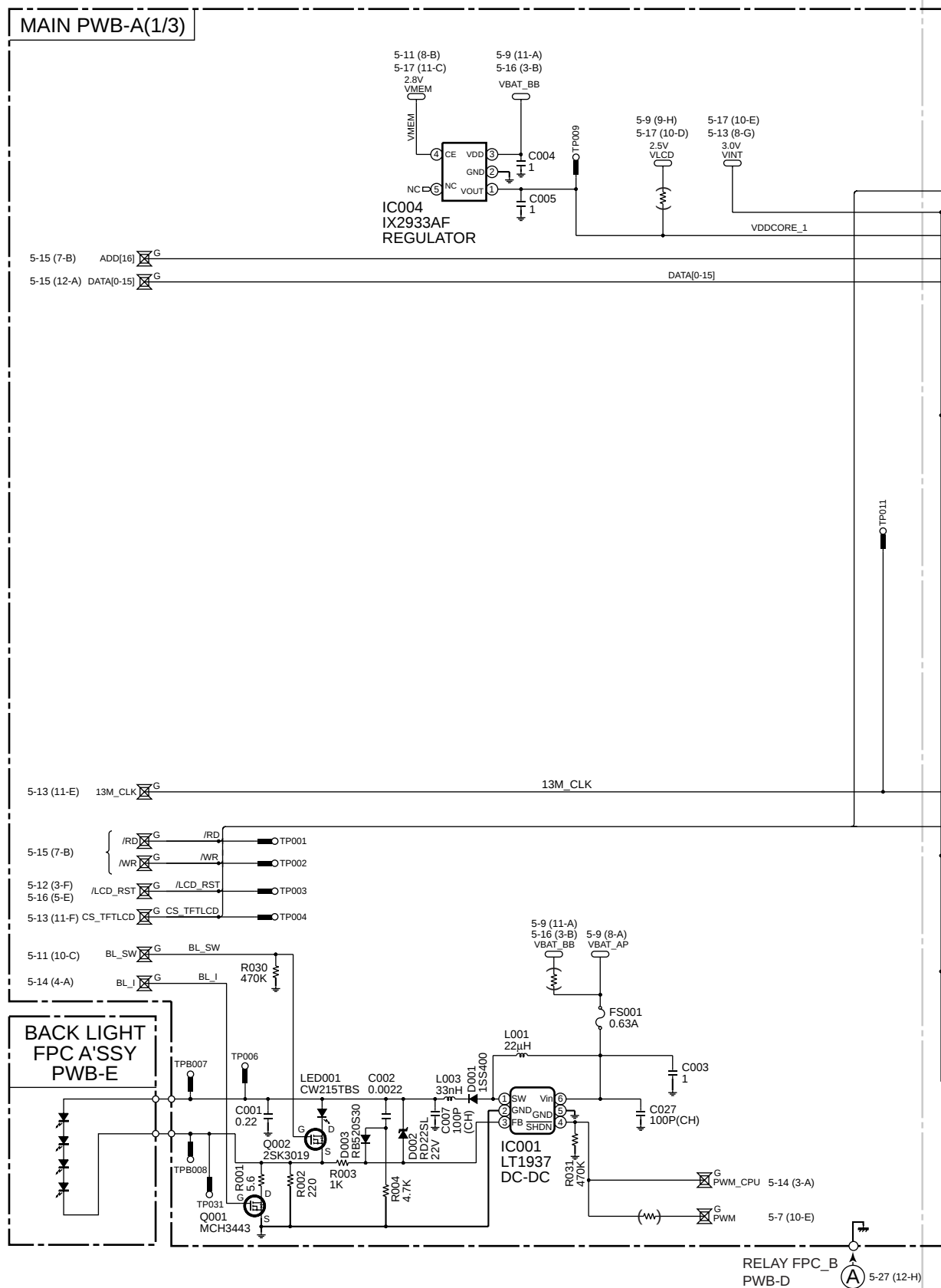
29
DISPAO
CN001 3Pin

30
DISPCLK
CN001 2Pin

31
DISPEN
CN001 1Pin

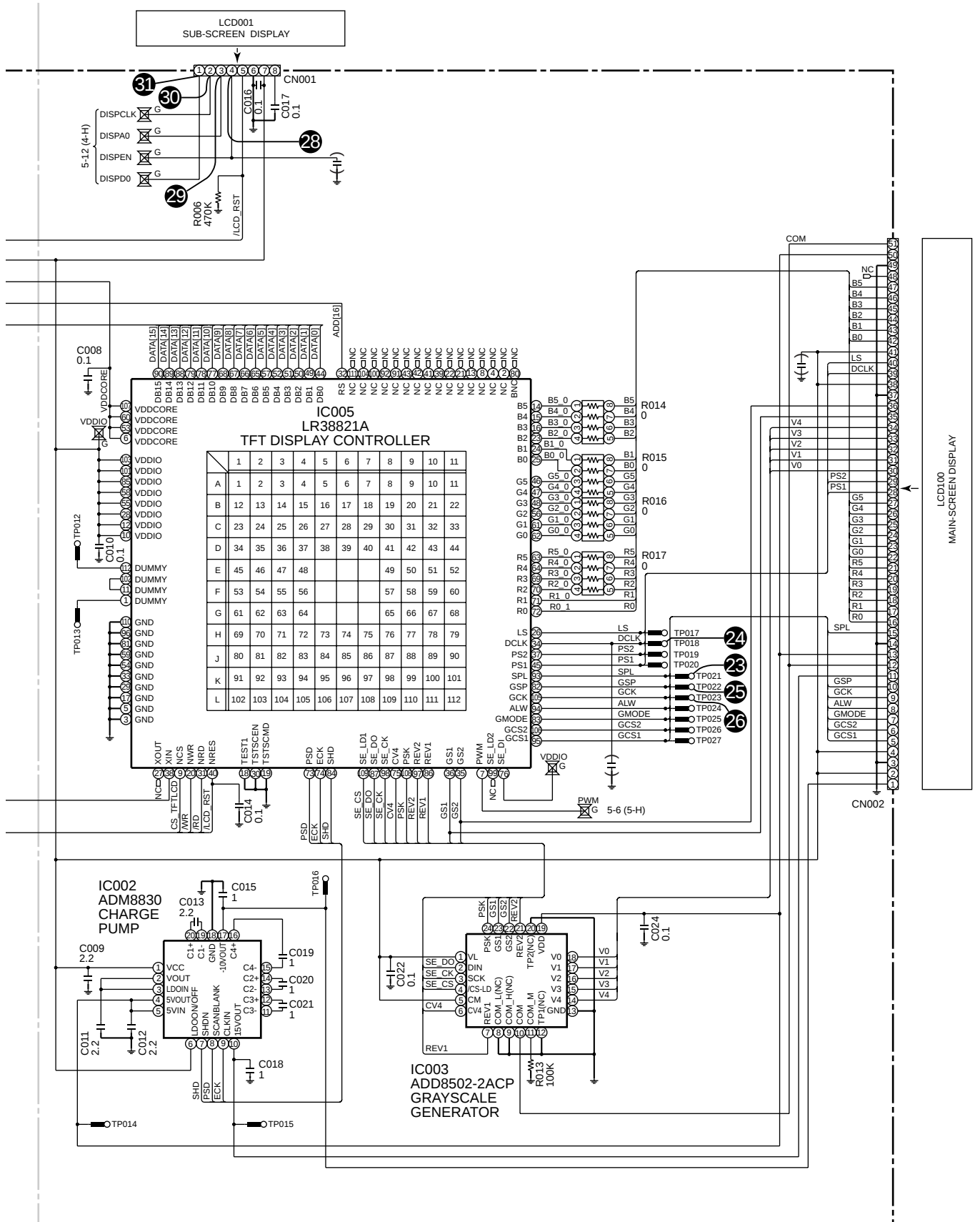


[4] Schematic diagram/wiring side of P.W.Board



• NOTES ON SCHEMATIC DIAGRAM can be found on page 5-1.

Figure 1 SCHEMATIC DIAGRAM (1/23)



' (12-H)

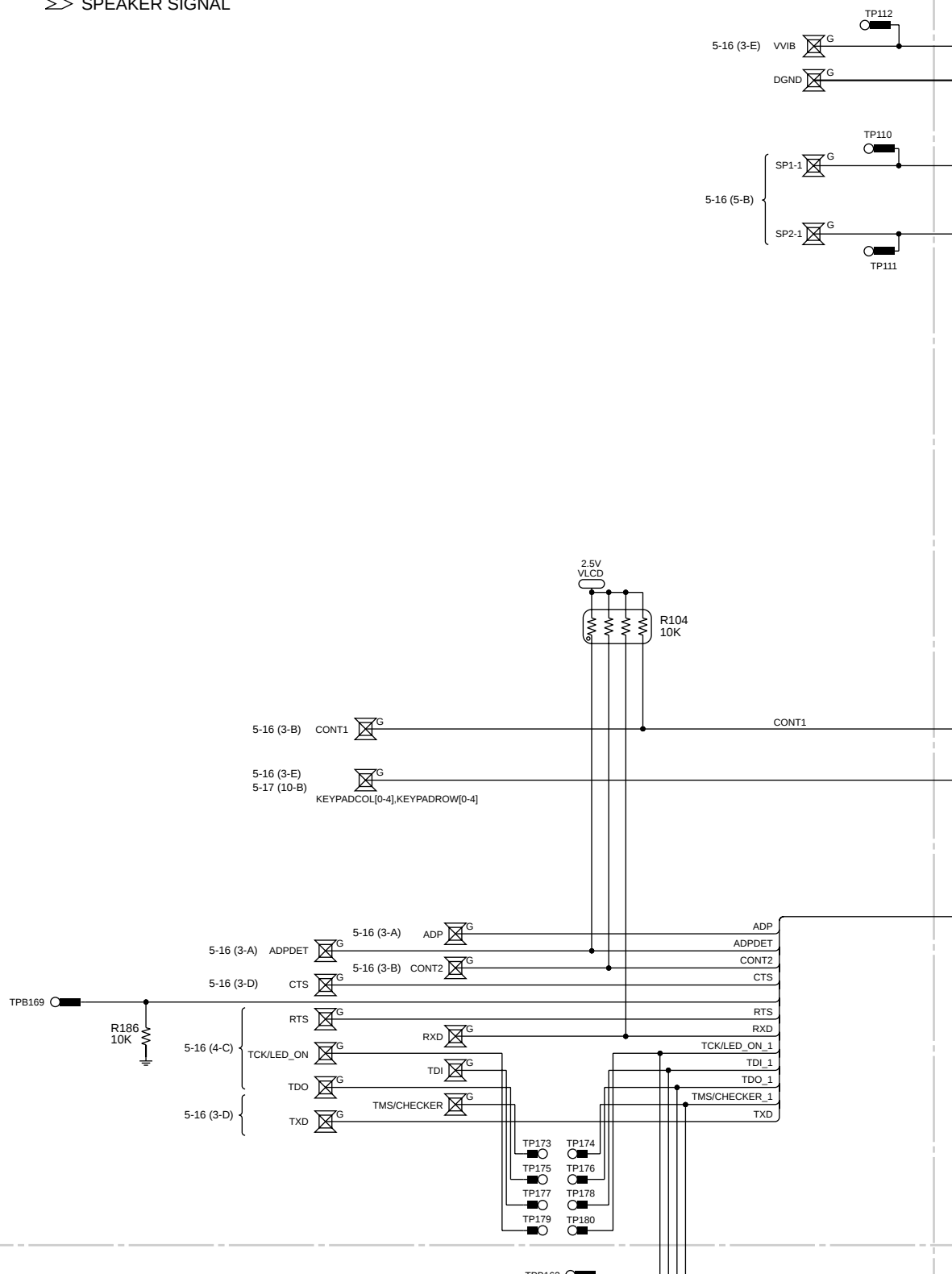
• () : Not Mount • The numbers 23 to 26 and 28 to 31 are waveform numbers shown in pages 5-4 ,5-5.

Figure 2 SCHEMATIC DIAGRAM (2/23)

MAIN PWB-A (2/3)

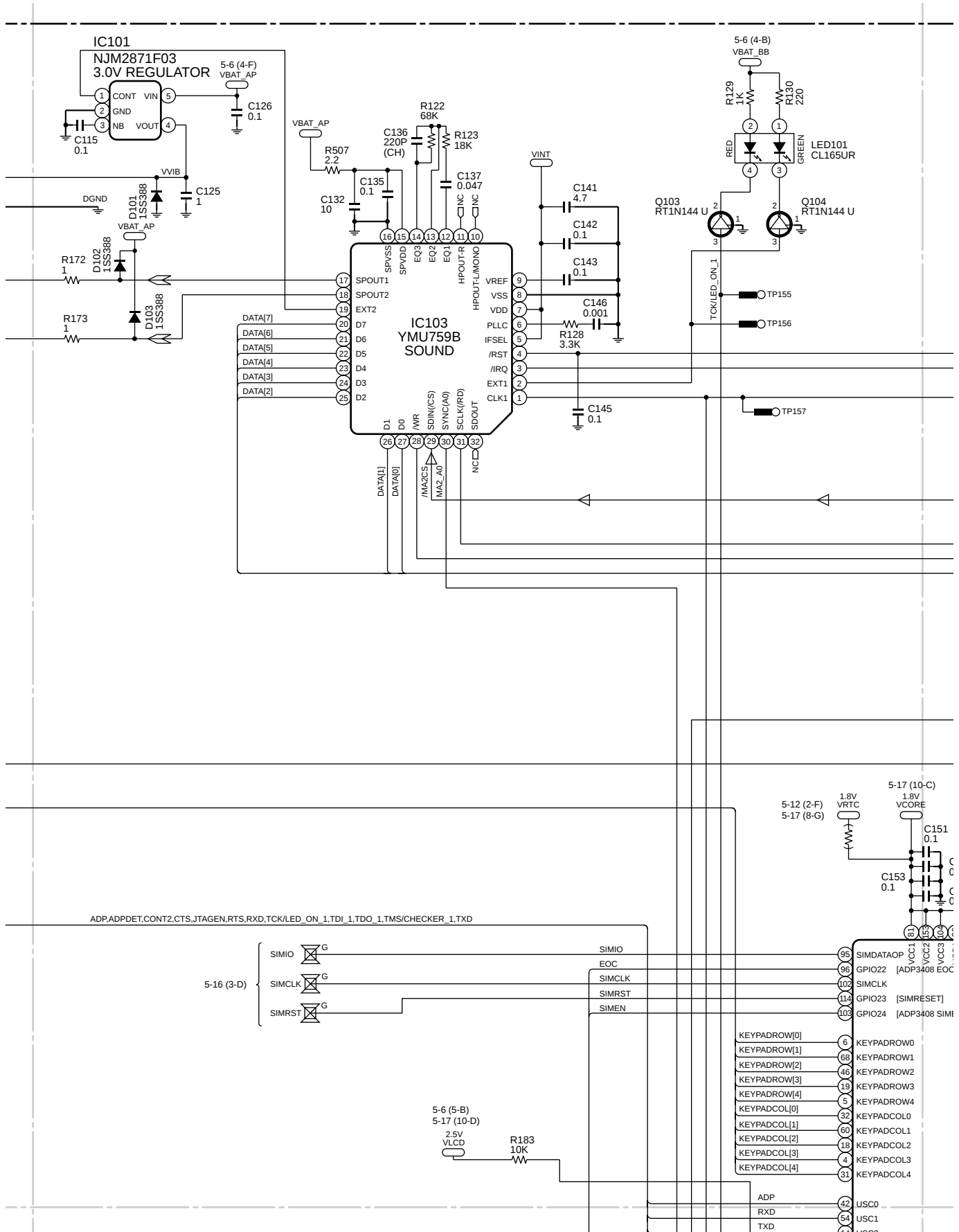
MAIN PWB-A(2/3)

- ▷ RECEPTION SIGNAL
 ► TRANSMISSION SIGNAL
 ≧ SPEAKER SIGNAL



• NOTES ON SCHEMATIC DIAGRAM can be found on page 5-1.

Figure 3 SCHEMATIC DIAGRAM (3/23)



• () : Not Mount

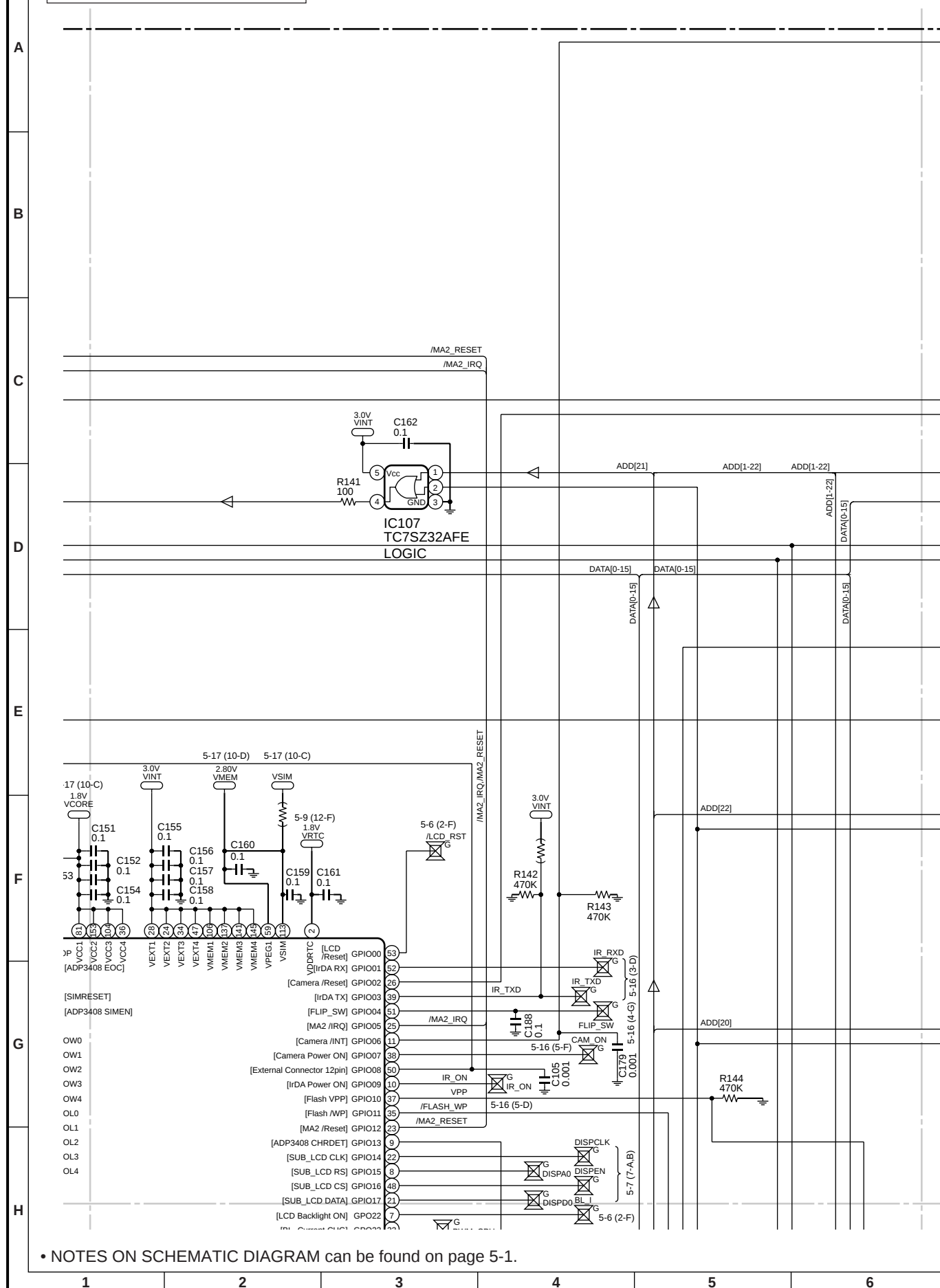
Figure 4 SCHEMATIC DIAGRAM (4/23)





5-11

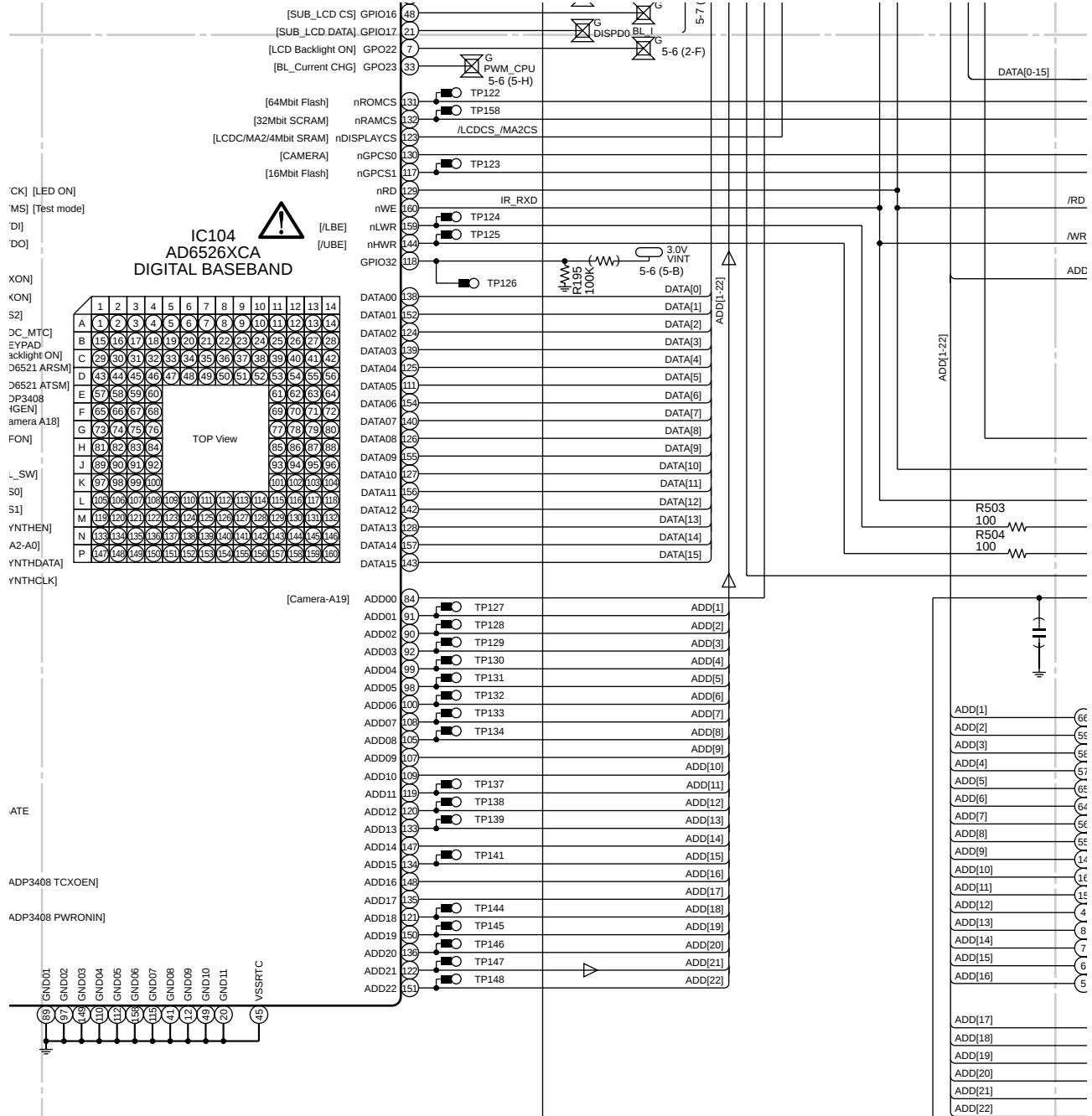
MAIN PWB-A (2/3)



• NOTES ON SCHEMATIC DIAGRAM can be found on page 5-1.

