

Service Manual

EASA-PHONE®



Integrated
Telephone System

and Technical Guide

Telephone Equipment

KX-T2310



SPECIFICATIONS\ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

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SCHEMATIC DIAGRAM\ПРИНЦИПИАЛЬНАЯ СХЕМА

IC BLOCK DIAGRAM\БЛОК - СХЕМЫ МИКРОСХЕМ

**TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES\ЦОКОЛЕВКА ИНТЕГРАЛЬНЫХ СХЕМ,
ТРАНЗИСТОРОВ И ДИОДОВ**

ACCESSORIES AND PACKING MATERIALS\ПРИНАДЛЕЖНОСТИ И УПАКОВОЧНЫЕ МАТЕРИАЛЫ

CONNECTION\СОЕДИНЕНИЯ

**CABINET, MECHANICAL AND ELECTRICAL PARTS LOCATION\РАСПОЛОЖЕНИЕ МЕХАНИЧЕСКИХ И
ЭЛЕКТРИЧЕСКИХ ЧАСТЕЙ**

REPLACEMENT PARTS LIST\СПИСОК ЗАПАСНЫХ ЧАСТЕЙ

Panasonic

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Division of Matsushita Electric
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of Puerto Rico, Inc.
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■ SPECIFICATIONS

Power Source:	Telephone line voltage
Memory Capacity:	28 telephone numbers, up to 16 digits for each station
Dial Speed:	Tone (DTMF)/Pulse (10 pps)
Redial:	Last dialed telephone number
Pause:	3.5sec
Speaker:	Handset; 3 cm (1 ³ / ₁₆ ") PM dynamic type receiver unit, 150Ω
Microphone:	Electret condenser microphone
Dimensions:	6 ¹ / ₂ "×3 ³ / ₄ "×8 ¹ / ₄ " [165 (W)×95 (H)×210 (D)] mm
Weight:	1lb 7.99 oz (680 g)

Design and specifications are subject to change without notice.

CPU DATA



IC1: PQV1451N9965
 Memory: 16 digit 28 station
 Clock frequency: 480 kHz
 Power Supply Voltage: 2.2-6 V

Pin No.	Mark	Function	High	Low	
1	Back Up	Back Up Output	OFF-HOOK	ON-HOOK	
2	Ex-Hook	Extention TEL Hook Input	Active	Normal	
3	R62	Key Scan Input	Disable	Enable	
4	R63	Key Scan Input			
5	R70	Key Scan Output	Normal	Active	
6	R71	Key Scan Output			
7	Mute	Mute Output	Normal	Active	
8	DP	Dial Pulse Output			
9	LED1	Hold/Memory LED	OFF-HOOK	ON-HOOK	
10	Back Up	Back Up Output			
11	Back Up	Back Up Output	Active	Normal	
12	Back Up	Back Up Output			
13	Key Tone	Key Tone Signal	Active	Normal	
14	TR	Hold On Output	Active	Normal	
15	Vss	GND	/		
16	DTMF	DTMF Signal	Active	Normal	
17	K00	Key Scan Input	Disable	Enable	
18	K01	Key Scan Input			
19	K02	Key Scan Input	Normal	Normal	
20	K03	Key Scan Input			
21	TEST		/		
22	X in	System Clock	/		
23	X out	System Clock	/		
24	Reset	Reset Input	Normal	Active	
25	HOLD	LINE POWER INPUT	Active	/	
26	R80	Key Scan Output	Disable	Enable	
27	R81	Key Scan Output			
28	R82	Key Scan Output	/		
29	R83	Key Scan Output	/		
30	V _{DD}	+ Power Source Terminal	/		

Operation:

Pin 1, 10~12 output a high level while the set is working and a low level while the set is not working.

Pin 2 inputs the hold cancellation signal. When the hold switch is cancelled, it inputs high level.

Pin 3~6, 17~20 and 26~29 input/output the scanning signal to the Key -#. Auto/Store, Program, Redial, Pause, Hold, Flash, Tone/Pulse SW. M1~M8 and Hook SW.

Pin 7 is the Mute control signal. During muting, its output is low level.

Pin 8 is an output to control the Make/Break of the pulse. During Break its output is a low level.

Pin 9 is multi Indicator control signal. While the LED light, the outputs are at the low level.

Pin 13 outputs a square wave to Key Tone signal.

Pin 14 outputs the Hold Control signal. During holding, its output is a high level.

Pin 16 is the terminal for the D/A change and the DTMF signal outputs.

Pin 24 inputs the reset signal to IC1. When reset, inputs low level.

Pin 25 inputs the standby signal to IC1. When standby, inputs low level.

