SPP-S9000/S9001

SERVICE MANUAL

US Model
SPP-S9000/S9001
Canadian Model
SPP-S9001

Photo: SPP-S9001

SPECIFICATIONS

General

Spread method	Direct-Sequence Spread-Spectrum
Access method	FDMA-TDD
Frequency band	902 - 928 MHz (100 mW)
Operation channel	14 channels
Supplied accessories	AC power adaptor
	Telephone line cords (2)
	Rechargeable battery pack BP-T31
	Directories (2 sheets)
	Wall bracket

Handset

Power source	Rechargeable battery pack BP-T31
Battery life	Standby: Approx. 7 days (RING ON mode)
	Approx. Three weeks (RING OFF mode)
	Talk: Approx. 6 hours
Battery charging time	Approx. 12 hours (SPP-S9001 only)
Dimensions	Approx. 56 × 183 × 55 mm (w/h/d), antenna excluded (approx. 2 1/4 × 7 1/4 × 2 1/4 inches)
	Antenna: Approx. 75 mm (approx. 3 inches)
Mass	Approx. 250 g (approx. 8.8 oz), battery included

Base unit

Power source	DC 9V from AC power adaptor
Battery charging time	Approx. 12 hours (SPP-S9000)
	Approx. 24 hours (SPP-S9001)
Dimensions	Approx. 123 × 70 × 225 mm (w/h/d), antenna excluded (approx. 4 7/8 × 2 7/8 × 8 7/8 inches)
	Antenna: Approx. 165 mm (approx. 6 ½ inches)
Mass	Approx. 350 g (approx. 12 oz), wall bracket excluded

Design and specifications are subject to change without notice.

CORDLESS TELEPHONE

MICROFILM

SONY®

TABLE OF CONTENTS

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Setting up the phone

Choose the best location

Where you place the base unit affects the reception quality of the handset.
Place the base unit:

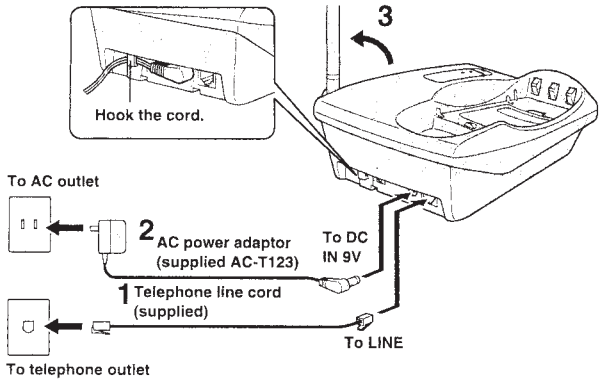
- near a central location and on a level surface
- away from television sets and other electronic equipment, a personal computer, or a microwave oven
- away from noise sources such as a window by a street with heavy traffic
- away from another cordless telephone
- away from heat sources, such as radiators, airducts, and sunlight
- away from excessive moisture, extremely low temperatures, dust, mechanical vibration, or shock

CAUTION

- Should you experience intermittent loss of audio during a conversation, try moving closer to the base or move base unit away from other noise sources.
- The cordless telephone operates at a frequency that may cause interference to nearby TVs and VCRs; the base unit should not be placed near or on the top of a TV or VCR; and, if interference is experienced, moving the cordless telephone farther away from the TV or VCR will often reduce or eliminate the interference.

Connect the base unit

If you want to hang the base unit on the wall, see "Mounting the base unit on a wall".



1 Connect the telephone line cord to the LINE jack and to a telephone outlet.

2 Connect the AC power adaptor to the DC IN 9V jack and to an AC outlet.

3 Raise the antenna. Make sure it points toward the ceiling.

Notes

- Use only the supplied AC-T123 AC power adaptor. Do not use any other AC power adaptor.
- Connect the AC power adaptor to a continuous power supply.
- Place the base unit close to the AC outlet so that you can unplug the AC power adaptor easily.

Tip

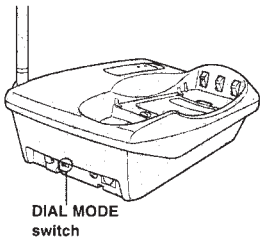
If your telephone outlet is not modular, contact your telephone service company for assistance.

Polarity of the plug

Modular

Choose the dialing mode

For the telephone to work properly, select an appropriate dialing mode (tone or pulse).



Depending on your dialing system, set the DIAL MODE switch as follows:

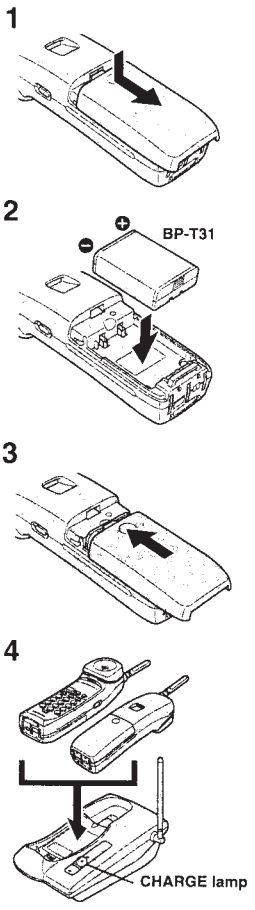
If your dialing system is	Set the switch to
Tone	T
Pulse	P

If you aren't sure of your dialing system

Make a trial call with the DIAL MODE switch set to T. If the call connects, leave the switch as is; otherwise, set to P.

Charge the battery pack

Charge the battery pack for more than **12 hours** before you start using your phone.



1 Slide open the battery compartment lid of the handset.

2 Insert the battery pack into the battery compartment.

3 Close the battery compartment lid.

4 Place the handset on the base unit.
You can place either side facing up.
The CHARGE lamp lights up when the handset is properly seated on the charge terminals of the base unit. Charge the battery pack for more than **12 hours** so that the battery is fully charged. The CHARGE lamp remains lit even after charging is completed.

Battery duration

A fully charged battery pack lasts for about:

- Approx. 6 hours when you use the handset continuously.
- Approx. 7 days (RING ON mode) or three weeks (RING OFF mode) when the handset is standing by.

Notes

- The battery pack will gradually discharge over a long period of time, even if not in use.
- If you leave the battery pack in the handset without charging it, the battery pack will be completely discharged. It may require several times of charging to recover its full capacity.
- While charging, the battery pack warms up. This is not a malfunction.

To obtain the best performance from battery

Do not place the handset on the base unit after each call. The battery works best if the handset is returned to the base unit after two or three calls. However, do not leave the handset off the base unit for a long period of time as this will completely discharge the battery pack.

When to purchase a new battery pack

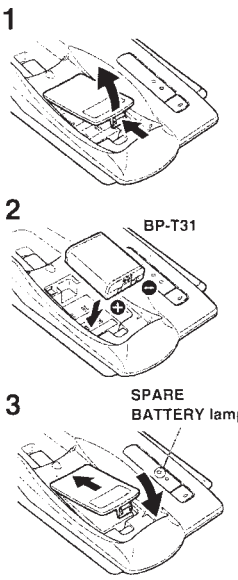
If the battery lasts only a few minutes even after **12 hours** of charging, the usable life of the battery has expired and needs replacement. Contact your local Sony authorized dealer or service center, and ask for Sony **BP-T31** rechargeable battery pack.

Note

Battery life may vary depending on usage condition and ambient temperature.

Handset spare battery usage (SPP-S9001 only)

As only one battery pack is supplied with this unit, it is necessary to purchase an additional battery pack (optional) for use as a handset spare battery pack.



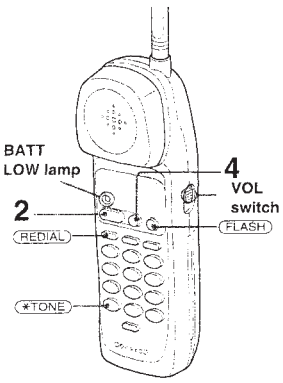
1 Open the battery compartment lid of the base unit.

2 Insert the battery pack (optional) into the battery compartment.

3 Close the battery compartment lid.
The SPARE BATTERY lamp lights up. Charge the battery pack for more than 24 hours so that the battery is fully charged. The SPARE BATTERY lamp remains lit even after charging is completed.

Making and receiving calls

Making calls



1 Pick up the handset from the base unit.

2 Press (TALK), and wait until the TALK button lights up.
The dialing keys light up.
You then hear a dial tone. If you hear five short error beeps, move closer to the base unit.

3 Dial the phone number.

4 When you're done talking, press (OFF) or replace the handset on the base unit.
The TALK button goes off.

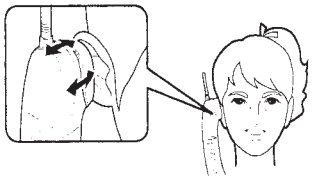
Receiving calls

1 When you hear the phone ring:
- Press (TALK) (or any key except (OFF)).
or
- Pick up the handset from the base unit when the handset is placed on the base unit.
The TALK button lights up.

2 When you're done talking, press (OFF) or replace the handset on the base unit. The TALK button goes off.

EZfit

The "EZfit" adjusts to fit any shape ear, thereby ensure clear voice reception.



Additional tasks

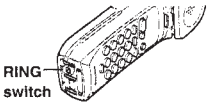
To	Do this
Adjust the handset volume	Set the VOL switch to H (high), M (middle) or L (low).
Switch to tone dialing temporarily	Press (*TONE) after you're connected. The line will remain in tone dialing until disconnected.
Switch to another call ("call waiting service"*)	Press (FLASH). Press the button again to get back to the first caller.

* Contact your telephone company to subscribe to this service.

Notes
- When you increase the sound volume, in some cases the back ground noise may be increased as well. You should adjust the volume accordingly.
- If the handset beeps every second during conversation, move closer to the base unit; otherwise, the call will be disconnected after one minute.

Tip

You can save battery power by setting the RING switch on the bottom to OFF.
The handset won't ring, but you can still make calls. You can also receive calls if another telephone connected to the same line rings to inform you of incoming calls. However, you cannot page the handset from the base unit.



If the battery becomes weak during a call

The handset will beep twice per second with the BATT LOW lamp flashing at the same time. Finish your call and charge the battery pack.

For optimum performance, charge the battery for a full 12 hours.
Note that during the initial charge time (approx. 10 minutes) the BATT LOW lamp lights up and the phone cannot be used.
After the BATT LOW lamp goes off, you **may** be able to use the phone, but the battery duration will be **very short**; thus it is recommended that you **fully charge** the battery before next use.

Redialing

1 Press (TALK), and wait until the TALK button lights up.

2 Press (REDIAL) to redial the number last dialed.

Note

If the number exceeds 32 digits or if it is erased, five short error beeps will alert you that the number cannot be dialed.

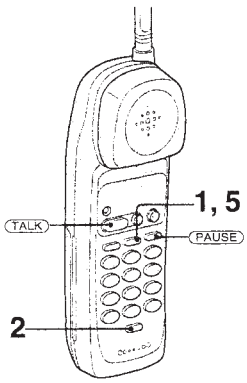
To erase the last phone number dialed

Press (REDIAL) twice.
The number will be erased from the memory, and you'll hear a long confirmation beep.

Speed dialing

You can dial with a touch of a few keys by storing a phone number on a dialing key.

Storing phone numbers



1 Press (PGM).
The TALK button flashes.

2 Press (SPEED DIAL).
The dialing keys light up.

3 Press one of the dialing keys ((0) to (9)) to store a phone number on.
You hear a confirmation beep.

4 Enter the phone number you want to store.
You can enter up to 20 digits, including a tone and a pause, each of which is counted as one digit.

5 Press (PGM).
You hear a long confirmation beep, and the number is stored. The TALK button goes off.

Note

Do not allow more than 20 seconds to elapse between each step of the procedure.

Tips
- If you enter a wrong number, press (PGM), then start from the beginning.
- Use the supplied directory to write down what you stored on the speed dialing numbers.

To store a number to be dialed via Private Branch Exchange (PBX)

Before entering a phone number in step 4, do as follows:

1 Enter the outside line access digit (e.g., 9).

2 Press (PAUSE).

To change a stored number

Store a new number, as described previously.

Making calls with speed dialing

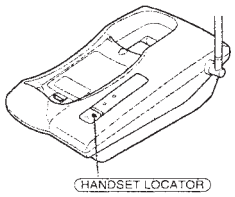
1 Press (TALK) and wait until the TALK button lights up.

2 Press (SPEED DIAL).

3 Enter the desired speed dialing number ((0) to (9)).
The phone number stored in the speed dialing number will be dialed.

Paging

You can page the handset from the base unit. Note that you cannot page if the handset is in use.



To page

Press HANDSET LOCATOR.

The handset rings for about one minute.

To stop ringing, press TALK or OFF on the handset.

Note

You cannot page the handset when its RING switch is set to OFF.

Mounting the base unit on a wall

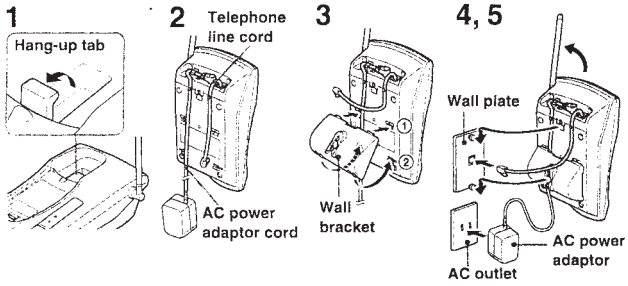
1 Raise the hang-up tab.

2 Plug the telephone line cord to the LINE jack and the AC power adaptor to the DC IN 9V jack, and hook the cords. Use the shorter cord for mounting.

3 Attach the wall bracket to the center of the base unit. Align the Δ marks of the wall bracket with those of the base unit.

4 Plug the telephone line cord to the telephone outlet, and hook the base unit to the wall plate.

5 Plug the AC power adaptor to an AC outlet. Then raise the antenna so that it points towards the ceiling.



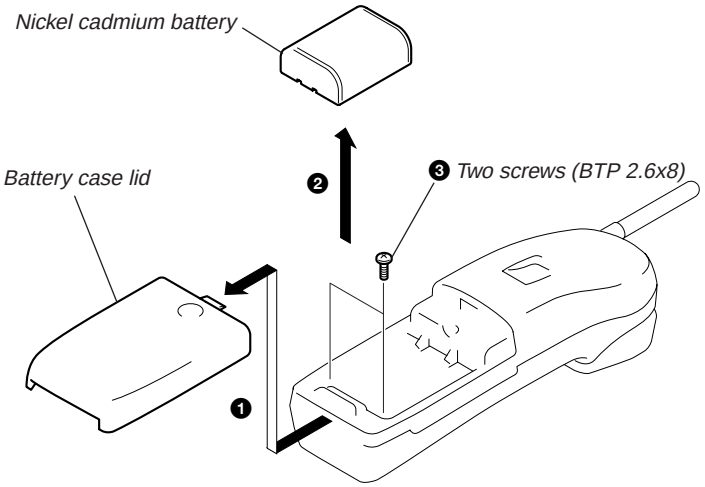
Tip

To remove the wall bracket, press the lower tabs.

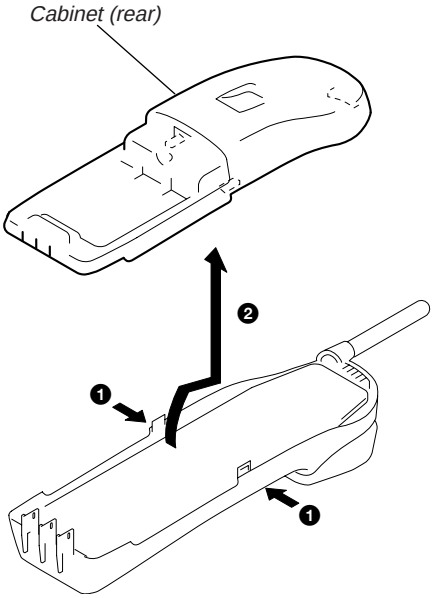
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

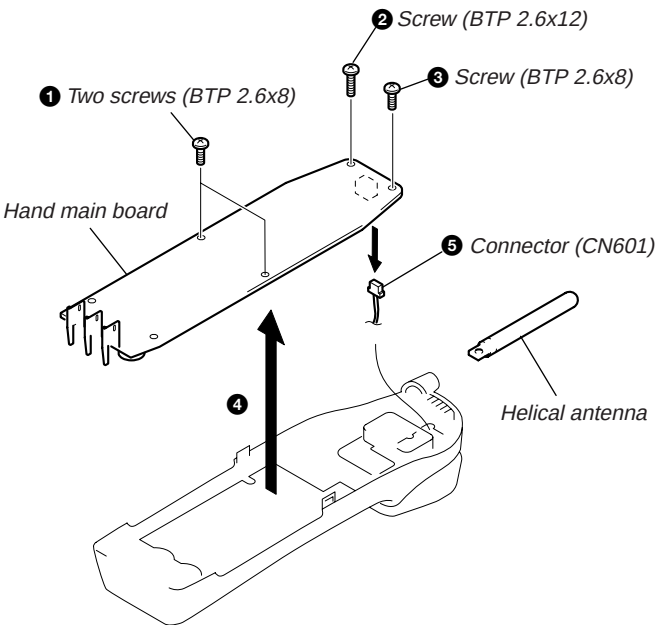
2-1. BATTERY CASE LID (HANDSET)



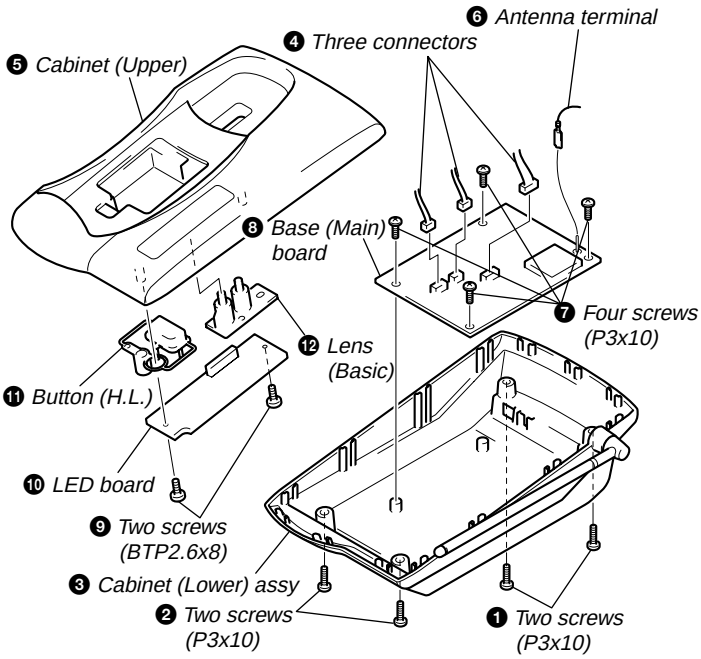
2-2. CABINET (REAR)(HANDSET)



2-3. HAND MAIN BOARD (HANDSET)



2-4. CABINET AND BOARDS (BASE UNIT)



SECTION 3
900 MHz SYSTEM OPERATION

3-1. ACCESS METHOD

1. Transfer format & rate

The transfer format & rate of our system is as follows;

Table 3-1. Transfer method

Access method	FDMA-TDD
Channel number	14 channel
Channel spacing	1.2 MHz
Modulation method	DBPSK
Baseband transfer rate	960 Kbps
Spread method	Direct Sequence Spread Spectrum
Chip rate	12 chips/bit
Data transfer rate	80 Kbps

2. Channel Number & Frequencies

RF channels occupy the frequency band 902 – 928 MHz are numbered 1 to 14.

