

Service Manual

Telephone Equipment

Telephonpe Conference System

KX-TS700E-B

(for United Kingdom)



■ SPECIFICATIONS

Power Source:	AC adaptor KX-TCA6E (DC13.5 V, 400 mA)
Dial Type:	Tone (DTMF)/Pulse
Redial:	Last dialed number each time the Redial button is pressed
Pause:	3.5 seconds per pause
Memory Capacity:	10 telephone numbers, up to 16 digits per station
Jacks:	DC IN/Telephone line
Speaker:	10 cm PM dynamic
Microphone:	3 condenser microphones
Dimensions (W×H):	175×180 mm
Weight:	945 g

Design and specifications are subject to change without notice.

Panasonic

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you mention the serial number, write down all 11 digits. The serial number may be found on the label affixed to the bottom of the unit.

FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover plastic parts, boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on worktable.
4. Do not grasp IC or LSI pins with bare fingers.

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LOCATION OF CONTROLS

Unit

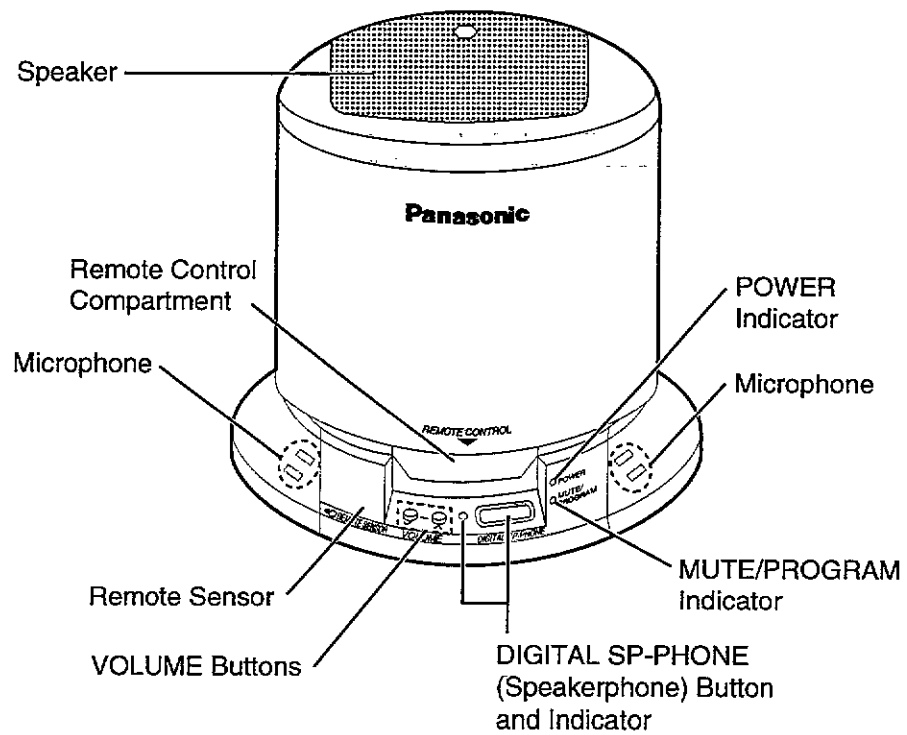


Fig. 1

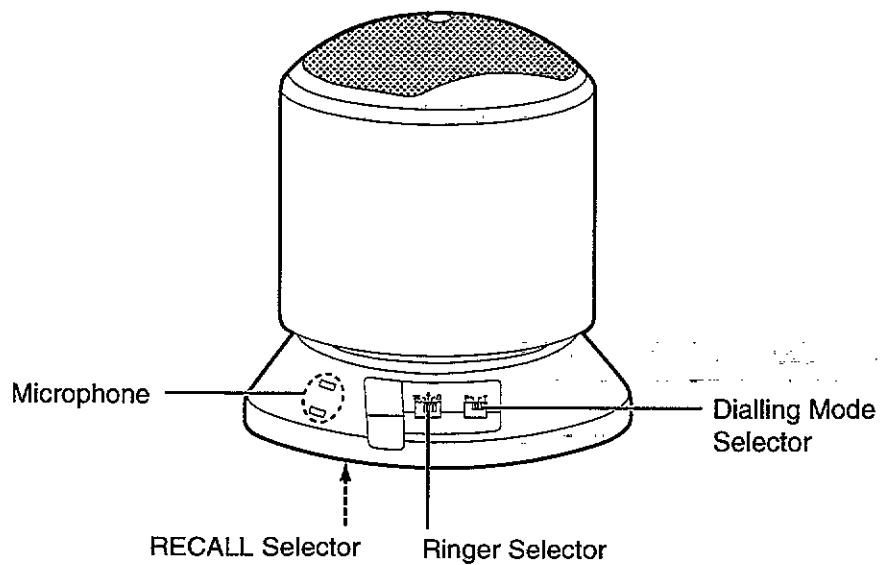


Fig. 2

Remote Control

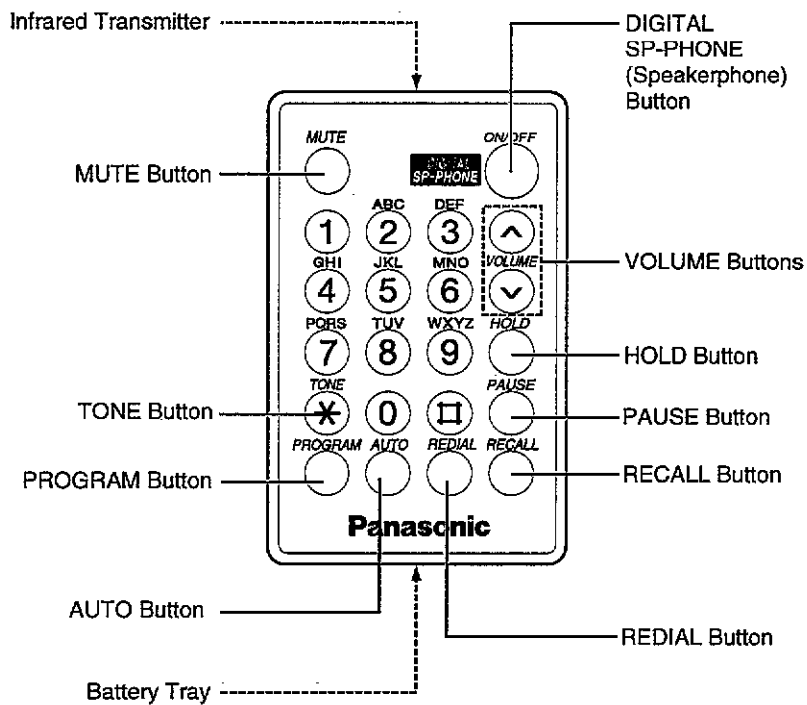


Fig. 3

CONNECTION

- 1 Plug in the AC adaptor cord and the telephone line cord to the bottom of the unit.

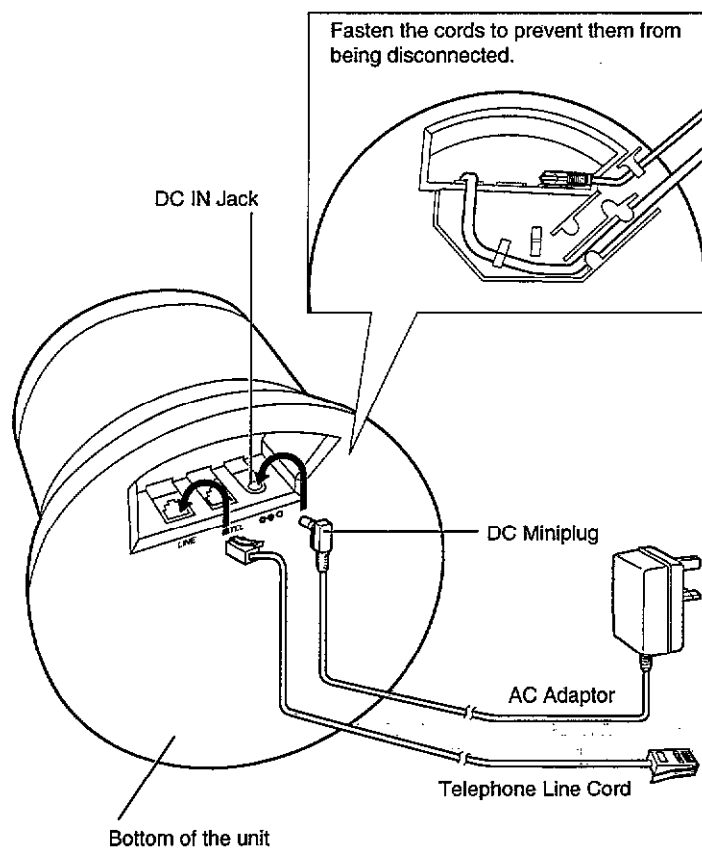


Fig. 4

2 Connect the cords as shown.

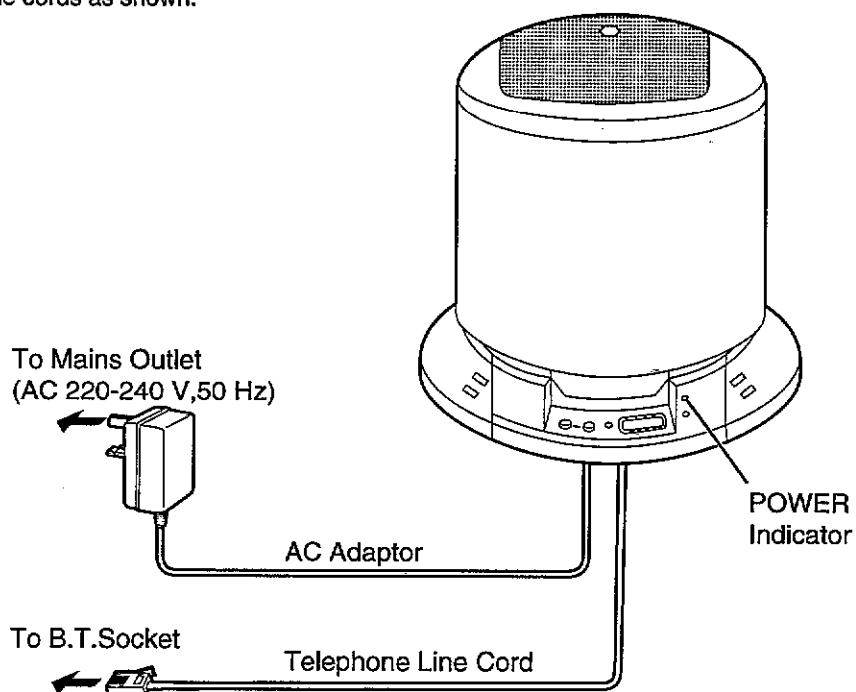


Fig. 5

- USE ONLY Panasonic AC ADAPTOR KX-TCA6E.
- The AC adaptor must remain connected at all times.
(It may feel warm during use. This is normal.)
- The POWER indicator lights while the AC adaptor is connected.
- If you connect a reserve telephone on the same line, see Fig. 6
- This product can be used with a PBX that can support an analog port. Please contact your PBX dealer for more information.

CONNECTION OF POWER SUPPLY

This apparatus is intended for use when powered by the KX-TCA6E. Using other power supplies will invalidate any approval given to this apparatus.

Adding Another Phone

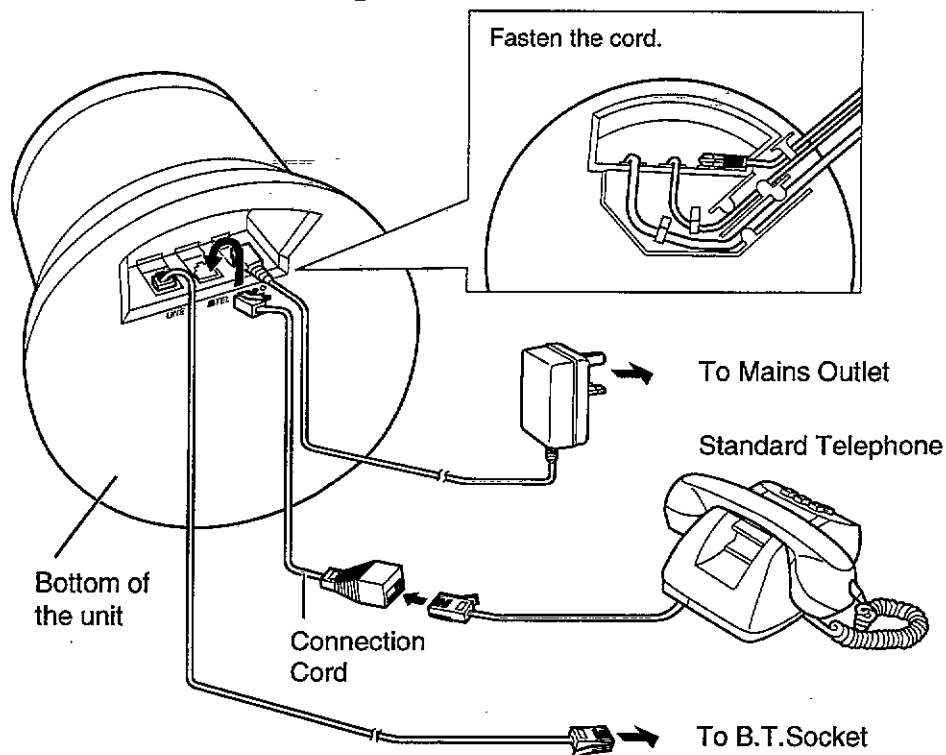
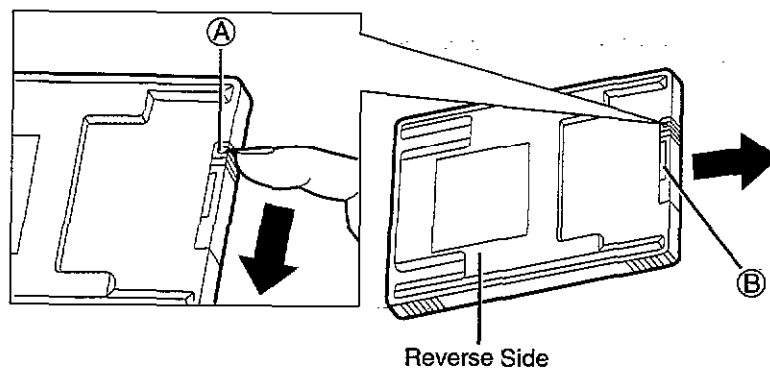


Fig.6

INSTALLING THE BATTERY IN THE REMOTE CONTROL

- 1 While pressing down notch (A), pull out the battery tray by inserting your fingernail in notch (B).



- 2 Install the battery with the plus side up, then insert the tray until it locks into place.

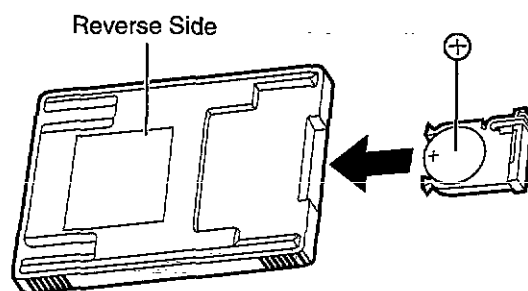


Fig. 7

- Install the battery properly.
- Keep the battery away from children.

Battery Replacement:

- Replace the battery with a **Panasonic CR2025 lithium battery only**. Using another battery may raise the risk of fire or explosion.
- The battery life is about a year when a new Panasonic battery is used at room temperature. (This varies depending on usage and ambient temperature.)
- If the remote control only works when in close vicinity to the unit's remote sensor, replace the battery.

REMOTE CONTROL RANGE

When using the remote control, point the infrared transmitter towards the remote sensor within the unit's maximum operating range.

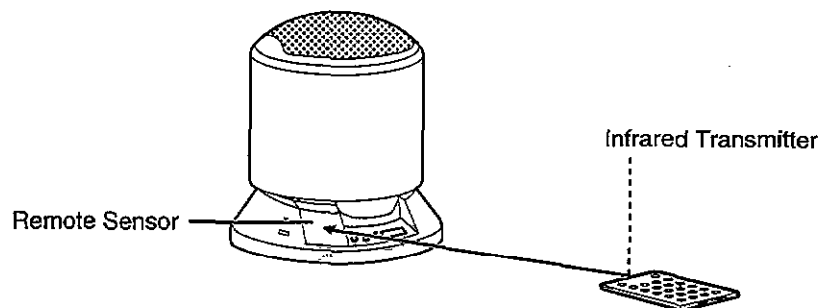
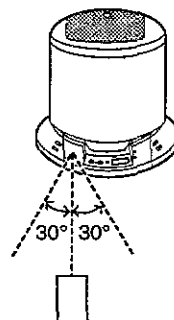


Fig. 8

The maximum operating area is:

Range



Distance

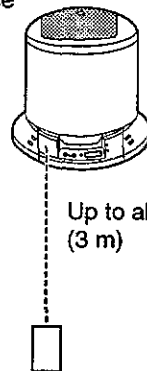


Fig.9

- The operating range may vary depending on the room lighting (incandescent, fluorescent, etc.) or brightness.

OPERATION

NEW OPERATION

Making Calls

- 1 Press **DIGITAL SP-PHONE** on the remote control.