BLOCK DIAGRAM

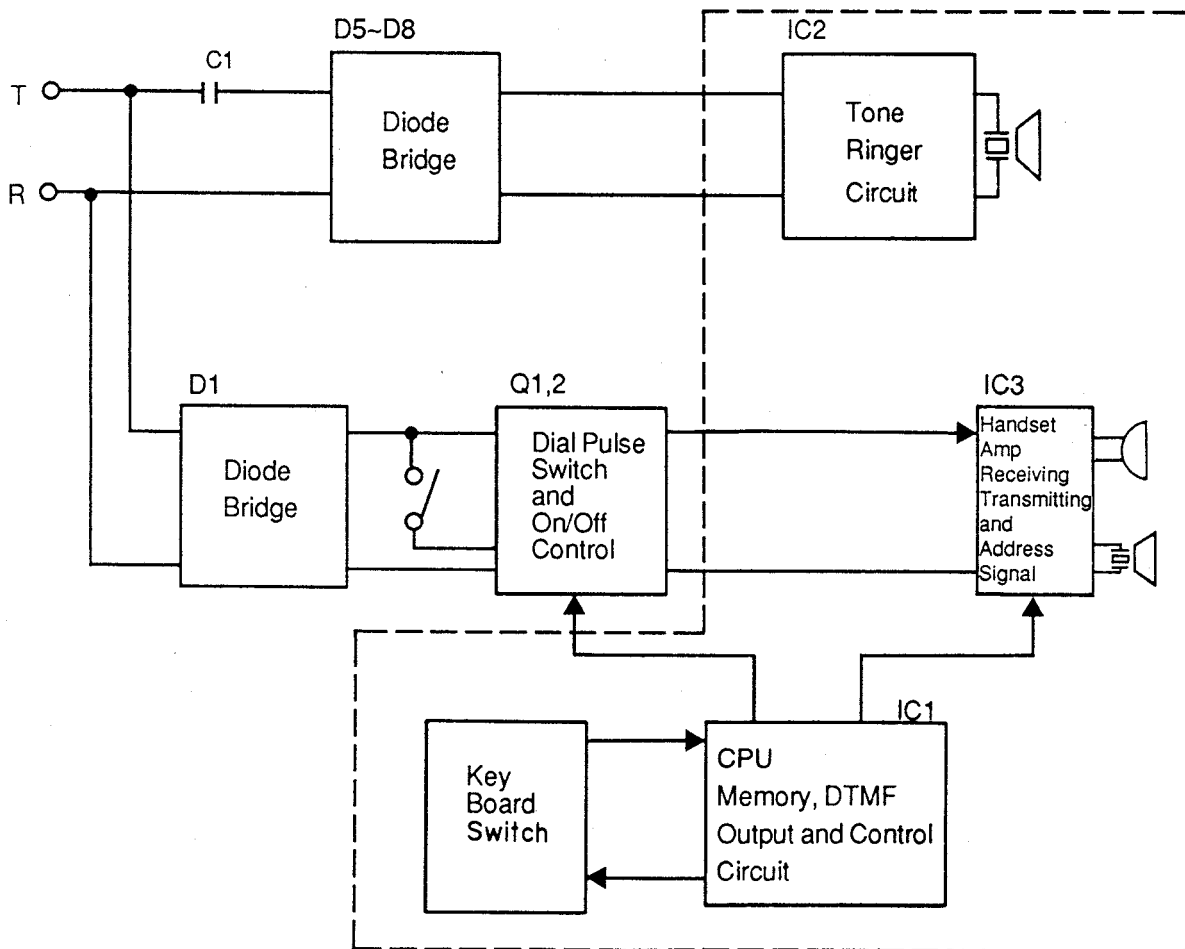
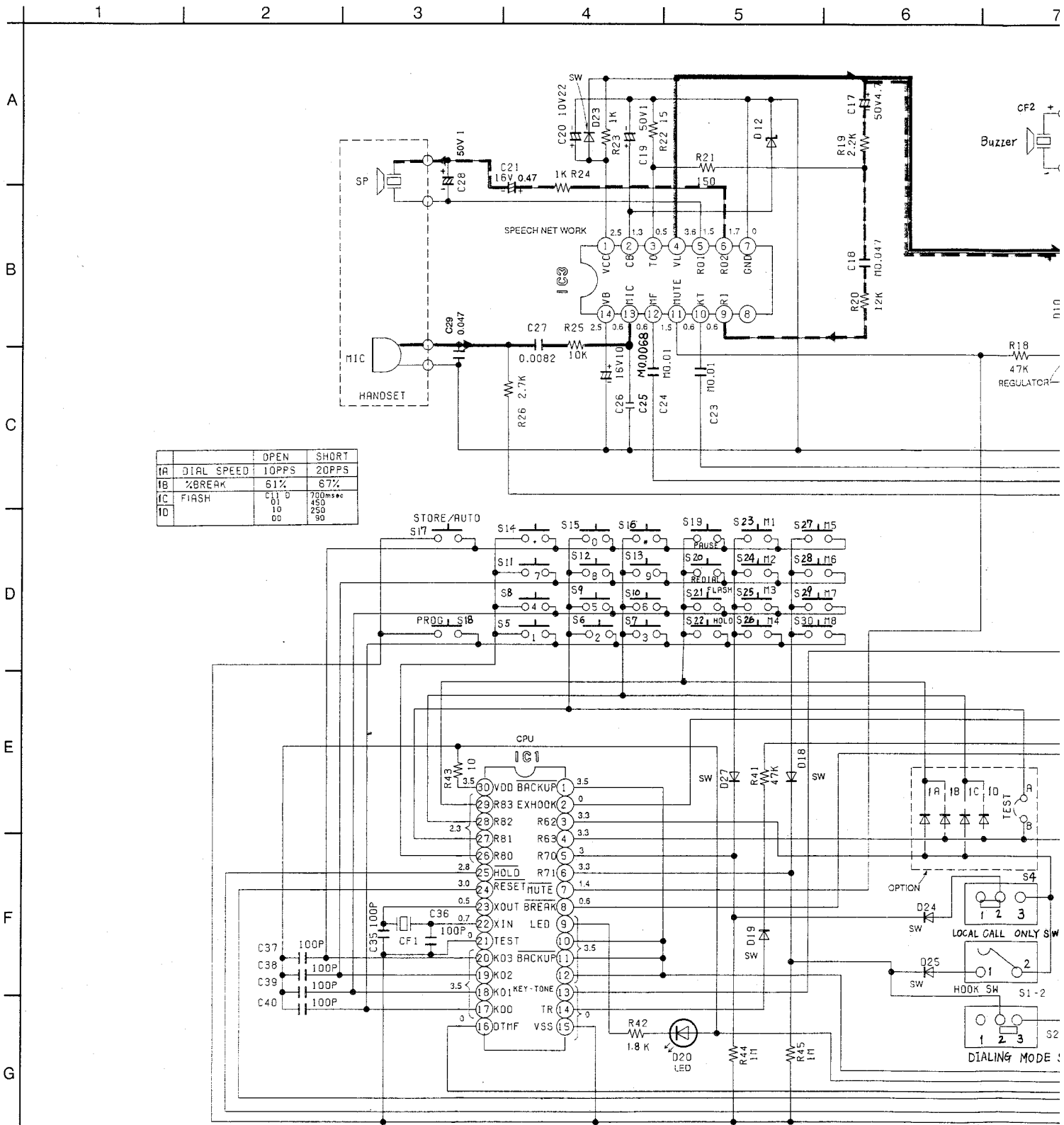


