TAM-100

SERVICE MANUAL

Canadian Model

SPECIFICATIONS

Power source	DC 12 V from AC power adaptor
Maximum recording time	About 15 minutes, using incorporated IC
Greeting message	Up to 4 minutes
Incoming message	Up to 4 minutes/message
Memo	Up to 4 minutes/message
Dimensions	Approx. 100 x 50 x 173 mm (w/h/d) (approx. 4 x 2 x 6 $^{7}/_{8}$ inches)
Mass	Approx. 290 g (approx. 10 oz)
Supplied accessories	AC power adaptor AC-T70 Telephone line cord

Design and specifications are subject to change without notice.

TELEPHONE ANSWERING MACHINE

MICROFILM

SONY®

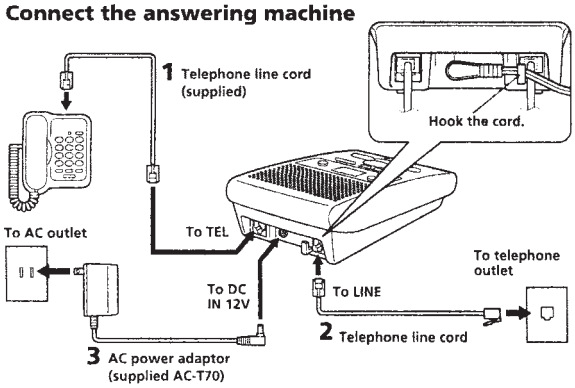
TABLE OF CONTENTS

SECTION 1
GENERAL

This section is extracted from instruction manual.

Setting up the answering machine

Connect the answering machine



1 Unplug the telephone line cord from your telephone and connect the telephone line cord (supplied) to the TEL jack of the answering machine and to the telephone.

2 Connect the telephone line cord to the LINE jack of the answering machine.

3 Connect the AC power adaptor to the DC IN 12V jack of the answering machine and to an AC outlet.
"P" flashes in the display window.

Notes
- Use only the supplied AC-T70 AC power adaptor. Do not use any other AC power adaptor.
- Connect the AC power adaptor to a continuous power supply.
- Place the answering machine 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.

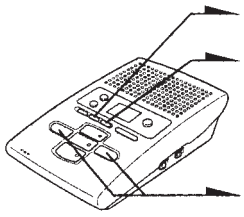
Polarity of the plug

Modular

Preparing the answering machine

Setting the day and time

Set the day and time so that you can stamp day and time for the incoming messages. You'll hear the recorded day and time when you play back messages.



1 Press (SET/REC).

2 Press (TIME).
You hear a voice guide: "Please set the day. To select, press the SKIP or REPEAT button. To enter, press the SET button".

3 Press (SKIP/QUICK) or (REPEAT/SLOW) repeatedly until the correct day of the week is announced.
Press (SKIP/QUICK) to advance, or (REPEAT/SLOW) to go back.

4 Press (SET/REC).
You hear a voice guide: "Please set the hour. To select, press the SKIP or REPEAT button. To enter, press the SET button".

5 Press (SKIP/QUICK) or (REPEAT/SLOW) repeatedly until the correct hour is announced.

6 Press (SET/REC).
You hear a voice guide: "Please set the minute. To select, press the SKIP or REPEAT button. To enter, press the SET button".

7 Press (SKIP/QUICK) or (REPEAT/SLOW) repeatedly until the correct minute is announced.

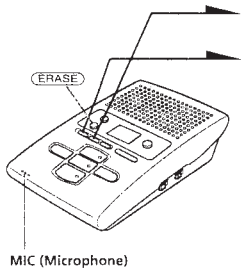
8 Press (SET/REC).
You hear a long confirmation beep, followed by the day and time. Then the answering machine starts counting time.

Notes
- Do not allow more than 20 seconds (or 60 seconds when setting the minute) to elapse between each step of the procedure.
- If a power interruption occurs, the day and time will be erased.
- If the current day and time are not set, you will not hear a time stamp when you play back recorded messages. If you try to check the current time, you will hear five short error beeps.

To check the current time
Press (TIME). You hear the current day and time.

Recording the greeting

This answering machine has prerecorded greetings. However, you can record your own greeting.
The greeting must be between two seconds and four minutes long.
You can record only one greeting, and it is used regardless of the answering mode ("normal" and "announcement only" modes. See "Selecting the answering mode"). Therefore, if you decide to change the mode, make sure that you record a new greeting to match the answering mode.



1 Press (SET/REC).

2 Press (GREETING).
You hear a voice guide and a long confirmation beep.

3 After the tone, start recording. Speak about 12 inches (30 cm) away from the microphone.

4 Press (SET/REC) to stop recording.
The answering machine automatically replays the recorded greeting.

Notes
- If recording did not succeed, you hear five short error beeps. Start over the procedure.
- If a call comes in while recording a greeting, recording is cancelled. Start over the procedure.
- If you hear five short error beeps while recording, the recording area may be full. In this case, erase unnecessary messages.

Tips
- If four minutes have passed in step 3, recording stops automatically.
- To record the greeting from a touch-tone phone, see "Operating from an outside phone".
- Even if a power interruption occurs, your own greeting is not erased.

Prerecorded greeting

Normal mode : "Hello, I'm unable to answer your call right now. Please leave your name, number and message after the tone".

Announcement only mode : "Hello, I'm unable to answer your call right now. Please call again, thank you".

Tips

- If you wish to record your own "announcement only" greeting, follow the above sequence after setting the AUDIBLE INDICATOR switch to ANN ONLY. Otherwise, the "normal" greeting will be recorded.
- You have to change the message each time you change the mode.

To check the greeting

Press (GREETING) to play back the greeting.

To change the greeting

Record a new greeting. The new greeting replaces the old one.

To erase the greeting

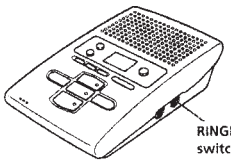
Press (ERASE) while playing back the greeting.
The answering machine will answer a call with the prerecorded greetings.

To go back to the factory prerecorded greeting

Press (ERASE) while playing back the greeting.
This will bring back the original greeting, but your own greeting is erased.

Selecting the ring time

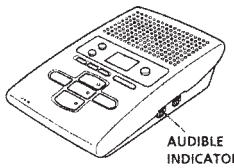
There are three options of ring time.
Select the ring time by setting the RINGER SELECT switch.



Set RINGER SELECT to	Mode
TS (Toll Saver)	If new messages have been recorded, the answering machine answers at the second ring and records incoming messages; if no new messages are recorded, it answers at the fifth ring. When you call from an outside phone and hear more than two rings, you know that there are no new messages. If you hang up at this point before the answering machine answers, you can save the toll for the call (see "Operating from an outside phone").
5	The answering machine always answers at the fifth ring and records incoming messages.
2	The answering machine always answers at the second ring and records incoming messages.

Selecting the answering mode

You can set the answering machine to record incoming messages (normal mode), or just make an announcement without recording messages (announcement only mode).
You can record your own greeting, or use the factory prerecorded greetings.
In the normal mode, you also have the option of having a beep to tell you if you have received any new incoming messages.