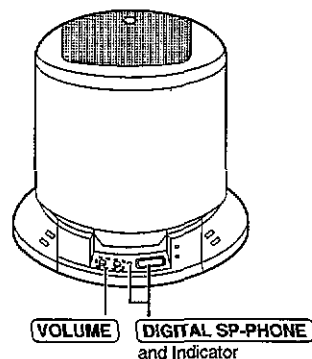
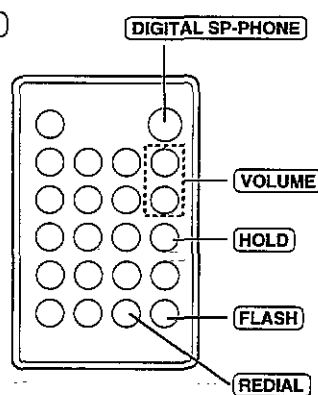
- The DIGITAL SP-PHONE indicator on the unit lights.

- 2 Dial a telephone number.

- 3 To hang up, press **DIGITAL SP-PHONE**.

- The indicator light goes out.

- You can also use **DIGITAL SP-PHONE** on the unit in steps 1 and 3.



To adjust the speaker volume (12 levels)

To increase, press **▲**. To decrease, press **▼**.

Digital Speakerphone

For best performance, please note the following:

- Speak alternately with the caller.
- If the other party's voice from the speaker cuts in/out during a conversation, press **▼** to decrease the speaker volume.
- Use the speakerphone in a quiet room.

To redial the last number

Press **DIGITAL SP-PHONE** → **REDIAL**.

To put a call on hold

Press **HOLD**.

- The DIGITAL SP-PHONE indicator on the unit flashes.
- If you put a call on hold for 6 minutes, a warning tone will sound.
The call will be disconnected after a total of 10 minutes.

To release the hold

Press **DIGITAL SP-PHONE**.

- If another phone is connected on the same line, you can also take the held call on that phone, by lifting its handset.

About the **DIGITAL SP-PHONE** button on the unit

The **DIGITAL SP-PHONE** button on the unit uses non-radioactive luminescent material which can absorb light energy of sunlight or lamps (incandescent, fluorescent, halogen, etc.) and release this absorbed light for darkened room operations.

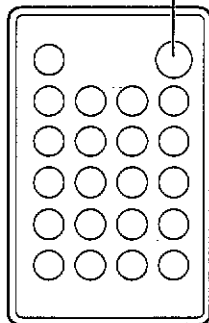
Notice:

- As the absorbed energy in the **DIGITAL SP-PHONE** button material decreases, the button brightness will fade naturally.
- Button brightness and duration depends on the amount of room lighting and exposure time.

Answering Calls

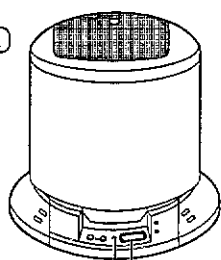
1 Press **DIGITAL SP-PHONE** on the remote control.

DIGITAL SP-PHONE



2 To hang up, press **DIGITAL SP-PHONE**.

• You can also answer a call by pressing **DIGITAL SP-PHONE** on the unit.



DIGITAL SP-PHONE
and Indicator

Automatic Dialing Storing Phone Numbers in Memory

You can store up to 10 phone numbers in the unit using the remote control.

The dialing buttons (0 to 9) function as memory stations. The **DIGITAL SP-PHONE** indicator light must be off. Point the infrared transmitter towards the remote sensor while storing.

1 Press **PROGRAM**.

- The MUTE/PROGRAM indicator on the unit flashes.

2 Enter a phone number up to 16 digits.

- If you misdial, press **PROGRAM** to end storing, then restart from step 1.

3 Press **AUTO**.

4 Press a memory station number (0 to 9).

- A confirmation tone sounds.
- To store other numbers, repeat steps 1 through 4.

- If the AC adaptor is disconnected for more than 3 days, the stored numbers should be confirmed again before dialing.

What the confirmation tone means

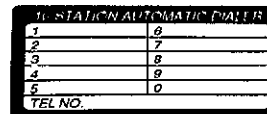
1 beep: A new number has been stored.
2 beeps: The number is the same as a previously stored one.

To erase a stored number

Press **PROGRAM** → **AUTO** → the memory station number (0 to 9) for the phone number to be erased.

Memory sticker

Use the included memory sticker as a name or phone number index for automatic dialing. Attach the sticker to the unit or in a convenient place.



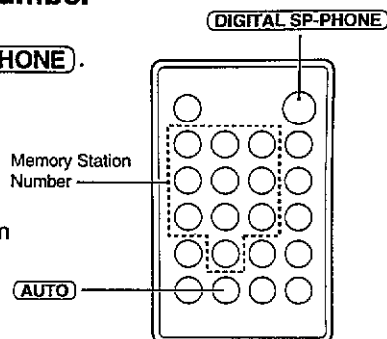
Dialing a Stored Number

1 Press **DIGITAL SP-PHONE**.

2 Press **AUTO**.

3 Press a memory station number (0 to 9).

- The stored number is dialed.



Special Features

Temporary Tone Dialing (For Rotary Service Users)

Press **TONE** before entering access numbers which require tone dialing.

- The dialing mode changes to tone. You can enter numbers to access answering systems, electronic banking services, etc. When you hang up, the mode returns to pulse.

If Your Unit is Connected to a PBX

We recommend you press **PAUSE** between the access number for an outside line and the phone number.

- Pressing **PAUSE** once creates a 3.5 second pause. This prevents misdialing when you redial or dial a stored number. (**PAUSE** counts as one digit.)

Muting Your Conversation

Press **MUTE** while talking. (The MUTE/PROGRAM indicator lights.)

- The other party cannot hear your voice but you can hear theirs.
- To resume the conversation, press **MUTE** again.

CPU DATA

IC2 : PQVI53MF5000

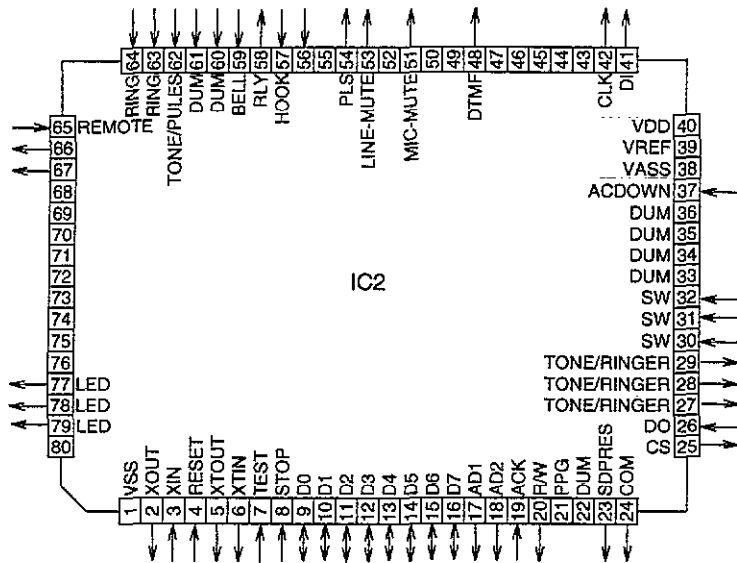


Fig.10

Note: High-Z means open input port condition.

Pin No.	Description	I/O	High	High-Z	Low	Pin No.	Description	I/O	High	High-Z	Low	
1	VSS	-	-	-	GND	41	DI (E-ROM)	O	DATA	-	DATA	
2	XOUT	O	-	-	-	42	CLK (E-ROM)	O	CLOCK	-	CLOCK	
3	XIN	I	-	-	-	43					-	
4	RESET	I	Normal	-	RESET	44					-	
5	XTOUT	O	-	-	Fixed	45	Not Used				-	
6	XTIN	O	-	-	Fixed	46						-
7	TEST	I	-	-	GND	47					-	
8	STOP	I	STOP	-	-	48	DTMF	O	Active	-	Normal	
9	D0	I/O	DATA	Normal	DATA	49	Not Used				-	
10	D1	I/O	DATA	Normal	DATA	50						-
11	D2	I/O	DATA	Normal	DATA	51	MIC MUTE	O	MUTE	-	Unmute	
12	D3	I/O	DATA	Normal	DATA	52	Not Used				-	
13	D4	I/O	DATA	Normal	DATA	53	LINE MUTE	O	UNMUTE	-	Mute	
14	D5	I/O	DATA	Normal	DATA	54	PLS	O	-		-	
15	D6	I/O	DATA	Normal	DATA	55	Not used				-	
16	D7	I/O	DATA	Normal	DATA	56	E-RE	I	Earth	-	Recall	
17	AD1	O	ADDRESS	-	ADDRESS	57	EX-HOOK	O	EX-HOOK	-	Normal	
18	AD2	O	ADDRESS	-	ADDRESS	58	RLY	I	ON	-	OFF	
19	ACK	I	Processing	-	Communication OK	59	BELL	I	Not BELL	-	BELL	
20	R/W	O	Read	-	Write	60	TSTMD2	I	Test Mode	-	Usual	
21	Not Used					61	TSTMD1	I	Test Mode	-	Usual	
22						62	T/P	I	PULSE	-	TONE	
23	DSP RESET	O	-	-	DSP RESET	63	RNGHI	I	LOW	-	OFF	
24	COM	O	Not communicated	-	Communication	64	RNGOFF	I		-	HIGH	
25	CS (E-ROM)	O	Active	-	Stand by	65	REMOTE	I	DATA	-	DATA	
26	DO (E-ROM)	I	DATA	-	DATA	66	SHUNT	O	OFF	-	ON	
27	BEEP CLOCK	O	Active	-	Normal	67	EARTH	O	ON	-	OFF	
28	BEEPCTL	O	-	High	Low	68	Not Used					
29	BEEPCTL	O	-	High	Low	69						
30	KEY IN	I	Disable	-	Enable	70						
31	KEY IN	I	Disable	-	Enable	71						
32	KEY IN	I	Disable	-	Enable	72						
33	Not Used					73						
34						74						
35						75						
36						76						
37	ACDOWN	I	AC	-	Non-AC	77	INUSE LED	O	-	OFF	ON	
38	VASS	-	-	-	GND	78	MUTE/PROG LED	O	-	OFF	ON	
39	VAREF	-	VDD	-	-	79	POWER LED	O	-	OFF	ON	
40	VDD	-	VDD	-	-	80	Not Used					

DISASSEMBLY INSTRUCTIONS

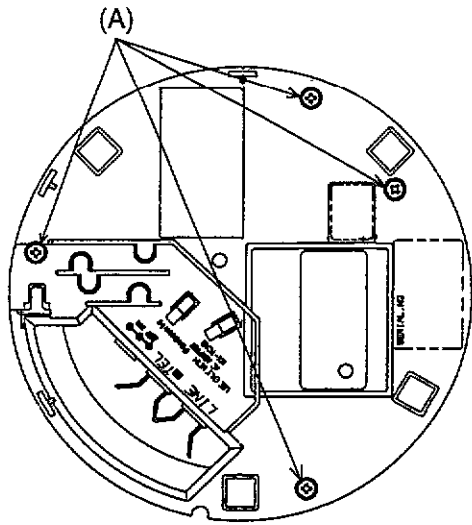


Fig. 11

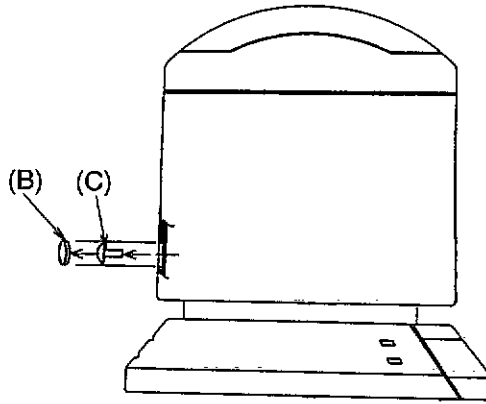


Fig. 12

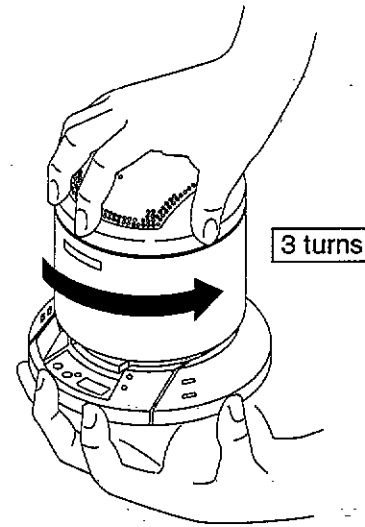


Fig. 13

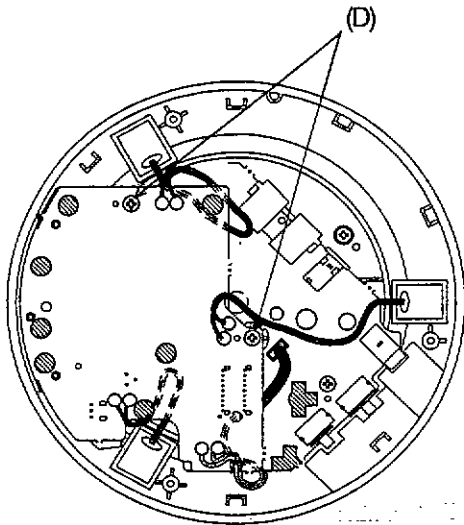


Fig. 14

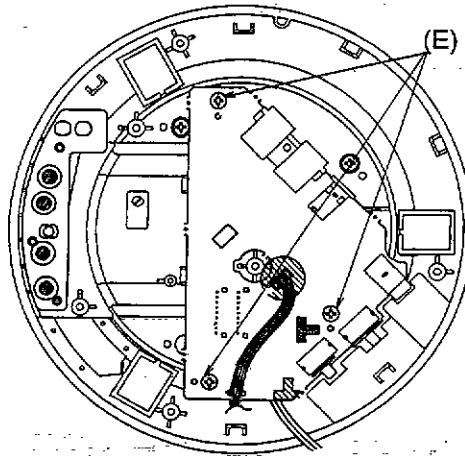


Fig. 15

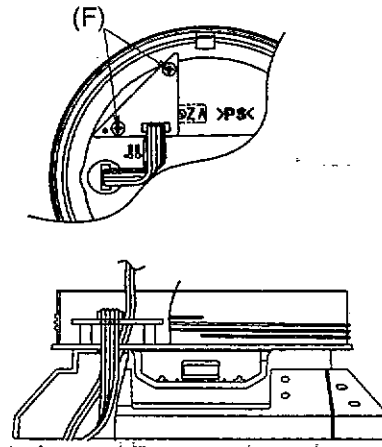


Fig. 16

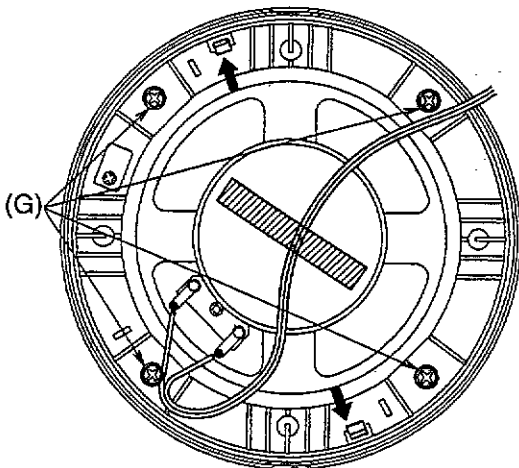


Fig. 17

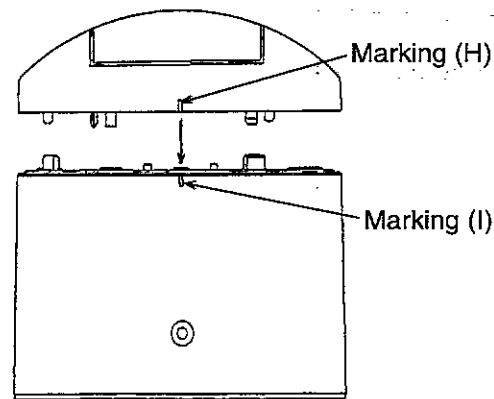


Fig. 18

Ref No.	Procedure	Shown in Fig. –	To Remove	Remove
1	1	11	Lower Cabinet	Screws (3×12) (A)×4
2	1~4	12	Speaker Box	Remove the Screw Cover (B)
3				Screw (3×10) (C)×1
4				3 turns the Speaker Box
5	1~5	14	Intercom P.C.Board	Screws (3×8) (D)×2
6	1~6	15	Main P.C.Board	Screws (3×8) (E)×3
7	1~7	16	Small P.C.Board	Screws (3×8) (F)×2
8	1~8	17	Speaker	Screws (3×12) (G)×4
9	1~9		Speaker Cover	Pull the 2 hooks direction of arrows

Note: When assembling the speaker cover, set the marking (H) and (I) as shown in Fig.18.

HOW TO WRITE EEPROM

The following steps must be taken when replacing EEPROM (IC1).
The unit will not operate unless these operations are performed.

- (1) Replace defective EEPROM with new EEPROM.
- (2) Connect AC adaptor to the unit.....The POWER LED flashes (500 msec. cycle).
- (3) Press the [7] → [6] → [*] buttons in this sequence on the KX-TS700E-B remote controller (these 3 digits must be input in less than 4 seconds).....All LEDs light (500 msec.).
- (4) Press the FLASH button on the KX-TS700E-B remote controller.....Beep 500 msec., and POWER LED lights.
- (5) Press buttons as shown below.
[#], [5], [3], [5], [5], [1], [5], [3], [3], MUTE, MUTE, MUTE, [1], [2], [4], [6], [1], REDIAL, [7], [MUTE], [3], [4], [2], MUTE, [1], [8], [5], [7], [2], MUTE, [6].....INUSE LED and MUTE LED light.
- (6) Repeat steps (4) and (5).....When repeated for the second time: all LEDs light, beep 500 msec.
- (7) Then data has been written in the EEPROM.