Fig. 4

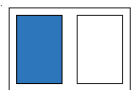
SCHEMATIC DIAG



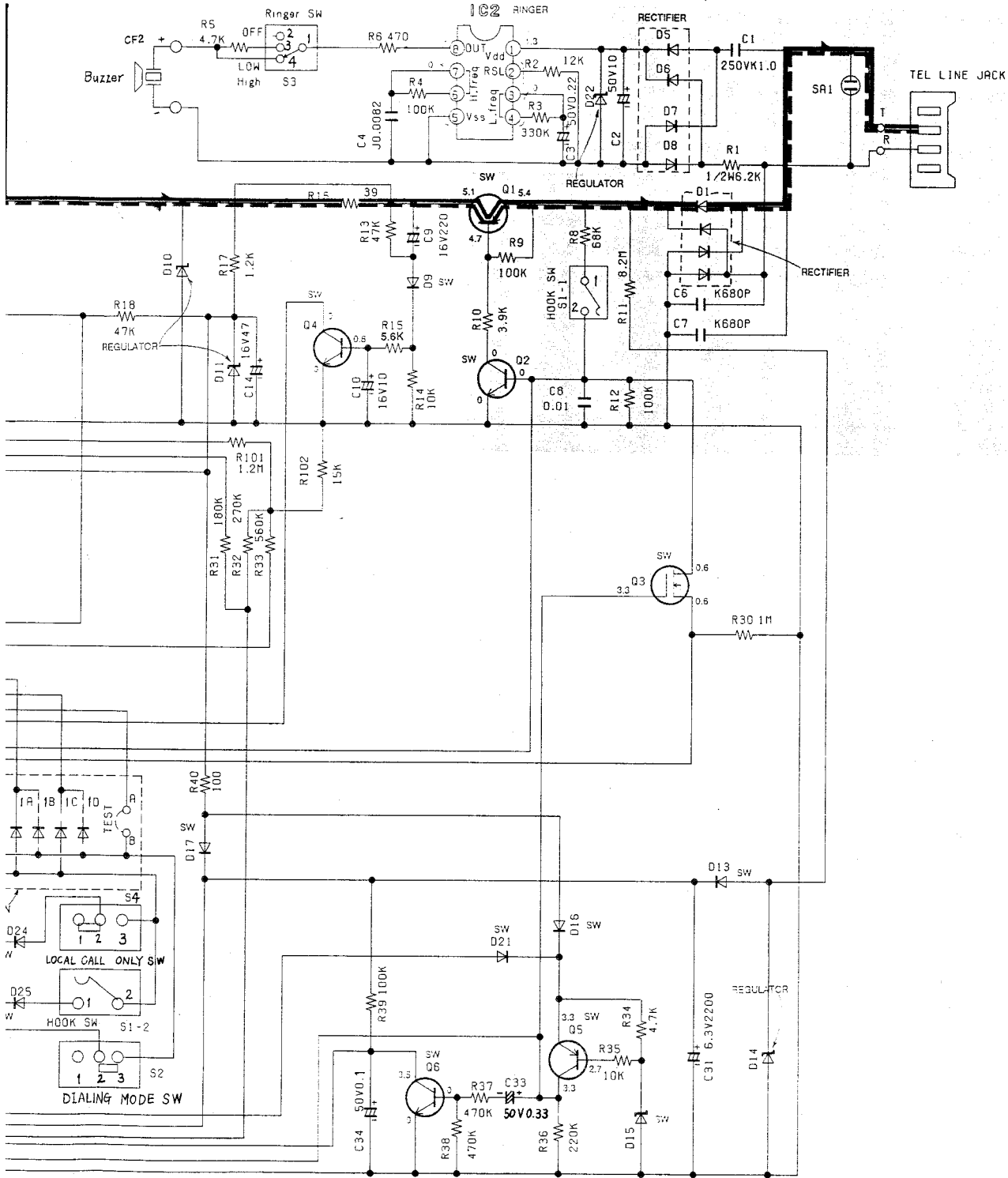
		OPEN	SHORT
IA	DIAL SPEED	10PPS	20PPS
IB	%BREAK	61%	67%
IC	FLASH	C1 0	700ms*
		10	450
		60	250
TD			90

Notes:

- 1. S1: Hook switch in "ON-HOOK" position.
 - 2. S2: Dialing mode selector switch in "TONE" position.
 - 3. S3: Ringer volume selector switch in "HIGH" position.
 - 4. S4: Local call only switch.
 - 5. S5-16: Dialing switch.
 - 6. S17: Auto/Store switch.
 - 7. S18: Program switch.
 - 8. S19: Pause switch.
 - 9. S20: Redial switch.
 - 10. S21: Flash switch.
 - 11. S22: Hold switch.
 - 12. S23-30: Direct switch.
13. DC voltage measurements are taken with electronic voltmeter from negative terminal of battery.
(Add 40 mA to telephone line from the loop simulator.)
14. This schematic diagram may be modified at any time with the development of new technology.



ATIC DIAGRAM

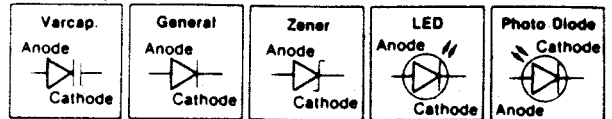


Note: SW=Switching

15.

Important safety notice

The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.



