

Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
CRT2163

VOICE CONTROL DISC SELECTOR

CD-VC50-02 E

CONTENTS

1. SAFETY INFORMATION	2	7.2 DIAGNOSIS	15
2. EXPLODED VIEWS AND PARTS LIST	3	7.2.1 TEST MODE	15
3. SCHEMATIC DIAGRAM	6	7.2.2 DISASSEMBLY	16
4. PCB CONNECTION DIAGRAM	8	7.3 BLOCK DIAGRAM	17
5. ELECTRICAL PARTS LIST	10	8. OPERATIONS AND SPECIFICATIONS.....	18
6. ADJUSTMENT.....	12		
7. GENERAL INFORMATION	12		
7.1 IC	12		

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1. SAFETY INFORMATION

CAUTION

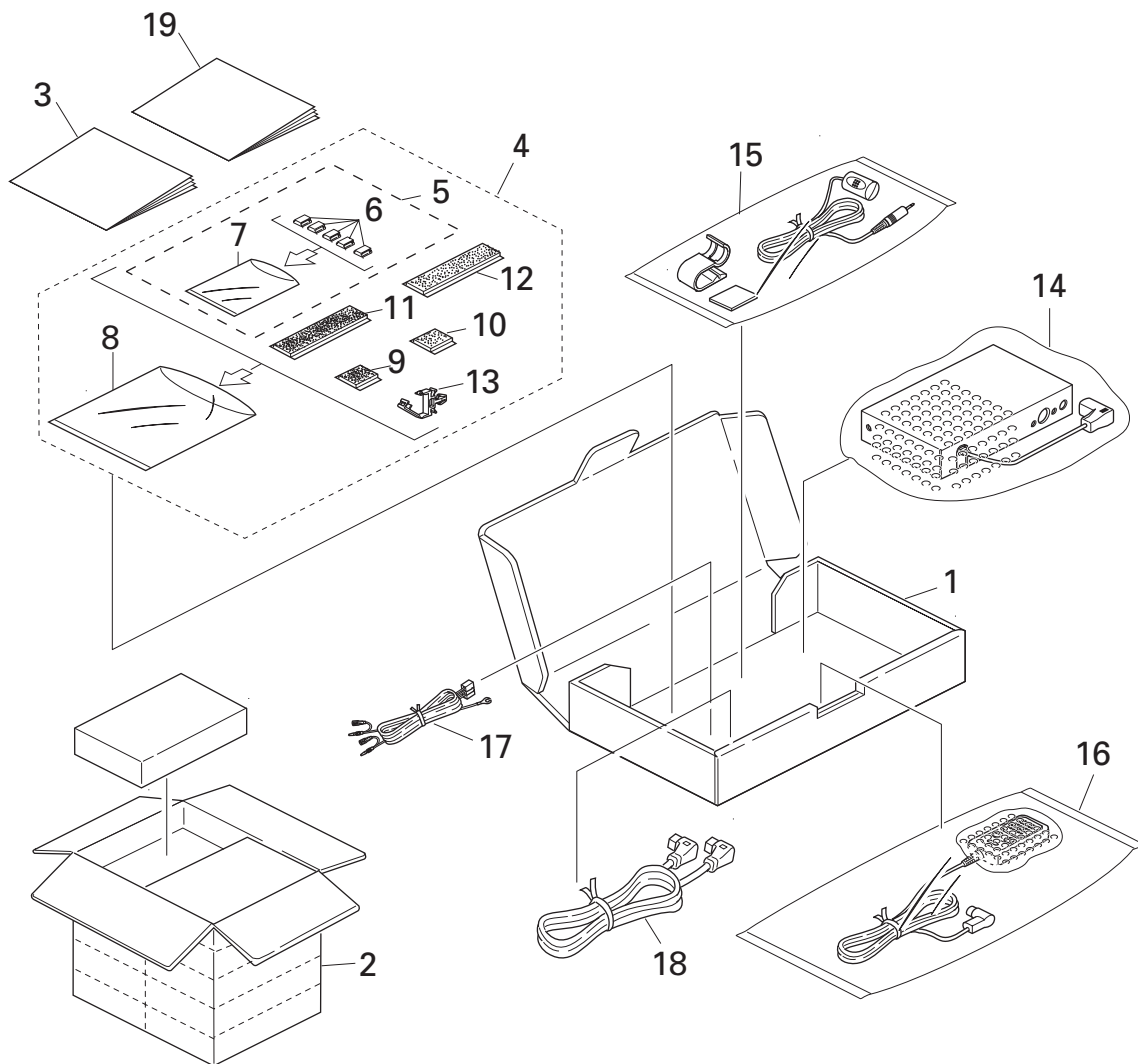
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health and Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



NOTE:

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

● **PACKING SECTION PARTS LIST**

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Carton	CHG3112	9	Fastener(rough)(S)	CNM3709
2	Contain Box	CHL3112	10	Fastener(soft)(S)	CNM3710
3	Owner's Manual (English, French, Spanish, German, Italian)	CRD2188	11	Fastener(rough)(L)	CNM3728
			12	Fastener(soft)(L)	CNM3729
			13	Clamer	CNV3751
*	4 Accessory Assy	CEA2315	14	Air Cushioned Bag	CEG1089
	5 Cord Clamer Assy	CEA2072	15	Microphone Assy	CPM1017
	6 Cord Clamer	CNV2581	16	Controller Assy	CXB2569
*	7 Polyethylene Bag	E36-615	17	Cord(Power supply)	CDE5122
*	8 Polyethylene Bag	CEG-238	18	Cord Assy(IP-BUS)	CDE5056
			19	Owner's Manual (Dutch)	CRB1401