If all the LEDs fail to light upon completion of step (6) or if the wrong action is taken, repeat steps (4) and (5).
If they fail to light even when steps (4) and (5) are repeated for the second time, it means that no data has been written in the EEPROM. Check the soldering around the components, re-install the EEPROM, and follow the procedure starting at step (1).

Note: When starting from procedure step (1), be sure to perform the operation in step (3) in less than 4 seconds after the power is turned back on. Otherwise the unit does not enter the write mode in the EEPROM.

HOW TO REPAIR THE MICROPHONE

Symptom: When using speakerphone, the unit does not transmit voice or transmit level is low.

Remedy: Check the microphones (MIC1 ~ MIC3) according to the following procedure, and replace it with new microphone.

1. Connect the AC voltmeter TP21 and GND, and remove all of lead wire for MIC1~MIC3.
2. Then connect AC adaptor, and set the unit to speakerphone mode.
3. Each MIC must be checked individually.
 - 1) Check MIC1.
 - Connect the lead wire for MIC1. Then speak into MIC1 and confirm the response of AC voltmeter.
 - Remove the lead wire for MIC1.
 - 2) Check MIC2.
 - Connect the lead wire for MIC2. Then speak into MIC2 and confirm the response of AC voltmeter.
 - Remove the lead wire for MIC2.
 - 3) Check MIC3.
 - Connect the lead wire for MIC3. Then speak into MIC3 and confirm the response of AC voltmeter.
 - Remove the lead wire for MIC3.
- 4) Compare the response of AC voltmeter between MIC1, MIC2 and MIC3.
No response or low output means that microphone is defective.
4. When replacing microphone (MIC1) you must replace VR1 with a fixed resistor R18 (Part No. ERJ3GEYJ391).
When replacing microphone (MIC2) you must replace VR2 with a fixed resistor R16 (Part No. ERJ3GEYJ391).
When replacing microphone (MIC3) you must replace VR3 with a fixed resistor R17 (Part No. ERJ3GEYJ391).
When you order microphone (PQWMTS700B) please order resistor (ERJ3GEYJ391) also.
※ VR1, VR2 and VR3 cannot be adjusted by service technician.

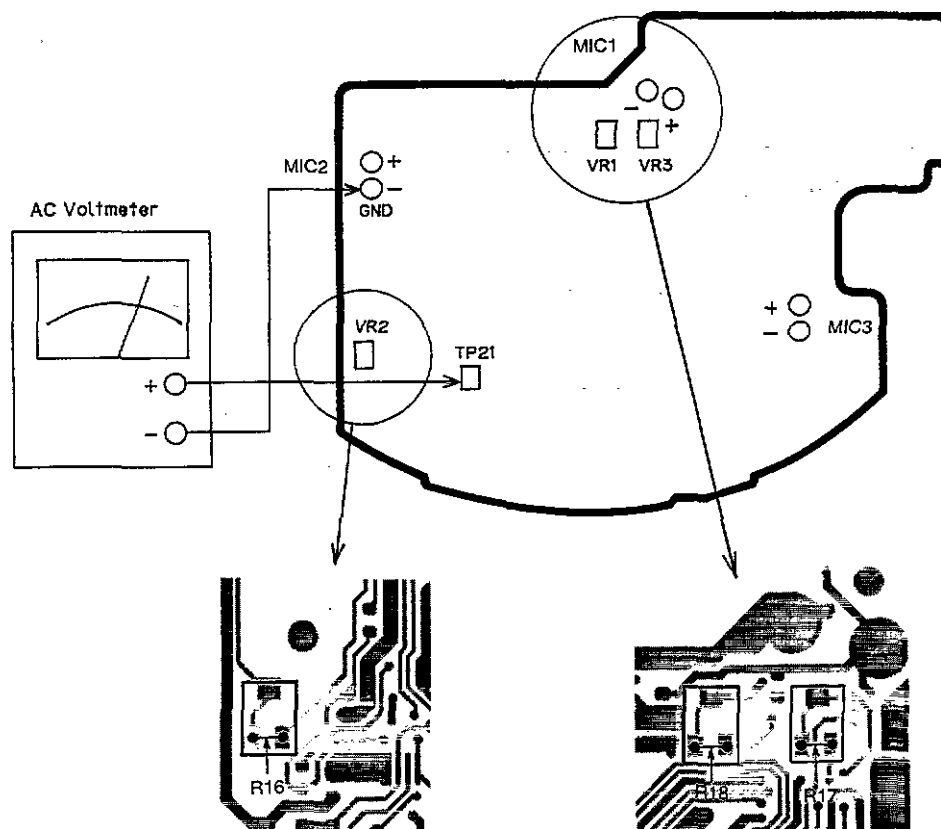


Fig.19

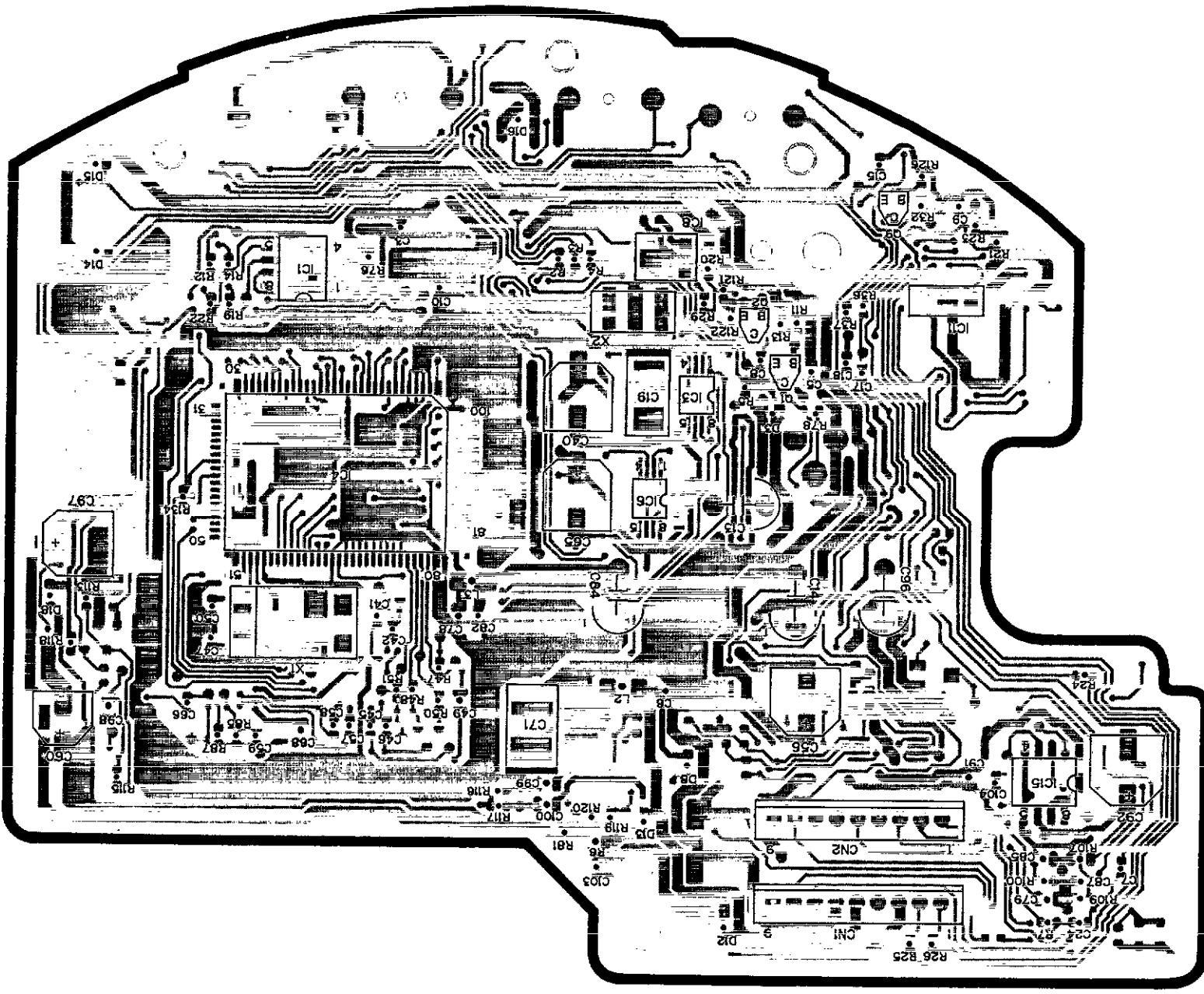
KX-TS700E-B

KX-TS700E-B

CIRCUIT BOARD [MAIN P.C.BOARD]

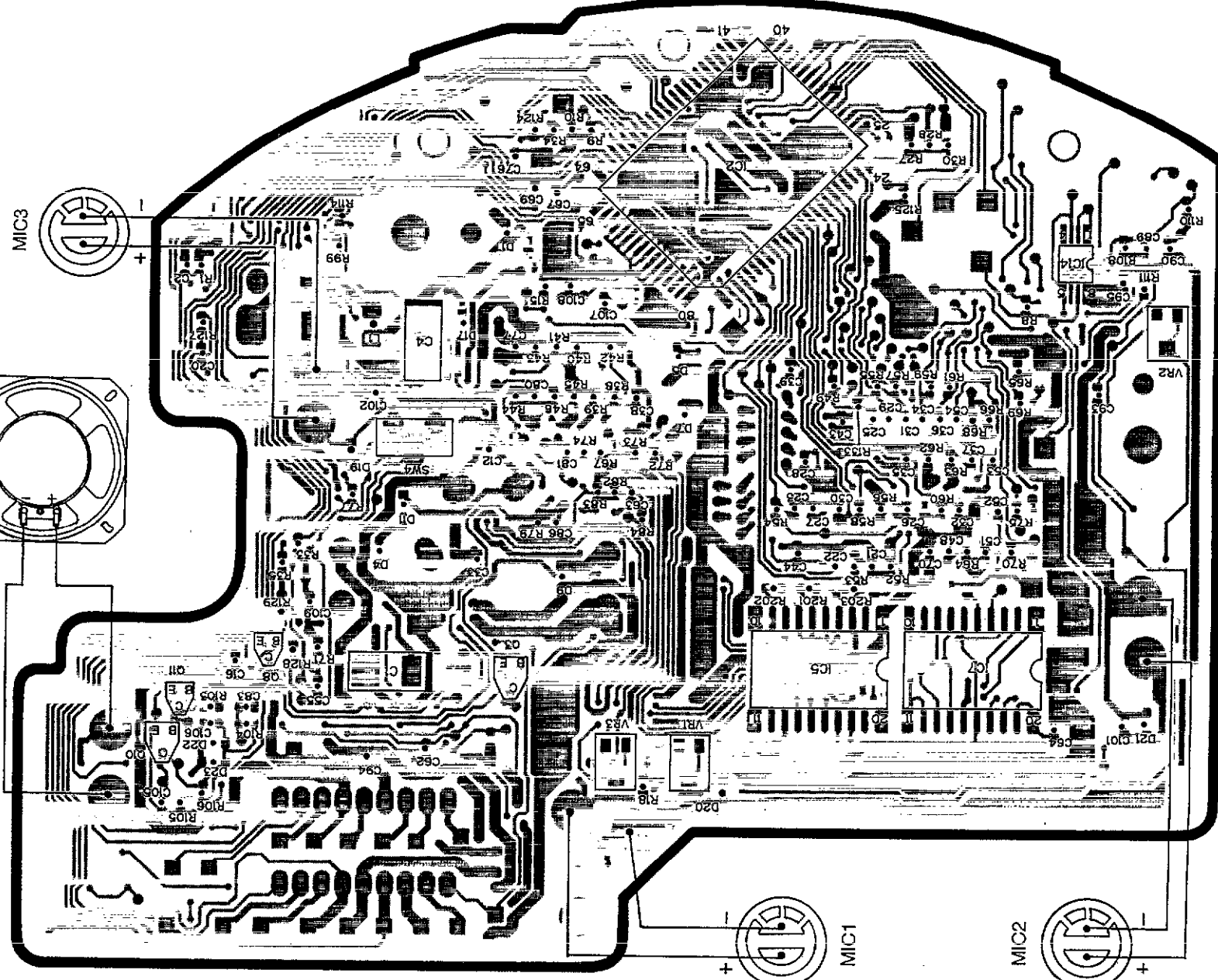
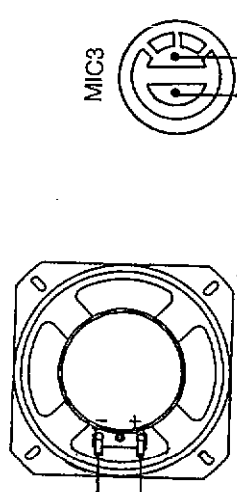
1 2 3 4 5 6 7 8 9 10 11 12

(Component View)



(Flow Solder Side View)

4" (10cm) PM DYNAMIC SPEAKER



KX-TS700E-B

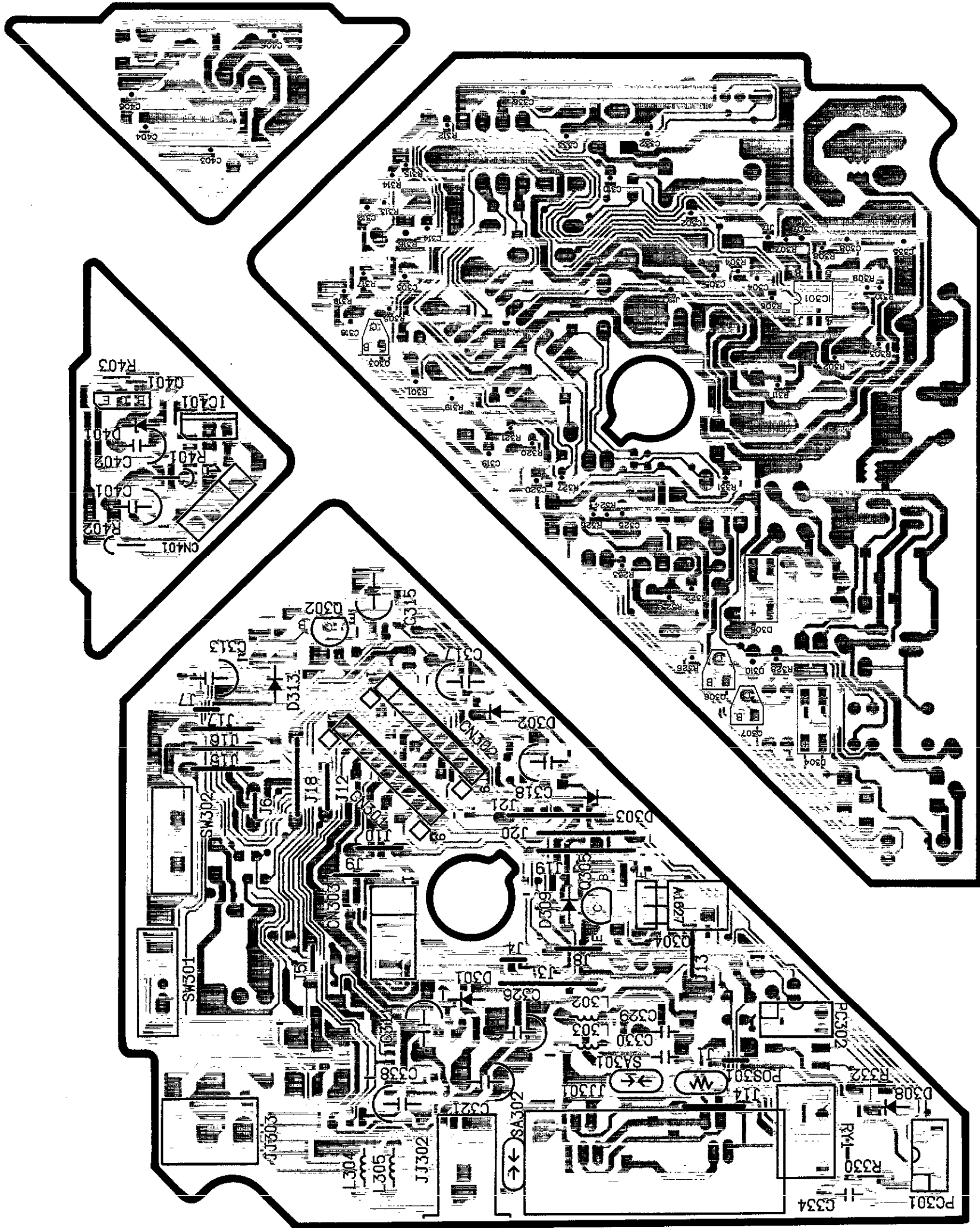
KX-TS700E-B

CIRCUIT BOARD [INTERFACE P.C. BOARD]