Set AUDIBLE INDICATOR to	When you wish to	Prerecorded greeting
ON (normal mode)	play a greeting to ask the caller to leave a message and have the answering machine beep to alert you of recorded incoming messages.	"Hello, I'm unable to answer your call right now. Please leave your name, number and message after the tone."
OFF (normal mode)	play a greeting to ask the caller to leave a message but you do not wish to sound a beep.	
ANN ONLY (announcement only mode)	make an announcement to the caller without accepting incoming messages when, for example, you are away on a long vacation.	"Hello, I'm unable to answer your call right now. Please call again, thank you."

Note

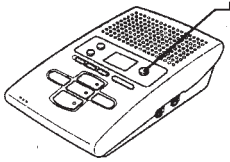
If you have recorded your own greeting, the same greeting is used regardless of the answering mode. Therefore, if you decide to change the mode, make sure that you record a new greeting to match the answering mode.

When the memory is full

The recording area of this answering machine's memory is about 15 minutes (including the greeting, messages, and memo). If the remaining recording area becomes less than one minute, "F" flashes on the display window, and the answering machine automatically switches to announcement only mode, which does not record messages, and the greeting will be switched to the prerecorded greeting.

If you wish to record more messages, erase the existing messages. You can also erase the messages from an outside phone, see "Operating from an outside phone".

Turning on the answering function



Press (ANSWER ON/OFF) so that it lights up in red.

Note

When the memory is full, you hear five short error beeps and you cannot turn on the answering function. Erase unnecessary messages.

Tips

- The answering machine will automatically answer a call after 10 rings even if the answering function is off. The answering function will remain on for all subsequent calls.
- You can also turn on or off the answering function from an outside phone, see "Operating from an outside phone".

When a caller calls

The caller can choose one of the two ways to leave a message:

- Select a mailbox by pressing (*)(1) (MAIL BOX 1), (*)(2) (MAIL BOX 2) or (*)(3) (MAIL BOX 3) while the caller hears the greeting. The greeting stops and a beep will sound, then the caller can start recording a message.
- Wait until the greeting finishes, then start recording a message. When the caller does not select a mailbox, the messages goes into MAIL BOX 1.

Notes

- If four minutes have passed while recording the incoming message, the line is automatically disconnected.
- If the message is shorter than two seconds, it will not be recorded.

Tip

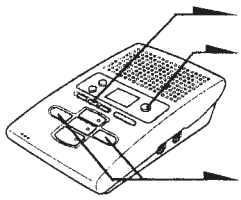
Even if a power interruption occurs, the incoming messages are not erased.

To turn off the answering function

Press (ANSWER ON/OFF) so that the red light goes off.

Setting the remote ID code (security code)

If you want to operate the answering machine from an outside phone, you must first set the remote ID code (security code). See "Operating from an outside phone" for details on remote operations.



1 Press (SET/REC).

2 Press (ANSWER ON/OFF).

You hear a voice guide: "Please set the security code. To select, press the SKIP or REPEAT button. To enter, press the SET button".

3 Set a two-digit number between 00 and 99 by pressing (SKIP/QUICK) or (REPEAT/SLOW).

Press (SKIP/QUICK) to increase a number, or (REPEAT/SLOW) to decrease.

Each time you press (SKIP/QUICK) or (REPEAT/SLOW), the answering machine announces a number.

4 Press (SET/REC).

The remote ID code (security code) is set, and you hear a long confirmation beep.

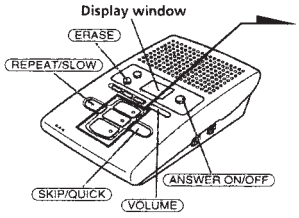
To change the remote ID code (security code)

Enter a new remote ID code (security code). The new code will replace the old one.

Tip

Even if a power interruption occurs, the remote ID code is not erased.

Playing back messages



When you come home

If ANSWER ON/OFF flashes in red, or the display window shows the total number of new messages and the MAIL BOX indicator flashes, press the mailbox button (MAIL BOX 1, MAIL BOX 2 or MAIL BOX 3).
If you press the mailbox button, the display window shows the total number of new messages that are recorded to the mailbox. The answering machine plays back from the first new messages.

Additional tasks when playing back messages

To	Do this
Adjust the speaker volume	Press VOLUME + or −.
Stop playback	Press the mailbox button again.
Replay the messages	Press the mailbox button again.
Skip to the next message	Press SKIP/QUICK while the current message is playing.
Repeat the current message	Press REPEAT/SLOW while the current message is playing.
Go back to previous messages	Press REPEAT/SLOW within the first three seconds of the current message.
Play back slowly	Keep REPEAT/SLOW pressed during playback.
Play back quickly	Keep SKIP/QUICK pressed during playback.

Note

The old messages will not be played back unless all new messages are played back.

To erase messages

You can erase only the messages you have played back.

- To erase one message, press ERASE while the message is being played back.
- To erase all the messages in a mailbox, press ERASE, and a mailbox button (MAIL BOX 1, MAIL BOX 2 or MAIL BOX 3). A long confirmation beep sounds and all messages in the selected mailbox are erased.

Notes

- The display window shows the total number of "new" messages. Therefore, it is reset to "0" when you play back all new messages, even they are not erased yet. Be sure to erase unnecessary messages before the memory becomes full.
- When the number of new messages exceeds 99, "99" flashes on the display window.
- If a call comes in during playback, the playback stops.
- If a power interruption occurs or the AC power adaptor is disconnected while erasing a message, all recorded message may be erased.
- If you try to erase all messages in a mailbox with any new messages remaining. You hear five short error beeps and you cannot erase the messages.

Tip

You can also listen to the messages or erase the messages from a touch-tone phone, see "Operating from an outside phone".

Screening incoming calls

You can screen calls by leaving the answering function on while you are at home. When a call is answered, you can hear the message being recorded through the answering machine but the caller cannot hear you. Then, you can decide whether to answer the call or not.

To answer the call

Pick up the handset of the telephone.

Recording is cancelled and you can speak to the caller.

Notes

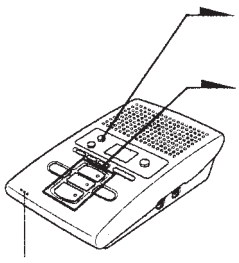
- If the volume is set to minimum, you cannot screen the calls.
- While the greeting is being played the caller cannot be heard however, you can answer the call by picking up the handset of the telephone.

Tips

- You can disconnect the call by pressing MAIL BOX 1, MAIL BOX 2 or MAIL BOX 3.
- The high, middle and low bars on the display window flash successively while screening incoming call.

Recording a memo

You can record a "memo" (up to four minutes) as a personal reminder or as a message for other people. You can play back the recorded memo like any incoming messages.



1 Press MEMO.
You hear a voice guide.

2 Select a mailbox by pressing MAIL BOX 1, MAIL BOX 2 or MAIL BOX 3. You will hear a voice guide, then a long confirmation beep. The display window shows the total number of new messages and memos that includes the memo in recording of the selected mailbox.

3 After the tone, start recording. Speak about 12 inches (30 cm) away from the microphone.

4 Press MEMO to stop recording.
The display window shows the total number of new messages and memos of the all mailboxes.