RF channel numbers & center frequencies are specified as follows.

Table 3-2. Channel number & Channel frequency

Channel Number	Channel Center Frequency (MHz)	
	UNIT CH PLAN	TEST MODE CH PLAN
1	907.2	904.2
2	908.4	904.8
3	909.6	906.0
4	910.8	907.2
5	912.0	908.4
6	913.2	909.6
7	914.4	910.8
8	915.6	912.0
9	916.8	913.2
10	918.0	914.4
11	919.2	915.6
12	920.4	916.8
13	921.6	918.0
14	922.8	919.2
15		920.4
16		921.6
17		922.8
18		924.0
19		925.2
20		925.8

***Note)** The UNIT has 14 channels according to the UNIT CH PLAN while the number of channels which can be used in the test mode are those in the TEST MODE CH PLAN.

3-2. PROTOCOL

1. General

This system realizes the TX/RX superframe by TDD system. The relation of master/slave dose not decide identification regarding the protocol between BASE UNIT and HANDSET, but the initiated side is the master and the requested side is the slave when the RF link has been established.

2. Initial acquisition

In order to establish the RF link between BASE UNIT and HANDSET, both of BASE UNIT and HANDSET need to have the same system ID. When “power” is applied to this system, the system have to do Initial Acquisition in order to have the same system ID. It is to exchange a parameter when the HANDSET is parked on the BASE UNIT, as soon as the system do System Parameters Re-initialization.

3. System parameter re-initialization

This System Parameters Re-initialization can realize that the HANDSET is parked on the BASE UNIT. So after the BASE UNIT recognized to be parked the HANDSET, the BASE UNIT calculates a system parameter, and then it outputs this data from the ARTO port, and then the system establishes the RF link. In order to establish this link, the HANDSET send the A-Frame to the BASE UNIT after the HANDSET received the system parameter, and then the BASE UNIT send the A-Frame to the HANDSET. The process of System Parameters Re-initialization is as follows.

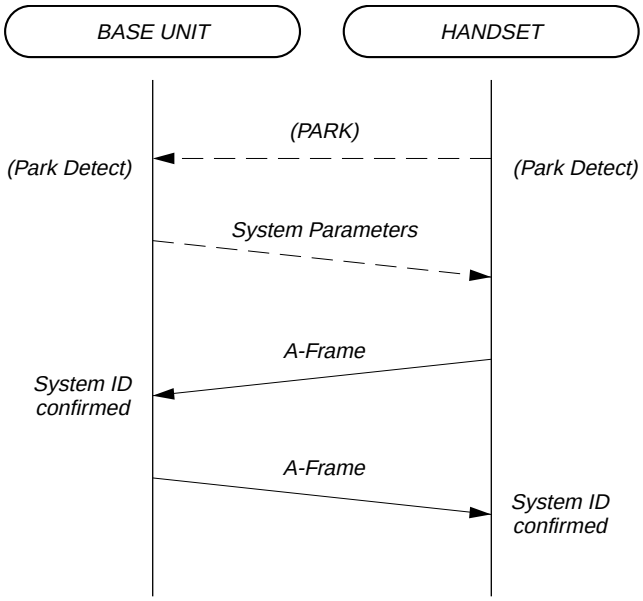


Fig. 3-1. System Parameters Re-initialization

4. Stand-by Mode Operation

(1) HANDSET

When the HANDSET is the stand-by mode (sleep mode), the HANDSET do the intermittent operation for power save, because the HANDSET is the battery operation.

This process of stand-by mode operation is as follows.

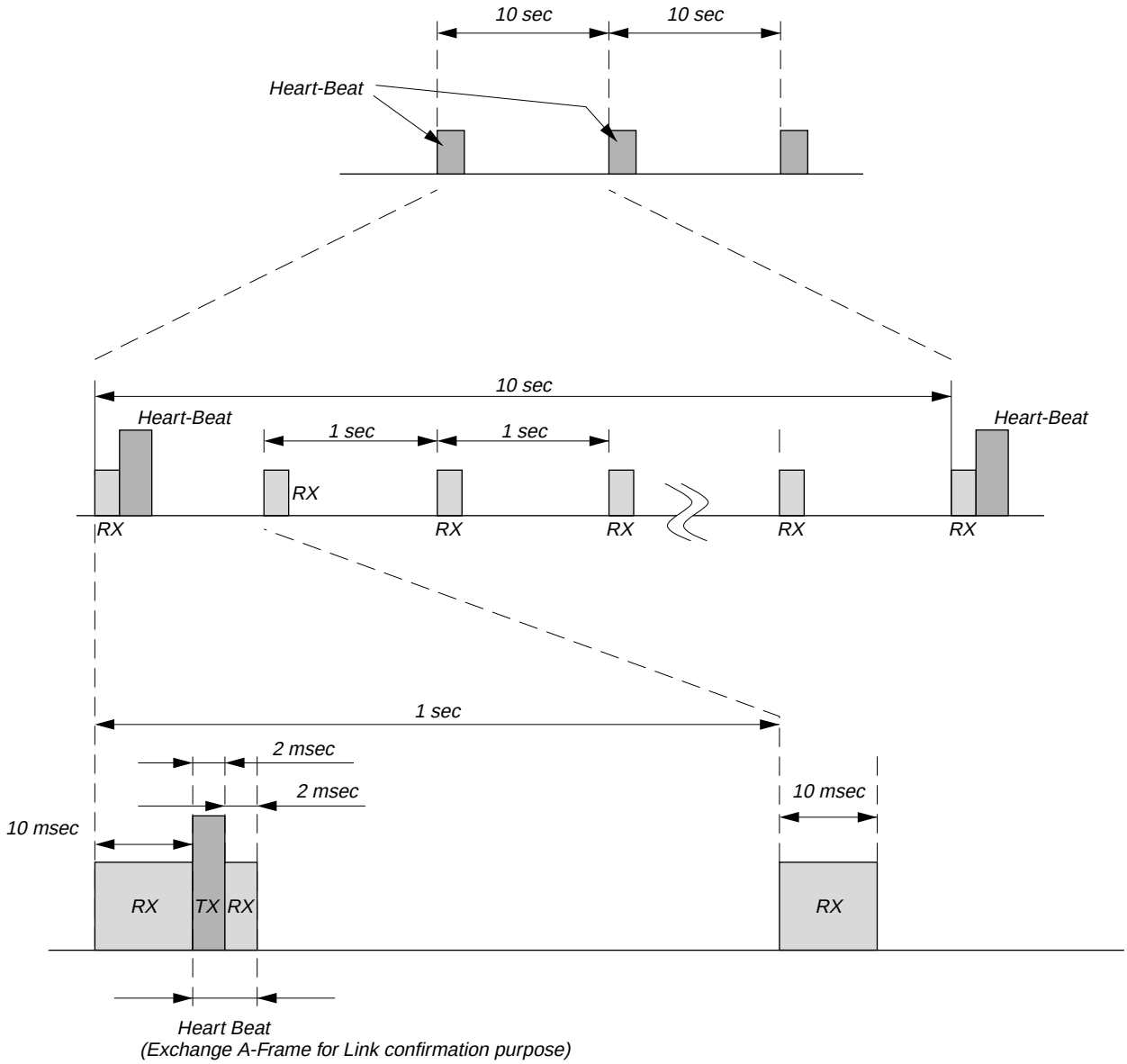


Fig. 3-2. Stand-by mode operation (HANDSET)

(2) BASE UNIT

The BASE UNIT is supplied the power by AC line. While the BASE UNIT is the stand-by, the BASE UNIT is always a wake state. While the BASE UNIT monitors the current channel, the BASE UNIT monitors also the other channel at the same time

Because if the current channel can not use by some interference, the system needs the clear channel information as a part of system parameter for a channel hop.

If the BASE UNIT can not receive the A-Frame of Heart-beat from the HANDSET, it become “link error”, and the system become error recovery mode.

5. Link Establishment

According to the following Fig. 3-1, the requested side for link establishment is the master.
The system have to exchange the A-Frame for link establishment, and each system ID should be the same ID, and then the system link is established.
The protocol and timing chart of link establishment are as follows.

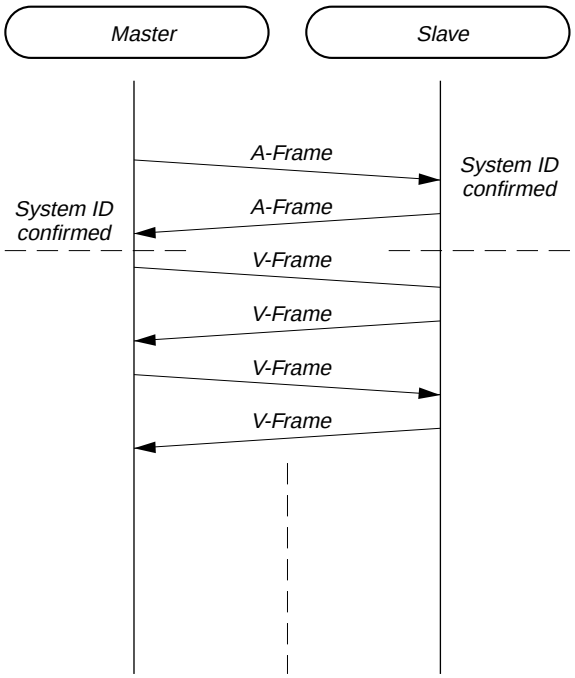


Fig. 3-3. Link Establishment protocol

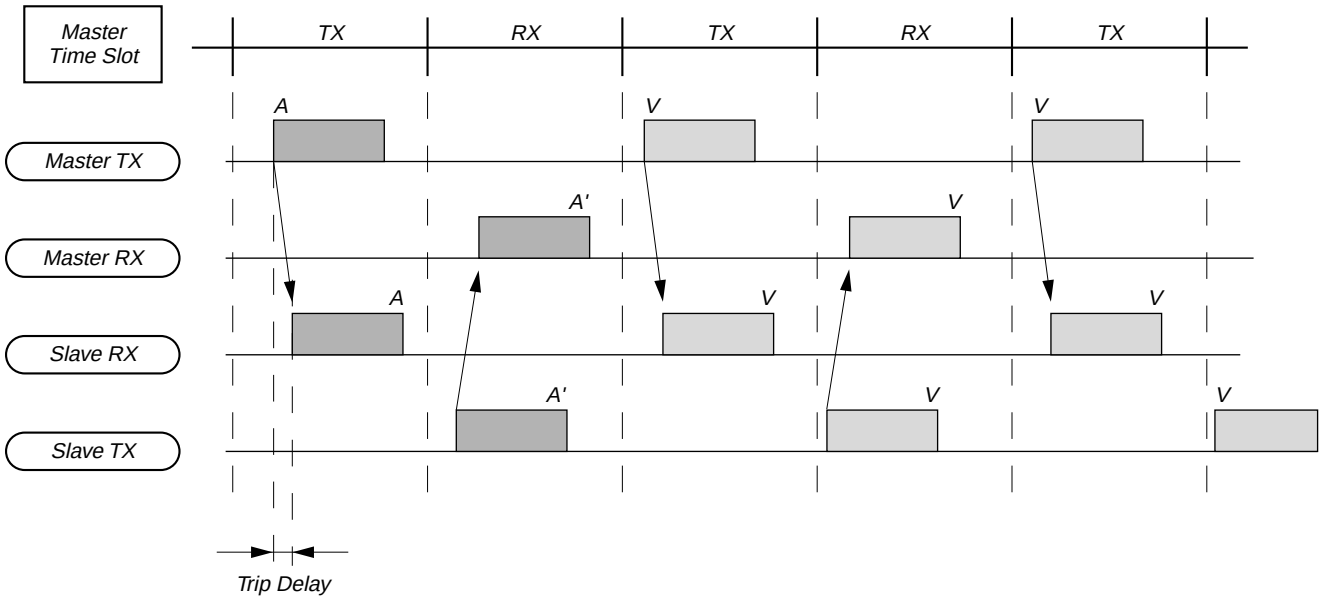


Fig. 3-4. Link Establishment Timing Chart

6. State Change/Tarmination

After the RF link between HANDSET and BASE UNIT was established, a movement of each state (State: ON-Hook, OFF-Hook, PAGE, InterCom, etc) is sent through supervisory bits.

7. Error Recovery

In case of the following situation, The system becomes “Error Recovery Mode”.

(1) The system failed to move to “Heart-Beat” during “Stand-by mode, or failed “link establishment”.

(2) The system failed to keep the link.

SECTION 4
TEST MODE

4-1. BASE UNIT TEST MODE A

Manual System Test Mode

[Start-up]

1. Set the DIAL MODE switch to P (PULSE), and turn on the power while pressing the HANDSET LOCATOR key.
2. Change the DIAL MODE switch from P (PULSE) to T (TONE) ➔ P (PULSE), and release the HANDSET LOCATOR key to start up.
3. After starting up Test Mode A, perform dial test.
4. The TEST MODE A state will be set after the dial test.
5. In test mode idling A, pressing the HANDSET LOCATOR key with the P (PULSE)/T (TONE) switch set to P (PULSE) state switches to BASE UNIT TEST MODE A-1.

DIAL MODE switch	Idle status
P (PULSE) side	Test Mode Idle A-1
T (TONE) side	Test Mode Idle A-2

[Dial Test]

After starting BASE UNIT TEST Mode A, close the circuit for about 500 msec after start, and dial PAUSE, 0 (DP), wait 2 seconds, 1 (Tone), 4 (Tone), 8 (Tone), # (Tone) in this order.

[Ring Detect Test]

1. Rings the Normal Ringer synchronized with an external call coming in, and blinks the IC501 Pin ⑫ (New Call LED/VMWI LED) at the same time.

[Charge Detection and ART0 Output Test]

1. Detects that the charge detection terminal IC501 Pin ㉕ (-PARKP) has turned from H to L, and outputs a square waveform signal (2.4 kbps) from the ART0 terminal.
2. Clears the EEPROM contents at the same time.

[Charge Control Test]

1. When the IC501 Pin ⑱ input (BATT_CHK) changes from L, H, to L during charge detection, the IC501 Pin ⑰ output (CHRG_CTL) will output L, H, LH, L, to H only once.

[Branch Detection Test]

When the shared phone is detected to be off the hook and the Branch detection terminal IC501 Pin ㊹ (EXT_DET) detects L, the VMWI LED is lit. When off-hook is detected and the Branch detection terminal IC501 Pin ㊹ (EXT_DET) detects H, the VMWI LED is turned off.

4-1-1. BASE UNIT Test Mode A-1

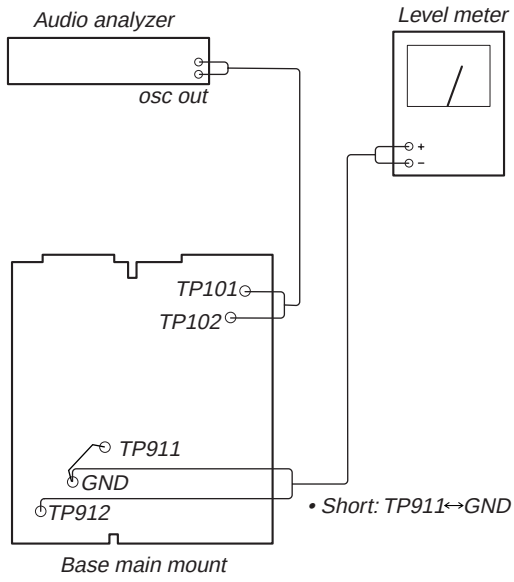
1. In test mode idling A and the P (PULSE)/ T (TONE) switch set to the P (PULSE) state, pressing the HANDSET LOCATOR key changes the mode as shown below.
2. Setting the P (PULSE)/ T (TONE) switch from P (PULSE) to T (TONE) in the BASE UNIT test mode A-1 in any time also enables the mode to be changed to the BASE UNIT test mode idling A.

- This mode is intended for checking that the IC501 line is operating properly. Add the LINEIN signal and check that the signal is output to the SPEAKER OUT.

HANDSET LOCATIOR button pressing count	Test mode
1	CODEC Forward Loopback (L1) (Line: Talking state) (CODEC LINE IN ⟶ SPEAKER OUT)
2	ADPCM Forward Loopback (L2) (Line: Talking state) (CODEC LINEIN ⟶ ADPCM ⟶ CODEC SPERKER OUT)
3	Does not function
4	Returns to BASE UNIT TEST MODE • IDLING A

Note: If the LEDs are lit due to the idling state test, clear all the LEDs, and return to the idling state.

[Base Set AUDIO Input/Output Level test
[CODEC Forward Loop Back (LI) Mode]]



Setting:

Setting: OSC=–13.0 dBV (Open terminal)
MOD=1 kHz

4-2. BASE UNIT TEST MODE B

Manual System Test Mode

[Start-up]

1. Set the DIAL MODE switch to T (TONE), and turn on the power while pressing the HANDSET LOCATOR key.
2. Change the DIAL MODE switch from T (TONE) to P (PULSE)➔ T (TONE), and release the HANDSET LOCATOR key to start up.
3. The TEST MODE B state will be set.
4. In test mode idling B, pressing the HANDSET LOCATOR key with the P (PULSE)/T (TONE) switch set to T (TONE) state switches to BASE UNIT TEST MODE B-1.

DIAL MODE switch	Idle status
T (TONE) side	Test Mode Idle B-1 *1
P (PULSE) side	Test Mode Idle B-2 *2

*1 Radio block: TDD mode (master timing)
Audio block: Line speech status
*2 Radio block: Standby status
Audio block: Line open

[Stutter Tone Detection]

1. Monitors the stutter tone detection terminal IC501 pin ⑮ (Stutte_Det) at all times and lights the VMWI LED when 5 pulses are detected like in actual operations.

4-2-1. BASE UNIT Test Mode B-1

1. In test mode idling B with the P (PULSE)/T (TONE) switch set to the T (TONE) state, pressing the HANDSET LOCATOR key changes the mode as shown below.
2. Setting the P (PULSE)/T (TONE) switch from T (TONE) to P (PULSE) in BASE UNIT test mode B-1 any time also enables the mode to be changed to BASE UNIT test mode idling B.

