

DA CONVERTER DA 824 SERVICE MANUAL



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This document is printed on chlorine free (ECF) paper with soy ink.

IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

IMPORTANT: This presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principal-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground bus in the unit (heavy gauge black wires connect to this bus).

IMPORTANT: Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHAT SO EVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

IMPORTANT NOTICE FOR THE UNITED KINGDOM**Connecting the Plug and Cord**

IMPORTANT. The wires in this main lead are coloured in accordance with the following code:

BLUE: NEUTRAL
BROWN: LIVE


As the colours of the wires in the main lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The BLUE wire must be connected to the terminal that is marked with the letter N (or coloured BLACK).

The BROWN wire must be connected to the terminal that is marked with the letter L (or coloured RED).

Be certain that neither core is connected to the earth terminal of the three pin plug.

■ WARNING

Components having special characteristics are marked  and must be replaced with parts having specification equal to those originally installed.

SPECIFICATIONS

Sampling rate	MY8-AE, MY8-TD	39.69–50.88 kHz
	MY8-AT	41.013–50.88 kHz
DA conversion resolution	24-bit linear, 128-times oversampling	
Frequency response	–3, +1 dB, 20 Hz–20 kHz	
Dynamic Range *1	110 dB (typical)	
Gain Error	±1 dB @ 1 kHz	
THD *2	0.05%, 20 Hz–20 kHz	
	0.01% full scale output @ 1 kHz	
Hum & Noise Level *1	–92 dB (typical)	
Crosstalk	–70 dB between adjacent channels @ 1 kHz	
Signal Delay	0.57 ms (digital input to analog output, fs = 48 kHz)	
Indicators	PEAK	3 dB below full scale
	NOMINAL	14 dB below full scale
	SIGNAL	34 dB below full scale
	LOCK	Wordclock lock
	POWER	Power on/off
Power requirements	U.S.A. & Canada 120 V AC, 60 Hz Europe 230 V AC, 50 Hz	
Power consumption	40 W	
Dimensions (W x H x D)	480 x 97.5 x 366.8 mm (18.9 x 3.84 x 14.44 inches)	
Weight	7.5 kg (16.53 lbs)	
Free-air operating temperature	10° C to 35° C (50° F to 95° F)	
Storage temperature	–20° C to 60° C (–4° F to 140° F)	
Power cord length	1.9 m	
Supplied Accessories	Owner's Manual	

*1. Measured with a 6 dB/octave filter at 12.7 kHz; equivalent to a 20 kHz filter with infinite dB/octave attenuation.

*2. 6 dB/octave filter @ 80 kHz.

* Where dB represents a specific voltage, 0 dB is referenced to 0.775 V rms, 0 dBV is referenced to 1.00 V rms.

Analog Output

Connection	GAIN SW	Actual Source Impedance	For Use with Nominal	Output Level		Connector
				Nominal	Max. before clip	
OUTPUT 1–8 *1	+24 dB	150 Ω lines	600 Ω lines	+10 dB (2.45 V)	+24 dB (12.28 V)	XLR-3-32 type (balanced)*2 & TRS phone jack (balanced)*3
	+18 dB			+4 dB (1.23 V)	+18 dB (6.16 V)	
	+15 dB			+1 dB (0.87 V)	+15 dB (4.36 V)	
	+4 dBV			–10 dBV (0.316 V)	+4 dBV (1.58 V)	

*1. 24-bit 128-times oversampling D/A converters.

*2. XLR-type connectors are electronically balanced (pin 1= ground, pin 2= hot, pin 3= cold).

*3. TRS phone jacks are electronically balanced (tip= hot, ring= cold, sleeve= ground).

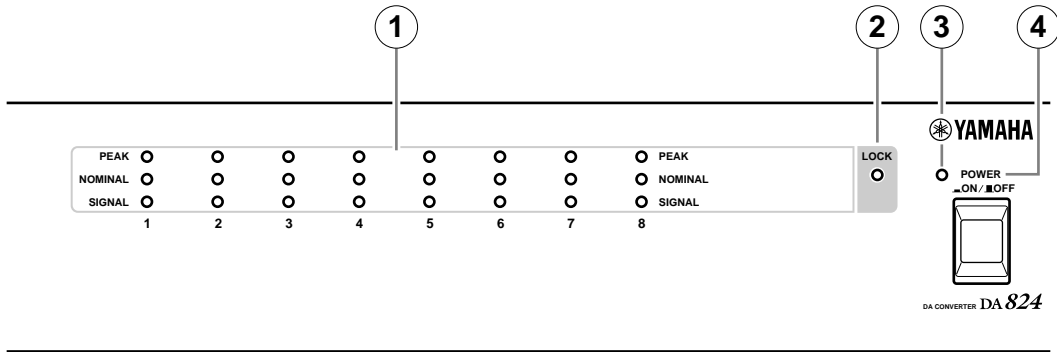
* Where dB represents a specific voltage, 0 dB is referenced to 0.775 V rms, 0 dBV is referenced to 1.00 V rms.