Notes

- If you press MEMO when the memory is full ("F" flashing on the display window), you hear five short error beeps and you cannot record a memo.
- If a call comes in while recording a memo, recording stops automatically, and the recorded memo is counted as a new message.
- If the remaining memory becomes full while recording, recording stops automatically and "F" flashes on the display window.

Tips

- If four minutes have passed in step 3, recording stops automatically, and the recorded memo is counted as a new message.
- Even if a power interruption occurs, the memos are not erased.

Operating from an outside phone

You can call from a touch-tone phone and pick up new messages recorded on the answering machine. First, you just set the remote ID code (security code) and turn on the answering function before going out. See "Setting the remote ID code (security code)".

Picking up new messages

1 Call your phone from a touch-tone phone.

2 While you hear the greeting play, press #, and your remote ID code (security code).

You hear a long confirmation beep and the greeting stops. Following the voice guide informing you of the number of messages recorded, the answering machine stands by for you to enter a control code.

3 To do other operations, enter the control code within 20 seconds (see the table below). To quit, hang up the phone.

Control codes for remote operations

To	Press
Play back messages in MAIL BOX 1	# 1
Play back messages in MAIL BOX 2	# 2
Play back messages in MAIL BOX 3	# 3
Repeat the current message	# 4 while the message is being played back
Skip the current message	# 6 while the message is being played back
Erase the current message	# 9 while the message is being played back
Erase all the messages in MAIL BOX 1	# 9 # 1
Erase all the messages in MAIL BOX 2	# 9 # 2
Erase all the messages in MAIL BOX 3	# 9 # 3
Record a new greeting (up to one minute)	* 7. When you hear a long beep, start recording your greeting. Press * * to stop recording.
Turn on the answering function	* 0
Turn off the answering function	# 0
Stop the current operation	* *

If you forgot to turn the answering function on

Call your phone and let it ring 10 times until it answers. Then the answering function automatically turns on.

Note

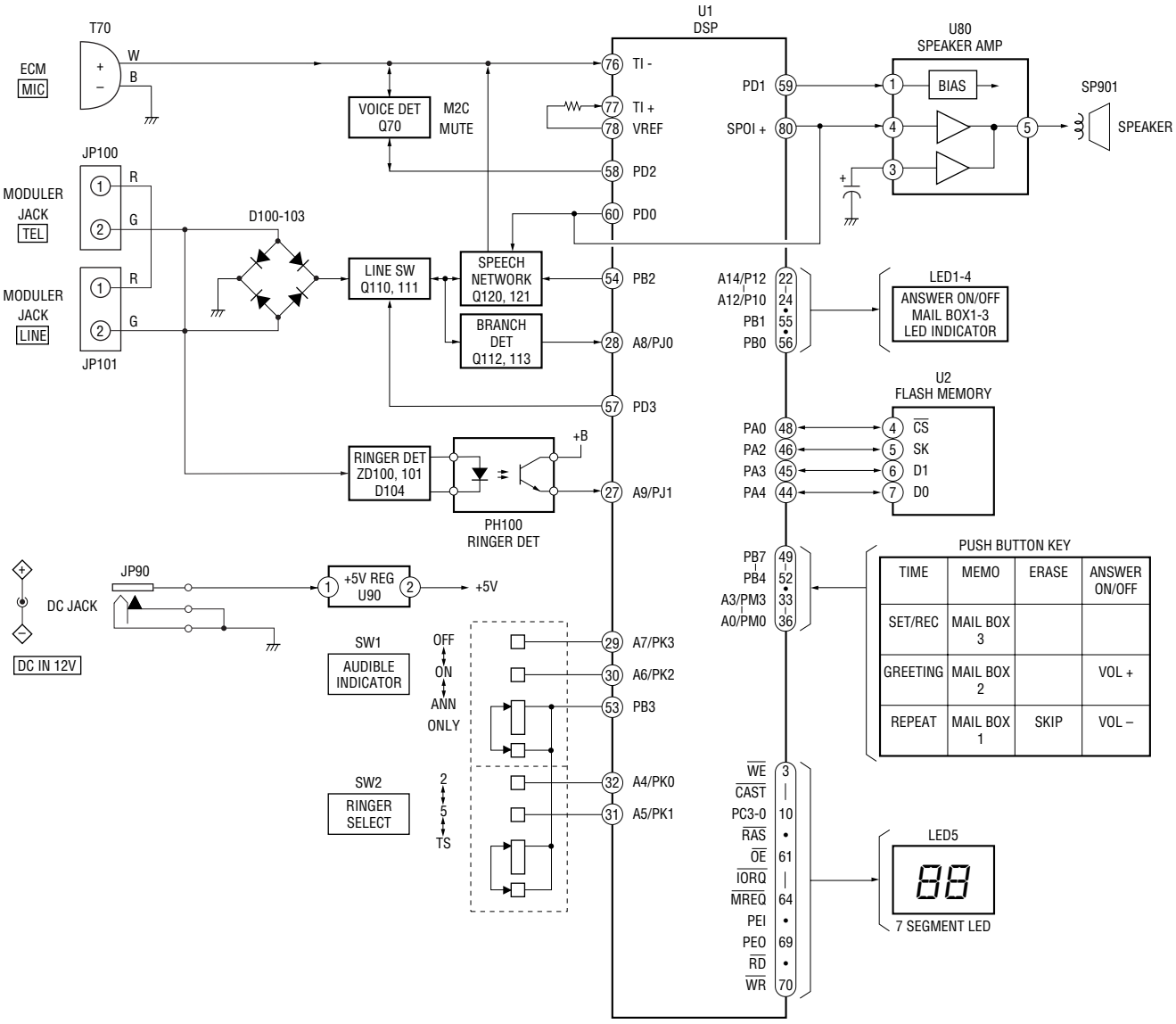
If you enter a wrong remote security code three times, the line will be disconnected.

To use the toll-saver feature

Set RINGER SELECT to TS. See "Selecting the ring time".