ic voltmeter
tor.)
y time with

IC BLOCK DIAGRAM

IC2 PQVIBA8205

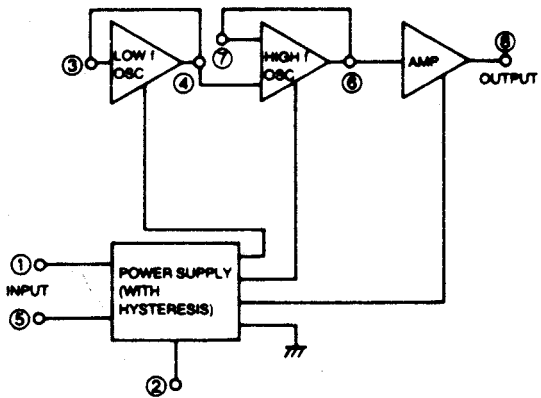


Fig. 5

IC3 PQVIBA8215

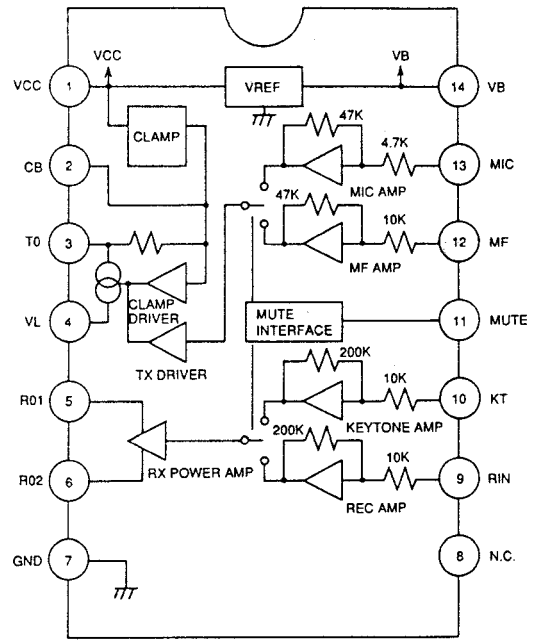


Fig. 6

TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

<p>PQVI451N9965</p>	<p>PQVIBA8205</p>	<p>PQVIBA8215</p>	<p>2SC1740S 2SA933</p>	<p>2SD662B</p>
<p>2SK1398</p>	<p>2SA1625</p>	<p>MA4062 MA4300 MA4180 MA4056</p>	<p>PQVD05AZ3.0</p>	<p>PQVD05AZ5R1</p>
<p>1SS131 MA700A</p>	<p>PQVDS1YB40F1</p>	<p>LN28RPL</p>		