Digital I/O

Connection	Format	Level/Impedance	Connector
COM	—	RS232C	9-pin D-sub (male)
WORD CLOCK IN	—	TTL, 75 Ω (ON/OFF)	BNC
WORD CLOCK THRU	—	TTL, 75 Ω	BNC
SLOT	mini YGDAL	—	—

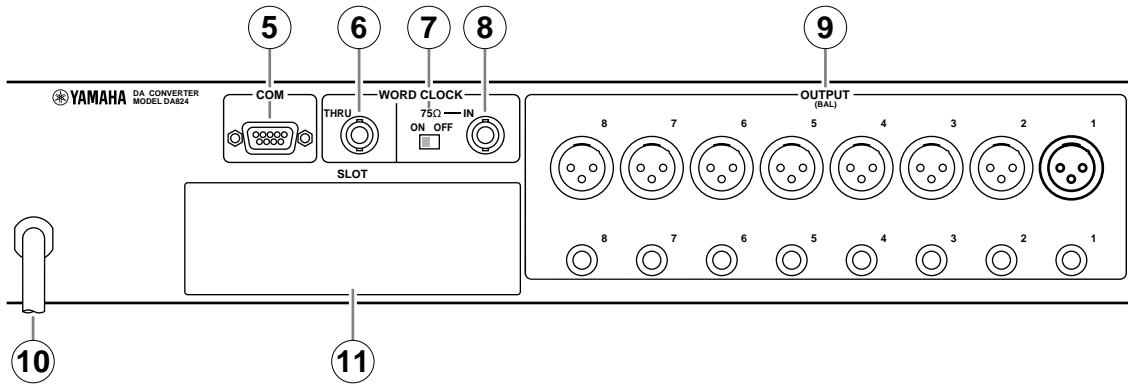
■ PANEL LAYOUT

