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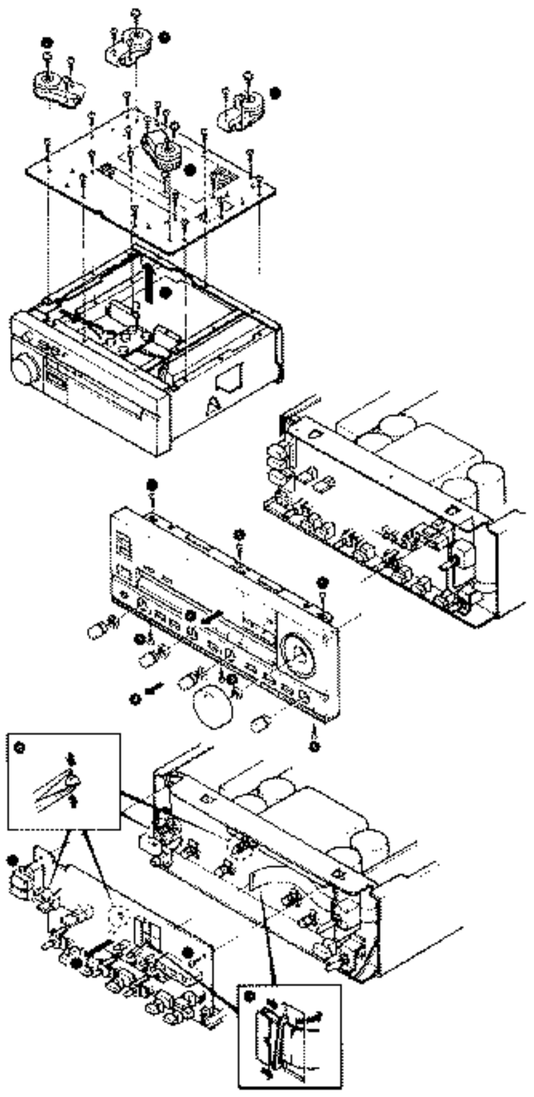
CAUTION

Never connect an audio connection cord between the digital input/output jack and a PHONO, CD, TUNER, AUX or TAPE line input/output jack.

DISASSEMBLY FOR REPAIR

(Remove the metallic cabinet from the body beforehand.)

1. Remove the 17 screws holding the bottom plate, and remove the bottom plate (❶).
2. When removing the two insulators (J02-0360-05) at the front side, remove the three screws for each (❷).
3. When removing the two insulators (J02-0358-05) at the rear, remove the three screws for each (❸).



4. Remove the knobs and nuts for the BASS, TREBLE, BALANCE, DUAL REC OUT and VOLUME VRs (❹).
5. Remove the six screws (three at the top, and three at the bottom) retaining the panel ass'y to the frame (❺).
6. Remove the panel ass'y in the direction of the arrow (❻).
7. Remove the two screws retaining the Tone Unit (X11-2462-71) to the frame (❼).
8. Remove the two unit holders retaining the Tone Unit (X11-) (❽).
9. Remove the flexible cord from the CN1 of the Tone Unit (X11-) as shown in the figure (❾).
10. Remove the Tone Unit (X11-) in the direction of the arrow (❿).

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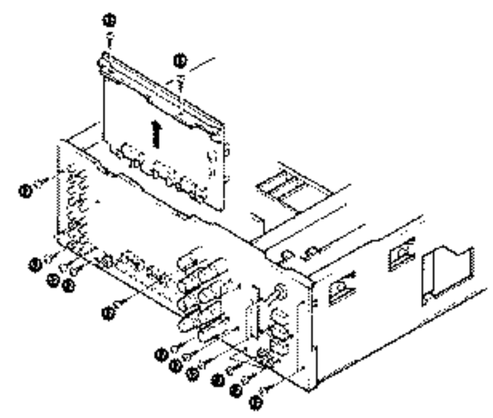
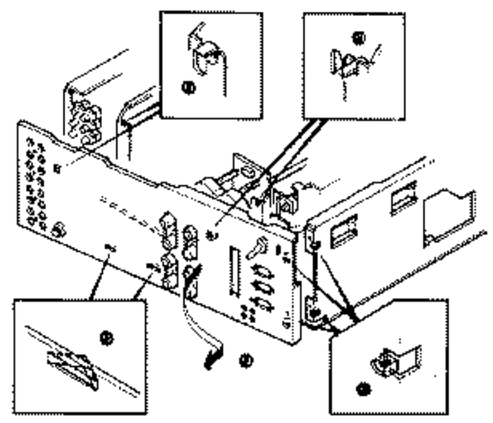
DISASSEMBLY FOR REPAIR

11. Remove the two screws retaining the Power Amplifier Unit (X07-2392-71) to the rear panel (⓫), and pull out the Power Amplifier Unit from the Audio Unit (X09-2562-71) (A/3).
12. Remove the 23 screws retaining the rear panel (⓬).



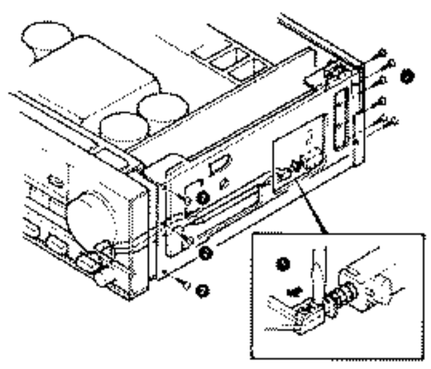
13. Taking cautious of the four lugs at the rear panel (⓭), remove the rear panel in the direction of the arrow (⓮).
14. When installing the rear panel to the body, carefully place the Audio Unit (X09-) (A/3) on the two lugs at the bottom of the rear panel (⓯).



Disassembling the Pre-Amplifier Unit, Processor Unit and Digital I/O Unit

(Remove the metallic cabinet and bottom plate beforehand.)

1. After setting the CARTRIDGE switch to the "MM" position, remove the shaft as shown in the figure (❶).
2. Remove the six screws retaining the rear panel, and the three screws retaining the side frames (❷).



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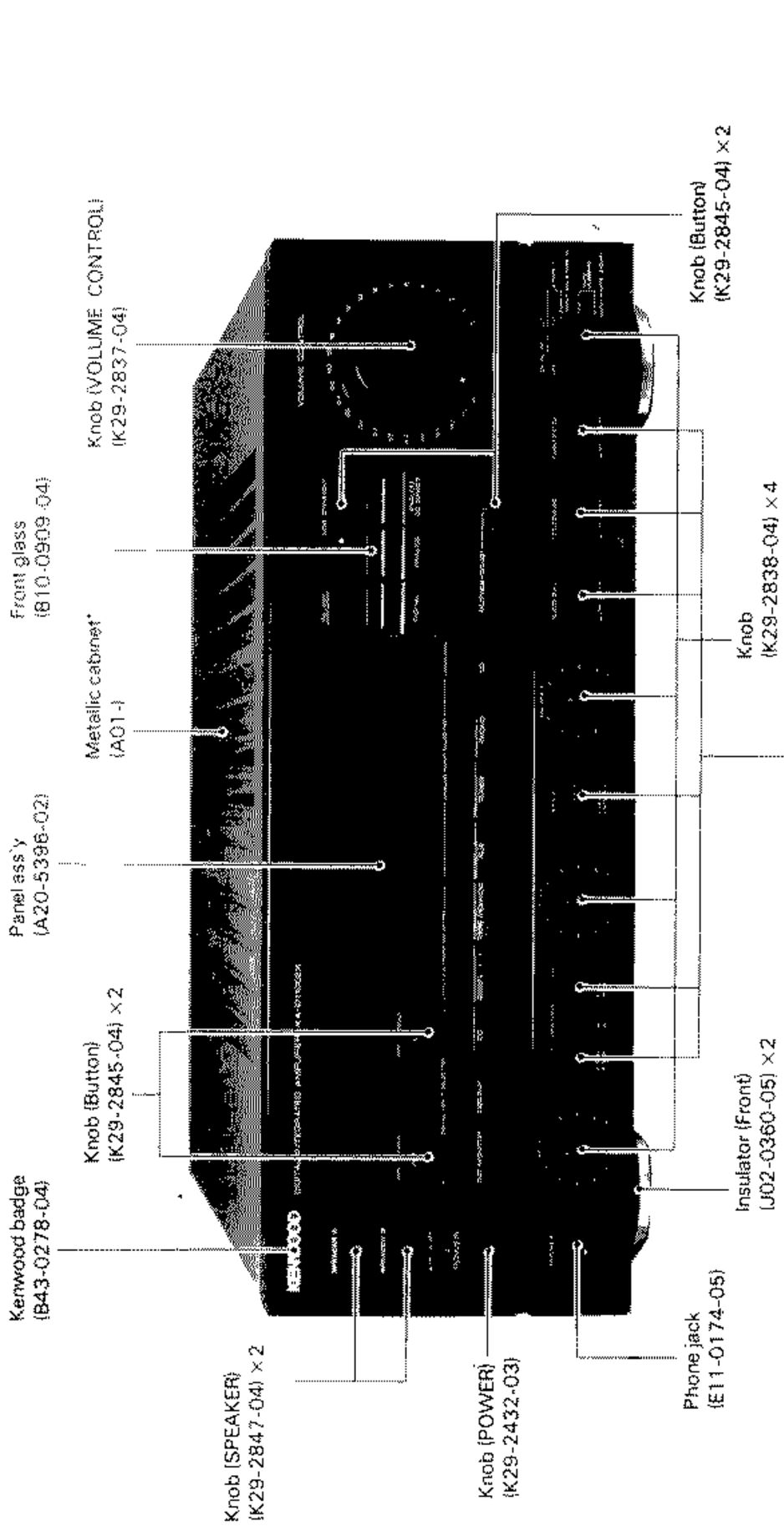
DIGITAL INTEGRATED AMPLIFIER
KA-D1100EX
SERVICE MANUAL



* **Refer to Parts List on page 51.**

PARTS LIST

* New Parts
Parts without Parts No. are not supplied
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Telle ohne Parts No. werden nicht geliefert

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
×1 ,2			S51-2074-05	MAGNETIC RELAY		
S1	1C		S31-2095-05	SLIDE SWITCH (DAC)		
PH1			T95-0101-05	OPTN ISOLATOR		
D1 -24			1SS133	DIODE		
D1 -24			1SS176	DIODE		
D27 -29			1SS133	DIODE		
D27 -29			1SS176	DIODE		
D32			HZS5.1S(B2)	ZENER DIODE		
D32			RD5.1JS(B2)	ZENER DIODE		
D33 -40			DSM1A1	DIODE		
D41 ,42			KV1310-1	VARIABLE CAPACITANCE DIODE		
D43			HZS2.7N(B2)	ZENER DIODE		
D43			RD2.7ES(B2)	ZENER DIODE		
D44 -57			1SS133	DIODE		
D44 -57			1SS176	DIODE		
IC1 ,2			PCM56P-K	IC(DA CONVERTER)		
IC3 -10			NJM5532D-D	IC(OP AMP X2)		
IC21,22			TC74HCU04F	IC(HEX INVERTER)		
IC23,24			TC74HC153F	IC(4CH MPX)		
IC25			SM5804D-T	IC(DIGITAL FILTER)		
IC26			TC17G005AF-0053	IC(VCXO)		
IC27			M5223P	IC(OP AMP X2)		
IC28			M5F78M05L	IC(VOLTAGE REGULATOR/ +5V)		
IC29			M5F79M05L	IC(VOLTAGE REGULATNR/ -5V)		
IC30			M5F78M06L	IC(VOLTAGE REGULATOR/ +6V)		
IC31			M5F79M06L	IC(VOLTAGE REGULATNR/ -6V)		
IC32			P005R04	IC(VOLTAGE REGULATOR/ +5V)		
IC33			M5220P	IC(OP AMP X2)		
IC34			TC74HCU04F	IC(HEX INVERTER)		
IC35			M51951ASL	IC(SYSTEM RESET)		
Q1 -4			2SC1923(R,S)	TRANSISTNR		
Q5			2SC2320(E,F)	TRANSISTNR		
Q5			2SC945(A)(O,P)	TRANSISTOR		
Q6			2SD1266(O,P)	TRANSISTNR		
Q7			2SB941(O,P)	TRANSISTOR		
Q8			2SK170(BL,V)	FET		
Q10 -13			DTC114YFF	DIGITAL TRANSISTOR		
A1	1C		W02-0784-05	ELECTRIC CIRCUIT MODULE(REC)		
A2 ,3	1C		W02-0774-05	ELECTRIC CIRCUIT MODULE(PLA,LD		
DIGITAL I/O UNIT (X88-1010-00)						
C1			CC45FSL1H270J	CERAMIC 27PF J		
C2			CF92FV1H273J	MF 0.027UF J		
C3			CF92FV1H272J	MF 2700PF J		
C4			CF92FV1H683J	MF 0.068UF J		
C5			C90-1602-05	NP-ELEC 10UF 10WV		
C6			CF92FV1H103J	MF 0.010UF J		
C7			CE04JW1H010M	ELECTRO 1.0UF 50WV		
C8 -10			CE04JW1A101M	ELECTRO 100UF 10WV		
C11 -14			CK45F1H103Z	CERAMIC 0.010UF Z		
C15			CC45FSL1H100D	CERAMIC 10PF D		
L1 ,2			L92-0018-05	FERRITE CORE		
R4 ,5			RD14AB2E100JTS	FL-PROOF RD 10 J 1/4W		

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

⚠ indicates safety critical components.

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PARTS LIST

* New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Telle ohne Parts No. werden nicht geliefert.

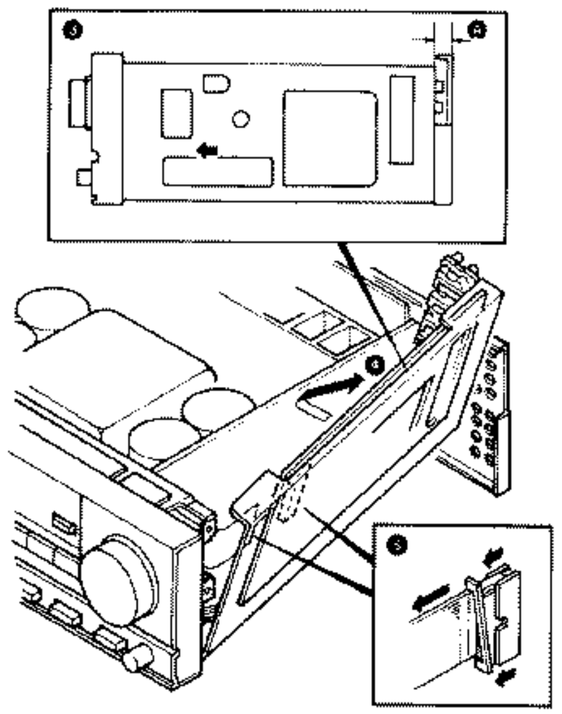
Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
D1			1SS357(T1)	DIODE		
D2 -10			1SS133	DIODE		
D2 -10			1SS176	DIODE		
IC1			TC17G014AF-0003	IC(DIGITAL IN)		
IC2			SN74LS624N	IC(VCO)		
IC3			M5223P	IC(OP AMP X2)		
IC4			TC74HCU04F	IC(HEX INVERTER)		
IC5			TC74HC123F	IC(DUAL MONO MULTI)		
COMPOUND ASS'Y UNIT (X90-2672-71)						
C	1B		N09-0301-05	TAPTITE SCREW (Ø3X8)		

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

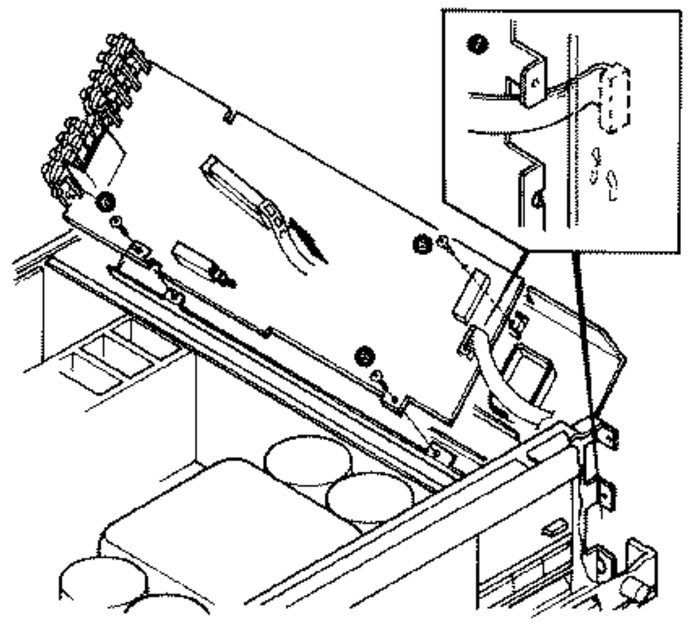
⚠ indicates safety critical components.

DISASSEMBLY FOR REPAIR

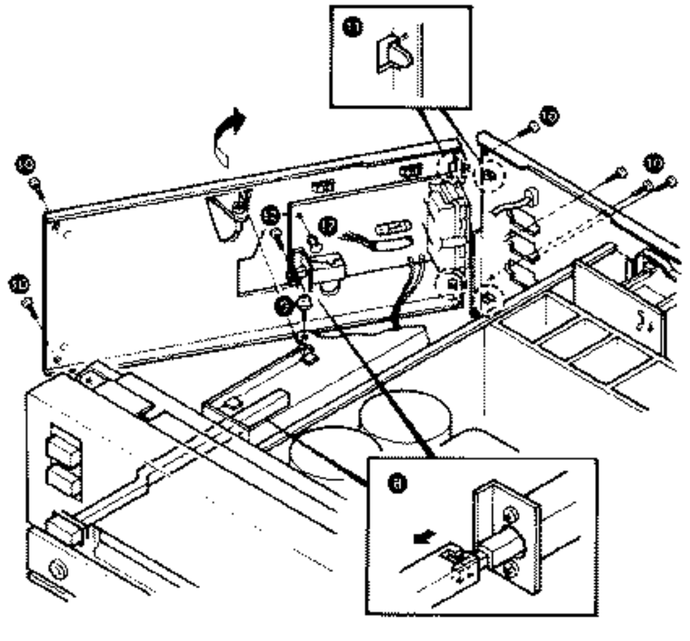
3. Slide the right side frame to that which the Pre-amplifier Unit (X08-222X-XX) (A/4) is attached so that there is a clearance at section A (3).
4. Lift the side frame diagonally in the direction of the arrow from the rear (4).
5. Remove the flexible cord from CN3 of the Pre-amplifier Unit (X08-) (A/4) (5).



6. Remove the three screws retaining the Pre-amplifier Unit (X08-) (A/4) to the side frame (6), and remove it in the direction of the arrow.
7. When installing the Pre-amplifier Unit (X08-) (A/4), first pass the flexible cord through the notch of the front frame so as not to get in the way of the front frame (7).



8. After confirming that the POWER switch is set to OFF, remove the shaft as shown in the figure (8).
9. Remove the screw retaining the left side frame (9).
10. Remove the four screws retaining the rear panel, and the two screws retaining the side frame (10).
11. Taking care of the two lugs on the rear panel (11), remove the side frame in the direction of the arrow.
12. Remove the push rivet and the screw retaining the Pre-amplifier Unit (X08-) (C/4) (12), to remove the Pre-amplifier Unit.