2.2 EXTERIOR

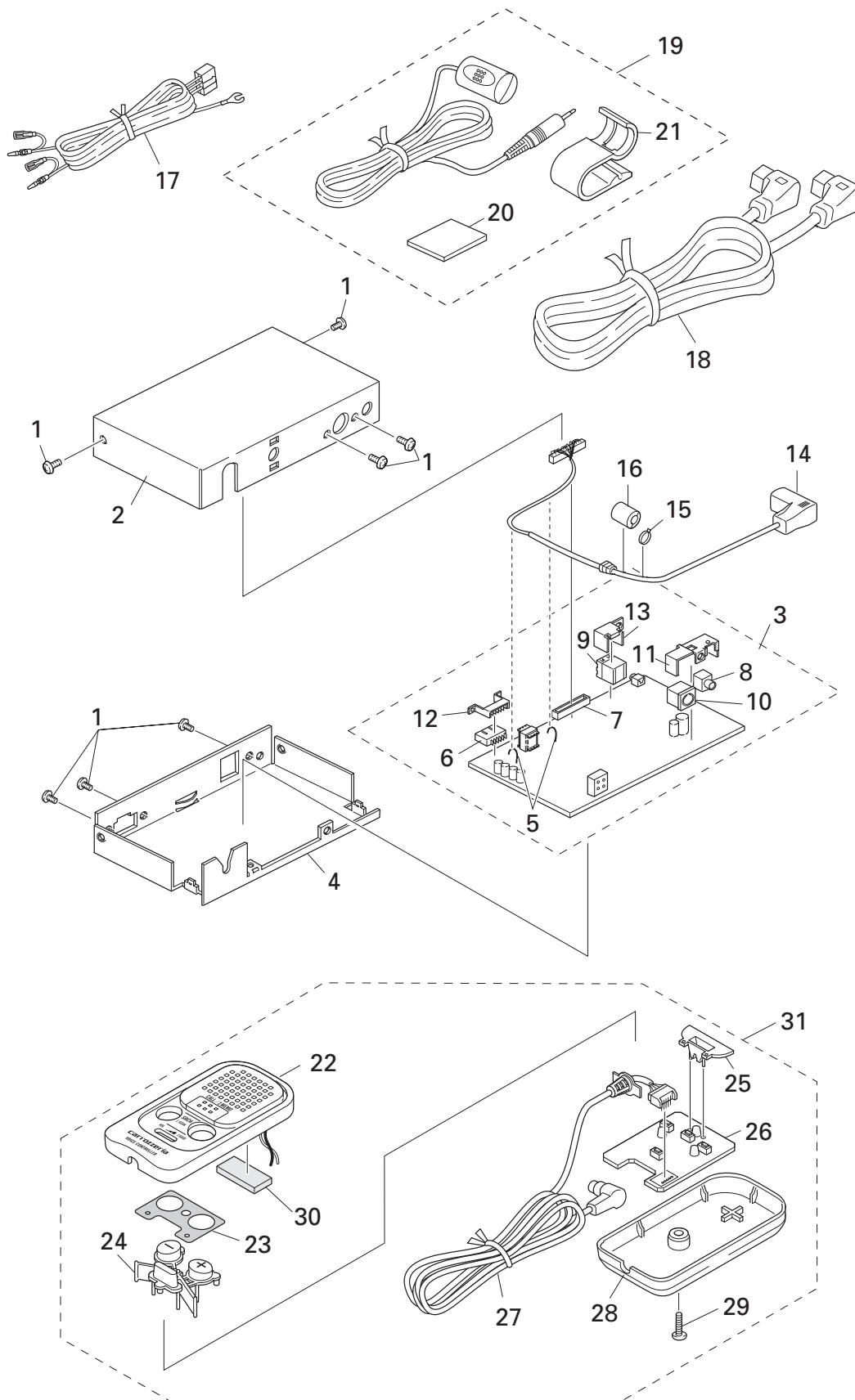


Fig. 2

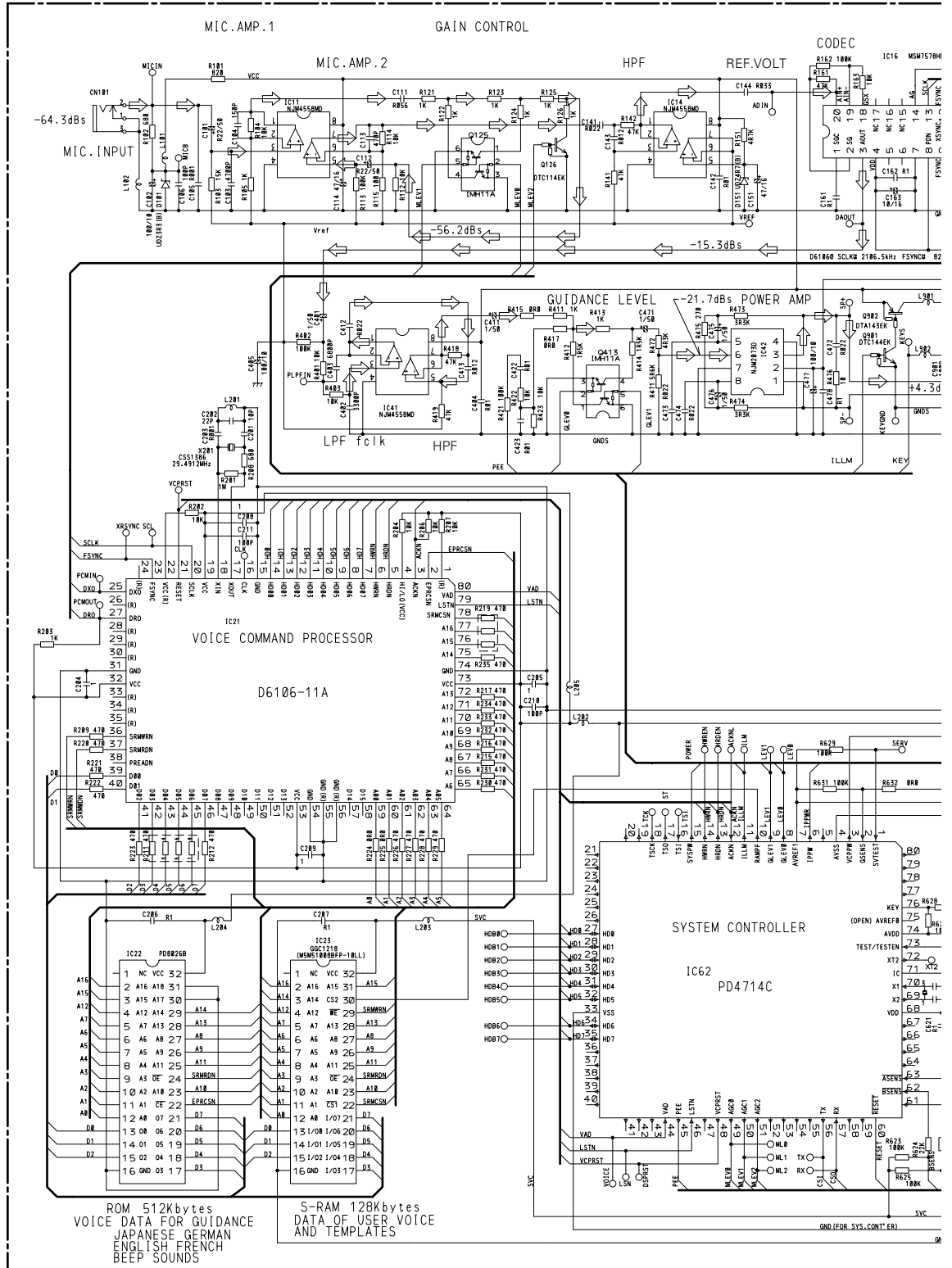
● EXTERIOR SECTION PARTS LIST

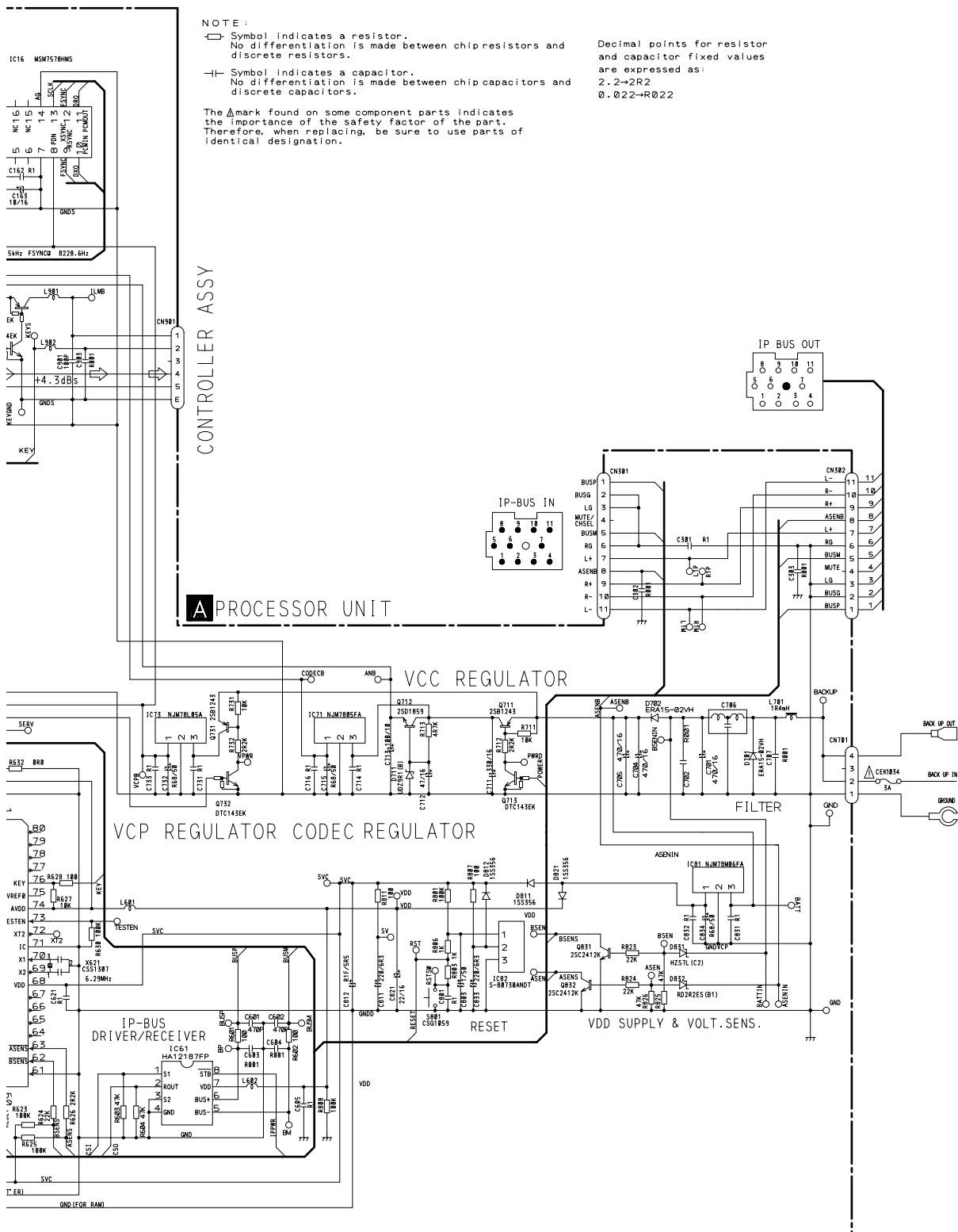
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ30P060FZK	*	16 Filter	CTX1060
2	Case	CNB2122	17	Cord	CDE5122
3	Processor Unit	CWX2242	18	Cord Assy	CDE5056
4	Chassis	CNA1839	19	Microphone Assy	CPM1017
5	Clamper	CEF1005	20	Cushion	MEH1007
6	Plug(CN701)	CKM1131	21	Clip Stand	MNK1221
7	Plug(CN302)	CKS1044	22	Grille Assy	TXK1475
8	Jack(CN101)	CKS2310	23	Cover	TED1364
9	Connector(CN301)	CKS2486	24	Button	TMA1030
10	Connector(CN901)	CKS3195	25	Spacer	TMA1028
11	Holder	CNC6686	26	PCB Unit	TWX1021
12	Bracket	CZN6159	27	Cord Assy	TDC2159
13	Bracket	CZN6234	28	Case	TMB1044
14	Cord Assy	CDE5358	29	Screw	PPZ26P080FZK
*	15 Lock Tie	CNV-754	30	Cushion	TED1366
			31	Controller Assy	CXB2569

3. SCHEMATIC DIAGRAM

3.1 OVERALL CONNECTION DIAGRAM

Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".





NOTE :

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- ⊢ Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Decimal points for resistor and capacitor fixed values are expressed as:
 2.2-2R2
 0.022-R022

Fig. 3



4. PCB CONNECTION DIAGRAM

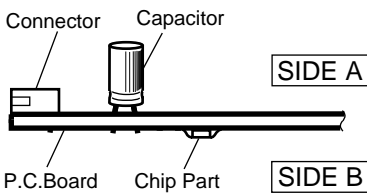
4.1 MAIN UNIT

SIDE A

NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
For further information for respective destinations, be sure to check with the schematic diagram.