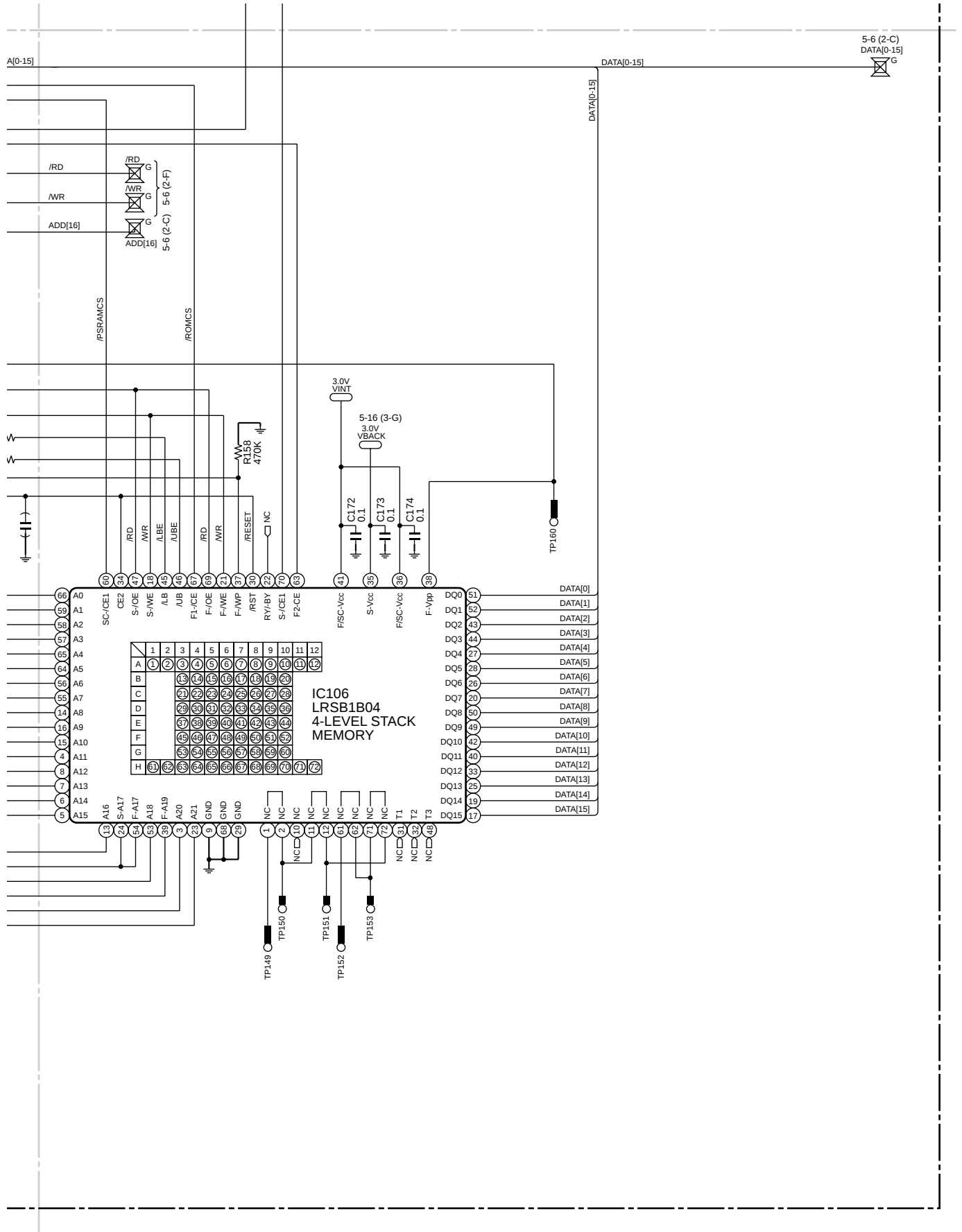
Figure 7 SCHEMATIC DIAGRAM (7/23)

MAIN PWB-A (2/3)



• NOTES ON SCHEMATIC DIAGRAM can be found on page 5-1.

Figure 9 SCHEMATIC DIAGRAM (9/23)

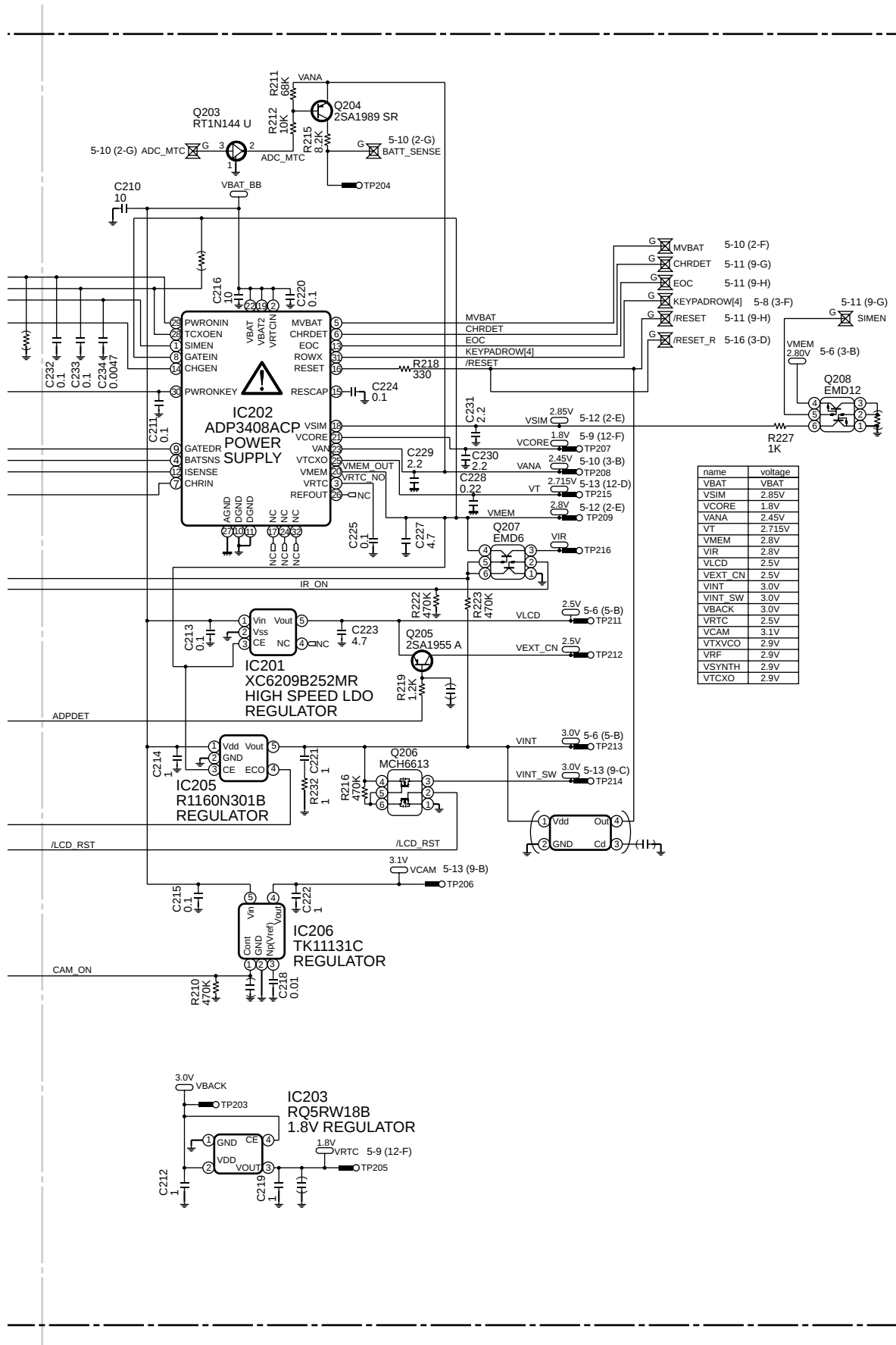


• () : Not Mount

7	8	9	10	11	12
---	---	---	----	----	----

Figure 10 SCHEMATIC DIAGRAM (10/23)

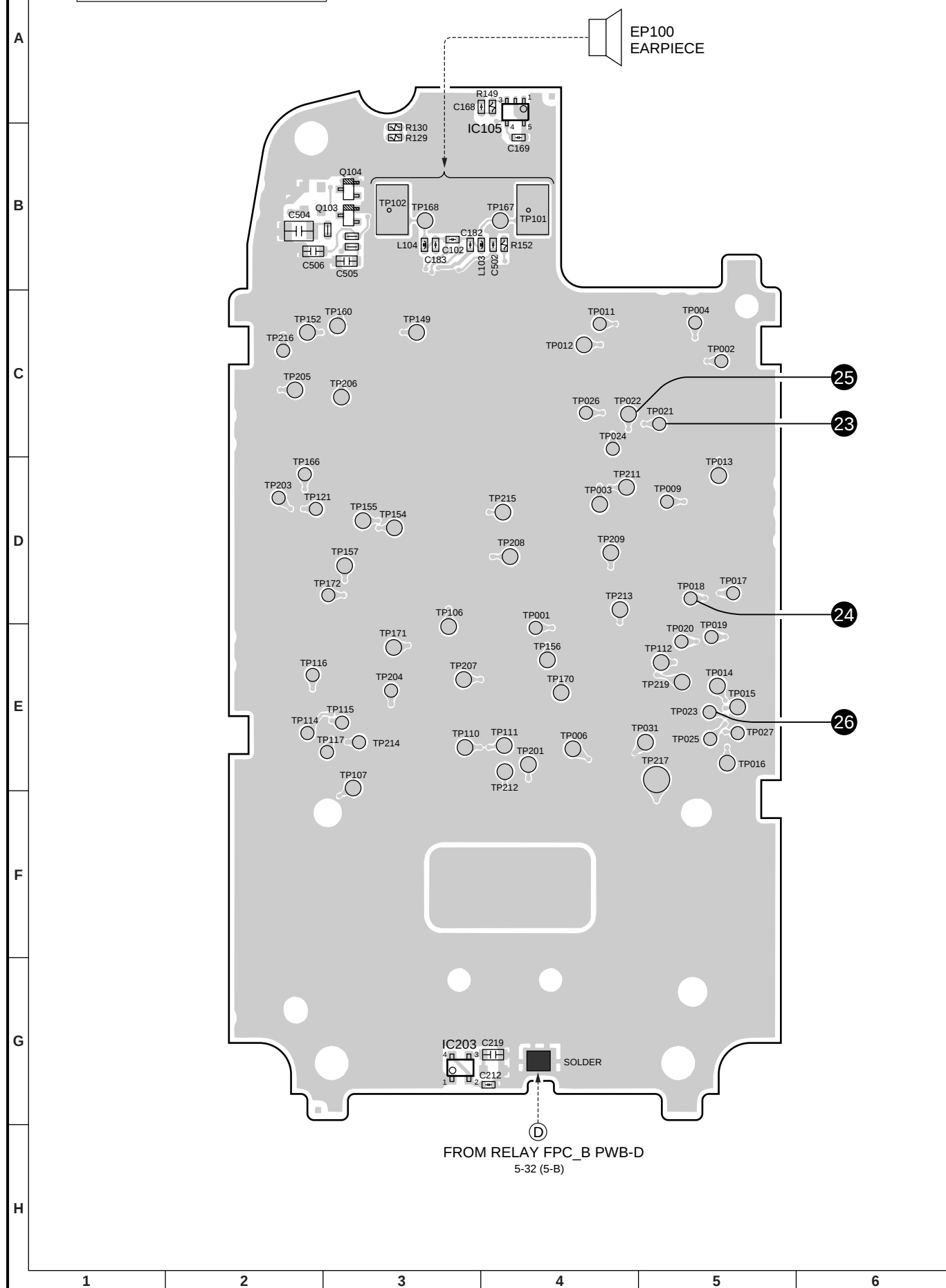




• () : Not Mount

Figure 12 SCHEMATIC DIAGRAM (12/23)

MAIN PWB-A (FRONT SIDE)



FROM CAMERA FPC ASS'Y
PWB-G 5-32 (2-F)



5 - 19

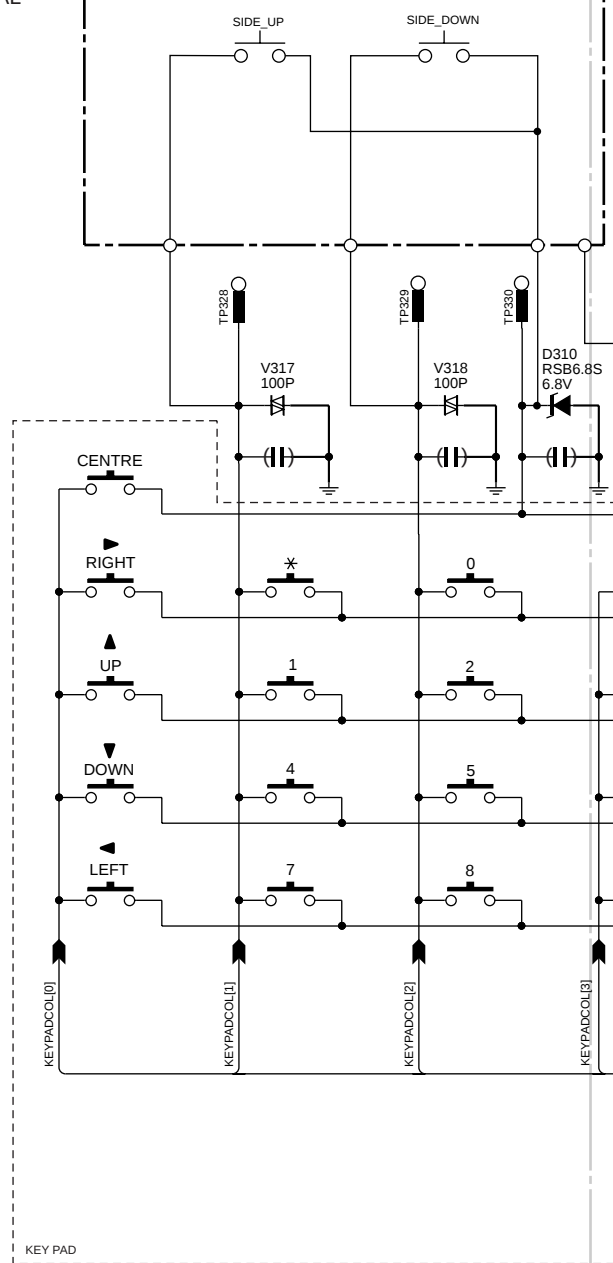
KEY PWB-B (1/2)



KEY PWB-B(1/2)

- ▷ RECEPTION SIGNAL
- ▶ TRANSMISSION SIGNAL
- ≧ SPEAKER SIGNAL

FLEXIBLE PWB, SIDE SWITCH PWB-H

5-27 (9-D)
VEXT_CN

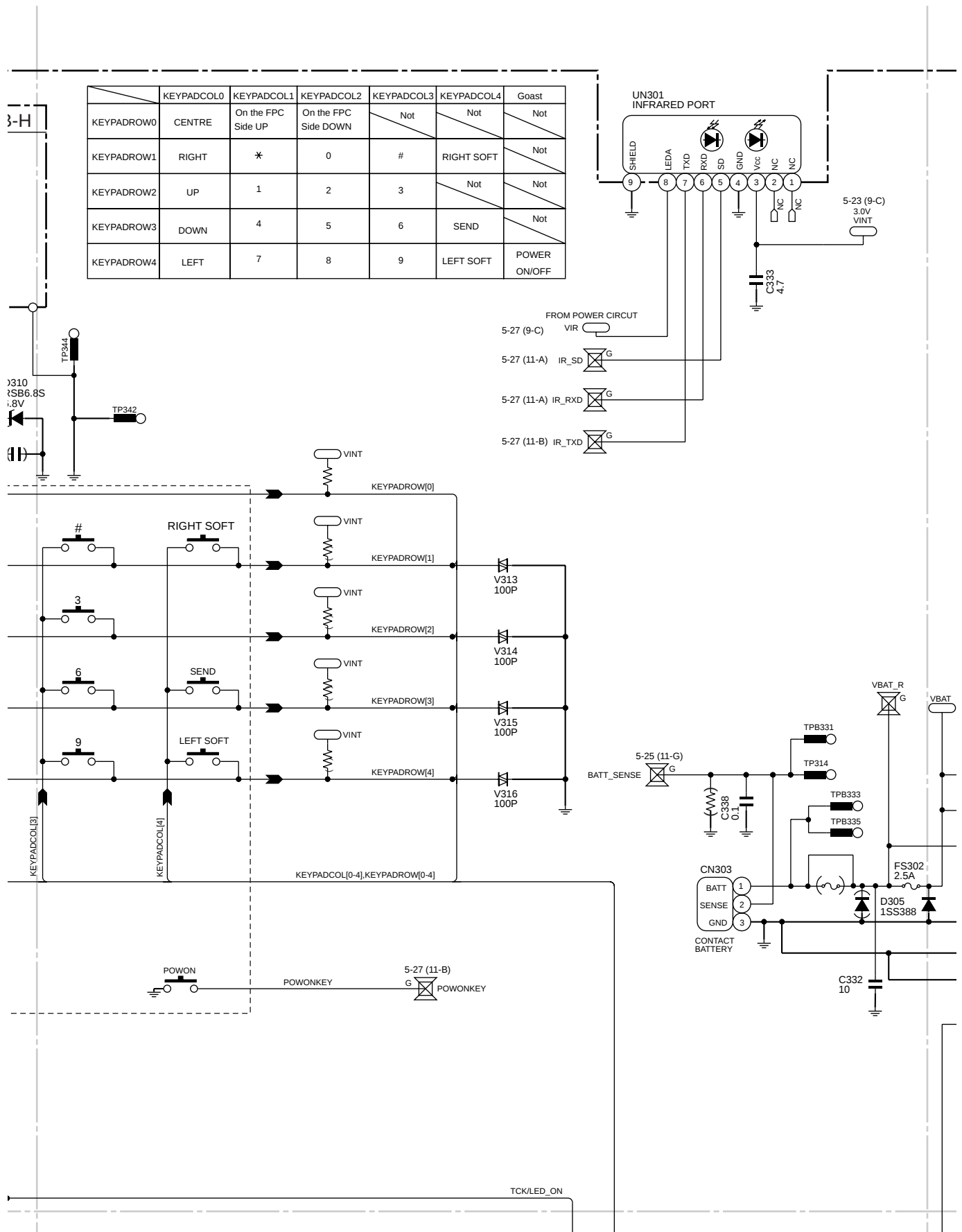
TPB343

TP305

CN302
EXTERNAL

• NOTES ON SCHEMATIC DIAGRAM can be found on page 5-1.

Figure 15 SCHEMATIC DIAGRAM (13/23)

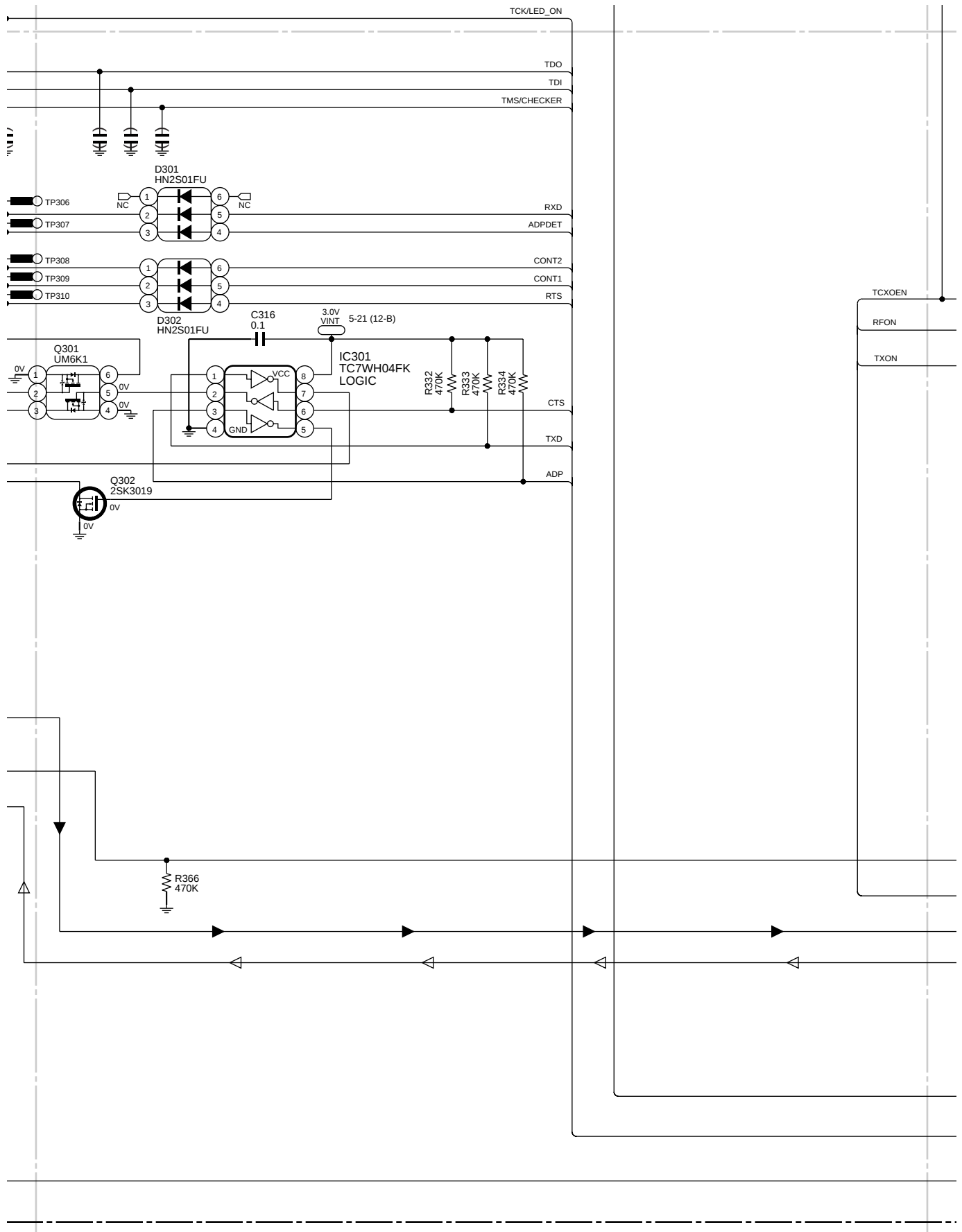


• () : Not Mount

Figure 16 SCHEMATIC DIAGRAM (14/23)