HANDSET LOCATOR button pressing count	Radio mode
1	1ch single carrier continuous transmission mode (high power)
2	10ch single carrier continuous transmission mode (high power)
3	20ch single carrier continuous transmission mode (high power)
4	1ch continuous transmission mode (high power)
5	1ch continuous transmission mode (middle power)
6	1ch continuous transmission mode (low power)
7	10ch continuous transmission mode (high power)
8	10ch continuous transmission mode (middle power)
9	10ch continuous transmission mode (low power)
10	20ch continuous transmission mode (high power)
11	20ch continuous transmission mode (middle power)
12	20ch continuous transmission mode (low power)
13	1ch continuous reception mode
14	10ch continuous reception mode
15	20ch continuous reception mode
16	Returns to BASE UNIT TEST MODE • IDLING B

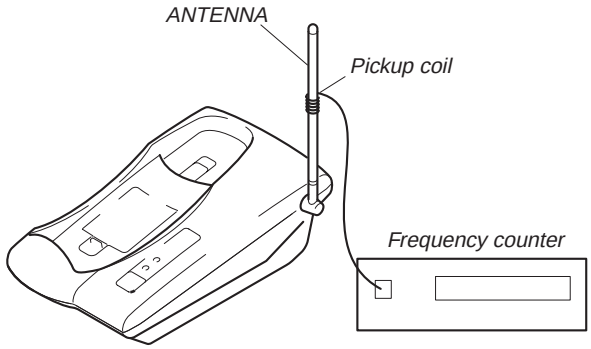
Note: If the LEDs are lit due to the idling state test, clear all the LEDs, and return to the idling state.

4-2-2. Ending the Base Unit Test Mode

1. To end the base unit test mode, turn off the power of the base unit.

[BASE UNIT carrier frequency measurement
[Single carrier 1CH continuous transmission]]

Setting:



Spec: 904.2 MHz ± 27KHz

4-3. HANDSET TEST MODE

[Start-Up]

1. Press the TALK, 0, and 1 keys simultaneously to start.
2. The normal ringer is rung at a high level for 500 msec after starting, and the TALK LED and BATT LOW LED blink together. The HANDSET TEST MODE and idling state LEDs will remain lit.
3. The unit sets into the test command key input standby state. The state can be changed to a desired test mode item by pressing a command key.
4. All LEDs (S9001) light up in the HANDSET TEST MODE idling state.

[Battery Low Detection Test]

1. In the HANDSET TEST MODE idling state, if Low Battery is detected (if the battery input terminal (IC401 Pin ⑦⑦) is grounded), the TALK (Basic) LED goes off. A confirmation beep which lights up the BATT LOW LED sounds.
2. If the Low Battery state is cleared (if the battery input terminal (IC401 Pin ⑦⑦) is released its grounding), the TALK (Basic) LED is lit. The BATT LOW LED goes off and the previous HANDSET TEST MODE idling state is returned.
3. The mode cannot be changed to other HANDSET TEST MODE with Low Battery detected (Battery input terminal (IC401 Pin ⑦⑦) is grounded.

[Setting the Handset Test Mode by Test Command Key Inputs]

By entering test commands from the keypad in the HANDSET TEST MODE, the following test items can be set.

- However, to set a test with a different test group, be sure to return to test mode first and then set the desired mode.

A) Test Resetting

Command	Mode/Operation
0-0-#	Ends the test mode. Clears the EEPROM data. Sounds the ACK beep if OK. Exits the test mode and returns to the normal operating state.
0-1-#	Returns to test mode idling.

B) Continuous Reception Test

Command	Mode/Operation
1-1-#	1ch continuous reception (LNA, AGC ON)
*	CH increment. 1ch → 2ch → 3ch → 4ch →..... → 20ch

Note: In the continuous reception test, the "All 1's Data" in ASIC should be used.

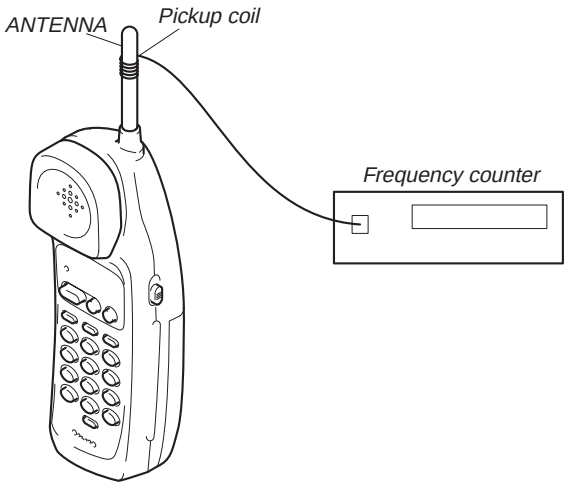
C) Continuous Transmission Test

Command	Mode/Operation
2-1-#	1ch continuous transmission (TX power High)
2-2-#	1ch continuous transmission (TX power Mid)
2-3-#	1ch continuous transmission (TX power Low)
2-4-#	Single carrier 1ch continuous transmission (TX power High)
*	CH increment 1ch → 2ch → 3ch → 4ch →..... → 20ch

Note: In the continuous reception test, the "All 1's Data" in ASIC should be used.

[Handset AUDIO Input/Output Level Measurement [CODEC Forward Loopback (L1); 2-4-#]]

Setting:



Spec: 904.2 MHz ± 27KHz

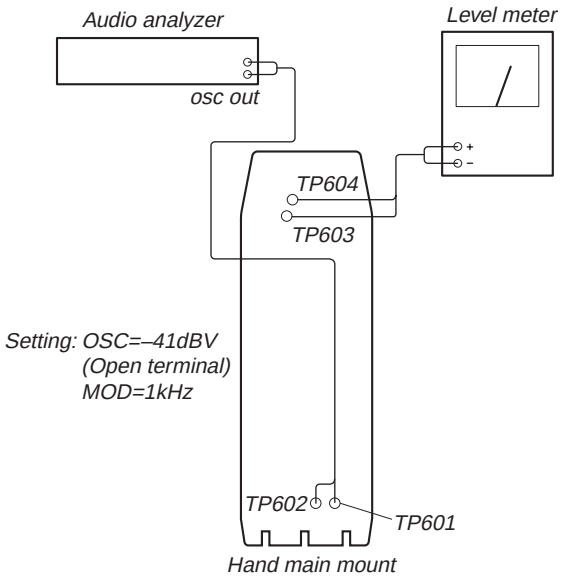
D) Loopback Test

Command	Mode/Operation
3-1-#	CODEC Forward Loopback (L1) (MIC → SP) (within CODEC)
3-2-#	ADPCM Forward Loopback (L2) (MIC → CODEC → ADPCM → CODEC → SP)
3-3-#	Does not function.

Note: In the loopback test, the sound route of the handset is set to the normal TALK state (Set Mic-in and SPKO to be effec tive).

[Handset AUDIO Input/Output Level Measurement [CODEC Forward Loopback (L1); 3-1-#]]

Setting:



Spec: -27.5 to -23.5 dBV

E) MMI Test

Command	Mode/Operation
5-1-#	Key matrix test
5-2-#	Does not function
5-3-#	Does not function
5-4-#	LED OFF 1) Press the [SPEED] key and turn off the BATT LOW LED. (Basic) Press the [One-Touch] key and turn off the LCD Back-light LED. (CID/LCD) 2) Press the [SPEED] key and turn off the TALK LED (Basic) Press the [One-Touch] key and turn off the DIAL LED. (CID/LCD) 3) Press the [SPEED] key and turn off the DIAL LED (Basic) Press the [One-Touch] key and turn on all LEDs and return to step 1. (CID/LCD) 4) Press the [SPEED] key and turn on all LEDs and re-turn to step 1. (Basic)

Note: Key Matrix Test: 5-1-#

- If the keys are pressed continuously in the following desig nated order correctly, a confirmation beep sounds.
  If pressed incorrectly, an error beep sounds and the unit re turns to the idling state.

[TALK] → [OFF] → [FLASH] → [REDIAL] → [PGM] →
[PAUSE] → [1] → [2] → [3] → [4] → [5] → [6] →
[7] → [8] → [9] → [*] → [0] → [#] → [SPEED]

F) Others

Command	Mode/Operation
7-0-#	Clears all EEPROM data.
7-1-#	Clears EEPROM ID data. If cleared successfully, sounds the ACK beep.
9-0-#	Battery Save Mode

4-3-1. Ending the HANDSET Test Mode

1. Entering the command "0-0-#" from the keypad in any state of the HANDSET TEST MODE ends the HANDSET MODE and returns the normal mode.

4-4. RF TESTING

This test is for checking the RF system without disassembling the set in servicing. Perform measurement using the spectrum analyzer and jig antenna.

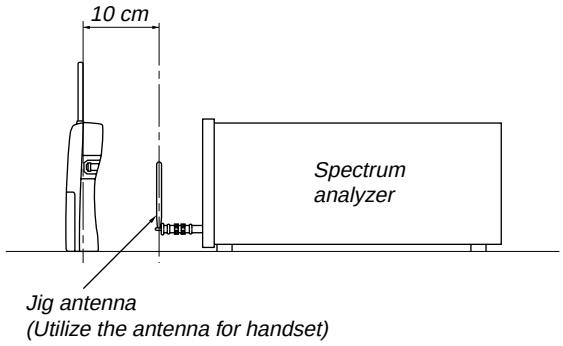
4-4-1. RF Testing method

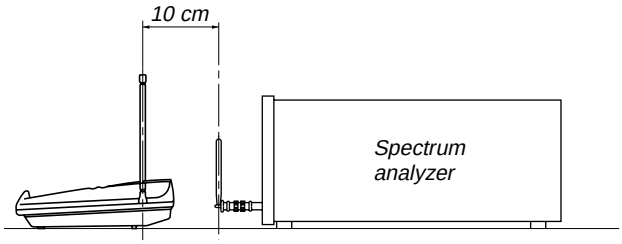
Please follow the below instruction to perform RF test.

[Setting Condition]

Connect a receiving antenna to RF INPUT of Spectrum analyzer and set the unit 10 cm (4 inches) away from the receiving antenna.

Measuring tool: Spectrum analyzer (equivalent to HP8595E)
Jig: Receiving antenna (for Spectrum analyzer)





[Check the Transmission Wave]

Purpose

It is necessary to check spectrum wave of transmission wave which is an important factor in order to confirm operational performance of Spread Spectrum models. If this wave deviates from correct wave form, normal data transmission cannot be made and, as a result of that, possibility that occurrence of mute increases and communication distance becomes shorter will increase.

Measuring process

- Setting Spectrum analyzer:
  Center frequency : 904.2 kHz (CH1)
  RBW : 30 kHz
  VBW : 30 kHz
  Span : 3 MHz (or 5MHz)
- Setting Test mode:
  Continuous Transmit mode (CH1 High Power)
  (Refer to "Test Mode" on page 10)
- Measurement:
  Measure transmitting wave.
- Specifications:
  Acceptable level [XdB] difference between the highest peak and the lowest peak of odd side band (the first to seventh side band from Center Frequency ; Transmission Frequency f_0: CH1) is under 10 dB. (Refer Fig. 1 and Fig. 2)
  If output wave form deteriorates, side band appears like Fig. 3 and Fig. 4.

- **Transmission Wave:**

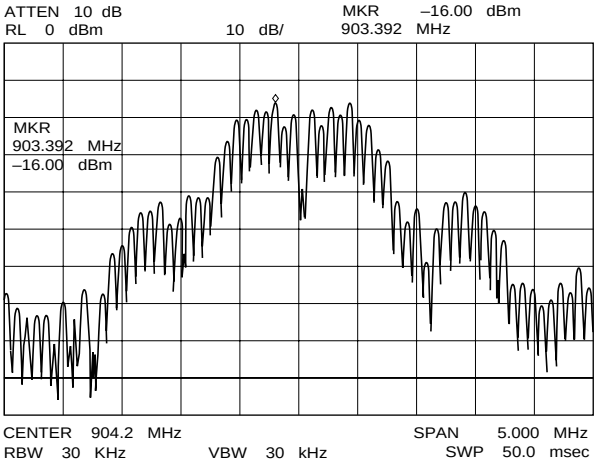


Fig. 1

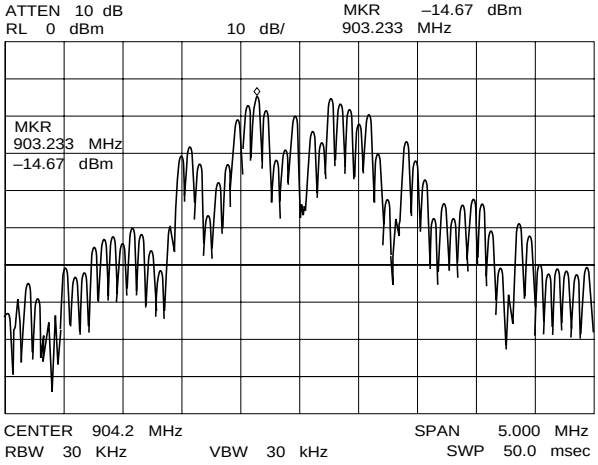


Fig. 2

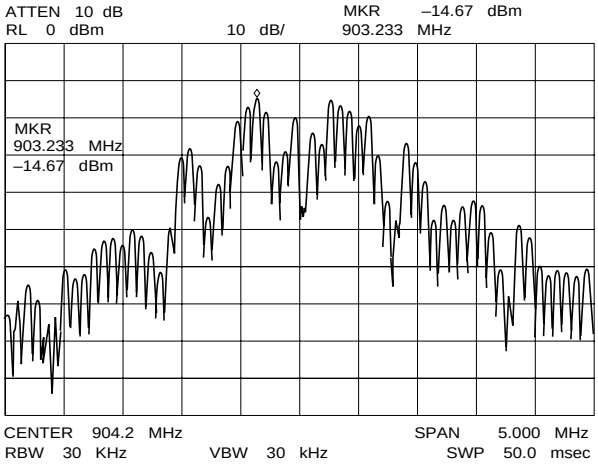


Fig. 3

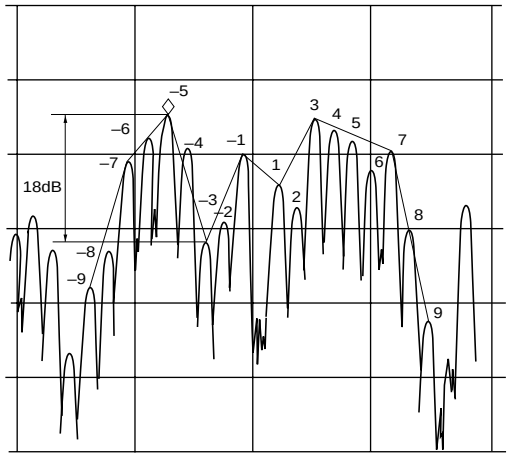


Fig. 4

[Check Center Frequency]

Measuring process

- Setting Spectrum analyzer:
  Center frequency : 904.2 MHz (CH1)
  RBW : 10 kHz
  VBW : 10 kHz
  Span : 1 MHz
- Setting Test mode:
  Continuous Transmit mode (CH1 High Power)
  (Refer to “Test Mode” on page 21)
- Measurement:
  Measure transmitting wave f_0 (Formula of center frequency)
  (Refer Fig. 5)
- Specification:
  904.2 MHz ± 27 kHz

- **Center Frequency:**

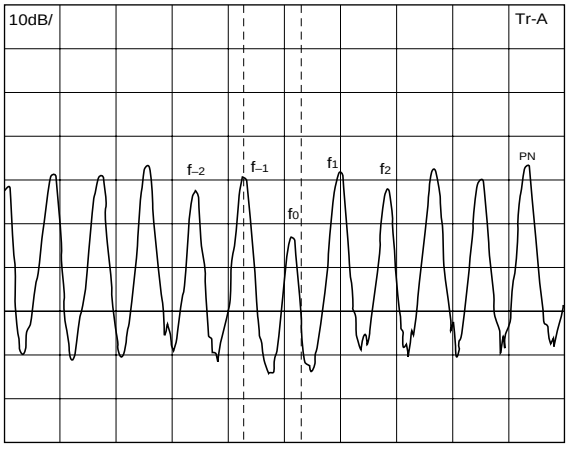


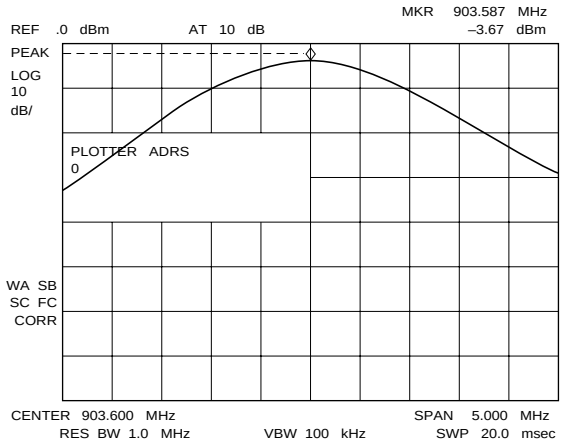
Fig. 5

[Confirm Transmitting output]

Measuring process

- Setting Spectrum analyzer:
  Center frequency : 904.2 MHz (CH1)
  RBW : 1 MHz
  VBW : 100 kHz
  Span : 5 MHz
- Setting Test mode:
  Continuous Transmit mode (CH1 High Power)
  (Refer to “Test Mode” on page 21)

- Measurement:
  Measure peak level by Spectrum analyzer.



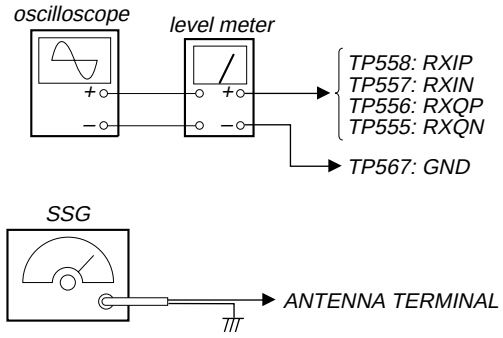
- Specification:
  HANDSET MIN –17 dBm
  (at High power: Include location loss)
  BASE UNIT MIN –18 dBm
  (at High power: Include location loss)

SECTION 5
ELECTRICAL ADJUSTMENTS

5-1. BASE UNIT SECTION

• Make the set in Test mode (see page 10)

1. Checking RX I&Q Output Level
Setting:

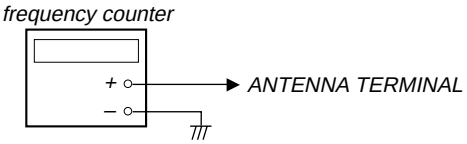


Procedure:
1. Place the base unit in the Continuous Receive mode (CHI, LNA ON, AGC ON).
2. Set the SSG frequency to the frequency on CHI + 300 kHz, and the RF output level to - 95 dBm.
3. Measure the output level of RXIN, RXIP, RXQN, and RXQP with a level meter. At this time, confirm with an oscilloscope that a sine wave of 300 kHz is output.
4. Confirm that the measured output level is -25.0 to -19.0 dB V. IF IC501 was replaced (there is no ID data), the output level is -30.0 to -24.0 dB V.
5. Also, execute steps 1 through 4 for the channels 10 and 20.