2. Viewpoint of PCB diagrams



A PROCESSOR UNIT

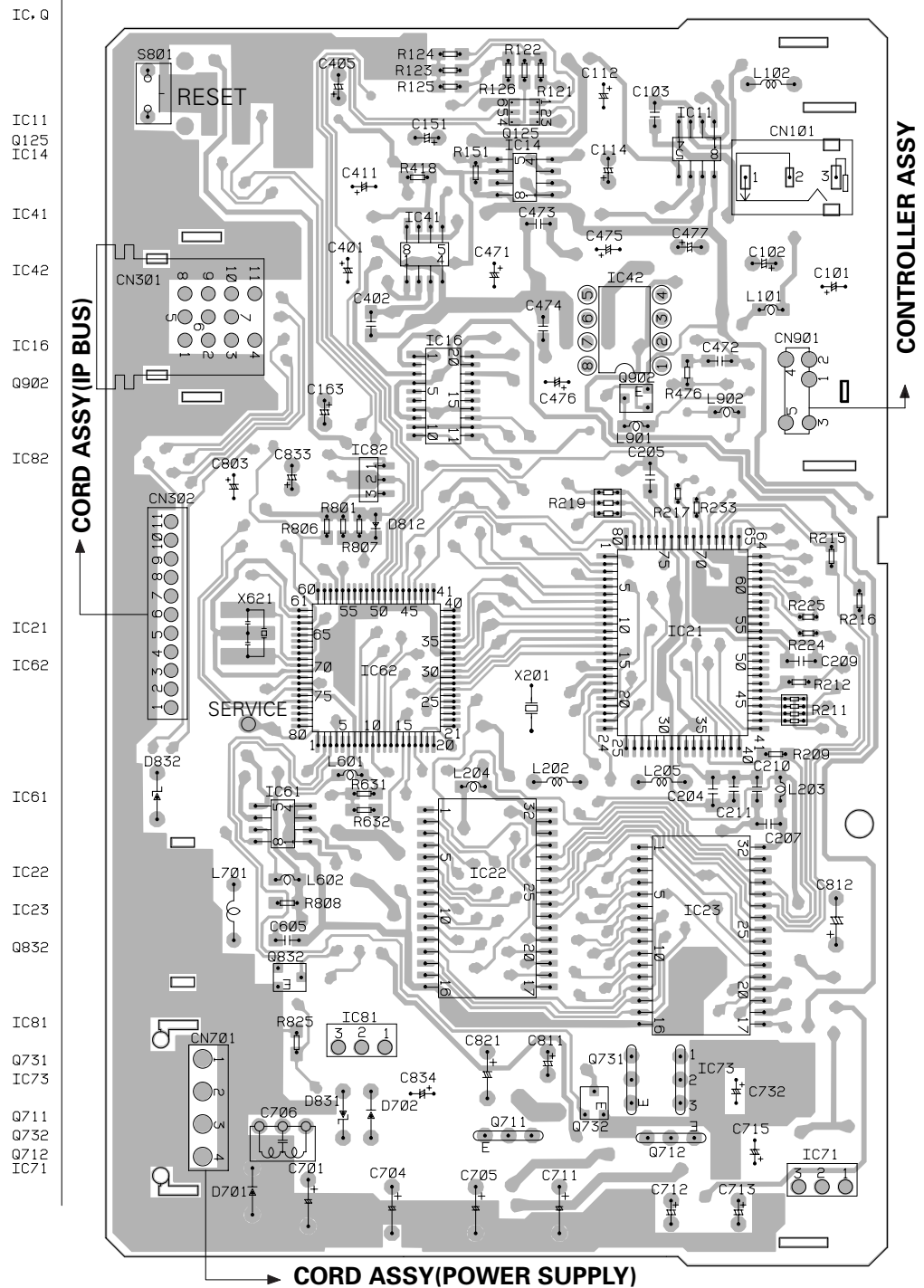
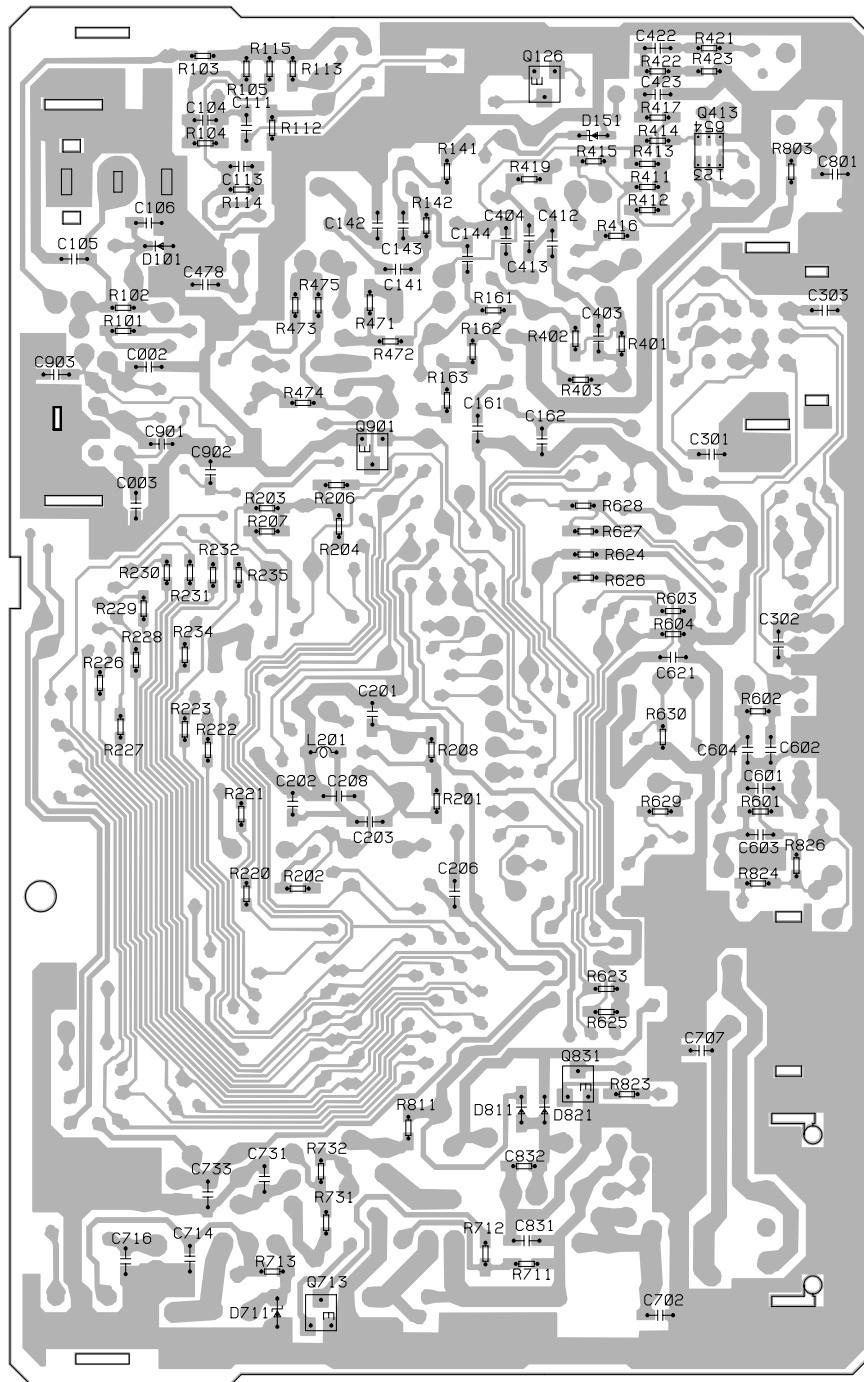