ACCESSORIES & PACKING MATERIALS

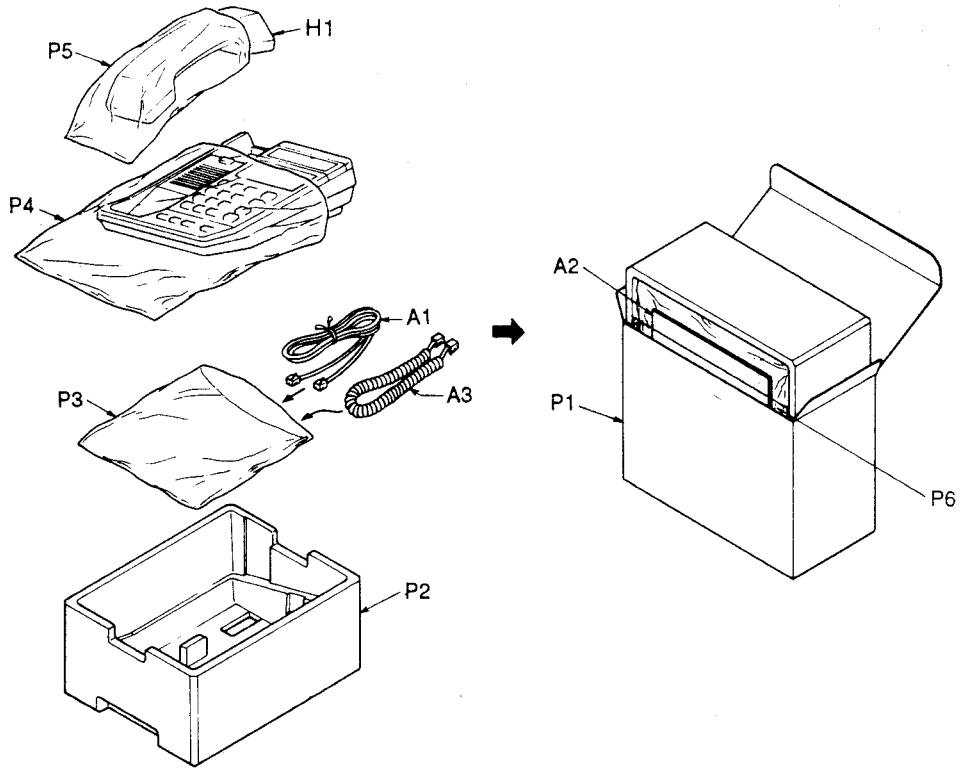


Fig. 7