● Front Panel



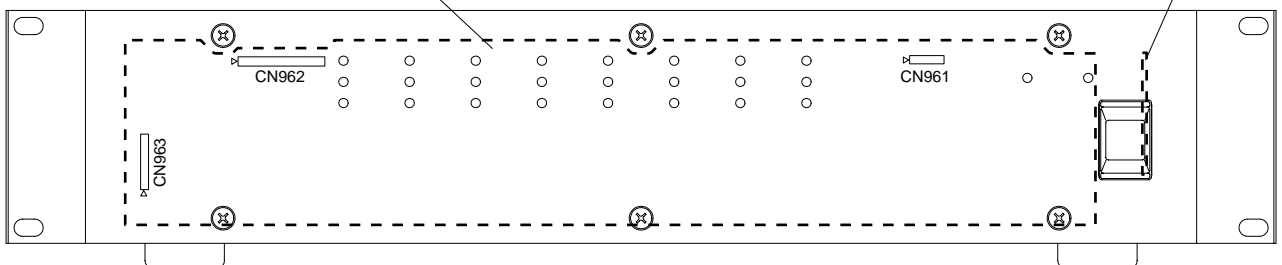
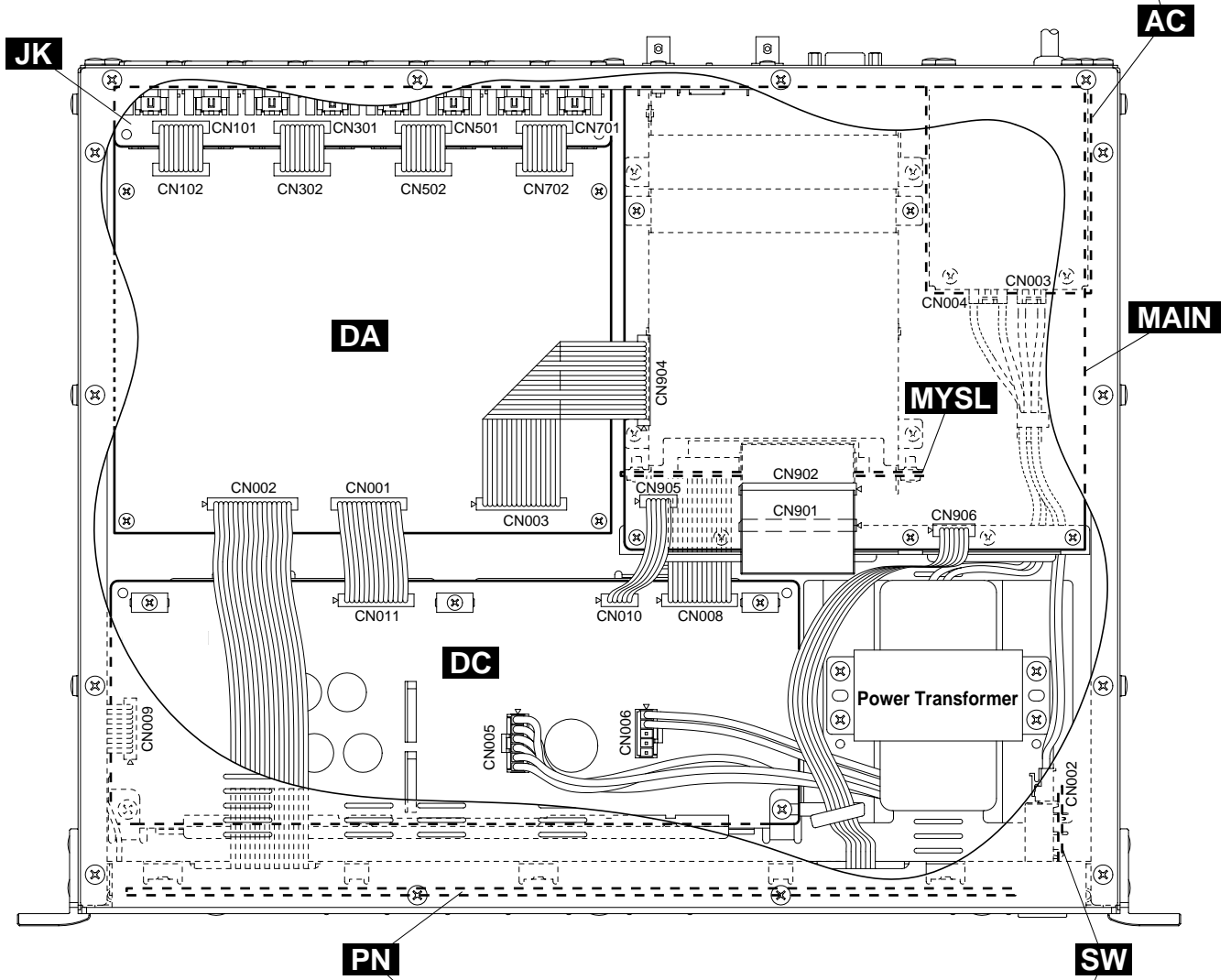
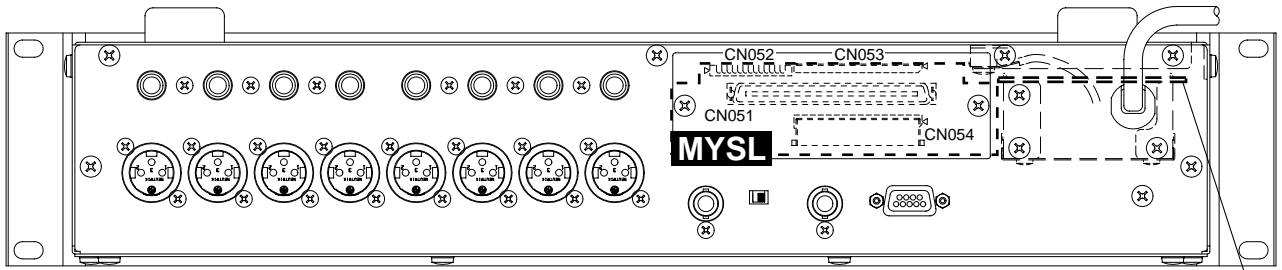
- ① PEAK, NOMINAL & SIGNAL indicators
- ② LOCK indicator
- ③ POWER indicator
- ④ POWER switch