1 2 3 4 5 6 7 8 9 10 11 12

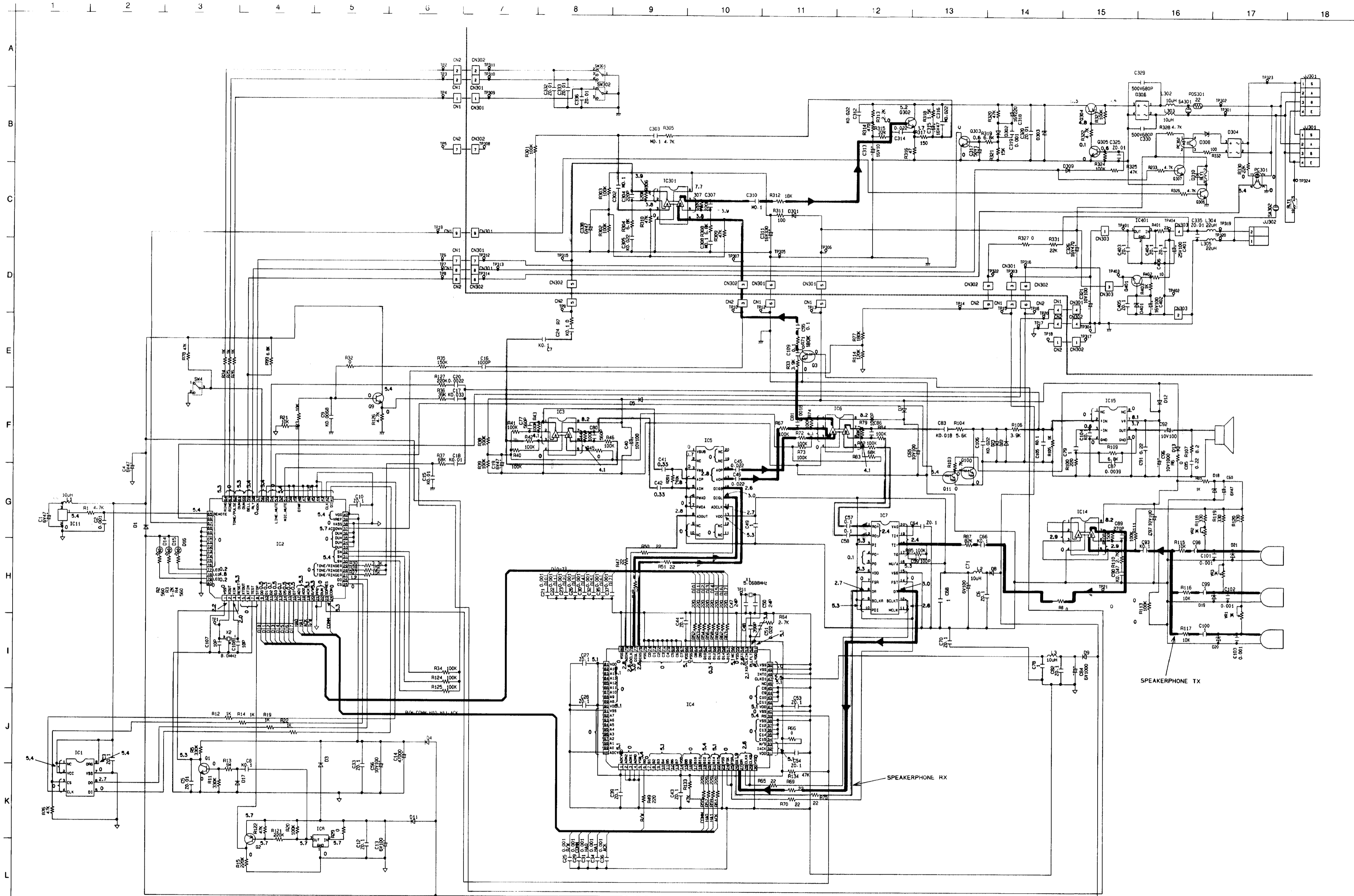
A B C D E F G H

(Component View)



(Flow Solder Side View)

SCHMATIC DIAGRAM



- Notes:**
1. SW4: Recall Selector Switch
 2. SW301: Ringer Selector Switch
 3. SW302: Dialing Mode Selector Switch
 4. DC voltage measurements are taken with voltmeter from the negative voltage line.

Important Safety Notice:
 Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

This schematic diagram may be modified at any time with the development of new technology.

BLOCK DIAGRAM

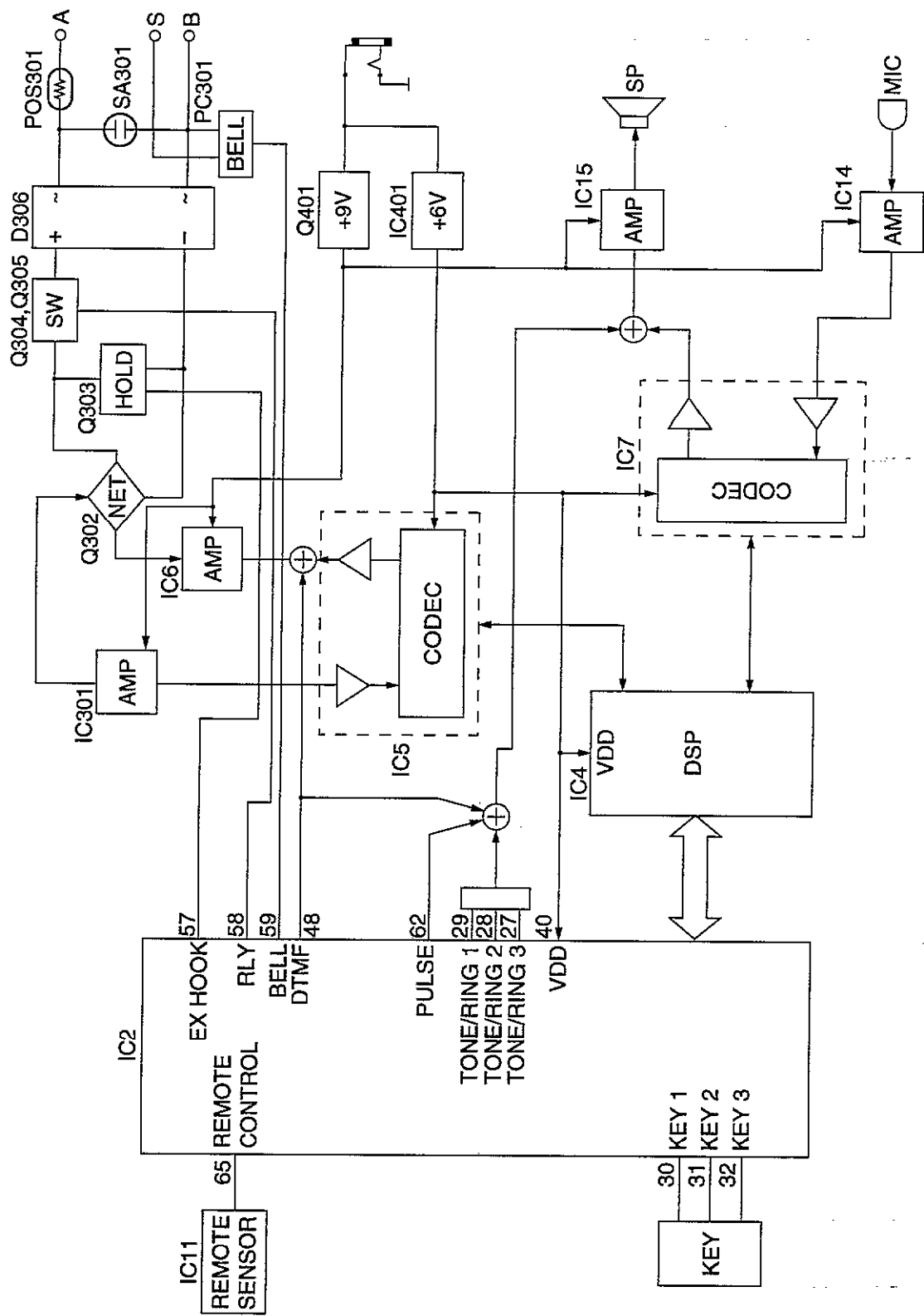


Fig. 20

CIRCUIT OPERATION

TELEPHONE LINE INTERFACE

Circuit Operation:

● OFF HOOK

In the idle mode, Q304 is open to cut the DC loop current and decrease the ring load. When ring voltage appears at the A and B leads (When the telephone rings), the AC ring voltage is transferred as follows:

S → R330 → PC301 → IC2 (59)

When user turns on speaker phone, CPU turns on Q304 thus providing an off-hook condition (active DC current flow through the circuit) and the following signal flow is for the voice signal.

A → POS301 → L302 → D306 → Q304 → Q302 → R316 → D306 → L303 → B

● ON HOOK

Q304 is open cut the DC loop current and to cut the voice signal. The unit is consequently in an on-hook condition.

● SPECIFICATIONS

In the on-hook state (idle), the current flows between the telephone line and the unit is as follows:

S → R330 → PC301 → B

Thereby providing an on-hook condition.

The AC interface impedance is over 22 kΩ; thus, satisfying the telephone company requirements.

Circuit Diagram

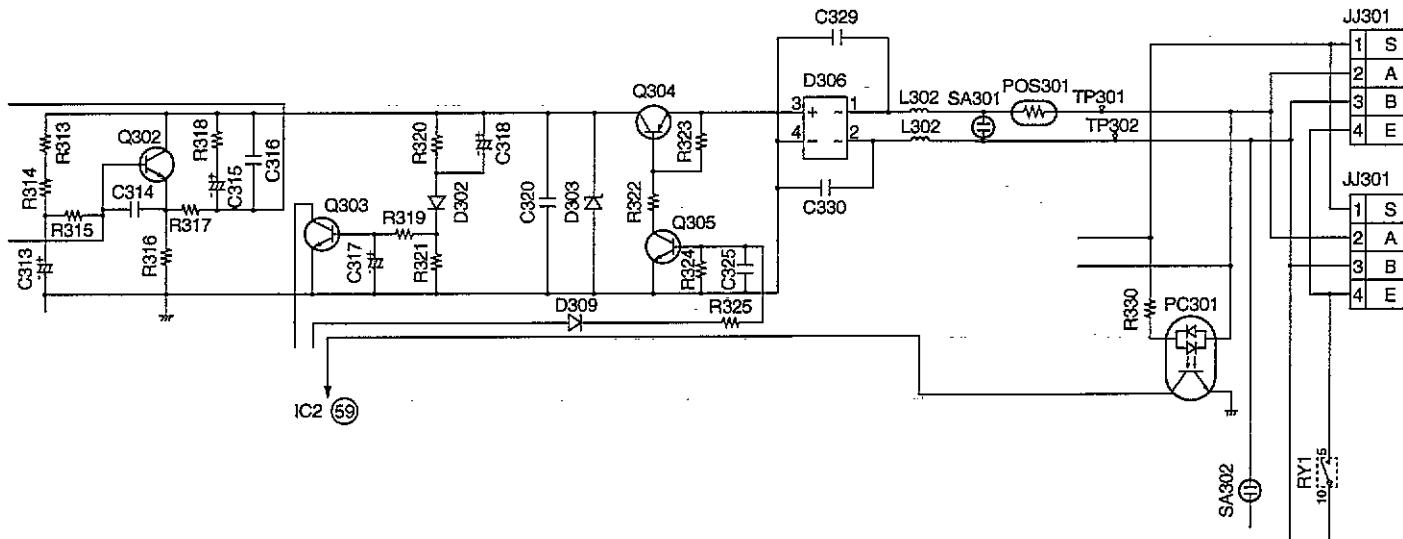


Fig. 21

■ REMOTE CONTROL CIRCUIT

Function:

Remote control signal received by IC11 is converted pulse signal and detected by IC2.

Circuit Operation:

When IR signal is input to IC11, Pin 1 of IC11 output LOW signal and when IR signal is not input to IC11, Pin 1 of IC11 output HIGH signal.

Output signal of Pin 1 of IC11 flows as follow.

Pin 1 of IC11 → R1 → Pin 65 of IC2

Circuit Diagram

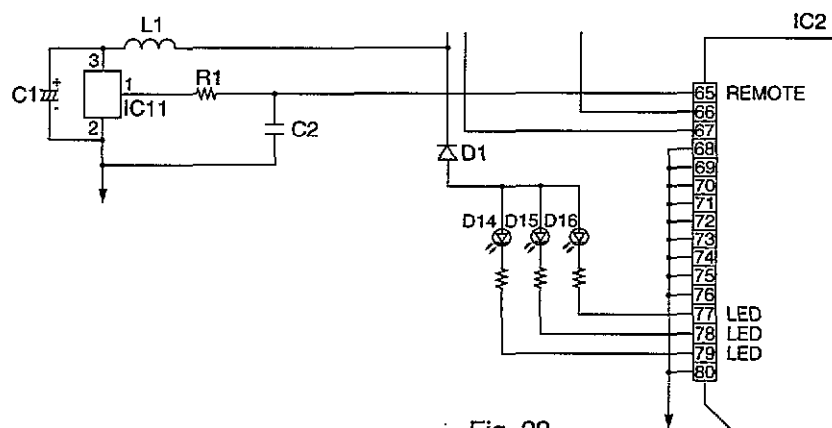


Fig. 22

■ POWER SUPPLY CIRCUIT

Function:

Power from the AC adaptor passes through a 2-stage regulating block consisting of IC401 and Q401 and provides system voltages of 6.2 V.

Circuit Operation:

IC401 is a regulated power supply. The voltage at point (A) is regulated to 6.2 V → power of IC301, IC3, IC6, IC15 is a regulated power supply.

The voltage at point (B) is regulated to 9 V by the zener voltage of D401 → power of IC5, IC7, IC2, IC4, IC11, IC1.

Circuit Diagram

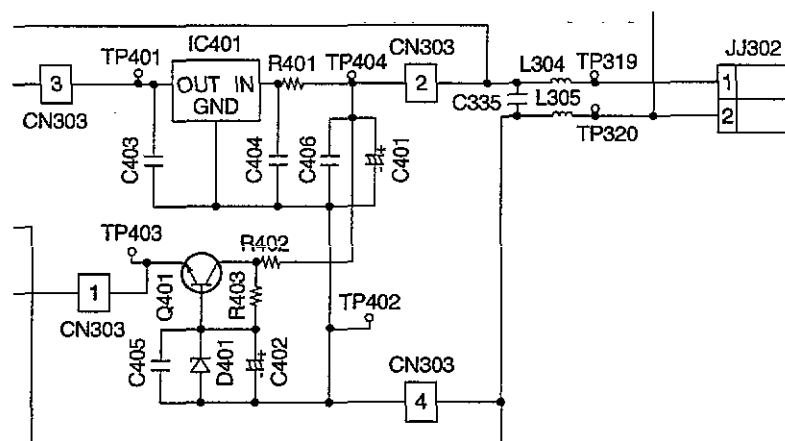


Fig. 23

■ SP-PHONE RX CIRCUIT

Circuit Operation:

A → POS301 → L302 → Q306 → Q304 → C316 → R305 → C303 → C302 → Pin 3 of IC301 → Pin 1 of IC301 → Pin 5 of CN 2 (TP9)
 → R7 → C24 → C7 → R42 → Pin 3 of IC3 → Pin 1 of IC3 → C41 → Pin 4 of IC5 → Pin 8 of IC5 →
 → R46 → Pin 6 of IC3 → Pin 7 of IC3 → C42 → Pin 5 of IC5 →
 → R47 → Pin 79 of IC4 → Pin 26 of IC4 → R75 → Pin 8 of IC7 →
 → Pin 1 of IC7 → C57 → R82 → Pin 5 of IC6 →
 → Pin 2 of IC7 → C58 → R84 → Pin 6 of IC6 →
 → Pin 7 of IC6 → C83 → R104 → R106 → Pin 2 of IC15 → Pin 6 of IC15 → C92 → Speaker.