Fig. 4

SIDE B

A PROCESSOR UNIT



IC.0
 Q126
 Q413
 Q901
 Q831
 Q713

Fig. 5

A

5. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/OSOOOJ,RS1/OOSOOOJ

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
A Unit Number : CWX2242 Unit Name : Processor Unit		S 801 Switch	CSG1059
MISCELLANEOUS		RESISTORS	
IC 11 IC	NJM4558MD	R 101	RS1/10S821J
IC 14 IC	NJM4558MD	R 102	RS1/10S681J
IC 16 IC	MSM7578HMS	R 103	RS1/10S153J
IC 21 IC	D6106-11A	R 104	RS1/10S103J
IC 22 IC	PD8026B	R 105	RS1/10S102J
IC 23 IC (M5M51008BFP-10LL)	GGC1218	R 112	RS1/10S103J
IC 41 IC	NJM4558MD	R 113	RS1/10S104J
IC 42 IC	NJM2073D	R 114	RS1/10S103J
IC 61 IC	HA12187FP	R 115	RS1/10S101J
IC 62 IC	PD4714C	R 121	RS1/10S102J
IC 71 IC	NJM7805FA	R 122	RS1/10S102J
IC 73 IC	NJM78L05A	R 123	RS1/10S102J
IC 81 IC	NJM78M06FA	R 124	RS1/10S102J
IC 82 IC	S-80730ANDT	R 125	RS1/10S102J
Q 125 Transistor	IMH11A	R 126	RS1/10S102J
Q 126 Transistor	DTC114EK	R 141	RS1/10S473J
Q 413 Transistor	IMH11A	R 142	RS1/10S473J
Q 711 Transistor	2SB1243	R 151	RS1/10S472J
Q 712 Transistor	2SD1859	R 161	RS1/10S473J
Q 713 Transistor	DTC143EK	R 162	RS1/10S104J
Q 731 Transistor	2SB1243	R 163	RS1/10S103J
Q 732 Transistor	DTC143EK	R 201	RS1/10S105J
Q 831 Transistor	2SC2412K	R 202	RS1/10S103J
Q 832 Transistor	2SC2412K	R 203	RS1/10S102J
Q 901 Transistor	DTC144EK	R 204	RS1/10S103J
Q 902 Transistor	DTA143EK	R 206	RS1/10S103J
D 101 Diode	UDZ3R3(B)	R 207	RS1/10S103J
D 151 Diode	UDZ4R7(B)	R 208	RS1/10S681J
D 701 Diode	ERA15-02VH	R 209	RS1/10S471J
D 702 Diode	ERA15-02VH	R 211	RA4C471J
D 711 Diode	UDZ9R1(B)	R 212	RS1/10S471J
D 811 Diode	1SS356	R 215	RS1/10S471J
D 812 Diode	1SS356	R 216	RS1/10S471J
D 821 Diode	1SS356	R 217	RS1/16S471J
D 831 Diode	HZS7L(C2)	R 219	RA3C471J
D 832 Diode	RD2R2ES(B1)	R 220	RS1/10S471J
L 101 Inductor	LCTBR47K2125	R 221	RS1/10S471J
L 102 Ferri-Inductor	LAU101K	R 222	RS1/10S471J
L 201 Inductor	LCTB1R8K2125	R 223	RS1/10S471J
L 202 Inductor	LAU3R3K	R 224	RS1/16S0R0J
L 203 Inductor	LCTBR47K2125	R 225	RS1/16S0R0J
L 204 Inductor	LCTBR47K2125	R 226	RS1/10S471J
L 205 Ferri-Inductor	LAU101K	R 227	RS1/10S471J
L 601 Inductor	LCTBR47K2125	R 228	RS1/10S471J
L 602 Inductor	LCTBR47K2125	R 229	RS1/10S471J
L 701 Choke Coil 1.4mH	CTH1129	R 230	RS1/10S471J
L 901 Inductor	LCTBR47K2125	R 231	RS1/10S471J
L 902 Inductor	LCTBR47K2125	R 232	RS1/10S471J
X 201 Resonator 29.4912MHz	CSS1386	R 233	RS1/16S471J
X 621 Resonator 6.29MHz	CSS1307	R 234	RS1/10S471J