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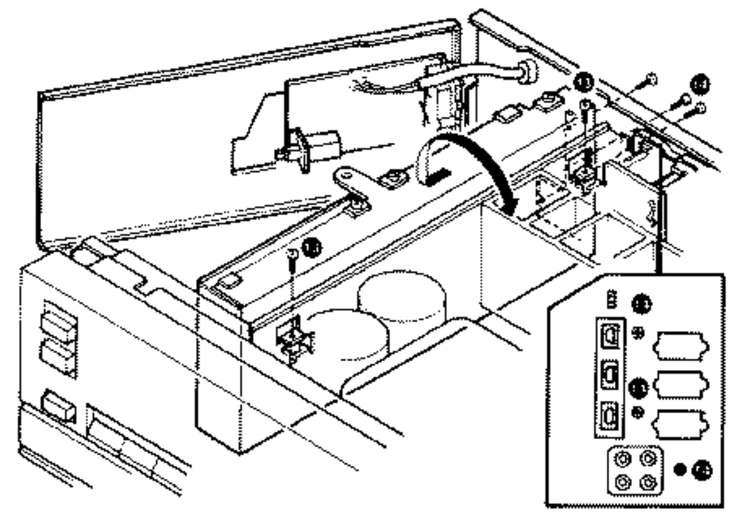
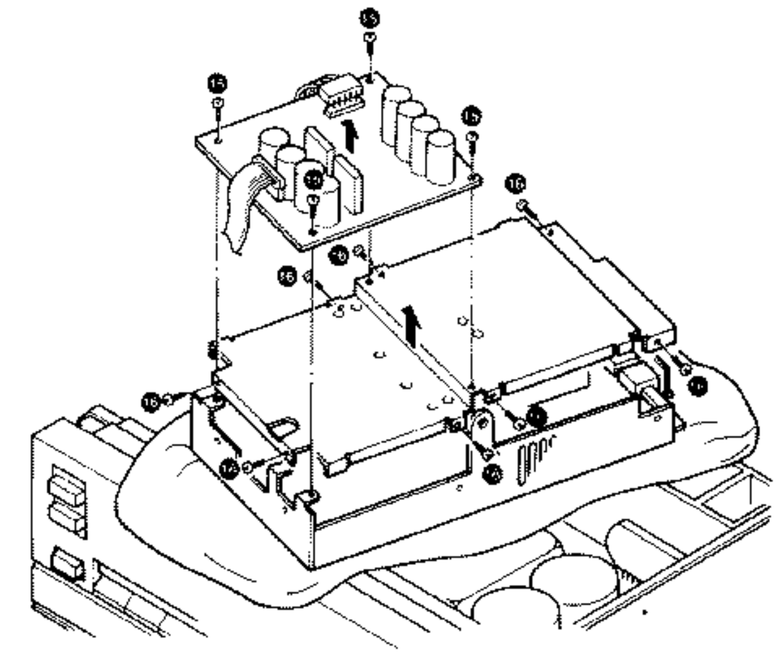
DISASSEMBLY FOR REPAIR

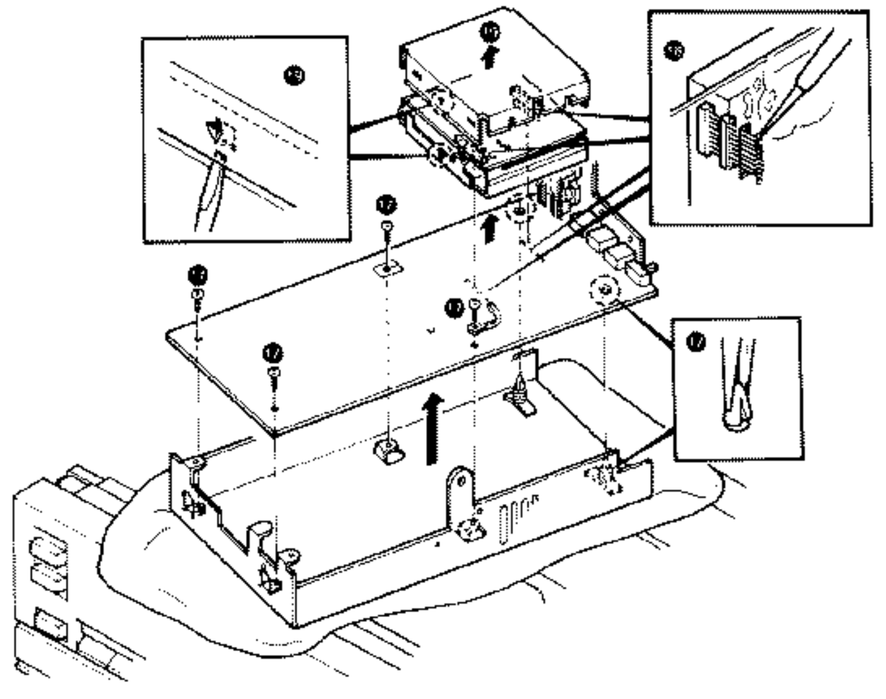
13. Remove the two screws retaining the DAC frame (13).
14. Remove the three screws retaining the DAC frame to the rear panel (14), and remove the Processor Unit (X32-1202-71) (A/2, B/2) with the frame in the direction of the arrow.



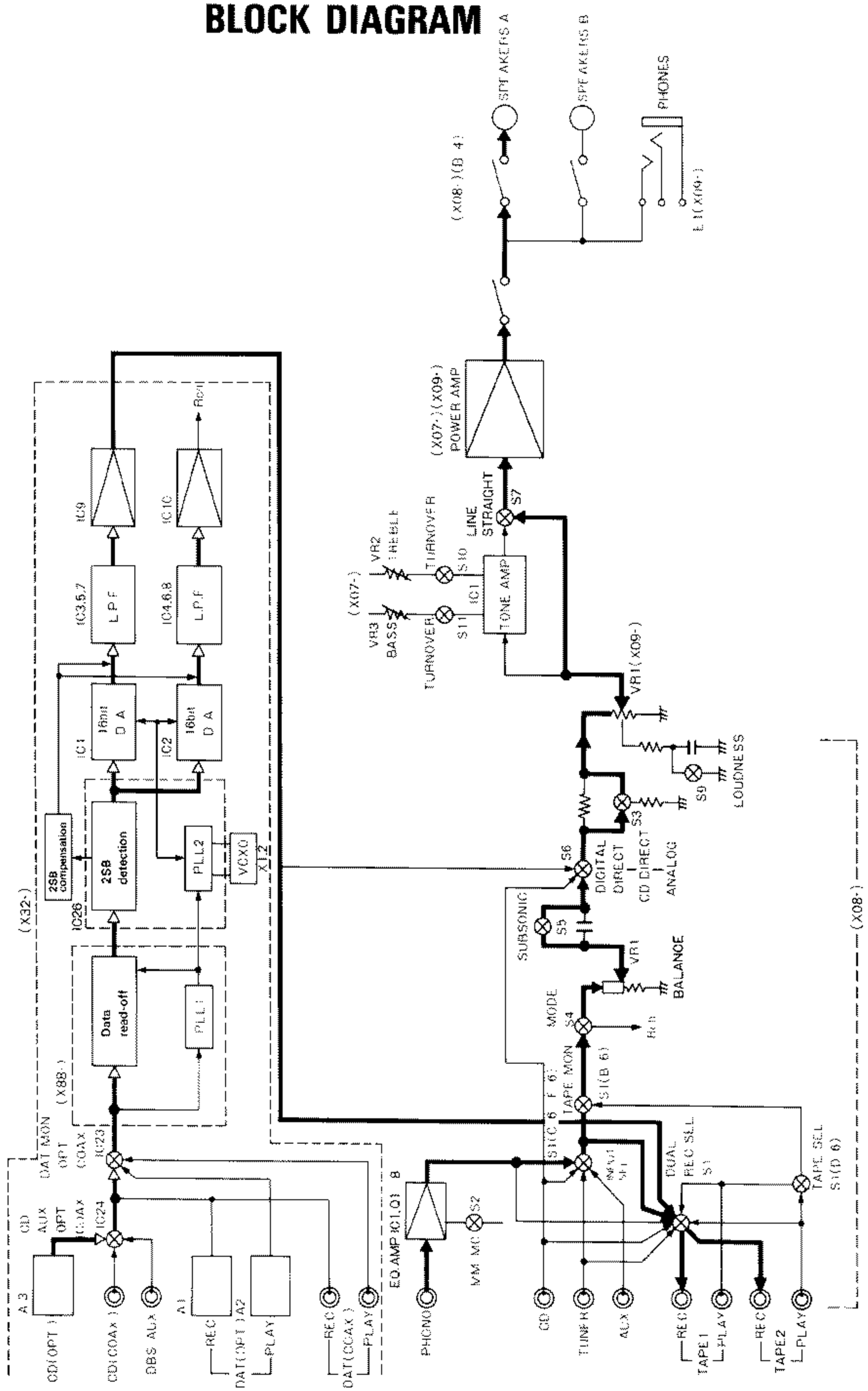
15. Spread a cloth on the top plate of the set, and place the Processor Unit (X32) (A/2, B/2) with the frame, then remove the four screws retaining the B/2 PC board to the frame (15) to remove the B/2 PC board.
16. Remove the eight screws retaining the shield plate (16) to remove it.



17. Remove the four screws and two unit holders retaining the Processor Unit (A/2) to the frame (17), and remove it in the direction of the arrow.
18. Unsolder the CN1 and CN2 holding the Digital I/O Unit (X88-1010-00) from the soldered surface of the Processor Unit (A/2) (18).
19. Remove the cover of the Digital I/O Unit (X88-) case by opening the lugs as shown in the figure (19)



BLOCK DIAGRAM



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CIRCUIT DESCRIPTION

Description of Components

POWER AMPLIFIER UNIT (X07-239X-XX)

Component	Use/Function	Operation/Condition/Interchangeability
Q1, 2	Class A primary stage differential amplifier circuit	
Q3~6	Class A primary stage cascode circuit	
Q7, 8	Constant current circuit	Constant current circuit for class A primary stage differential amplifier circuit
Q9~12	Class A secondary stage differential amplifier circuit	
Q13, 14	Class A cascode circuit	
Q15~18	Class A third stage differential amplifier circuit	
Q19, 20	Class A current mirror circuit	
Q21, 22	Class A cascode circuit	
Q23~30	Cascode bootstrap circuit	Consisting the VIG circuit; Q23~26 are constant current circuit, and Q27~30 are base ground
Q31~34	For pre-driver	
Q35~38	For driver	
Q39~42	Cascode bootstrap circuit	Consisting the VIG circuit; Q39~42 are buffers
Q43~46	Current limiter	Limits the current supplied to the final transistor when overload driven.
Q71	Constant voltage circuit	Transmits the operation signal of the current limiter Q43 and 44 to the protection IC (IC1)
IC1 (μPC1237HA)	Protection IC	

PRE-AMPLIFIER UNIT (X08-222X-XX)

Component	Use/Function	Operation/Condition/Interchangeability
Q1~4	EQ circuit primary stage differential amplifier	
Q5~8	EQ circuit primary stage cascode circuit	
Q9, 10	EQ circuit primary stage constant current circuit	
Q11, 12	For stabilized power supply regulator	
Q13	Deck oscillation prevention circuit	Oscillation prevention circuit against a loop when the deck is connected
Q14, 15	For relay drive	
IC1 (NJM5532D)	Op amp for EQ circuit	
IC2 (M5218P)	Op amp for stabilized power supply for EQ	

CIRCUIT DESCRIPTION

AUDIO UNIT (X09-256X-XX)

Component	Use/Function	Operation/Condition/Interchangeability
Q1 ~6	Constant voltage circuit	Constant voltage circuit for main class A stage.
Q7, 8	Constant current circuit	Ripple elimination circuit inserted into the B line to the primary stage of class A
Q9	For relay drive	
IC1, 2 (KAB02)	Power IC	
IC3, 4 (TA2030)	DLD switch IC	High/Low select circuit of DLD

TONE UNIT (X11-246X-XX)

Component	Use/Function	Operation/Condition/Interchangeability
Q1, 2	Winking circuit	The LED lights when the power indication and the set operates correctly, and blinks until the amplifier is operable (for about 5 seconds) after power is turned ON, or when the protection circuit functions because of the abnormal operation occurs in the power amplifier.
Q3	LED ON/OFF circuit for digital indication	
Q4	Lamp blinking prevention circuit	Constant voltage circuit for preventing the lamp from blinking when the power is output.
IC1 (NJM2041D-D)	IC for tone circuit	1/2 for L-channel, 2/2 for R-channel

PROCESSOR UNIT (X32-1202-71)

Component	Use/Function	Operation/Condition/Interchangeability
Q1, 2	Diode	
Q3, 4	Crystal oscillator	
Q5	LED driver	
Q6	Constant voltage power supply	
Q7	Constant voltage power supply	
Q8	Constant voltage power supply	
Q10~13	Relay control	
IC1, 2 (PCM56P-K)	For D/A conversion	
IC3, 4 (NJM5532D-D)	I-V conversion, addition for compensation of 2nd significant bit	Compatible with NE5532P, NJM5532D.
IC5~8 (NJM5532D-D)	Low pass filter	Compatible with NE5532P, NJM5532D.
IC9, 10 (NJM5532D-D)	Output amplifier	Compatible with NE5532P, NJM5532D.
IC21 (TC74HCU04F)	Amplifier	
IC22 (TC74HCU04F)	Inverter	
IC23, 24 (TC74HC153F)	Digital input select	
IC25 (SM5804D-T)	Digital filter	
IC26 (TC17G005AF-0053)	Twin quartz PLL control circuit Phase comparator for VCXO	
IC27 (M5223P)	Loop filter for VCXO	
IC28 (M5F78M05L)	Constant voltage power supply	Compatible with AN7805F
IC29 (M5F79M05L)	Constant voltage power supply	Compatible with AN7905F.

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CIRCUIT DESCRIPTION

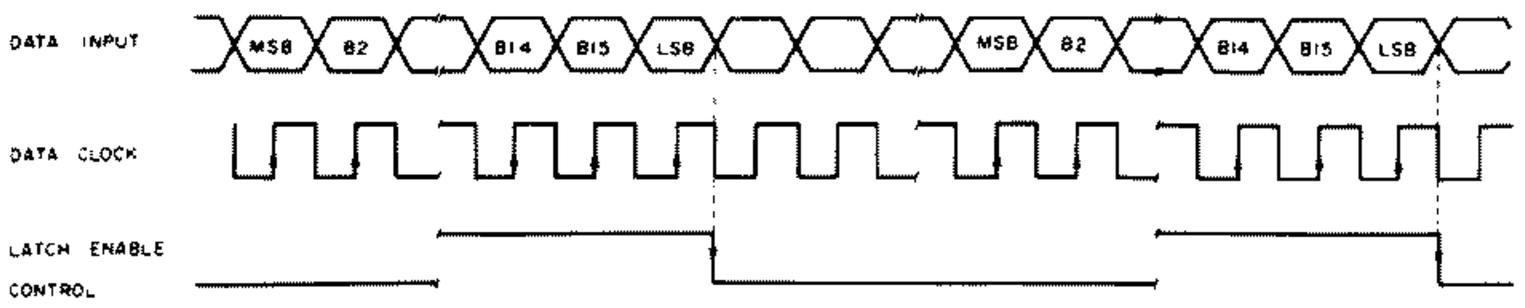
Pin No.	Pin name	Function	Pin No.	Pin Name	Function
1	−Vcc	Analog negative power supply	9	VOUT	Voltage output
2	DIG GND	Digital grounding	10	RF	Feedback resistance
3	+VL	Logic positive power supply	11	S.J	Summing junction (op amp input)
4	NC	No connection	12	ANA GND	Analog grounding
5	CK	Clock input	13	IOUT	Current output
6	LEC	Latch enable control input	14	MSB ADJ	MSB adjustment pin
7	DATA	Data input	15	VPOT	Potentiometer pin
8	−VL	Logic negative power supply	16	+Vcc	Analog positive power supply

Difference of Rank between PCM56P, PCM56P-J and PCM56P-K

		PCM56P	PCM56P-J		PCM56P-K		
		MIN	TYP		MAX		Unit
Power voltage	±Vcc, ±VL (Note 1)	±4.75	±12.0		±13.2		V
Non-load supply	+Vcc (Vcc=+5.0V)		10		17		mA
current (Note 2)	−Vcc (Vcc=−5.0V)		−25		−35		mA
	+Vcc (Vcc=+12.0V)		12				mA
	−Vcc (Vcc=−12.0V)		−27				mA
Analog output (Bipolar mode)							
Voltage output	Voltage range		±3.0				V
	Output current	±2.0					mA
	Output impedance		0.1				
Current output	Current range		±1.0 (±30%)				mA
	Output impedance		1.2				K
	Output short-circuit period		Infinite to common mode				
Total harmonic distortion		TYP	MAX	TYP	MAX	TYP	MAX	
Vo=FS at f=991Hz		0.002	0.008	0.002	0.004	•	0.0025	%
Vo=−20dB at f=991Hz		0.02	0.04	•	•	•	0.02	%
Vo=−60dB at f=991Hz		1.8	4.0	•	•	•	2.0	%

Note 1: Since the −Vcc is sub-straight connected, the potential of −Vcc should be set at equal to or lower than −VL.
Note 2: Shows the value when ±Vcc±VL (logic) is commonly connected.
Note 3: (•) shows the same rank as that at the left.

Timing Diagram



- The data format is 2's complement, MSB-first.
- Data is latched in the shift register at the rise of data clock.
- Latch enable control is performed by the frequency twice the L/R clock, and the LSB corresponds to its rise. It shall be synchronized with the fall of data clock.

CIRCUIT DESCRIPTION

PROCESSOR UNIT (X32-1202-71)

IC30 (M5F78M06L)	Constant voltage power supply	
IC31 (M5F79M06L)	Constant voltage power supply	
IC32 (PQ05R04)	Constant voltage power supply	
IC33 (M5220P)	Error amplifier for constant voltage power supply	Compatible with NJM4560D-N
IC34 (TC74HCU04F)	Amplifier	
IC35 (M51951ASL)	For resetting	

DIGITAL I/O UNIT (X88-1010-00)

Component	Use/Function	Operation/Condition/Interchangeability
IC1 (TC17G014AF-0073)	Digital audio data decoding	
IC2 (SN74LS624N)	V.C.O. (Voltage controlled oscillator)	
IC3 (M5223P)	Loop filter for PLL	
IC4 (TC74HCU04F)	Inverter	
IC5 (TC74HC123F)	Monostable multi vibrator	

DUAL REC OUT Switch and INPUT SELECTOR

Operations

On this amplifier, the REC 1 jacks and the REC 2 jacks are designed to have different tape recording functions.
In principle, the REC 2 jacks output the signal from the source selected by the INPUT SELECTOR switches, while the REC 1 jacks output the signal from the source selected by the DUAL REC OUT switch. The relationship between the setting of these switches and the output signal is as shown in the following chart.

DUAL REC OUT SW position \ TAPE REC jacks	REC 1	REC 2
OFF	—	—
DIGITAL ▶ TAPE 1 (INPUT SEL ▶ TAPE 2)	DIGITAL SOURCE	ANALOG SOURCE
CD ▶ TAPE 1 (INPUT SEL ▶ TAPE 2)	CD	ANALOG SOURCE
TUNER ▶ TAPE 1 (INPUT SEL ▶ TAPE 2)	TUNER	ANALOG SOURCE
1 ▷ 2 TAPE DUBBING	ANALOG SOURCE	TAPE 1
2 ▷ 1 TAPE DUBBING (DIGITAL ▶ TAPE 2/DAT)	TAPE 2	DIGITAL SOURCE

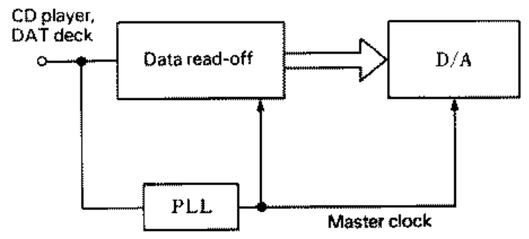
Note:
In this chart, "source" shows the source signal selected by the INPUT SELECTOR switches.