■ SP-PHONE TX CIRCUIT

Circuit Operation:

MIC1 → C100 → R117
 MIC2 → C99 → R116 } → C93 → Pin 5 of IC14 → Pin 7 of IC14 → R8 → C66 → R87 → Pin 18 of IC7 →
 MIC3 → C98 → R115 }
 Pin 13 of IC7 → R69 → Pin 27 of IC4 →
 Pin 77 of IC4 → R48 → Pin 15 of IC5 → Pin 18 of IC5 → C45 → R72 → Pin 3 of IC6 → Pin 1 of IC6 →
 Pin 76 of IC4 → R51 → Pin 16 of IC5 → Pin 17 of IC5 → C46 → R67 → Pin 2 of IC6 →
 R33 → C109 → R71 → C55 → Pin 3 of CN 2 (TP10) → Pin 5 of IC301
 Pin 7 of IC301 → C310 → R312 → Q302 → Q304 → D306 → L302 → POS301 → A

Circuit Diagram

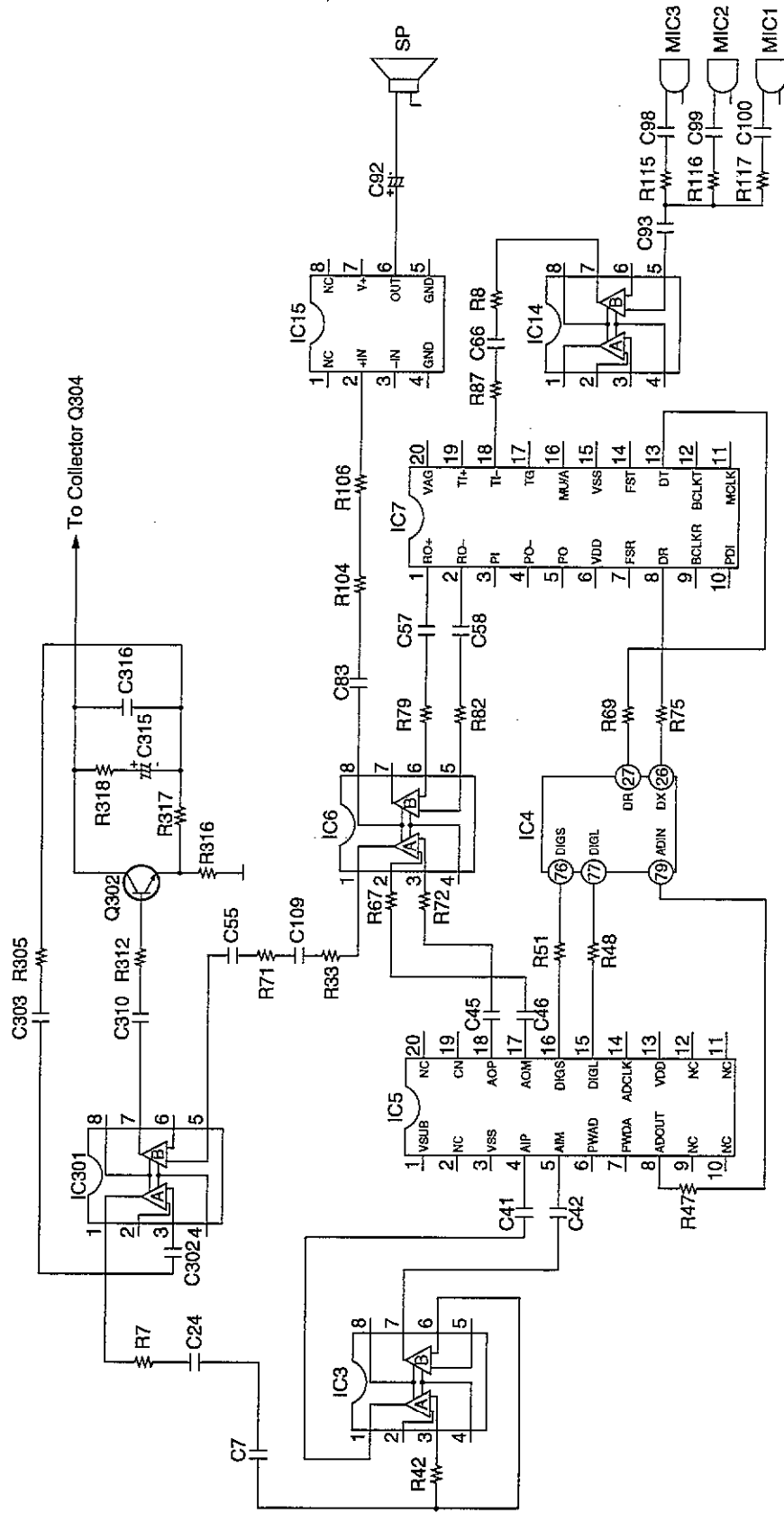


Fig. 24

■ BELL DETECTION CIRCUIT AND BELL GENERATION CIRCUIT

Circuit Operation:

When the bell signal is received from the line, it passes through C334 and R330, turning PC301 ON. As a result, Pin 57 of IC2 becomes Low level. In this way, a ringer tone which corresponds to each line is generated from Pins 27, 28, 29 of IC2. This tone passes through the following path: the generated signal causing the tone ringer to produce a ringing tone.

	fH1	fH2
Pin 27 of IC2	500Hz	750Hz

Pin 27 of IC2 → R27 → R37 → C18 → Pin 2 of IC15 → Pin 6 of IC15 →
 Pin 28 of IC2 → R28 → C92 → Speaker.
 Pin 29 of IC2 → R29

The following shows the waveform of the tone ringing IC output:



Circuit Diagram

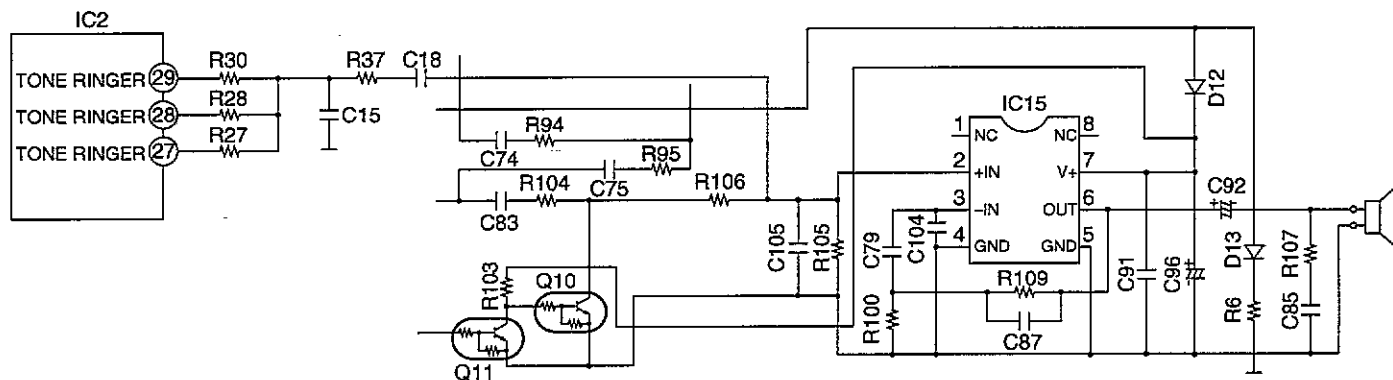


Fig. 25

■ TONE DIAL CIRCUIT

Function:

The tone dialing circuit consists of a DTMF (Dual Tone Multi Frequency) signal generator (outputted from) for tone dialing, and also a circuit for outputting the signal to line.
 The DTMF circuit identifies inputs from the 12 keys (1, 2, 3, 4, 5, 6, 7, 8, 9, 0, * and #) by means of a total of seven frequencies, that is four low frequencies (Low group) and three high frequencies (High group).

Circuit Operation:

When a dial key is pressed, a DTMF signal outputted from Pin 48 of IC2 as an analog synthetic wave.

The signal flow to the line is as follows.

Pin 48 of IC2 → R23 → R32 → R35 → C16 → Pin 5 of IC301 → Pin 7 of IC301 → C310 → R312 → base of Q302 → collector of Q302 → Q304 → D306 → L302 → POS301 → Telephone Line.

The DTMF signal is sent to the line via the following path.

The signal combination and frequency corresponding to each dial key is shown below.

Circuit Diagram

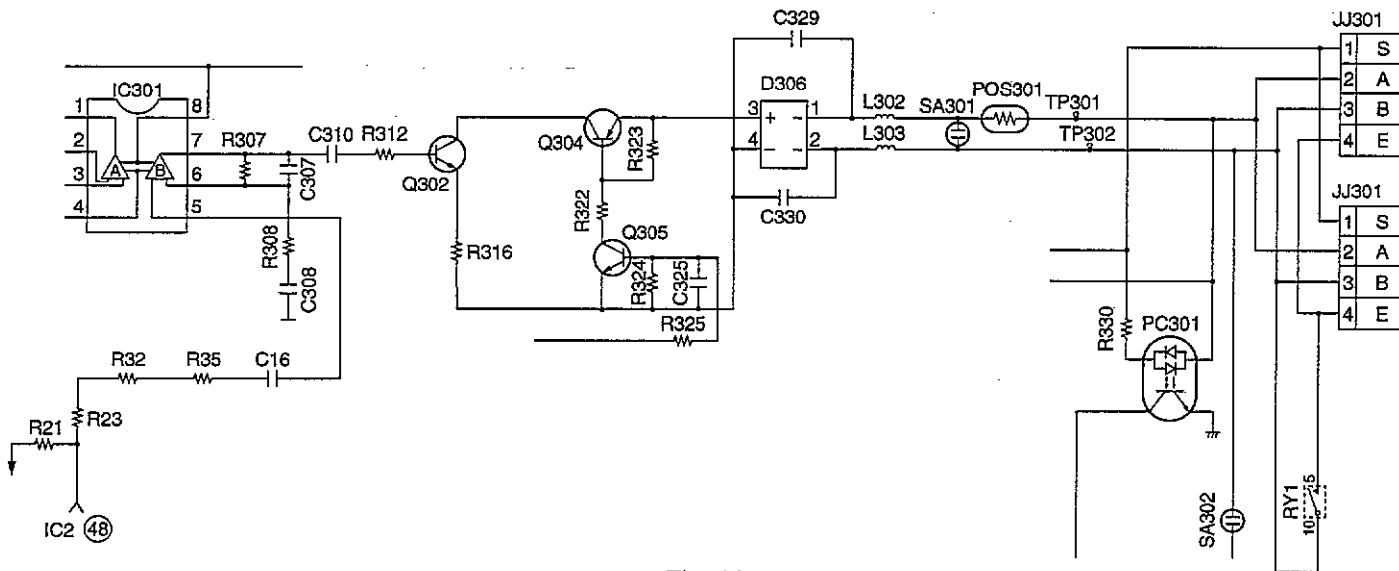


Fig. 26

Tone Frequencies

	High Group	H1	H2	H3
Low Group				
L1		1	2	3
L2		4	5	6
L3		7	8	9
L4		*	0	#

Low Group	Frequencies	High Group	Frequencies
L1	697Hz± 1.5%	H1	1209Hz± 1.5%
L2	770Hz± 1.5%	H2	1336Hz± 1.5%
L3	852Hz± 1.5%	H3	1477Hz± 1.5%
L4	941Hz± 1.5%		

INITIALIZING CIRCUIT

Function:

This circuit is used for to initialize the microcomputer when it incorporates an AC adaptor.

Circuit Operation:

When the AC Adaptor is inserted into the unit, then the voltage is shifted by D4 and power is supplied to the CPU. The set can operate beyond point (A) in the circuit voltage diagram.

Circuit Diagram

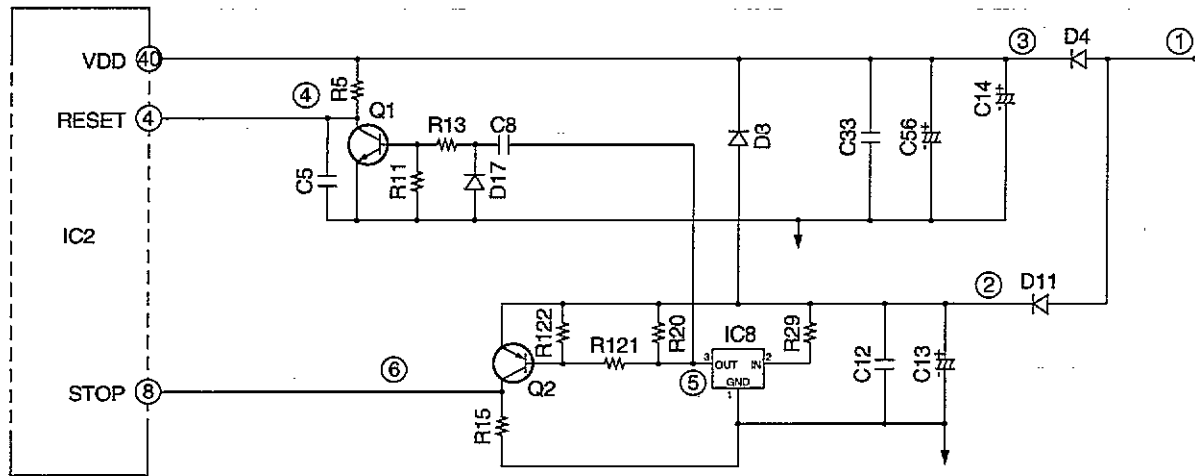


Fig. 27

Circuit Voltage

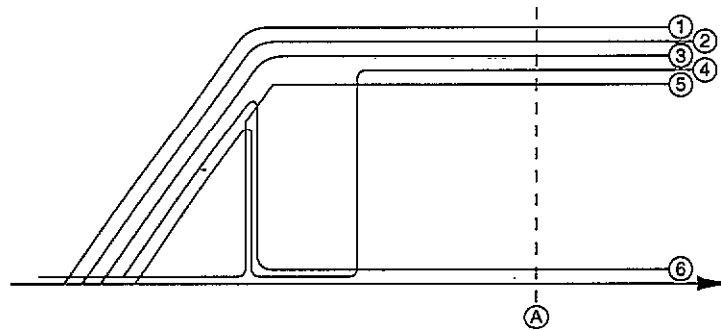


Fig. 28

■ DSP (Digital Signal Processing) CIRCUIT

General Description:

(IC4, IC5, IC7) is a digital speakerphone/signal processing system that implements all the functions of speech compression, required in a digital speakerphone.

The DSP system is fully controlled by a host processor (IC2), via an 8 bit interface. The host processor provides activation and control of all speakerphone functions.

The DSP system comprises of following.

- a Digital Signal Processor which includes firmware implemented functions.
- a Codec (IC5, IC7), which is used as the analog I/O interface.

Block Diagram

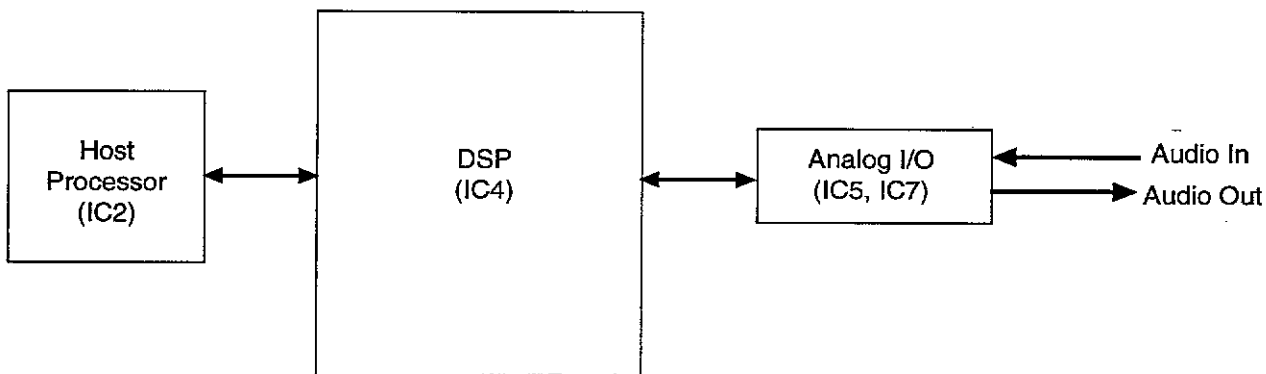


Fig. 29

■ AUTO DISCONNECT CIRCUIT

Function:

This circuit is used to detect the fact that another telephone connected to the same line is OFF-HOOK while the unit is in a receiving status.

Circuit Operation:

A → POS301 → L302 → D306 → Q304 → C318 → D302 → R319 → Q303. During this interval C317 charges and the base of Q303 becomes High, causing Q303 to go ON.

If a parallel-connected telephone is put into an OFF HOOK status, charge ceases to flow to C318, and the base of Q303 becomes Low, causing Q303 to go OFF.

However, the system is designed so that if the voltage fluctuation is small, the charging and discharging of C317 has no effect on the system.

When a line is connected, Q303 goes ON, causing Pin 57 of IC2 to go low. When the line is disconnected, Q303 goes off, causing Pin 57 of IC2 to go high.