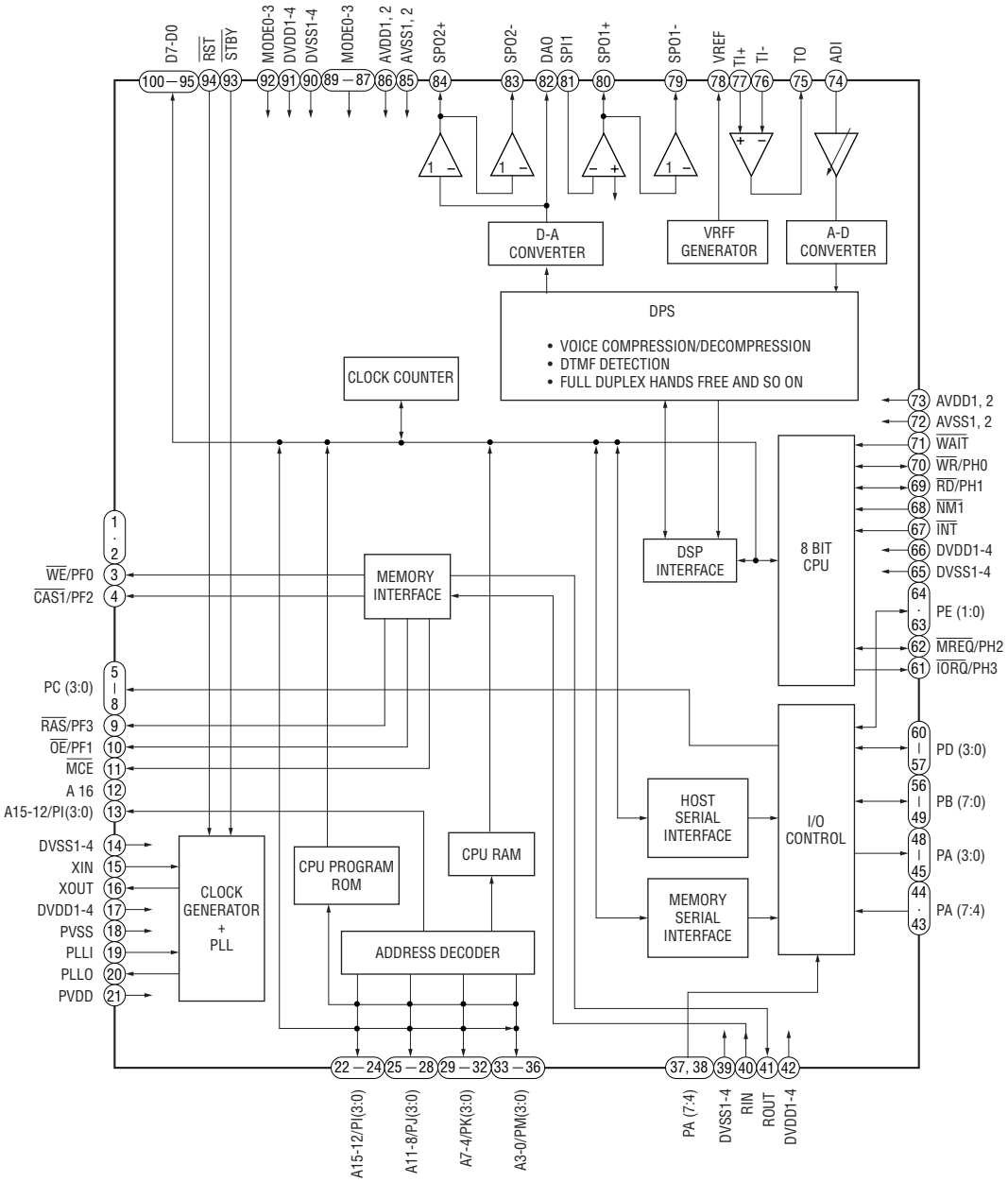
SECTION 2
DIAGRAMS

2-1. BLOCK DIAGRAM

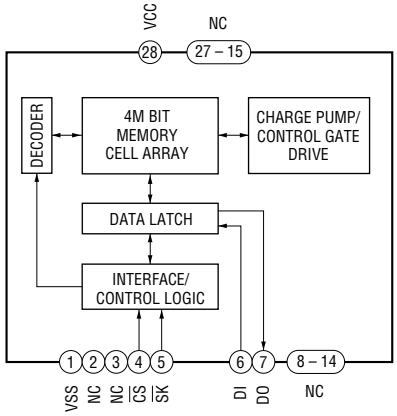


• IC Block Diagrams

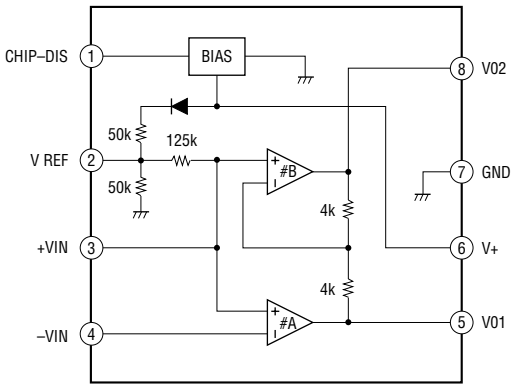
U1 TC88512AF-043



U2 TC58A04F



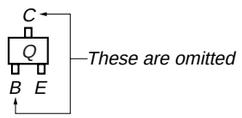
U80 NJM2113M-TE2



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.
- △ : internal component.
- ▭ : panel designation.
- B + : B+ Line.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : Add to DC 12V and fed with regulated dc power supply from external power voltage jack.
  ✻ : Impossible to measure
- Indication of transistor

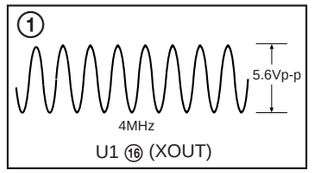


- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : AUDIO
- Abbreviation
  CND : Canadian model

For printed wiring boards.
Note:

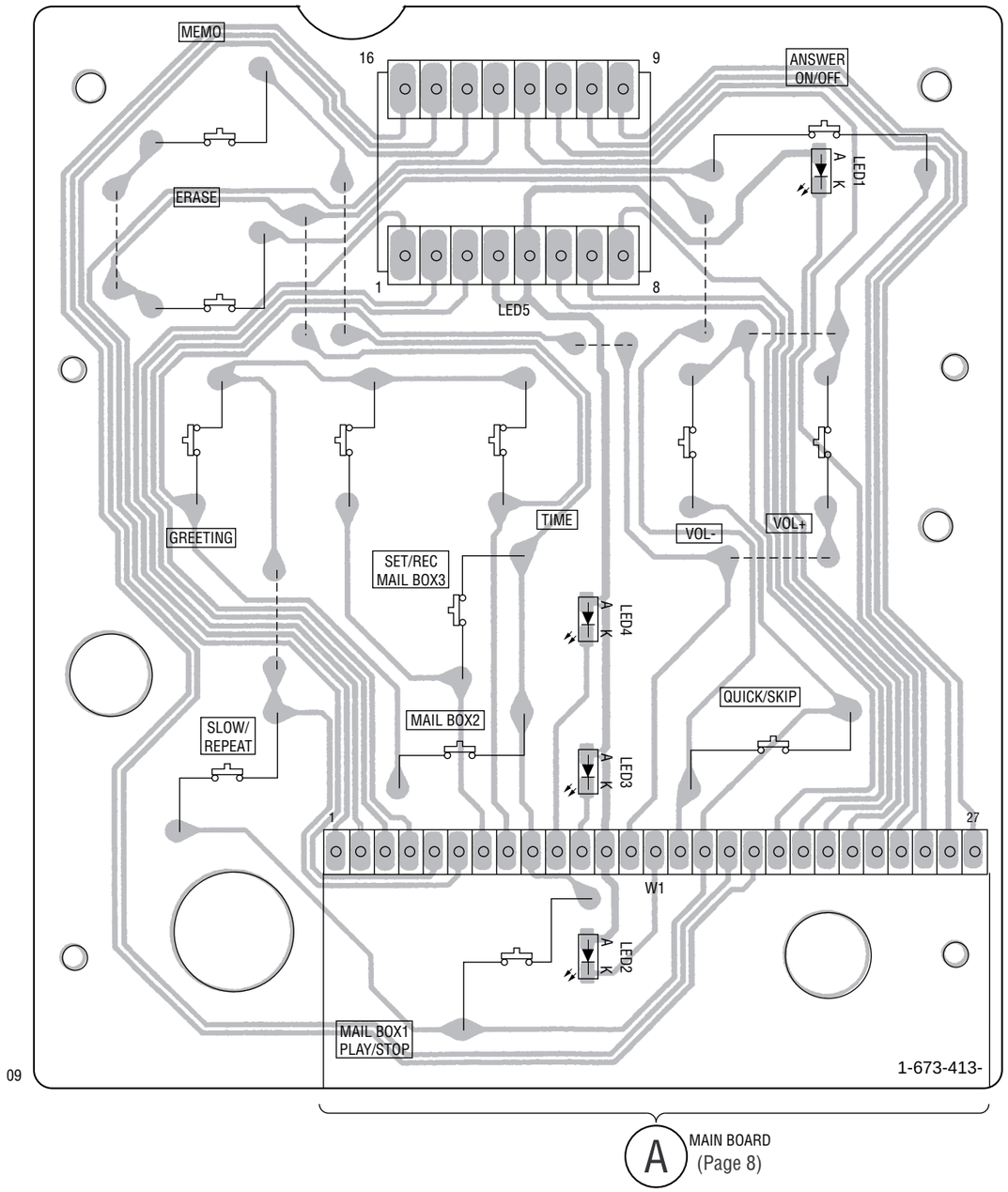
- ○- - - -○ : carbon pattern
- ○——— : parts extracted from the component side.
- △ : internal component.
- ▒▒ : Pattern from the side which enables seeing.