CONNECTION

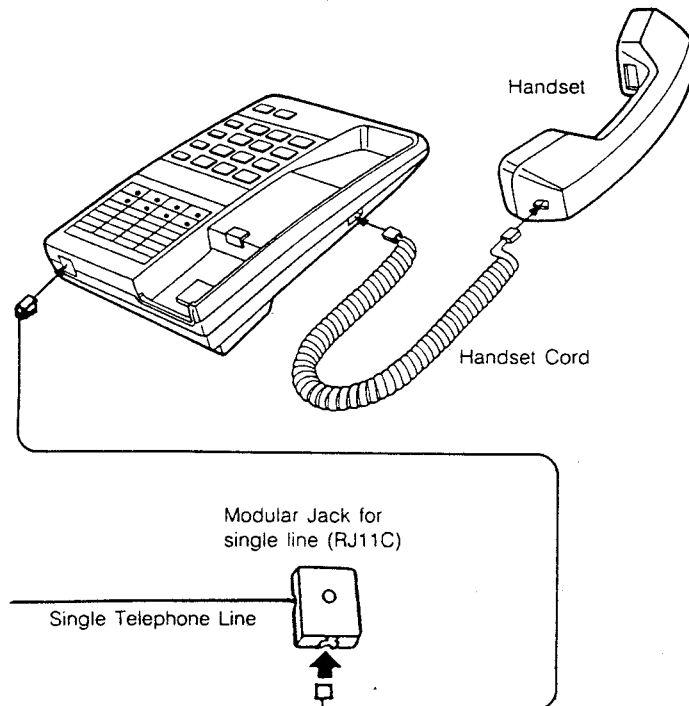
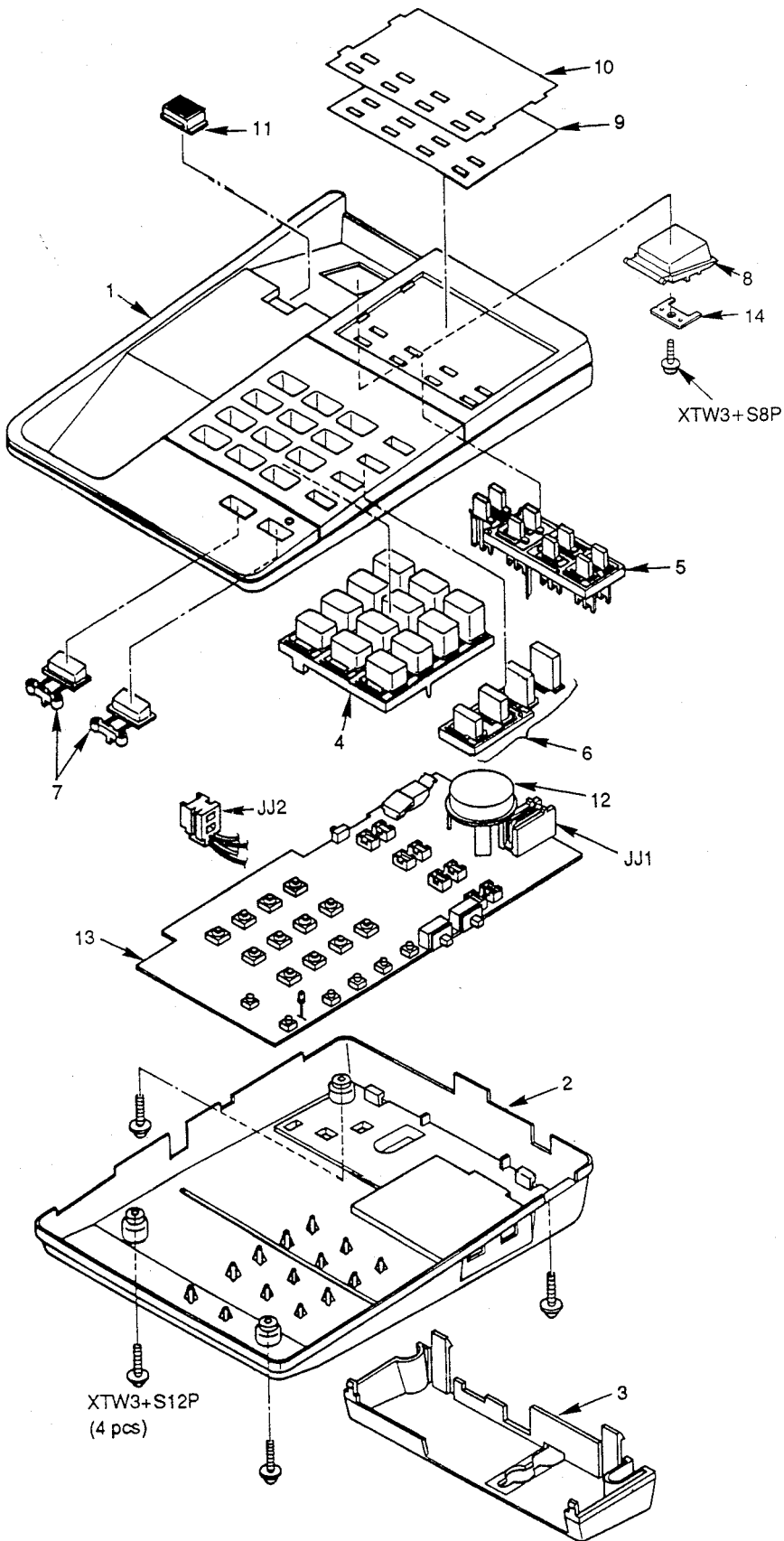