* For the frequency on each channel, see page 7.

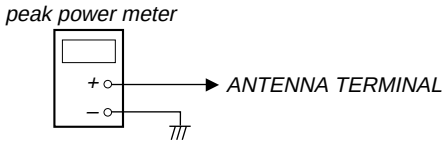
2. Checking TX Center Frequency
Setting:

• short: TP515⟷ TP567 (GND)



Procedure:
1. Short TP515 (GND) and TP567 (GND) on the BASE MAIN board in the base unit.
2. Place the base unit in the Continuous Transmit more (CH1, High power).
3. Measure the ANT OUT frequency of the RF module in the base unit using a frequency counter.
4. Coufirm that the measured frequency is 904.200 MHz ± 27kHz.
5. Also, execute steps 1 through 4 for the channels 10 and 20.

3. Checking TX Output
Setting:



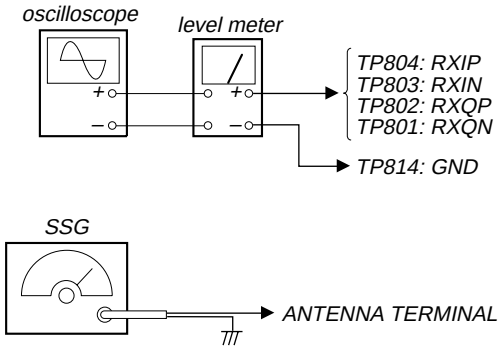
Procedure:
1. Place the base unit in the Continuous Transmit more (CH1, High power).
2. Measure the ANT OUT output of the RF module in the base unit using a peak power meter.
3. Confirm that the measured output is 85 mW (MIN 30 mW).
4 .Also, execute steps 1 through 3 for the channels 10 and 20.
   CH10: 80 mW (MIN 25 mW)
   CH20: 80 mW (MIN 25 mW)

5-2. HANDSET SECTION

• Make the set in Test mode (see page 10)

1. Checking RX I&Q Output Level

Setting:



Procedure:

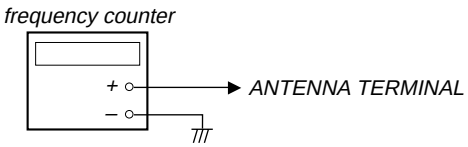
1. Place the bandset in the Continuous Receive mode (CHI, LNA AGC ON).
2. Set the SSG frequency to the frequency on CHI + 300 kHz, and the RF output level to - 95 dBm.
3. Measure the output level of RXIN, RXIP, RXQN, and RXQP with a level meter. At this time, confirm with an oscilloscope that a sine wave of 300 kHz is output.
4. Confirm that the measured output level is -25.0 to -19.0 dB V. IF IC401 was replaced (there is no ID data), the output level is -30.0 to -24.0 dB V.
5. Also, execute steps 1 through 4 for the channels 10 and 20.

* For the frequency on each channel, see page 7.

2. Checking TX Center Frequency

Setting:

• short: TP820 ⟷TP814 (GND)

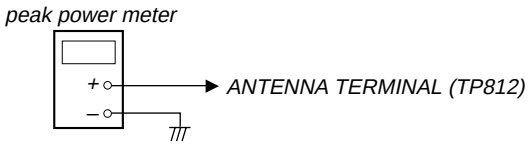


Procedure:

1. Short TP555 (GND) and TP814 (GND) on the HAND MAIN board in the handset.
2. Place the handset in the Continuous Transmit more (CH1, High power).
3. Measure the ANT OUT frequency of the RF module in the hand set using a frequency counter.
4. Coufirm that the measured frequency is 904.200 MHz ± 27kHz.
5. Also, execute steps 1 through 4 for the channels 10 and 20.

3. Checking TX Output

Setting:

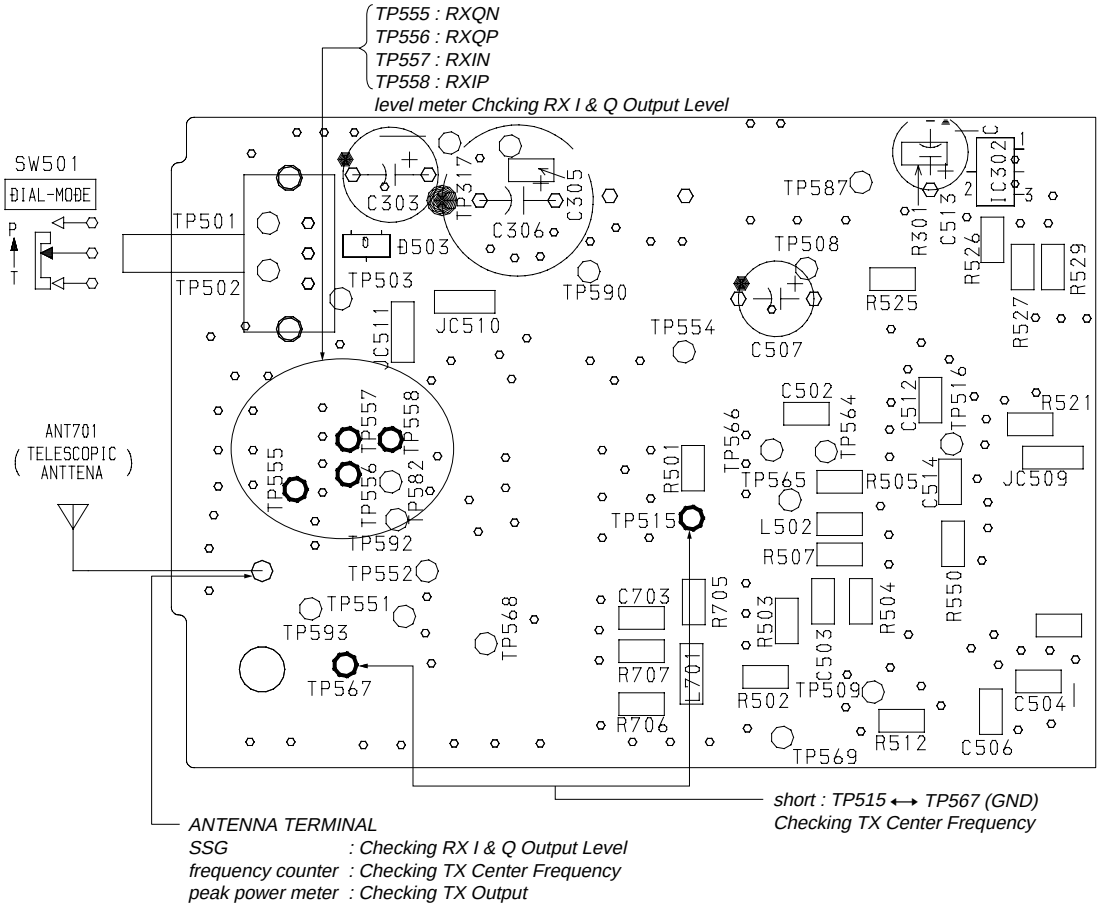


Procedure:

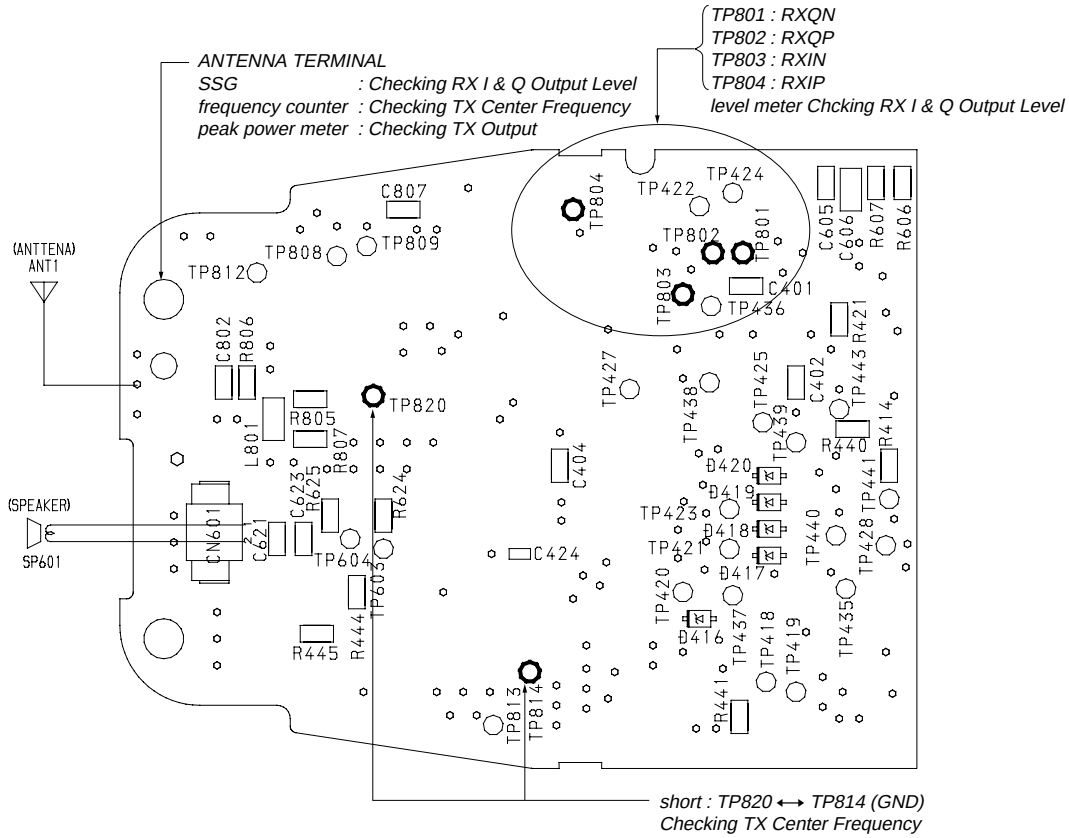
1. Place the handset in the Continuous Transmit more (CH1, High power).
2. Measure the ANT OUT output of the RF module in the handset using a peak power meter.
3. Confirm that the measured output is 62 mW (MIN 25 mW).
4. Also, execute steps 1 through 3 for the channels 10 and 20.
   CH10: 64 mW (MIN 25 mW)
   CH20: 64 mW (MIN 25 mW)

ADJUSTMENT LOCATION:

[BASE MAIN BOARD] (Conductor Side)



[HAND MAIN BOARD] (Component Side)



SECTION 6
DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

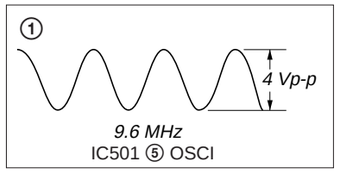
For schematic diagrams.
Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

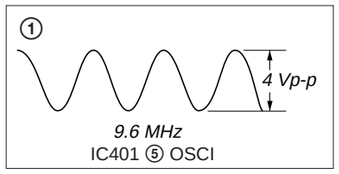
- B+ : B+ Line.
- Power voltage is dc 9V and fed with regulated dc power supply from external power voltage jack (J301 on the BASE MAIN board).
- Power voltage is dc 12V and fed with regulated dc power supply from modular jack (MJ101 on the BASE MAIN board) with 100 Ω in series.
- Power voltage is dc 3.6V and fed with regulated dc power supply from battery jack (HAND MAIN board).
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : Talk
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ▷ : RX
  ▶ : TX
  ▶ : bell

Note on Printed Wiring Boards:
Note:
- o——— : parts extracted from the component side.
- ▒▒▒ : Pattern from the side which enables seeing.

WAVEFORMS
– BASE UNIT SECTION –

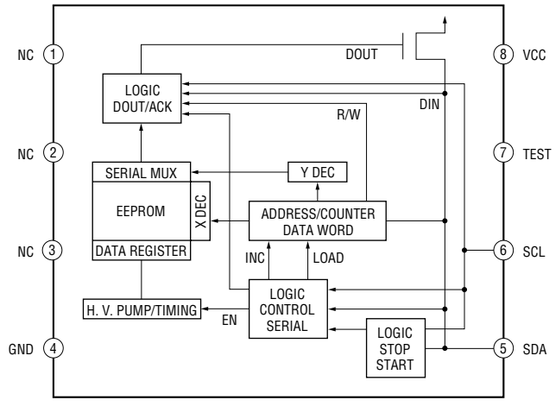


– HAND SET SECTION –



6-1. IC BLOCK DIAGRAM

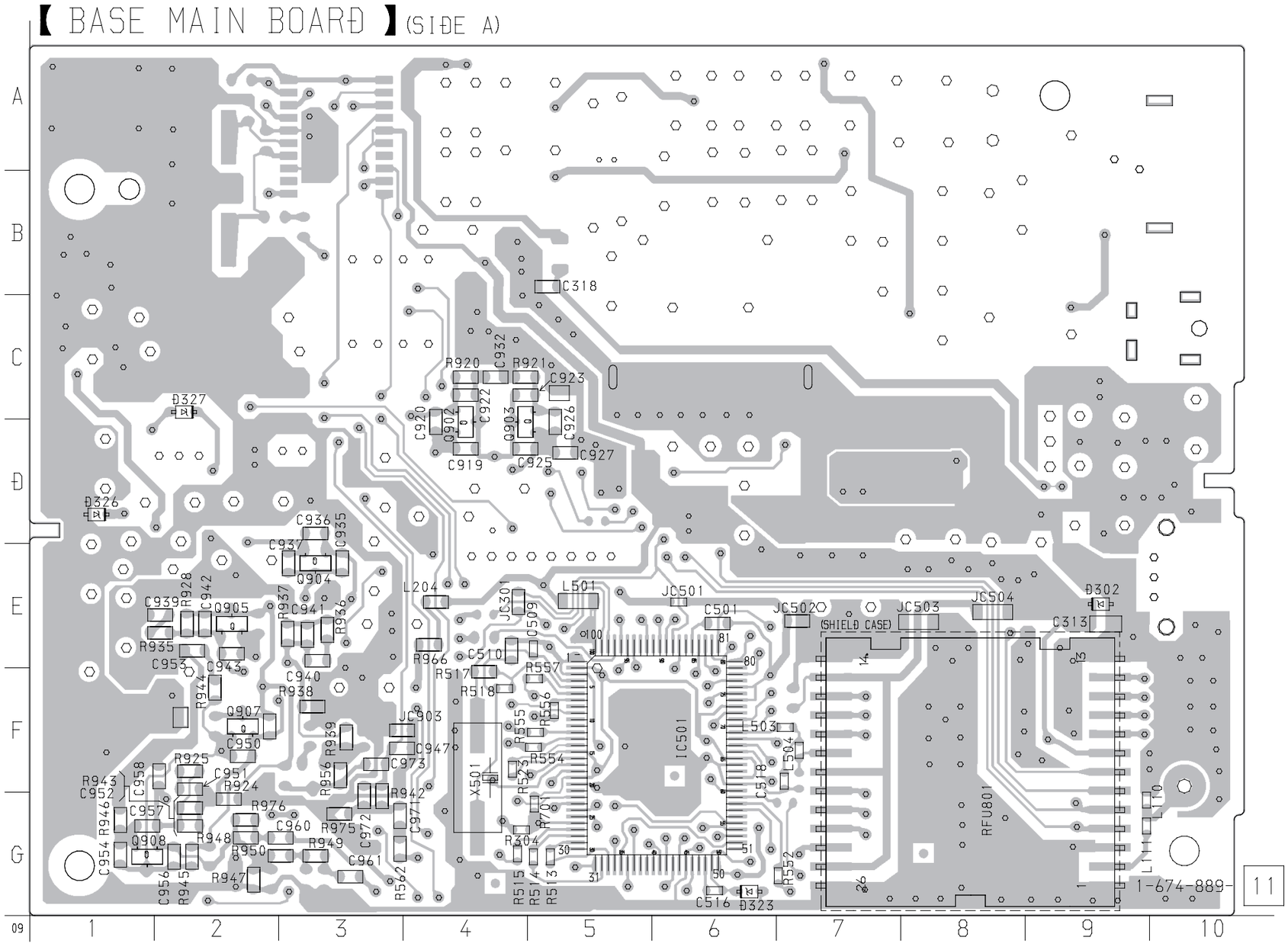
- **HAND MAIN Board**
  IC502 S-24C01AFJA-TB-01