5 - 22



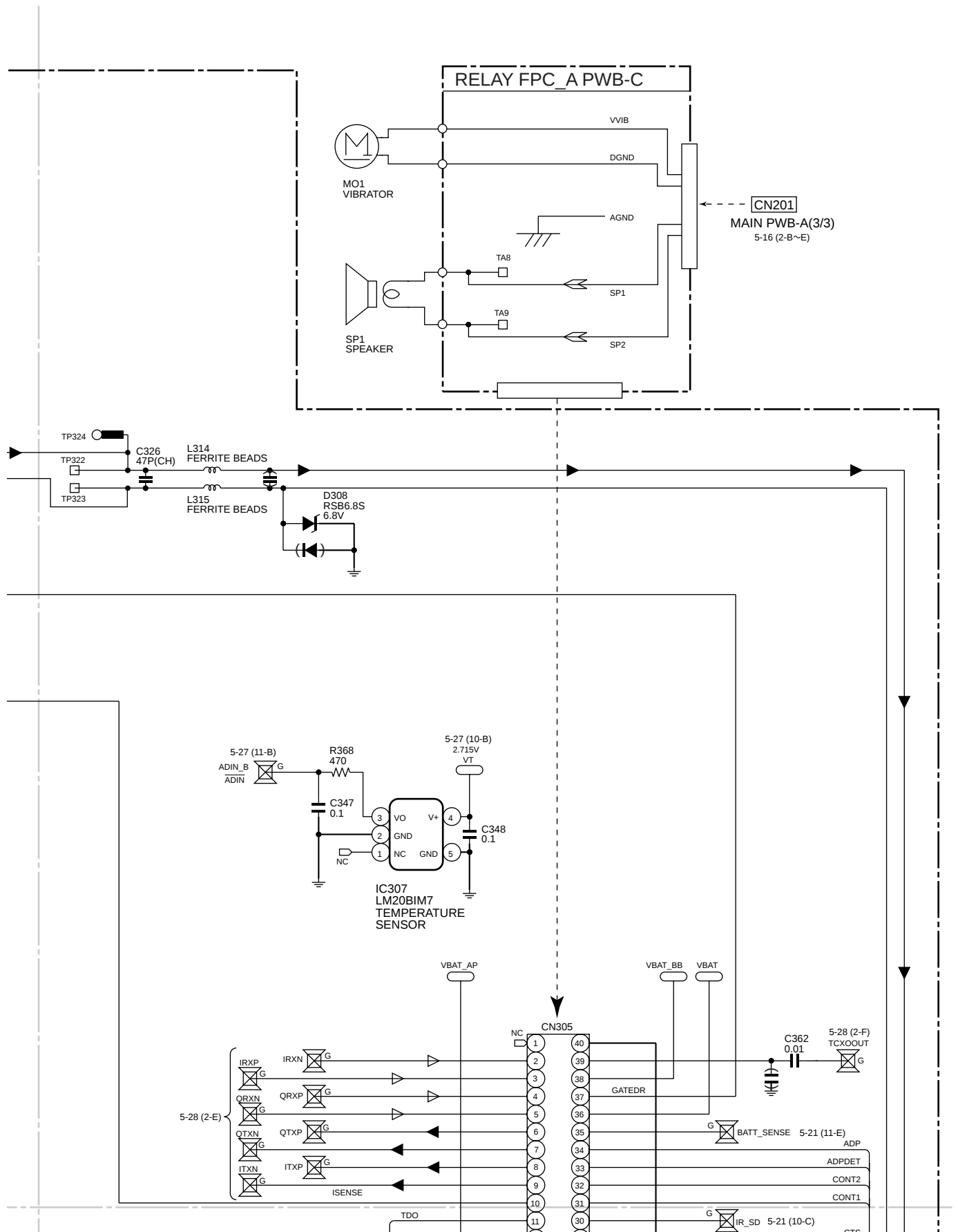
• () : Not Mount

7	8	9	10	11	12
---	---	---	----	----	----

Figure 18 SCHEMATIC DIAGRAM (16/23)



5 - 24



• () : Not Mount

7	8	9	10	11	12
---	---	---	----	----	----

Figure 20 SCHEMATIC DIAGRAM (18/23)

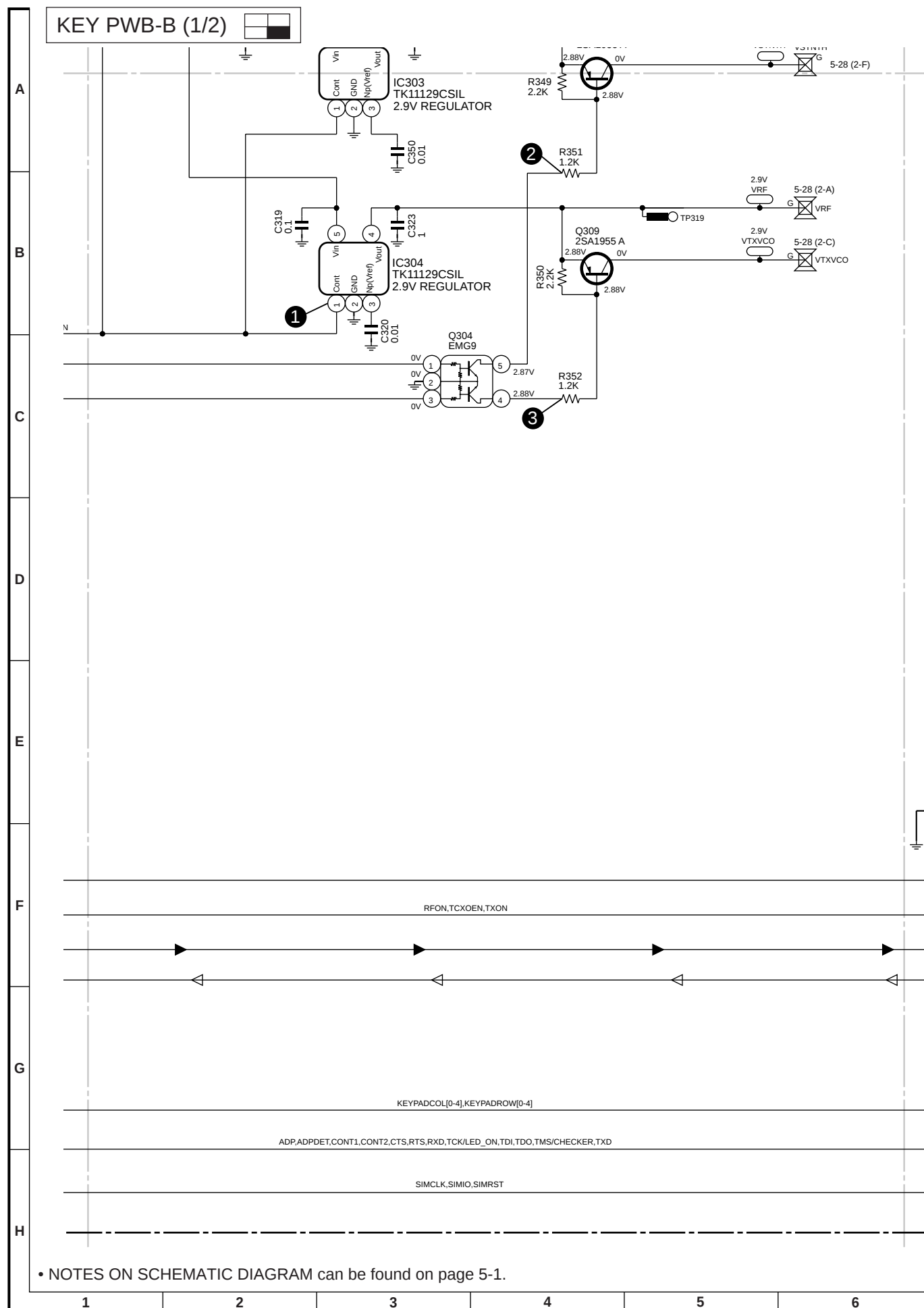


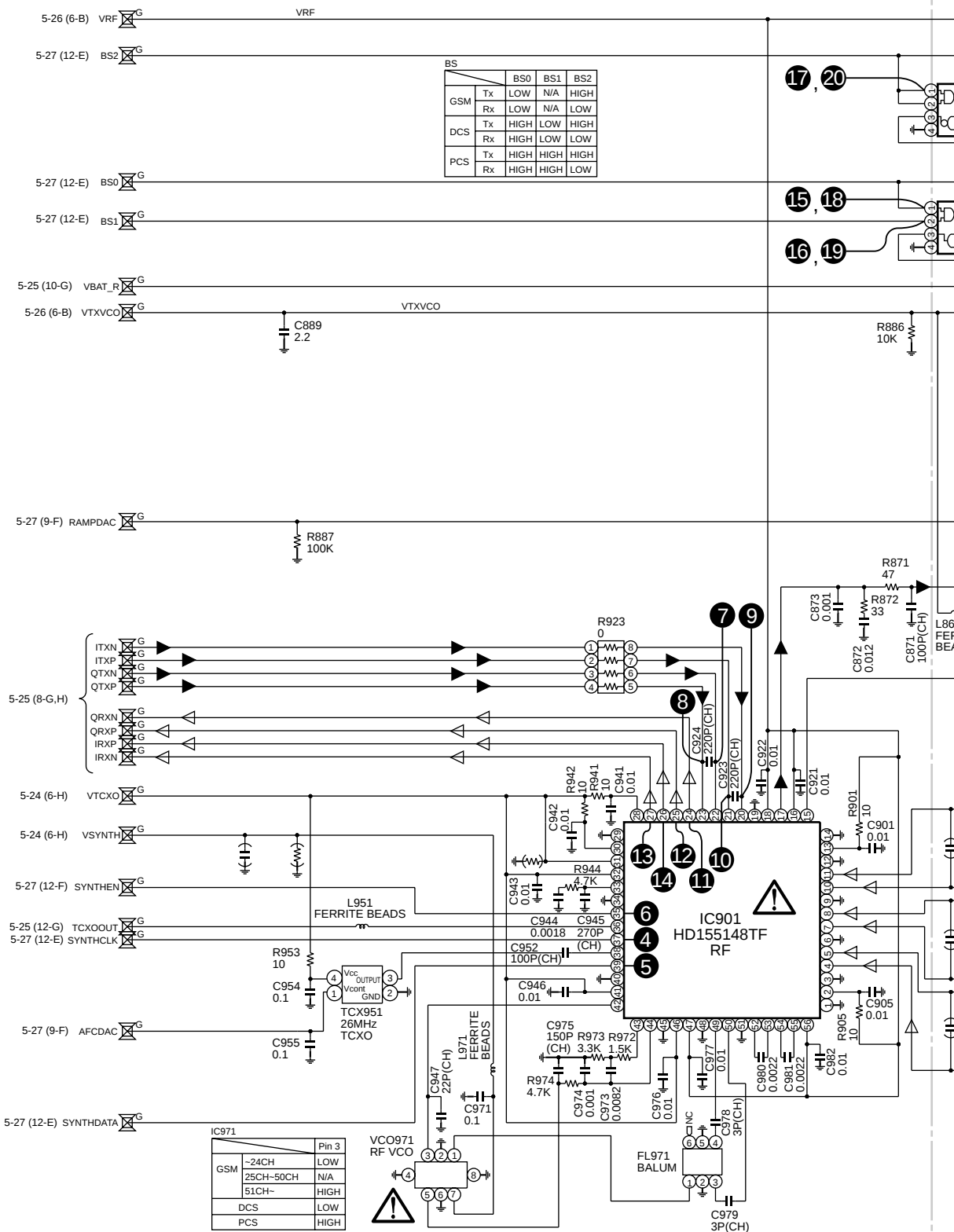
Figure 21 SCHEMATIC DIAGRAM (19/23)



5 - 27

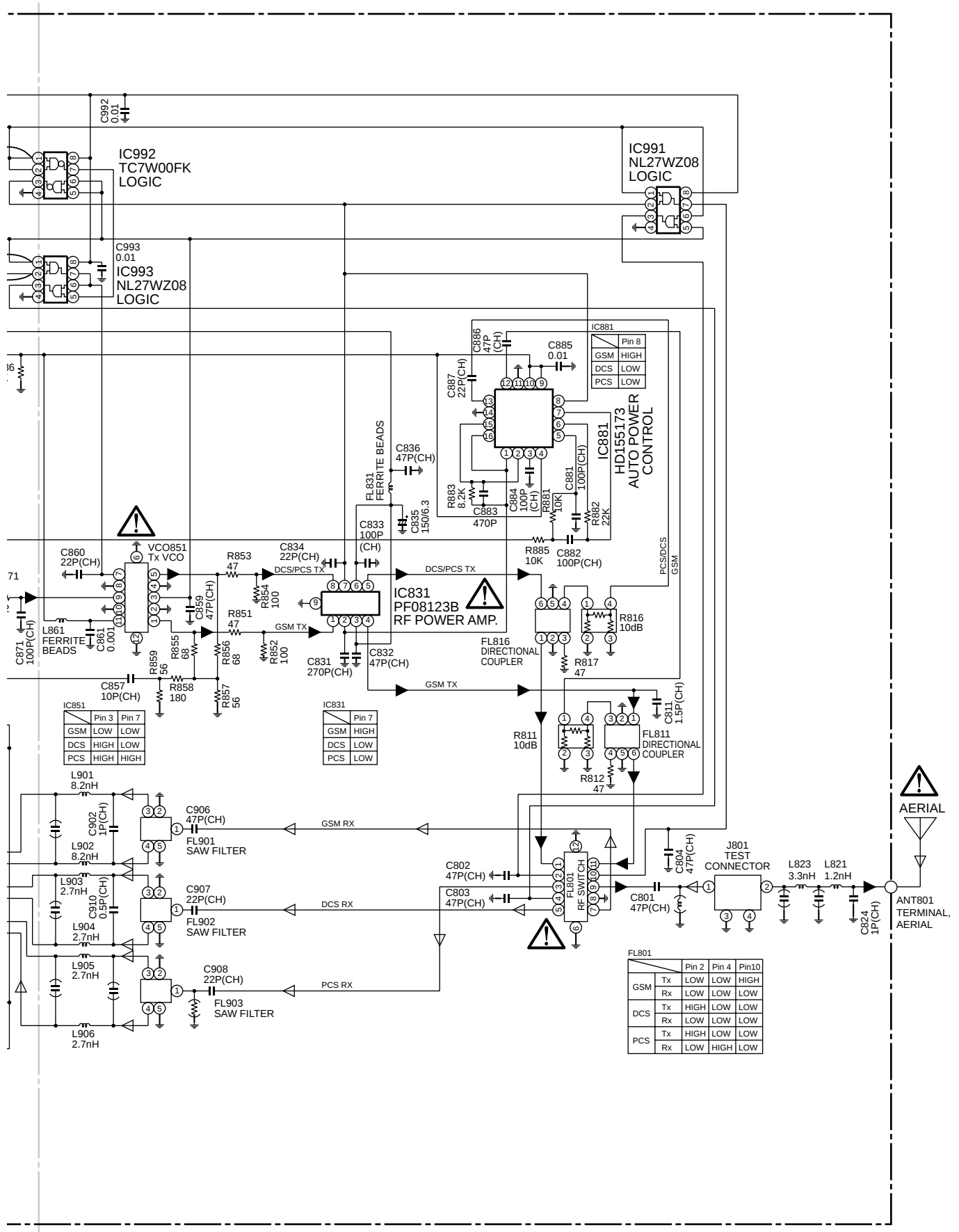
KEY PWB-B(2/2)

▷ RECEPTION SIGNAL ▶ TRANSMISSION SIGNAL



• NOTES ON SCHEMATIC DIAGRAM can be found on page 5-1.

Figure 23 SCHEMATIC DIAGRAM (21/23)



• () : Not Mount

• The numbers ④ to ⑩ are waveform numbers shown in pages 5-2 to 5-4.

7	8	9	10	11	12
---	---	---	----	----	----

Figure 24 SCHEMATIC DIAGRAM (22/23)

KEY PWB-B (FRNT SIDE)

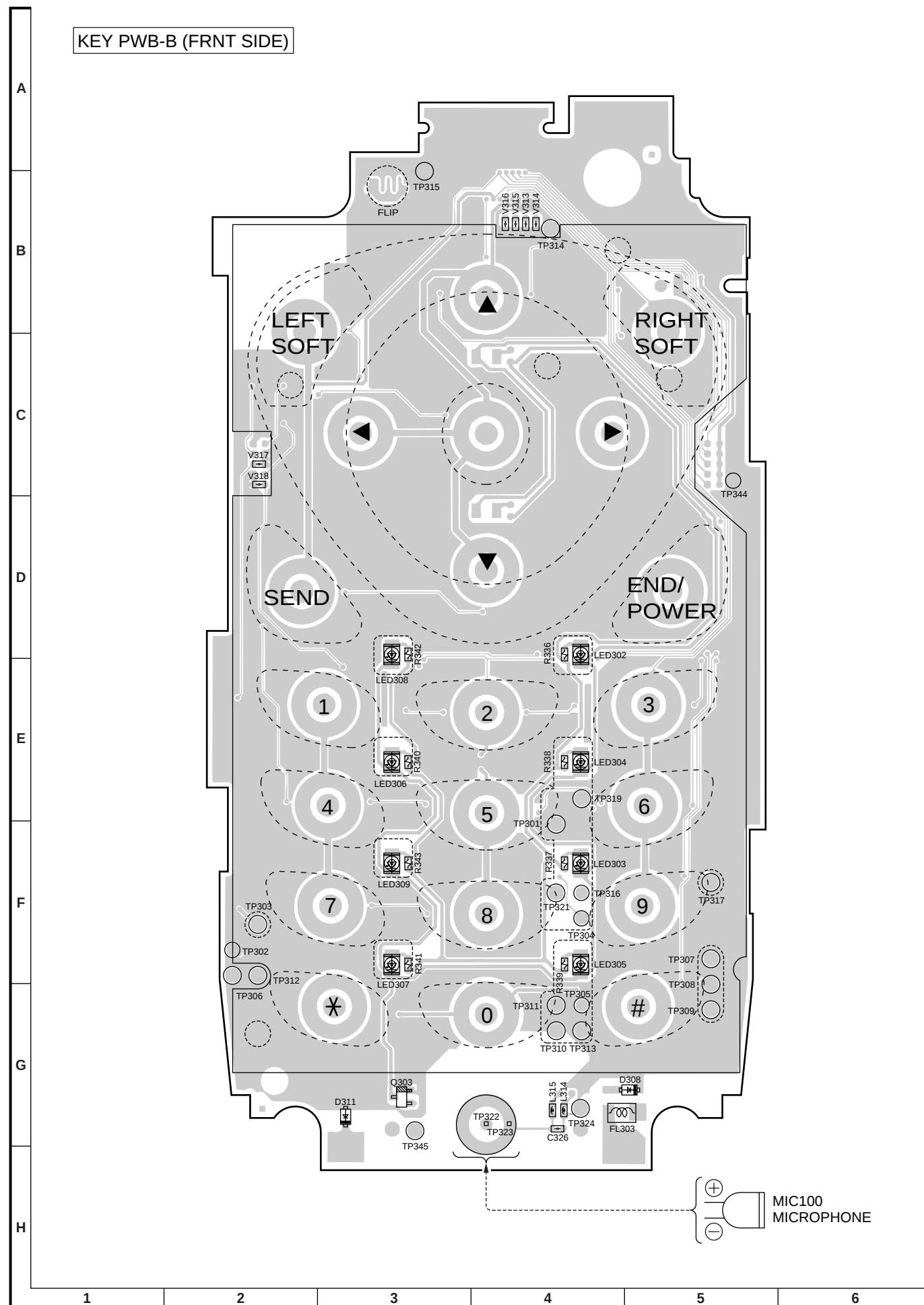


Figure 25 WIRING SIDE OF P.W.BOARD (3/5)



5 - 31

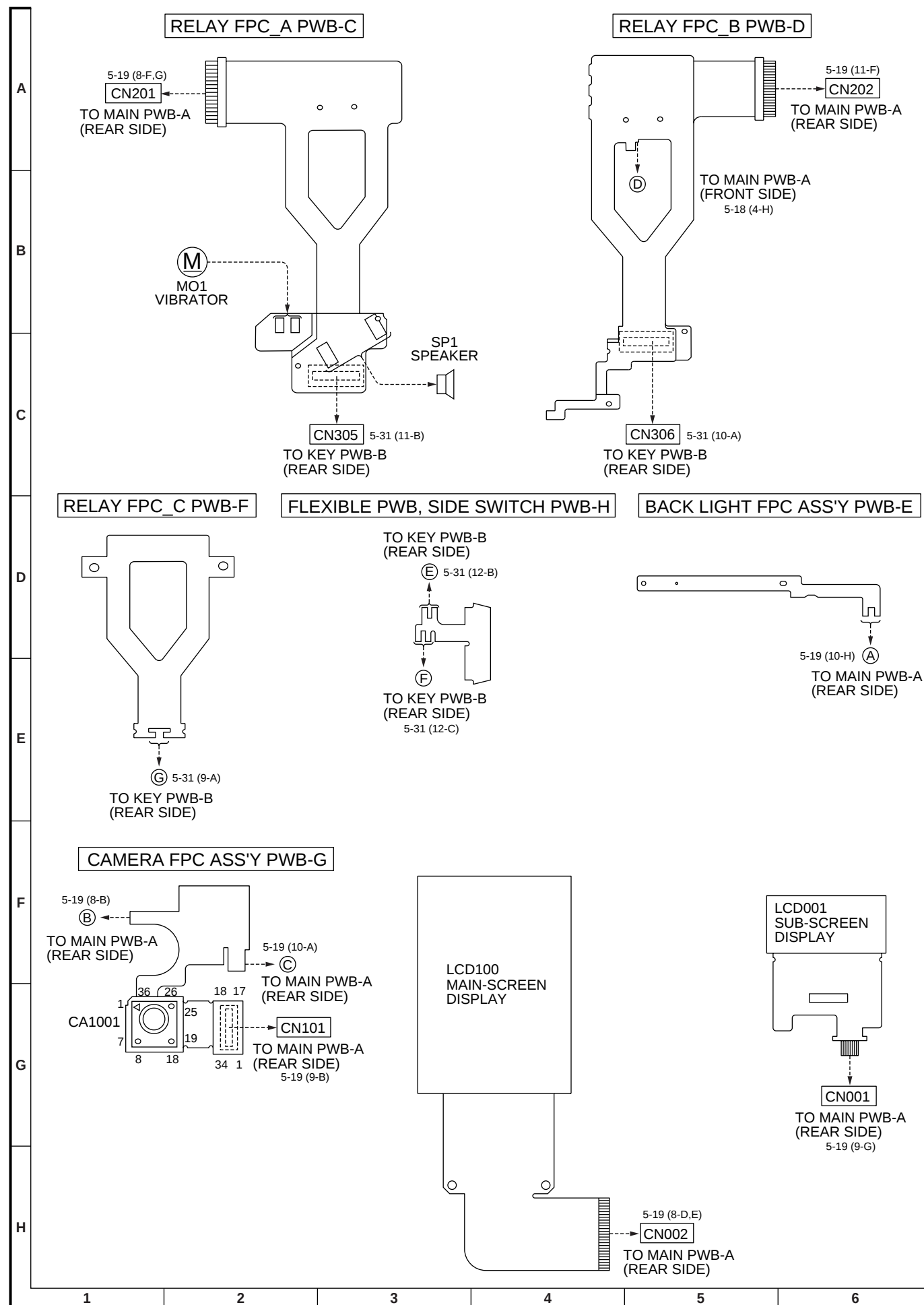
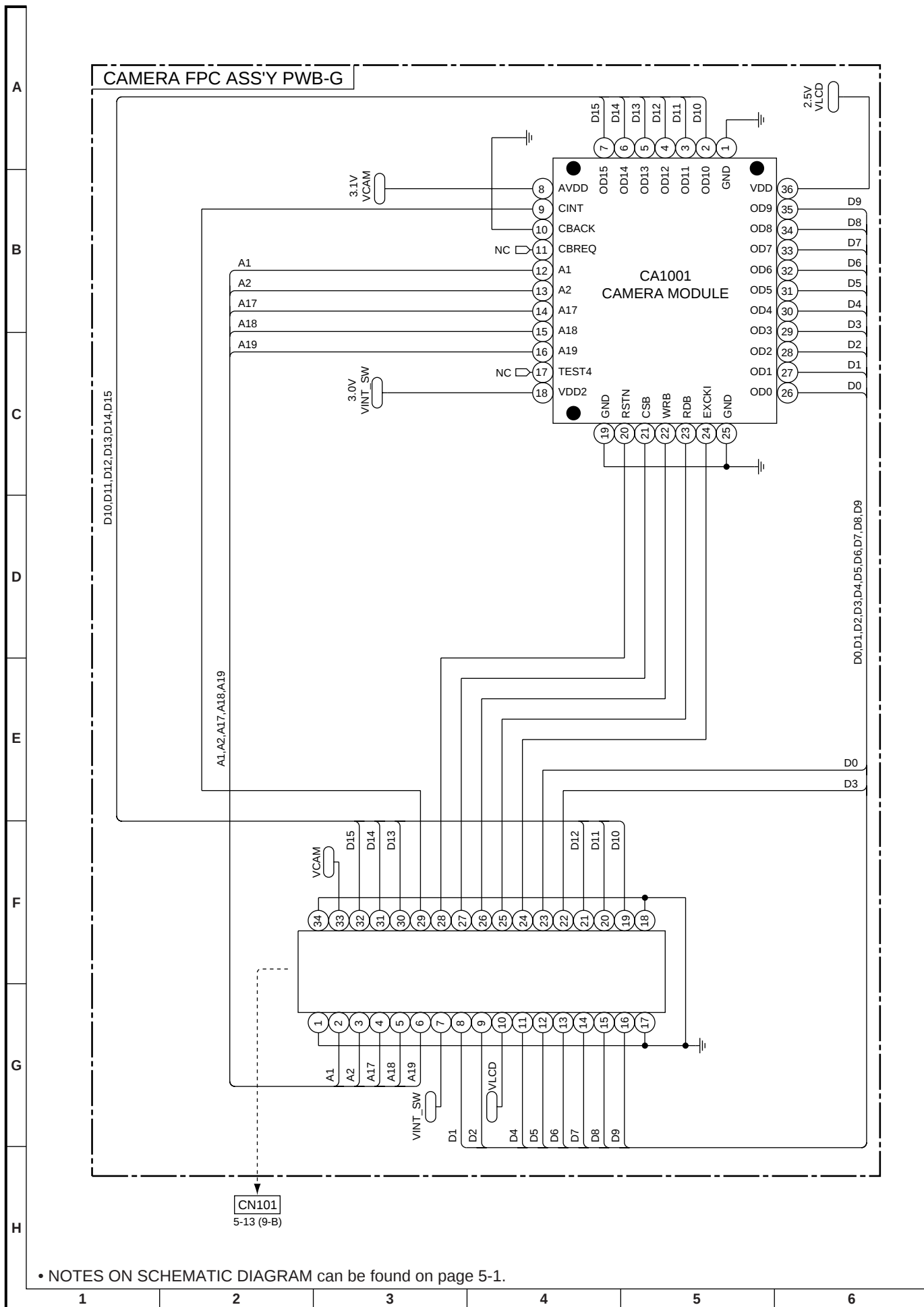