● Rear Panel

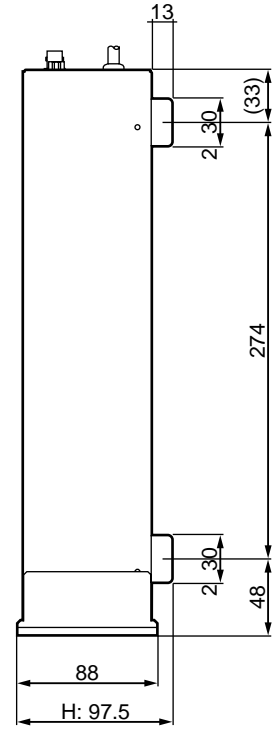
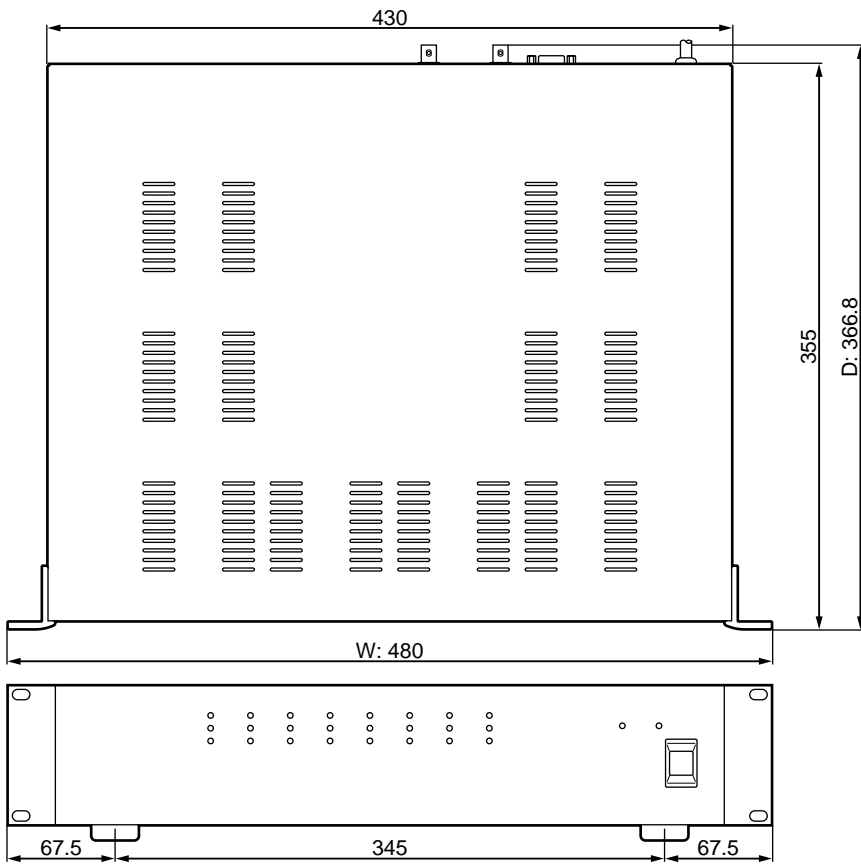


- ⑤ COM port
- ⑥ WORD CLOCK THRU connector
- ⑦ WORD CLOCK 75 Ω ON/OFF switch
- ⑧ WORD CLOCK IN connector
- ⑨ OUTPUT (BAL) connectors
- ⑩ Power cable
- ⑪ SLOT