Circuit Diagram

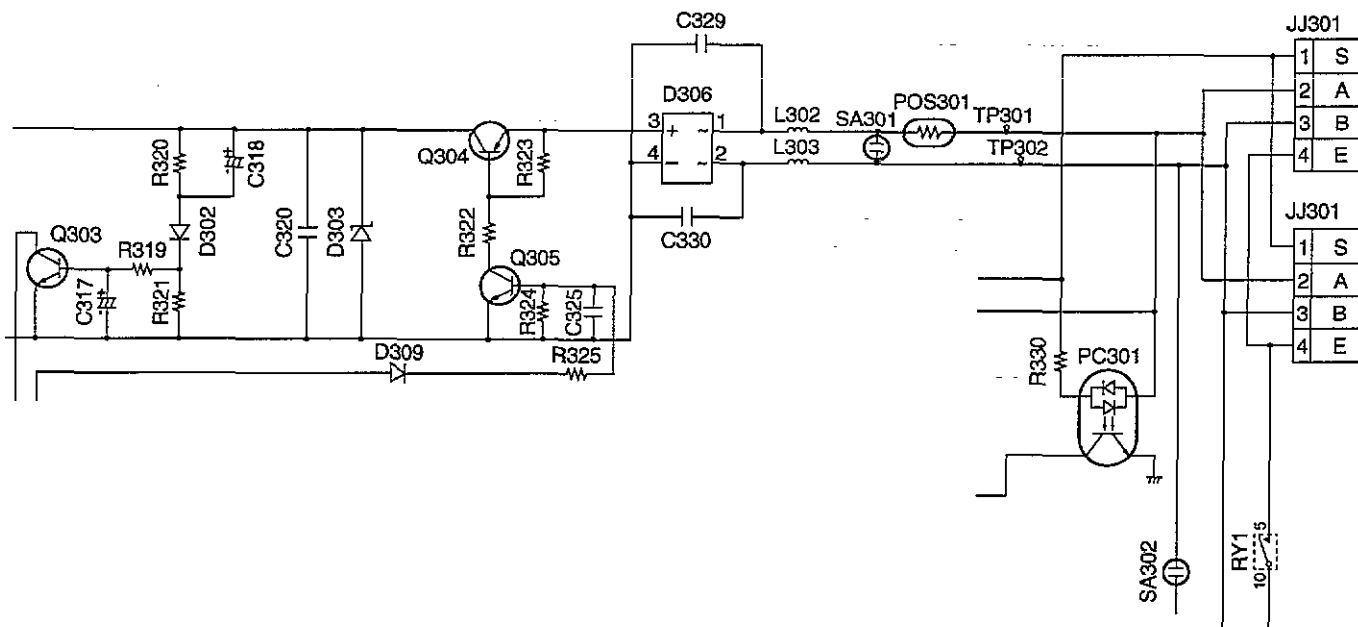


Fig. 30

TROUBLESHOOTING GUIDE

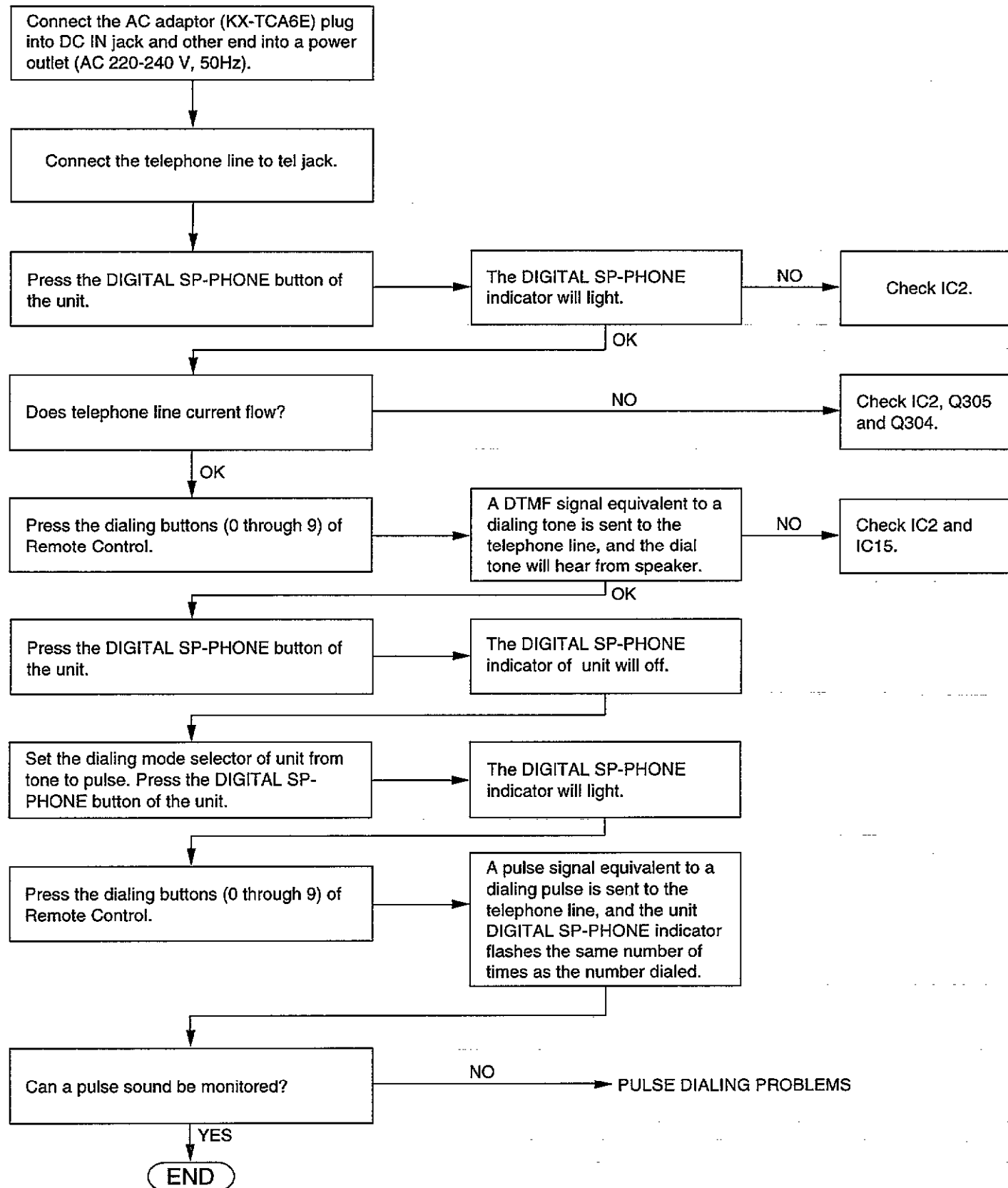
SERVICE HINTS

SYMPTOM	CURE
Can't dial.	Check IC2, Q305, Q304, Q302, X2, C107 and C108.
Can't hear the voice from SP.	Check IC301, IC3, IC5, IC4, IC7, IC6 and IC15.
No voice transmit.	Check IC14, IC7, IC4, IC5, IC3, IC301, Q302, Q304, MIC1, MIC2 and MIC3.
Can't tone dial.	Check IC2, IC301, Q302 and Q304.
Can't pulse dial.	Check IC2, Q305 and Q304.
No rings.	Check IC2, PC301 and IC15.
Can't hold.	Check Q303 and IC2.
Can't change the volume speakerphone.	Check IC2, IC4.
POWER LED doesn't light.	Check IC401 and IC2.

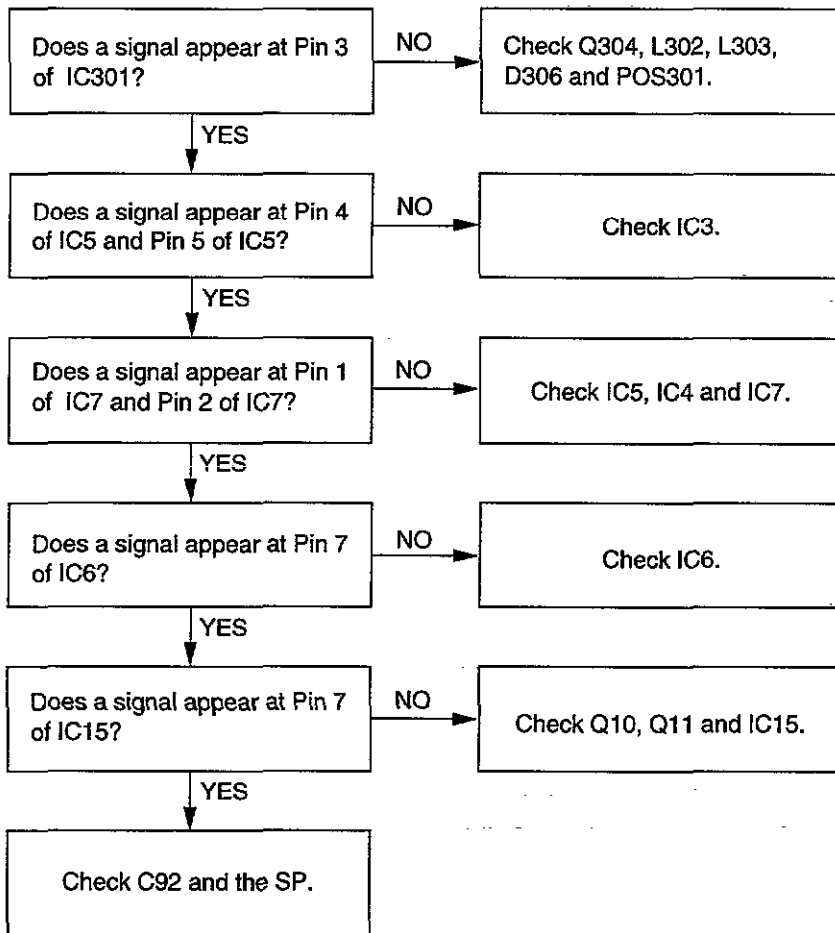
Unit Condition:

1. Set the Ringer selector to "HIGH".
2. Set the dialing mode selector to "Tone".

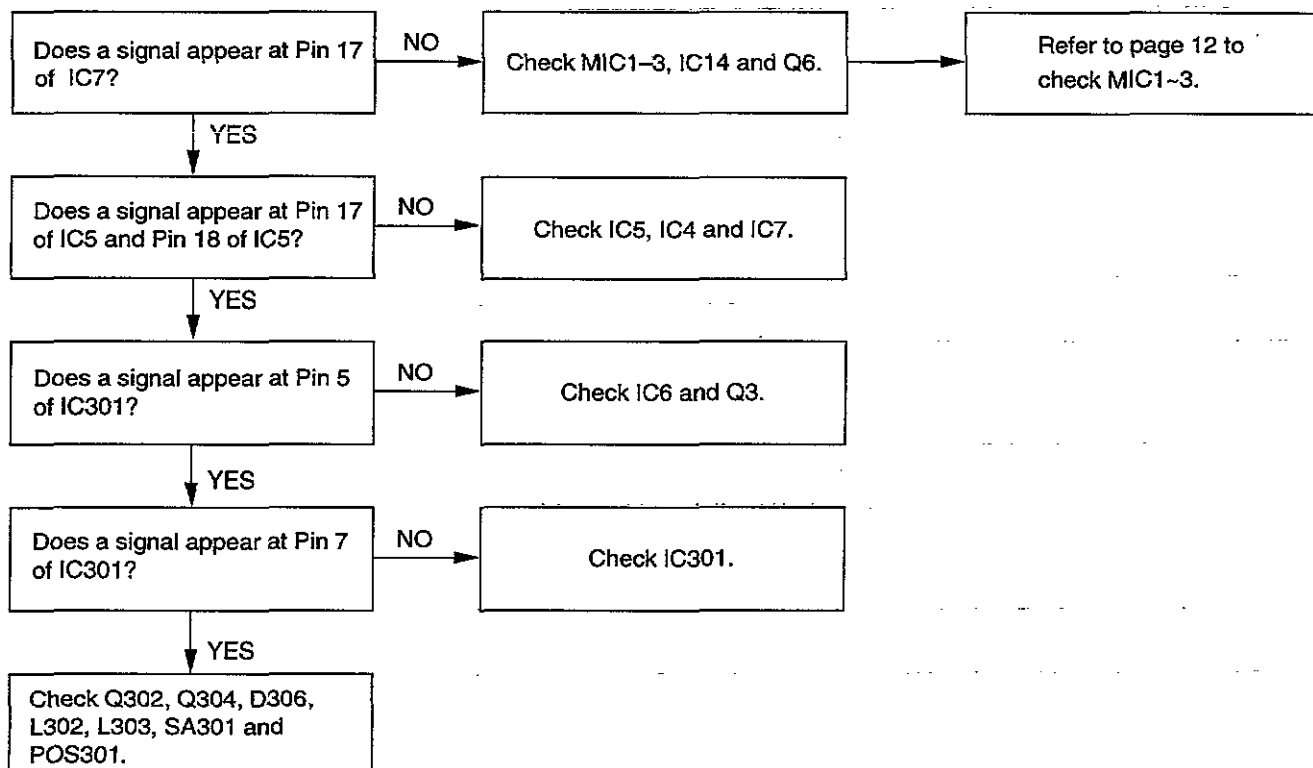
Check the unit as shown by following below flow chart.

Operation

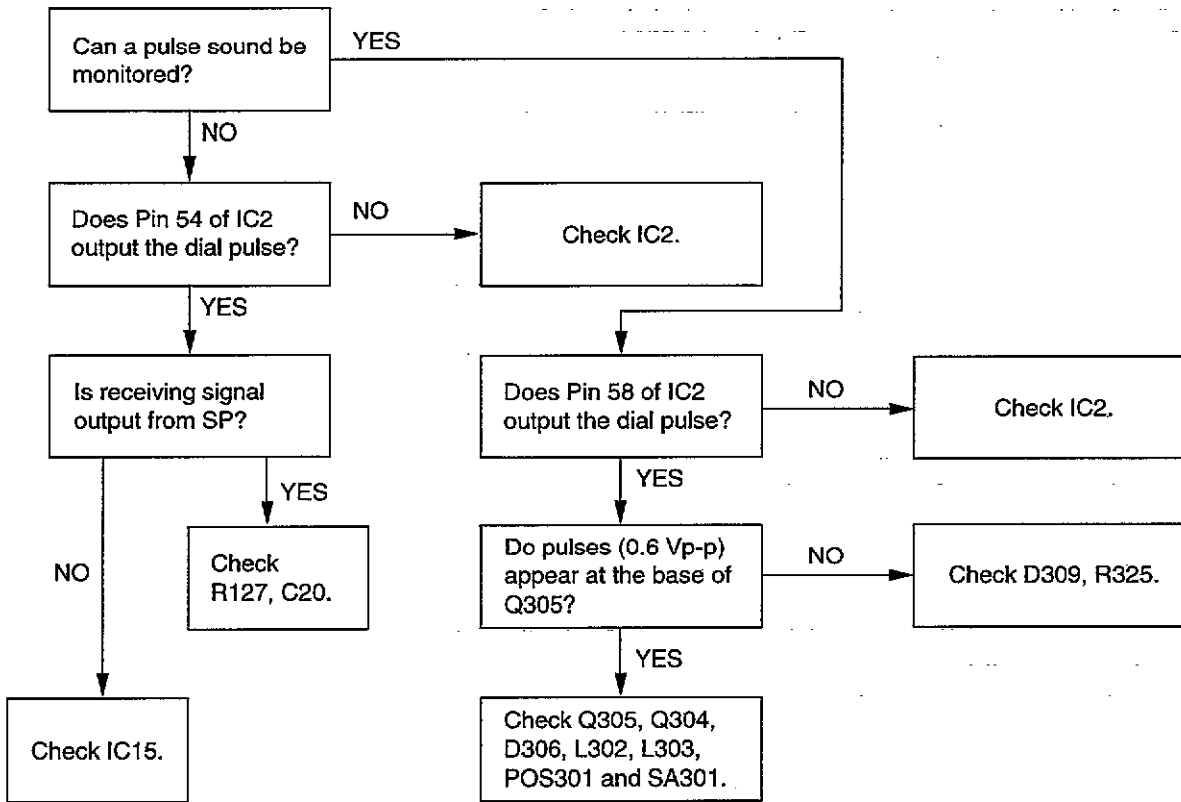
1. WHEN SP-PHONE WORKS, DOES NOT RECEIVE.



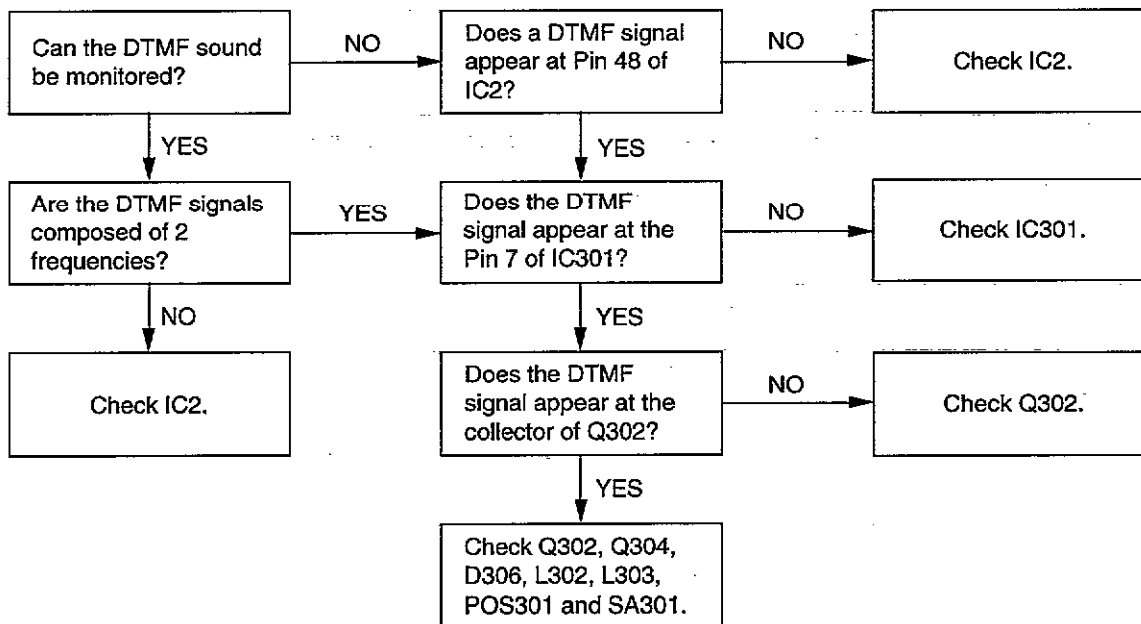
2. WHEN SP-PHONE WORKS, DOES NOT TRANSMIT.