Figure 27 WIRING SIDE OF P.W.BOARD (5/5)



• NOTES ON SCHEMATIC DIAGRAM can be found on page 5-1.

Figure 28 SCHEMATIC DIAGRAM (23/23)

Conditions: SIM card inserted, power on, in stand-by mode (opened)

Measuring instrument: Digital multimeter

■: Indicates the measured value without a SIM card.

—: Unmeasurable

A

IC001	
PIN NO.	VOLTAGE
1	3.69V
2	0V
3	0.95V
4	2.96V
5	0V
6	3.7V

IC004	
PIN NO.	VOLTAGE
1	2.49V
2	0V
3	3.67V
4	2.78V
5	Not used

IC105	
PIN NO.	VOLTAGE
1	Not used
2	0V
3	1.5V
4	2.75V
5	0V

IC202	
PIN NO.	VOLTAGE
1	3.01V
2	3.67V
3	1.97V
4	3.67V
5	1.56V
6	0V
7	0.96V
8	2.79V
9	0.94V
10	0V
11	0V
12	0.96V
13	0V
14	3.01V
15	0V
16	2.79V
17	Not used
18	2.86V
19	3.68V
20	2.79V
21	1.8V
22	3.68V
23	2.45V
24	Not used
25	2.75V
26	Not used
27	0V
28	3.01V
29	1.8V
30	3.65V
31	1.84V
32	Not used

IC301	
PIN NO.	VOLTAGE
1	3.01V
2	0V
3	3.01V
4	0V
5	0V
6	3.01V
7	0V
8	3.01V

B

IC002	
PIN NO.	VOLTAGE
1	3V
2	5.64V
3	5.64V
4	5.64V
5	5.1V
6	3V
7	3V
8	3V
9	0V
10	15.3V
11	2.54V
12	12.75V
13	2.55V
14	7.66V
15	5.1V
16	5.09V
17	-10.2V
18	0V
19	0.07V
20	3.07V

IC101	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	0V
5	3.68V

IC107	
PIN NO.	VOLTAGE
1	0V
2	3.01V
3	0V
4	3.01V
5	3.01V

C

IC103	
PIN NO.	VOLTAGE
1	1.37V
2	0V
3	3.01V
4	3V
5	3.01V
6	0V
7	3.01V
8	0V
9	0V
10	0.53V
11	0V
12	0V
13	0V
14	0V
15	3.67V
16	0V
17	0V
18	0V
19	0V
20	0.42V
21	0.42V
22	0.11V
23	0.46V
24	0.12V
25	0.43V
26	0.46V
27	0.46V
28	2.96V
29	3.01V
30	3.01V
31	2.79V
32	Not used

IC108	
PIN NO.	VOLTAGE
1	0V
2	3.01V
3	0V
4	3.01V
5	3.01V

D

IC110	
PIN NO.	VOLTAGE
1	2.76V
2	3.01V
3	0V
4	3.01V
5	3.01V

E

IC003	
PIN NO.	VOLTAGE
1	3V
2	0V
3	0V
4	3V
5	3V
6	3V
7	1.5V
8	0V
9	0V
10	2.55V
11	0V
12	0V
13	0V
14	3.39V
15	3.33V
16	3.32V
17	3.29V
18	3.27V
19	5.11V
20	0V
21	1.5V
22	0.5V
23	0V
24	3V

IC201	
PIN NO.	VOLTAGE
1	3.68V
2	0V
3	2.79V
4	Not used
5	2.51V

IC203	
PIN NO.	VOLTAGE
1	0V
2	3V
3	1.8V
4	3V

F

IC303	
PIN NO.	VOLTAGE
1	3.01V
2	0V
3	1.27V
4	2.88V
5	3.7V

G

IC205	
PIN NO.	VOLTAGE
1	3.67V
2	0V
3	2.79V
4	3.01V
5	3.01V

IC304	
PIN NO.	VOLTAGE
1	3.01V
2	0V
3	1.27V
4	2.89V
5	3.7V

H

IC206	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	0V
5	3.68V

IC305	
PIN NO.	VOLTAGE
1	3V
2	3V
3	Not used
4	0V

IC306	
PIN NO.	VOLTAGE
1	0.96V
2	0V
3	0V
4	Not used
5	0.2V

IC307	
PIN NO.	VOLTAGE
1	Not used
2	0V
3	1.52V
4	2.75V
5	0V

• NOTES ON SCHEMATIC DIAGRAM can be found on page 5-1.

1

2

3

4

5

6

IC831	
PIN NO.	VOLTAGE
1	0V
2	0.19V
3	3.89V
4	0V
5	0V
6	3.89V
7	2.95V
8	0V
9	0V

IC881	
PIN NO.	VOLTAGE
1	0.19V
2	0.24V
3	0.24V
4	1.3V
5	0.24V
6	0.24V
7	0.24V
8	2.95V
9	1.3V
10	1.3V
11	0V
12	1.23V
13	1.3V
14	0V
15	0.24V
16	0.19V

IC901	
PIN NO.	VOLTAGE
1	0V
2	2.94V
3	0V
4	0V
5	0V
6	0V
7	0V
8	0V
9	0V
10	0.14V
11	0.14V
12	0V
13	2.94V
14	0V
15	0.41V
16	2.95V
17	0.21V
18	2.95V
19	0V
20	0.5V
21	0.5V
22	0.5V
23	0.5V
24	0.5V
25	0.5V
26	0.5V
27	0.5V
28	2.89V
29	0V
30	2.89V
31	2.89V
32	2.89V
33	1.57V
34	0V
35	0V
36	0V
37	0V
38	0V
39	0V
40	0V
41	2.9V
42	2.75V
43	0V
44	1.25V
45	0V
46	2.9V
47	2.95V
48	0V
49	0.73V
50	0.73V
51	0V
52	2.74V
53	2.74V
54	2.74V
55	2.74V
56	2.95V

IC991	
PIN NO.	VOLTAGE
1	0V
2	0V
3	2.94V
4	0V
5	0V
6	0V
7	2.94V
8	2.94V

IC992	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	0V
5	2.94V
6	0V
7	0V
8	2.94V

IC993	
PIN NO.	VOLTAGE
1	0V
2	2.94V
3	0V
4	0V
5	0V
6	0V
7	0V
8	2.94V

• NOTES ON SCHEMATIC DIAGRAM can be found on page 5-1.

7	8	9	10	11	12
---	---	---	----	----	----

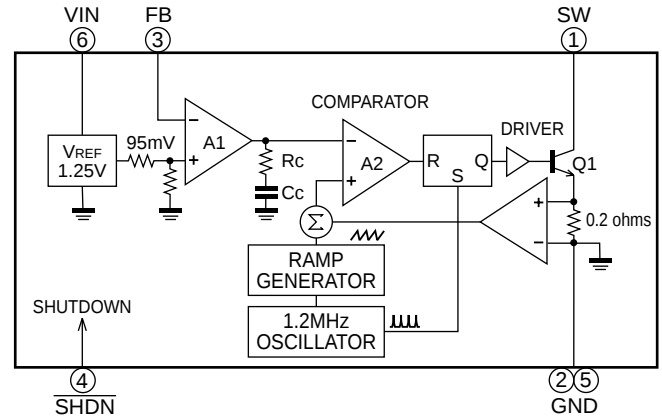
— MEMO —

CHAPTER 6. OTHERS

[1] Function table of IC

IC001 VHILT1937++-1R (LT1937): DC - DC

Pin No.	Terminal name	Input/Output	Description of terminal
1	SW	Output	LED voltage output
2	GND	—	Ground
3	FB	Input	LED ground
4	SHDN	Input	Chip enable
5	GND	—	Ground
6	VIN	Input	Input



IC002 VHIA8830+-1L (ADM8830): CHARGE PUMP REGULATOR

Pin No.	Terminal name	Input/Output	Description of terminal
1	VCC	Input	Positive supply voltage input
2	VOUT	Output	Voltage doubler output
3	LDO_IN	Input	Voltage regulator input
4	+5 VOUT	Output	+5.1 V output pin
5	+5 VIN	Input	+5.1 V input pin
6	LDO_ON/OFF	Input	Control logic input
7	SHDN	Input	Digital input
8	SCAN/BLANK	Input	Drive mode input
9	CLKIN	Input	External clock input
10	+15 V OUT	Output	+15.3 V output pin
11	C3-	Input	External capacitor
12	C3+	Input	External capacitor
13	C2-	Input	External capacitor
14	C2+	Input	External capacitor
15	C4-	Input	External capacitor
16	C4+	Input	External capacitor
17	-10 V OUT	Output	-10.2 V output pin
18	GND	—	Devide ground pin
19	C1-	Input	External capacitor
20	C1+	Input	External capacitor

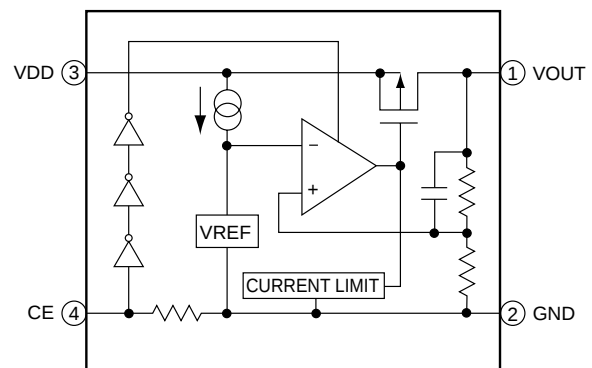
IC003 RH-IX3054AFZZL (ADD8502-2ACP): GRAYSCALE GENERATOR

Pin No.	Terminal name	Input/Output	Description of terminal
1	VL	—	Power supply (logic)
2	DIN	Input	Serial data
3	SCK	Input	Serial clock
4	CS-LD	Input	Load
5	CM	Input	Logic control
6	CV4	Input	Logic control V4
7	REV1	Input	Logic control 1
8	NC	—	Not used
9	NC	—	Not used
10	COM	Output	Common output
11	COM_M	Input	Common system Vref
12	NC	—	Not used
13	GND	—	Ground
14	V4	Output	V4 voltage
15	V3	Output	V3 voltage
16	V2	Output	V2 voltage
17	V1	Output	V1 voltage
18	V0	Output	V0 voltage
19	VDD	—	Power supply
20	NC	—	Not used
21	REV2	Input	Ref output select
22	GS2	Input	Power save select 2
23	GS1	Input	Power save select 1
24	PSK	Input	Power down

IC004 RH-IX2933AFZZL (IX2933AF): REGULATOR

Pin No.	Terminal name	Input/Output	Description of terminal
1	VOUT	Output	Output
2	GND	—	Ground
3	VDD	Input	Input
4	CE	Input	Chip enable
5*	NC	—	Not used

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.



IC005 (LR38821A): TFT DISPLAY CONTROLLER (1/3)

Pin No.	Terminal name	Input/Output	Description of terminal
1	Dummy4	Input/Output	Not used
2*	NC	—	Not used
3	GND	—	Ground
4*	NC	—	Not used
5	GND	—	Ground
6	VDD CORE	—	Power supply
7	PWM	Output	PWM output signal
8*	NC	—	Not used
9	NCS	Input	Device select signal
10	VDD IO	—	Power supply
11	Dummy3	—	Not used
12	VDD IO	—	Power supply
13*	NC	—	Not used
14	B5	Output	LCD panel B output signal
15	B4	Output	LCD panel B output signal
16	B3	Output	LCD panel B output signal
17	GND	—	Ground
18	TEST1	Input	Test terminal
19	TEST SCMD	Input	Test terminal
20	NWR	Input	Host write strobe signal
21*	NC	—	Not used
22*	NC	—	Not used
23	B2	Output	LCD panel B output signal
24	B1	Output	LCD panel B output signal
25	B0	Output	LCD panel B output signal
26	LS	Output	Data transmission signal
27*	XOUT	Output	Oscillating circuit output
28	VDD IO	—	Power supply
29	GND	—	Ground
30	TST SCEN	Input	Test terminal
31	NRD	Input	Host read strobe signal
32	RS	Input	Register select signal
33	GND	—	Ground
34	DCLK	Output	Data sampling clock (display clock)
35	GS2	Output	Gray scale switch signal
36	GS1	Output	Gray scale switch signal
37	PS2	Output	Power save signal (for source driver)
38	XIN	Input	Oscillating circuit input/external clock input signal
39*	NC	—	Not used
40	NRES	Input	Master reset
41*	NC	—	Not used
42*	NC	—	Not used
43*	NC	—	Not used
44	DB0	Input/Output	Data bus
45	PS1	Output	Power save signal (for source driver)
46	G5	Output	LCD panel G output signal
47	G4	Output	LCD panel G output signal
48	G3	Output	LCD panel G output signal
49	DB1	Input/Output	Data bus
50	DB2	Input/Output	Data bus
51	DB3	Input/Output	Data bus
52	DB4	Input/Output	Data bus
53	VDD CORE	—	Power supply
54	GND	—	Ground
55	VDD IO	—	Power supply
56	G2	Output	LCD panel G output signal

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

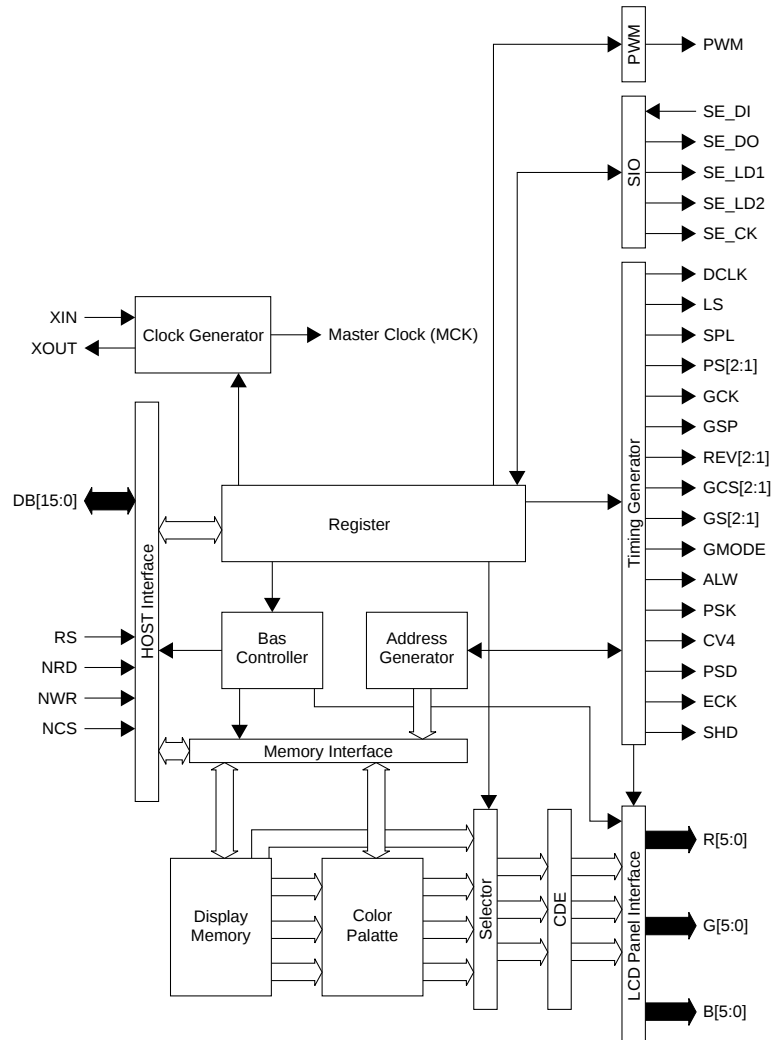
IC005 (LR38821A): TFT DISPLAY CONTROLLER (2/3)

Pin No.	Terminal name	Input/Output	Description of terminal
57	DB5	Input/Output	Data bus
58	VDD IO	–	Power supply
59	GND	–	Ground
60	VDD CORE	–	Power supply
61	G1	Output	LCD panel G output signal
62	G0	Output	LCD panel G output signal
63	R5	Output	LCD panel R output signal
64	R4	Output	LCD panel R output signal
65	DB6	Input/Output	Data bus
66	DB7	Input/Output	Data bus
67	DB8	Input/Output	Data bus
68	DB9	Input/Output	Data bus
69	R3	Output	LCD panel R output signal
70	R2	Output	LCD panel R output signal
71	R1	Output	LCD panel R output signal
72*	R0	Output	LCD panel R output signal
73*	PSD	Output	Power save signal (for power IC)
74	ECK	Output	Power save signal (for power IC)
75	CV4	Output	Power save signal (for gray scale IC)
76	SE_DI	Input	Data input for four-wire serial IF
77	DB10	Input/Output	Data bus
78	DB11	Input/Output	Data bus
79	DB12	Input/Output	Data bus
80*	BNC	Input	Synchronous/asynchronous bus switch signal
81	GND	–	Ground
82	GSP	Output	Gate start signal
83	GMODE	Output	Gate output switch signal
84	SHD	Output	Power IC ON/OFF control terminal
85	VDD IO	–	Power supply
86	REV1	Output	Polarity reverse control signal
87	SE_DO	Output	Data output for three-wire/four-wire serial IF
88	DB13	Input/Output	Data bus
89	DB14	Input/Output	Data bus
90	DB15	Input/Output	Data bus
91*	NC	–	Not used
92*	NC	–	Not used
93	SPL	Output	Sampling start signal
94	ALW	Output	Write all mode switch signal
95	GCS1	Output	Vertical scan start position setting signal
96	GND	–	Ground
97	REV2	Output	Polarity reverse control signal
98	SE_CK	Output	Control clock for three-wire/four-wire serial IF
99*	SE_LD2	Output	Load signal for four-wire serial IF
100*	NC	–	Not used
101	VDD IO	–	Power supply
102	Dummy2	–	Not used
103	VDD IO	–	Power supply
104*	NC	–	Not used
105	GCK	Output	Gate shift clock
106	GCS2	Output	Vertical scan start position setting signal
107	VDD CORE	–	Power supply
108	PSK	Output	Power save signal (for gray scale IC)
109	SE_LD1	Output	Load signal for three-wire serial IF
110	GND	–	Ground
111*	NC	–	Not used
112	Dummy1	–	Not used

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

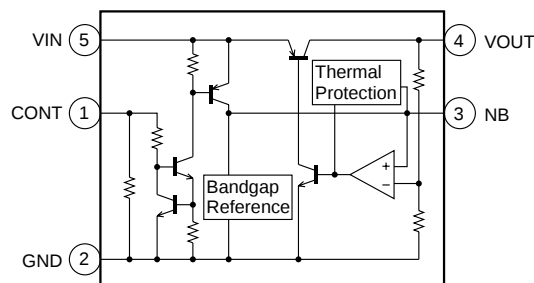
IC005 (LR38821A): TFT DISPLAY CONTROLLER (3/3)

112 Dummy 1	111 NC	110 GND	109 SE_LD 1	108 PSK	107 VDD CORE	106 GCS2	105 GCK	104 NC	103 VDD IO	102 Dummy 2	L
101 VDD IO	100 NC	99 SE_LD 2	98 SE_C K	97 REV2	96 GND	95 GCS1	94 ALW	93 SPL	92 NC	91 NC	K
90 DB15	89 DB14	88 DB13	87 SE_D O	86 REV1	85 VDD IO	84 SHD	83 GMODE	82 GSP	81 GND	80 BNC	J
79 DB12	78 DB11	77 DB10	76 SE_DI	75 CV4	74 ECK	73 PSD	72 R0	71 R1	70 R2	69 R3	H
68 DB9	67 DB8	66 DB7	65 DB6	BNC			64 R4	63 R5	62 G0	61 G1	G
60 VDD CORE	59 GND	58 VDD IO	57 DB5				56 G2	55 VDD IO	54 GND	53 VDD CORE	F
52 DB4	51 DB3	50 DB2	49 DB1				48 G3	47 G4	46 G5	45 PS1	E
44 DB0	43 NC	42 NC	41 NC	40 NRES	39 NC	38 XIN	37 PS2	36 GS1	35 GS2	34 DCLK	D
33 GND	32 RS	31 NRD	30 TST SCEN	29 GND	28 VDD IO	27 XOUT	26 LS	25 B0	24 B1	23 B2	C
22 NC	21 NC	20 NWR	19 TEST SCMD	18 TEST1	17 GND	16 B3	15 B4	14 B5	13 NC	12 VDD IO	B
11 Dummy 3	10 VDD IO	9 NCS	8 NC	7 PWM	6 VDD CORE	5 GND	4 NC	3 GND	2 NC	1 Dummy 4	A
11	10	9	8	7	6	5	4	3	2	1	