DUAL REC OUT

CIRCUIT DESCRIPTION

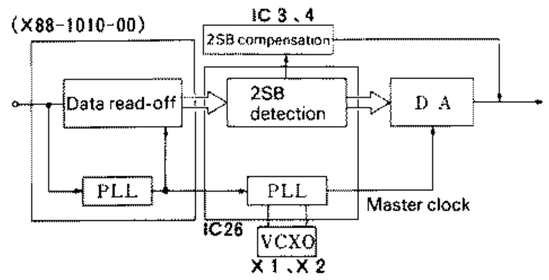
Twin Quartz PLL (X32-1202-71)

In the conventional circuits, as shown in the figure below, the master clock frequency is generated by PLL from the input digital signal, and the read-off of the data and transmission to the D/A converter are controlled using this clock frequency as a reference. However, improving the accuracy of the clock frequency is impossible if the data read-off speed is raised. A compromise is required.



Conventional Circuit

In the newly developed circuit, as shown in the figure below, the exclusive PLLs are provided for read-off of data and for transmission to the D/A converter and they are connected in series. With this construction, each function is optimized, and highly accurate D/A conversion is made possible since the PLL at the secondary stage is structured by the excessively stabilized crystal.



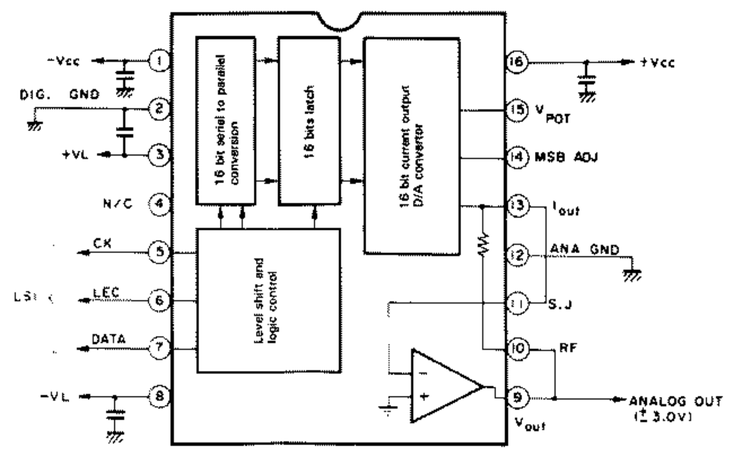
Twin Quartz Circuit

For this new circuit, the exclusive ICs have developed so that two PLLs for the primary stage of data read-off section and for the secondary stage PLL section are structured in IC separately and effectively.
Moreover, ICs consisting of the crystal PLL at the secondary stage have the function to compensate the MSB (most significant bit) and 2SB (2nd significant bit) with a timing of D/A conversion to eliminate the non-linear distortion of the D/A converter. This made a D/A conversion of extreme linearity possible.

IC1, 2 (X32-1202-71): PCM56P-K

Operation Outline of D/A Unit

- The D/A converter IC1, 2: PCM56P-K is in the same rank as that used in the KA-3300D. Pin allocation, block diagram and timing diagram are shown in the figure below.



Note: The MSB error and differential linearity error with bipolar zero can be zero-adjusted by the external circuit shown below.

CIRCUIT DESCRIPTION

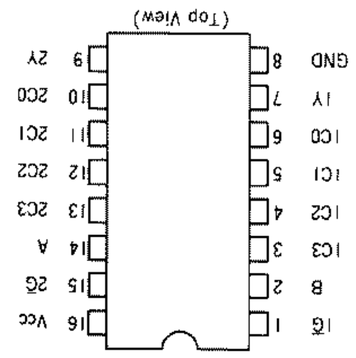
IC23, 24 (X32-1202-71): TC74HC153F
4 Channel MPX

Absolute maximum rating

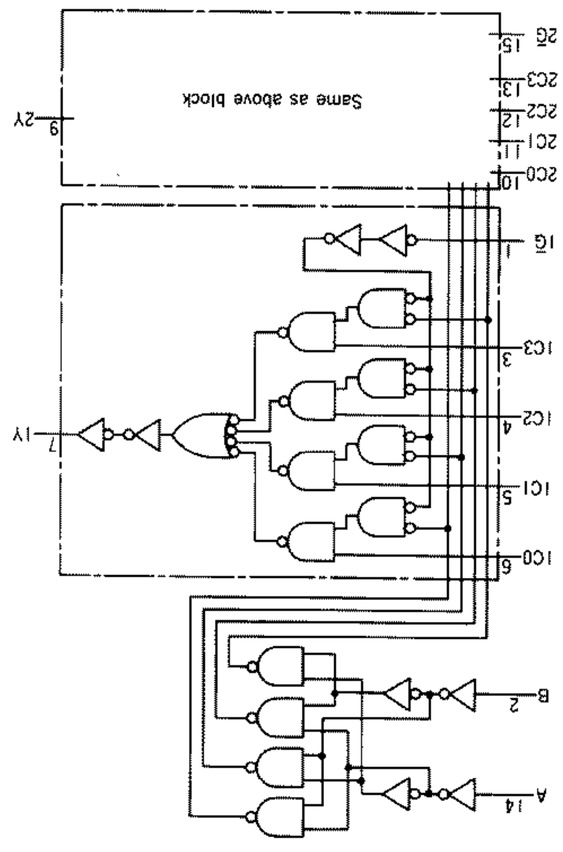
Item	Symbol	Specifications	Unit
Power voltage	Vcc	0.5~7	V
Input voltage	VIN	−0.5~Vcc+0.5	V
Output voltage	VOUT	−0.5~Vcc+0.5	V
Input protection diode current	IIK	±20	mA
Output parasitic diode current	IOK	±20	mA
Output current	IOUT	±25	mA
Power supply/ GND current	ICC	±50	mA
Allowable loss	PD	500(DIP)/180(MFP)	mW
Storage temperature	TSTG	−65~150	°C
Leading temperature	TL	300	°C

* Ta=500 mW between −40°C and +65°C. In the range Ta=65°C − 85°C, derating is required to 300 mW at −10 mW/°C.

Pin connection



Logic diagram



Operation condition

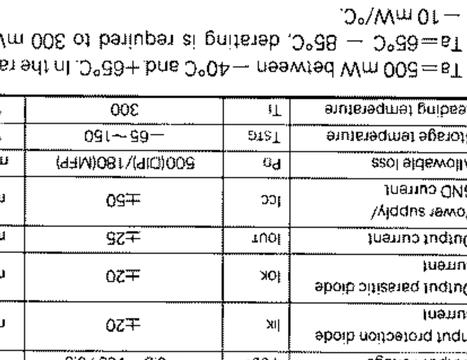
Item	Symbol	Specifications	Unit
Power voltage	Vcc	2~6	V
Input voltage	VIN	0~Vcc	V
Output voltage	VOUT	0~Vcc	V
Operable temperature	TOPR	−40~85	°C
Input up/down period	tr, tf	0~1000 (Vcc=2.0V) 0~500 (Vcc=4.5V) 0~400 (Vcc=6.0V)	ns

Truth table

SELECT INPUTS		DATA INPUTS				STROBE	OUTPUT Y
B	A	C0	C1	C2	C3	$\overline{G}$	HC153
X	X	X	X	X	X	H	L
L	L	L	X	X	X	L	L
L	L	H	X	X	X	L	H
L	H	X	L	X	X	L	L
L	H	X	H	X	X	L	H
H	L	X	X	L	X	L	L
H	L	X	X	H	X	L	H
H	H	X	X	X	L	L	L
H	H	X	X	X	H	L	H

X: Don't care

Input protection circuit, output equivalent circuit



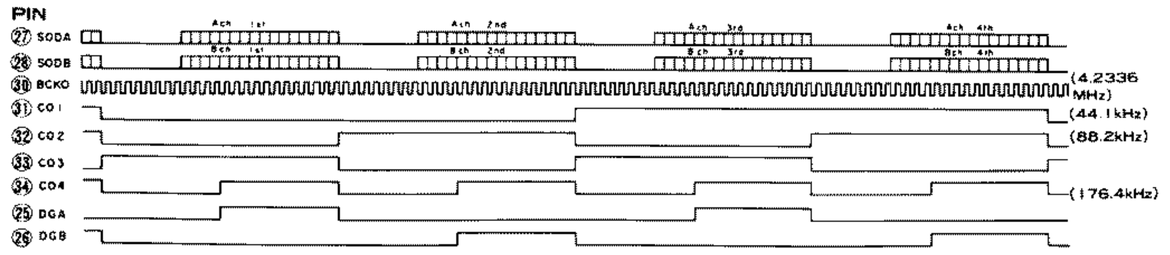
CIRCUIT DESCRIPTION

Pin No.	PISL = H		PISL = L		Function
	Pin Name	I/O	Pin Name	I/O	
28	SODB	O			B CH serial data output.
			$\overline{Y2}$	O	Parallel output (inverted, Bit 2).
29	(NC)		←		Internally short-circuited to VDD. Not to be connected externally.
30	BCKO	O			Serial output bit clock output.
			$\overline{Y3}$	O	Parallel output (inverted, Bit 3).
31	CO1	O			Serial output control clock 1.
			$\overline{Y4}$	O	Parallel output (inverted, Bit 4).
32	CO2	O			Serial output control clock 2.
			$\overline{Y5}$	O	Parallel output (inverted, Bit 5).
33	CO3	O			Serial output control clock 3.
			$\overline{Y6}$	O	Parallel output (inverted, Bit 6).
34	CO4	O			Serial output control clock 4.
			$\overline{Y7}$	O	Parallel output (inverted, Bit 7).
35	(NC)	Hz			(NC)
			$\overline{Y8}$	O	Parallel output (inverted, Bit 8).
36	(NC)	Hz			(NC)
			$\overline{Y9}$	O	Parallel output (inverted, Bit 9).
37	(NC)	Hz			(NC)
			$\overline{Y10}$	O	Parallel output (inverted, Bit 10).
38	(NC)	Hz			(NC)
			$\overline{Y11}$	O	Parallel output (inverted, Bit 11).
39	(NC)	Hz			(NC)
			$\overline{Y12}$	O	Parallel output (inverted, Bit 12).
40	(NC)	Hz			(NC)
			$\overline{Y13}$	O	Parallel output (inverted, Bit 13).
41	(NC)	Hz			(NC)
			$\overline{Y14}$	O	Parallel output (inverted, Bit 14).
42	(NC)	Hz			(NC)
			$\overline{Y15}$	O	Parallel output (inverted, Bit 15).
43	(NC)	Hz			(NC)
			$\overline{Y16}$	O	Parallel output (inverted, MSB).
44	$\overline{POSL}$	ip	←	ip	$\overline{POSL}$ = H→Serial output system. $\overline{POSL}$ = L→Parallel output system.
45	$\overline{YOFB}$	ip	←	ip	$\overline{YOFB}$ = H→2's complement display output. $\overline{YOFB}$ = L→Offset binary display output.
46	VDD		←		+ve power supply pin (5 V).
47	$\overline{XOFB}$	ip	←	ip	$\overline{XOFB}$ = H→2's complement display input. $\overline{XOFB}$ = L→Offset binary display input.
48	$\overline{PISL}$	ip	←	ip	$\overline{PISL}$ = H→Serial input system. $\overline{PISL}$ = L→Parallel input system.
49	(NC)		←		(NC)

CIRCUIT DESCRIPTION

Pin No.	PISL = H		PISL = L		Function
	Pin Name	I/O	Pin Name	I/O	
50	(NC)	ip			(NC)
			X16	ip	Parallel data input (MSB).
51	(NC)	ip			(NC)
			X15	ip	Parallel data input (Bit 15).
52	(NC)	ip			(NC)
			X14	ip	Parallel data input (Bit 14).
53	(NC)	ip			(NC)
			X13	ip	Parallel data input (Bit 13).
54	(NC)	ip			(NC)
			X12	ip	Parallel data input (Bit 12).
55	(NC)	ip			(NC)
			X11	ip	Parallel data input (Bit 11).
56	(NC)	ip			(NC)
			X10	ip	Parallel data input (Bit 10).
57	(NC)	ip			(NC)
			X9	ip	Parallel data input (Bit 9).
58	(NC)	ip			(NC)
			X8	ip	Parallel data input (Bit 8).
59	(NC)	ip			(NC)
			X7	ip	Parallel data input (Bit 7).
60	$\overline{LSBI}$	ip			$\overline{LSBI}$ = H→MSB-first serial input. $\overline{LSBI}$ = L→LSB-first serial input
			X6	ip	Parallel data input (Bit 6).

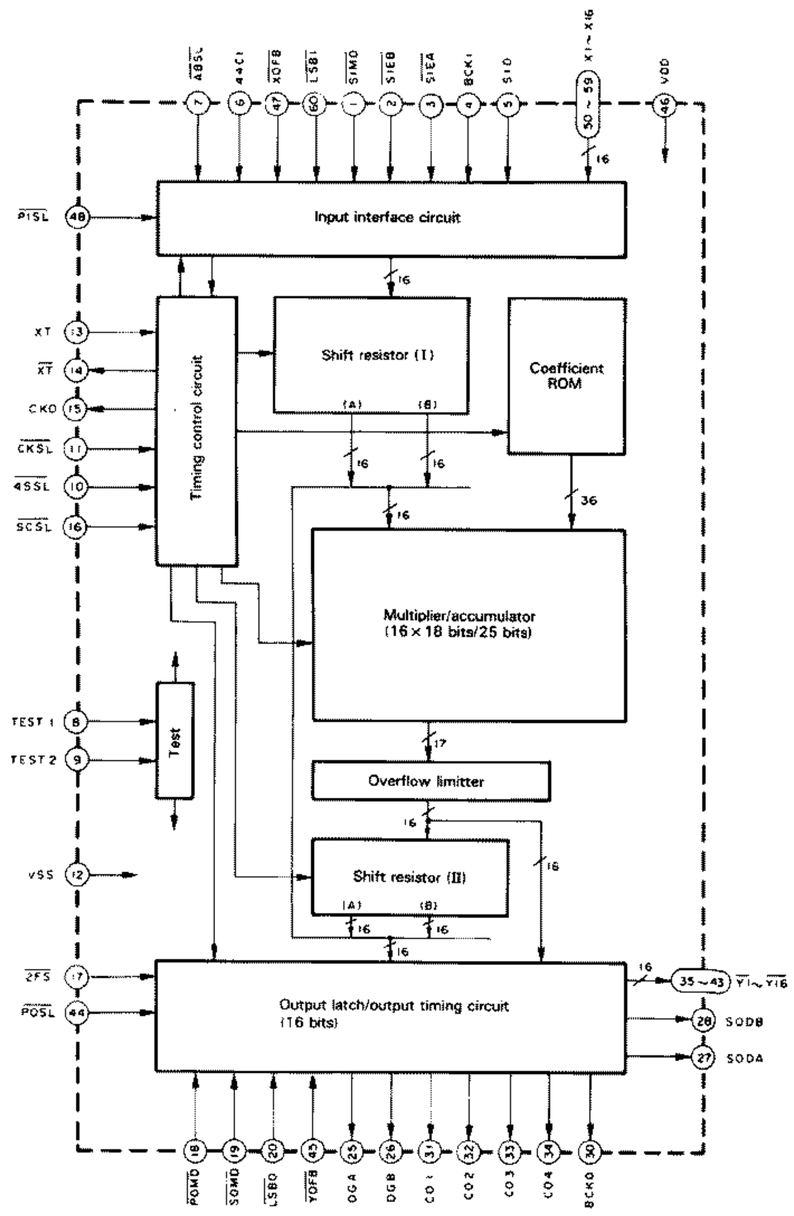
Serial Output Timing ($\overline{SOMD}$ = L, $\overline{SCSL}$ = H, system clock = 4.2336 MHz)



CIRCUIT DESCRIPTION

IC25 (X32-1202-71):SM5804D-T
Digital Filter LSI

Block Diagram



Note: In the above diagram, the pin used for two functions are treated as two separate terminals.

CIRCUIT DESCRIPTION

Explanation of Pins

With this LSI, the switching between the serial and parallel inputs/outputs is performed by the $\overline{PISL}$ and $\overline{POSL}$ pins. Some of the functions of pins X1 to X16 and $\overline{Y1}$ to $\overline{Y16}$ may be changed by this switching.

All the terminals of this unit function with $\overline{PISL}$ = H.

Note: ip designates an input jack with a pull-up resistor.

Pin No.	PISL = H		PISL = L		Function
	Pin Name	I/O	Pin Name	I/O	
1	$\overline{SIMD}$	ip			Serial input mode switching.
			X5	ip	Parallel data input (Bit 5).
2	$\overline{SIEB}$	ip			B CH serial input enable.
			X4	ip	Parallel data input (Bit 4).
3	$\overline{SIEA}$	ip			A CH serial input enable.
			X3	ip	Parallel data input (Bit 3).
4	BCKI	ip			Serial input bit clock input.
			X2	ip	Parallel data input (Bit 2)
5	SID	ip			Serial input data.
			X1	ip	Parallel data input (LSB).
6	44CI	ip	←	ip	44.1 kHz sync clock input.
7	$\overline{ABSL}$	ip	←	ip	$\overline{ABSL}$ = H→44 CI clock, H/L = A CH/B CH. $\overline{ABSL}$ = L→44 CI clock, H/L = B CH/A CH.
8	TEST 1	ip	←	ip	Test input 1 (Normally Open).
9	TEST 2	ip	←	ip	Test input 2 (Normally Open).
10	$\overline{4SSL}$	ip	←	ip	Normally $\overline{4SSL}$ = H or Open. $\overline{4SSL}$ = L when input is 16.9344 MHz or 17.2872 MHz.
11	$\overline{CKSL}$	ip	←	ip	$\overline{CKSL}$ = H→External clock input. $\overline{CKSL}$ = L→X'tal oscillation.
12	Vss		←		GND power supply pin (0 V).
13	XT	I	←	I	$\overline{CKSL}$ = H→Clock input $\overline{CKSL}$ = L→X'tal oscillation input.
14	$\overline{XT}$	O	←	O	$\overline{CKSL}$ = H→(Open) $\overline{CKSL}$ = L→X'tal oscillation output.
15	CKO	O	←	O	Clock output.
16	$\overline{SCSL}$	ip	←	ip	System clock 96 fs→$\overline{SCSL}$ = H. System clock 98 fs→$\overline{SCSL}$ = L.
17	$\overline{2FS}$	ip	←	ip	Open.
18	$\overline{POMD}$	ip	←	ip	$\overline{POMD}$ = H→Normal parallel output mode. $\overline{POMD}$ = L→In-phase parallel output mode.
19	$\overline{SOMD}$	ip	←	ip	$\overline{SOMD}$ = L with serial output.
20	$\overline{LSBO}$	ip	←	ip	$\overline{LSBO}$ = H→MSB-first serial output. $\overline{LSBO}$ = L→LSB-first serial output
21	(NC)		←		(NC)
22	(NC)		←		(NC)
23	(NC)		←		(NC)
24	(NC)		←		(NC)
25	DGA	O	←	O	A CH deglitch control output.
26	DGB	O	←	O	B CH deglitch control output.
27	SODA	O			A CH serial data output.
			$\overline{Y1}$	O	Parallel output (inverted, LSB).