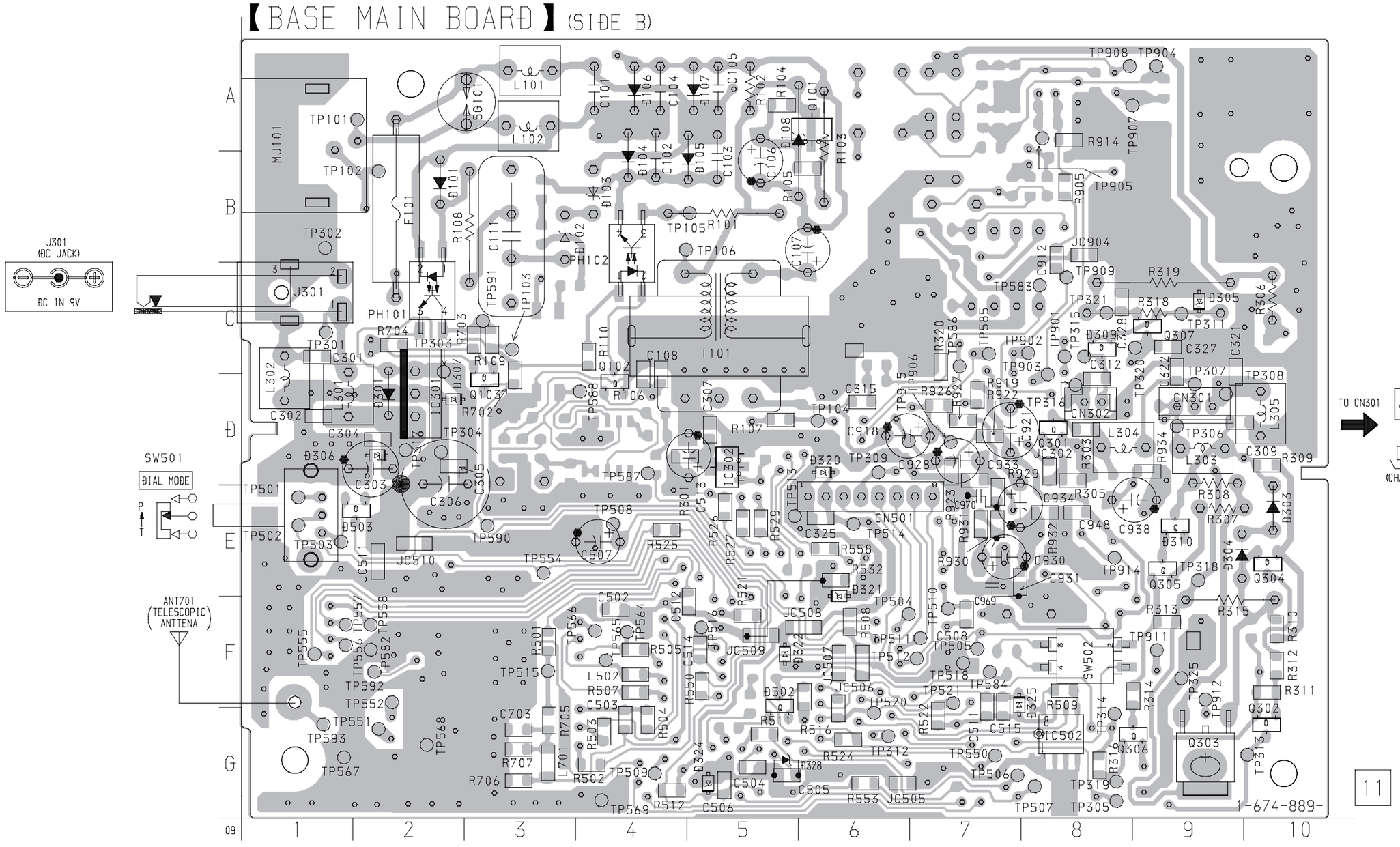


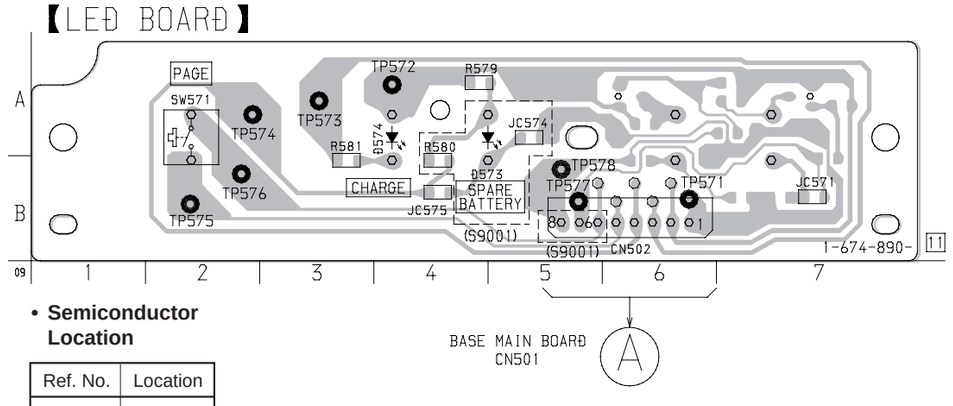
6-2. PRINTED WIRING BOARD – BASE UNIT SECTION –

- **Semiconductor Location**

Ref. No.	Location
IC501	F-6
Q902	D-4
Q903	D-4
Q904	E-3
Q905	E-2
Q907	F-2
Q908	G-1







- **Semiconductor Location**

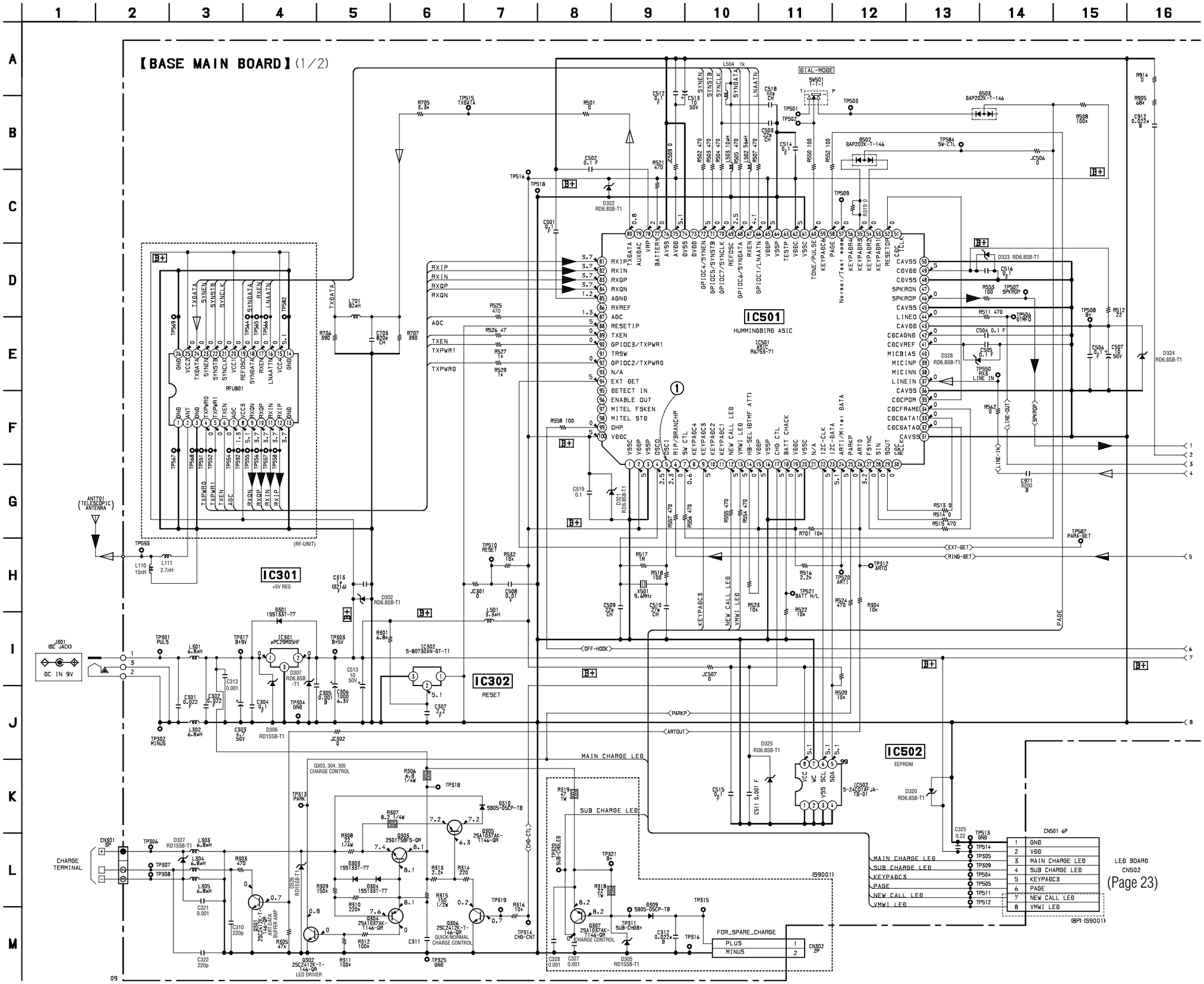
Ref. No.	Location
D573	A-4
D574	A-4

- **Semiconductor Location**

Ref. No.	Location
D101	B-2
D102	B-3
D103	B-4
D104	B-4
D105	B-5
D106	A-4
D107	A-5
D108	A-6
D301	D-2
D303	E-10
D304	E-9
D310	E-9
D502	F-5
D503	E-2
IC301	D-2
IC302	D-5
IC502	G-7
Q101	A-6
Q102	D-4
Q103	D-3
Q301	D-7
Q302	G-10
Q303	G-9
Q304	E-10
Q305	E-9
Q306	G-9
Q307	C-9
Q405	?

6-3. SCHEMATIC DIAGRAM – BASE UNIT (1/2) SECTION –

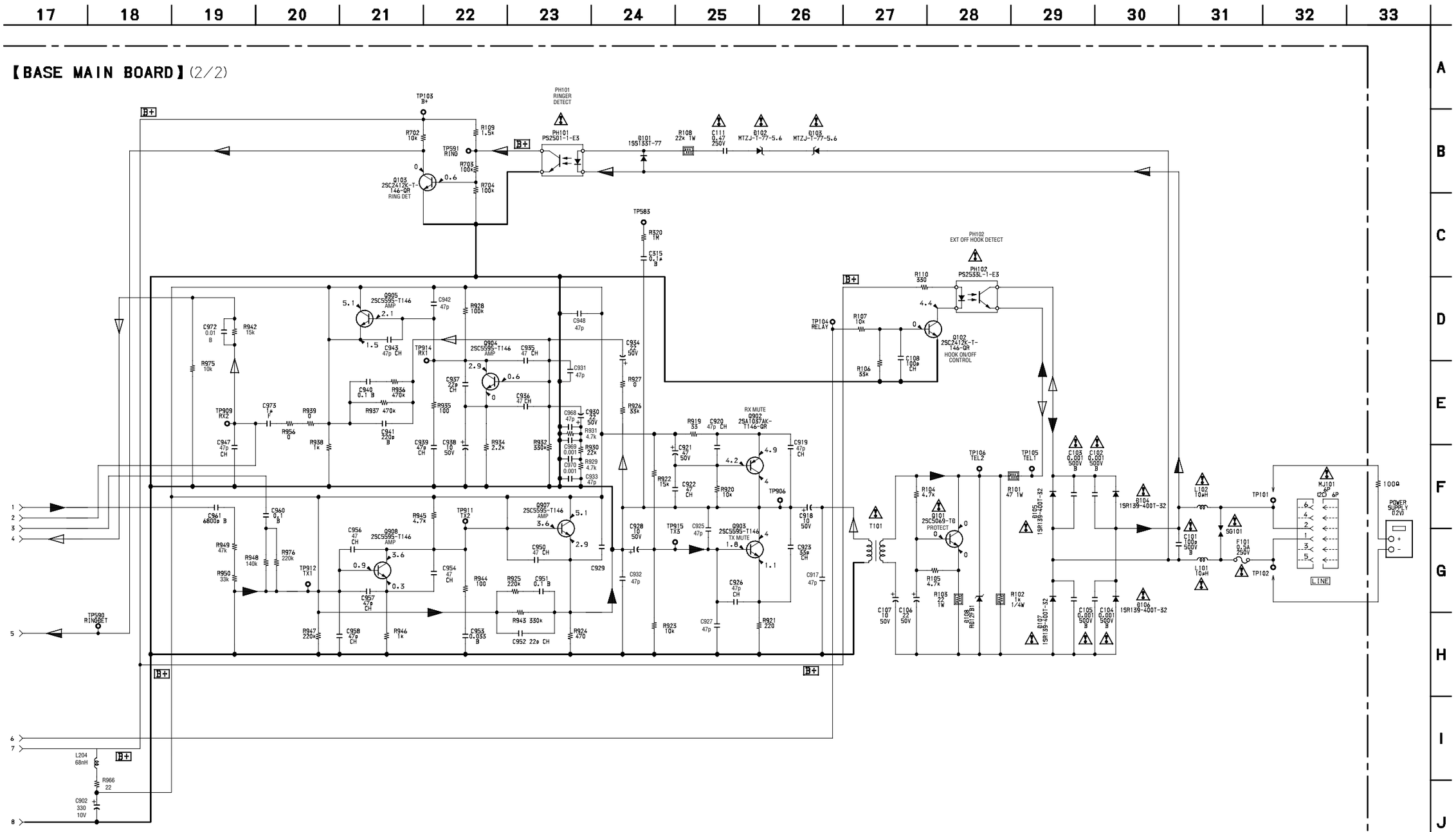
- See page 19 for Waveforms.
- See page 19 for IC Block Diagram.
- See page 20 for Printed Wiring Board.
- See page 26 for IC Pin Functions.

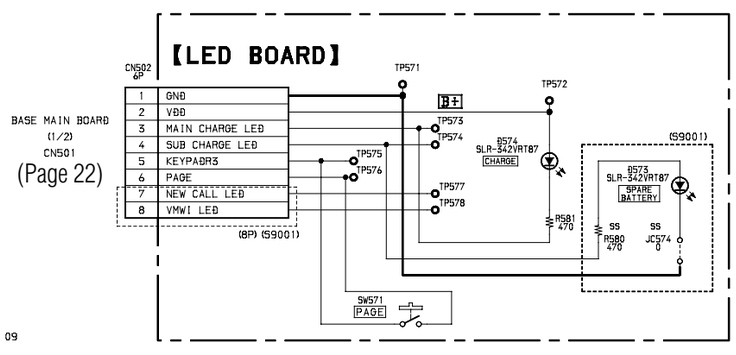


6-4. SCHEMATIC DIAGRAM – BASE UNIT (2/2) SECTION –

• See page 20 for Printed Wiring Board.

【BASE MAIN BOARD】(2/2)



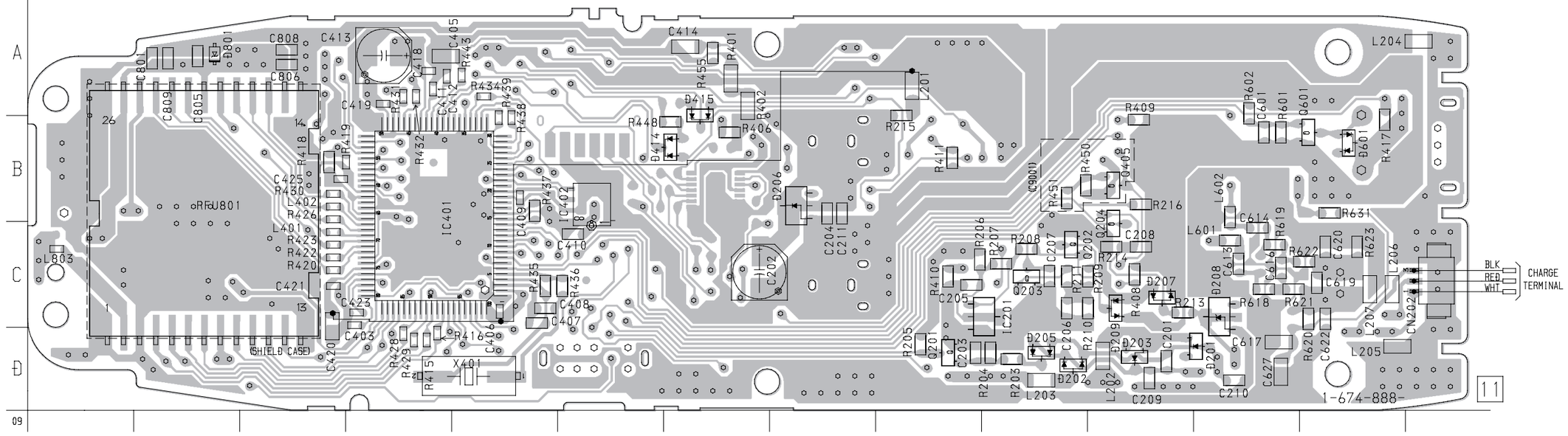


6-5. PRINTED WIRING BOARD – HANDSET SECTION –

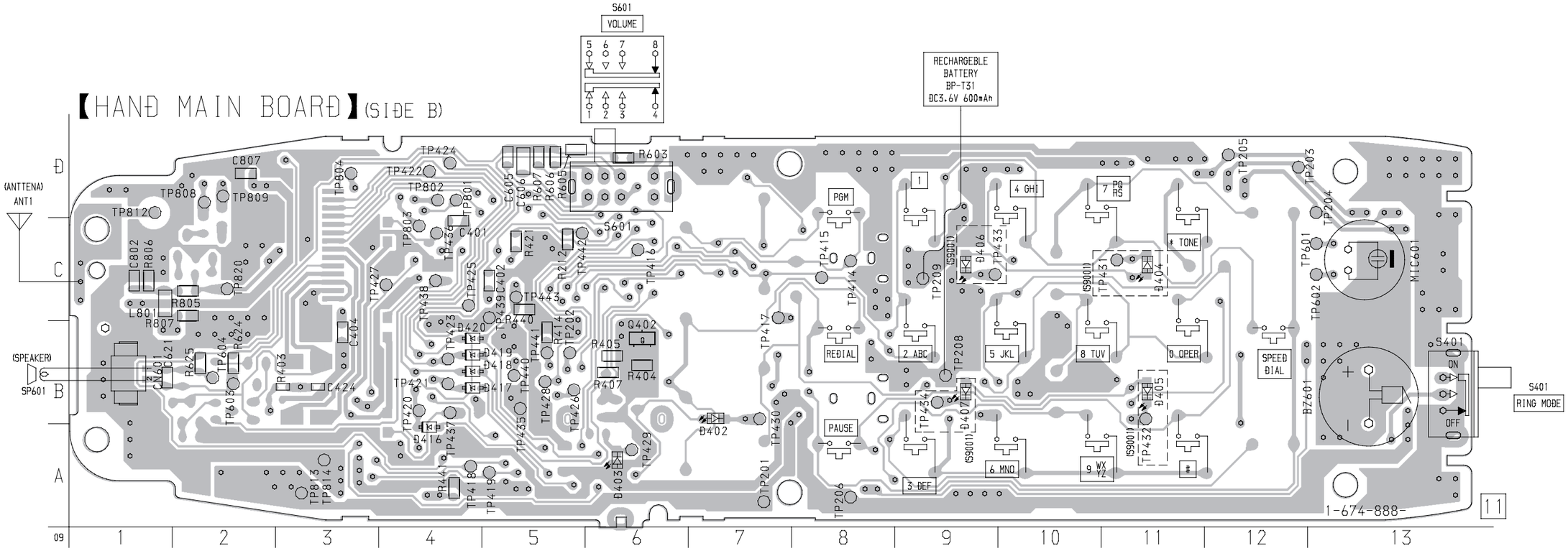
- **Semiconductor Location**

Ref. No.	Location
D201	D-12
D202	D-10
D203	D-11
D205	D-10
D206	C-8
D207	C-11
D208	D-12
D209	D-11
D414	B-7
D-601	B-13
D801	A-2
IC201	D-10
IC401	C-4
IC402	C-6
Q201	D-9
Q202	C-10
Q203	C-10
Q204	C-11
Q601	B-13

【HANÐ MAIN BOARÐ】(SIÐE A)