IC101 VHINJ287130-1L (NJM2871F03): 3.0 V REGULATOR

Pin No.	Terminal name	Input/Output	Description of terminal
1	CONT	Input	Control
2	GND	—	Ground
3	NB	—	Noise bypass
4	VOUT	Output	Output
5	VIN	Input	Input

**IC102 (AD6521ACA): ANALOG BASEBAND (1/2)**

Pin No.	Terminal name	Input/Output	Description of terminal
1	DVDD1	—	Digital core power supply (1.6V AVDD1/2).
2	DGND1	—	Digital ground.
3*	IDACREF	Output	Current DAC bias resistor connection, rset.
4	AUXADC4	Input	Auxiliary A/D converter input 4. (MVBAT)
5	AUXADC2	Input	Auxiliary A/D converter input 2. (Camera thermal sensor)
6	AUXADC1	Input	Auxiliary A/D converter input 1. (Jack detection)
7	REFOUT	Input/Output	Buffered reference output/external bias voltage input.
8	REFCAP	Output	Reference filter capacitor connection.
9	AVDD2	—	Auxiliary analog power supply (2.4V to 2.6V).
10	AFCDAC	Output	Automatic frequency control signal output.
11	TDO	Output	Test data output.
12	TDI	Input	Test data input.
13	AGND4	—	Analog substrate ground.
14*	IDACOUT	Output	Current DAC output for battery charging.
15	AUXADC3	Input	Auxiliary A/D converter Input 3. (Battery sense)
16	AUXADC5	Input	Auxiliary A/D converter Input 5. (Battery thermal sensor)
17	AUXADC6	Input	Auxiliary A/D converter Input 6.
18	AGND2	—	Auxiliary analog ground.
19*	NC (REFCAP2)	Output	Reserved for reference filter capacitor.
20	QRXN	Input	Differential analog input for quadrature receive signal.
21	TCK	Input	Test clock.
22	TMS	Input	Test mode select.
23	QTXN	Output	Differential analog output for quadrature transmit signal.
24	QRXP	Input	Differential analog input for quadrature receive signal.
25	VSDO	Output	Voiceband serial port data output.
26	VSFS	Output	Voiceband serial port input/output framing signal.
27	QTXP	Output	Differential analog output for quadrature transmit signal.
28	IRXN	Input	Differential analog input for in-phase receive signal.
29	VSDI	Input	Voiceband serial port data input.
30	BSOFS	Output	Baseband serial port output framing signal.
31	ITXN	Output	Differential analog output for in-phase transmit signal.
32	IRXP	Input	Differential analog input for in-phase receive signal.
33	BSDO	Output	Baseband serial port data output.
34	BSIFS	Output	Baseband serial port input framing signal.
35	ITXP	Output	Differential analog output for in-phase transmit signal.
36	AVDD1	—	Baseband Analog Power Supply (2.4V to 2.6V).
37	DVDD2	—	Digital Interface Power Supply (The greater of DVDD1 or DVDD3-0.2V, to maximum 3.3V).
38	BSDI	Input	Baseband serial port data input.
39	AGND1	—	Baseband analog ground.
40	VINAUXN	Input	Differential voiceband auxiliary input.
41	ASDI	Input	Auxiliary serial port data input.
42	ASFS	Input	Auxiliary serial port input/output framing signal.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC102 (AD6521ACA): ANALOG BASEBAND (2/2)

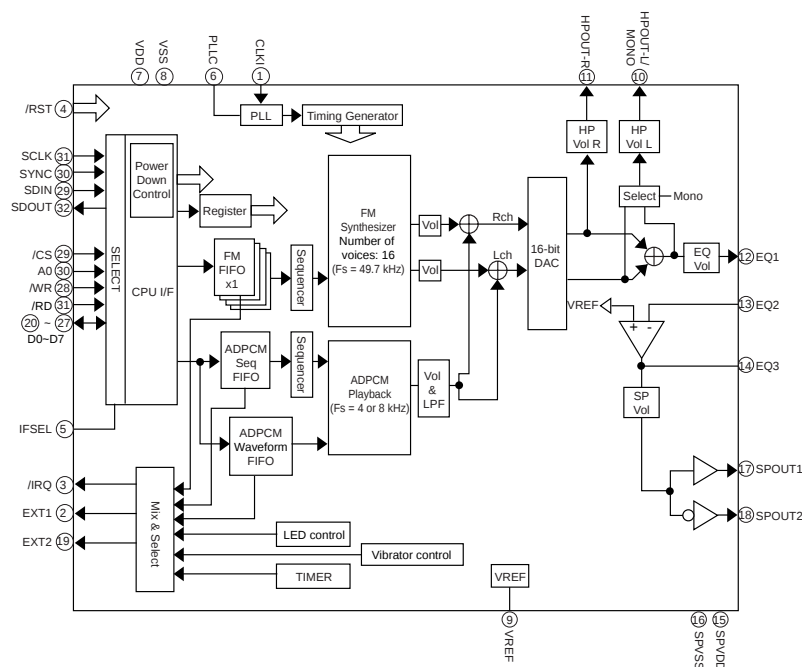
Pin No.	Terminal name	Input/Output	Description of terminal
43	RAMPDAC	Output	Power ramping control signal output.
44	VINAUXP	Input	Differential voiceband auxiliary input. (Jack mic audio input)
45	ASDO	Output	Auxiliary serial port data output.
46	MCLK	Input	Master clock input.
47	ARSM	Input	Advance baseband receive state machine.
48	RXON	Input	Baseband receive section power-on input.
49	DGND3	–	Digital ground.
50*	BUZZER	Output	Buzzer output.
51	AGND3	–	Voiceband analog ground.
52	AVDD3	–	Voiceband analog power supply (2.4 V to 2.7 V).
53*	NC (MICCAP)	Output	Reserved for microphone.
54	VINNORP	Input	Differential voiceband normal input. (Mic audio input)
55	RESET	Input	Active low reset signal input.
56	MCLKEN	Output	Master clock enable.
57	ATSM	Input	Advance baseband transmit state machine.
58	TXON	Input	Baseband transmit section power-on input.
59	DVDD3	–	Digital core power supply (1.6 V to AVDD1/2).
60	VOUTAUXN	Output	Differential voiceband auxiliary output.
61	VOUTNORN	Output	Differential voiceband normal output. (Earpiece audio output)
62	VOUTNORP	Output	Differential voiceband normal output. (Earpiece audio output)
63	VOUTAUXP	Output	Differential voiceband auxiliary output. (Jack Earpiece audio output)
64	VINNORN	Input	Differential voiceband normal input.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC103 VHIYMU759B+-FL (YMU759B): SOUND

Pin No.	Terminal name	Input/Output	Description of terminal
1	CLKI	Input	Clock input terminal (2 – 20 MHz)
2	EXT1	Output	External control terminal 1
3	/IRQ	Output	Interrupt output terminal
4	/RST	Input	Hardware reset input terminal
5	IFSEL	Input	CPU I/F select; L: serial I/F, H: parallel I/F
6	PLL	—	Built-in PLL capacitor terminal
7	VDD	—	Power supply
8	VSS	—	Ground
9	VREF	—	Analog reference voltage terminal
10*	HPOUT-L/MONO	Output	Headphone output Lch
11*	HPOUT-R	Output	Headphone output Rch
12	EQ1	—	Equalizer terminal 1
13	EQ2	—	Equalizer terminal 2
14	EQ3	—	Equalizer terminal 3
15	SPVDD	—	Analog power supply for speaker amplifier (Typ + 3.6 V)
16	SPVSS	—	Analog ground for speaker amplifier
17	SPOUT1	Output	Speaker terminal 1
18	SPOUT2	Output	Speaker terminal 2
19	EXT2	Output	External control terminal 2
20	D7	Input/Output	Parallel I/F data bus 7
21	D6	Input/Output	Parallel I/F data bus 6
22	D5	Input/Output	Parallel I/F data bus 5
23	D4	Input/Output	Parallel I/F data bus 4 (Not connected when IFSEL terminal at L)
24	D3	Input/Output	Parallel I/F data bus 3 (Not connected when IFSEL terminal at L)
25	D2	Input/Output	Parallel I/F data bus 2 (Not connected when IFSEL terminal at L)
26	D1	Input/Output	Parallel I/F data bus 1 (Not connected when IFSEL terminal at L)
27	D0	Input/Output	Parallel I/F data bus 0 (Not connected when IFSEL terminal at L)
28	/WR	Input	Parallel I/F write pulse (Not connected when IFSEL terminal at L)
29	SDIN (/CS)	Input	IFSEL terminal = L serial I/F data input IFSEL terminal = H parallel I/F chip select input
30	SYNC (A0)	Input	IFSEL terminal = L serial I/F data read signal FSEL terminal = H parallel I/F address signal
31	SCLK (/RD)	Input	IFSEL terminal = L serial I/F bit clock input IFSEL terminal = H parallel I/F read pulse
32*	SDOUT	Output	Serial I/F data output (external pull-up resistor required)

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.



IC104 (AD6526XCA): DIGITAL BASEBAND (1/3)

Pin No.	Terminal Name	Signal Name	Input/Output	Function
1	A1	GPO05	Output	ARMSM
2	A2	VDDRTC	—	RTC power supply 1.8 V
3	A3	OSCIN	Input	32.768 kHz crystal input - inverted (GND if no crystal)
4	A4	KEYPADCOL3	Output	Key matrix (COL3)
5	A5	KEYPADROW4	Input	Key matrix (ROW4)
6	A6	KEYPADROW0	Input	Key matrix (ROW0)
7	A7	GPO22	Output	Back light current control
8	A8	GPIO15	Output	Sub-screen display RAM select
9	A9	GPIO13	Input	Charge detect
10	A10	GPIO09	Output	IrDA power ON
11	A11	GPIO06	Input	Camera INT
12	A12	GND09	—	Ground (7 periphery and 4 core)
13	A13	USC3	Input	USC pin (ADP detect)
14	A14	USC2	Output	USC pin (TXD)
15	B1	GPO00	Output	Receiver on RxOn
16	B2	PWRON	Output	Power on/off control
17	B3	OSCOU	Output	32.768 kHz oscillator output and feedback to crystal
18	B4	KEYPADCOL2	Output	Key matrix (COL2)
19	B5	KEYPADROW3	Input	Key matrix (ROW3)
20	B6	GND11	—	Ground (7 periphery and 4 core)
21	B7	GPIO17	Output	Sub-screen display data output
22	B8	GPIO14	Output	Sub-screen display serial clock
23	B9	GPIO12	Output	Reset (sound)
24	B10	VEXT2	—	External device power supply 3 V
25	B11	GPIO05	Input	IRQ (sound)
26	B12	GPIO02	Output	Camera reset
27	B13	USC6	Input	USC pin (CONT2)
28	B14	VEXT1	—	External device power supply 3 V
29	C1	GPO06	Output	ATSM
30	C2	GPO01	Output	Tx on
31	C3	KEYPADCOL4	Output	Key matrix (COL4)
32	C4	KEYPADCOL0	Output	Key matrix (COL0)
33	C5	GPO23	Output	Back light circuit control with PWM control
34	C6	VEXT3	—	External device power supply 3 V
35	C7	GPIO11	Output	Flash memory write protect
36	C8	VCC4	—	Core power supply voltage 1.8 V
37	C9	GPIO10	Output	Flash memory Vpp
38	C10	GPIO07	Output	Camera power on
39	C11	GPIO03	Output	IrDA TXD
40	C12	USC5	Output	USC pin (CTS)
41	C13	GND08	—	Ground (7 periphery and 4 core)
42	C14	USC0	Input	USC pin (ADP)
43	D1	CLKOUT	Output	13 MHz clock output
44	D2	CLKOUTGATE	Input	Hardware CLKOUT on/off Switching
45	D3	VSSRTC	—	RTC power supply return (Ground)
46	D4	KEYPADROW2	Input	Key matrix (ROW2)
47	D5	VEXT4	—	External device power supply 3 V
48	D6	GPIO16	Output	Sub-screen display chip select
49	D7	GND10	—	Ground (7 periphery and 4 core)
50	D8	GPIO08	Input	(CONT1)
51	D9	GPIO04	Input	Flip SW detection
52	D10	GPIO01	Input	IrDA RXD
53	D11	GPIO00	Output	Screen display reset
54	D12	USC1	Input	USC pin (RXD)
55	D13	GPO20	Output	Serial data (RF)
56	D14	GPO19	Output	A0 (sound)

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC104 (AD6526XCA): DIGITAL BASEBAND (2/3)

Pin No.	Terminal Name	Signal Name	Input/Output	Function
57	E1	GPO24	Output	Reset output analog baseband RESET
58	E2	ASDI	Input	Auxiliary serial port data input
59	E3	VPEG1	–	AD6521 interface power supply 2.8 V
60	E4	KEYPADCOL1	Output	Key matrix (COL1)
61	E11	USC4	Output	USC pin out (RTS)
62	E12	GPO18	Output	Enable (RF)
63	E13	GPO16	Output	GSM SEL (BS0)
64	E14	GPO11	Output	Back light SW
65	F1	ASDO	Output	Auxiliary serial port data output
66	F2	ASFS	Output	Auxiliary serial port framing signal
67	F3	BSDO	Output	Baseband serial port data output
68	F4	KEYPADROW1	Input	Key matrix (ROW1)
69	F11	GPO21	Output	Serial clock (RF)
70*	F12	GPO10	Output	(Not used)
71	F13	GPO08	Output	Camera A18
72	F14	GPO07	Output	Charge enable
73	G1	BSIFS	Output	Baseband serial port input framing signal
74	G2	BSDI	Input	Baseband serial port data input
75	G3	VSDI	Input	Voiceband serial port data input
76	G4	BSOFS	Output	Baseband serial port output framing signal
77	G11	GPO17	Output	DCS SEL (BS1)
78	G12	GPO03	Output	Audio bias control
79	G13	GPO02	Output	PCS SEL (BS2)
80	G14	CLKON	Output	Oscillator power control signal (on/off)
81	H1	VCC1	–	Core power supply voltage 1.8 V
82	H2	VSFS	Output	Voiceband serial port framing signal
83	H3	VSDO	Output	Voiceband serial port data output
84	H4	ADD00	Output	Processor address bus
85	H11	GPO09	Output	RF enable
86	H12	GPO04	Output	Key back light control
87	H13	GPIO19	Input	JTAG test mode select (TMS)
88	H14	GPIO18	Output	JTAG test clock (TCK)
89	J1	GND01	–	Ground (7 periphery and 4 core)
90	J2	ADD02	Output	Processor address bus
91	J3	ADD01	Output	Processor address bus
92	J4	ADD03	Output	Processor address bus
93	J11	GPIO21	Output	JTAG test data output (TDO)
94	J12	GPIO20	Input	JTAG test data input (TDI)
95	J13	SIMDATAOP	Input/Output	SIM data output/input
96	J14	GPIO22	Input	End of charge
97	K1	GND02	–	Ground (7 periphery and 4 core)
98	K2	ADD05	Output	Processor address bus
99	K3	ADD04	Output	Processor address bus
100	K4	ADD06	Output	Processor address bus
101	K11	JTAGEN	Input	JTAG enable
102	K12	SIMCLK	Output	SIM clock
103	K13	GPIO24	Output	SIM supply enable
104	K14	VCC3	–	Core power supply voltage 1.8 V
105	L1	ADD08	Output	Processor address bus
106	L2	VMEM1	–	Memory power supply 3 V
107	L3	ADD09	Output	Processor address bus
108	L4	ADD07	Output	Processor address bus
109	L5	ADD10	Output	Processor address bus
110	L6	GND04	–	Ground (7 periphery and 4 core)
111	L7	DATA05	Input/Output	Processor data bus
112	L8	GND05	–	Ground (7 periphery and 4 core)

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC104 (AD6526XCA): DIGITAL BASEBAND (3/3)

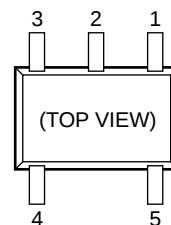
Pin No.	Terminal Name	Signal Name	Input/Output	Function
113	L9	VSIM	–	SIM power supply 2.8 V
114	L10	GPIO23	Output	SIM reset
115	L11	GND07	–	Ground (7 periphery and 4 core)
116	L12	CLKIN	Input	13 MHz system clock input (Auto Detect)
117	L13	nGPCS1	Output	16M bit flash chip select
118*	L14	GPIO32	Input	(Not used)
119	M1	ADD11	Output	Processor address bus
120	M2	ADD12	Output	Processor address bus
121	M3	ADD18	Output	Processor address bus
122	M4	ADD21	Output	Processor address bus
123	M5	nDISPLAYCS	Input/Output	4 M bit SRAM/sound/screen display controller chip select
124	M6	DATA02	Input/Output	Processor data bus
125	M7	DATA04	Input/Output	Processor data bus
126	M8	DATA08	Input/Output	Processor data bus
127	M9	DATA10	Input/Output	Processor data bus
128	M10	DATA13	Input/Output	Processor data bus
129	M11	nRD	Input/Output	Processor read strobe
130	M12	nGPCS0	Output	Camera chip select
131	M13	nROMCS	Output	64 M bit flash chip select
132	M14	nRAMCS	Output	16 M bit PSRAM chip select
133	N1	ADD13	Output	Processor address bus
134	N2	ADD15	Output	Processor address bus
135	N3	ADD17	Output	Processor address bus
136	N4	ADD20	Output	Processor address bus
137	N5	VMEM2	–	Memory power supply 3 V
138	N6	DATA00	Input/Output	Processor data bus
139	N7	DATA03	Input/Output	Processor data bus
140	N8	DATA07	Input/Output	Processor data bus
141	N9	VMEM3	–	Memory power supply 3 V
142	N10	DATA12	Input/Output	Processor data bus
143	N11	DATA15	Input/Output	Processor data bus
144	N12	nHWR	Output	Processor high write strobe
145	N13	VMEM4	–	Memory power supply 3 V
146	N14	nRESET	Input	System reset input
147	P1	ADD14	Output	Processor address bus
148	P2	ADD16	Output	Processor address bus
149	P3	GND03	–	Ground (7 periphery and 4 core)
150	P4	ADD19	Output	Processor address bus
151	P5	ADD22	Output	Processor address bus
152	P6	DATA01	Input/Output	Processor data bus
153	P7	VCC2	–	Core power supply voltage 1.8 V
154	P8	DATA06	Input/Output	Processor data bus
155	P9	DATA09	Input/Output	Processor data bus
156	P10	DATA11	Input/Output	Processor data bus
157	P11	DATA14	Input/Output	Processor data bus
158	P12	GND06	–	Ground (7 periphery and 4 core)
159	P13	nLWR	Output	Processor low write strobe
160	P14	nWE	Output	Processor write strobe (nWR)

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

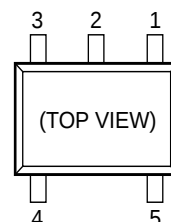
IC105, IC307 VHILM20BIM7-1L (LM20BIM7): TEMPERATURE SENSOR

Pin No.	Terminal name	Input/Output	Description of terminal
1*	NC	—	Not used
2	GND	—	Ground
3	VO	Output	Output
4	V+	Input	Input
5	GND	—	Ground

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

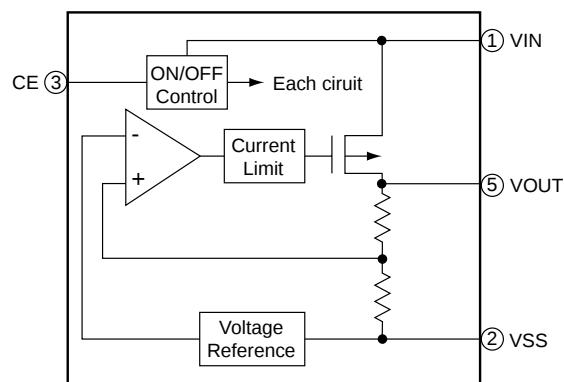
**IC107, IC108, IC110 VHITC7SZ32A-1L (TC7SZ32AFE): LOGIC**

Pin No.	Terminal name	Input/Output	Description of terminal
1	A	Input	Input
2	B	Input	Input
3	GND	—	Ground
4	Y	Output	Output
5	VCC	—	Power supply

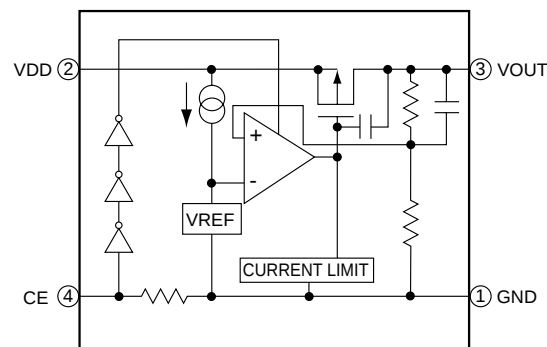
**IC201 VHIXC620925-1L (XC6209B252MR): HIGH SPEED LDO REGULATOR****IC306 VHIXC620439-1L (XC6204B392MR): HIGH SPEED LDO REGULATOR**

Pin No.	Terminal name	Input/Output	Description of terminal
1	VIN	Input	Input
2	VSS	—	Ground
3	CE	Input	Chip enable
4*	NC	—	Not used
5	VOUT	Output	Output

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

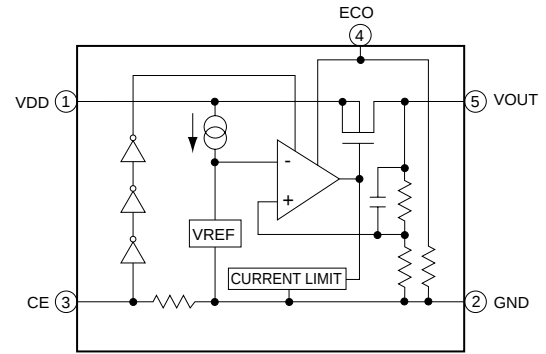
**IC203 VHIRQ5RW18B-1L (RQ5RW18B): 1.8 V REGULATOR**

Pin No.	Terminal name	Input/Output	Description of terminal
1	GND	—	Ground
2	VDD	—	Power supply
3	VOUT	Output	Output
4	CE	Input	Chip enable



IC205 VHIR116030B-1L (R1160N301B): REGULATOR

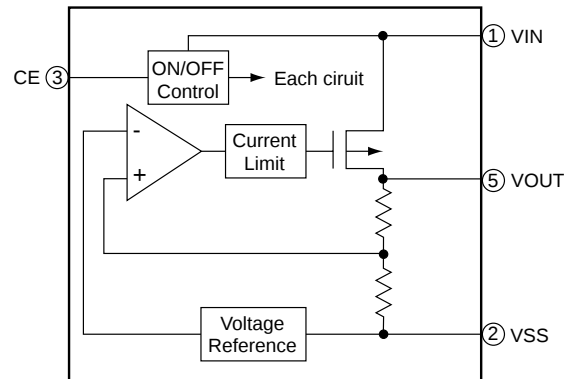
Pin No.	Terminal name	Input/Output	Description of terminal
1	VDD	Input	Input
2	GND	–	Ground
3	CE	Input	Chip enable
4	ECO	Input	High speed/low consumption selector switch
5	VOUT	Output	Output



IC302 VHIXC620930-1L (XC6209B302MR): HIGH SPEED LDO REGULATOR

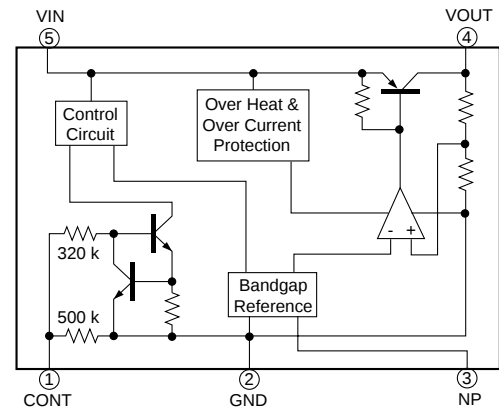
Pin No.	Terminal name	Input/Output	Description of terminal
1	VIN	Input	Input
2	VSS	–	Ground
3	CE	Input	ON/OFF Control
4*	NC	–	Not used
5	VOUT	Output	Output

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.