• Waveform



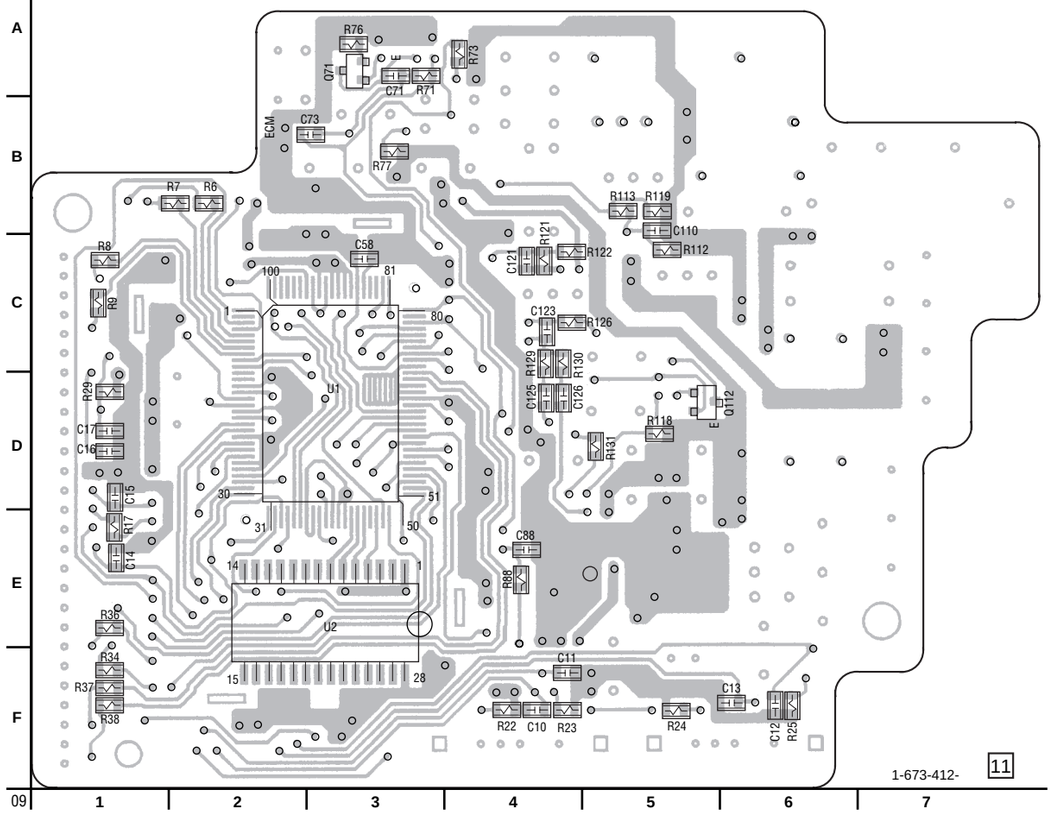
2-2. PRINTED WIRING BOARD — KEY SECTION —

【KEY BOARD】

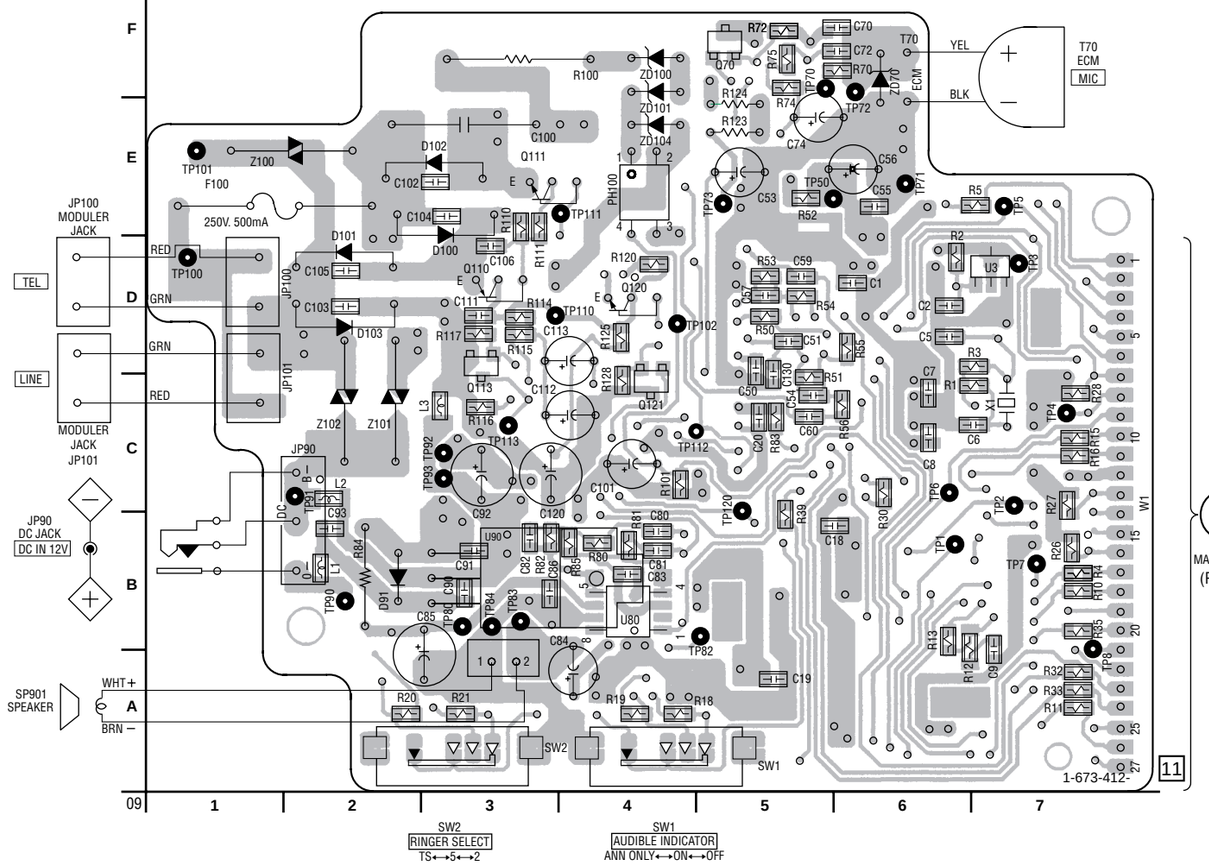


2-3. PRINTED WIRING BOARD — MAIN SECTION —

【MAIN BOARD】 (SIDE A)