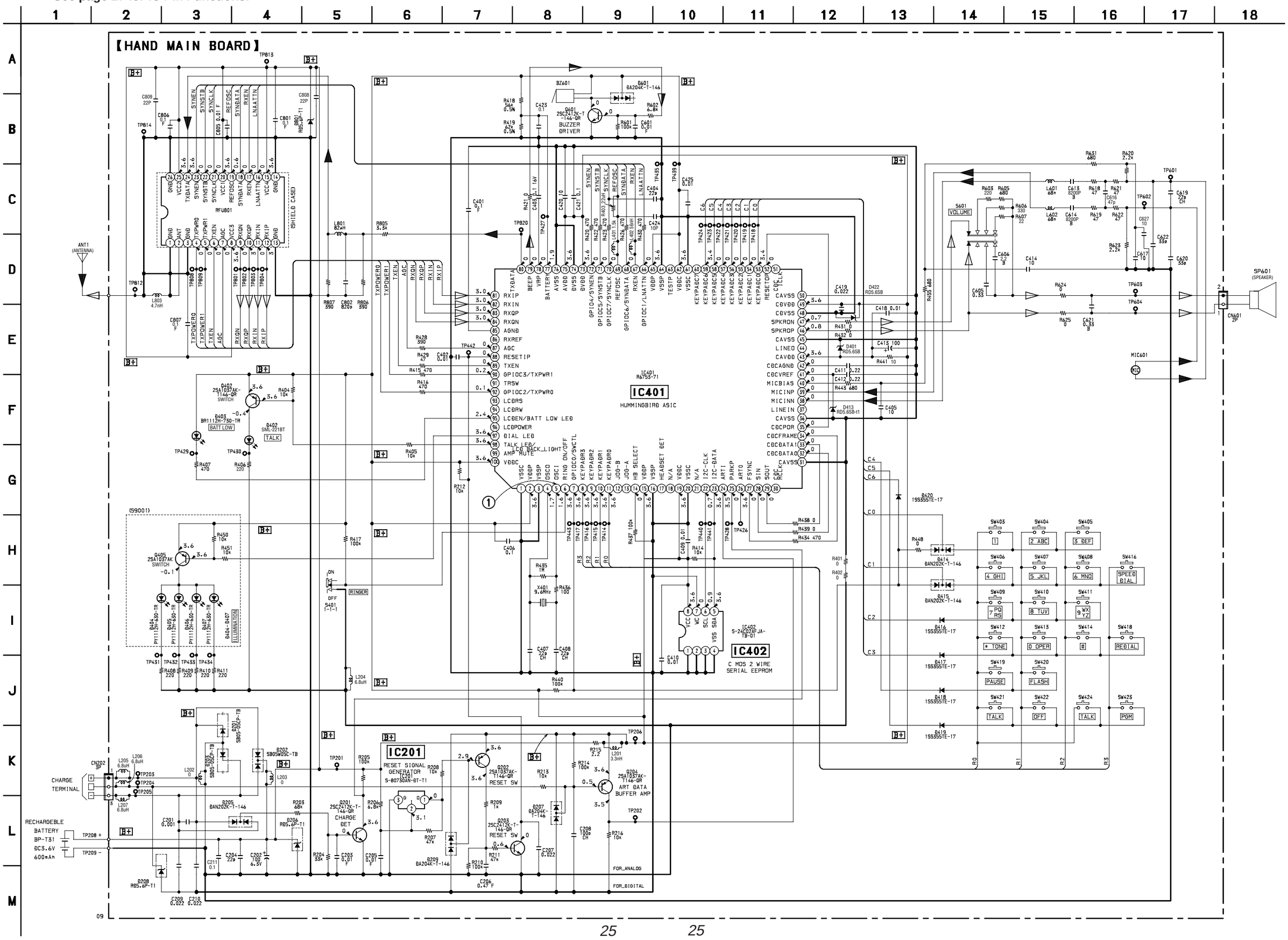


【HANÐ MAIN BOARÐ】(SIÐE B)



6-6. SCHEMATIC DIAGRAM – HANDSET SECTION –

- See page 19 for Waveforms.
- See page 27 for IC Pin Functions.



6-7. IC PIN FUNCTIONS

• BASE MAIN BOARD IC501 R6753-71 (HUMMINGBIRD ASIC)

Pin No.	Pin Name	I/O	Function
1	VSSC	–	VSS supply to core
2	VDDP	–	VDD supply to pad ring
3	VSSP	–	VSS supply to pad ring
4	OSCO	O	9.6 MHz crystal oscillator output
5	OSCI	I	9.6 MHz crystal oscillator input
6	RIP/BRANCHIP	I	Detection signal input of the ringer coming
7	SW CTL	I	Switch control read input
8	KEYPADC4	–	Not used (open)
9	KEYPADC3	–	Keypad read input (for page switch)
10	KEYPADC2	–	Not used (open)
11	KEYPADC1	–	Not used (open)
12	NEW CALL LED	O	NEW CALL LED output
13	VMWI LED	O	VMWI LED output
14	HB-SELECT	I	HAND/BASE select input
15	VDDP	–	VDD supply to pad ring
16	VSSP	–	VSS supply to pad ring
17	CHG CTL	I/O	Charge detection control terminal
18	BATT CHACK	I	Battery voltage detection input terminal
19	VDDC	–	VDD supply to core
20	VSSC	–	VSS supply to core
21	N/A	–	Not used (open)
22	I2C-CLK	O	Clock signal output to the EEPROM
23	I2C-DATA	I/O	Two-way data bus with the EEPROM
24	ARTI	I	ART input
25	PARKP	I	Park input; active low on base station, active high on handset
26	ARTO	O	ART output
27	SFYNC	–	Frame sync
28	SIN	I	Serial data input
29	SOUT	O	Serial data output
30	CDCMCKL	–	Main clock input Not used (open)
31	CAVSS	I	Analog 0V power supply
32	CDCDATAO	O	Codec data output
33	CDCDATAI	I	Codec data input
34	CDCFRAME	–	Codec flame
35	CDCPOR	I	Reset input, active low
36	CAVSS	I	Analog 0V power supply
37	LINEIN	I	Analog input to line pre-amp, ADC channel
38	MICINN	–	Negative differential analog input to microphone pre-amp, ADC channel Not used (open)
39	MICINP	–	Positive differential analog input to microphone pre-amp, ADC channel Not used (open)
40	MICBIAS	–	2.2V nominal DC bias source for electret microphone Not used (open)
41	CDCVREF	O	Analog reference voltage output Bypass to AVSS with 0.1mF capacitor
42	CDCAGND	O	Analog ground bias output Bypass to AVSS with 0.1mF capacitor
43	CAVDD	I	Analog power supply
44	LINEO	O	Line driver output, DAC channel
45	CAVSS	I	Analog 0V power supply
46	SPKROP	O	Positive speaker driver output, DAC channel
47	SPKRON	–	Negative speaker driver output, DAC channel Not used (open)
48	CDVSS	I	Digital 0V power supply
49	CDVDD	I	Digital power supply, 2.7-5.5 Volts
50	CAVSS	I	Analog 0V power supply

Pin No.	Pin Name	I/O	Function
51	CDCICLK	–	Bit clock input/output for digital serial interface Not used (open)
52	RESETOP	O	Codec reset
53	KEYPADR1	–	Not used (open)
54	KEYPADR2	I	Dial mode switch input terminal
55	KEYPADR3	I	Dial mode switch input terminal
56	KEYPADR4	–	Not used (open)
57	NOMAL/TEST MODE	–	TEST MODE terminal
58	PAGE	O	Page switch on/off control signal output terminal
59	KEYPADC6	–	Not used
60	TONE/PULSE	I	Dial mode switch input terminal
61	VSSC	–	VSS supply to core
62	VDDC	–	VDD supply to core
63	NC	–	Not used (open)
64	VSSP	–	VSS supply to pad ring
65	VDDP	–	VDD supply to pad ring
66	GPIOC1/LNATTN	O	LNA select
67	RXEN	O	Receive enable
68	GPIOC6/SYNDATA	O	Synthesizer data
69	REFOSC	–	9.6 MHz clock used by synthesizer
70	GPIOC7/SYNCLK	O	Synthesizer clock
71	GPIOC5/SYNSTB	O	Synthesizer strobe
72	GPIO4/SYNEN	O	Synthesizer power
73	DVDD	–	VDD supply to A/D converters
74	DVSS	–	VSS supply to A/D converters
75	AVDD	–	VDD supply to analog
76	AVSS	–	VSS supply to analog
77	BATTERY	I	Battery voltage input
78	VRP	O	Analog voltage reference output
79	AUXDAC	–	AFC DAC output Not used (open)
80	TXDATA	O	Transmitter data
81	RXIP	I	Receiver I positive differential input
82	RXIN	I	Receiver I negative differential input
83	RXQP	I	Receiver Q positive differential input
84	RXQN	I	Receiver Q negative differential input
85	AGND	O	Analog ground
86	RXREF	–	Receiver ADC reference Not used (open)
87	AGC	O	AGC control
88	RESETIP	I	Power-on reset RC input; active low
89	TXEN	O	Transmit enable
90	GPIOC3/TXPWR1	O	PA power level select
91	TRSW	O	Transmit=1/receive=0 select Not used (open)
92	GPIOC2/TXPWR0	O	PA power level select
93	N/A	–	Not used (open)
94	EXT DET	O	EXT DET output
95	DETECT IN	–	Not used (open)
96	ENABLE OUT	–	Not used (open)
97	MITEL FSKEN	–	Not used (open)
98	MITEL STD	I/O	Not used (open)
99	OHP	O	Hook on/off control signal output terminal
100	VDDC	–	VDD supply to core

• **HAND MAIN BOARD IC401 R6753-71 (HUMMINGBIRD ASIC)**

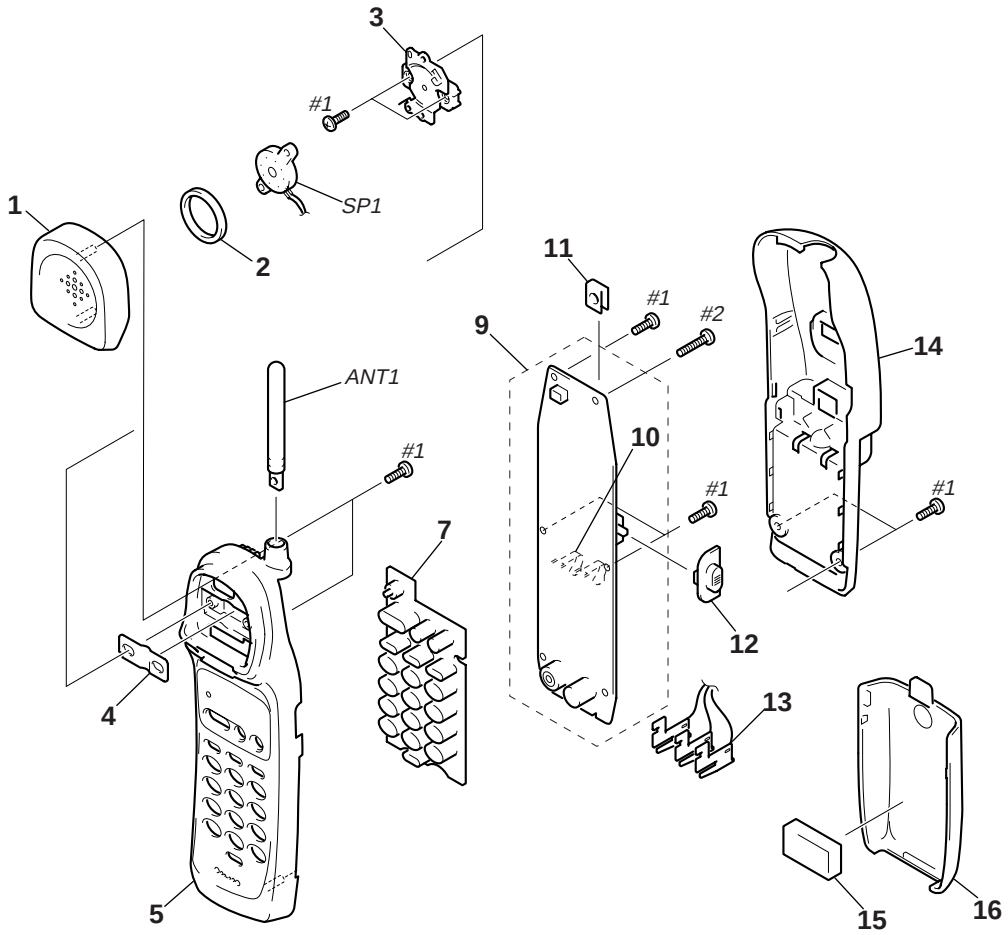
Pin No.	Pin Name	I/O	Function
1	VSSC	–	VSS supply to core
2	VDDP	–	VDD supply to pad ring
3	VSSP	–	VSS supply to pad ring
4	OSCO	O	9.6 MHz crystal oscillator output
5	OSCI	I	9.6 MHz crystal oscillator input
6	RING ON/OFF	I	Detection signal input of the ringer coming
7	GPOC0/SWCTL	I/O	Switch control read input
8	KEYPADR3	I	Keypad read input
9	KEYPADR2	I	Keypad read input
10	KEYPADR1	I	Keypad read input
11	KEYPADR0	I	Keypad read input
12	JOG-B	–	Not used (open)
13	JOG-A	–	Not used (open)
14	HB-SELECT	I	HAND/BASE select input
15	VDDP	–	VDD supply to pad ring
16	VSSP	–	VSS supply to pad ring
17	HEADSET DET	–	Not used (open)
18	N/A	–	Not used (open)
19	VDDC	–	VDD supply to core
20	VSSC	–	VSS supply to core
21	N/A	I/O	Not used (open)
22	I2C-CLK	I/O	Clock signal output to the EEPROM
23	I2C-DATA	I/O	Two-way data bus with the EEPROM
24	ARTI	I	ART input
25	PARKP	I	Park input; active low on base station, active high on handset
26	ARTO	O	ART output
27	SFYNC	–	Frame sync
28	SIN	I	Serial data input
29	SOUT	O	Serial data output
30	CDCMCKL	–	Main clock input Not used (open)
31	CAVSS	I	Analog 0V power supply
32	CDCDATAO	O	Codec data output
33	CDCDATAI	I	Codec data input
34	CDCFRAME	–	Codec flame
35	CDCPOR	I	Reset input, active low
36	CAVSS	I	Analog 0V power supply
37	LINEIN	I	Analog input to line pre-amp, ADC channel Not used (open)
38	MICINN	I	Negative differential analog input to microphone pre-amp, ADC channel
39	MICINP	I	Positive differential analog input to microphone pre-amp, ADC channel
40	MICBIAS	O	2.2V nominal DC bias source for electret microphone
41	CDCVREF	O	Analog reference voltage output Bypass to AVSS with 0.1mF capacitor
42	CDCAGND	O	Analog ground bias output Bypass to AVSS with 0.1mF capacitor
43	CAVDD	I	Analog power supply
44	LINEO	O	Line driver output, DAC channel Not used (open)
45	CAVSS	I	Analog 0V power supply
46	SPKROP	O	Positive speaker driver output, DAC channel
47	SPKRON	O	Negative speaker driver output, DAC channel
48	CDVSS	I	Digital 0V power supply
49	CDVDD	I	Digital power supply, 2.7-5.5 Volts
50	CAVSS	I	Analog 0V power supply

Pin No.	Pin Name I/O		Function
51	CDCICLK	–	Bit clock input/output for digital serial interface Not used (open)
52	RESETOP	O	Codec reset
53	KEYPADC0	–	Keypad bidirectional control/LCD data
54	KEYPADC1	–	Keypad bidirectional control/LCD data
55	KEYPADC2	–	Keypad bidirectional control/LCD data
56	KEYPADC3	–	Keypad bidirectional control/LCD data
57	KEYPADC4	–	Keypad bidirectional control/LCD data
58	KEYPADC5	–	Keypad bidirectional control/LCD data
59	KEYPADC6	–	Keypad bidirectional control/LCD data
60	KEYPADC7	–	Not used (open)
61	VSSC	–	VSS supply to core
62	VDDC	–	VDD supply to core
63	TESTP	–	Not used (open)
64	VSSP	–	VSS supply to pad ring
65	VDDP	–	VDD supply to pad ring
66	GPIOC1/LNATTN	O	LNA select
67	RXEN	O	Receive enable
68	GPIOC6/SYNDATA	O	Synthesizer data
69	REFOSC	–	9.6 MHz clock used by synthesizer
70	GPIOC7/SYNCLK	O	Synthesizer clock
71	GPIOC5/SYNSTB	O	Synthesizer strobe
72	GPIO4/SYNEN	O	Synthesizer power
73	DVDD	–	VDD supply to A/D converters
74	DVSS	–	VSS supply to A/D converters
75	AVDD	–	VDD supply to analog
76	AVSS	–	VSS supply to analog
77	BATTERY	I	Battery voltage input
78	VRP	O	Analog voltage reference output
79	BEEP	O	AFC DAC output
80	TXDATA	O	Transmitter data
81	RXIP	I	Receiver I positive differential input
82	RXIN	I	Receiver I negative differential input
83	RXQP	I	Receiver Q positive differential input
84	RXQN	I	Receiver Q negative differential input
85	AGND	O	Analog ground
86	RXREF	–	Receiver ADC reference Not used (open)
87	AGC	O	AGC control
88	RESETIP	I	Power-on reset RC input; active low
89	TXEN	O	Transmit enable
90	GPIOC3/TXPWR1	O	PA power level select
91	TRSW	–	Transmit=1/receive=0 select Not used (open)
92	GPIOC2/TXPWR0	O	PA power level select
93	LCD RS	–	Not used (open)
94	LCD RW	–	Not used (open)
95	LCD EN/BATT LOW LED	O	BATT LOW LED output
96	LCD POWER	–	Not used (open)
97	DIAL LED	I/O	DIAL LED output
98	TALK LED/LCD BACK LIGHT	O	TALK LED output
99	AMP MUTE	–	Not used (open)
100	VDDC	–	VDD supply to core

SECTION 7
EXPLODED VIEWS

NOTE:
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  CND : Canadian model