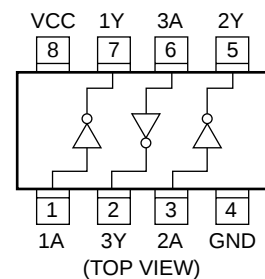
IC206 VHITK11131C-1R (TK11131C): REGULATOR

Pin No.	Terminal name	Input/Output	Description of terminal
1	CONT	Input	Control
2	GND	–	Ground
3	NP	–	Capacitor
4	VOUT	Output	Output
5	VIN	Input	Input



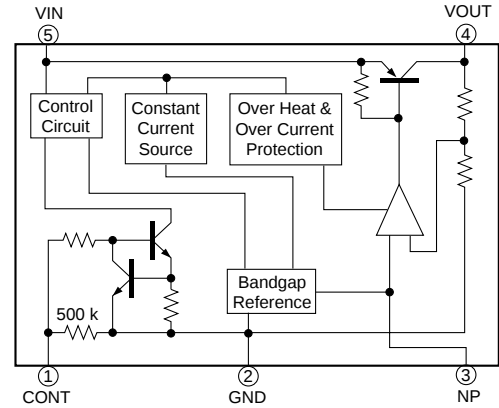
IC301 VHITC7WH04K-1R (TC7WH04FK): LOGIC

Pin No.	Terminal name	Input/Output	Description of terminal
1	1A	Input	Input 1
2	3Y	Output	Output 3
3	2A	Input	Input 2
4	GND	–	Ground
5	2Y	Output	Output 2
6	3A	Input	Input 3
7	1Y	Output	Output 1
8	VCC	–	Power supply



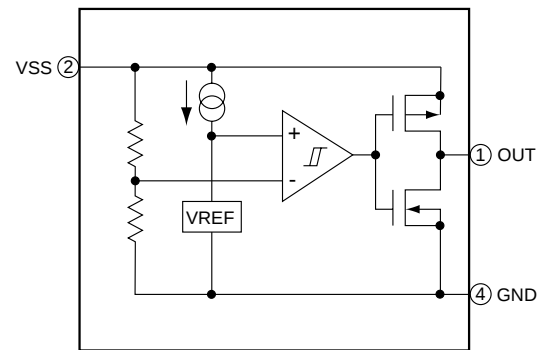
IC303, IC304 VHITK11129C-1R (TK11129CSIL): 2.9 V REGULATOR

Pin No.	Terminal name	Input/Output	Description of terminal
1	CONT	Input	Control
2	GND	—	Ground
3	NP	—	Capacitor
4	VOUT	Output	Output
5	VIN	Input	Input

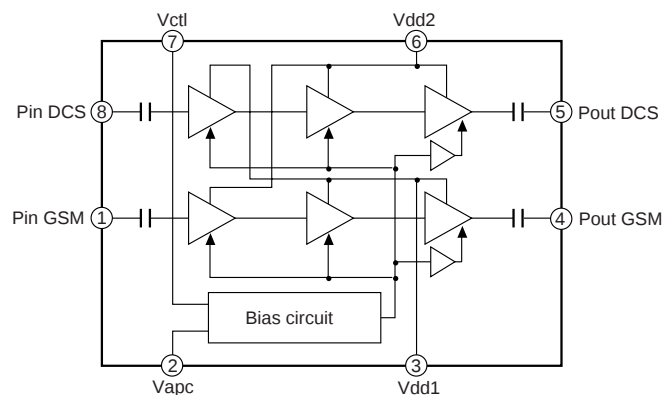
**IC305 VHIR3111Q25-1L (R3111Q251C): VOLTAGE DETECTOR**

Pin No.	Terminal name	Input/Output	Description of terminal
1	OUT	Output	Output
2	VDD	—	Power supply
3*	NC	—	Not used
4	VSS	—	Ground

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

**IC831 VHIPF08123B-1L (PF08123B): RF POWER AMP.**

Pin No.	Terminal name	Input/Output	Description of terminal
1	Pin GSM	Input	Input power from TXVCO (GSM)
2	Vapc	Input	Power control voltage from APCIC
3	Vdd1	—	Power supply
4	Pout GSM	Output	Output power (GSM)
5	Pout DCS	Output	Output power (DCS)
6	Vdd2	—	Power supply
7	Vctl	Input	Band select switch
8	Pin DCS	Input	Input power from TXVCO (DCS)
9	GND	—	Ground



IC881 VHIHD155173-1L (HD155173): AUTO POWER CONTROL

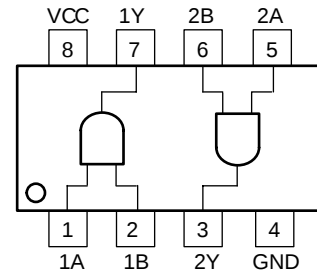
Pin No.	Terminal name	Input/Output	Description of terminal
1	VAPC1	Output	APC voltage output terminal (GSM900)
2	IN1(-)	Input	Output amp negative terminal (GSM900)
3	IN(+)	Input	Output amp positive terminal
4	VCC1	Input	Power supply
5	DACin	Input	DAC voltage input terminal
6	AMPIB	Input	DAC amp input terminal
7	AMPO	Output	DAC amp output terminal
8	Mode SW	Input	Mode switch
9	VCC2	Input	Power supply
10	PS	Input	Power save switch
11	GND2	–	Ground
12	RFin1	Input	GSM900 signal input terminal
13	RFin2	Input	DCS/PCS signal input terminal
14	GND1	–	Ground
15	IN2(-)	Input	Output amp negative terminal (DCS/PCS)
16	VAPC2	Output	APC voltage output terminal (DCS/PCS)

IC901 VHIHD155148-1L (HD155148TF): RF

Pin No.	Terminal name	Input/Output	Description of terminal
1	GNDLNA	–	Ground for LNA bias
2	VCCLNA	Input	VCC for LNA transistor and LNA bias
3	GNDDUM,GNDPCS	–	Ground for emitter of LNA transistor (PCS)
4	PCSLNAI	Input	Positive input for LNA transistor (PCS)
5	PCSLNAIB	Input	Negative input for LNA transistor (PCS)
6	GNDPCSB,GNDDCS	–	Ground for emitter of LNA transistor (PCS,DCS)
7	DCSLNAI	Input	Positive input for LNA transistor (DCS)
8	DCSLNAIB	Input	Negative input for LNA transistor (DCS)
9	GNDDCSB,GNDGSM	–	Ground for emitter of LNA transistor (DCS,GSM)
10	GSMLNAI	Input	Positive input for LNA transistor (GSM)
11	GSMLNAIB	Input	Negative input for LNA transistor (GSM)
12	GNDGSMB,GNDDUM	–	Ground for emitter of LNA transistor (GSM)
13	VCCLNA	Input	VCC for LNA transistor and LNA bias
14	GNDOPLL	–	Ground for OPLL
15	VCOIN	Input	TXVCO signal input
16	VCCOPLL	Input	VCC for OPLL and phase comparator
17	PLLOUT	Output	Current output to control and modulate TXVCO
18	VCCIQ/ADDAC	Input	VCC for IQ modulator and offset canceling AD/DAC
19	GNDIQ/ADDAC	–	Ground for IQ modulator and offset canceling AD/DAC
20	IINB	Input	Negative input of I signal for modulator
21	IIN	Input	Positive input of I signal for modulator
22	QINB	Input	Negative input of Q signal for modulator
23	QIN	Input	Positive input of Q signal for modulator
24	QOUTB	Output	Negative output of Q channel
25	QOUT	Output	Positive output of Q channel
26	IOUTB	Output	Negative output of I channel
27	IOUT	Output	Positive output of I channel
28	VCCIFVCO	Input	VCC for IFVCO and IFVCO buffer and divider
29	GNDIFVCO	–	Ground for IFVCO buffer and divider
30	VCCOSC	Input	VCC for IFVCO
31	TCXOCONT	–	TCXOOUT frequency (GND: 26 MHz/VCC: 13 MHz)
32	VCCIFSYN	Input	VCC for IF synthesizer and TCXOOUT buffer (13 MHz/26 MHz)
33	CPIFSYN	Output	Charge pump output of IF synthesizer
34	GNDIFSYN	–	Ground for IF synthesizer and TCXOOUT buffer (13 MHz/26 MHz)
35	LE	Input	Load enable for serial data
36	TCXOOUT	Output	TCXO output for base band
37	CLK	Input	Clock for serial data
38	TCXOIN	Input	TCXO input for IF and RF synthesizer
39	SDATA	Input	Serial data
40	GNDRFSYN	–	Ground for RF synthesizer and TCXO input buffer (26 MHz)
41	VCCRFSYN	Input	VCC for RF synthesizer and TCXO input buffer (26 MHz)
42	BANDSW	Output	Band select or frequency select switch for RFVCO
43	FLOCK	Output	Fast lock control for RF synthesizer
44	CPRFSYN	Output	Charge pump output of RF synthesizer
45	GNDBB	–	Ground for base band
46	VCCBB	Input	VCC for base band
47	VCCRFLO	Input	VCC for RF local buffer and divider
48	GNDRFLO	–	Ground for RF local buffer and divider
49	RFLOINB	Input	Negative input for RF local
50	RFLOINB	Input	Positive input for RF local
51	GNDMIX	–	Ground for direct conversion mixer
52	CAPQB	Output	Capacitor for Q channel LPF (Negative output)
53	CAPQ	Output	Capacitor for Q channel LPF (Positive output)
54	CAPIB	Output	Capacitor for I channel LPF (Negative output)
55	CAP I	Output	Capacitor for I channel LPF (Positive output)
56	VCCMIX	Input	VCC for direct conversion mixer

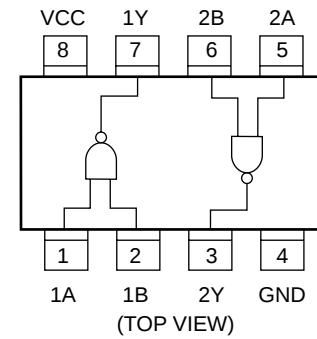
IC991, IC993 VHINL27WZ08-1R (NL27WZ08): LOGIC

Pin No.	Terminal name	Input/Output	Description of terminal
1	1A	Input	Input 1
2	1B	Input	Input 1
3	2Y	Output	Output 2
4	GND	—	Ground
5	2A	Input	Input 2
6	2B	Input	Input 2
7	1Y	Output	Output 1
8	VCC	—	Power supply



IC992 VHITC7W00FK-1R (TC7W00FK): LOGIC

Pin No.	Terminal name	Input/Output	Description of terminal
1	1A	Input	Input 1
2	1B	Input	Input 1
3	2Y	Output	Output 2
4	GND	—	Ground
5	2A	Input	Input 2
6	2B	Input	Input 2
7	1Y	Output	Output 1
8	VCC	—	Power supply



CA1001 (LZ0P3920): CAMERA MODULE

Pin No.	Terminal name	Input/Output	Description of terminal
1	GND	–	Ground
2	OD10	Input/Output	Data bus 10
3	OD11	Input/Output	Data bus 11
4	OD12	Input/Output	Data bus 12
5	OD13	Input/Output	Data bus 13
6	OD14	Input/Output	Data bus 14
7	OD15	Input/Output	Data bus 15
8	AVDD	–	Power supply input (3.1 V/Sensor)
9	CINT	Output	Interruption signal
10	CBACK	–	Ground
11*	CBREQ	–	Not used
12	A1	Input	Address bus 1
13	A2	Input	Address bus 2
14	A17	Input	Address bus 17
15	A18	Input	Address bus 18
16	A19	Input	Address bus 19
17*	TEST4	–	Not used
18	VDD2	–	Power supply input (3.0 V/IOPAD)
19	GND	–	Ground
20	RSTN	Input	Reset signal
21	CSB	Input	Chip select
22	WRB	Input	IP parameter write signal
23	RDB	Input	IP parameter read signal
24	EXCKI	Input	External clock input
25	GND	–	Ground
26	OD0	Input/Output	Data bus 0
27	OD1	Input/Output	Data bus 1
28	OD2	Input/Output	Data bus 2
29	OD3	Input/Output	Data bus 3
30	OD4	Input/Output	Data bus 4
31	OD5	Input/Output	Data bus 5
32	OD6	Input/Output	Data bus 6
33	OD7	Input/Output	Data bus 7
34	OD8	Input/Output	Data bus 8
35	OD9	Input/Output	Data bus 9
36	VDD1	–	Power supply input (2.5 V/Core)

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

SHARP PARTS GUIDE

DIGITAL MOBILE PHONE

MODEL GX10i

(INTERNAL MODEL NAME:
TQ-GX15E/G/R/T/S/H/EP/PP/W/B/D/A/Z/Q)

E : For U.K.	G : For Germany
R : For Ireland	T : For Italy
S : For Spain	H : For Netherlands
EP : For U.K. (Prepaid)	PP : For Portugal (Prepaid)
W : For Sweden	B : For Hungary
D : For Greece	A : For Australia
Z : For New Zealand	Q : For Egypt

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

- | | | | |
|-----------------|-------------|-------------|----------------|
| 1. MODEL NUMBER | 2. REF. No. | 3. PART No. | 4. DESCRIPTION |
|-----------------|-------------|-------------|----------------|

★MARK: Standard parts. SHARP is not to have them in stock.

Explanation of capacitors/resistors parts codes

Capacitors

VCC Ceramic type
 VCK Ceramic type
 VCT Semiconductor type
 VC •• MF Cylindrical type (without lead wire)
 VC •• MN Cylindrical type (without lead wire)
 VC •• TV Square type (without lead wire)
 VC •• TQ Square type (without lead wire)
 VC •• CY Square type (without lead wire)
 VC •• CZ Square type (without lead wire)
 VC J .. The 13th character represents capacity difference.
 ("J" ±5%, "K" ±10%, "M" ±20%, "N" ±30%,
 "C" ±0.25 pF, "D" ±0.5 pF, "Z" +80-20%.)

If there are no indications for the electrolytic capacitors, error is ±20%.

Resistors

VRD Carbon-film type
 VRS Carbon-film type
 VRN Metal-film type
 VR •• MF Cylindrical type (without lead wire)
 VR •• MN Cylindrical type (without lead wire)
 VR •• TV Square type (without lead wire)
 VR •• TQ Square type (without lead wire)
 VR •• CY Square type (without lead wire)
 VR •• CZ Square type (without lead wire)
 VR J .. The 13th character represents error.
 ("J" ±5%, "F" ±1%, "D" ±0.5%.)

If there are no indications for other parts, the resistors are ±5% carbon-film type.

NOTE:

Parts marked with "⚠" are important for maintaining the safety of the set.

Be sure to replace parts with specified ones for maintaining the safety and performance of the set.

NO.	PARTS CODE	DESCRIPTION	NO.	PARTS CODE	DESCRIPTION
INTEGRATED CIRCUITS					
IC001	VHILT1937+-1R ★	DC-DC,LT1937	LED001	VHPCW215TBS-1L	LED,White,CW215TBS
IC002	VHIADM8830+-1L	Charge Pump Regulator, ADM8830	LED101	VHPCL165UR/-1-	LED,Red/Green,CL165UR
IC003	RH-IX3054AFZZL	Grayscale Generator, ADD8502-2ACP	LED302-309	VHPYPY1105C-1L	LED,Green,YPY1105C
IC004	RH-IX2933AFZZL ★	Regulator,IX2933AF	UN301	VHPGP2W01100FR	Infrared Port
IC005	_____	Not Replacement Item,This Parts is Supplied with Cabinet Parts 104	FILTERS		
IC101	VHINJ287130-1L ★	3.0V Regulator,NJM2871F03	FL303	RFILN0018AFZZN ★	Ferrite Beads
△ IC102	_____	Not Replacement Item,This Parts is Supplied with Cabinet Parts 104	FL304	RFILN1005YCZZN ★	Common Mode Filter
IC103	VHIYMU759B+1FL	Sound,YMU759B	FL307	RFILN0018AFZZN ★	Ferrite Beads
△ IC104	_____	Not Replacement Item,This Parts is Supplied with Cabinet Parts 104	△ FL801	RFILR0209AFZZL	RF Switch
IC105	VHILM20BIM7-1L	Temperature Sensor,LM20BIM7	FL811	RFILR0214AFZZL ★	Directional Coupler
IC106	_____	Not Replacement Item,This Parts is Supplied with Cabinet Parts 104	FL816	RFILR0215AFZZL ★	Directional Coupler
IC107,108	VHITC7SZ32A-1L	Logic,TC7SZ32AFE	FL831	RFILN0020AFZZN ★	Ferrite Beads
IC110	VHITC7SZ32A-1L	Logic,TC7SZ32AFE	FL901	RFILR0206AFZZL	SAW Filter
IC201	VHIXC620925-1L ★	High Speed LDO Regulator, XC6209B252MR	FL902	RFILR0207AFZZL	SAW Filter
△ IC202	VHIAD340818-1L	Power Supply,ADP3408ACP	FL903	RFILR0208AFZZL	SAW Filter
IC203	VHIRQ5RW18B-1L	1.8V Regulator,RQ5RW18B	FL971	RFILR0631AFZZL ★	Balun
IC205	VHIR116030B-1L ★	Regulator,R1160N301B	COILS		
IC206	VHITK11131C-1R ★	Regulator,TK11131C	L001	RCILZ0346AFZZN ★	22μH
IC301	VHITC7WH04K-1R	Logic,TC7WH04FK	L003	VPBFMS33JR65MT ★	33 nH
IC302	VHIXC620930-1L ★	High Speed LDO Regulator, XC6209B302MR	L103-108	RCILZ1088YCZZ- ★	Ferrite Beads
IC303,304	VHITK11129C-1R ★	2.9V Regulator,TK11129CSIL	L189	RCILZ0387AFZZN ★	Ferrite Beads
IC305	VHIR3111Q25-1L	Voltage Detector,R3111Q251C	L301	RCILZ0315AFZZT ★	Ferrite Beads
IC306	VHIXC620439-1L ★	High Speed LDO Regulator, XC6204B392MR	L303	RCILZ0315AFZZT ★	Ferrite Beads
IC307	VHILM20BIM7-1L	Temperature Sensor,LM20BIM7	L305-316	RCILZ1088YCZZ- ★	Ferrite Beads
△ IC831	VHIPF08123B-1L	RF Power Amp.,PF08123B	L318,319	RCILZ1088YCZZ- ★	Ferrite Beads
IC881	VHIHD155173-1L	Auto Power Control,HD155173	L821	VPCAMT12S0000- ★	1.2 nH
△ IC901	VHIHD155148-1L	RF,HD155148TF	L823	VPCAMT33S0000- ★	3.3 nH
IC991	VHINL27WZ08-1R	Logic,NL27WZ08	L861	RCILZ0305AFZZT ★	Ferrite Beads
IC992	VHITC7W00FK-1R	Logic,TC7W00FK	L901,902	VPBZNT82D0000- ★	8.2 nH
IC993	VHINL27WZ08-1R	Logic,NL27WZ08	L903-906	VPBZNT27S0000- ★	2.7 nH
TRANSISTORS			L951	RCILZ1088YCZZ- ★	Ferrite Beads
Q001	VSMCH3443+-1L ★	FET,MCH3443	L971	RCILZ0305AFZZT ★	Ferrite Beads
Q002	VS2SK3019//+1- ★	FET,2SK3019	VARIABLE RESISTORS		
Q101	VSEMD9++++-1R ★	Digital,PNP/NPN,EMD9	V201	VHV10080MAB-1N ★	Varistor 650 pF,8V
Q103,104	VSRT1N144U/-1+ ★	Digital,NPN,RT1N144 U	V203	VHV10080MAB-1N ★	Varistor 650 pF,8V
Q203	VSRT1N144U/-1+ ★	Silicon,NPN,RT1N144 U	V301	VHV10080MAB-1N ★	Varistor,100 pF,8V
Q204	VS2SA1989SR-1+ ★	Silicon,PNP,2SA1989 SR	V302	VHV10270MBB-1N ★	Varistor,15 pF,27V
Q205	VS2SA1955A/-1+ ★	Silicon,PNP,2SA1955 A	V303	VHV10080MAB-1N ★	Varistor,100 pF,8V
Q206	VSMCH6613+-1R ★	FET,MCH6613	V304,305	VHV10270MBB-1N ★	Varistor,15 pF,27V
Q207	VSEMD6++++-1R ★	Digital,PNP/NPN,EMD6	V306,307	VHV10080MAB-1N ★	Varistor,100 pF,8V
Q208	VSEMD12++++-1R ★	Digital,PNP/NPN,EMD12	V308	VHV10270MBB-1N ★	Varistor,15 pF,27V
Q301	VSUM6K1///-1- ★	FET,UM6K1	V309-311	VHV10080MAB-1N ★	Varistor,100 pF,8V
Q302	VS2SK3019//+1- ★	FET,2SK3019	V313-318	VHV10080MAB-1N ★	Varistor,100 pF,8V
Q303	VSRT1N234U+-1L ★	Digital,NPN,RT1N234 U	V319,320	VHV10080MAB-1N ★	Varistor,100 pF,8V
Q304	VSEMG9++++-1R ★	Digital,PNP/NPN,EMG9	VIBRATORS		
Q305	VSCPH6311+-1R ★	FET,CPH6311	TCX951	RTCX0025AFZZL	TCXO,26 MHz
Q306	VS2SK3019//+1- ★	FET,2SK3019	X101	RCRSC0065AFZZL	Crystal,32 kHz
Q307	VS3LP02M+-1L ★	FET,3LP02 M	ARRAY PARTS		
Q308,309	VS2SA1955A/-1+ ★	Silicon,PNP,2SA1955 A	R014-017	RR-DZ1133AFZZN ★	Array,0 ohm
DIODES			R104	RMPTR4103ACZZN ★	Array,10 kohm
D001	VHD1SS400//+1- ★	Silicon,1SS400	R153	RMPTR4221ACZZN ★	Array,220 ohms
D002	VHERD22SL+-1L ★	Zener,22V,RD22SL	R155	RMPTR4221ACZZN ★	Array,220 ohms
D003	VHDBR520S30-1- ★	Schottky,RB520S30	R164	RMPTR4221ACZZN ★	Array,220 ohms
D101-103	VHD1SS388//+1- ★	Silicon,1SS388	R166	RMPTR4221ACZZN ★	Array,220 ohms
D201,202	VHERSB6R8S+-1L ★	Zener,6.8V,RSB6.8S	R811	RR-TZ1118AFZZR ★	Array,10 dB
D301,302	VHDHN2S01FU-1L	Silicon,HN2S01FU	R816	RR-TZ1118AFZZR ★	Array,10 dB
D303	VHDBR160M30-1L	Silicon,RB160M30	R923	RR-DZ1133AFZZN ★	Array,0 ohm
D304	VHDM2ZD02/-1- ★	Silicon,MA2ZD02	CAPACITORS		
D305	VHD1SS388//+1- ★	Silicon,1SS388	C001	VCKYTV1EB224KT ★	0.22 μF,25V
D308	VHERSB6R8S+-1L ★	Zener,6.8V,RSB6.8S	C002	VCKYCZ1EB222KT ★	0.0022 μF,25V
D310,311	VHERSB6R8S+-1L ★	Zener,6.8V,RSB6.8S	C003	VCKYCY1AB105KT ★	1 μF,10V
			C004,005	VCKYCY0JB105KT ★	1 μF,6.3V
			C007	VCCCCZ1EH101JT ★	100 pF (CH),25V
			C008	VCKYCZ1AB104KT ★	0.1 μF,10V
			C009	VCKYCY0JB225KT ★	2.2 μF,6.3V
			C010	VCKYCZ1AB104KT ★	0.1 μF,10V
			C011-013	VCKYCY0JB225KT ★	2.2 μF,6.3V
			C014	VCKYCZ1AB104KT ★	0.1 μF,10V
			C015	RC-KZ1300AFZZN ★	1 μF,16V