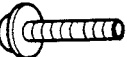


Fig. 8

CABINET AND ELECTRICAL PARTS LOCATION



	Part No.
	XTW3+S8P
	XTW3+S12P

REPLACEMENT PARTS LIST

Model KX-T2310

Notes:

- Printed circuit board assembly with mark (NLA) is no longer available after production discontinuation of the complete set.
- Important safety notice.
Components identified by the Δ mark special characteristics important for safety. When replacing any of these components, use only manufacture's specified parts.
- 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 μ F

*Type & Wattage of Resistor

Type

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

Wattage

10,16:1/8W	14,25:1/4W	12, S1, 50:1/2W	1:1W	2:2W	3:3W
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*Type & Voltage of Capacitor

Type

ECFD: Semi-Conductor	ECCD, ECKD, ECBT, PQCBC : Ceramic
ECQS: Styrol	ECQE, ECOV, ECOG : 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		
OTHERS					
SA1	PQVDSAE310F1	VARISTOR (SURGE ABSORBER)	S 1 Δ		
CF1	PQVBKBR480B1	CERAMIC FILTER	1		
CABINET AND ELECTRICAL PARTS					
1	PQKM193Z	UPPER CABINET	1		
2	PQYFT2310M	LOWER CABINET ASSEMBLY	1		
3	PQYLT2310M	STAND ASSEMBLY	1		
4	PQBCX155Y	BUTTON, DIALING	1		
5	PQBCX156Z	BUTTON, DIRECT	1		
6	PQBCX157Z	BUTTON, PROG., PAUSE, REDIAL etc.	1		
7	PQBC249Z1	BUTTON, FLASH, HOLD	2		
8	PQBE33Z	BUTTON, HOOK	1		
9	PQHP5050Z	TELEPHONE CARD	1		
10	PQHR5269Z	TRANSPARENT PLATE	1		
11	PQKE46Y2	HANDSET HOLDER	1		
12	PQWH2T3110M	BUZZER ASSEMBLY	1		
13	PQWPT2310M	PRINTED CIRCUIT BOARD (NLA)	1		
14	PQUL142Z	METAL PARTS, HOOK BOTTOM	1		
HANDSET PART					
H1	PQJX2PS409Z	HANDSET ASSEMBLY	1		
ACCESSORIES					
A1	PQJA59Y	TELEPHONE CORD	S 1		
A2	PQX6123Z	INSTRUCTION BOOK	1		
A3	PQJA193M	HANDSET CORD	1		
PACKING MATERIALS					
P1	PQPK1055Z	GIFT BOX	1		
P2	PQPN1080Z	CUSHION	1		
P3	PQPP34Z	PROTECTION COVER (for ACCESSORIES)	1		
P4	XZB26X40A01	PROTECTION COVER (for SET)	1		
P5	PQPH75Z	PROTECTION COVER (for HANDSET)	1		
P6	PQPN1155Z	CUSHION	1		
Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
RESISTORS					
R1	ERDS1TJ622	6.2K Δ	R25	ERDS2TJ103	10K
R2	ERDS2TJ123	12K	R26	ERDS2TJ272	2.7K
R3	ERDS2TJ334	330K	R27	Not Used	
R4	ERDS2TJ104	100K	R28	Not Used	
R5	ERDS2TJ472	4.7K	R29	Not Used	
R6	ERDS2TJ471	470	R30	ERDS2TJ105	1M
R7	Not Used		R31	ERDS2TJ184	180K
R8	ERDS2TJ683	68K Δ	R32	ERDS2TJ274	270K
R9	ERDS2TJ104	100K Δ	R33	ERDS2TJ564	560K
R10	ERDS2TJ392	3.9K Δ	R34	ERDS2TJ472	4.7K
R11	ERDS2TJ825	8.2M Δ	R35	ERDS2TJ103	10K
R12	ERDS2TJ104	100K Δ	R36	ERDS2TJ224	220K
R13	ERDS2TJ473	47K	R37	ERDS2TJ474	470K
R14	ERDS2TJ103	10K	R38	ERDS2TJ474	470K
R15	ERDS2TJ562	5.6K	R39	ERDS2TJ104	100K
R16	ERD25TJ390	39	R40	ERDS2TJ101	100
R17	ERDS2TJ122	1.2K	R41	ERDS2TJ473	47K
R18	ERDS2TJ473	47K	R42	ERD25TJ182	1.8K
R19	ERDS2TJ222	2.2K	R43	ERD25TJ100	10
R20	ERDS2TJ123	12K	R44	ERDS2TJ105	1M
R21	ERDS2TJ151	150	R45	ERDS2TJ105	1M
R22	ERDS2TJ150	15			
R23	ERDS2TJ102	1K	R101	ERDS2TJ125	1.2M
R24	ERDS2TJ102	1K	R102	ERDS2TJ153	15K