CIRCUIT DESCRIPTION

IC1 (X88-1010-00): TC17G014AF-0073
Digital Audio Data Decording IC

Maximum rating

(VSS=0V)

Item	Symbol	Specifications	Unit
Power voltage	VDD	VSS−0.3~VSS+7.0	V
Input voltage	VIN	VSS−0.3~VDD+0.3	V
Input current	IIN	±20	mA
Storage temperature	Tstg	−40~125	°C

Operation condition

Item	Symbol	Specifications	Unit
Power voltage	VDD	4.75~5.25	V
Operable temperature	Ta	0~70	°C

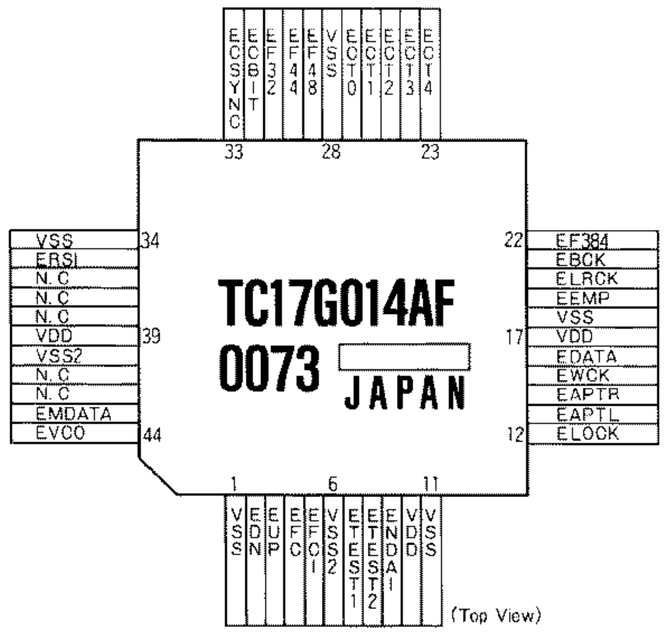
Electrical characteristics under permissible operating condition

Symbol	Item	Buffer Name	Condition	Min	Typ	Max	Unit
VIH	High-level input voltage	SMT1	—	4.0	—	—	V
		SMT1U	—	4.0	—	—	V
		SMT1D	—	4.0	—	—	V
VIL	Low-level input voltage	SMT1	—	—	—	1.0	V
		SMT1U	—	—	—	1.0	V
		SMT1D	—	—	—	1.0	V
VOH	High-level output voltage	B1	IOH=−4.0 (mA)	2.4	—	—	V
		BTS1	IOH=−4.0 (mA)	2.4	—	—	V
		BTS18	IOH=−2.0 (mA)	2.4	—	—	V
VOL	Low-level output voltage	B1	IOL=4.0 (mA)	—	—	0.4	V
		BTS1	IOL=4.0 (mA)	—	—	0.4	V
		BTS18	IOL=2.0 (mA)	—	—	0.4	V
IIH	High-level input current	SMT1	VIN=VDD	−10	—	10	μA
		SMT1U	VIN=VDD	−10	—	10	μA
		SMT1D	VIN=VDD	10	—	200	μA
IIL	Low-level input current	SMT1	VIN=VSS	−10	—	10	μA
		SMT1U	VIN=VSS	−200	—	−10	μA
		SMT1D	VIN=VSS	−10	—	10	μA
IOZ	Output leakage current	—	VOUT=VDD, VSS	−10	—	10	μA
IDD(S)	Static consuming current	—	VIN=VDD, VSS	—	35	—	μA
IDD(D)	Consuming current	—	—	—	20	—	mA

KA-D1100EX

CIRCUIT DESCRIPTION

Terminal connection diagram



Terminal description

Pin No.	Pin Name	Buffer Name	I/O	Pin No.	Pin Name	Buffer Name	I/O
1	VSS	—	—	23	ECT4	B1	O
2	EDN	BTS1	O	24	ECT3	B1	O
3	EUP	BTS1	O	25	ECT2	B18	O
4	EFC	BTS1	O	26	ECT1	B18	O
5	EFCI	BTS1	O	27	ECT0	B18	O
6	VSS2	—	—	28	VSS	—	—
7	ETEST1	SMT1D	I	29	EF48	B18	O
8	ETEST2	SMT1D	I	30	EF44	B18	O
9	ENDAI	SMT1D	I	31	EF32	B18	O
10	VDD	—	—	32	ECBIT	B18	O
11	VSS	—	—	33	ECSYNC	B18	O
12	ELOCK	B1	O	34	VSS	—	—
13	EAPTL	BTS18	O	35	ERSI	SMT1U	
14	EAPTR	BTS18	O	36	N.C		
15	EWCK	BTS18	O	37	N.C		
16	EDATA	BTS18	O	38	N.C		
17	VDD	—	—	39	VDD	—	—
18	VSS	—	—	40	VSS2	—	—
19	EEMP	B1	O	41	N.C		
20	ELRCK	BTS18	O	42	N.C		
21	EBCK	BTS18	O	43	EMDATA	SMT1	
22	EF384	B1	O	44	EVCO	SMT1	

KA-D1100EX

CIRCUIT DESCRIPTION

IC26 (X32-1202-71): TC17G005AF-0053
Twin Quartz PLL Control Circuit
Phase Comparator for VCXO

Maximum rating

(Vss=0V)

Item	Symbol	Specifications	Unit
Power voltage	VDD	VSS−0.3~VSS+7.0	V
Input voltage	VIN	VSS−0.3~VDD+0.3	V
Input current	IIN	±20	mA
Storage temperature	Tstg	−40~125	°C

Operation condition

Item	Symbol	Specifications	Unit
Power voltage	VDD	4.75~5.25	V
Operable temperature	Ta	0~70	°C

Electrical characteristics under permissible operating condition

Symbol	Item	Buffer Name	Condition	Min	Typ	Max	Unit
VIH	High-level input voltage	SMT1	—	4.0	—	—	V
		SMT1U	—	4.0	—	—	V
		SMT1D	—	4.0	—	—	V
		IBUF	—	3.5	—	—	V
		INPAD(IBUFB)	—	3.5	—	—	V
VIL	Low-level input voltage	SMT1	—	—	—	1.0	V
		SMT1U	—	—	—	1.0	V
		SMT1D	—	—	—	1.0	V
		IBUF	—	—	—	1.5	V
		INPAD(IBUFB)	—	—	—	1.5	V
VOH	High-level output voltage	B1	IOH=−4.0 (mA)	2.4	—	—	V
		B18	IOH=−2.0 (mA)	2.4	—	—	V
		BTS7B	IOH=−4.0 (mA)	2.4	—	—	V
VOL	Low-level output voltage	B1	IOL=4.0 (mA)	—	—	0.4	V
		B18	IOL=2.0 (mA)	—	—	0.4	V
		BTS7B	IOL=4.0 (mA)	—	—	0.4	V
IIH	High-level input current	SMT1	VIN=VDD	—	—	10	μA
		SMT1U	VIN=VDD	—	—	10	μA
		SMT1D	VIN=VDD	—	—	200	μA
		IBUF	VIN=VDD	—	—	10	μA
		INPAD(IBUFB)	VIN=VDD	—	—	10	μA
IIL	Low-level input current	SMT1	VIN=VSS	−10	—	—	μA
		SMT1U	VIN=VSS	−200		—	μA
		SMT1D	VIN=VSS	−10	—	—	μA
		IBUF	VIN=VSS	−10	—	—	μA
		INPAD(IBUFB)	VIN=VSS	−10	—	—	μA
IOZ	Output leakage current	—	VOUT=VDD, VSS	−10	—	10	μA
IDD(S)	Static consuming current	—	VIN=VDD, VSS	—	15	—	μA
IDD(D)	Consuming current	—	—	—	20	—	mA

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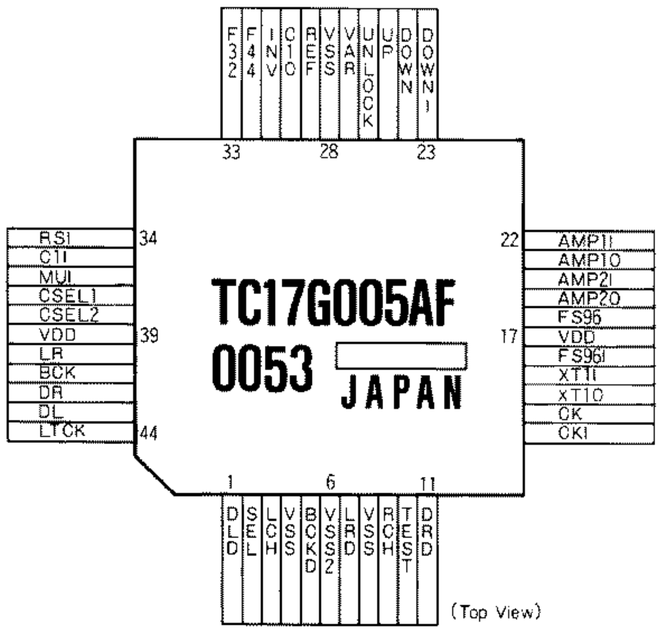
CIRCUIT DESCRIPTION

Terminal connection diagram



Terminal description

Pin No.	Pin Name	Buffer Name	I/O	Pin No.	Pin Name	Buffer Name	I/O
1	DLD	B18	O	23	DOWN1	B1	O
2	SEL	SMT1	I	24	DOWN	B1	O
3	LCH	B18	O	25	UP	B1	O
4	VSS	—	—	26	UNLOCK	SMT1	I
5	BCKD	B18	O	27	VAR	B18	O
6	VSS2	—	—	28	VSS	—	—
7	LRD	B18	O	29	REF	SMT1	I
8	VSS	—	—	30	C1O	B18	O
9	RCH	B18	O	31	INV	SMT1	I
10	TEST	SMT1D	I	32	F44	SMT1	I
11	DRD	B18	O	33	F32	SMT1	I
12	CKI	B1	O	34	RSI	SMT1U	I
13	CK	B1	O	35	C1I	SMT1	I
14	XT1O	BTS7B	O	36	MUI	SMT1U	I
15	XT1I	INPAD	I	37	CSEL1	SMT1	I
16	FS96I	B18	O	38	CSEL2	SMT1	I
17	VDD	—	—	39	VDD	—	—
18	FS96	B18	O	40	LR	SMT1	I
19	AMP2O	BTS7B	O	41	BCK	SMT1	I
20	AMP2I	IBUF	I	42	DR	SMT1	I
21	AMP1O	BTS7B	O	43	DL	SMT1	I
22	AMP1I	IBUF	I	44	LTCK	SMT1	I

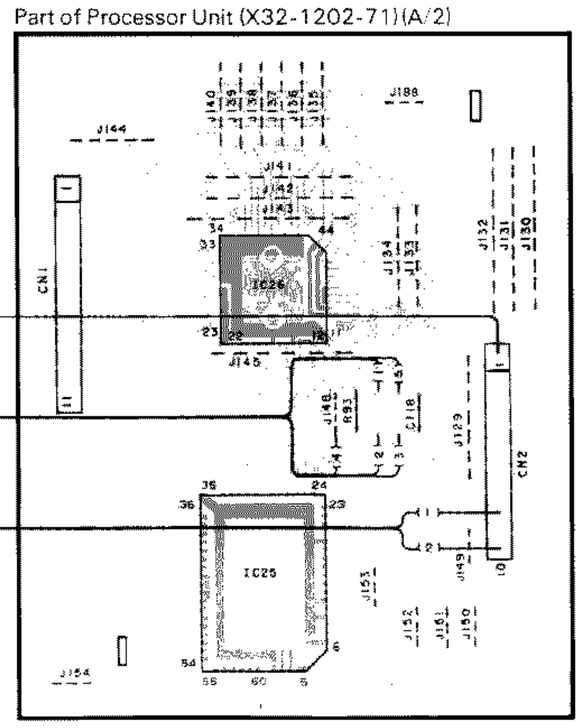
Products incorporating the small auxiliary unit

The units of this model produced in the period from October to December 1987 incorporate the small Sub-Circuit Unit (X13-6000-00) attached to the Processor Unit (X32-1202-71). When servicing these units, please refer to the following PC board diagram, circuit diagram and parts list.

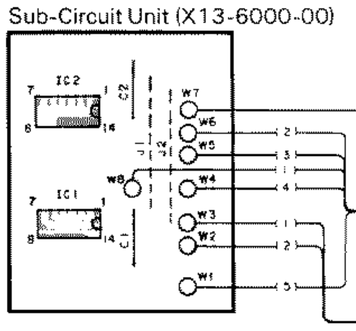
With the units to be produced from January and on (S/No. 80100001 and after), the function of the small Sub-Circuit Unit will be accommodated in IC26 on the (X32-). Therefore, IC26 with current parts No. TC17G005AF-0048 will not be compatible with that with new parts No. TC17G005AF-0053. Note that the PC board diagrams, circuit diagrams and parts lists in this manual have been produced based on the units to be produced from January and on.

PC BOARD

Part of Processor Unit (X32-1202-71)(A/2)

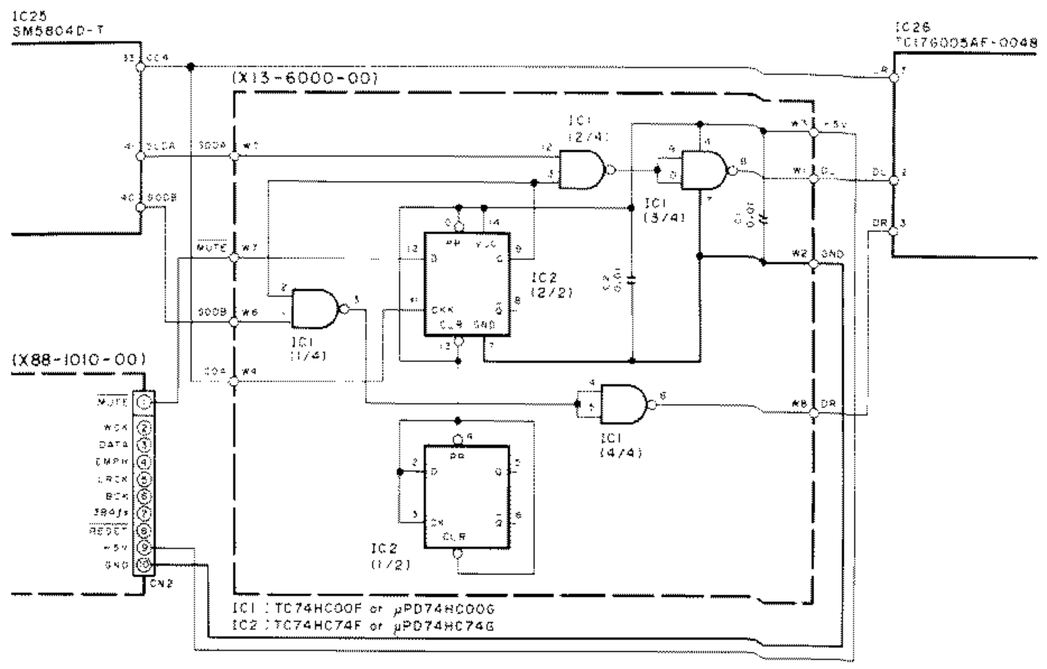


Sub-Circuit Unit (X13-6000-00)



KA-D1100EX

SCHEMATIC DIAGRAM

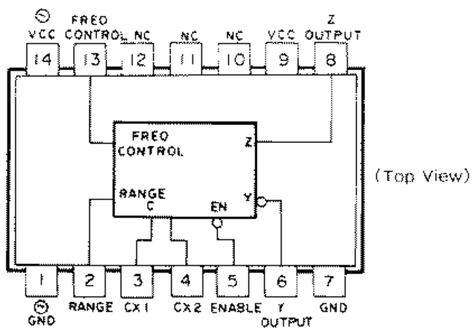


PARTS LIST

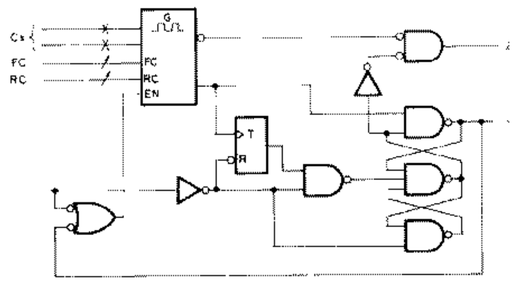
Ref. No.	Address	New Parts	Parts No.	Description	Destination	Remarks
			Sub-Circuit Unit (X13-6000-00)			
C12			CE1-0769-05	CERAMIC 0.01μF M		
IC1			TC74HC00F	C-MOS 2CH NAND GATE		
IC1			μPD74HC00G	C-MOS 2CH NAND GATE		
IC2			TC74HC74F	C-MOS D FLIP-FLOP		
IC2			μPD74HC74G	C-MOS D FLIP-FLOP		

IC2 (X88-1010-00): SN74LS624N
Voltage Controlled Oscillator

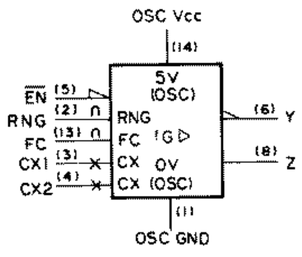
Terminal connection diagram and block diagram



Logic diagram



Logic symbol diagram



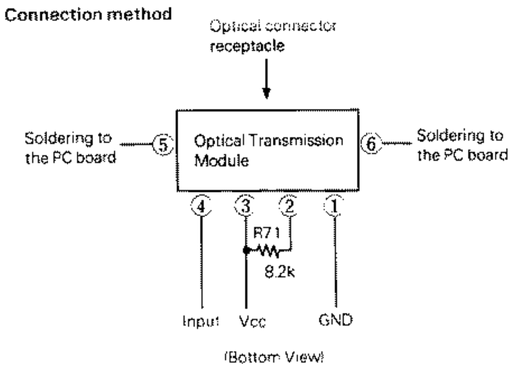
A1 (X32-1202-71): W02-0784-05
Optical Transmission Module

Outside view

Terminal connection

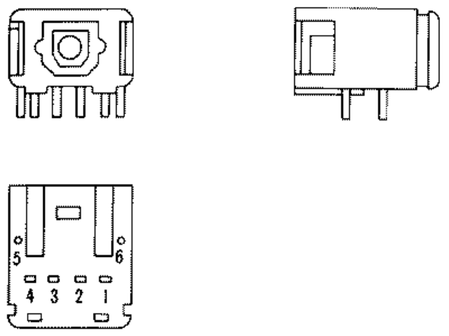
Pin No.	Connection
1	GND
2	Current regulation resistor of LED
3	Vcc
4	Input
5	NC
6	NC

Connection method



A2, 3 (X32-1202-71): W02-0774-05
Optical Reception Module

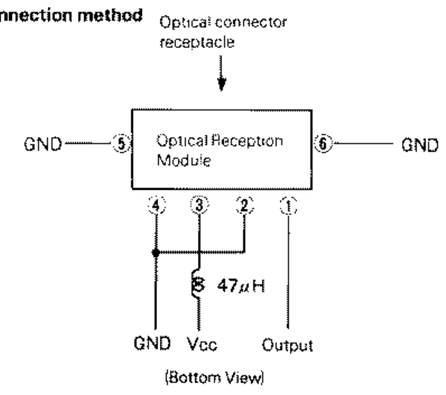
Outside view



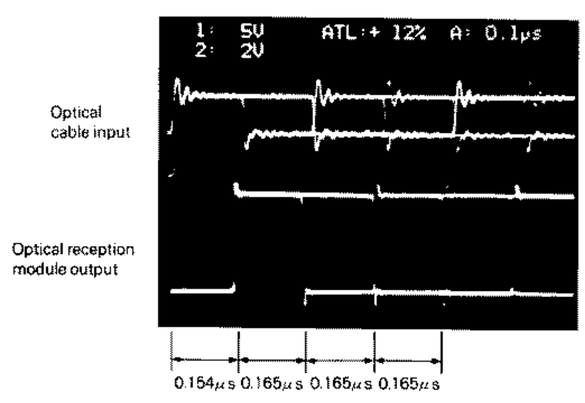
Terminal connection

Pin No.	Connection
1	Output
2	GND
3	Vcc
4	GND
5	Case
6	Case

Connection method

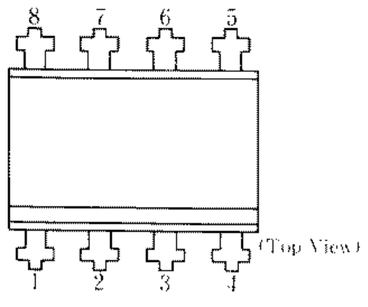


Optical reception module output waveform



PH1 (X32-1202-71): T95-0101-05
Photo Coupler

Outside view



Connection of electrode

1.3.	Anode (LED)
2.4.	Cathode (LED)
5.7.	Emitter (Photo transistor)
6.8.	Collector (Photo transistor)

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	VERSTÄRKER EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
1	LEERLAUFSTROM	–	Einen Gleichspannungs-messer über CP1 (L) CP2 (R), anschließen. (X09-)	VOLUME: 0	VR1 (L) VR2 (R) (X07-)	9mV	(a)
2	VCXO (1)	J107 entfernen und 2,5V Gleichstrom an TP4 anlegen. (X32-)	Einen Frequenzzähler an TP6 anschließen. (X32-)	–	L5 (X32-)	Oszillationsfrequenz: 16,9844MHz (Nach der Einstellung J107 wieder anbringen.)	(b)
3	VCXO (2)	J107 entfernen und 2,5V Gleichstrom an TP4 anlegen. (X32-)	Einen Frequenzzähler an TP5 anschließen. (X32-)	–	L4 (X32-)	Oszillationsfrqunenz: 18,432MHz (Nach der Einstellung J107 wieder anbringen.)	(c)
4	AUSGANGSPEGEL-EINSTELLUNG	Einen digitalen Signalgenerator oder CD-Spieler an den Digital-Eingang anschließen und ein 1kHz, 0dB Signal erzeugen. (Testdisc: SONY Typ 4, Titel 2)	Eine Last von 10kΩ und einen Wechsel-spannungsmesser an REC OUT anschließen.	–	VR1, 2 (X32-)	Ausgangspegel: 2V	
5	VERZERRUNGS-EINSTELLUNG	Einen digitalen Signalgenerator oder CD-Spieler an den Digital-Eingang anschließen und ein 1kHz, 0dB Signal erzeugen. (Testdisc: SONY Typ 4, Titel 2)	Eine Last von 10kΩ und einen Verzerrungs-meter an REC OUT anschließen.	–	VR3, 4 VR5, 6 (X32-)	VR3 und 4 (oder VR5 und 6) mehrmals abwechselnd einstellen, um die Verzerrungsrate-Figur zu minimieren.	