====Circuit Symbol and No.===Part Name	Part No.	====Circuit Symbol and No.===Part Name	Part No.
R 235	RS1/10S471J	C 161	CKSQYB104K50
R 401	RS1/10S103J	C 162	CKSQYB104K50
R 402	RS1/10S104J	C 163	CEJA100M16
R 403	RS1/10S103J	C 201	CCSQCH100J50
R 411	RS1/10S102J	C 202	CCSQCH220J50
R 412	RS1/10S152J	C 203	CKSQYB102K50
R 413	RS1/10S102J	C 204	CKSYB105K16
R 414	RS1/10S152J	C 205	CKSYB105K16
R 415	RS1/10S0R0J	C 206	CKSQYB104K50
R 417	RS1/10S0R0J	C 207	CKSQYB104K50
R 418	RS1/10S473J	C 208	CKSYB105K16
R 419	RS1/10S473J	C 209	CKSYB105K16
R 421	RS1/10S104J	C 210	CCSQCH101J50
R 422	RS1/10S103J	C 211	CCSQCH101J50
R 423	RS1/10S103J	C 301	CKSQYB104K50
R 471	RS1/10S562J	C 302	CKSQYB102K50
R 472	RS1/10S473J	C 303	CKSQYB102K50
R 473	RS1/10S332J	C 401	CEJA1R0M50
R 474	RS1/10S332J	C 402	CKSQYB332K50
R 475	RS1/10S271J	C 403	CKSQYB682K50
R 476	RS1/10S100J	C 404	CKSQYB103K50
R 601	RS1/10S101J	C 405	CEAL101M10
R 602	RS1/10S101J	C 411	CEJA1R0M50
R 603	RS1/10S473J	C 412	CKSQYB223K50
R 604	RS1/10S473J	C 413	CKSQYB123K50
R 623	RS1/10S104J	C 422	CKSQYB103K50
R 624	RS1/10S222J	C 423	CKSQYB103K50
R 625	RS1/10S104J	C 471	CEJA1R0M50
R 626	RS1/10S222J	C 472	CKSQYB224K16
R 627	RS1/10S103J	C 473	CKSQYB223K50
R 628	RS1/10S101J	C 474	CKSQYB223K50
R 629	RS1/10S104J	C 475	CEJA1R0M50
R 630	RS1/10S104J	C 476	CEJA1R0M50
R 631	RS1/10S104J	C 477	CEAL101M10
R 711	RS1/10S103J	C 478	CKSQYB104K50
R 712	RS1/10S222J	C 601	CKSQYB471K50
R 713	RS1/10S472J	C 602	CKSQYB471K50
R 731	RS1/10S103J	C 603	CKSQYB102K50
R 732	RS1/10S222J	C 604	CKSQYB102K50
R 801	RS1/10S104J	C 605	CKSQYB104K50
R 803	RS1/10S102J	C 621	CKSQYB104K50
R 806	RS1/10S102J	C 701	470µF/16V CCH1183
R 807	RS1/10S101J	C 702	CKSQYB102K50
R 808	RS1/10S104J	C 704	470µF/16V CCH1183
R 811	RS1/10S101J	C 705	470µF/16V CCH1183
R 823	RS1/10S223J	C 706	EMI Filter CCG1006
R 824	RS1/10S223J	C 707	CKSQYB102K50
R 825	RS1/10S473J	C 711	CEAS331M16
R 826	RS1/10S473J	C 712	CEAL470M16
		C 713	CEAL101M10
CAPACITORS			
C 101	CEJAR22M50	C 714	CKSQYB104K50
C 102	CEAL101M10	C 715	CEJAR68M50
C 103	CKSQYB472K50	C 716	CKSQYB104K50
C 104	CCSQCH151J50	C 731	CKSQYB104K50
C 105	CKSQYB102K50	C 732	CEJAR68M50
C 106	CCSQCH101J50	C 733	CKSQYB104K50
C 111	CKSQYB563K16	C 801	CKSQYB104K50
C 112	CEJAR22M50	C 803	CEJA1R0M50
C 113	CKSQYB471K50	C 811	CEJA221M6R3
C 114	CEAL470M16	C 812	0.1F/5.5V CCL1023
C 141	CKSQYB223K50	C 821	CSZA220M16
C 142	CKSQYB103K50	C 831	CKSQYB104K50
C 143	CKSQYB123K50	C 832	CKSQYB104K50
C 144	CKSQYB333K50	C 833	CEJA221M6R3
C 151	CEAL470M16	C 834	CEJAR68M50
		C 901	CCSQCH101J50
		C 903	CKSQYB102K50

6. ADJUSTMENT

There is no information to be shown in this chapter.

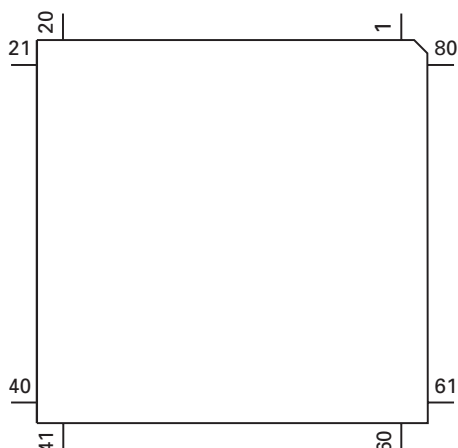
7. GENERAL INFORMATION

7.1 IC

● Pin Functions(PD4714C)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	SVTEST	I		Service testmode input
2	GSENS	I		Select input for the destination
3	VCPW	O	C	Power supply for D6106,ROM
4	AVSS	I		GND
5	NC			Not used
6	IPPW	O	C	Power supply control output for IP BUS driver
7	AVREF1			VDD
8,9	GLEV0,1	O	C	Guidance level output 0,1
10	RAMPF	O	C	CS2 control output for SRAM
11	ILLM	O	C	Illumination output
12	ACKN	I		D6106 data YES or NO detection input
13	HRDN	O	C	Data reading request output
14	HWRN	O	C	Data writing request output
15	SYSPW	O	C	System power supply control output
16	TSI	I		Chip test data input
17	TSO	O	C	Chip test data output
18	TSCK	O	C	Chip test clock output
19-26	NC			Not used
27-32	HD 0-5	I/O		Data line 0-5
33	VSS			GND
34,35	HD 6,7	I/O		Data line 6,7
36-43	NC			Not used
44	VAD	I		Speaking detection input
45	PEE	O	C	PEE output
46	LSTN	I		Waiting detection input
47	NC			Not used
48	VCPRST	O	C	D6106 reset output
49-51	AGC 0-3	O	C	Gain control output 0-3
52-55	NC			Not used
56	TX	O	C	IP BUS data output
57	RX	I		IP BUS data input
58,59	NC			Not used
60	RESET			Reset
61	NC			Not used
62	BSENS	I		Back up power sense input
63	ASENS	I		ACC power sense input
64-67	NC			Not used
68	VDD			Power supply
69	X2	O		Oscillator output
70	X1	I		Oscillator input
71	IC			Connect to GND
72	XT2	O		Sub clock output
73	TEST/TESTEN	I		Test mode/Test enable
74	AVDD			VDD
75	AVREF0			Open
76	KEY			MODE key/SEARCH+ key/SEACH- key input
77-80	NC			Not used

*PD4714C



Format	Meaning
C	C MOS

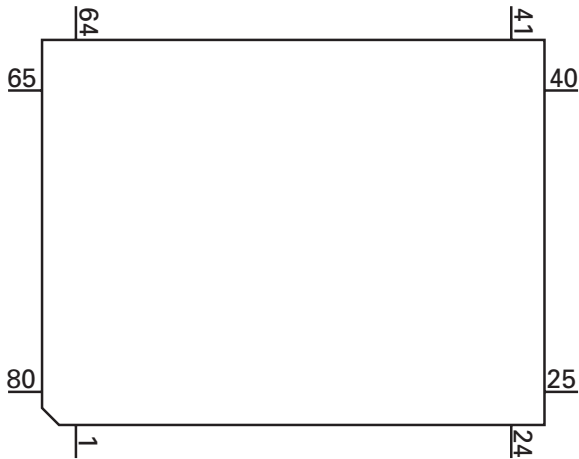
IC's marked by* are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