【MAIN BOARD】 (SIDE B)



• **Semiconductor Location**

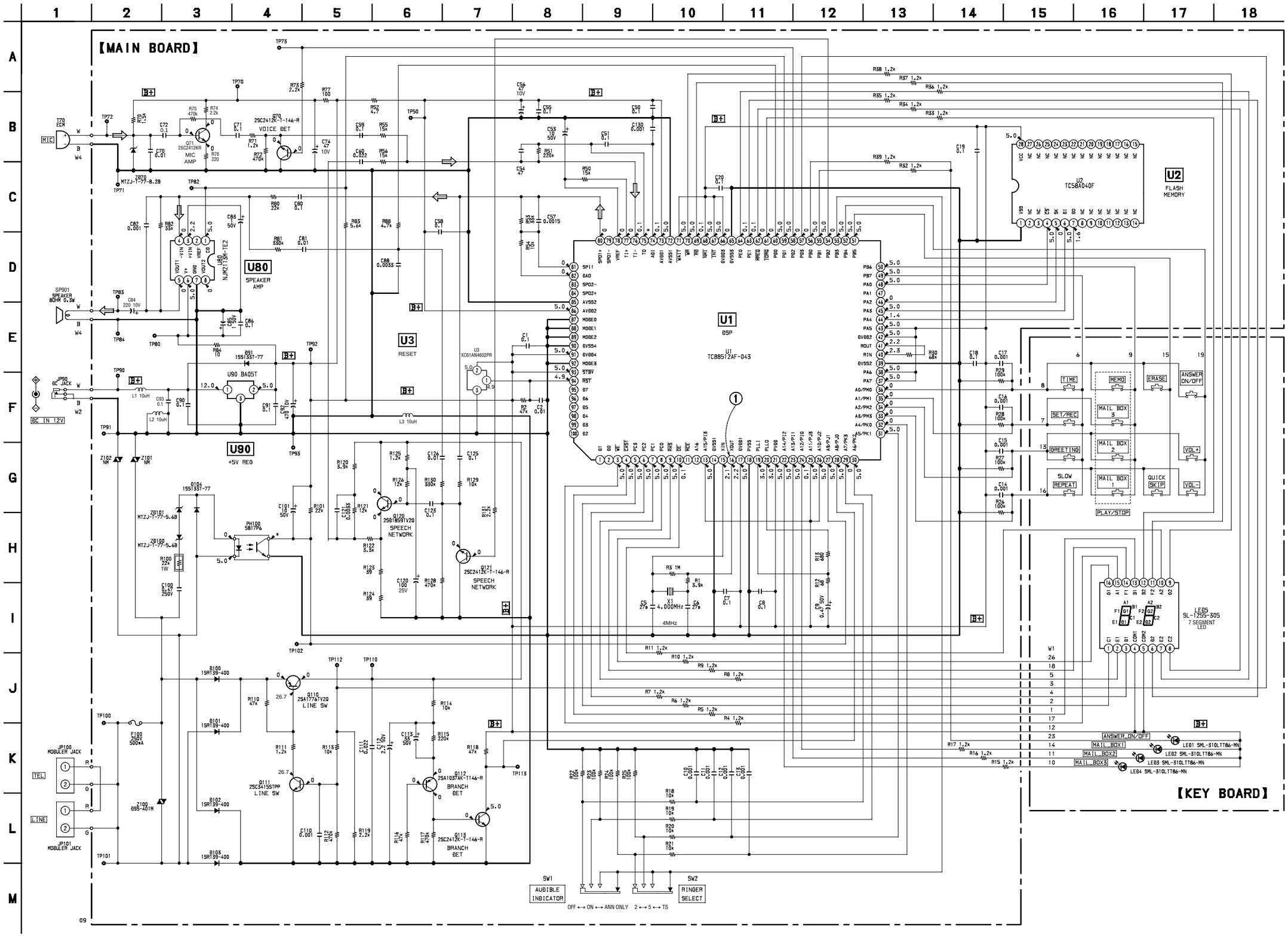
Ref. No.	Location
Q71	A-3
Q112	D-5
U1	D-3
U2	E-3

• **Semiconductor Location**

Ref. No.	Location
D91	B-2
D92	B-2
D100	E-3
D101	D-2
D102	E-3
D103	D-2
Q70	F-5
Q110	D-3
Q111	E-3
Q113	D-3
Q120	D-4
Q121	C-4
U3	D-7
U80	B-4
U90	B-3
ZD70	F-6
ZD100	F-4
ZD101	E-4
ZD104	E-4

2-4. SCHEMATIC DIAGRAM

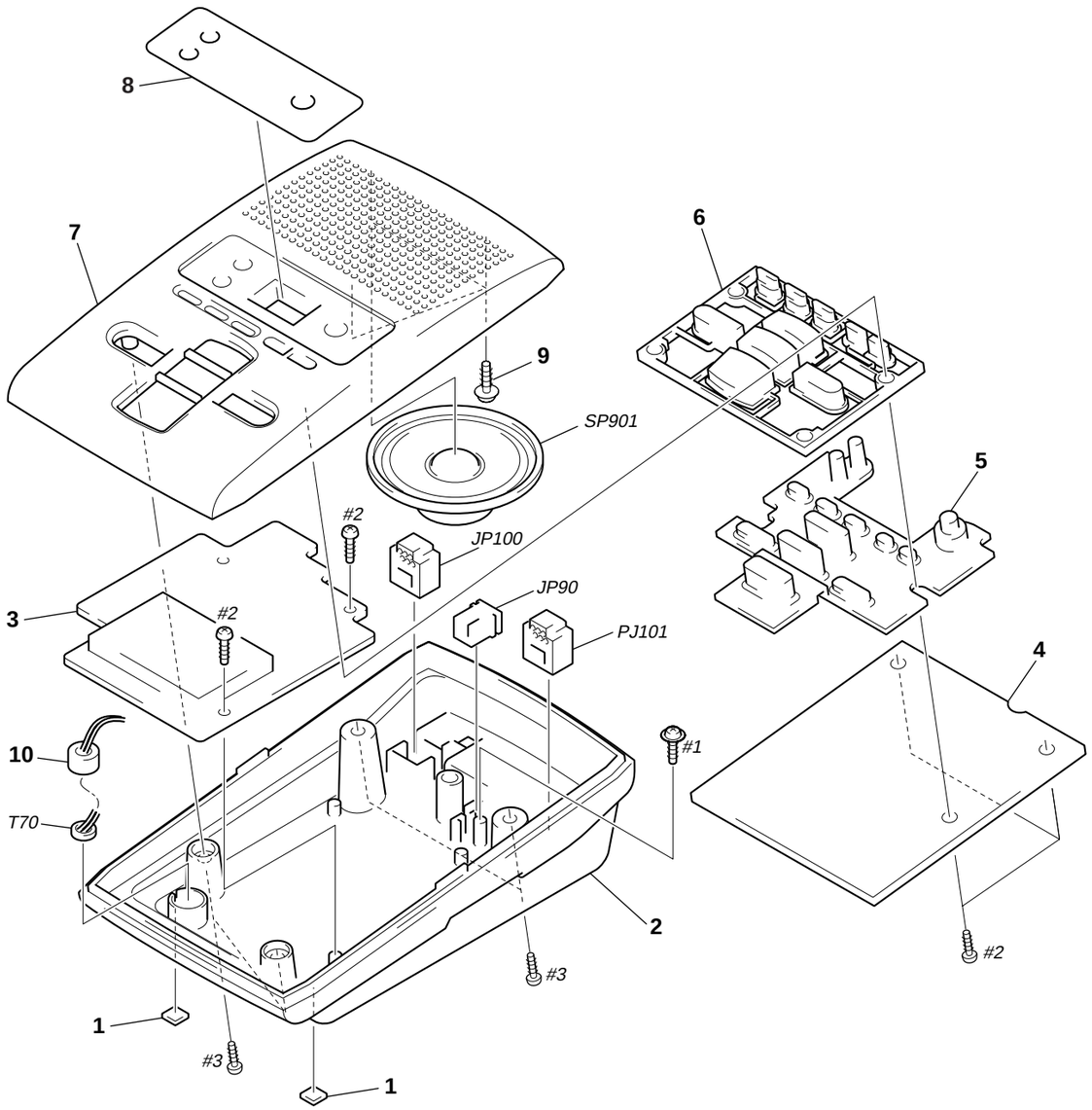
- Refer to page 6 for IC Block Diagrams.
- Refer to page 7 for Waveforms and Note.