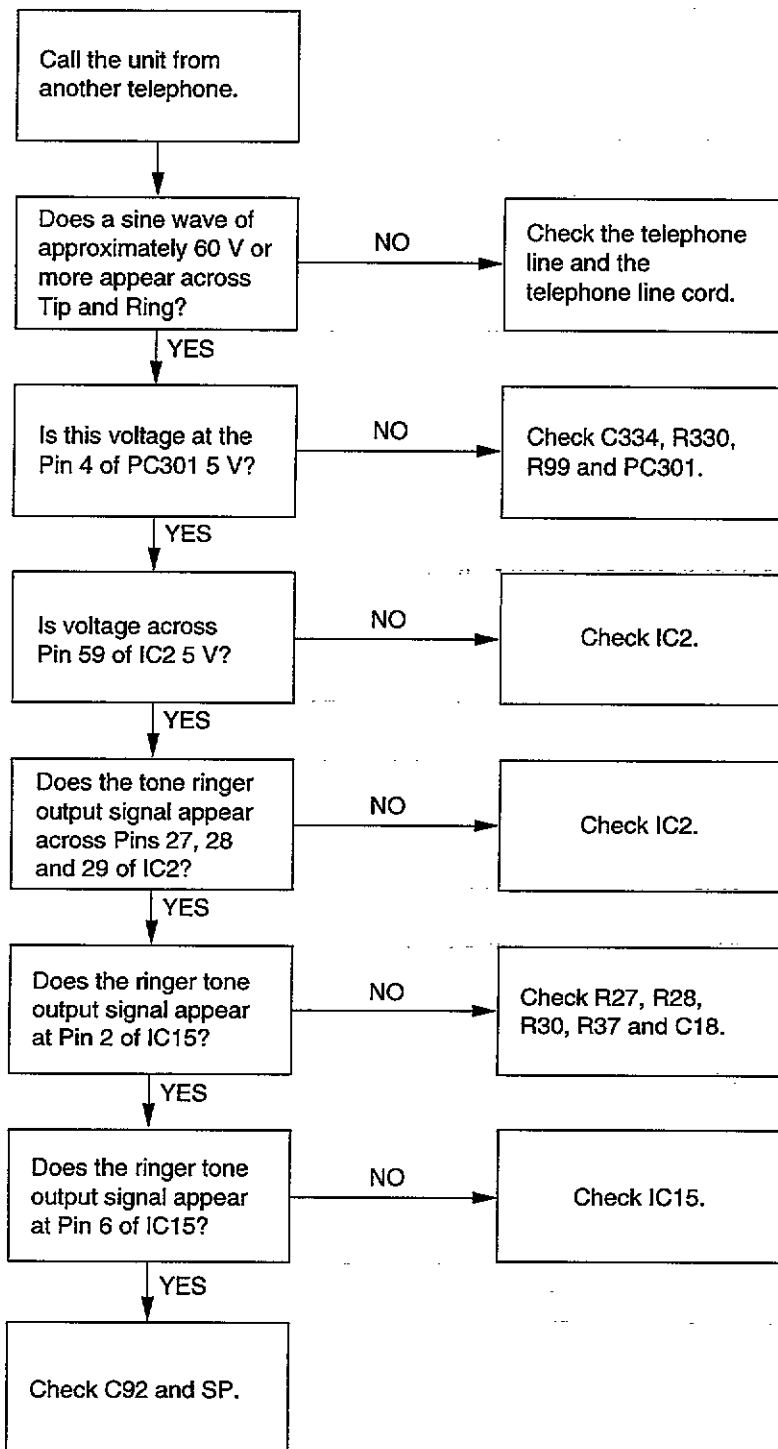
3. PULSE DIALING PROBLEMS



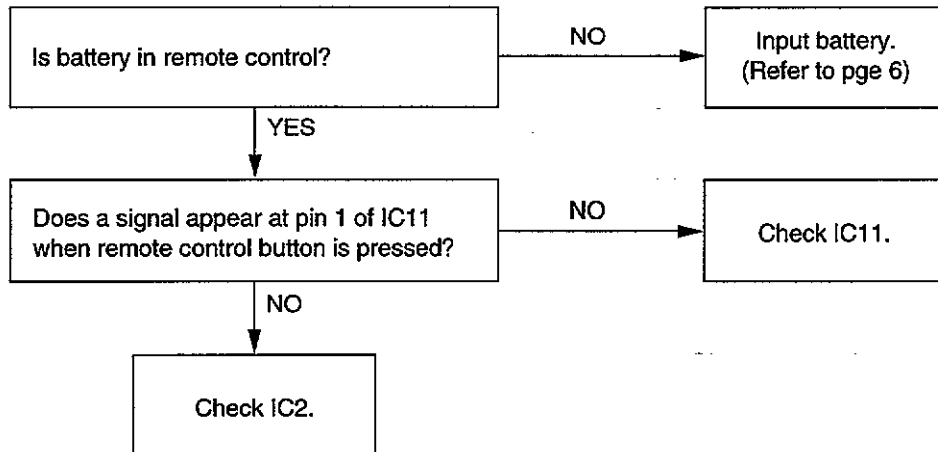
4. TONE DIALING PROBLEMS



5. NO "RINGING" SOUND WHEN A RING SIGNAL IS INPUT

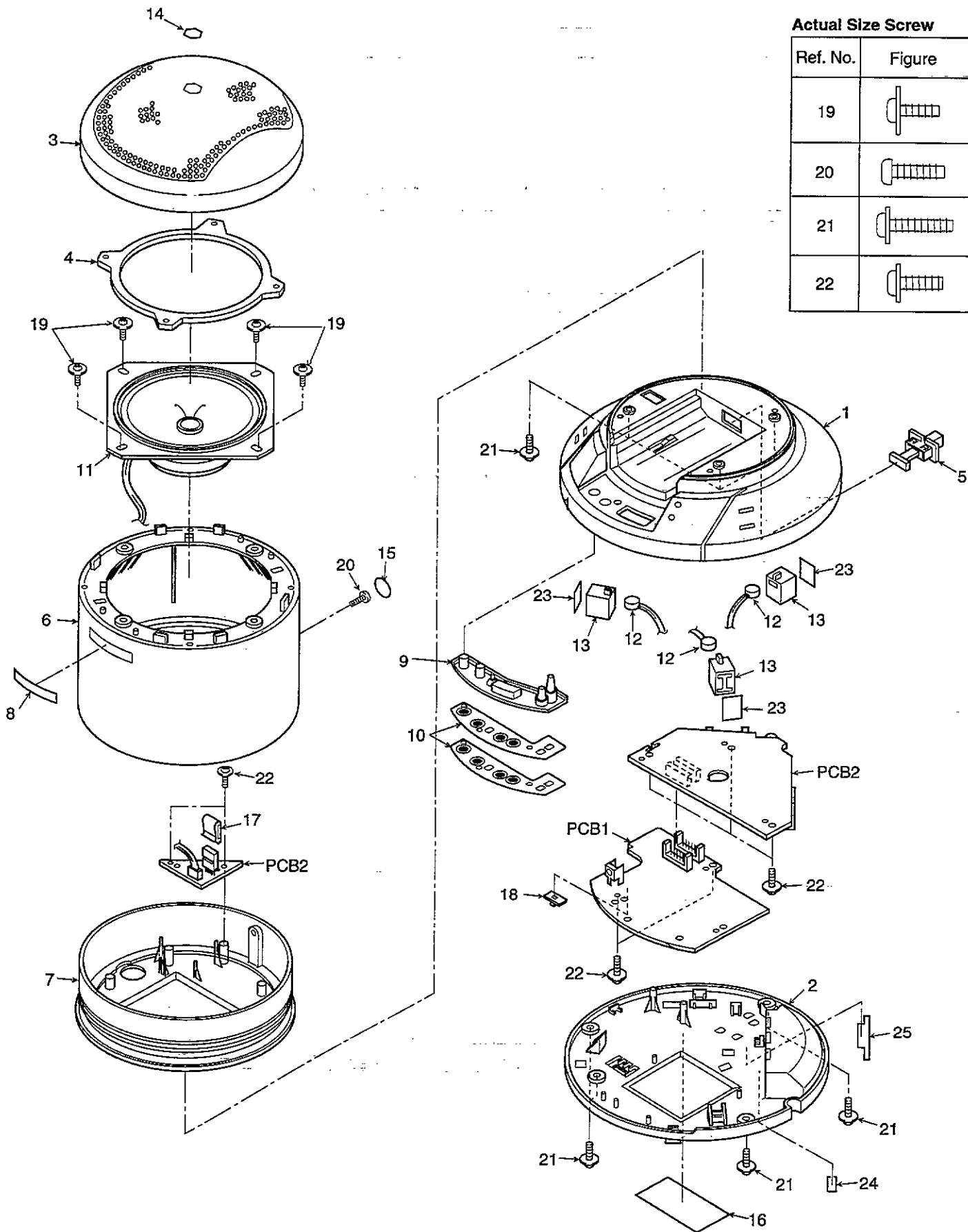


6. REMOTE CONTROL PROBLEM



Note: When the remote control is wrong, replace it to new remote control (KX-TCA2E).
The remote control KX-TCA2E is available through sales route of Panasonic.

CABINET AND ELECTRICAL PARTS LOCATION



Actual Size Screw

Ref. No.	Figure
19	
20	
21	
22	

Fig. 31

ACCESSORIES AND PACKING MATERIALS

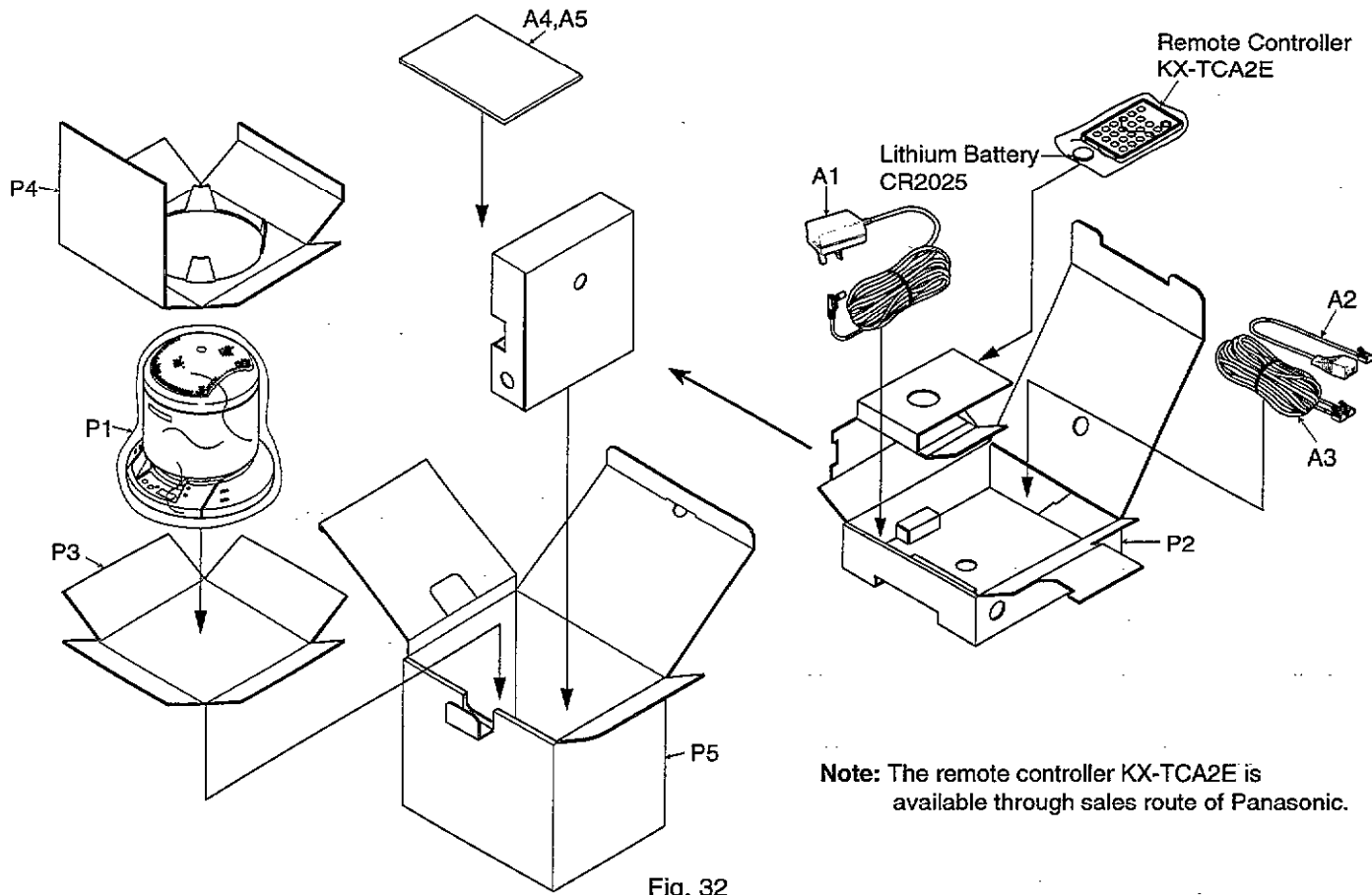


Fig. 32

TOOL

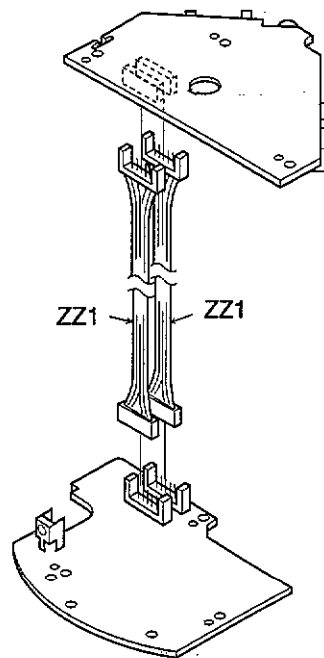


Fig. 33

This replacement parts list are United Kingdom version only.

REPLACEMENT PARTS LIST

Model: KX-TS700E-B

Note:

1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention.

After the end of this period, the assembly will no longer be available.

2. Important safety notice.

Components identified by a Δ mark special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

3. The S mark indicates service standard parts and may differ from production parts.

4. RESISTORS & CAPACITORS

Unless otherwise specified.

All resistors are in ohms (Ω) K=1000 Ω , M=1000K Ω

All capacitors are in MICRO FARADS (μ F) P= μ F

*Type & Wattage of Resistor

Type

ERC:Solid	ERX: Metal Film	PQ4R: Carbon
ERD: Carbon	ERG: Metal Oxide	ERS: Fusible Resistor
PQRD: Carbon	ER0: Metal Film	ERF: Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
------------	------------	---------	------	------	------

*Type & Voltage of Capacitor

Type

ECFD: Semi-Conductor	ECCD, ECKD, ECBT, PQCBC : Ceramic
ECQS: Styrol	ECQE, ECQV, ECQG : Polyester
PQCUV: Chip	ECEA, ECSZ : Electrolytic
ECQMS: Mica	ECQP : Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others		
1H: 50V	05: 50V	0F: 3.15V	0J :6.3V	1V :35V	
2A: 100V	1: 100V	1A: 10V	1A :10V	50, 1H: 50V	
2E: 250V	2: 200V	1V: 35V	1C :16V	1J :63V	
2H: 500V		0J: 6.3V	1E, 25: 25V	2A :100V	

Ref. No.	Part No.	Part Name & Description	Pcs/Set
ACCESSORIES			
A1	KX-TCA6E	AC ADAPTOR	Δ 1
A2	PQJA10077Z	TEL CORD (LONG)	Δ 1
A3	PQJA10078Z	TEL CORD (SHORT)	Δ 1
A4	PQQT11156Y	TEL CARD LABEL	1
A5	PQQX11803Z	INSTRUCTION BOOK	1
PACKING MATERIALS			
P1	PQPP10079Z	PROTECTION COVER	1
P2	PQPN10581Z	ACCESSORY BOX	1
P3	PQPD10341Z	CUSHION	1
P4	PQPD10340Z	CUSHION	1
P5	PQPK12380Z	GIFT BOX	1
TOOL			
ZZ1	PQZZ9Z12Z	EXTENSION CORD	2
Note: PQZZ9Z12Z is necessary for servicing.			
MAIN P.C. BOARD PARTS			
PCB1	PQWP1TS700E	P.C. BOARD ASSY (RTL)	1
IC1	PQVI93LC46XI	(ICS) IC	S 1
IC2	PQVI53MF5000	IC	1
IC3	PQVINJM4558V	IC	1
IC4	PQVIMRD47V2	IC	1
IC5	PQVIMRC47ST	IC	1
IC6	PQVINJM4558V	IC	1
IC7	PQVIMCL548DW	IC	1
IC8	PQVIS80744NT	IC	1
IC11	PNA4601M00HC	IC	1
IC14	PQVINJM4558V	IC	1
IC15	PQVINJM2070M	IC	1
Q1	2SD1819A	(TRANSISATORS) TRANSISTOR(SI)	1
Q2	2SB1218A	TRANSISTOR(SI)	1
Q3	PQVTFB1J3P	TRANSISTOR(SI)	1
Q9	2SD1819A	TRANSISTOR(SI)	1
Q10	PQVTFB1J3P	TRANSISTOR(SI)	1
Q11	UN5213	TRANSISTOR(SI)	S 1
D1	MA110	(DIODES) DIODE(SI)	1
D3	MA110	DIODE(SI)	1
D4	MA110	DIODE(SI)	1
D5	MA110	DIODE(SI)	1
D7	MA110	DIODE(SI)	1
D8	MA110	DIODE(SI)	1
D9	MA112	DIODE(SI)	1
D11	MA110	DIODE(SI)	1
D12	MA112	DIODE(SI)	1
D13	MA112	DIODE(SI)	1
D14	PQVDBR1112H	DIODE(SI)	1
D15	PQVDBR1112H	DIODE(SI)	1
D16	PQVDPY1112H	DIODE(SI)	1
D17	MA110	DIODE(SI)	1
D18	MA8030M	DIODE(SI)	S 1

Ref. No.	Part No.	Part Name & Description	Pcs/Set
CABINET AND ELECTRICAL PARTS			
1	PQYM10065Y1	CABINET BODY	1
2	PQYF10104Y1	LOWER CABINET	1
3	PQGG10066Z1	SPEAKER COVER	S 1
4	PQHG10459Z	SPEAKER SHEET	1
5	PQDE10064Z	LATCH	1
6	PQGG10067Y1	SPEAKER BOX	1
7	PQKV10033Z1	HOLDER	S 1
8	PQGB10001Z	BADGE	1
9	PQBX10274Z	BUTTON	1
10	PQSX10052Z	KEYBOARD SWITCH	1
11	PQAS10P02Y	SPEAKER	1
13	PQMG10019Z	MIC HOLDER	1
14	PQGX10008Z	ORNAMWNT	1
15	PQGX10009Z	ORNAMWNT	1
16	PQGT12907Z	NAME PLATE	1
17	PQMY10025Z	HEAT SINK	1
18	PBD10009Z1	KNOB	1
19	PJHE5065Z	SCREW	4
20	XTB3+10G	SCREW	1
21	XTW3+S12P	SCREW	11
22	XTW3+S8M	SCREW	7
23	PQHS10307Z	MIC COVER	3
24	PQQT10576Z	ADAPTOR LABEL	1
25	PQQT11444Z	ADAPTOR LABEL	1
12	PQWMTS700B	MICROPHONE (MIC1-MIC3)	3
Note: Please order R16-R18 when replacing MIC1-MIC3 (Refer to page 13).			