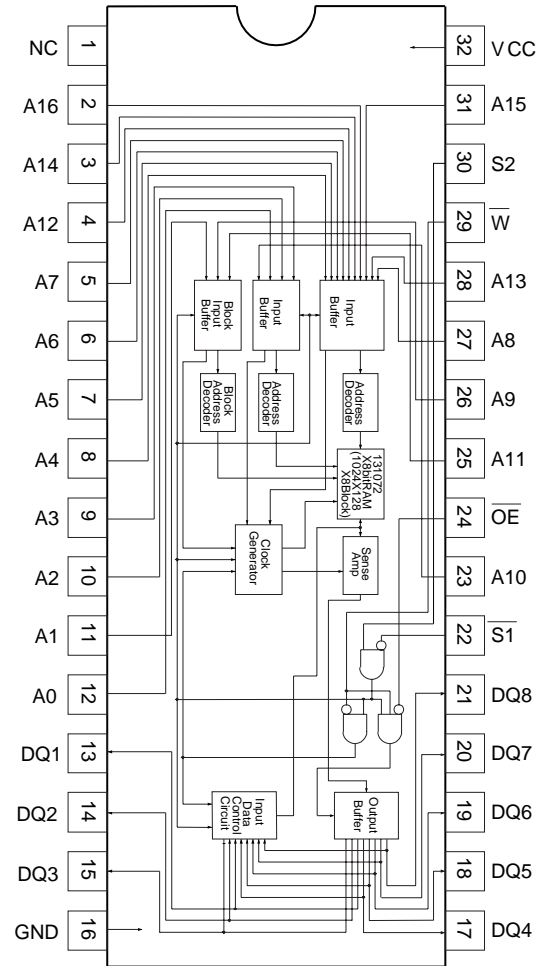
● Pin Functions(D6106-11A)

Pin No.	Pin Name	I/O	Function and Operation
1	RESERVED		These pins should be left unconnected
2	EPRCSN	O	Active-low EPROM select output
3	ACKN	I/O	Active-low host interrupt flag
4	HI/LO	I	Connect to 10K pull-up
5	HRDN	I	Active-low host read control line
6	HWRN	I	Active-low host write control line
7-14	HD7-0	I/O	Bidirectional data bus lines for the host interface 7-0
15	GND		GND
16	CLK	O	Clock output
17	XOUT	O	Crystal oscillator output
18	XIN	I	Crystal oscillator input
19	VCC	I	+5V supply voltage line
20	SCLK	O	2106kHz clock output to the PCM codec
21	RESET	I	Active-high reset input with Schmitt trigger interface
22	PDN	I	Connect to 10K pull-up
23	FSYNC	O	Active-high, 8228Hz frame synchronization pulse output to the PCM codec
24	RESERVED		These pins should be left unconnected
25	DXO	O	Output for μ -Law PCM encoded data from the PCM codec
26	RESERVED		These pins should be left unconnected
27	DRO	I	Input for μ -Law PCM encoded data from the PCM codec
28-30	RESERVED		These pins should be left unconnected
31	GND		GND
32	VCC	I	+5V supply voltage line
33-35	RESERVED		These pins should be left unconnected
36	SRMWRN	O	Active-low write strobe output to the SRAM
37	SRMRDN	O	Active-low EPROM/SRAM read control output
38	PREADN	O	This pin should be left unconnected
39-52	D0-13	I/O	Bidirectional data bus lines for the external memory components 0-13
53	VCC	I	+5V supply voltage line
54	GND		GND
55,56	RESERVED		GND
57,58	D14,15	I/O	Bidirectional data bus lines for the external memory components 14,15
59-72	A0-13	O	Address lines for the external memory components 0-13
73	VCC	I	+5V supply voltage line
74	GND		GND
75-77	A14-16	O	Address lines for the external memory components 14-16
78	SRMCSN	O	Active-low SRAM select output
79	LISTN	O	Active-low listening state indication line
80	VAD	O	Active-low Voice Activity indication line

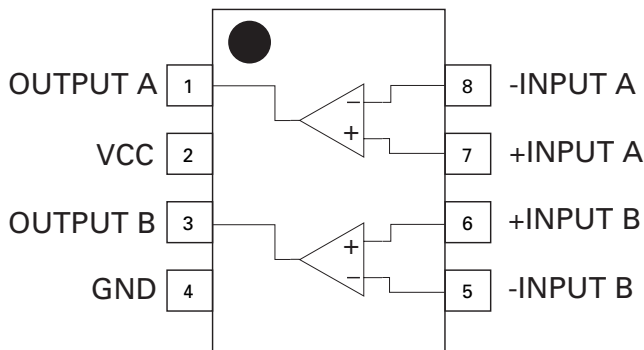
D6106-11A



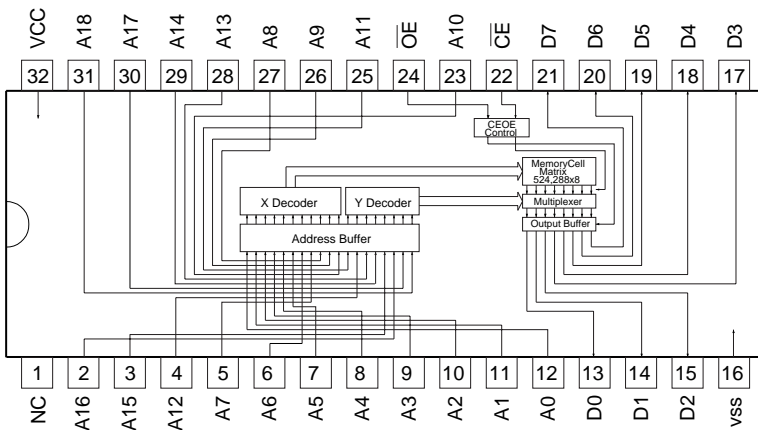
GGC1218(M5M51008BFP-10LL)



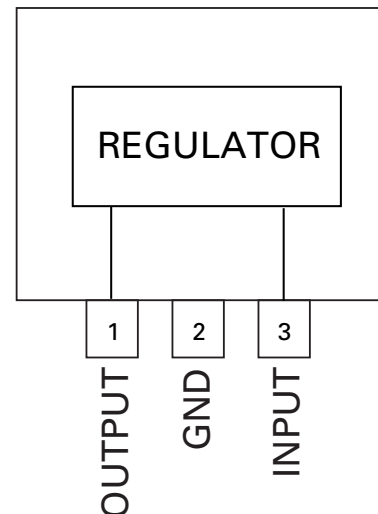
NJM2073D



PD8026B



NJM78M06FA



7.2 DIAGNOSIS

7.2.1 TEST MODE

Numbers in parentheses indicate order of appearance in Test mode for service (as shown below).