SECTION 3
EXPLODED VIEW

NOTE:

- -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.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . . (RED)
  ↑ Parts color ↑ Cabinets color
- 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



Ref. No.	Part No.	Description	Remark
1	3-034-197-01	FOOT, RUBBER	
2	3-034-193-01	CABINET (LOWER)	
* 3	A-3672-702-A	MAIN BOARD, COMPLETE	
* 4	1-673-413-11	KEY BOARD	
5	1-771-695-11	SWITCH, RUBBER KEY	
6	3-034-194-01	BUTTON	
7	3-034-192-01	CABINET (UPPER)	
8	3-034-196-01	WINDOW (LED)	
9	3-037-472-01	SCREW (3X5), SPECIAL	
10	3-625-138-01	CAP, MICROPHONE	
JP90	1-766-366-11	JACK, DC	
JP100	1-793-136-11	JACK, MODULAR (2C) 6P (TEL)	
JP101	1-793-136-11	JACK, MODULAR (2C) 6P (LINE)	
SP901	1-504-748-21	SPEAKER (6.6CM)	
T70	1-542-368-11	MICROPHONE, ELECTRET CONDENSER	

KEY MAIN

SECTION 4
ELECTRICAL PARTS LIST

Note:

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
*	1-673-413-11	KEY BOARD			
		*********			
		< DIODE >			
LED1	8-719-072-22	DIODE SML-310LTT86-MN (ANSWER ON/OFF)			
LED2	8-719-072-22	DIODE SML-310LTT86-MN (MAIL BOX 1)			
LED3	8-719-072-22	DIODE SML-310LTT86-MN (MAIL BOX 2)			
LED4	8-719-072-22	DIODE SML-310LTT86-MN (MAIL BOX 3)			
LED5	8-719-074-88	DIODE SL-1255-305			
**********					
*	A-3672-702-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C1	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C2	1-163-021-11	CERAMIC CHIP	0.01uF		16V
C5	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C6	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C7	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C8	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C9	1-164-326-11	CERAMIC CHIP	0.47uF	20%	50V
C10	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C11	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C12	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C13	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C14	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C15	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C16	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C17	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C18	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C19	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C20	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C50	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C51	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C53	1-126-964-11	ELECT	10uF	20%	50V
C54	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C55	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C56	1-104-657-11	ELECT	47uF	20%	10V
C57	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C58	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C59	1-163-038-00	CERAMIC CHIP	0.1uF		16V
C60	1-163-037-11	CERAMIC CHIP	0.022uF		25V
C70	1-163-021-11	CERAMIC CHIP	0.01uF	10%	25V
C71	1-163-038-00	CERAMIC CHIP	0.1uF		25V

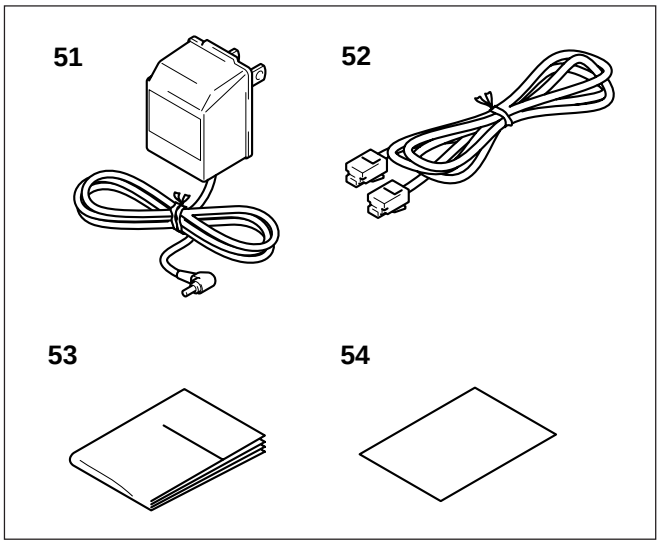
Ref. No.	Part No.	Description			Remark
C72	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C74	1-104-657-11	ELECT	47uF	20%	10V
C80	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C81	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C82	1-163-009-11	CERAMIC CHIP	0.001u	10%	50V
C83	1-164-346-11	ELECT	1uF	20%	50V
C84	1-126-934-11	ELECT	220uF	20%	16V
C85	1-126-935-11	ELECT	470uF	20%	16V
C86	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C88	1-163-015-11	CERAMIC CHIP	0.0033uF	10%	50V
C90	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C91	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C92	1-126-925-11	ELECT	470uF	20%	10V
C93	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C100	1-136-193-11	FILM	0.47uF	5%	250V
C101	1-104-657-11	ELECT	47uF	20%	10V
C106	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C110	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C111	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C112	1-126-961-11	ELECT	2.2uF	20%	50V
C113	1-126-966-11	ELECT	33uF	20%	50V
C120	1-104-665-11	ELECT	100uF	20%	25V
C121	1-163-015-11	CERAMIC CHIP	0.0033uF	10%	50V
C123	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C125	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C126	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C130	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< DIODE >			
D91	8-719-991-33	DIODE 1SS133T-77			
D100	8-719-970-02	DIODE 1SR139-400			
D101	8-719-970-02	DIODE 1SR139-400			
D102	8-719-970-02	DIODE 1SR139-400			
D103	8-719-970-02	DIODE 1SR139-400			
D104	8-719-991-33	DIODE 1SS133T-77			
		< FUSE >			
F100	1-533-713-11	FUSE (250V/500mA)			
		< INDUCTOR >			
L1	1-412-058-21	INDUCTOR, CHIP 10uH			
L2	1-412-058-21	INDUCTOR, CHIP 10uH			
L3	1-412-058-21	INDUCTOR, CHIP 10uH			