This replacement parts list are United Kingdom version only.

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Ref. No.	Part No.	Value	Pcs/Set
D19	MA8068M	DIODE(SI)	1	R42	ERJ3GEYJ104	100K	1
D20	MA8068M	DIODE(SI)	1	R43	ERJ3GEYJ104	100K	1
D21	MA8068M	DIODE(SI)	1	R44	ERJ3GEYJ104	100K	1
D22	MA110	DIODE(SI)	1	R45	ERJ3GEY0R00	0	1
D23	MA110	DIODE(SI)	1	R46	ERJ3GEYJ104	100K	1
				R47	ERJ3GEYJ220	22	1
		(COILS)		R48	ERJ3GEYJ220	22	1
L1	PQLQR1M100K	COIL	1	R49	ERJ3GEYJ221	220	1
L2	PQLQR1M100K	COIL	1	R50	ERJ3GEYJ220	22	1
L3	PQLQR1M100K	COIL	1	R51	ERJ3GEYJ220	22	1
				R52	ERJ3GEYJ221	220	1
				R53	ERJ3GEYJ221	220	1
		(VARIABLE RESISTORS)		R54	ERJ3GEYJ221	220	1
VR1	PQZ3AN33N	VARIABLE RESISTOR	1	R55	ERJ3GEYJ221	220	1
VR2	PQZ3AN33N	VARIABLE RESISTOR	1	R56	ERJ3GEYJ221	220	1
VR3	PQZ3AN33N	VARIABLE RESISTOR	1	R57	ERJ3GEYJ221	220	1
				R58	ERJ3GEYJ221	220	1
				R59	ERJ3GEYJ221	220	1
		(CRYSTAL OSCILLATORS)		R60	ERJ3GEYJ221	220	1
X1	PQVCE568N9ZC	CRYSTAL OSCILLATOR	S 1	R61	ERJ3GEYJ221	220	1
X2	PQVBCST800MG	CRYSTAL OSCILLATOR	S 1	R62	ERJ3GEYJ221	220	1
				R63	ERJ3GEYJ221	220	1
				R64	ERJ3GEYJ272	2.7K	1
				R65	ERJ3GEYJ220	22	1
		(SWITCH)		R66	ERJ3GEY0R00	0	1
SW4	ESD11V120	SWITCH	1	R67	ERJ3GEYJ104	100K	1
				R69	ERJ3GEYJ220	22	1
				R70	ERJ3GEYJ220	22	1
		(CONNECTORS)		R71	ERJ3GEYJ184	180K	1
CN1	PQJP09B52Z	CONNECTOR	1	R72	ERJ3GEYJ104	100K	1
CN2	PQJP09B52Z	CONNECTOR	1	R73	ERJ3GEYJ104	100K	1
				R74	ERJ3GEYJ104	100K	1
				R75	ERJ3GEYJ220	22	1
		(RESISTORS)		R76	ERJ3GEYJ473	47K	1
R1	ERJ3GEYJ472	4.7K	1	R77	ERJ3GEYJ184	180K	1
R2	ERJ3GEYJ561	560	1	R78	ERJ3GEYJ473	47K	1
R3	ERJ3GEYJ122	1.2K	1	R79	ERJ3GEYJ683	68K	1
R4	ERJ3GEYJ561	560	1	R81	ERJ3GEYJ102	1K	1
R5	ERJ3GEYJ334	330K	1	R82	ERJ3GEYJ104	100K	1
R6	PQ4R10XJ000	0	1	R83	ERJ3GEYJ683	68K	1
R7	ERJ3GEY0R00	0	1	R84	ERJ3GEYJ104	100K	1
R8	ERJ3GEY0R00	0	1	R85	ERJ3GEYJ104	100K	1
R11	ERJ3GEYJ334	330K	1	R87	ERJ3GEYJ823	82K	1
R12	ERJ3GEYJ102	1K	1	R99	ERJ3GEYJ682	6.8K	1
R13	ERJ3GEYJ105	1M	1	R100	ERJ3GEYJ221	220	1
R14	ERJ3GEYJ102	1K	1	R103	ERJ3GEYJ472	4.7K	1
R15	ERJ3GEYJ224	220K	1	R104	ERJ3GEYJ562	5.6K	1
R16	ERJ3GEYJ391	390 (for MIC2)	1	R105	ERJ3GEYJ102	1K	1
R17	ERJ3GEYJ391	390 (for MIC3)	1	R106	ERJ3GEYJ392	3.9K	1
R18	ERJ3GEYJ391	390 (for MIC1)	1	R107	PQ4R10XJ8R2	8.2	1
R19	ERJ3GEYJ102	1K	1	R108	ERJ3GEYJ154	150K	1
R20	ERJ3GEYJ104	100K	1	R109	ERJ3GEYJ682	6.8K	1
R21	ERJ3GEYJ103	10K	1	R110	ERJ3GEYJ272	2.7K	1
R22	ERJ3GEYJ102	1K	1	R111	ERJ3GEYJ104	100K	1
R23	ERJ3GEYJ103	10K	1	R113	ERJ3GEYJ104	100K	1
R24	ERJ3GEYJ102	1K	1	R114	ERJ3GEYJ124	120K	1
R25	ERJ3GEYJ102	1K	1	R115	ERJ3GEYJ103	10K	1
R26	ERJ3GEYJ102	1K	1	R116	ERJ3GEYJ103	10K	1
R27	ERJ3GEYJ153	15K	1	R117	ERJ3GEYJ103	10K	1
R28	ERJ3GEYJ153	15K	1	R118	ERJ3GEYJ331	330	1
R29	ERJ3GEY0R00	0	1	R119	ERJ3GEYJ331	330	1
R30	ERJ3GEYJ332	3.3K	1	R120	ERJ3GEYJ331	330	1
R32	ERJ3GEY0R00	0	1	R121	ERJ3GEYJ224	220K	1
R33	ERJ3GEYJ392	3.9K	1	R122	ERJ3GEYJ473	47K	1
R34	ERJ3GEYJ104	100K	1	R124	ERJ3GEYJ104	100K	1
R35	ERJ3GEYJ154	150K	1	R125	ERJ3GEYJ104	100K	1
R36	ERJ3GEYJ393	39K	1	R126	ERJ3GEYJ472	4.7K	1
R37	ERJ3GEYJ683	68K	1	R127	ERJ3GEYJ224	220K	1
R38	ERJ3GEYJ104	100K	1	R133	ERJ3GEYJ473	47K	1
R39	ERJ3GEYJ104	100K	1	R134	ERJ3GEYJ473	47K	1
R40	ERJ3GEYJ104	100K	1	R201	ERJ3GEYJ103	10K	1
R41	ERJ3GEYJ104	100K	1	J17	PQ4R10XJ000	0	1

This replacement parts list are United Kingdom version only.

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Ref. No.	Part No.	Part Name & Description	Pcs/Set
J19	PQ4R10XJ000	0	1	C82	ECUV1C104ZFV	0.1	1
		(CAPACITORS)		C83	ECUV1E183KBV	0.018	1
C1	ECST0JC476	47	1	C84	ECEA0JU102	1000	1
C2	ECUV1H102KBV	0.001	1	C85	PQCUV1E224MD	0.22	S 1
C3	ECUV1C104ZFV	0.1	1	C86	ECUV1H102KBV	0.001	1
C4	ECST0JC476	47	1	C87	ECUV1H392KBV	0.0039	1
C5	ECUV1H103KBV	0.01	S 1	C89	ECUV1H271KBV	270P	1
C6	ECUV1C104ZFV	0.1	1	C90	ECUV1C473KBV	0.047	1
C7	ECUV1C104KBV	0.1	1	C91	PQCUV1E224MD	0.22	S 1
C8	ECUV1C104KBV	0.1	1	C92	ECEV1AA101	100	1
C9	ECUV1H682KBV	0.0068	1	C93	ECUV1C104KBV	0.1	1
C10	ECUV1C104ZFV	0.1	1	C96	ECEA1AU102	1000	1
C12	ECUV1C104ZFV	0.1	1	C97	ECEV1AA101	100	1
C13	ECEA1AU101	100	S 1	C98	PQCUV1C105ZF	1	1
C14	EECW5R5D473	0.047	S 1	C99	PQCUV1C105ZF	1	1
C15	ECUV1H103KBV	0.01	1	C100	PQCUV1C105ZF	1	1
C16	ECUV1H102KBV	0.001	1	C101	ECUV1H102KBV	0.001	1
C17	ECUV1H333KDV	0.033	S 1	C102	ECUV1H102KBV	0.001	1
C18	ECUV1H103KBV	0.01	1	C103	ECUV1H102KBV	0.001	1
C19	ECST0JC476	47	1	C104	ECUV1C104KBV	0.1	1
C20	ECUV1H222KBV	0.0022	1	C105	ECUV1C104KBV	0.1	1
C21	ECUV1H102KBV	0.001	1	C106	ECUV1H223KBV	0.022	S 1
C22	ECUV1H102KBV	0.001	1	C107	ECUV1H100DCV	10P	1
C23	ECUV1H102KBV	0.001	1	C108	ECUV1H100DCV	10P	1
C24	ECUV1C104KBV	0.1	1	C109	ECUV1C104KBV	0.1	1
C25	ECUV1H102KBV	0.001	1	INTERFACE P.C.BOARD PARTS			
C26	ECUV1H102KBV	0.001	1	PCB2	PQWP2TS700E	P.C.BOARD ASS'Y (RTL)	1
C27	ECUV1C104ZFV	0.1	1			(IC)	
C28	ECUV1C104ZFV	0.1	1	IC301	PQVINJM4558M	IC	1
C29	ECUV1H102KBV	0.001	1	IC401	PQVIPC78M06A	IC	S 1
C30	ECUV1H102KBV	0.001	1			(TRANSISTORS)	
C31	ECUV1H102KBV	0.001	1	Q302	PQVTKSD261CY	TRANSISTOR(SI)	S 1
C32	ECUV1H102KBV	0.001	1	Q303	2SD1819A	TRANSISTOR(SI)	1
C33	ECUV1C104ZFV	0.1	1	Q304	2SA1626	TRANSISTOR(SI)	1
C34	ECUV1H102KBV	0.001	1	Q305	PQVT2N6517CA	TRANSISTOR(SI)	1
C35	ECUV1H102KBV	0.001	1	Q306	2SC4116	TRANSISTOR(SI)	1
C36	ECUV1H102KBV	0.001	1	Q307	2SC4116	TRANSISTOR(SI)	1
C37	ECUV1H102KBV	0.001	1	Q401	2SD2136	TRANSISTOR(SI)	1
C39	ECUV1C104ZFV	0.1	1			(DIODES)	
C40	ECEV1AA101	100	1	D301	1SS119	DIODE(SI)	1
C41	ECUV1C334ZFV	0.33	1	D302	1SS119	DIODE(SI)	1
C42	ECUV1C334ZFV	0.33	1	D303	MA4180	DIODE(SI)	1
C43	ECUV1C104ZFV	0.1	1	D304	PQVDS1ZB40F1	DIODE(SI)	S 1
C44	ECUV1C104ZFV	0.1	1	D306	PQVDS1ZB40F1	DIODE(SI)	S 1
C45	ECUV1H223KBV	0.022	S 1	D308	MA4033	DIODE(SI)	1
C46	ECUV1H223KBV	0.022	S 1	D309	1SS119	DIODE(SI)	1
C47	ECUV1H240JCV	24P	1	D310	MA110	DIODE(SI)	1
C48	ECUV1H391JCV	390P	1	D401	MA4091	DIODE(SI)	1
C49	PQCUV1C105ZF	1	1			(SWITCHES)	
C50	ECUV1H240JCV	24P	1	SW301	PQSS3A17W	SWITCH	1
C51	ECUV1H223KBV	0.022	S 1	SW302	PQSS2A27W	SWITCH	1
C53	ECUV1C104ZFV	0.1	1	RY1	PQSL134Z	SWITCH, RELAY	1
C54	ECUV1C104ZFV	0.1	1			(COILS)	
C55	ECUV1C104KBV	0.1	1	L302	ELEPK100KA	COIL	1
C56	ECEV1AA101	100	1	L303	ELEPK100KA	COIL	1
C57	ECUV1C104KBV	0.1	1	L304	ELEV220KA	COIL	1
C58	ECUV1C104KBV	0.1	1	L305	ELEV220KA	COIL	1
C59	ECUV1H101JCV	100P	1				
C60	ECEV0JA470	47	1				
C64	ECUV1C104ZFV	0.1	1				
C65	ECEV1AA101	100	1				
C66	ECUV1C104KBV	0.1	1				
C68	PQCUV1C105ZF	1	1				
C70	ECUV1C104ZFV	0.1	1				
C71	ECST0JV107	100	1				
C77	ECUV1H561JCV	560P	S 1				
C78	PQCUV1C105ZF	1	1				
C79	PQCUV1C105ZF	1	1				
C80	ECUV1H561JCV	560P	S 1				
C81	ECUV1H182KBV	0.0018	1				

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Ref. No.	Part No.	Part Name & Description	Pcs/Set	Ref. No.	Part No.	Part Name & Description	Pcs/Set
		(CONNECTORS)					
CN301	PQJS09B04Z	CONNECTOR	1	C310	PQCUV1E104MD	0.1	S 1
CN302	PQJS09B04Z	CONNECTOR	1	C311	ECEA1CU331	330	1
CN303	PQJP4D9Z	CONNECTOR	1	C312	PQCUV1E223KB	0.022	1
CN401	PQJS04P21Z	CONNECTOR	1	C313	ECEA1CKS100	10	1
		(JACKS)		C314	PQCUV1E223KB	0.022	1
JJ301	PQJJ2T002Z	JACK, LINE/YEL	1	C315	ECEA1EK470	47	S 1
JJ302	PQJJ1B4Y	JACK, AC ADAPTOR	1	C316	PQCUV1E223KB	0.022	1
		(VARISTORS)		C317	ECEA1HKS010	1	S 1
SA301	PQVDDSS301L	VARISTOR	1	C318	ECEA1CSS221	220	1
SA302	PQVDDSS301L	VARISTOR	1	C319	PQCUV1H102J	0.001	S 1
		(PHOTO COUPLERS)		C320	PQCUV1H103ZF	0.01	1
PC301	PQVIPC814K	PHOTO ELECTRIC TRANSDUCEF	1	C321	ECEA1AU101	100	1
PC302	PQVIPC817CD	PHOTO ELECTRIC TRANSDUCEF	1	C325	PQCUV1H103ZF	0.01	1
		(POSISTOR)		C326	ECEA1CU471	470	1
POS301	PQRPAR390N	POSISTOR	S 1	C329	ECKD2H681KB	680P	S 1
		(RESISTORS)		C330	ECKD2H681KB	680P	S 1
R233	ERJ3GEYJ472	4.7K	1	C332	PQCUV1H103ZF	0.01	1
R301	ERJ3GEYJ104	100K	1	C333	PQCUV1H103ZF	0.01	1
R302	ERJ3GEYJ104	100K	1	C335	PQCUV1H103ZF	0.01	1
R303	ERJ3GEYJ104	100K	1	C336	PQCUV1H103ZF	0.01	1
R304	ERJ3GEYJ682	6.8K	1	C338	ECEA1CKS470	47	S 1
R305	ERJ3GEYJ472	4.7K	1	C401	ECEA1EU101	100	1
R306	ERJ3GEYJ124	120K	1	C402	ECEA1EU101	100	S 1
R307	ERJ3GEYJ223	22K	1	C403	PQCUV1E104MD	0.1	S 1
R308	ERJ3GEYJ682	6.8K	1	C404	PQCUV1E104MD	0.1	S 1
R309	ERJ3GEYJ473	47K	1	C405	PQCUV1E104MD	0.1	S 1
R310	ERJ3GEYJ473	47K	1	C406	PQCUV1E104MD	0.1	S 1
R311	ERJ3GEYJ101	100	1				
R312	ERJ3GEYJ183	18K	1				
R313	ERJ3GEYJ222	2.2K	1				
R314	ERJ3GEYJ471	470	1				
R315	ERJ3GEYJ223	22K	1				
R316	ERJ14YJ470	47	1				
R317	ERJ3GEYJ151	150	1				
R318	ERJ3GEYJ152	1.5K	1				
R319	ERJ3GEYJ682	6.8K	1				
R320	ERJ3GEYJ473	47K	1				
R321	ERJ3GEYJ153	15K	1				
R322	PQ4R10XJ472	4.7K	1				
R323	PQ4R10XJ104	100K	1				
R324	ERJ3GEYJ104	100K	1				
R325	ERJ3GEYJ473	47K	1				
R326	ERJ3GEYJ472	4.7K	1				
R327	ERJ3GEY0R00	0	1				
R328	PQ4R10XJ472	4.7K	1				
R330	ERDS2TJ223	22K	1				
R331	ERJ3GEYJ223	22K	1				
R332	ERDS2TJ101	100	1				
R401	PQRD1VJ220	22	1				
R402	ERDS1TJ100	10	S 1				
R403	ERDS2TJ102	1K	1				
		(CAPACITORS)					
C302	PQCUV1E104MD	0.1	S 1				
C303	PQCUV1E104MD	0.1	S 1				
C304	PQCUV1H221JC	220P	S 1				
C305	PQCUV1E223KB	0.022	1				
C307	PQCUV1H221JC	220P	S 1				
C308	PQCUV1E104MD	0.1	S 1				