NO.	PARTS CODE	DESCRIPTION
C016	VCKYCY1CF104ZT ★	0.1 μF,16V
C017	VCKYCY1AB104KT ★	0.1 μF,10V
C018,019	RC-KZ1300AFZZN ★	1 μF,16V
C020	VCKYCY0JB105KT ★	1 μF,6.3V
C021	RC-KZ1300AFZZN ★	1 μF,16V
C022	VCKYCY1AB104KT ★	0.1 μF,10V
C024	VCKYCY1AB104KT ★	0.1 μF,10V
C027	VCCCCZ1EH101JT ★	100 pF (CH),25V
C101,102	VCCCCZ1EH470JT ★	47 pF (CH),25V
C103	VCKYCY1AB104KT ★	0.1 μF,10V
C104	VCKYTV0JB106KT ★	10 μF,6.3V
C105	VCKYCY1EB102KT ★	0.001 μF,25V
C108	VCKYTV0JB106KT ★	10 μF,6.3V
C109,110	VCKYCY1AB104KT ★	0.1 μF,10V
C109A	VCCCCZ1EH101JT ★	100 pF (CH),25V
C111	VCKYCY1EB102KT ★	0.001 μF,25V
C112	VCKYCY1AB104KT ★	0.1 μF,10V
C113	VCKYCY1EB102KT ★	0.001 μF,25V
C114	VCCCCZ1EH470JT ★	47 pF (CH),25V
C115	VCKYCY1AB104KT ★	0.1 μF,10V
C116,117	VCCCCZ1EH470JT ★	47 pF (CH),25V
C118	VCKYCY1CB103KT ★	0.01 μF,16V
C119~122	VCCCCZ1EH470JT ★	47 pF (CH),25V
C125	VCKYCY1AB105KT ★	1 μF,10V
C126	VCKYCY1AB104KT ★	0.1 μF,10V
C128	VCKYCY1AB104KT ★	0.1 μF,10V
C131	VCKYCY1AB104KT ★	0.1 μF,10V
C132	VCKYTV0JB106KT ★	10 μF,6.3V
C133~135	VCKYCY1AB104KT ★	0.1 μF,10V
C136	VCCCCZ1EH221JT ★	220 pF (CH),25V
C137	VCKYCY1AB473KT ★	0.047 μF,10V
C138	VCKYCY1AB104KT ★	0.1 μF,10V
C139	VCKYCY1AB105KT ★	1 μF,10V
C140	VCKYCY1EB102KT ★	0.001 μF,25V
C141	RC-KZ1308AFZZT ★	4.7 μF,6.3V
C142,143	VCKYCY1AB104KT ★	0.1 μF,10V
C145	VCKYCY1AB104KT ★	0.1 μF,10V
C146	VCKYCY1EB102KT ★	0.001 μF,25V
C148	VCCCCZ1EH2R0CT ★	2 pF (CH),25V
C149	VCKYCY1AB104KT ★	0.1 μF,10V
C150	VCCCCZ1EH2R0CT ★	2 pF (CH),25V
C151~163	VCKYCY1AB104KT ★	0.1 μF,10V
C166	VCKYCY1AB104KT ★	0.1 μF,10V
C168,169	VCKYCY1AB104KT ★	0.1 μF,10V
C170	VCKYCY1EB102KT ★	0.001 μF,25V
C172~174	VCKYCY1AB104KT ★	0.1 μF,10V
C176	VCKYCY1AB105KT ★	1 μF,10V
C179	VCKYCY1EB102KT ★	0.001 μF,25V
C180,181	VCCCCZ1EH470JT ★	47 pF (CH),25V
C182,183	VCCCCZ1EH470JT ★	47 pF (CH),25V
C184,185	VCCCCZ1EH470JT ★	47 pF (CH),25V
C186~188	VCKYCY1AB104KT ★	0.1 μF,10V
C210	VCKYTV0JB106KT ★	10 μF,6.3V
C211	VCKYCY1AB104KT ★	0.1 μF,10V
C212	VCKYCY0JB105KT ★	1 μF,6.3V
C213	VCKYCY1AB104KT ★	0.1 μF,10V
C214	VCKYCY1AB105KT ★	1 μF,10V
C215	VCKYCY1AB104KT ★	0.1 μF,10V
C216	VCKYTV0JB106KT ★	10 μF,6.3V
C218	VCKYCY1CB103KT ★	0.01 μF,16V
C219	VCKYCY1AB105KT ★	1 μF,10V
C220	VCKYCY1AB104KT ★	0.1 μF,10V
C221,222	VCKYCY1AB105KT ★	1 μF,10V
C223	RC-KZ1297AFZZT ★	4.7 μF,4V
C224,225	VCKYCY1AB104KT ★	0.1 μF,10V
C227	RC-KZ1297AFZZT ★	4.7 μF,4V
C228	VCKYCY1AB224KT ★	0.22 μF,10V
C229~231	VCKYCY0JB225KT ★	2.2 μF,6.3V
C232,233	VCKYCY1AB104KT ★	0.1 μF,10V
C234	VCKYCY1EB472KT ★	0.0047 μF,25V
C236~240	VCCCCZ1EH101JT ★	100 pF (CH),25V
C303	VCKYCY1AB104KT ★	0.1 μF,10V
C306	VCCCCZ1EH470JT ★	47 pF (CH),25V
C316	VCKYCY1AB104KT ★	0.1 μF,10V
C317	VCKYCY1AB105KT ★	1 μF,10V
C318	VCKYTV0JB225KT ★	2.2 μF,6.3V
C319	VCKYCY1AB104KT ★	0.1 μF,10V
C320,321	VCKYCY1CB103KT ★	0.01 μF,16V
C322,323	VCKYCY1AB105KT ★	1 μF,10V
C326	VCCCCZ1EH470JT ★	47 pF (CH),25V
C328	VCKYCY1AB105KT ★	1 μF,10V
C330,331	VCKYCY1AB105KT ★	1 μF,10V
C332	VCKYTV0JB106KT ★	10 μF,6.3V

NO.	PARTS CODE	DESCRIPTION
C333	VCKYTV0JB475KT ★	4.7 μF,6.3V
C334,335	VCKYCY1EB102KT ★	0.001 μF,25V
C337~339	VCKYCY1AB104KT ★	0.1 μF,10V
C347,348	VCKYCY1AB104KT ★	0.1 μF,10V
C349	VCKYCY0JB225KT ★	2.2 μF,6.3V
C350	VCKYCY1CB103KT ★	0.01 μF,16V
C362	VCKYCY1CB103KT ★	0.01 μF,16V
C501	VCKYCY1EB102KT ★	0.001 μF,25V
C502,503	VCKYCY1AB104KT ★	0.1 μF,10V
C504	VCKYTV0JB106KT ★	10 μF,6.3V
C505,506	VCKYCY0JB225KT ★	2.2 μF,6.3V
C507	VCKYCY1AB104KT ★	0.1 μF,10V
C801~804	VCCCCZ1EH470JT ★	47 pF (CH),25V
C811	VCCCCZ1EH1R5CT ★	1.5 pF (CH),25V
C824	VCCCCZ1EH1R0CT ★	1 pF (CH),25V
C831	VCCCCZ1EH271JT ★	270 pF (CH),25V
C832	VCCCCZ1EH470JT ★	47 pF (CH),25V
C833	VCCCCZ1EH101JT ★	100 pF (CH),25V
C834	VCCCCZ1EH220JT ★	22 pF (CH),25V
C835	RC-SZ1157AFZZL ★	150 μF,6.3V,Tantalum, Electrolytic
C836	VCCCCZ1EH470JT ★	47 pF (CH),25V
C857	VCCCCZ1EH100DT ★	10 pF (CH),25V
C859	VCCCCZ1EH470JT ★	47 pF (CH),25V
C860	VCCCCZ1EH220JT ★	22 pF (CH),25V
C861	VCKYCY1EB102KT ★	0.001 μF,25V
C871	VCCCCZ1EH101JT ★	100 pF (CH),25V
C872	VCKYTV1EB123KT ★	0.012 μF,25V
C873	VCKYCY1EB102KT ★	0.001 μF,25V
C881,882	VCCCCZ1EH101JT ★	100 pF (CH),25V
C883	VCKYCY1EB471KT ★	470 pF,25V
C884	VCCCCZ1EH101JT ★	100 pF (CH),25V
C885	VCKYCY1CB103KT ★	0.01 μF,16V
C886	VCCCCZ1EH470JT ★	47 pF (CH),25V
C887	VCCCCZ1EH220JT ★	22 pF (CH),25V
C889	VCKYCY0JB225KT ★	2.2 μF,6.3V
C901	VCKYCY1CB103KT ★	0.01 μF,16V
C902	VCCCCZ1EH1R0CT ★	1 pF (CH),25V
C905	VCKYCY1CB103KT ★	0.01 μF,16V
C906	VCCCCZ1EH470JT ★	47 pF (CH),25V
C907,908	VCCCCZ1EH220JT ★	22 pF (CH),25V
C910	VCCCCZ1EH0R5CT ★	0.5 pF (CH),25V
C921,922	VCKYCY1CB103KT ★	0.01 μF,16V
C923,924	VCCCCZ1EH221JT ★	220 pF (CH),25V
C941~943	VCKYCY1CB103KT ★	0.01 μF,16V
C944	VCKYCY1HB182KT ★	0.0018 μF,50V
C945	VCCCCZ1EH271JT ★	270 pF (CH),25V
C946	VCKYCY1CB103KT ★	0.01 μF,16V
C947	VCCCCZ1EH220JT ★	22 pF (CH),25V
C952	VCCCCZ1EH101JT ★	100 pF (CH),25V
C954,955	VCKYCY1AB104KT ★	0.1 μF,10V
C971	VCKYCY1AB104KT ★	0.1 μF,10V
C973	RC-KZ1305AFZZN ★	0.0082 μF,25V
C974	RC-KZ1304AFZZN ★	0.001 μF,25V
C975	VCCCCZ1EH151JT ★	150 pF (CH),50V
C976,977	VCKYCY1CB103KT ★	0.01 μF,16V
C978,979	VCCCCZ1EH3R0CT ★	3 pF (CH),25V
C980,981	VCKYCY1HB222JT ★	0.0022 μF,50V
C982	VCKYCY1CB103KT ★	0.01 μF,16V
C992,993	VCKYCY1CB103KT ★	0.01 μF,16V

RESISTORS

	VRS-CY1JB000JT ★	0 ohm,Jumper,0.8×1.55mm,Green
	VRS-CZ1JB000JT ★	0 ohm,Jumper,0.5×1.0mm
R001	VRS-CZ1JB5R6JT ★	5.6 ohms,1/16W
R002	VRS-CZ1JB221JT ★	220 ohms,1/16W
R003	VRS-CZ1JB102JT ★	1 kohm,1/16W
R004	VRS-CZ1JB472JT ★	4.7 kohms,1/16W
R006	VRS-CZ1JB474JT ★	470 kohms,1/16W
R013	VRS-CZ1JB104JT ★	100 kohm,1/16W
R030,031	VRS-CZ1JB474JT ★	470 kohms,1/16W
R106	VRS-CZ1JB102JT ★	1 kohm,1/16W
R107	VRS-CZ1JB122JT ★	1.2 kohms,1/16W
R108	VRS-CZ1JB222JT ★	2.2 kohms,1/16W
R109,110	VRS-CZ1JB122JT ★	1.2 kohms,1/16W
R111	VRS-CZ1JB222JT ★	2.2 kohms,1/16W
R112	VRS-CZ1JB122JT ★	1.2 kohms,1/16W
R122	VRS-CZ1JB683JT ★	68 kohms,1/16W
R123	VRS-CZ1JB183JT ★	18 kohms,1/16W
R128	VRS-CZ1JB332JT ★	3.3 kohms,1/16W
R129	VRS-CZ1JB102JT ★	1 kohm,1/16W
R130	VRS-CZ1JB221JT ★	220 ohms,1/16W

NO.	PARTS CODE	DESCRIPTION
R131	VRS-CZ1JB270JT ★	27 ohms,1/16W
R133	VRS-CZ1JB206JT ★	20 Mohms,1/16W
R141	VRS-CZ1JB101JT ★	100 ohm,1/16W
R142~144	VRS-CZ1JB474JT ★	470 kohms,1/16W
R146	VRS-CZ1JB101JT ★	100 ohm,1/16W
R148	VRS-CZ1JB101JT ★	100 ohm,1/16W
R149	VRS-CZ1JB471JT ★	470 ohms,1/16W
R151,152	VRS-CZ1JB221JT ★	220 ohms,1/16W
R154	VRS-CZ1JB221JT ★	220 ohms,1/16W
R157,158	VRS-CZ1JB474JT ★	470 kohms,1/16W
R159~162	VRS-CZ1JB221JT ★	220 ohms,1/16W
R168	VRS-CZ1JB221JT ★	220 ohms,1/16W
R170	VRS-CZ1JB221JT ★	220 ohms,1/16W
R172,173	VRS-CY1JB1R0JT ★	1 ohm,1/16W
R177	VRS-CZ1JB104JT ★	100 kohm,1/16W
R183	VRS-CZ1JB103JT ★	10 kohm,1/16W
R186	VRS-CZ1JB103JT ★	10 kohm,1/16W
R195	VRS-CZ1JB104JT ★	100 kohm,1/16W
R210	VRS-CZ1JB474JT ★	470 kohms,1/16W
R211	VRS-CZ1JB683JT ★	68 kohms,1/16W
R212	VRS-CZ1JB103JT ★	10 kohm,1/16W
R215	VRS-CZ1JB822JT ★	8.2 kohms,1/16W
R216	VRS-CZ1JB474JT ★	470 kohms,1/16W
R218	VRS-CZ1JB331JT ★	330 ohms,1/16W
R219	VRS-CZ1JB122JT ★	1.2 kohms,1/16W
R222,223	VRS-CZ1JB474JT ★	470 kohms,1/16W
R227	VRS-CZ1JB102JT ★	1 kohm,1/16W
R232	VRS-CZ1JB1R0JT ★	1 ohm,1/16W
R305	VRS-CZ1JB203JT ★	20 kohms,1/16W
R308~310	VRS-CZ1JB101JT ★	100 ohm,1/16W
R312~317	VRS-CZ1JB101JT ★	100 ohm,1/16W
R319,320	VRS-CZ1JB101JT ★	100 ohm,1/16W
R326	VRS-CZ1JB103JT ★	10 kohm,1/16W
R332~334	VRS-CZ1JB474JT ★	470 kohms,1/16W
R336	VRS-CZ1JB331JT ★	330 ohms,1/16W
R337~339	VRS-CZ1JB471JT ★	470 ohms,1/16W
R340,341	VRS-CZ1JB331JT ★	330 ohms,1/16W
R342	VRS-CZ1JB271JT ★	270 ohms,1/16W
R343	VRS-CZ1JB331JT ★	330 ohms,1/16W
R346	VRS-CZ1JB474JT ★	470 kohms,1/16W
R348	RR-NZ1103AFZZN ★	0.18 ohms,1/2W
R349,350	VRS-CZ1JB222JT ★	2.2 kohms,1/16W
R351,352	VRS-CZ1JB122JT ★	1.2 kohms,1/16W
R353,354	VRS-CZ1JB474JT ★	470 kohms,1/16W
R356	VRS-CZ1JB752JT ★	7.5 kohms,1/16W
R363	VRS-CZ1JB102JT ★	1 kohm,1/16W
R366	VRS-CZ1JB474JT ★	470 kohms,1/16W
R368	VRS-CZ1JB471JT ★	470 ohms,1/16W
R503,504	VRS-CZ1JB101JT ★	100 ohm,1/16W
R507	VRS-CY1JB2R2JT ★	2.2 ohms,1/16W
R812	VRS-CZ1JB470JT ★	47 ohms,1/16W
R817	VRS-CZ1JB470JT ★	47 ohms,1/16W
R851	VRS-CZ1JB470JT ★	47 ohms,1/16W
R852	VRS-CZ1JB101JT ★	100 ohm,1/16W
R853	VRS-CZ1JB470JT ★	47 ohms,1/16W
R854	VRS-CZ1JB101JT ★	100 ohm,1/16W
R855,856	VRS-CZ1JB680JT ★	68 ohms,1/16W
R857	VRS-CZ1JB560JT ★	56 ohms,1/16W
R858	VRS-CZ1JB181JT ★	180 ohms,1/16W
R859	VRS-CZ1JB560JT ★	56 ohms,1/16W
R871	VRS-CZ1JB470JT ★	47 ohms,1/16W
R872	VRS-CZ1JB330JT ★	33 ohms,1/16W
R881	VRS-CZ1JB103JT ★	10 kohm,1/16W
R882	VRS-CZ1JB223JT ★	22 kohms,1/16W
R883	VRS-CZ1JB822JT ★	8.2 kohms,1/16W
R885,886	VRS-CZ1JB103JT ★	10 kohm,1/16W
R887	VRS-CZ1JB104JT ★	100 kohm,1/16W
R901	VRS-CZ1JB100JT ★	10 ohm,1/16W
R905	VRS-CZ1JB100JT ★	10 ohm,1/16W
R941,942	VRS-CZ1JB100JT ★	10 ohm,1/16W
R944	VRS-CZ1JB472JT ★	4.7 kohms,1/16W
R953	VRS-CZ1JB100JT ★	10 ohm,1/16W
R972	VRS-CZ1JB152JT ★	1.5 kohms,1/16W
R973	VRS-CZ1JB332JT ★	3.3 kohms,1/16W
R974	VRS-CZ1JB472JT ★	4.7 kohms,1/16W

OTHER CIRCUITRY PARTS

ANT801	QCNTA0132AFZZN	Terminal,Aerial
BAT100	RDNTL0015AFZZ	Battery,Back-up
CA1001		Not Replacement Item,This Parts is Supplied with P.W.B. Assembly PWB-G

NO.	PARTS CODE	DESCRIPTION
CN001	QCNCW937HAFZPL	Socket,8Pin
CN002	QCNCWUF51AFZZL	Socket,51Pin
CN101	QCNCMXN34AFZZN	Plug,34Pin
CN201	QCNCWUF45AFZZL	Socket,45Pin
CN202	QCNCWUF39AFZZL	Socket,39Pin
CN301	QSOCZ9172AFZZR	SIM Card Connector
CN302	QSOCN1801AFZZL	External Connector
CN303	QCNTA0121AFZZN	Contact Battery
CN305	QCNCMXM40AFZZN	Plug,40Pin
CN306	QCNCMXN40AFZZN	Plug,40Pin
EP100	RPHOD0035AFZZ	Earpiece
FS001	QFS-L631AAFNZN	Fuse,0.63A
FS302	QFS-L252EAFNZN	Fuse,2.5V
J801	QCNCW927AAFZZR	Test Connector
JK301	QJAKM0223AFZZL	Hands Free Connector
LCD001	RLCUB0031AFZZ	Sub-Screen Display
LCD100	RLCUB0045AFZZ	Main-Screen Display
MIC100	RMICC0216AFZZ	Microphone
MO1	RMOTV0548AFZZ	Vibrator
SP1	RSPA00014AF8P	Speaker
△ VCO851	RUNTZ0831AFZZR	Tx VCO
△ VCO971	RUNTZ0832AFZZR	RF VCO

CABINET PARTS

101	DCABAW027AFS1	Front Cabinet Ass'y
101- 1		Front Cabinet (Display),Display (Not Replacement Item)
101- 2	GCABC7014AFSA	Front Cabinet (Key),Display
101- 3	RUNTZ0840AFZZ	Hinge
101- 4	PCUSS1033AFZZ	Cushion,Display Driver
101- 5	PSHEZ1733AFZZ	Electrostatic Sheet,Side Key
101- 6	PSLDC3348AFZZ	Electrostatic Plate,Side Key
102	DCABBW027AFS1	Back Cabinet (Display)Ass'y
102- 1		Back Cabinet (Display),Display (Not Replacement Item)
102- 2	TLABZ2595AFZZ	Sensor,Moisture
102- 3	PSPAK0124AFZZ	Plate A,Back Cabinet Reinforcement
103	DCABDW027AFS1	Back Cabinet (Key)Ass'y
103- 1		Back Cabinet (Key),Display (Not Replacement Item)
103- 2	GCOVH1329AFSB	Cover,Jack (Hands Free)
103- 3	GCOVH1337AFZZ	Cover,Aerial
103- 4	PCUSS0902AFZZ	Cushion,Battery
103- 5	PFILW0120AFZZ	Filter,IR
△ 103- 6	QANTH0195AFSB	Aerial
103- 7	TLABZ2595AFZZ	Sensor,Moisture
104	DKENDW027AFS1	Board Unit [E]
104	DKENDW027AFS2	Board Unit [G]
104	DKENDW027AFS3	Board Unit [R]
104	DKENDW027AFS4	Board Unit [T]
104	DKENDW027AFS5	Board Unit [S]
104	DKENDW027AFS6	Board Unit [H]
104	DKENDW027AFS7	Board Unit [EP]
104	DKENDW027AFS8	Board Unit [PP]
104	DKENDW027AFS9	Board Unit [W]
104	DKENDW027AFSA	Board Unit [B]
104	DKENDW028AFSB	Board Unit [D]
104	DKENDW028AFSC	Board Unit [A]
104	DKENDW029AFSD	Board Unit [Z]
104	DKENDW029AFSE	Board Unit [Q]
104- 1(PWB-A)		Main (Not Replacement Item)
104- 2(PWB-B)		Key (Not Replacement Item)
104- 3	GCOVH1333AFZZ	Cover,Vibrator
104- 4	LHLDB1190AFZZL	Holder,Back-up Battery
104- 5	LHLDZ1881AF01	Main-Screen Display Holder Ass'y
104- 6	LHLDZ1882AF01	Sub-Screen Display Holder Ass'y
104- 7	PCUSS0898AFZZ	Cushion,Sub-Screen Display
104- 8	PCUSS0903AFZZ	Cushion A,Camera
104- 9	PCUSS0920AFZZ	Cushion,Water Tight
104-10	PCUSS0936AFZZ	Cushion,Radiate Sheet
104-11	PSHEZ1382AFZA	Tape,Main-Screen Display
104-12	PSHEZ1416AFZZ	Tape
104-13	PSHEZ1575AFZZ	Sheet,Radiation
104-14	PSHEZ1577AFZZ	Tape,Sub Holder
104-15	PSHEZ1578AFZZ	Protect Sheet,Camera
104-16	PSHEZ1590AFZZ	Protect Sheet,Sub-Screen Display
△ 104-17	PSLDM3809AFZZN	Case RF,Shield (Frame)