Ref. No.	Part No.	Description			Remark
		< PHOTO INTERUPTER >			
PH100	8-749-015-01	PHOTO COUPLER 5817P6			
		< TRANSISTOR >			
Q70	8-729-901-81	TRANSISTOR 2SC2412K			
Q71	8-729-901-81	TRANSISTOR 2SC2412K-T-146-R			
Q110	8-729-045-65	TRANSISTOR 2SA1776TV2Q			
Q111	8-729-045-48	TRANSISTOR 2SC3415STPP			
Q112	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R			
Q113	8-729-901-81	TRANSISTOR 2SC2412K			
Q120	8-729-032-94	TRANSISTOR 2SD1859TV2Q			
Q121	8-729-901-81	TRANSISTOR 2SC2412K			
		< RESISTOR >			
R1	1-216-063-00	RES,CHIP	3.9K	5%	1/10W
R2	1-216-089-00	RES,CHIP	47K	5%	1/10W
R3	1-216-121-00	RES,CHIP	1M	5%	1/10W
R4	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R5	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R6	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R7	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R8	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R9	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R10	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R11	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R12	1-216-170-00	RES,CHIP	68	5%	1/8W
R13	1-216-045-00	METAL CHIP	680	5%	1/10W
R15	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R16	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R17	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R18	1-216-073-00	METAL CHIP	10K	5%	1/10W
R19	1-216-073-00	METAL CHIP	10K	5%	1/10W
R20	1-216-073-00	METAL CHIP	10K	5%	1/10W
R21	1-216-073-00	METAL CHIP	10K	5%	1/10W
R22	1-216-097-00	RES,CHIP	100K	5%	1/10W
R23	1-216-097-00	RES,CHIP	100K	5%	1/10W
R24	1-216-097-00	RES,CHIP	100K	5%	1/10W
R25	1-216-097-00	RES,CHIP	100K	5%	1/10W
R26	1-216-097-00	RES,CHIP	100K	5%	1/10W
R27	1-216-097-00	RES,CHIP	100K	5%	1/10W
R28	1-216-097-00	RES,CHIP	100K	5%	1/10W
R29	1-216-097-00	RES,CHIP	100K	5%	1/10W
R30	1-216-093-11	RES,CHIP	68K	5%	1/10W
R32	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R33	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R34	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R35	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R36	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R37	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R38	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R39	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R50	1-216-077-00	METAL CHIP	15K	5%	1/10W
R51	1-216-105-00	METAL CHIP	220K	5%	1/10W
R52	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R53	1-216-085-00	METAL CHIP	33K	5%	1/10W
R54	1-216-073-00	METAL CHIP	10K	5%	1/10W
R55	1-216-077-00	METAL CHIP	15K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R56	1-216-077-00	METAL CHIP	15K	5%	1/10W
R70	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R71	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R72	1-216-113-00	METAL CHIP	470K	5%	1/10W
R73	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R74	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R75	1-216-113-00	RES,CHIP	470K	5%	1/10W
R76	1-216-033-00	RES,CHIP	220	5%	1/10W
R77	1-216-025-00	RES,CHIP	100	5%	1/10W
R80	1-216-073-00	RES,CHIP	10K	5%	1/10W
R81	1-216-109-11	METAL CHIP	330K	5%	1/10W
R82	1-216-085-00	METAL CHIP	33K	5%	1/10W
R83	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R84	1-249-393-11	CARBON	10	5%	1/4W
R85	1-216-097-00	RES,CHIP	100K	5%	1/10W
R88	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R100	1-215-877-11	METAL OXIDE	22K	5%	1W F
R101	1-216-069-11	METAL CHIP	6.8K	5%	1/10W
R110	1-216-089-00	RES,CHIP	47K	5%	1/10W
R111	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R112	1-216-113-00	METAL CHIP	470K	5%	1/10W
R113	1-216-073-00	METAL CHIP	10K	5%	1/10W
R114	1-216-073-00	METAL CHIP	10K	5%	1/10W
R115	1-216-105-00	RES,CHIP	220K	5%	1/10W
R116	1-216-089-00	RES,CHIP	47K	5%	1/10W
R117	1-216-113-00	METAL CHIP	470K	5%	1/10W
R118	1-216-089-00	RES,CHIP	47K	5%	1/10W
R119	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R120	1-216-063-00	RES,CHIP	3.9K	5%	1/10W
R121	1-216-075-00	METAL CHIP	12K	5%	1/10W
R122	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R123	1-260-082-11	CARBON	39	5%	1/2W
R124	1-260-082-11	CARBON	39	5%	1/2W
R125	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R126	1-216-075-00	METAL CHIP	12K	5%	1/10W
R128	1-216-113-00	METAL CHIP	470K	5%	1/10W
R129	1-216-073-00	METAL CHIP	10K	5%	1/10W
R130	1-216-109-00	METAL CHIP	330K	5%	1/10W
R131	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
		< SWITCH >			
SW1	1-692-207-21	SWITCH, SLIDE (AUDIBLE INDICATOR)			
SW2	1-692-207-21	SWITCH, SLIDE (RINGER SELECT)			
		< IC >			
U1	8-759-589-79	IC TC88512AF-043			
U2	8-759-489-92	IC TC58A040F			
U3	8-759-596-96	IC XC61AN4602PR			
U80	8-759-291-01	IC NJM2113M-TE2			
U90	8-759-450-47	IC BA05T			
		< VIBRATOR >			
X1	1-579-734-11	VIBRATOR, CRYSTAL (4.000MHz)			
		< GAP >			
Z100	1-533-751-11	GAP, DISCHARGE			

MAIN

Ref. No.	Part No.	Description	Remark
		< DIODE >	
ZD70	8-719-923-56	DIODE MTZJ-T-77-8.2B	
ZD100	8-719-923-38	DIODE MTZJ-T-77-5.6B	
ZD101	8-719-923-38	DIODE MTZJ-T-77-5.6B	
		**********	
		MISCELLANEOUS	
		**********	
5	1-771-695-11	SWITCH, RUBBER KEY	
JP90	1-766-366-11	JACK, DC (DC IN 12V)	
JP100	1-793-136-11	JACK, MODULAR (2C) 6P (TEL)	
JP101	1-793-136-11	JACK, MODULAR (2C) 6P (LINE)	
T70	1-542-368-11	MICROPHONE, ELECTRET CONDENSER	
SP901	1-504-748-21	SPEAKER (6.6CM)	
		**********	
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-132-19	SCREW +PTPWH 2.6X5 (TYPE2)	
#2	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#3	7-685-547-11	SCREW +BTP 3X10 TYPE2 N-S	
		**********	
		PARTSFORINS TALLATION AND CONNECTIONS	
		**********	
51	1-418-458-11	ADAPTOR, AC (AC-T70)	
52	1-696-454-11	CORD (WITH MODULAR PLUG)(LINE)	
53	3-866-411-21	MANUAL, INSTRUCTION (ENGLISH,FRENCH)	
54	3-866-418-21	GUIDE, QUICK START (ENGLISH,FRENCH)	



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