SPECIFICATIONS

< Power Output >

125 watts per channel minimum RMS, both channels driven, at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.004% total harmonic distortion

Maximum Continuous Power Output (DIN) 1 kHz at 4 ohms	190 W
Maximum Continuous Power Output (DIN) 1 kHz at 8 ohms	150 W
Maximum Continuous Power Output (IEC/NF) from 63 Hz to 12,500 Hz, 0.7% Total Harmonic Distortion at 8 ohms	150 W + 150 W
Dynamic Power	150 W per channel at 8 ohms 270 W per channel at 4 ohms 325 W per channel at 2 ohms

Total Harmonic Distortion	
LINE input to SPEAKER output	
(20 Hz ~ 20,000 Hz)	: 0.004% at rated output power at 8 ohms
(20 Hz ~ 20,000 Hz)	: 0.003% at 1/2 rated output power at 8 ohms
(1 kHz)	: 0.0006% at rated output power at 8 ohms
Intermodulation Distortion (60 Hz:7 kHz = 4:1)	: 0.004% at rated output power
Frequency Response	
LINE to SPEAKER	: 1 Hz to 180 kHz/ + 0 dB, −3 dB
PHONO "RIAA" Response PHONO	: 20 Hz to 20 kHz/ ± 0.3 dB
Signal to Noise Ratio (IHF-A) (IHF'66)	
PHONO (MM)	: 87 dB
PHONO (MC)	: 70 dB (0.25 mV)
TUNER/AUX/TAPE	: 108 dB
Signal to Noise Ratio (IHF-A)	
PHONO (MM)	: 78 dB
PHONO (MC)	: 74 dB
TUNER/AUX/TAPE	: 82 dB
Signal to Noise Ratio Unweighted: 50 mW input (DIN)	
PHONO (MM)	: 58 dB
TAPE/AUX/TUNER	: 60 dB
Power Bandwidth	: 5 Hz to 50 kHz at 0.04% T.H.D., 8 ohms
Subsonic Filter	: 6 dB/Oct. at 18 Hz
Tone Control	
BASS (at 200 Hz)	: ± 10 dB
(at 400 Hz)	: ± 10 dB
TREBLE (at 3 kHz)	: ± 10 dB
(at 6 kHz)	: ± 10 dB
Loudness Control (at − 30 dB Volume Level)	: 9 dB at 100 Hz
Damping Factor	: 1,000 (50 Hz at 8 ohms)
Input Sensitivity/Impedance	
PHONO (MM)	: 2.5 mV/ 47 kohms
PHONO (MC)	: 0.2 mV/100 ohms
TUNER/AUX/TAPE	: 150 mV/ 47 kohms
Phono Maximum Input Level (PHONO to TAPE REC)	
(MM)	: 200 mV, at 1 kHz
(MC)	: 15 mV, at 1 kHz
Output Level/Impedance	
TAPE REC (Pin)	: 150 mV/330 ohms

< D/A Converter Section >

Input Sumpling Frequencies	: 32 kHz/44.1 kHz/48 kHz
Signal to Noise Ratio	: 108 dB
Total Harmonic Distortion	: 0.0025% at 1 kHz
Channel Separation	: 103 dB at 1 kHz
Digital Inputs	: Optical: −15 ~ −25 dBm Coaxial 0.5 Vp-p/75 ohms DAT Monitor 0.5 Vp-p/75 ohms
Digital Output	: Optical: −15 ~ −25 dBm Coaxial 0.5 Vp-p/75 ohms

< General >

Power Consumption	: 350 W
Dimensions	: W 440 mm (17-5/16") H 171 mm (6-3/4") D 441 mm (17-3/8")
Weight (Net)	: 19.5 kg (42.9 lb)

< Accessories >

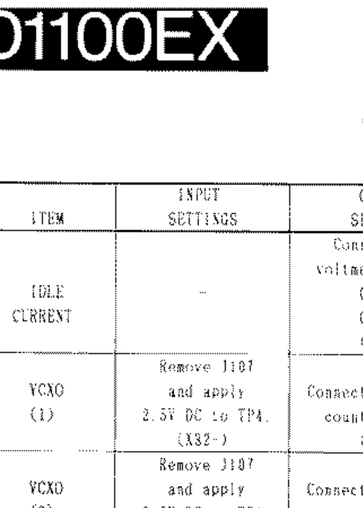
RCA pin-plug cord	: 1
Optical fiber cable	: 1

Note:

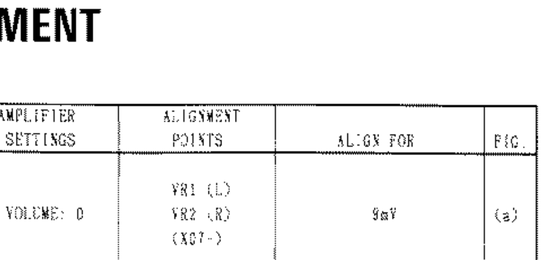
KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	AMPLIFIER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
1	IDLE CURRENT	–	Connect a DC voltmeter across CP1 (L) CP2 (R). (X09-)	VOLUME: 0	VR1 (L) VR2 (R) (X07-)	9mV	(a)
2	VCXO (1)	Remove J107 and apply 2.5V DC to TP4. (X32-)	Connect a frequency counter to TP6. (X32-)	–	L5 (X32-)	Oscillation frequency: 16.9844MHz (After adjustment, attach J107 again.)	(b)
3	VCXO (2)	Remove J107 and apply 2.5V DC to TP4. (X32-)	Connect a frequency counter to TP5. (X32-)	–	L4 (X32-)	Oscillation frequency: 18.432MHz (After adjustment, attach J107 again.)	(c)
4	OUTPUT LEVEL ADJUSTMENT	Connect a digital SG or CD player to the digital input, and play a 1kHz, 0dB signal. (Test disc: SONY Type 4, T-No.2)	Connect a load of 10kΩ and AC voltmeter to REC OUT.		VR1, 2 (X32-)	Output level: 2V	
5	DISTORTION ADJUSTMENT	Connect a digital SG or CD player to the digital input, and play a 1kHz, 0dB signal. (Test disc: SONY Type 4, T-No.2)	Connect a load of 10kΩ and distortion meter to REC OUT.		VR3, 4 VR5, 6 (X32-)	Adjust VRs 3 and 4 (or VRs 5 and 6) alternately for a few times to minimize the distortion rate figure.	



(a)



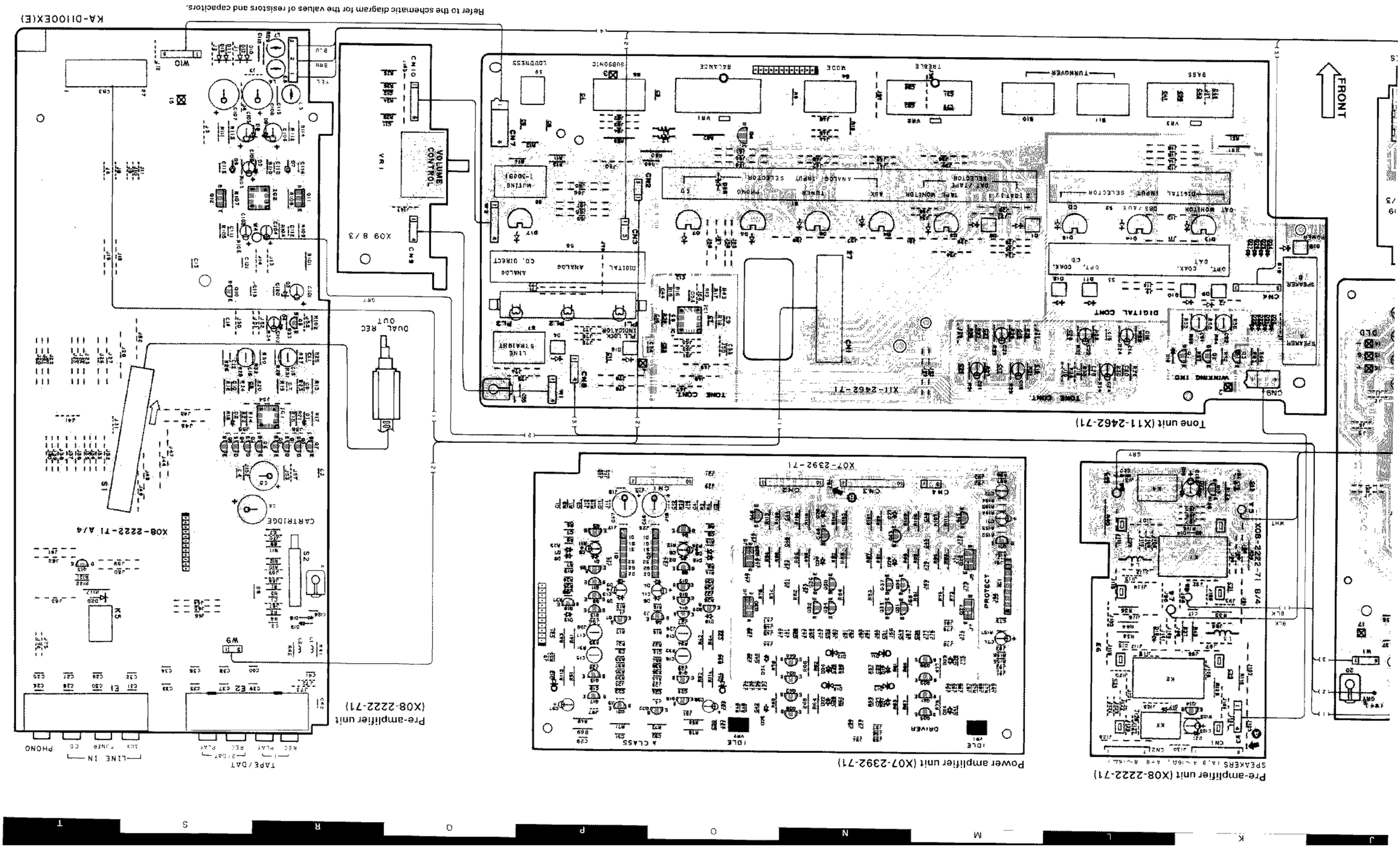
ADJUSTING POINT OF THE PROCESSOR UNIT (X32-1200-00)

REGLAGE

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DE L'AMPLIFICATEUR	POINT L'ALIGNEMENT	ALIGNER POUR	
1	COURANT DE POLARISATION		Connecter un voltmètre de CC sur CP1 (G) CP2 (D). (X09-)	VOLUME: 0	VR1 (G) VR2 (D) (X07-)	9mV	(a)
2	VCXO (1)	Retirer J107 et appliquer 2.5V CC à TP4. (X32-)	Relier un compteur de fréquence à TP6. (X32-)	–	L5 (X32-)	Fréquence d'oscillation: 16,9844MHz (Après l'ajustement, fixer J107 à nouveau.)	(b)
3	VCXO (2)	Retirer J107 et appliquer 2.5V CC à TP4. (X32-)	Relier un compteur de fréquence à TP5. (X32-)	–	L4 (X32-)	Fréquence d'oscillation: 18,432MHz (Après l'ajustement, fixer J107 à nouveau.)	(c)
4	ADJUSTEMENT DU NIVEAU DE SORTIE	Raccorder un générateur de signal numérique ou un lecteur CD à l'entrée numérique et lire un signal 1kHz, 0dB. (Disque test: SONY Type 4, Piste 2)	Raccorder une charge de 10kΩ et un voltmètre CA à REC OUT.	–	VR1, 2 (X32-)	Niveau de sortie: 2V	
5	ADJUSTEMENT DE LA DISTORSION	Raccorder un générateur de signal numérique ou un lecteur CD à l'entrée numérique et lire un signal 1kHz, 0dB. (Disque test: SONY Type 4, Piste 2)	Raccorder une charge de 10kΩ et un compteur de distorsion à REC OUT.	–	VR3, 4 VR5, 6 (X32-)	Ajuster les VR3 et 4 (ou 5 et 6) alternativement plusieurs fois pour minimiser le chiffre de taux de distorsion.	

KA-DI100EX(E)

Refer to the schematic diagram for the values of resistors and capacitors.



PC BOARD (Component Side View)

2-71)

PC BOARD (Foil Side View)

Audio unit (X09-2562-71)

(c) VCXO (2)
Frequency counter

(b) VCXO (1)
Frequency counter

(a) Idle current (L) 9mV
DC voltmeter

(a) Idle current (R) 9mV
DC voltmeter

A CLASS

POWER SUPPLY

POWER AMP-R

POWER AMP-L

SPEAKER

FRONT

PHONES

LOW

HIGH

P.T.
X13-5810-00

Sub-circuit unit (X13-5810-00)

Digital I/O unit (X88-1010-00)

DAC

OPTICAL
REC — PLAY

COAXIAL

INPUT SEL.

POWER SUPPLY-2

PLL

DAC-L

DAC-R

X32-1202-71
A/2

Processor unit (X32-1202-71)

Pre-amplifier unit (X08-2222-71)

AC220V
50Hz

X08-2222-71
C/4

POWER

Processor unit (X32-1202-71)

POWER SUPPLY-1

X32 B/2

KA-DI100EX(E)

Refer to the schematic diagram for the values of resistors and capacitors.

Tone unit (X11-2462-71)

Pre-amplifier unit (X08-2222-71)

Power amplifier unit (X07-2392-71)

33 34 35

(X32-1202-71)(A/2)

REC
PLAY
DAT
CD
AUX / DBS

IC25

4 TIMES OVER SAMPLING DIGITAL FILTER

INPUT INTERFACE CIRCUIT
TIMING CONTROL CIRCUIT
COEFFICIENT ROM
MULTIPLIER/ ACCUMULATOR (18 x 18BITS / 25BITS)
OVERFLOW LIMITTER
SHIFT REGISTER (1E) (6)
OUTPUT TIMING CIRCUIT / OUTPUT LATCH (16BITS)

IC26
TWIN QUARTZ PLL VCXO PHASE COMP

IC35

REAR PANEL
SWITCHED
UNSWITCHED

DIGITAL INPUT SW

LED DRIVER

DIODE DRIVER

X'TAL OSC

RELAY CONT.

D/A CONVERTER

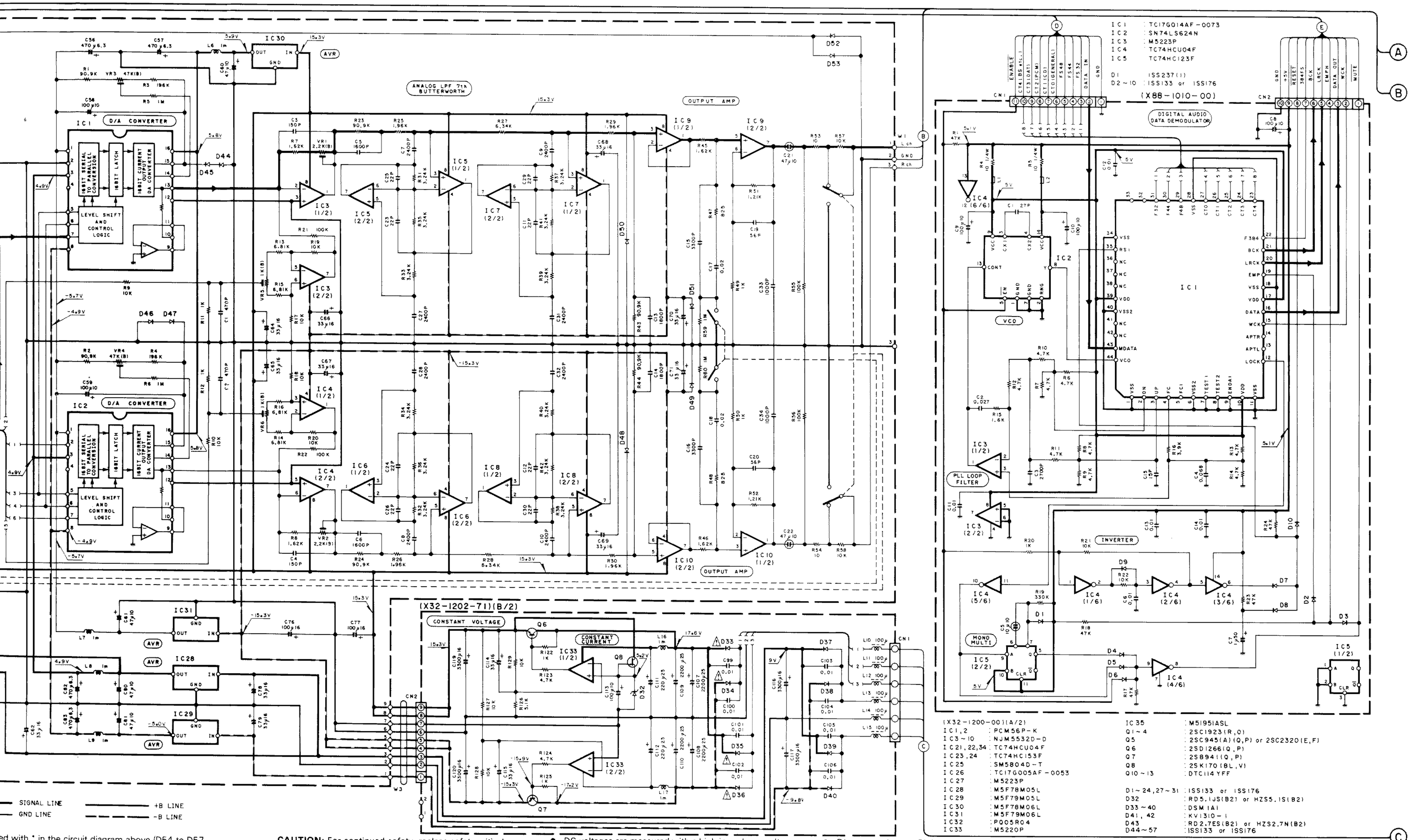
16BIT SERIAL / PARALLEL CONVERSION
16BIT LATCH
16BIT CURRENT OUTPUT D/A CONVERTER
LEVEL SHIFT AND CONTROL LOGIC

AVR

IC32

SIGNAL LINE
GND LINE

Parts marked with * in the circuit diagram above
C74, C124 and R131 to R135) are attached to th
PC board of only the units produced in the period
1987 to January 1988, therefore not shown in th
agram. Except for C74, these parts are expected
ed from the units produced from February 1988 a



(X32-1200-00)(A/2)

IC1,2	PCM56P-K
IC3~10	NJM5532D-D
IC21,22,34	TC74HCU04F
IC23,24	TC74HC153F
IC25	SM5804D-T
IC26	TC17G005AF-0053
IC27	M5223P
IC28	M5F78M05L
IC29	M5F79M05L
IC30	M5F78M06L
IC31	M5F79M06L
IC32	PQ05RO4
IC33	M5220P
IC35	M5195ASL
Q1~4	2SC1923(R,O)
Q5	2SC945(A)(Q,P) or 2SC2320(E,F)
Q6	2SD1266(Q,P)
Q7	2SB941(Q,P)
Q8	2SK170(BL,V)
Q10~13	DTC114YF
D1~24,27~31	ISS133 or ISS176
D32	RD5.1JS(B2) or HZS5.1S(B2)
D33~40	DSM1AJ
D41, 42	KV1310-1
D43	RD2.7ES(B2) or HZS2.7N(B2)
D44~57	ISS133 or ISS176

KA-D1100EX(E)(1/3)

ed with * in the circuit diagram above (D54 to D57, and R131 to R135) are attached to the back side of only the units produced in the period from October nuary 1988, therefore not shown in the PC board di- ept for C74, these parts are expected to be eliminat- units produced from February 1988 and on.