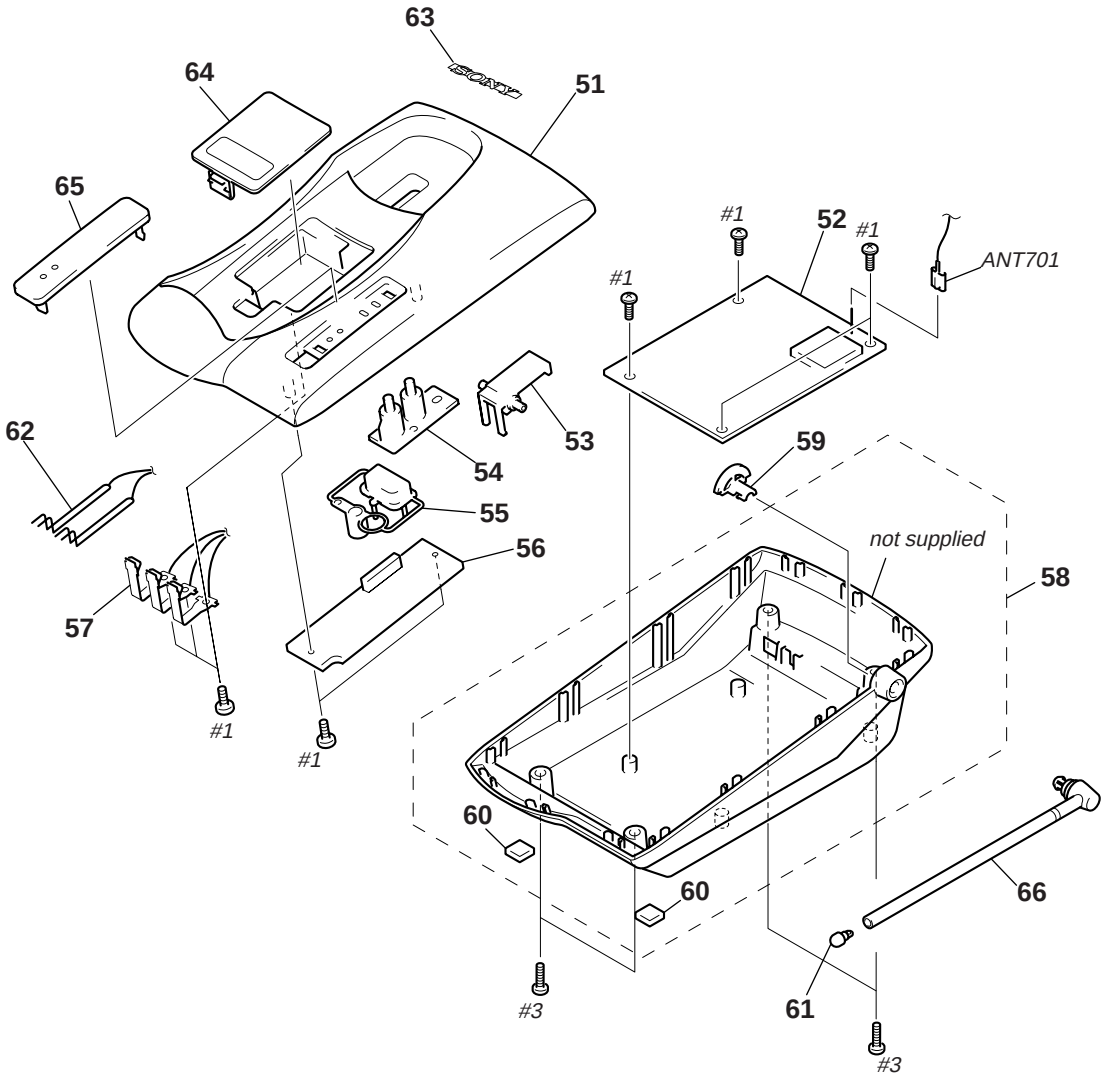
7-1. HANDSET SECTION



Ref. No.	Part No.	Description	Remark
1	3-034-824-01	PANEL(926)	
2	3-014-329-01	CUSHION (SP)	
* 3	X-3377-753-1	HINGEASSY	
4	3-034-810-01	SPRING, LEAF	
5	3-034-822-01	CABINET (FRONT)(S9001)	
5	3-034-822-11	CABINET (FRONT)(S9000)	
* 6	3-935-519-01	CUSHION (BUZZER)	
7	1-771-616-11	SWITCH, RUBBER KEY (S9001)	
7	1-771-616-21	SWITCH, RUBBER KEY (S9000)	
* 9	A-3622-305-A	HAND(MAIN) BOARD, COMPLETE (S9001)	
* 9	A-3622-314-A	HAND(MAIN) BOARD, COMPLETE (S9000)	
10	3-034-819-01	TERMINAL (H BATTERY) CHARGE	

Ref. No.	Part No.	Description	Remark
11	3-038-270-01	SHEET(ADHESIVE)	
12	3-034-820-01	BUTTON (VOL)(S9001)	
12	3-034-820-11	BUTTON (VOL)(S9000)	
13	3-034-818-01	TERMINAL (HAND), CHARGE	
14	3-034-823-01	CABINET (REAR)(S9001)	
14	3-034-823-11	CABINET (REAR)(S9000)	
15	3-018-253-01	CUSHION (BATTERY)	
16	3-034-816-01	LID(HAND), BATTERY CASE (S9001)	
16	3-034-816-11	LID(HAND), BATTERY CASE (S9000)	
ANT1	1-754-081-11	ANTENNA (S9001)	
ANT1	1-754-081-21	ANTENNA, HELICAL (S9000)	
SP1	1-505-695-11	SPEAKER (2.1CM)	

7-2. BASE UNIT SECTION



Ref. No.	Part No.	Description	Remark
51	3-034-827-01	CABINET (UPPER)(S9001)	
51	3-038-256-01	CABINET (UPPER)(S9000)	
* 52	A-3622-308-A	BASE(MAIN) BOARD, COMPLETE (S9001)	
* 52	A-3622-316-A	BASE(MAIN) BOARD, COMPLETE (S9000)	
53	3-034-830-01	HOLDER (HAND SET)(S9001)	
53	3-034-830-11	HOLDER (HAND SET)(S9000)	
54	3-034-825-01	LENS(BASIC)(S9001)	
54	3-034-825-11	LENS(BASIC)(S9000)	
55	3-034-831-01	BUTTON (H.L.)(S9001)	
55	3-034-831-11	BUTTON (H.L.)(S9000)	
* 56	1-674-890-11	LED BOARD	
57	3-034-833-01	TERMINAL (BASE), CHARGE	
58	X-3377-755-1	CABINET (LOWER) ASSY (S9001)	

Ref. No.	Part No.	Description	Remark
58	X-3377-756-1	CABINET (LOWER) ASSY (S9000)	
59	3-037-081-01	PLUG(ANTENNA)	
60	3-936-696-21	FOOT,RUBBER	
61	3-037-080-01	CAP(ANTENNA)(S9001)	
61	3-037-080-11	CAP(ANTENNA)(S9000)	
62	3-034-834-01	TERMINAL (B BATTERY), CHARGE (S9001)	
63	4-946-905-11	ENBLEM (NO.4.5), SONY	
64	3-034-829-01	LID(BASE), BATTERY CASE (S9001)	
65	3-034-826-01	PANEL(BASIC)(S9001)	
66	3-037-079-01	BODY(ANTENNA)(S9001)	
66	3-037-079-11	BODY(ANTENNA)(S9000)	
ANT701	3-038-540-01	TERMINAL, ANTENNA (S9001)	

SECTION 8
ELECTRICAL PARTS LIST

BASE (MAIN)

Note:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: µ , for example:
  uA...: µ A..., uPA...: µ PA..., uPB...: µ PB..., uPC...: µ PC..., uPD...: µ PD...
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H
- Abbreviation
  CND : Canadian model

Ref. No.	Part No.	Description			Remark
*	A-3622-308-A	BASE (MAIN) BOARD, COMPLETE (S9001)			
		**********			
*	A-3622-316-A	BASE (MAIN) BOARD, COMPLETE (S9000)			
		**********			
		< CAPACITOR >			
⚠C101	1-162-117-00	CERAMIC	100PF	10%	500V
⚠C102	1-162-318-11	CERAMIC	0.001uF	10%	500V
⚠C103	1-162-318-11	CERAMIC	0.001uF	10%	500V
⚠C104	1-162-318-11	CERAMIC	0.001uF	10%	500V
⚠C105	1-162-318-11	CERAMIC	0.001uF	10%	500V
C106	1-126-965-11	ELECT	22uF	20%	50V
C107	1-126-964-11	ELECT	10uF	20%	50V
C108	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
⚠C111	1-136-193-11	FILM	0.47uF	10%	250V
C301	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C302	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C303	1-126-963-11	ELECT	4.7uF	20%	50V
C304	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C305	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C306	1-126-916-11	ELECT	1000uF	20%	6.3V
C307	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C308	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C309	1-164-489-11	CERAMIC CHIP	0.22uF/B	10%	16V
C310	1-163-001-11	CERAMIC CHIP	220P/B	10%	50V
C312	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V (S9001)
C313	1-162-638-11	CERAMIC CHIP	1uF		16V
C315	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C318	1-163-009-11	CERAMIC CHIP	1000PF/B	10%	50V
C321	1-163-009-11	CERAMIC CHIP	1000P/B	10%	50V
C322	1-163-001-11	CERAMIC CHIP	220P/B	10%	50V
C325	1-164-489-11	CERAMIC CHIP	0.22uF/B	10%	16V
C327	1-163-009-11	CERAMIC CHIP	1000P/B	10%	50V (S9001)
C328	1-163-009-11	CERAMIC CHIP	1000P/B	10%	50V (S9001)
C501	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C502	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C503	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C504	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C505	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C506	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C507	1-126-964-11	ELECT	10uF	20%	50V
C508	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C509	1-162-919-11	CERAMIC CHIP	22PF	5%	50V

Ref. No.	Part No.	Description			Remark
C510	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C511	1-163-025-11	CERAMIC CHIP	0.001uF		50V
C512	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C513	1-126-964-11	ELECT	10uF	20%	50V
C514	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C515	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C516	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C518	1-162-925-91	CERAMIC CHIP	68PF	5%	50V
C519	1-164-156-11	CERAMIC CHIP	0.1uF/F		
C702	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C703	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C704	1-163-025-11	CERAMIC CHIP	0.001uF		50V
C912	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C917	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C918	1-126-964-11	ELECT	10uF	20%	50V
C919	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C920	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C921	1-126-967-11	ELECT	47uF	20%	50V
C922	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C923	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C925	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C926	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C927	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C928	1-126-964-11	ELECT	10uF	20%	50V
C930	1-126-965-11	ELECT	22uF	20%	50V
C931	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C932	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C933	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C934	1-126-965-11	ELECT	22uF	20%	50V
C935	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C936	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C937	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C938	1-126-964-11	ELECT	10uF	20%	50V
C939	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C940	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C941	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C942	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C943	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C947	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C948	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C950	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C951	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C952	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C953	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C954	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C956	1-163-243-11	CERAMIC CHIP	47PF	5%	50V

BASE (MAIN)

Ref. No.	Part No.	Description				Remark
C957	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C958	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C960	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C961	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	
C968	1-163-243-11	CERAMIC CHIP	47P	5%	50V	
C969	1-162-318-11	CERAMIC CHIP	1000P	10%	50V	
C970	1-162-318-11	CERAMIC CHIP	1000P	10%	50V	
C971	1-163-020-00	CERAMIC CHIP	8200PF		16V	
C972	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V	
C973	1-164-346-11	CERAMIC CHIP	1uF		16V	
		< CONNECTOR >				
CN1	1-565-332-11	SMF CONNECTOR				
* CN301	1-506-985-11	PIN, CONNECTOR (PC BOARD) 3P				
* CN302	1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P (S9001)				
* CN501	1-506-988-11	PIN, CONNECTOR (PC BOARD) 6P (S9000)				
CN501	1-506-990-11	PIN, CONNECTOR (PC BOARD) 8P (S9001)				
		< DIODE >				
D101	8-719-991-33	DIODE	1SS133T-77			
⚠D102	8-719-109-89	DIODE	MTZJ-T-77-5.6			
⚠D103	8-719-109-89	DIODE	MTZJ-T-77-5.6			
⚠D104	8-719-970-02	DIODE	1SR139-400T-32			
⚠D105	8-719-970-02	DIODE	1SR139-400T-32			
⚠D106	8-719-970-02	DIODE	1SR139-400T-32			
⚠D107	8-719-970-02	DIODE	1SR139-400T-32			
D108	8-719-160-55	DIODE	RD12FB1			
D301	8-719-991-33	DIODE	1SS133T-77			
D302	8-719-037-02	DIODE	RD6.8SB-T1			
D303	8-719-991-33	DIODE	1SS133T-77			
D304	8-719-991-33	DIODE	1SS133T-77			
D305	8-719-037-29	DIODE	RD15SB-T1 (S9001)			
D306	8-719-037-29	DIODE	RD15SB-T1			
D307	8-719-037-02	DIODE	RD6.8SB-T1			
D309	8-719-938-75	DIODE	SB05-05CP-TB (S9001)			
D310	8-719-938-75	DIODE	SB05-05CP-TB			
D320	8-719-037-02	DIODE	RD6.8SB-T1			
D321	8-719-037-02	DIODE	RD6.8SB-T1			
D322	8-719-037-02	DIODE	RD6.8SB-T1			
D323	8-719-037-02	DIODE	RD6.8SB-T1			
D324	8-719-037-02	DIODE	RD6.8SB-T1			
D325	8-719-037-02	DIODE	RD6.8SB-T1			
D326	8-719-037-29	DIODE	RD15SB-T1			
D327	8-719-037-29	DIODE	RD15SB-T1			
D328	8-719-037-02	DIODE	RD6.8SB-T1			
D502	8-719-914-44	DIODE	DAP202K-T-146			
D503	8-719-914-44	DIODE	DAP202K-T-146			
		< FUSE >				
⚠F101	1-533-542-11	FUSE (250V/500mA)				
		< IC >				
IC301	8-759-482-72	IC	uPC29M05HF			
IC302	8-759-519-47	IC	S-80730AN-DT-T1			
IC501	8-759-597-20	IC	R6753-71			
IC502	8-759-487-03	IC	S-24C01AFJA-TB-01			

Ref. No.	Part No.	Description			Remark
		< JACK >			
J301	1-779-207-11	JACK, DC (POLARITY UNIFIED TYPE)(DC IN 9V)			
		< JUMPER RESISTOR >			
JC301	1-216-295-91	SHORT	0		
JC302	1-216-295-91	SHORT	0		
JC501	1-216-864-11	METAL CHIP	0	5%	1/16W
JC502	1-216-295-91	SHORT	0		
JC503	1-216-296-91	SHORT	0		
JC504	1-216-296-91	SHORT	0		
JC505	1-216-295-91	SHORT	0		
JC506	1-216-296-91	SHORT	0		
JC507	1-216-296-91	SHORT	0		
JC508	1-216-296-91	SHORT	0		
JC509	1-216-296-91	SHORT	0		
JC510	1-216-296-91	SHORT	0		
JC511	1-216-296-91	SHORT	0		
JC901	1-216-295-91	SHORT	0		
JC902	1-216-295-91	SHORT	0		
JC903	1-216-296-91	SHORT	0		
JC904	1-216-295-91	SHORT	0		
		< JUMPER RESISTOR >			
JR905	1-216-296-91	SHORT	0		
		< COIL >			
⚠L101	1-410-470-11	INDUCTOR	10uH		
⚠L102	1-410-470-11	INDUCTOR	10uH		
L110	1-414-723-21	INDUCTOR CHIP	15nH		
L111	1-414-718-21	INDUCTOR CHIP	2.7nH		
L204	1-414-481-21	INDUCTOR CHIP	68nH		
L301	1-410-468-11	INDUCTOR	6.8uH		
L302	1-410-468-11	INDUCTOR	6.8uH		
L303	1-410-468-11	INDUCTOR	6.8uH		
L304	1-410-468-11	INDUCTOR	6.8uH		
L305	1-410-468-11	INDUCTOR	6.8uH		
L501	1-412-945-11	INDUCTOR	3.3uH		
L502	1-411-308-21	INDUCTOR	56uH		
L503	1-414-521-11	INDUCTOR CHIP	10uH		
L504	1-216-821-91	RES,CHIP	1K		
L701	1-412-962-11	INDUCTOR	82uH		
		< JACK, MODULAR >			
MJ101	1-766-250-11	JACK, MODULAR (2C) 6P (LINE)			
		< PHOTO INTERRUPTER >			
⚠PH101	8-749-923-92	PHOTO COUPLER PS2501-1-E3			
⚠PH102	8-749-016-30	PHOTP COUPLER PS2533L-1-E3			
		< TRANSISTOR >			
⚠Q101	8-729-032-66	TRANSISTOR	2SC5069-TD		
Q102	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q103	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q301	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q302	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
Q303	8-729-922-26	TRANSISTOR	2SD1758F5-QR		
Q304	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q305	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q306	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q307	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR (S9001)		
Q405	8-729-216-22	TRANSISTOR	2SA1179-M5M6-TB (S9001:CND)		
Q902	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q903	8-729-049-65	TRANSISTOR	2SC5595-T146		
Q904	8-729-049-65	TRANSISTOR	2SC5595-T146		
Q905	8-729-049-65	TRANSISTOR	2SC5595-T146		
Q907	8-729-049-65	TRANSISTOR	2SC5595-T146		
Q908	8-729-049-65	TRANSISTOR	2SC5595-T146		
		< RESISTOR >			
R101	1-215-861-00	METAL OXIDE	47	5%	1W F
R102	1-249-417-11	CARBON	1K	5%	1/4W F
R103	1-215-859-00	METAL OXIDE	22	5%	1W F
R104	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R105	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R106	1-216-085-00	METAL CHIP	33K	5%	1/10W
R107	1-216-073-00	METAL CHIP	10K	5%	1/10W
R108	1-215-877-11	METAL OXIDE	22K	5%	1W F
R109	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R110	1-216-037-00	METAL CHIP	330	5%	1/10W
R301	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R303	1-216-041-00	METAL CHIP	470	5%	1/10W
R304	1-216-833-11	RES,CHIP	10K	5%	1/16W
R305	1-216-089-00	RES,CHIP	47K	5%	1/10W
R306	1-249-391-11	CARBON	6.8	5%	1/4W F
R307	1-249-392-11	CARBON	8.2	5%	1/4W F
R308	1-249-397-11	CARBON	22	5%	1/4W
R309	1-216-101-00	METAL CHIP	150K	5%	1/10W
R310	1-216-105-00	RES,CHIP	220K	5%	1/10W
R311	1-216-097-00	RES,CHIP	100K	5%	1/10W
R312	1-216-097-00	RES,CHIP	100K	5%	1/10W
R313	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R314	1-216-033-00	METAL CHIP	220	5%	1/10W
R315	1-260-089-11	CARBON	150	5%	1/2W
R316	1-216-073-00	METAL CHIP	10K	5%	1/10W
R318	1-215-859-00	METAL OXIDE	22	5%	1W F (S9001)
R319	1-215-861-00	METAL OXIDE	47	5%	1W F (S9001)
R320	1-216-121-00	RES,CHIP	1M	5%	1/10W
R501	1-216-295-00	SHORT	0		
R502	1-216-041-11	RES,CHIP	470	5%	1/10W
R503	1-216-041-11	RES,CHIP	470	5%	1/10W
R504	1-216-041-11	RES,CHIP	470	5%	1/10W
R505	1-216-041-11	RES,CHIP	470	5%	1/10W
R507	1-216-041-11	RES,CHIP	470	5%	1/10W
R508	1-216-097-00	RES,CHIP	100K	5%	1/10W
R509	1-216-073-00	METAL CHIP	10K	5%	1/10W
R511	1-216-041-00	METAL CHIP	470	5%	1/10W
R512	1-216-009-00	RES,CHIP	22	5%	1/10W
R513	1-216-864-11	METAL CHIP	0	5%	1/16W
R514	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description			Remark
R515	1-216-817-11	METAL CHIP	470	5%	1/16W
R516	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R517	1-216-121-00	RES,CHIP	1M	5%	1/10W
R518	1-216-809-11	METAL CHIP	100	5%	1/16W
R519	1-216-295-00	SHORT	0		
R521	1-216-041-00	METAL CHIP	470	5%	1/10W
R522	1-216-073-00	METAL CHIP	10K	5%	1/10W
R523	1-216-833-00	RES,CHIP	10K	5%	1/16W
R524	1-216-041-00	METAL CHIP	470	5%	1/10W
R525	1-216-039-00	METAL CHIP	390	5%	1/10W
R526	1-216-017-00	RES,CHIP	47	5%	1/10W
R527	1-216-041-11	RES,CHIP	470	5%	1/10W
R529	1-216-041-11	RES,CHIP	470	5%	1/10W
R532	1-216-073-00	METAL CHIP	10K	5%	1/10W
R550	1-216-025-00	RES,CHIP	100	5%	1/10W
R552	1-216-809-11	METAL CHIP	100	5%	1/16W
R553	1-216-025-00	RES,CHIP	100	5%	1/10W
R554	1-216-817-11	METAL CHIP	470	5%	1/16W
R555	1-216-817-11	METAL CHIP	470	5%	1/16W
R556	1-216-817-11	METAL CHIP	470	5%	1/16W
R557	1-216-817-11	METAL CHIP	470	5%	1/16W
R558	1-216-025-00	RES,CHIP	100	5%	1/10W
R562	1-216-295-00	SHORT	0		
R701	1-216-833-11	RES,CHIP	10K	5%	1/16W
R702	1-216-073-00	METAL CHIP	10K	5%	1/10W
R703	1-216-097-00	RES,CHIP	100K	5%	1/10W
R704	1-216-097-00	RES,CHIP	100K	5%	1/10W
R705	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R706	1-216-039-00	METAL CHIP	390	5%	1/10W
R707	1-216-039-00	METAL CHIP	390	5%	1/10W
R905	1-216-093-11	RES,CHIP	68K	5%	1/10W
R914	1-216-295-00	SHORT	0		
R919	1-216-013-00	METAL CHIP	33	5%	1/10W
R920	1-216-073-00	METAL CHIP	10K	5%	1/10W
R921	1-216-033-00	METAL CHIP	220	5%	1/10W
R922	1-216-077-00	METAL CHIP	15K	5%	1/10W
R923	1-216-073-00	METAL CHIP	10K	5%	1/10W
R924	1-216-041-00	METAL CHIP	470	5%	1/10W
R925	1-216-105-00	RES,CHIP	220K	5%	1/10W
R926	1-216-085-00	METAL CHIP	33K	5%	1/10W
R927	1-216-295-00	SHORT	0		
R928	1-216-097-00	RES,CHIP	100K	5%	1/10W
R929	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R930	1-216-079-00	METAL CHIP	18K	5%	1/10W
R931	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R932	1-216-109-00	METAL CHIP	330K	5%	1/10W
R934	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R935	1-216-025-00	RES,CHIP	100	5%	1/10W
R936	1-216-113-00	METAL CHIP	470K	5%	1/10W
R937	1-216-113-00	METAL CHIP	470K	5%	1/10W
R938	1-216-049-00	RES,CHIP	1K	5%	1/10W
R939	1-216-295-00	SHORT	0		
R942	1-216-077-91	METAL CHIP	15K	5%	1/10W
R943	1-216-109-00	METAL CHIP	330K	5%	1/10W
R944	1-216-025-00	RES,CHIP	100	5%	1/10W
R945	1-216-065-00	RES,CHIP	4.7K	5%	1/10W