NO.	PARTS CODE	DESCRIPTION	NO.	PARTS CODE	DESCRIPTION
△ 104-18	PSLDM3854AFZZN	Case BB,Shield (Frame)	13	TGANE1243AFZZ	Guarantee [A] [Z]
△ 104-19	PSLDM3855AFZZ	Case BB,Shield (Cover)	13	TGANI1071AFZZ	Guarantee [T] (To Serial No. 304XXXXX)
△ 104-20	PSLDM3857AFZZ	Case RF,Shield (Cover)	13	TGANI1072AFZZ	Guarantee [T] (From Serial No. 305XXXXX)
104-21	PSPA20697AFZZ	Spacer,FPC,A	13	TGANZ1098AFZZ	Guarantee [S] (To Serial No. 304XXXXX)
104-22	PSPA20698AFZZ	Spacer,FPC,B	13	TGANZ1109AFZZ	Guarantee [S] (From Serial No. 305XXXXX)
104-23	PSPA20699AFZZ	Spacer,FPC,C	13	TGANZ1109AFZZ	Guarantee [S] (From Serial No. 305XXXXX)
104-24(LCD001)	RLCUB0031AFZZ	Sub-Screen Display	13	TGANZ1109AFZZ	Guarantee [S] (From Serial No. 305XXXXX)
104-25(LCD100)	RLCUB0045AFZZ	Main-Screen Display	13	TGANZ1109AFZZ	Guarantee [S] (From Serial No. 305XXXXX)
104-26(PWB-E)	RUNTK0672AFZZ	Back Light FPC Ass'y	13	TGANZ1099AFZZ	Guarantee [H] (To Serial No. 304XXXXX)
104-27(PWB-F)	RUNTK0689AFZZ	Relay FPC-C	13	TGANZ1110AFZZ	Guarantee [H] (From Serial No. 305XXXXX)
104-28(PWB-H)	RUNTK0702AFZZ	Flexible PWB,Side Switch	13	TGANZ1110AFZZ	Guarantee [H] (From Serial No. 305XXXXX)
104-29(PWB-G)	RUNTK0720AFZZ	Camera FPC Ass'y	13	TGANZ1110AFZZ	Guarantee [H] (From Serial No. 305XXXXX)
104-30(PWB-C)	RUNTK0725AFZZ	Relay FPC-A	13	TGANZ1103AFZZ	Guarantee [D] (To Serial No. 304XXXXX)
104-31(PWB-D)	RUNTK0726AFZZ	Relay FPC-B	13	TGANZ1103AFZZ	Guarantee [D] (To Serial No. 304XXXXX)
104-32	TLABZ2595AFZZ	Sensor,Moisture	13	TGANZ1114AFZZ	Guarantee [D] (From Serial No. 305XXXXX)
104-33	PSPAP0162AFZZ	Plate C,Display Reinforcement	13	TGANZ1114AFZZ	Guarantee [D] (From Serial No. 305XXXXX)
105	GCOVA2476AFSB	Cap,Aerial	13	TGANZ1107AFZZ	Guarantee [W] (To Serial No. 304XXXXX)
106	GCOVA2477AFSB	Main-Screen Display Screw Cover,L	13	TGANZ1107AFZZ	Guarantee [W] (To Serial No. 304XXXXX)
107	GCOVA2478AFSB	Main-Screen Display Screw Cover,R	13	TGANZ1112AFZZ	Guarantee [W] (From Serial No. 305XXXXX)
108	GCOVD1119AFSN	Key Screw Cover	13	TGANZ1108AFZZ	Guarantee [B] (To Serial No. 304XXXXX)
109	GCOVH1328AFZZ	Cover,Hinge	13	TGANZ1108AFZZ	Guarantee [B] (To Serial No. 304XXXXX)
110	GCOVH1330AFSB	Cover,External Connector	13	TGANZ1113AFZZ	Guarantee [B] (From Serial No. 305XXXXX)
111	GCOVH1331AFSB	Top Screw Cover	14	TINSE1684AFZZ	User Guide [E] [R] [EP] [Q]
112	JKNBZ2320AFSA	Key,Centre	14	TINSE1688AFZZ	User Guide [A] [Z]
113	JKNBZ2322AFSA	Key,Left Soft	14	TINSG0109AFZZ	User Guide [G]
114	JKNBZ2323AFSA	Key,Right Soft	14	TINSI0036AFZZ	User Guide [T]
115	JKNBZ2359AFSA	Keys,Side	14	TINSP0255AFZZ	User Guide [PP]
116	JKNBZ2360AFSA	Button,10 Key	14	TINSW0054AFZZ	User Guide [W]
117(BAT100)	RDNTL0015AFZZ	Battery,Back-up	14	TINSZ1434AFZZ	User Guide [D]
118(MIC100)	RMICC0216AFZZ	Microphone	14	TINSZ1430AFZZ	User Guide [S]
119(MO1)	RMOTV0548AFZZ	Vibrator	14	TINSZ1431AFZZ	User Guide [H]
120(EP100)	RPHOD0035AFZZ	Earpiece	14	TINSZ1432AFZZ	User Guide [B]
121(SP1)	RSPA00014AF8P	Speaker	14	TINSZ1432AFZZ	User Guide [B]
122	TSPC-4180AFZZ	Label,Specifications (Except for [A], [Z])	15	TINSP0254AFZZ	Guide,Driver [PP]
122	TSPC-4208AFZZ	Label,Specifications [A], [Z]	15	TINSW0055AFZZ	Guide,Driver [W]
601	LX-BZ1051AFZZ	Screw,ø1.6×3.8mm,Black	15	TINSZ1433AFZZ	Guide,Driver [B]
602	LX-EZ0195AFZZ	Screw,ø1.7×5mm	15	TINSZ1429AFZZ	Guide,Driver [D]
ACCESSORIES/PACKING PARTS			16	TLABZ2793AFZZ	Sheet,Security ([E]Only)
1	GFTAB1396AFSB	Cover,Battery	17		Label,Case
△ 2	RADPT6214AF01	AC Charger [A] [Z]	△ 18	UBAT0130AF01	Rechargeable Li-ion Battery
△ 2	RADPT7203AF01	AC Charger [G] [S] [H] [W] [B] [D] [Q] [PP] [T]	19	UDSKA0014AF01	CD-ROM (Except for [H]) (To Serial No. 305XXXXX)
△ 2	RADPT8201AF01	AC Charger [E] [R] [EP]	19	UDSKA0024AF01	CD-ROM (Except for [H]) (From Serial No. 306XXXXX)
3	RUNTK0817AFZZ	Hands Free Kit			
4	SPAKA2802AFZZ	Packing Add. (Except for [A] [Z])			
4	SPAKA2826AFZZ	Packing Add. [A] [Z]			
5	SPAKC7387AFZZ	Packing Case [G] [S] [H] [EP] [Q]			
5	SPAKC7723AFZZ	Packing Case [E] [R] [T] [PP] [W] [B] [D]			
5	SPAKC7751AFZZ	Packing Case [A] [Z]			
6	SPAKP1252AFZZ	Polyethylene Bag,AC Charger			
7	SPAKP1284AFZZ	Polyethylene Bag,Unit			
8	SSAKA0233AFZZ	Polyethylene Bag,CD-ROM (Except for [H])			
9	SSAKA5003CCZZ	Polyethylene Bag,User Guide			
10	SSAKH0329AFZZ	Polyethylene Bag,Battery Cover			
11	TCADZ0254AFZZ	Sheet,Supplement (QOS) [E] [R] [EP] [A] [Z] [Q]			
11	TCADZ0255AFZZ	Sheet,Supplement (QOS) [G]			
11	TCADZ0256AFZZ	Sheet,Supplement (QOS) [T]			
11	TCADZ0257AFZZ	Sheet,Supplement (QOS) [S]			
11	TCADZ0260AFZZ	Sheet,Supplement (QOS) [PP]			
12	TCADZ0263AFZZ	Card,Free Service ([T]Only)			
13	TGANE1239AFZZ	Guarantee [E] [R] [EP] [Q] (To Serial No. 304XXXXX)			
13	TGANE1245AFZZ	Guarantee [E] [EP] (From Serial No. 305XXXXX)			
13	TGANE1246AFZZ	Guarantee [R] (From Serial No. 305XXXXX)			
13	TGANE1247AFZZ	Guarantee [Q] (From Serial No. 305XXXXX)			
13	TGANE1241AFZZ	Guarantee [PP] (To Serial No. 304XXXXX)			
13	TGANE1111AFZZ	Guarantee [PP] (From Serial No. 305XXXXX)			

P.W.B. ASSEMBLY

PWB-A	_____	Main (Not Replacement Item)
PWB-B	_____	Key (Not Replacement Item)
PWB-C	RUNTK0725AFZZ	Relay FPC-A
PWB-D	RUNTK0726AFZZ	Relay FPC-B
PWB-E	RUNTK0672AFZZ	Back Light FPC Ass'y
PWB-F	RUNTK0689AFZZ	Relay FPC-C
PWB-G	RUNTK0720AFZZ	Camera FPC Ass'y
PWB-H	RUNTK0702AFZZ	Flexible PWB,Side Switch

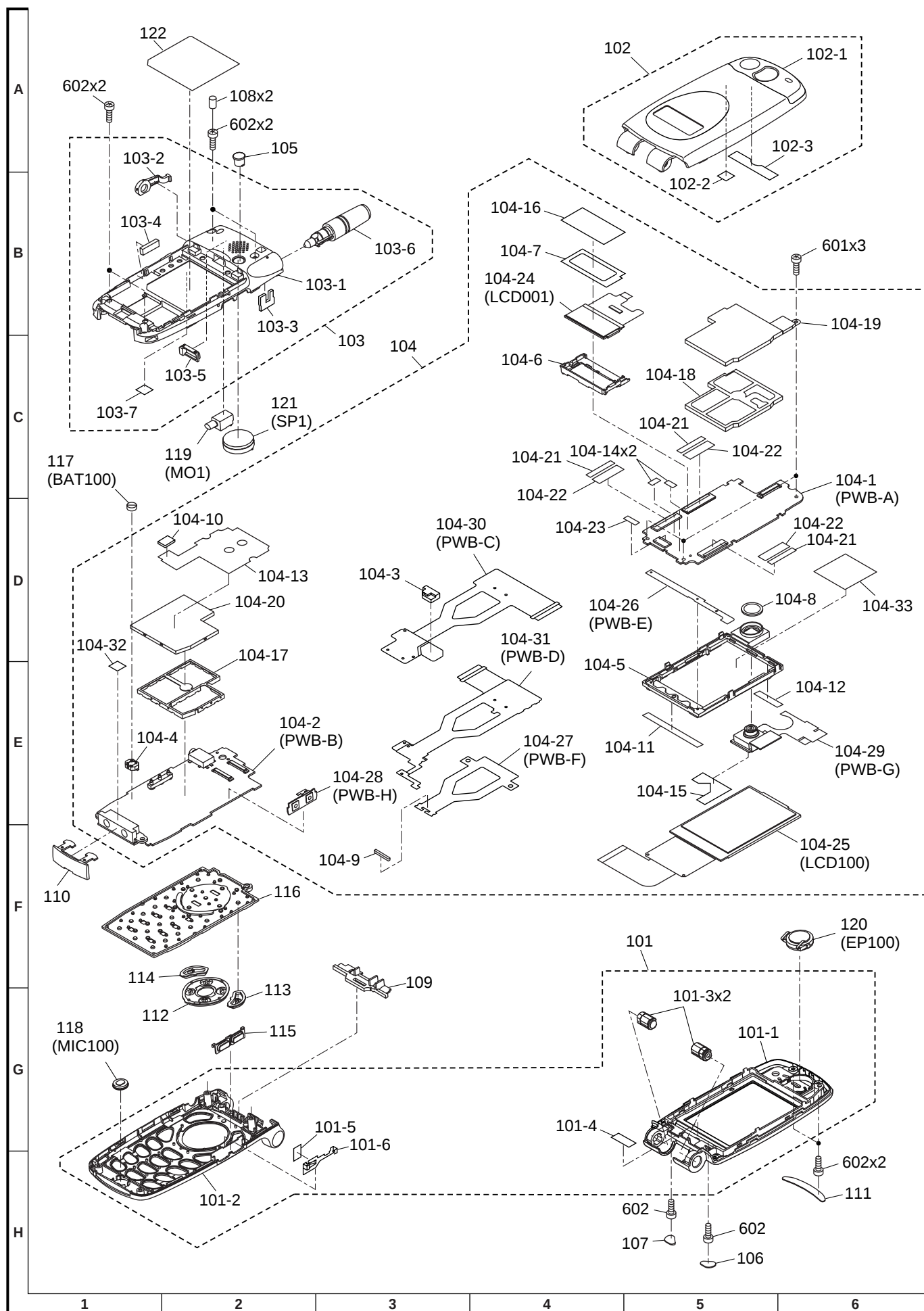
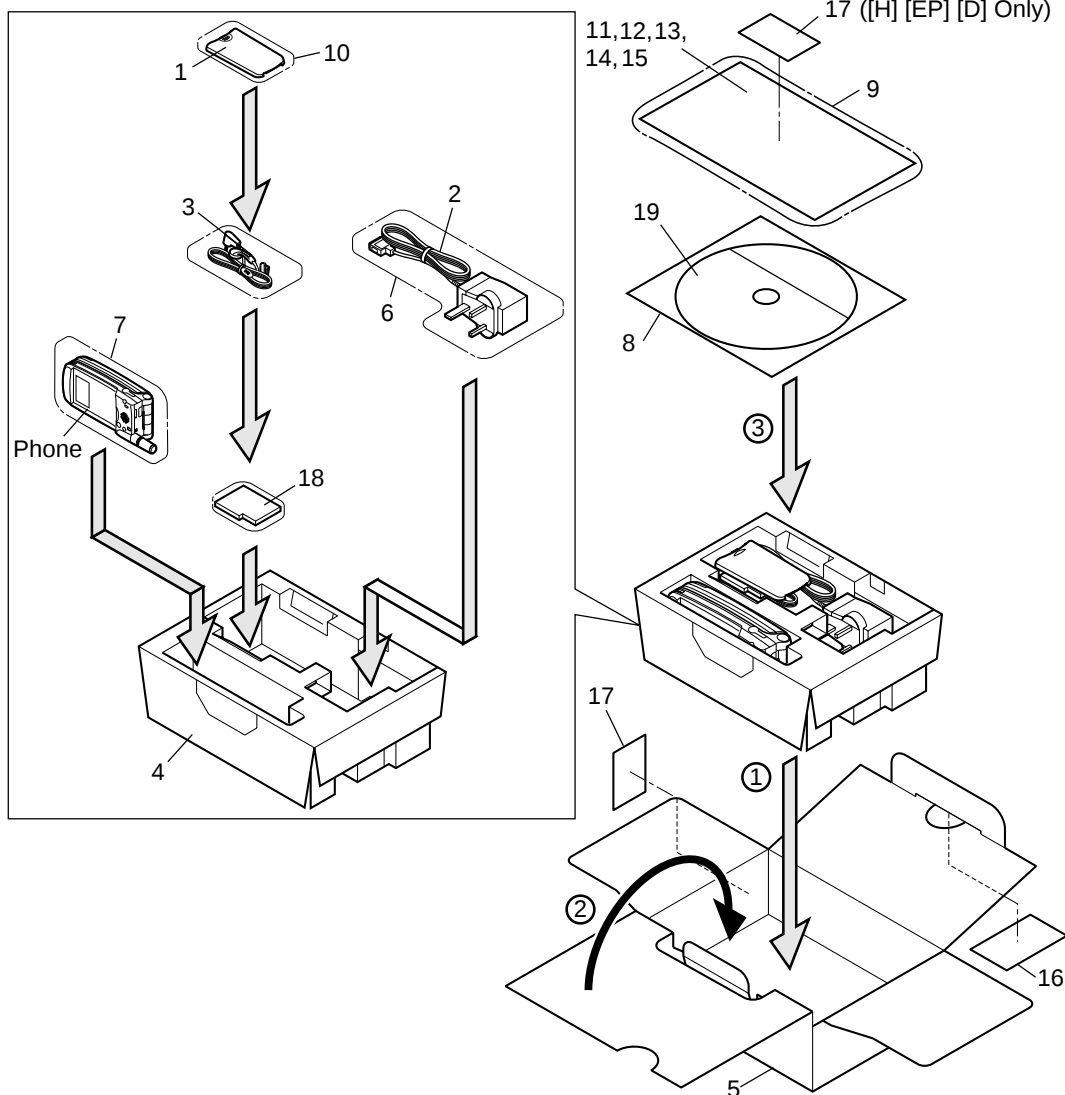


Figure 1 CABINET EXPLODED VIEW

Packing method

- | | | | |
|--------------------|--|---------------------|---|
| 1. GFTAB1396AFSB | Cover,Battery | 13. TGANZ1098AFZZ | Guarantee [S] (To Serial No. 304XXXXX) |
| △ 2. RADPT6214AF01 | AC Charger [A] [Z] | 13. TGANZ1109AFZZ | Guarantee [S] (From Serial No. 305XXXXX) |
| △ 2. RADPT7203AF01 | AC Charger [G] [S] [H] [W] [B] [D] [Q] [PP] [T] | 13. TGANZ1099AFZZ | Guarantee [H] (To Serial No. 304XXXXX) |
| △ 2. RADPT8201AF01 | AC Charger [E] [R] [EP] | 13. TGANZ1110AFZZ | Guarantee [H] (From Serial No. 305XXXXX) |
| 3. RUNTZ0817AFZZ | Hands Free Kit | 13. TGANZ1103AFZZ | Guarantee [D] (To Serial No. 304XXXXX) |
| 4. SPAKA2802AFZZ | Packing Add. (Except for [A] [Z]) | 13. TGANZ1114AFZZ | Guarantee [D] (From Serial No. 305XXXXX) |
| 4. SPAKA2826AFZZ | Packing Add. [A] [Z] | 13. TGANZ1107AFZZ | Guarantee [W] (To Serial No. 304XXXXX) |
| 5. SPAKC7387AFZZ | Packing Case [G] [S] [H] [EP] [Q] | 13. TGANZ1112AFZZ | Guarantee [W] (From Serial No. 305XXXXX) |
| 5. SPAKC7723AFZZ | Packing Case [E] [R] [T] [PP] [W] [B] [D] | 13. TGANZ1108AFZZ | Guarantee [B] (To Serial No. 304XXXXX) |
| 5. SPAKC7751AFZZ | Packing Case [A] [Z] | 13. TGANZ1113AFZZ | Guarantee [B] (From Serial No. 305XXXXX) |
| 6. SPAKP1252AFZZ | Polyethylene Bag,AC Charger | 14. TINSE1684AFZZ | User Guide [E] [R] [EP] [Q] |
| 7. SPAKP1284AFZZ | Polyethylene Bag,Unit | 14. TINSE1688AFZZ | User Guide [A] [Z] |
| 8. SSAKA0233AFZZ | Polyethylene Bag,CD-ROM (Except for [H]) | 14. TINSG0109AFZZ | User Guide [G] |
| 9. SSAKA5003CCZZ | Polyethylene Bag,User Guide | 14. TINSI0036AFZZ | User Guide [T] |
| 10. SSAKH0329AFZZ | Polyethylene Bag,Battery Cover | 14. TINSP0255AFZZ | User Guide [PP] |
| 11. TCADZ0254AFZZ | Sheet,Supplement (QOS) [E] [R] [EP] [A] [Z] [Q] | 14. TINSW0054AFZZ | User Guide [W] |
| 11. TCADZ0255AFZZ | Sheet,Supplement (QOS) [G] | 14. TINSZ1434AFZZ | User Guide [D] |
| 11. TCADZ0256AFZZ | Sheet,Supplement (QOS) [T] | 14. TINSZ1430AFZZ | User Guide [S] |
| 11. TCADZ0257AFZZ | Sheet,Supplement (QOS) [S] | 14. TINSZ1431AFZZ | User Guide [H] |
| 11. TCADZ0260AFZZ | Sheet,Supplement (QOS) [PP] | 14. TINSZ1432AFZZ | User Guide [B] |
| 12. TCADZ0263AFZZ | Card,Free Service ([T]Only) | 15. TINSP0254AFZZ | Guide,Driver [PP] |
| 13. TGANE1239AFZZ | Guarantee [E] [R] [EP] [Q]
(To Serial No. 304XXXXX) | 15. TINSW0055AFZZ | Guide,Driver [W] |
| 13. TGANE1245AFZZ | Guarantee [E] [EP] (From Serial No. 305XXXXX) | 15. TINSZ1433AFZZ | Guide,Driver [B] |
| 13. TGANE1246AFZZ | Guarantee [R] (From Serial No. 305XXXXX) | 15. TINSZ1429AFZZ | Guide,Driver [D] |
| 13. TGANE1247AFZZ | Guarantee [Q] (From Serial No. 305XXXXX) | 16. TLABZ2793AFZZ | Sheet,Security ([E]Only) |
| 13. TGANE1241AFZZ | Guarantee [PP] (To Serial No. 304XXXXX) | 17. _____ | Label,Case |
| 13. TGANE1111AFZZ | Guarantee [PP] (From Serial No. 305XXXXX) | △ 18. UBATI0130AF01 | Rechargeable Li-ion Battery |
| 13. TGANE1243AFZZ | Guarantee [A] [Z] | 19. UDSKA0014AF01 | CD-ROM (Except for [H])
(To Serial No. 305XXXXX) |
| 13. TGANI1071AFZZ | Guarantee [T] (To Serial No. 304XXXXX) | 19. UDSKA0024AF01 | CD-ROM (Except for [H])
(From Serial No. 306XXXXX) |
| 13. TGANI1072AFZZ | Guarantee [T] (From Serial No. 305XXXXX) | | |



SHARP

COPYRIGHT © 2003 BY SHARP CORPORATION

ALL RIGHTS RESERVED.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission of the publisher.

SHARP CORPORATION
Communication Systems Group
Quality & Reliability Control Center
Higashihiroshima, Hiroshima 739-0192, Japan

A0305-PDF•KS•KJ•J