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être measurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

KA-D1100EX

KENWOOD

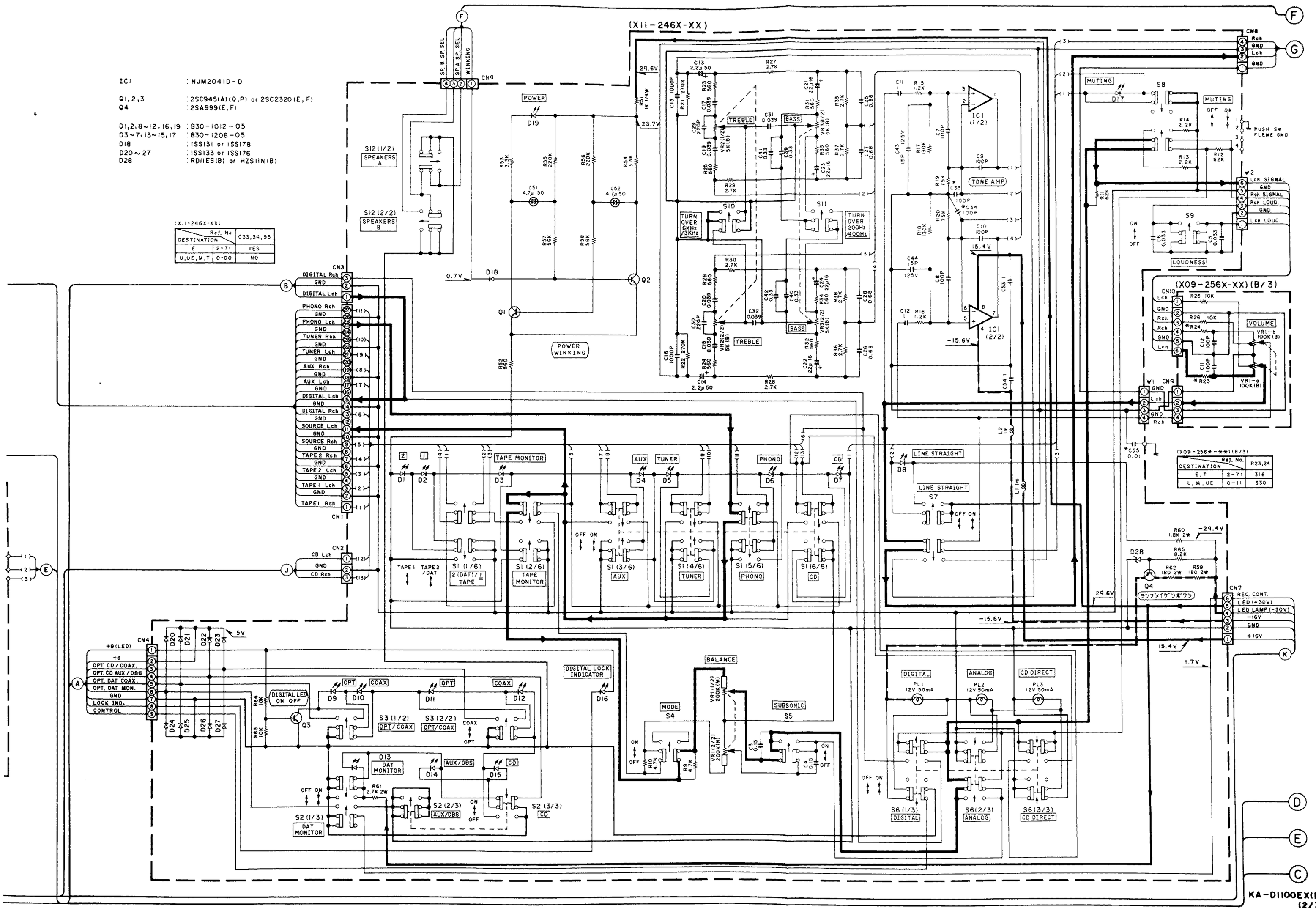
IC1 : NJM2041D-D

Q1,2,3 : 2SC945(A)(Q,P) or 2SC2320(E,F)
Q4 : 2SA999(E,F)

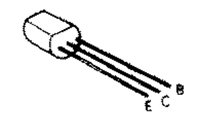
D1,2,8~12,16,19 : B30-1012-05
D3~7,13~15,17 : B30-1206-05
D18 : ISS131 or ISS178
D20~27 : ISS133 or ISS176
D28 : RD11ES(B) or HZS11N(B)

(X11-246X-XX)

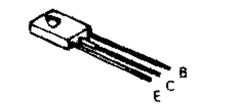
Ref. No. / DESTINATION	C33,34,55
E	2-7 : YES
U,UE,M,T	0-00 : NO



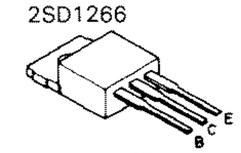
2SA1123
2SA1124
2SA1534A
2SA733(A)
2SA954
2SA992
2SA999
2SC1845
2SC1923
2SC2003
2SC2320
2SC2631
2SC2632
2SC3940A
2SC945(A)



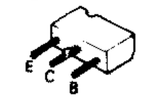
2SA1110
2SC2590



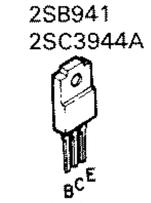
2SD1266



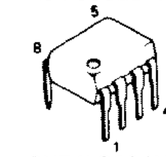
DTC114YFF



2SA1535A
2SB941
2SC3944A

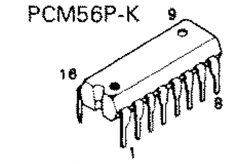


NJM2041D-D
NJM5532D
NJM5532D-D



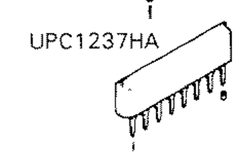
SN74LS624N

PCM56P-K

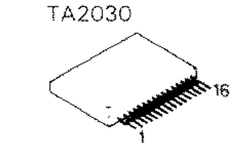


M5218P
M5220P
M5223P

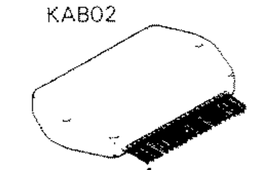
UPC1237HA



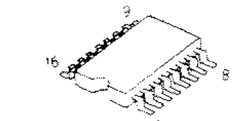
TA2030



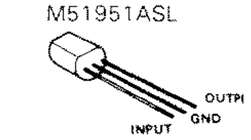
KAB02



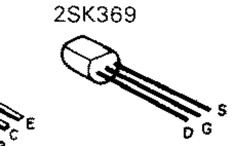
TC74HC123F
TC74HC153F



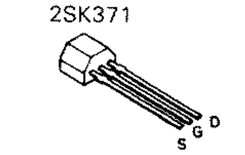
M51951ASL



2SK170
2SK369



2SK371



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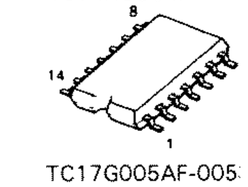

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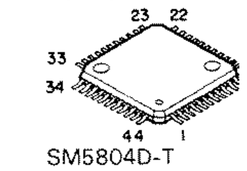
TC17G014AF-007



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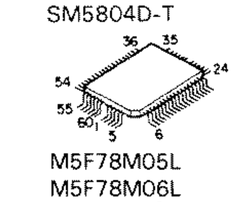
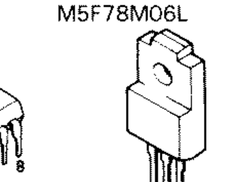
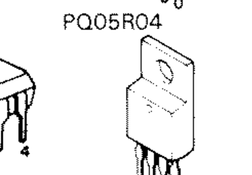


M5F78M05L
M5F78M06L



PQ05R04



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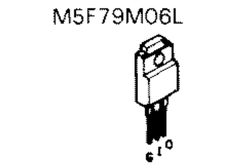

all be carried out (exposed parts are acceptably insulated from e supply circuit) before the appliance is returned to the custom-

- DC voltages are measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être measurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

(X08-222X-XX) (A/4)

IC1 : NJM5532D
IC2 : M5218P

Q1~4 : 2SK369(V) or 2SK371(V)
Q5~10, 13~15 : 2SC945(A)(Q,P) or 2SC2320(E,F)
Q11 : 2SA1110(Q,R)
Q12 : 2SC2590(Q,R)

D1, 2 : RD5.1JS(B) or HZS5.1S(B)
D3,8,9 : RD16ES(B) or HZS16N(B)
D4 : RD5.1JS(B2) or HZS5.1S(B2)
D5 : RD8.2JS(B2) or HZS8.2S(B2)
D6 : E-102
D7 : E-152
D10~13 : DSM1A1
D14~17, 20~22 : ISS131 or ISS178
D18, 19 : ISS133 or ISS176

IC1

Q1,2,3
Q4

D1,2,8~12,16
D3~7,13~15,
D18
D20~27
D28

SIGNAL LINE
GND LINE
+B LINE
−B LINE

(X08-222*-**)(A/4)

DESTINATION \ Ref. No.	C1, 2	C27, 28, 35, 36	C31, 32, 37~40	C41, 42
E, T	2~7	NO	YES	YES	330P
U, M, UE	0~2	YES	NO	NO	220P

DUAL REC OUT
OFF, DIGITAL, CD, TUNER → TAPE 1
(INPUT SEL → TAPE 2)
1 → 2, 2 → 1 : TAPE DUBBING
(DIGITAL → TAPE 2/DAT)
S1

CARTRIDGE
MC, MM
S2

CONSTANT VOLTAGE (AVR)

EQ AMP

EQ int CONSTANT CURRENT

MM/MC S2

DUAL REC OUT (DIGITAL hr) S1

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acce the supply circuit) before the appliance is re er.

(X09-256X-XX) (A/3)
(X07-239X-XX)
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
CN12
CN13
CN14
CN15
CN16
CN17
CN18
CN19
CN20
CN21
CN22
CN23
CN24
CN25
CN26
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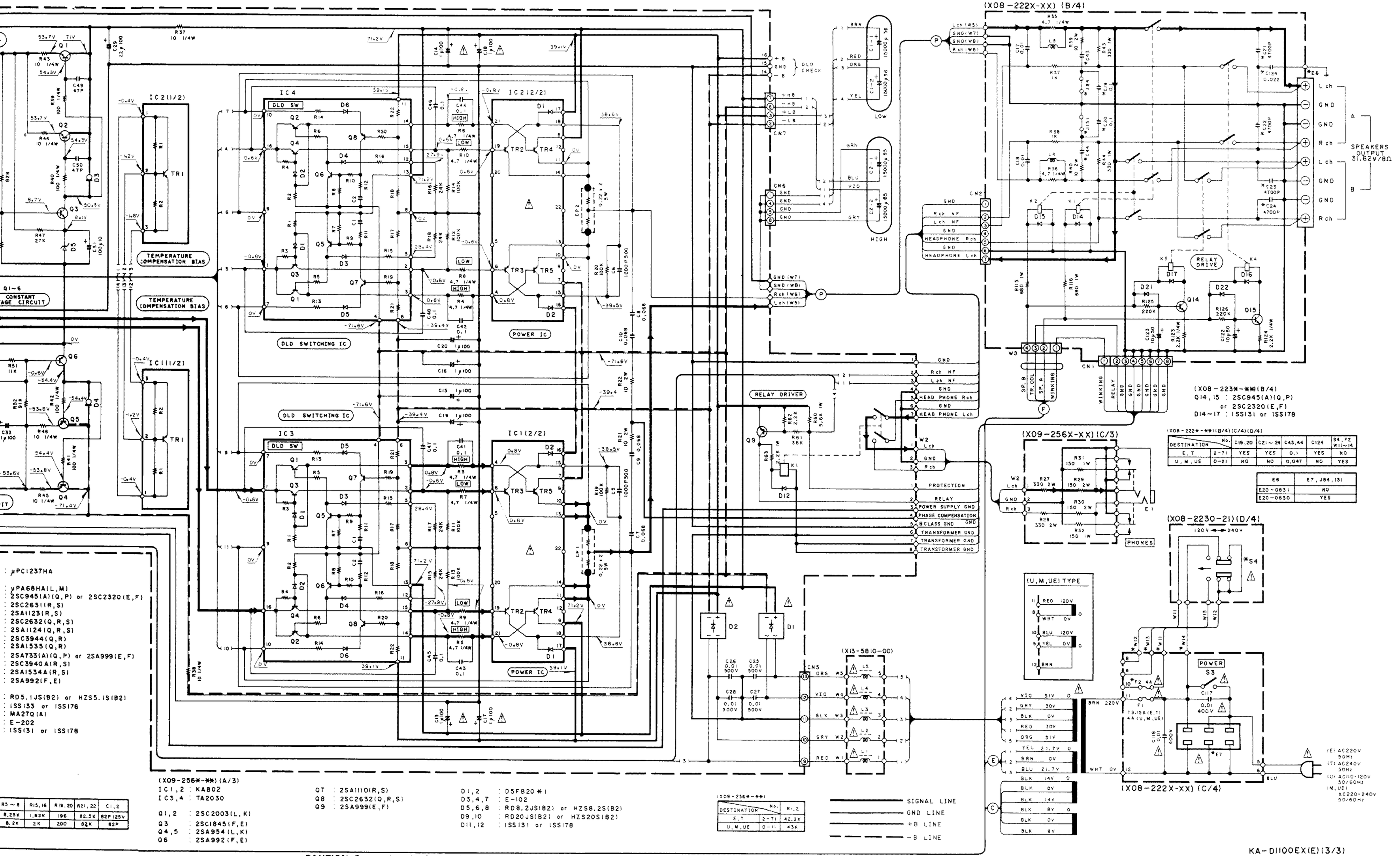
CN37
CN38
CN39
CN40



DESTINATION \ No.	C19,20	C21~24	C43,44	C124	S4, F2 W11~14
E, T	2-71	YES	YES	0.1	YES	NO
U, M, UE	0-21	NO	NO	0.047	NO	YES

E6	E7, J84, I31
E20-0831	NO
E20-0830	YES

DESTINATION \ No.	R1,2
E, T	2-71	42.2K
U, M, UE	0-11	43K

R5~8	R15,16	R19,20	R21,22	C1,2
8.25K	1.62K	196	82.5K	82P 125V
8.2K	2K	200	82K	82P

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être measurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u. U. geringfügig.

KA-D1100EX(E)(3/3)

KA-D1100EX

KENWOOD

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			KAD-1100EX			
1	1A		A01-1605-01	METALLIC CABINET	TE	
1	1A	*	A01-1621-01	METALLIC CABINET	UMUE	
2	2A	*	A20-5396-02	PANEL ASSY		
6	3B		B10-0909-04	FRONT GLASS		
7	1A		B19-0531-05	OPTICAL FIBER ASSY	UMUETE	
8	3A		B43-0278-04	KENWOOD BADGE		
9	1D		B09-0063-05	CAP		
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-03	WARRANTY CARD	T	
-		*	B50-8653-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B50-8654-00	INSTRUCTION MANUAL(FRENCH)	ME	
-		*	B50-8655-00	INSTRUCTION MANUAL(SPANISH)	M	
-		*	B50-8657-00	INSTRUCTION MANUAL(G,D,I)	E	
-			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	UE	
-			B58-0803-13	CAUTION CARD	E	
-			B58-0862-00	CAUTION CARD	E	
-			B59-0092-00	SERVICE DIRECTORY	UUE	
C1	2C	*	C90-1595-05	ELECTRO 15000UFX256WV		
C2	2C	*	C90-1596-05	ELECTRO 15000UFX285WV		
11	3C		D21-1415-03	EXTENSION SHAFT(CARTRIDGE)		
12	1B		D21-1416-03	EXTENSION SHAFT(POWER SW)		
16	1D		E21-0006-25	BINDING POST		
⚠ 17	1D		E30-0459-05	AC POWER CORD	E	
⚠ 17	1D		E30-0812-05	AC POWER CORD	UMUE	
⚠ 17	1D		E30-1416-05	AC POWER CORD	T	
18	1A	*	E30-2350-05	AUDIO CORD		
22	1D	*	F19-0562-05	HOLE CAP	E	
⚠ F1	1B		F05-3121-05	FUSE (SEMKO) (250V T3.15A)	TE	
⚠ F1 ,2	1B		F05-4022-05	FUSE (250V 4A)	UMUE	
26	2A		G01-2138-04	COMPRESSION SPRING(DAT)		
27	3B		G01-2139-04	COMPRESSION SPRING(DIGITAL)		
28	1A		G11-0153-04	SOFT TAPE (80X12X3) CASE		
29	2A		G11-0155-14	SOFT TAPE (40X9X2) PANEL		
-		*	H01-7723-04	ITEM CARTON CASE		
-			H10-3519-12	POLYSTYRENE FOAMED FIXTURE		
-			H10-3520-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0274-04	PROTECTION BAG (900X500X0.05)		
33	3D		J02-0358-05	INSULATOR ASSY (4KG)		
34	3C,3D		J02-0360-05	INSULATOR ASSY (6KG)		
35	1C,2C		J19-0506-05	UNIT HOLDER (H=8.3)		
36	2B		J19-0514-05	UNIT HOLDER (H=11.3)		
37	2B		J19-0515-05	UNIT HOLDER (H=8.3)		
38	2B,2C		J19-2536-05	UNIT HOLDER		
⚠ 40	1D		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND	UMUETE	