	29)English (English)	30)French (French)	31)German (German)	32)Nihongo (Japanese)
Starts registration. (Memory mode)	1) Input name.	8) Entrez le nom.	15) Bitte Namen eingeben.	22) Touroku sitekudasai.
Retries registration.	2) Please input name again.	9) Entrez le nom a nouveau.	16) Bitte erneut eingeben.	23) Mouitido.
Registration is completed.	3) Naming is complete.	10) Le nom est enregistré.	17) Name ist gespeichert.	24) Touroku simasita.
Starts recognition. (Call mode)	4) Make your request.	11) Faites votre demande.	18) Bitte aufrufen.	25) Rikuesuto wo douzo.
Retries recognition.	5) Please make your request again.	12) Recommencez s'il vous plait.	19) Bitte erneut aufrufen.	26) Mouitido.
Recognition is completed.	6) Thank you.	13) Merci.	20) Vielen Dank.	27) Wakarimasita.
When a word is too long	7) That name is too long.	14) Le nom est trop long.	21) Name zu lang.	28) Nagasugimasu.
Registers when Guidance is OFF.	37) [Peep]	←	←	←
Registration is completed when Guidance is OFF.	38) [Peep peep]	←	←	←
Recognizes when Guidance is OFF.	39) [Beep]	←	←	←
Recognition is completed when Guidance is OFF.	40) [Beep beep]	←	←	←
Retries when Guidance is OFF	41) [Bee-eep]	←	←	←
Fails when Guidance is OFF.	42) [Bee-eep bee-eep]	←	←	←
Starts Test mode.	33) Test Mode.	←	←	←
Checks IP-BUS in Test mode.	34) IP-BUS is OK.	←	←	←
	35) IP-BUS is NO GOOD.	←	←	←
Ends Test mode.	36) Test is finished.	←	←	←

(Outline of Test Mode for Service)

- Step 1 Starting operation: Ground test point SERVICE, then press the RESET switch. The system outputs "TEST MODE."
- Step 2 Confirmation of guidance: The system plays back in order of the numbers shown above every time the [+] key is pressed. Pressing the [-] key is invalid. Sound volume can be switched with the LEVEL key as with in normal use.
- Step 3 Confirmation of IP-BUS connection: When the MODE key is pressed for less than two seconds, the system informs of the result of communication to confirm whether connection of IP-BUS is normal or not. The system answers either "IP-BUS is OK" or "IP-BUS is NO GOOD." If the main set is not connected, the system generates a [Peep].
- Step 4 Confirmation of registration: Press the MODE key for more than two seconds. The system outputs "Input name." Speak a word. The system outputs the word, then generates a [Peep peep]. When four words are registered, the system outputs "Naming is complete," and you may proceed to the next step.
- Step 5 Confirmation of recognition: Press the MODE key for less than two seconds. The system outputs "Make your request." Speak the words registered in Step 4. The systems outputs "Thank you" (if recognition is successful), then generates [Peep peep]. You may repeat this as many times as you wish. When registration/recognition is failed: [Bee-ee peep], changing from low to high pitch, will be generated, instead of the [Peep peep] in Step 4 and "Thank you" and [Peep peep] in Step 5. Repeat Steps 4 and 5.
- Step 6 End: When Step 4 is completed, press the MODE key for more than two seconds. The system outputs "Test is finished." If the MODE key is pressed for less than two seconds, the system outputs "TEST MODE" and returns to Step 2.
- To return to normal operation: Open Pin 1, then press the RESET switch.

7.2.2 DISASSEMBLY

● Removing the Case

1. Removing the screw.
2. Insert and turn a flat screwdriver at location indicated by arrow to remove the case.

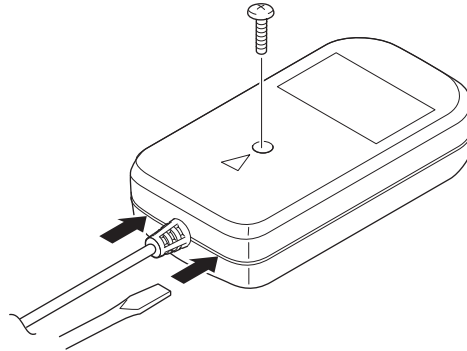


Fig. 6

Note:

To prevent the PCB unit from working loose, apply glue between the PCB unit and the grille assy when installing the PCB unit to the grille assy.

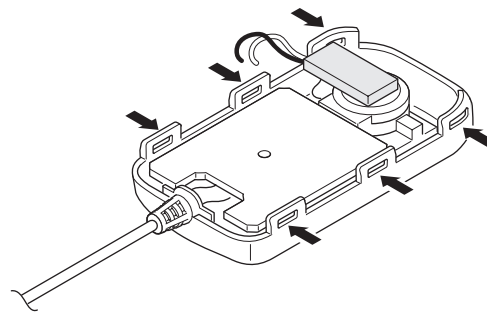
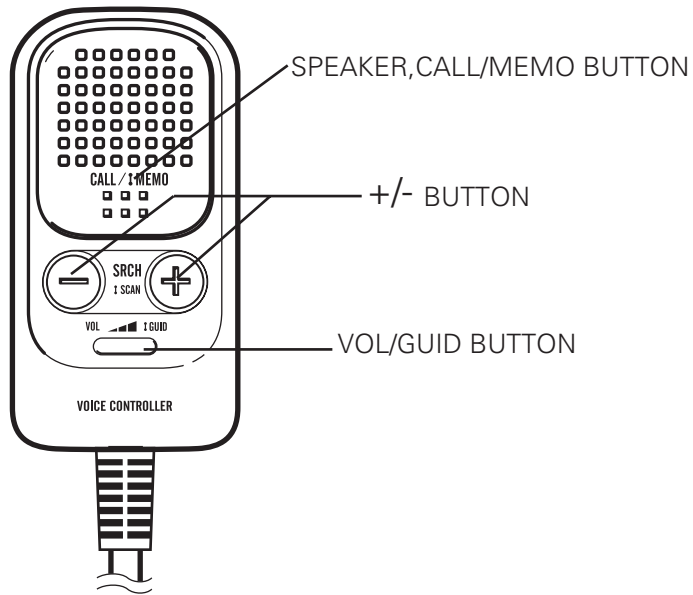


Fig. 7

8. OPERATIONS AND SPECIFICATIONS

The illustration shown below is a controller (not a microphone). When speaking, you should face the microphone.



Specifications

Processor unit

Voice recognition system Voice recognition of a specified voice

Connection terminals
 • Power terminal
 • IP-BUS input/output jacks
 • Controller connection terminals
 • Mic input jack (3.5 mm dia.)
 (Also supplies power to the mic)

Dimensions 140 (W) × 30 (H) × 90 (D) mm

Weight 0.36 kg

Controller

Speaker 20×27mm

Microphone

Type Electrolet condenser mic for voice recognition

Directionality Unidirectional

Installation site Sun visor, steering column

General

Power source 14.4 V DC (10.8 – 15.1 V allowable)

Grounding system Negative type

Max. current consumption 300 mA

Supplied accessories

Installation kit 1

Cord 1

Owner's manual 1