Ref. No.	Part No.	Part Name & Description	Pcs
INTEGRATED CIRCUITS, TRANSISTORS & DIODES			
IC1	PQVI451N9965	IC	1
IC2	PQVIBA8205	IC	1
IC3	PQVIBA8215	IC	1
Q1	2SA1625	TRANSISTOR(SI)	S 1 Δ
Q2	2SD662B	TRANSISTOR(SI)	S 1 Δ
Q3	2SK1398	TRANSISTOR(SI)	1
Q4, 6	2SC1740S	TRANSISTOR(SI)	S 2
Q5	2SA933	TRANSISTOR(SI)	S 1
D1	PQVDS1YB40F1	DIODE(SI)	1 Δ
D5-9, 13, 16, 18, 19, 21, 23-25, 27	1SS131	DIODE(SI)	S 14 Δ
D10	MA4180	DIODE(SI)	1
D11	PQVD05AZ5R1	DIODE(SI)	S 1
D12	MA4056	DIODE(SI)	1
D14	MA4062	DIODE(SI)	S 1
D15	PQVD05AZ3.0	DIODE(SI)	1
D17	MA700A	DIODE(SI)	S 1
D20	LN28RPL	LED	1
D22	MA4300	DIODE(SI)	S 1 Δ
JACKS			
J1	PQJ1TA11Z	JACK, TELEPHONE (2 WIRES)	1
J2	PQJ1TB2Y	JACK, TELEPHONE (4 WIRES)	1 Δ
SWITCHES			
S1	ESE14A211A	SWITCH, HOOK	1
S2	PQSS2A27Y	SWITCH, DIALING MODE SELECTOR	1
S3	PQSS3A17Y	SWITCH, RINGER	1
S4	PQSS2A16Y	SWITCH, LOCAL CALL ONLY	1
S5-16	PQSH1A33Z	SWITCH, DIALING	12
S17-22	EVQ-QS205K	SWITCH, PROG., PAUSE, REDIAL etc.	6
S23-30	POSH1A36Z	SWITCH, DIRECT	8

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
CAPACITORS					
C1	ECQE2E105KZ	1 Δ	C21	ECEA1HUR47	0.47
C2	ECEA1HU100	10 Δ	C22	Not Used	
C3	ECEA1HUR22	0.22	C23	PQCBC1C103MY	0.01
C4	ECQG1H822JZ	0.0082	C24	PQCBC1C103MY	0.01
C5	Not Used		C25	PQCBC1C682KX	0.0068
C6	ECKD2H681KB	680P Δ	C26	ECEA1HU100	10 S
C7	ECKD2H681KB	680P Δ	C27	PQCBC1C822MY	0.0082
C8	ECKD1H103KB	0.01 Δ	C28	ECEA1HU010	1
C9	ECEA1CU221	220	C29	ECFD1E473KD	0.047
C10	ECEA1HU100	10 S	C30	Not Used	
C11	Not Used		C31	ECEA1AU222	2200 S
C12	Not Used		C32	Not Used	
C13	Not Used		C33	ECEA1HUR33	0.33
C14	ECEA1EU470	47 S	C34	ECEA1HKS0R1	0.1
C15	Not Used		C35	PQCBC1H101KB	100P
C16	Not Used		C36	PQCBC1H101KB	100P
C17	ECEA1HU4R7	4.7	C37	PQCBC1H101KB	100P
C18	ECFD1E473KD	0.047	C38	PQCBC1H101KB	100P
C19	ECEA1HU010	1	C39	PQCBC1H101KB	100P
C20	ECEA1HU220	22 S	C40	PQCBC1H101KB	100P