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KA-D1100EX KA-D1100EX

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44	2B		K29-2432-03	KNOB ASSY (BUTTON) POWER		
45	3A		K29-2837-04	KNOB (VOLUME CONTROL)		
46	3A		K29-2838-04	KNOB (BASS,TREB,BAL,REC OUT)		
47	2B,3B		K29-2843-04	KNOB ASSY (BUTTON)TURNOVER,MD		
48	2B		K29-2845-04	KNOB ASSY (BUTTON)DAT,CD,MUTE		
49	2B		K29-2847-04	KNOB ASSY (BUTTON)SPEAKER		
50	3A,3B		K29-2849-04	KNOB ASSY (BUTTON) CD		
51	3B		K29-2850-04	KNOB ASSY (BUTTON) PHONO		
52	3B		K29-2851-04	KNOB ASSY (BUTTON) TUNER		
53	3A		K29-2852-04	KNOB ASSY (BUTTON) AUX		
54	3A		K29-2853-04	KNOB ASSY (BUTTON) TAPE MONI		
55	3A		K29-2854-04	KNOB ASSY (BUTTON) 2(DAT)/1		
56	3A		K29-2855-04	KNOB ASSY (BUTTON) DBS/AUX		
57	3A		K29-2856-04	KNOB ASSY (BUTTON) DAT MONITOR		
58	3B		K29-2862-04	KNOB ASSY (BUTTON) ANLG,CD DIR		
59	3B		K29-2863-04	KNOB ASSY (BUTTON) ANALOG		
60	3B		K29-2864-04	KNOB ASSY (BUTTON) DIGITAL		
⚠ 64	2C	*	L01-4872-05	POWER TRANSFORMER	E	
⚠ 64	2C	*	L01-4875-05	POWER TRANSFORMER	UMUE	
⚠ 64	2C	*	L01-4877-05	POWER TRANSFORMER	T	
-			L92-0019-05	FERRITE CORE		
75	1C		N14-0179-05	BUILD-IN NUT		
B	2A		N09-1445-05	SET SCREW (M3X8)PANEL		
C	1C,1D		N09-0301-05	TAPTITE SCREW (Ø3X8)X32	UMUETE	
D	3C,3D		N09-1905-05	STEPPED SCREW FOOT		
E	1A		N09-1729-05	TAPTITE SCREW (Ø4X8)CASE		
F	1C	*	N09-1960-05	STEPPED SCREW X32		
G	3C	*	N09-1964-05	MACHINE SCREW TRANS		
J	1B		N29-0216-05	RIVET		
80	2C		S90-0106-05	REMOTE SWITCH SHAFT		
			POWER AMPLIFIER UNIT (X07-2392-71)			
C1 ,2			CC45FSL1H820J	CERAMIC 82PF J	UMUE	
C1 ,2			C91-0177-05	POLYSTY 82PF K	TE	
C3 ,4			CC45FSL1H470J	CERAMIC 47PF J	UMUE	
C3 ,4		*	C91-0979-05	CERAMIC 47PF G	TE	
C5 ,6			CE04KW1H010MEL	ELECTRO 1.0UF 50WV		
C7 ,8			CF92FV1H122J	MF 1200PF J		
C9 ,10			CC45FSL1H220J	CERAMIC 22PF J	UMUE	
C9 ,10		*	C91-0978-05	CERAMIC 22PF G	TE	
C11 ,12			CC45FSL1H101J	CERAMIC 100PF J	UMUE	
C11 ,12			C009FS1H101JZS	POLYSTY 100PF J	TE	
C13 ,14			CE04KW1A101MEL	ELECTRO 100UF 10WV		
C19 ,20			CK45FB1H152K	CERAMIC 1500PF K		
C23 ,24			CC45FSL2H270J	CERAMIC 27PF J		
C25 -28			CF92FV1H392J	MF 3900PF J		
C29			CC45FSL1H221J	CERAMIC 220PF J		
C30			CC45FSL1H221J	CERAMIC 220PF J		
C31 ,32			CC45FSL1H221J	CERAMIC 220PF J		
C35 ,36			CF92FV1H153J	MF 0.015UF J		
C37 ,38			CE04KW1C220MEL	ELECTRO 22UF 16WV		
C39 -44			CK45FB1H471K	CERAMIC 470PF K		
C47 ,48			CE04KW0J102MEL	ELECTRO 1000UF 6.3WV		
C49 -52			CK45FB1H471K	CERAMIC 470PF K		

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KA-D1100EX KA-D1100EX

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C71 C72 C73 C74			CE04KW1C220MEL C90-1333-05 CF92FV1H223J CE04KW1C470MEL	ELECTRO 22UF 16WV NP-ELEC 22UF 10WV MF 0.022UF J ELECTRO 47UF 16WV		
L	1D		N29-0035-05	PUSH RIVET (3.5X5.5)		
R1 ,2			RN14BK2C3160FTS	RN 316.0 F 1/6W	TE	
R3 ,4			RN14BK2C1003FTS	RN 100K F 1/6W	TE	
R5 -8			RN14BK2C8251FTS	RN 8.25K F 1/6W	TE	
R15 ,16			RN14BK2C1621FTS	RN 1.62K F 1/6W	TE	
R19 ,20			RN14BK2C1960FTS	RN 196.0 F 1/6W	TE	
R21 ,22			RN14BK2C8252FTS	RN 82.5K F 1/6W	TE	
R41 -44			RD14AB2E331JTS	FL-PROOF RD 330 J 1/4W		
R49 ,50			RD14AB2E101JTS	FL-PROOF RD 100 J 1/4W		
R51 ,52			RD14AB2E181JTS	FL-PROOF RD 180 J 1/4W		
R61 -64			RD14AB2E471JTS	FL-PROOF RD 470 J 1/4W		
R65 -68			RD14AB2E221JTS	FL-PROOF RD 220 J 1/4W		
R69 -72			RD14AB2E331JTS	FL-PROOF RD 330 J 1/4W		
R73 -76			RD14AB2E271JTS	FL-PROOF RD 270 J 1/4W		
R77 -80			RD14AB2E331JTS	FL-PROOF RD 330 J 1/4W		
R81 -84			RD14AB2E150JTS	FL-PROOF RD 15 J 1/4W		
R85 -88			RD14AB2E561JTS	FL-PROOF RD 560 J 1/4W		
R89 -92			RD14AB2E151JTS	FL-PROOF RD 150 J 1/4W		
R93 -96			RD14AB2E102JTS	FL-PROOF RD 1.0K J 1/4W		
R99 -102			RD14AB2E471JTS	FL-PROOF RD 470 J 1/4W		
R105,106			RD14AB2E332JTS	FL-PROOF RD 3.3K J 1/4W		
R107,108			RD14AB2E392JTS	FL-PROOF RD 3.9K J 1/4W		
R109-112			RD14AB2E911JTS	FL-PROOF RD 910 J 1/4W		
R113,114			RD14AB2E122JTS	FL-PROOF RD 1.2K J 1/4W		
VR1 ,2			R12-0109-05	TRIMMING POT.(470B)IDLE		
D1 -4			HZS5.1S(B2)	ZENER DIODE		
D1 -4			RD5.1JS(B2)	ZENER DIODE		
D5 ,6			1SS133	DIODE		
D5 ,6			1SS176	DIODE		
D11 -14			MA270(A)	VARISTOR		
D15 ,16			1SS133	DIODE		
D15 ,16			1SS176	DIODE		
D17 ,18			E-202	CONSTANT CURRENT DIODE		
D19 -22			1SS133	DIODE		
D19 -22			1SS176	DIODE		
D23 -26			HZS5.1S(B2)	ZENER DIODE		
D23 -26			RD5.1JS(B2)	ZENER DIODE		
D27 -30			1SS131	DIODE		
D27 -30			1SS178	DIODE		
IC1			UPC1237HA	IC(POWER AMP)		
Q1 ,2			UPA68HA(L,M)	IC		
Q3 -6			2SC2320(E,F)	TRANSISTOR		
Q3 -6			2SC945(A)(Q,P)	TRANSISTOR		
Q7 ,8			2SC2631(R,S)	TRANSISTOR		
Q9 -12			2SA1123(R,S)	TRANSISTOR		
Q13 -18			2SC2632(Q,R,S)	TRANSISTOR		
Q19 ,20			2SA1124(Q,R,S)	TRANSISTOR		
Q21 ,22			2SC2632(Q,R,S)	TRANSISTOR		
Q23 ,24			2SA1123(R,S)	TRANSISTOR		
Q25 ,26			2SC2631(R,S)	TRANSISTOR		

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Q27 ,28			2SC3944A(Q,R)	TRANSISTOR		
Q29 ,30			2SA1535A(Q,R)	TRANSISTOR		
Q31 ,32			2SC2320(E,F)	TRANSISTOR		
Q31 ,32			2SC945(A)(Q,P)	TRANSISTOR		
Q33 ,34			2SA733(A)(Q,P)	TRANSISTOR		
Q33 ,34			2SA999(E,F)	TRANSISTOR		
Q35 ,36			2SC3940A(R,S)	TRANSISTOR		
Q37 ,38			2SA1534A(R,S)	TRANSISTOR		
Q39 ,40			2SA1123(R,S)	TRANSISTOR		
Q41 -44			2SC2631(R,S)	TRANSISTOR		
Q45 ,46			2SA1123(R,S)	TRANSISTOR		
Q71			2SA992(F,E)	TRANSISTOR		
			PRE AMPLIFIER UNIT (X08-2222-71)			
C1 ,2			CF92FV1H221K	MF 220PF K		
C3 ,4			CF92FV1H121K	MF 120PF K		
C5 ,6			CE04KW0J222M	ELECTRO 2200UF 6.3WV		
C7 ,8			CK45FB1H102K	CERAMIC 1000PF K		
C9 ,10			C91-0790-05	FILM 0.039UF J		
C11 ,12			C093HP2A113G	MYLAR 0.011UF G		
C13 ,14			C093HP2A392J	MYLAR 3900PF J		
C15 ,16			C90-1332-05	NP-ELEC 10UF 25WV		
C17 ,18			CF92FV1H103J	MF 0.010UF J		
C19 ,20			CF92FV1H104J	MF 0.10UF J	TE	
C21 -24			CF92FV1H472J	MF 4700PF J	TE	
C25 -32		*	CF92FV1H151K	MF 150PF K	TE	
C35 -40		*	CF92FV1H151K	MF 150PF K	TE	
C41 ,42		*	CF92FV1H221K	MF 220PF K	UMUE	
C41 ,42			CF92FV1H331K	MF 330PF K	TE	
C43 ,44			CF92FV1H104J	MF 0.10UF J	TE	
C43 ,44			CF92FV1H473J	MF 0.047UF J	UMUE	
C101			CE04KW1E101M	ELECTRO 100UF 25WV		
C102			CE04KW1A470M	ELECTRO 47UF 10WV		
C103,104			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C105,106			CE04KW1E221M	ELECTRO 220UF 25WV		
C107,108			CE04KW1V102M	ELECTRO 1000UF 35WV		
C109			CE04KW1A470M	ELECTRO 47UF 10WV		
C110			CC45FSL1H270J	CERAMIC 27PF J		
C111-114			CF92FV1H103J	MF 0.010UF J		
C115,116			CK45FE2H103P	CERAMIC 0.010UF P		
⚠ C117,118			C91-0647-05	CERAMIC 0.01UF P		
C119-121			CF92FV1H103J	MF 0.010UF J		
C122,123			CE04KW1H100M	ELECTRO 10UF 50WV		
C124,125			CF92FV1H105J	MF 1.0UF J		
E2	2D		E13-0821-05	PHONO JACK (TUNER,PHONO)		
E7	1B		E03-0093-05	AC OUTLET	UMUE	
E1	2D		E13-0814-05	PHONO JACK (8P)(TAPE/DAT)		
E6	1C		E20-0830-05	SCREW TERMINAL BOARD	UMUEE	
E6	1C	*	E20-0831-05	SCREW TERMINAL BOARD	TE	
100	1B		J13-0041-05	FUSE CLIP (Ø6)	UMUE	
100	1B		J13-0054-05	FUSE CLIP (Ø5)	TE	
-			J61-0033-05	WIRE BAND		
-			J61-0307-05	WIRE BAND		
L1 ,2			L40-1011-47	SMALL FIXED INDUCTOR(100UH,K)		
L3 ,4			L39-0080-15	PHASE-COMPENSATION COIL		

E: Scandinavia & Europe K: USA P: Canada
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PARTS LIST

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Teile ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Destination 仕向	Remarks 備考
L5 -7			L33-0328-05	CHOKE COIL				
R1 ,2			RN14BK2C4752FTS	RN	47.5K	F 1/6W		
R3 ,4			RN14BK2C1000FTS	RN	100.0	F 1/6W		
R7 ,8			RN14BK2C10R0FTS	RN	10.0	F 1/6W		
R9 ,10			RN14BK2C1330FTS	RN	133.0	F 1/6W		
R11 ,12			RN14BK2C11R0FTS	RN	11.0	F 1/6W		
R23 ,24			RN14BK2C8252FTS	RN	82.5K	F 1/6W		
R25 ,26			RN14BK2C6811FTS	RN	6.81K	F 1/6W		
R27 ,28			RN14BK2C10R0FTS	RN	10.0	F 1/6W		
R35 ,36			RD14AB2E4R7JTS	FL-PR00F RD	4.7	J 1/4W		
R37 ,38			RN14BK2C1001FTS	RN	1.00K	F 1/6W		
R39 ,40			RS14DB3D100JTE	FL-PR00F RS	10	J 2W		
R43		*	RS14KB3A331JTE	FL-PR00F RS	330	J 1W		
R44			RS14DB3A331JTE	FL-PR00F RS	330	J 1W		
R101			RD14AB2E151JTS	FL-PR00F RD	150	J 1/4W		
R107,108			RD14AB2E101JTS	FL-PR00F RD	100	J 1/4W		
R111			RD14AB2E4R7JTS	FL-PR00F RD	4.7	J 1/4W		
R112			RD14GB2E4R7JTS	FL-PR00F RD	4.7	J 1/4W		
R113,114			RS14DB3A182JTE	FL-PR00F RS	1.8K	J 1W		
R115,116			RS14DB3A681JTE	FL-PR00F RS	680	J 1W		
R117			RS14DB3D102JTE	FL-PR00F RS	1.0K	J 2W		
R123,124			RD14AB2E222JTS	FL-PR00F RD	2.2K	J 1/4W		
K1 ,2			S51-2045-05	MAGNETIC RELAY				
K3 ,4			S51-2075-05	MAGNETIC RELAY				
K5			S51-2074-05	MAGNETIC RELAY				
S1		2D	S90-0078-05	SLIDE SWITCH	(DUAL REC OUT)			
S2		2D	S40-6027-05	PUSH SWITCH	(CARTRIDGE)			
⚠ S3		1B	S40-1073-05	PUSH SWITCH	(POWER)			
⚠ S4		1B	S31-2115-05	SLIDE SWITCH	(240V-120V)		UMUE	
D1 ,2			HZS5.1S(B)	ZENER DIODE				
D1 ,2			RD5.1JS(B)	ZENER DIODE				
D3			HZS16N(B)	ZENER DIODE				
D3			RD16ES(B)	ZENER DIODE				
D4			HZS5.1S(B2)	ZENER DIODE				
D4			RD5.1JS(B2)	ZENER DIODE				
D5			HZS8.2S(B2)	ZENER DIODE				
D5			RD8.2JS(B2)	ZENER DIODE				
D6			E-102	CONSTANT CURRENT DIODE				
D7			E-152	CONSTANT CURRENT DIODE				
D8 ,9			HZS16N(B)	ZENER DIODE				
D8 ,9			RD16ES(B)	ZENER DIODE				
D10 -13			DSM1A1	DIODE				
D14 -17			1SS131	DIODE				
D14 -17			1SS178	DIODE				
D18 ,19			1SS133	DIODE				
D18 ,19			1SS176	DIODE				
D20 -22			1SS131	DIODE				
D20 -22			1SS178	DIODE				
IC1			NJM5532D	IC(OP AMP X2)				
IC2			M5218P	IC(OP AMP X2)				
Q1 -4			2SK369(V)	FET				
Q1 -4			2SK371(V)	FET				
Q5 -10			2SC2320(E,F)	TRANSISTOR				

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格			Destination 仕向	Remarks 備考
Q5 -10			2SC945(A)(Q,P)	TRANSISTOR				
Q11			2SA1110(Q,R)	TRANSISTOR				
Q12			2SC2590(Q,R)	TRANSISTOR				
Q13 -15			2SC2320(E,F)	TRANSISTOR				
Q13 -15			2SC945(A)(Q,P)	TRANSISTOR				
AUDIO UNIT (X09-2562-71)								
C5 ,6			CK45FB2H102K	CERAMIC	1000PF	K		
C7 -10			CF92FV1H683J	MF	0.068UF	J		
C11 ,12			CC45FSL1H101J	CERAMIC	100PF	J	UMUE	
C11 ,12			C0G9FS1H101JZS	POLYSTY	100PF	J	TE	
C13 -20			CE04KW2A010M	ELECTRO	1.0UF	100WV		
C25 -28			CK45FE2H103P	CERAMIC	0.010UF	P		
C29 ,30			CE04KW2A220M	ELECTRO	22UF	100WV		
C31			CE04KW1A101M	ELECTRO	100UF	10WV		
C32 ,33			CE04KW2A010M	ELECTRO	1.0UF	100WV		
C34 ,35			C91-0033-05	MF	1UF	100V		
C36 ,37			CF92FV1H103J	MF	0.010UF	J		
C38 ,39			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C40			CE04KW1V4R7M	ELECTRO	4.7UF	35WV		
C41 -48			CF92FV1H104J	MF	0.10UF	J		
C49 ,50			CC45FSL1H470J	CERAMIC	47PF	J		
J05		2D	E23-0149-05	TERMINAL				
E1		2B	E11-0174-05	PHONE JACK	(PHONES)			
N		1C,1D	N09-1236-05	TAPPING SCREW	(Ø3X16)			
CP1 ,2			R90-0187-05	MULTI-COMP	0.22X2	K 5W		
R1 ,2			RN14BK2C4222F	RN	42.2K	F 1/6W	TE	
R3 -10			RD14AB2E4R7JTS	FL-PR00F RD	4.7	J 1/4W		
R21 ,22			RS14DB3D100JTE	FL-PR00F RS	10	J 2W		
R23 ,24			RN14BK2C316DF	RN	316.0	F 1/6W	TE	
R27 ,28			RS14DB3D331JTE	FL-PR00F RS	330	J 2W		
R29 ,30			RS14DB3D151JTE	FL-PR00F RS	150	J 2W		
R31 ,32			RS14DB3A151JTE	FL-PR00F RS	150	J 1W		
R37 ,38			RD14AB2E100JTS	FL-PR00F RD	10	J 1/4W		
R39 -42			RD14AB2E101JTS	FL-PR00F RD	100	J 1/4W		
R43 -46			RD14AB2E100JTS	FL-PR00F RD	10	J 1/4W		
R54			RS14DB3A271JTE	FL-PR00F RS	270	J 1W		
R57			RD14AB2E101JTS	FL-PR00F RD	100	J 1/4W		
R58			RD14AB2E391JTS	FL-PR00F RD	390	J 1/4W		
R60			RS14DB3A562JTE	FL-PR00F RS	5.6K	J 1W		
R63			RS14DB3A222JTE	FL-PR00F RS	2.2K	J 1W		
VR1		3C	R10-5021-05	POTENTIOMETER(100K)VOLUME CONT				
K1			S51-2075-05	MAGNETIC RELAY				
D1 ,2			D5FB20-1	DIODE				
D3 ,4			E-102	CONSTANT CURRENT DIODE				
D5 ,6			HZS8.2S(B2)	ZENER DIODE				
D5 ,6			RD8.2JS(B2)	ZENER DIODE				
D7			E-102	CONSTANT CURRENT DIODE				
D8			HZS8.2S(B2)	ZENER DIODE				
D8			RD8.2JS(B2)	ZENER DIODE				
D9 ,10			HZS20S(B2)	ZENER DIODE				
D9 ,10			RD20JS(B2)	ZENER DIODE				
D11 ,12			1SS131	DIODE				