BASE (MAIN) | HAND (MAIN)

Ref. No.	Part No.	Description			Remark
R946	1-216-049-00	RES,CHIP	1K	5%	1/10W
R947	1-216-105-00	RES,CHIP	220K	5%	1/10W
R948	1-216-101-00	RES,CHIP	150K	5%	1/10W
R949	1-216-089-00	METAL CHIP	47K	5%	1/10W
R950	1-216-085-00	METAL CHIP	33K	5%	1/10W
R956	1-216-295-00	SHORT	0		
R966	1-216-009-00	RES,CHIP	22	5%	1/10W
R975	1-216-073-00	METAL CHIP	10K	5%	1/10W
R976	1-216-105-00	METAL CHIP	220K	5%	1/10W
		< MODULATOR >			
RFU801	1-418-269-11	RF UNIT			
		< SPARK GAP >			
⚠SG101	1-533-751-11	ABSORBER, SURGE			
		< SWITCH >			
SW501	1-692-991-11	SWITCH, SLIDE (DIAL MODE)			
		< TRANSFORMER >			
⚠T101	1-431-832-11	TRANSFORMER, LINE			
		< VIBRATOR >			
X501	1-767-566-41	VIBRATOR, CRYSTAL (9.6MHz)			
**********					
*	A-3622-305-A	HAND (MAIN) BOARD, COMPLETE (S9001) **********			
*	A-3622-314-A	HAND (MAIN) BOARD, COMPLETE (S9000) **********			
	3-034-819-01	TERMINAL (H BATTERY), CHARGE			
		< BUZZER >			
BZ601	1-544-603-11	BUZZER			
		< CAPACITOR >			
C201	1-163-025-11	CERAMIC CHIP	0.001uF		50V
C202	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C203	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C204	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C205	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C206	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C207	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C208	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C209	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C210	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C211	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C401	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C402	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C403	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C404	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C405	1-125-822-11	TANTALUM	10uF	20%	10V
C406	1-164-360-00	CERAMIC CHIP	0.1uF		50V

Ref. No.	Part No.	Description			Remark
C407	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C408	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C409	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C410	1-164-031-00	CERAMIC CHIP	0.01uF		50V
C411	1-164-360-00	CERAMIC CHIP	0.1uF	10%	10V
C412	1-164-360-91	CERAMIC CHIP	0.1uF	10%	10V
C413	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C414	1-125-822-11	TANTALUM	10uF	20%	10V
C418	1-164-360-00	CERAMIC CHIP	0.1uF		50V
C419	1-162-995-11	CERAMIC CHIP	0.1uF		50V
C420	1-125-822-11	TANTALUM	10uF	20%	10V
C421	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C423	1-164-360-00	CERAMIC CHIP	0.1uF		50V
C424	1-162-915-11	CERAMIC CHIP	10PF	5%	50V
C425	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C601	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C602	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C603	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C605	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C606	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C607	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C610	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C611	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C612	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C613	1-163-020-00	CERAMIC CHIP	8200PF		25V
C614	1-163-020-00	CERAMIC CHIP	8200PF		25V
C616	1-163-243-11	CERAMIC CHIP	47P/CH	5%	50V
C617	1-125-822-11	TANTALUM	10uF	20%	10V
C619	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C620	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C621	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C622	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C627	1-117-370-11	CERAMIC CAP	10uF		10V
C801	1-163-038-00	CERAMIC CHIP	0.1uF		50V
C802	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C803	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C804	1-163-025-11	CERAMIC CHIP	0.001uF		50V
C805	1-163-038-00	CERAMIC CHIP	0.1uF		50V
C806	1-163-038-00	CERAMIC CHIP	0.1uF		50V
C807	1-163-038-00	CERAMIC CHIP	0.1uF		50V
C808	1-163-235-11	CERAMIC CHIP	22P/CH		10V
C809	1-163-235-11	CERAMIC CHIP	22P/CH	5%	50V
		< CONNECTOR >			
* CN202	1-766-809-11	PIN, CONNECTOR (PC BOARD) 3P			
CN601	1-770-359-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D201	8-719-938-75	DIODE SB05-05CP-TB			
D202	8-719-981-56	DIODE SB05W05C-TB			
D203	8-719-938-75	DIODE SB05-05CP-TB			
D205	8-719-914-43	DIODE DAN202K-T-146			
D206	8-719-066-61	DIODE RD5.6P-T1			
D207	8-719-914-42	DIODE DA204K-T-146			
D208	8-719-066-61	DIODE RD5.6P-T1			
D209	8-719-914-42	DIODE DA204K-T-146			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
D402	8-719-058-00	DIODE SML-221DT	
D403	8-719-075-89	DIODE BR1112H-730-TR (BATT LOW)	
D404	8-719-075-88	DIODE PY1112H-630-TR (S9001)	(ILLUMINATION)
D405	8-719-075-88	DIODE PY1112H-630-TR (S9001)	(ILLUMINATION)
D406	8-719-075-88	DIODE PY1112H-630-TR (S9001)	(ILLUMINATION)
D407	8-719-075-88	DIODE PY1112H-630-TR (S9001)	(ILLUMINATION)
D413	8-719-036-94	DIODE RD5.6SB	
D414	8-719-914-43	DIODE DAN202K-T-146	
D415	8-719-914-43	DIODE DAN202K-T-146	
D416	8-719-988-61	DIODE 1SS355TE-17	
D417	8-719-988-61	DIODE 1SS355TE-17	
D418	8-719-988-61	DIODE 1SS355TE-17	
D419	8-719-988-61	DIODE 1SS355TE-17	
D420	8-719-988-61	DIODE 1SS355TE-17	
D422	8-719-036-94	DIODE RD5.6SB	
D601	8-719-914-42	DIODE DA204K-T-146	
D801	8-719-066-61	DIODE RD5.6P-T1	
		< IC >	
IC201	8-759-443-71	IC RH5VL30AA-T1	
IC201	8-759-519-47	IC S-80730AN-DT-T1	
IC401	8-759-597-20	IC R6753-71	
IC402	8-759-487-04	IC S-24C02AFJA-TB-01	
		< COIL >	
L201	1-412-945-11	INDUCTOR 3.3uH	
L201	1-412-945-21	INDUCTOR 3.3uH	
L202	1-216-296-91	RES,CHIP 0	
L203	1-216-296-91	RES,CHIP 0	
L204	1-412-786-41	INDUCTOR 6.8uH	
L205	1-410-379-21	INDUCTOR 6.8uH	
L206	1-410-379-21	INDUCTOR 6.8uH	
L207	1-410-379-21	INDUCTOR 6.8uH	
L401	1-216-823-91	RES,CHIP 1.5K	
L402	1-414-528-21	INDUCTOR CHIP 56nH	
L601	1-414-481-11	INDUCTOR 68nH	
L602	1-414-481-11	INDUCTOR 68nH	
L801	1-412-962-11	INDUCTOR 82uH	
L803	1-414-205-21	INDUCTOR 4.7nH	
		< MICROPHONE >	
MIC601	1-542-118-11	MICROPHONE, ELECTRET CONDENSER	
		< TRANSISTOR >	
Q201	8-729-920-75	TRANSISTOR 2SC2412K-T-146-QR	
Q202	8-729-026-50	TRANSISTOR 2SA1037AK-T146-QR	
Q203	8-729-920-75	TRANSISTOR 2SC2412K-T-146-QR	
Q204	8-729-026-50	TRANSISTOR 2SA1037AK-T146-QR	
Q402	8-729-026-50	TRANSISTOR 2SA1037AK-T146-QR	
Q405	8-729-026-50	TRANSISTOR 2SA1037AK-T146-QR (S9001)	
Q601	8-729-920-75	TRANSISTOR 2SC2412K-T-146-QR	

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R203	1-216-093-11	RES,CHIP	68K	5%	1/10W
R204	1-216-085-00	METAL CHIP	33K	5%	1/10W
R205	1-216-097-00	RES,CHIP	100K	5%	1/10W
R206	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R207	1-216-089-00	RES,CHIP	47K	5%	1/10W
R208	1-216-073-00	METAL CHIP	10K	5%	1/10W
R209	1-216-049-00	RES,CHIP	1K	5%	1/10W
R210	1-216-097-00	RES,CHIP	100K	5%	1/10W
R211	1-216-089-00	RES,CHIP	47K	5%	1/10W
R212	1-216-073-00	METAL CHIP	10K	5%	1/10W
R213	1-216-073-00	METAL CHIP	10K	5%	1/10W
R214	1-216-097-11	RES,CHIP	100K	5%	1/10W
R215	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R216	1-216-073-00	METAL CHIP	10K	5%	1/10W
R401	1-216-294-00	RES,CHIP	0	5%	1/8W
R402	1-216-294-00	RES,CHIP	0	5%	1/8W
R403	1-412-995-21	INDUCTOR	22uH	20%	
R404	1-216-073-00	METAL CHIP	10K	5%	1/10W
R405	1-216-073-00	METAL CHIP	10K	5%	1/10W
R406	1-216-033-91	METAL CHIP	220	5%	1/10W
R407	1-216-041-00	METAL CHIP	470	5%	1/10W
R408	1-216-033-00	METAL CHIP	220	5%	1/10W
R409	1-216-033-00	METAL CHIP	220	5%	1/10W
R410	1-216-033-00	METAL CHIP	220	5%	1/10W
R411	1-216-033-00	METAL CHIP	220	5%	1/10W
R414	1-216-073-00	METAL CHIP	10K	5%	1/10W
R415	1-216-817-11	METAL CHIP	470	5%	1/16W
R416	1-216-817-11	METAL CHIP	470	5%	1/16W
R417	1-216-097-00	RES,CHIP	100K	5%	1/10W
R418	1-216-693-91	METAL CHIP	56K	0.50%	1/16W
R419	1-218-735-11	METAL CHIP	62K	0.50%	1/16W
R420	1-216-817-11	METAL CHIP	470	5%	1/16W
R421	1-216-864-11	METAL CHIP	0	5%	1/16W
R422	1-216-817-11	METAL CHIP	470	5%	1/16W
R423	1-216-817-11	METAL CHIP	470	5%	1/16W
R426	1-216-817-11	METAL CHIP	470	5%	1/16W
R427	1-216-805-11	METAL CHIP	47	5%	1/16W
R428	1-216-816-11	METAL CHIP	390	5%	1/16W
R429	1-216-805-11	METAL CHIP	47	5%	1/16W
R430	1-216-817-11	METAL CHIP	470	5%	1/16W
R431	1-216-864-11	METAL CHIP	0	5%	1/16W
R432	1-216-864-11	METAL CHIP	0	5%	1/16W
R434	1-216-817-11	METAL CHIP	470	5%	1/16W
R435	1-216-121-91	METAL CHIP	1M	5%	1/16W
R436	1-216-809-11	METAL CHIP	100	5%	1/16W
R437	1-216-097-00	RES,CHIP	100K	5%	1/10W
R438	1-216-864-11	METAL CHIP	0	5%	1/16W
R439	1-216-864-11	METAL CHIP	0	5%	1/16W
R440	1-216-097-00	RES,CHIP	100K	5%	1/10W
R441	1-216-001-91	METAL CHIP	10	5%	1/16W
R443	1-216-819-11	METAL CHIP	680	5%	1/16W
R448	1-216-295-00	SHORT	0		
R450	1-216-073-00	METAL CHIP	10K	5%	1/10W (S9001)
R451	1-216-073-00	METAL CHIP	10K	5%	1/10W (S9001)

LED

Ref. No.	Part No.	Description			Remark
R455	1-216-819-11	METAL CHIP	680	5%	1/16W
R456	1-216-821-11	METAL CHIP	1K	5%	1/16W
R601	1-216-097-00	RES,CHIP	100K	5%	1/10W
R602	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R603	1-216-033-91	SHORT	220		
R604	1-216-295-00	SHORT	0		
R605	1-216-045-00	METAL CHIP	680	5%	1/10W
R606	1-216-037-00	METAL CHIP	330	5%	1/10W
R607	1-216-009-00	METAL CHIP	22	5%	1/10W
R608	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R609	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R610	1-216-105-00	RES,CHIP	220K	5%	1/10W
R611	1-216-105-00	RES,CHIP	220K	5%	1/10W
R612	1-216-295-00	SHORT	0		
R613	1-216-081-00	METAL CHIP	22K	5%	1/10W
R615	1-216-105-00	RES,CHIP	220K	5%	1/10W
R616	1-216-295-00	SHORT	0		
R617	1-216-105-00	RES,CHIP	220K	5%	1/10W
R618	1-216-017-00	RES,CHIP	47	5%	1/10W
R619	1-216-017-00	RES,CHIP	47	5%	1/10W
R620	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R621	1-216-017-00	RES,CHIP	47	5%	1/10W
R622	1-216-017-00	RES,CHIP	47	5%	1/10W
R623	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R624	1-216-295-00	SHORT	0		
R625	1-216-295-00	SHORT	0		
R631	1-216-045-00	METAL CHIP	680	5%	1/10W
R632	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R633	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R805	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R806	1-216-039-00	METAL CHIP	390	5%	1/10W
R807	1-216-039-00	METAL CHIP	390	5%	1/10W
		< MODULATOR >			
RFU801	1-418-269-11	RF UNIT			
		< SWITCH >			
S401	1-762-636-11	SWITCH, SLIDE (RINGER)			
S601	1-771-761-11	SWITCH, SLIDE (VOLUME)			
		< VIBRATOR >			
X401	1-767-566-41	VIBRATOR, CRYSTAL (9.6MHz)			

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*	1-674-890-11	LED BOARD			
		**********			
		< CONNECTOR >			
* CN502	1-506-988-11	PIN, CONNECTOR (PC BOARD) 6P			
		< DIODE >			
D573	8-719-059-87	DIODE SLR-342VRTB7 (S9001)			(SPARE BATTERY)
D574	8-719-059-87	DIODE SLR-342VRTB7 (CHARGE)			

Ref. No.	Part No.	Description			Remark
		< JUMPER RESISTOR >			
JC574	1-216-295-91	SHORT	0 (S9001)		
		< RESISTOR >			
R580	1-216-041-00	METAL CHIP	470	5%	1/10W (S9001)
R581	1-216-041-00	METAL CHIP	470	5%	1/10W
		< SWITCH >			
SW571	1-571-977-11	SWITCH, TACTIL (PAGE)			

****

		MISCELLANEOUS
		**********
7	1-771-616-1	SWITCH, RUBBER KEY (S9001)
7	1-771-616-2	SWITCH, RUBBER KEY (S9000)
ANT1	1-754-054-1	ANTENNA (S9001)
ANT1	1-754-081-2	ANTENNA, HELICAL (S9000)
ANT701	3-038-540-0	TERMINAL, ANTENNA (S9001)
SP1	1-505-695-1	SPEAKER (2.1CM)

****

		ACCESSORIES & PACKING MATERIALS
		**********
⚠	1-475-780-31	ADAPTOR, AC (AC-T123)
	1-528-976-11	BATTERY, NI-CD (BP-T31)
	1-696-453-21	CORD (WITH MODULAR PLUG)(LINE)(22 cm)
	1-696-454-11	CORD (WITH MODULAR PLUG)(LINE)(2m 15 cm)
	3-012-379-21	CASE (WALL HOOK)
	3-866-974-11	MANUAL, INSTRUCTION (S9001:US) (ENGLISH, SPANISH)
	3-866-974-21	MANUAL,INSTRUCTION (S9001:CND) (ENGLISH, FRENCH)
	3-866-977-11	MANUAL,INSTRUCTION (S9000:US) (ENGLISH, SPANISH)
	3-936-680-01	LABEL (ADRESS)

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		**********
		HARDWARE LIST
		**********
#1	7-685-134-1	SCREW +BTP 2.6X8 TYPE2 N-S
#2	7-685-136-1	SCREW +BTP 2.6X12 TYPE2 N-S
#3	7-685-647-7	SCREW +P 3X10 TYPE2 NON-SLIT

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Sony Corporation
Digital Telecommunication Company

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