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C13 ,14			CE04KW1A470M	ELECTRO	10UF	10WV		
C15 ,16			CK45FB1H102K	CERAMIC	1000PF	K		
C17 -20			CF92FV1H393J	MF	0.039UF	J		
C21 -24			CE04KW1C220M	ELECTRO	22UF	16WV		
C25 -28			CF92FV1H684J	MF	0.68UF	J		
C29 ,30			CC45FSL1H221J	CERAMIC	220PF	J		
C31 ,32			CF92FV1H393J	MF	0.039UF	J		
C33 ,34			CF92FV1H101K	MF	100PF	K		
C39 -42			CF92FV1H334J	MF	0.33UF	J		
C43 ,44			C91-0168-05	POLYSTY	15PF	K		
C51 ,52			C90-1335-05	NP-ELEC	4.7UF	50WV		
C53 ,54			CF92FV1H105J	MF	1.0UF	J		
C55			CF92FV1H103J	MF	0.010UF	J		
110		2B	J11-0111-05	CLAMPER				
-			J61-0039-05	WIRE BAND				
L1 ,2			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)				
R51			RD14GB2E102J1S	FL-PR00F RD	1.0K	J 1/4W		
R59			RS14KB3D181JTE	FL-PR00F RS	180	J 2W		
R60		*	RS14KB3D182J1E	FL-PR00F RS	1.8K	J 2W		
R61			RS14KB3D272JTE	FL-PR00F RS	2.7K	J 2W		
R62			RS14KB3D181JTE	FL-PR00F RS	180	J 2W		
VR1		3C	R06-5166-05	POTENTIOMETER (BALANCE)200K M				
VR2 ,3		3B	R06-2018-05	POTENTIOMETER (BASS,TREBLE)5KB				
S1		3B	S42-6022-05	MULTIPLE PUSH SWITCH(SELECTOR)				
S2		3B	S42-3107-05	MULTIPLE PUSH SWITCH(DAT/TAPE)				
S3		3B	S42-2160-05	MULTIPLE PUSH SWITCH(DAT,CD)				
S4 ,5		3B,3C	S40-2351-05	PUSH SWITCH (MODE,SUBSONIC)				
S6		3C	S42-3106-05	MULTIPLE PUSH SWITCH(DIGI,ANLG				
C13 ,14			CE04KW1H470M	ELECTRO	47UF	50WV		
C15 ,16			CK45FB1H102K	CERAMIC	1000PF	K		
C17 -20			CF92FV1H393J	MF	0.039UF	J		
C21 -24			CE04KW1C220M	ELECTRO	22UF	16WV		
C25 -28			CF92FV1H684J	MF	0.68UF	J		
C29 ,30			CC45FSL1H221J	CERAMIC	220PF	J		
C31 ,32			CF92FV1H393J	MF	0.039UF	J		
C33 ,34			CF92FV1H101K	MF	100PF	K		
C39 -42			C91-0168-05	POLYSTY	15PF	K		
C51 ,52			C90-1335-05	NP-ELEC	4.7UF	50WV		
C53 ,54			CF92FV1H105J	MF	1.0UF	J		
C55			CF92FV1H103J	MF	0.010UF	J		
110		2B	J11-0111-05	CLAMPER				
-			J61-0039-05	WIRE BAND				
L1 ,2			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)				
R51			RD14GB2E102J1S	FL-PR00F RD	1.0K	J 1/4W		
R59			RS14KB3D181JTE	FL-PR00F RS	180	J 2W		
R60		*	RS14KB3D182J1E	FL-PR00F RS	1.8K	J 2W		
R61			RS14KB3D272JTE	FL-PR00F RS	2.7K	J 2W		
R62			RS14KB3D181JTE	FL-PR00F RS	180	J 2W		
VR1		3C	R06-5166-05	POTENTIOMETER (BALANCE)200K M				
VR2 ,3		3B	R06-2018-05	POTENTIOMETER (BASS,TREBLE)5KB				
S1		3B	S42-6022-05	MULTIPLE PUSH SWITCH(SELECTOR)				
S2		3B	S42-3107-05	MULTIPLE PUSH SWITCH(DAT/TAPE)				
S3		3B	S42-2160-05	MULTIPLE PUSH SWITCH(DAT,CD)				
S4 ,5		3B,3C	S40-2351-05	PUSH SWITCH (MODE,SUBSONIC)				
S6		3C	S42-3106-05	MULTIPLE PUSH SWITCH(DIGI,ANLG				
D11 ,12			1SS178	DIODE				
IC1 ,2			KA8DC	IC(DRIVER,POWER)				
IC3 ,4			TA2030	IC(LR/H SWITCHING)				
Q1 ,2			2SC2003(L,K)	TRANSISTOR				
Q3			2SC1845(F,E)	TRANSISTOR				
Q4 ,5			2SA954(L,K)	TRANSISTOR				
Q6			2SA992(F,E)	TRANSISTOR				
Q7			2SA1110(R,S)	TRANSISTOR				
Q8			2SC2637(O,R,S)	TRANSISTOR				
Q9			2SA999(E,F)	TRANSISTOR				

TONE UNIT (X11-2462-71)

D9		2B	A33-0098-04	REFLECTOR				
D1 ,2		3B	B30-1012-05	LED(SLP-9B1C-5D)DAT/TAPE SEL				
D3 -7		3B	B30-1206-05	LED (INPU) SELECTOR				
D8 -12		3B,3C	B30-1012-05	LED(SLP-9B1C-5D)NOR,DAT,CD				
D13 -15		3B	B30-1206-05	LED (DIGITAL INPUT SELECTOR)				
D16		3C	B30-1012-05	LED(SLP-9B1C-5D)PLL LOCK IND				
D17		3C	B30-1206-05	LED				
D19		3B	B30-1012-05	LED(SLP-9B1C-5D)POWER				
PL1 -3		3C	B30-1212-05	LAMP(BLU) DIGITAL,ANALOG				
C3 ,4			CF92FV1H154J	MF	0.15UF	J		
C5 ,6			CF92FV1H333J	MF	0.033UF	J		
C7 -10			CF92FV1H101K	MF	100PF	K		
C11 ,12			CF92FV1H103J	MF	1.0UF	J		
C13 ,14			CE04KW1H2R2M	ELECTRO	2.2UF	50WV		
C15 ,16			CK45FB1H102K	CERAMIC	1000PF	K		
C17 -20			CF92FV1H393J	MF	0.039UF	J		
C21 -24			CE04KW1C220M	ELECTRO	22UF	16WV		
C25 -28			CF92FV1H684J	MF	0.68UF	J		
C29 ,30			CC45FSL1H221J	CERAMIC	220PF	J		
C31 ,32			CF92FV1H393J	MF	0.039UF	J		
C33 ,34			CF92FV1H101K	MF	100PF	K		
C39 -42			C91-0168-05	POLYSTY	15PF	K		
C51 ,52			C90-1335-05	NP-ELEC	4.7UF	50WV		
C53 ,54			CF92FV1H105J	MF	1.0UF	J		
C55			CF92FV1H103J	MF	0.010UF	J		
110		2B	J11-0111-05	CLAMPER				
-			J61-0039-05	WIRE BAND				
L1 ,2			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)				
R51			RD14GB2E102J1S	FL-PR00F RD	1.0K	J 1/4W		
R59			RS14KB3D181JTE	FL-PR00F RS	180	J 2W		
R60		*	RS14KB3D182J1E	FL-PR00F RS	1.8K	J 2W		
R61			RS14KB3D272JTE	FL-PR00F RS	2.7K	J 2W		
R62			RS14KB3D181JTE	FL-PR00F RS	180	J 2W		
VR1		3C	R06-5166-05	POTENTIOMETER (BALANCE)200K M				
VR2 ,3		3B	R06-2018-05	POTENTIOMETER (BASS,TREBLE)5KB				
S1		3B	S42-6022-05	MULTIPLE PUSH SWITCH(SELECTOR)				
S2		3B	S42-3107-05	MULTIPLE PUSH SWITCH(DAT/TAPE)				
S3		3B	S42-2160-05	MULTIPLE PUSH SWITCH(DAT,CD)				
S4 ,5		3B,3C	S40-2351-05	PUSH SWITCH (MODE,SUBSONIC)				
S6		3C	S42-3106-05	MULTIPLE PUSH SWITCH(DIGI,ANLG				
D11 ,12			1SS178	DIODE				
IC1 ,2			KA8DC	IC(DRIVER,POWER)				
IC3 ,4			TA2030	IC(LR/H SWITCHING)				
Q1 ,2			2SC2003(L,K)	TRANSISTOR				
Q3			2SC1845(F,E)	TRANSISTOR				
Q4 ,5			2SA954(L,K)	TRANSISTOR				
Q6			2SA992(F,E)	TRANSISTOR				
Q7			2SA1110(R,S)	TRANSISTOR				
Q8			2SC2637(O,R,S)	TRANSISTOR				
Q9			2SA999(E,F)	TRANSISTOR				

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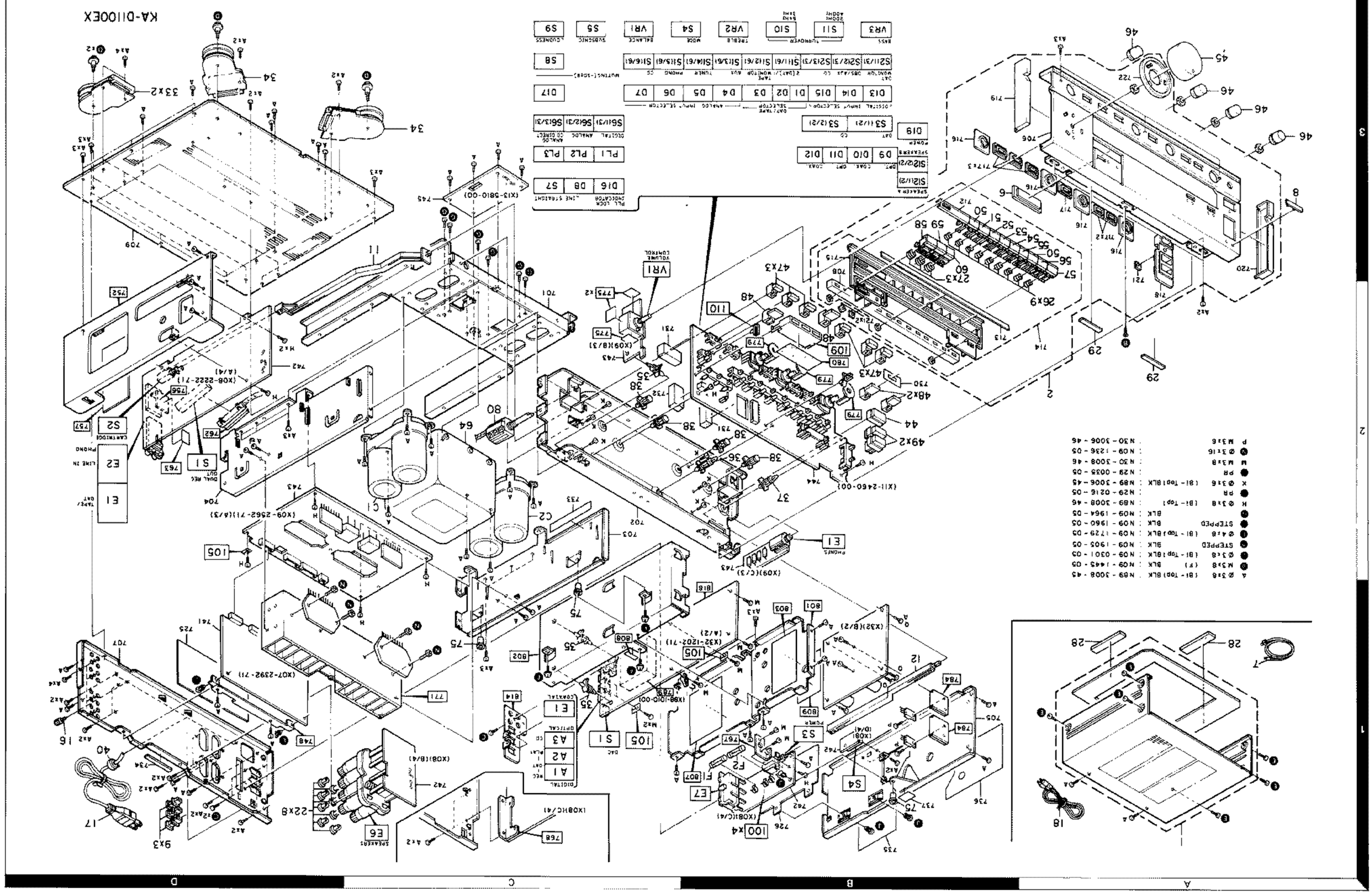

KA-D1100EX KA-D1100EX

EXPLODED VIEW

KA-D1100EX

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
S7 -8	3C		540-4074-05	PUSH SWITCH(LINE STRAIGHT,MUTE		
S9	3C	*	540-2366-05	PUSH SWITCH (LOUDNESS)		
S10 -11	3B		540-2351-05	PUSH SW'TCH (TURNNOVER)		
S12	3B		542-2161-05	MULTIPLE PUSH SWITCH(SPEAKER)		
D16			1SS131	DIODE		
D18			1SS178	DIODE		
D20 -27			1SS133	DIODE		
D20 -27			1SS176	DIODE		
D28			HZS11N(B)	ZENER DIODE		
D28			RD11ES(B)	ZENER DIODE		
IC1			NJM2041D-D	D.(NP AMP X2)		
Q1 -3			2SC2320(E,F)	TRANSISTOR		
Q1 -3			2SC945(A)(D,P)	TRANSISTOR		
Q4			2SA999(E,F)	TRANSISTOR		
L1 -5			L33-0329-05	CHOKE COIL		
PROCESSOR UNIT (X32-1202-71)						
C1 ,2			CQ09FS1H471JZS	POLYSTY 470PF J		
C3 ,4			CQ09FS1H151JZS	POLYSTY 150PF J		
C5 ,6			CQ93HP2A162G	MYLAR 1600PF G		
C7 -10			CQ93HP2A242G	MYLAR 2400PF G		
C11 ,12			C91-0170-05	POLYSTY 22PF K		
C13 ,14			CQ93HP2A182G	MYLAR 1800PF G		
C15 ,16			CQ93HP2A332G	MYLAR 3300PF G		
C17 ,18			CQ93HP2A203G	MYLAR 0.020UF G		
C19 ,20			C91-0175-05	POLYSTY 56PF K		
C21 ,22			C90-1334-05	NP-ELEC 47UF 10WV		
C23 -26			C91-0170-05	POLYSTY 22PF K		
C27 ,28			CQ93HP2A242G	MYLAR 2400PF G		
C29 ,30			C91-0170-05	POLYSTY 22PF K		
C31 ,32			CQ93HP2A242G	MYLAR 2400PF G		
C33 ,34			CQ93HP2A102J	MYLAR 1000PF J		
C41 -44			CK45FF1H1032	CERAMIC 0.010UF Z		
C41 -44			CK45FB1H1032	CERAMIC 0.010UF Z		
C45			CK45FB1H102K	CERAMIC 1000PF K		
C46 -49			CF92FV1H103J	MF 0.010UF J		
C50 -53			CE04KW1C330M	ELECTRN 33UF 16WV		
C54 ,55			CE04KWOJ471M	ELECTRO 470UF 6.3WV		
C56 ,57			CE04KWOJ471M	ELECTRO 470UF 6.3WV		
C58 ,59			CE04KW1A101M	ELECTRN 100UF 10WV		
C60 ,61			CE04KW1A470M	ELECTRN 47UF 10WV		
C62			CE04KW1C330M	ELECTRO 33UF 16WV		
C63			CE04KW1A101M	ELECTRO 100UF 10WV		
C64 -71			CE04KW1C330M	ELECTRO 33UF 16WV		
C72 ,73			CE04KWOJ471M	ELECTRN 470UF 6.3WV		
C74			CE04KWOJ331M	ELECTRO 330UF 6.3WV		
C76 ,77			CE04KW1C101M	ELECTRN 100UF 16WV		
C78 ,79			CE04KW1C330M	ELECTRO 33UF 16WV		
C80 ,81			CE04KW1A470M	ELECTRO 47UF 10WV		
C82 ,83			CE04KWOJ471M	ELECTRO 470UF 6.3WV		
C84 ,85			CC45FSL1H000D	CERAMIC 8.0PF D		
C86 ,87			CF92FV1H104J	MF 0.10UF J		
C88			C90-1350-05	NP-ELEC 0.22UF 50WV		
C89			CE04KW1A470M	ELECTRO 47UF 10WV		

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KA-D1100EX

PARTS LIST

* New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C90			CF92FV1H184J	MF 0.18UF J		
C91 ,92			CF92FV1H102J	MF 1000PF J		
C93 ,94			CC45FSL1H151J	CERAMIC 150PF J		
C95 ,96			CQ09FS1H101JZS	POLYSTY 100PF J		
C97			CF92FV1H822J	MF 8200PF J		
C98			CE04KW1A101M	ELECTRO 100UF 10WV		
C99 -106			CK45FF1H103Z	CERAMIC 0.010UF Z		
C107-110			CE04KW1E221M	ELECTRO 220UF 25WV		
C111,112			CE04KW1E221M	ELECTRO 220UF 25WV		
C113			CE04KW1A101M	ELECTRO 100UF 10WV		
C114,115			CE04KW1C330M	ELECTRO 33UF 16WV		
C116,117			CE04KW1C332M	ELECTRO 3300UF 16WV		
C119,120			CE04KW1C332M	ELECTRO 3300UF 16WV		
C121,122			CK45FF1H103Z	CERAMIC 0.010UF Z		
C124			C91-0733-05	CERAMIC 33PF J		
J05	1B,1C		E23-0149-05	TERMINAL		
E1	1C		E13-0484-05	PHONO JACK (COAXIAL)		
L1 ,2		*	L40-4701-16	SMALL FIXED INDUCTOR(47UH,K)		
L3			L39-0142-05	MATCHING COIL		
L4 ,5			L39-0154-05	VARIABLE INDUCTOR		
L6 -9			L40-1021-11	SMALL FIXED INDUCTOR(1.0MH,K)		
L10 -15			L33-0328-05	CHOKE COIL		
L16 ,17			L40-1021-11	SMALL FIXED INDUCTOR(1.0MH,K)		
L18 ,19			L40-1092-16	SMALL FIXED INDUCTOR(10UH,M)		
X1			L77-1130-05	CRYSTAL RESONATOR		
X2			L77-1129-05	CRYSTAL RESONATOR		
CP1			R90-0233-05	MULTI-COMP 10KX4 J 1/6W		
R1 ,2			RN14BK2C9092FTS	RN 90.9K F 1/6W		
R3 ,4			RN14BK2C1963FTS	RN 196K F 1/6W		
R7 ,8			RN14BK2C1621FTS	RN 1.62K F 1/6W		
R9 ,10			RN14BK2C1002FTS	RN 10.0K F 1/6W		
R11 ,12			RN14BK2C1001FTS	RN 1.00K F 1/6W		
R13 -16			RN14BK2C6811FTS	RN 6.81K F 1/6W		
R17 -20			RN14BK2C1002FTS	RN 10.0K F 1/6W		
R21 ,22			RN14BK2C1003FTS	RN 100K F 1/6W		
R23 ,24			RN14BK2C9092FTS	RN 90.9K F 1/6W		
R25 ,26			RN14BK2C1961FTS	RN 1.96K F 1/6W		
R27 ,28		*	RN14BK2C6341FTS	RN 6.34K F 1/6W		
R29 ,30			RN14BK2C1961FTS	RN 1.96K F 1/6W		
R31 -42		*	RN14BK2C3241FTS	RN 3.24K F 1/6W		
R43 ,44			RN14BK2C9092FTS	RN 90.9K F 1/6W		
R45 ,46			RN14BK2C1621FTS	RN 1.62K F 1/6W		
R47 ,48		*	RN14BK2C8250FTS	RN 825.0 F 1/6W		
R49 ,50			RN14BK2C1001FTS	RN 1.00K F 1/6W		
R51 ,52			RN14BK2C1211FTS	RN 1.21K F 1/6W		
R53 ,54			RN14BK2C10R0FTS	RN 10.0 F 1/6W		
R55 ,56			RN14BK2C1003FTS	RN 100K F 1/6W		
R95 -98			RN14BK2C1003FTS	RN 100K F 1/6W		
R99 -102			RN14BK2C1472FTS	RN 14.7K F 1/6W		
R103,104			RD14GB2E220JTS	FL-PROOF RD 22 J 1/4W		
VR1 ,2			R12-1100-05	TRIMMING POT.(2.2KB) OUTPUT		
VR3 ,4			R12-3147-05	TRIMMING POT.(47KB) DISTORSION		
VR5 ,6		*	R12-1099-05	TRIMMING POT.(1KB) DISTORSION		

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