CIRCUIT BOARD LAYOUT

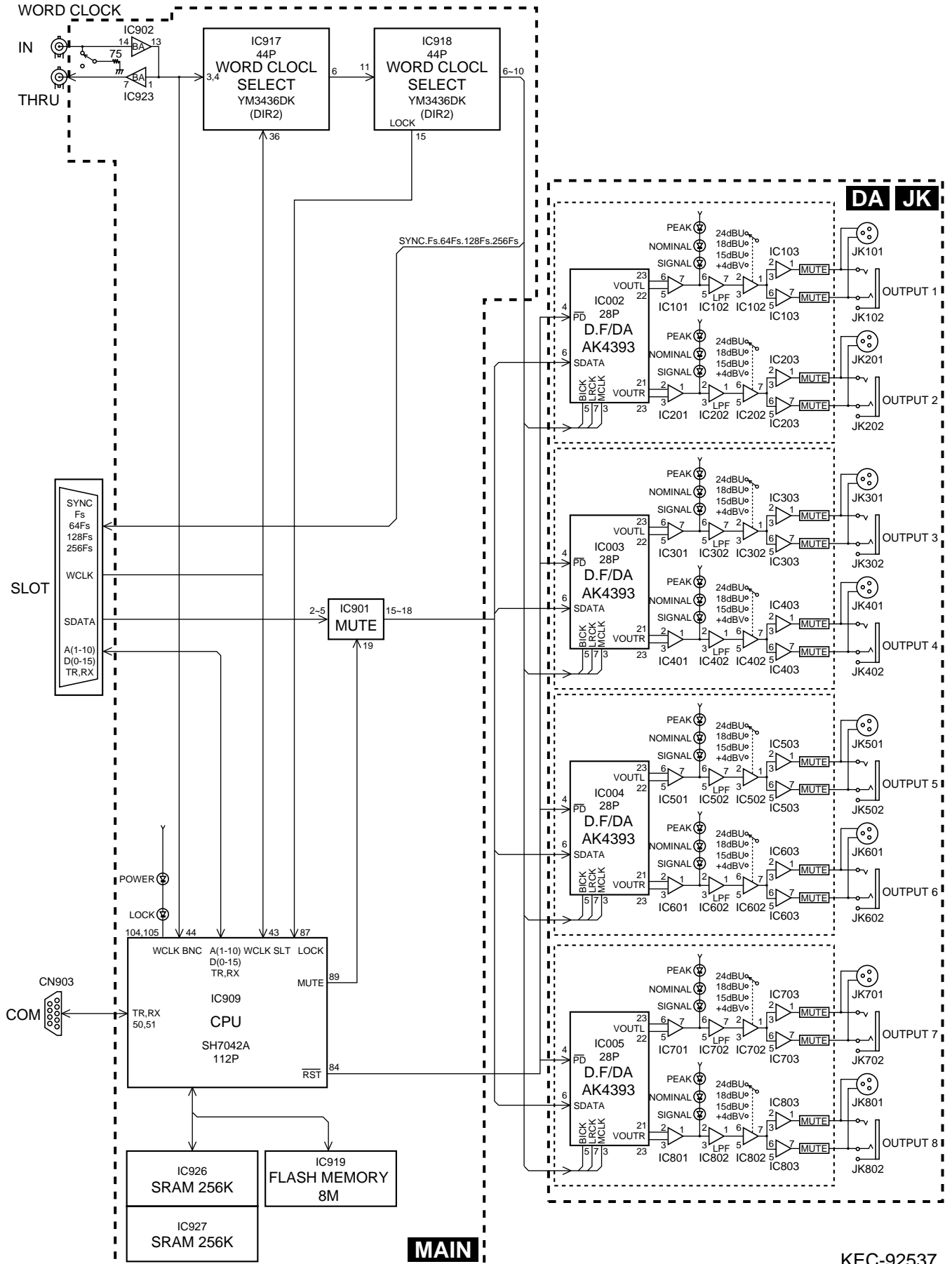


■ DIMENTIONS



Unit: mm

BLOCK DIAGRAM



DISASSEMBLY PROCEDURE

1. Top Cover

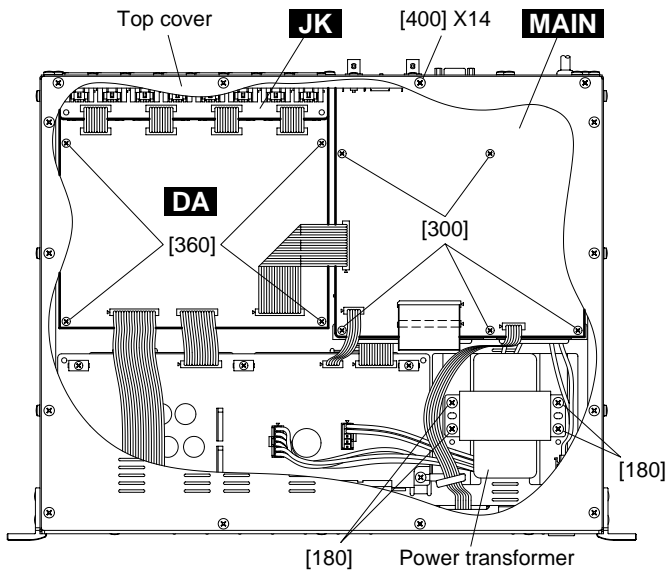
1-1 Remove the fourteen (14) screws marked [400]. The top cover can then be removed. (Fig. 1)

2. Circuit Boards and Units

Remove the top cover, each circuit board and unit can then be removed.

Circuit Board and Unit	Ref. No.	Screw	QTY	Fig.
MAIN	A	Screw	2	2
	280	Bonding Screw 4.0X8 MFZN2BL (VS154500)	1	2
	290	Bonding Screw 3.0X6 MFZN2BL (VS863000)	2	2
	300	Bind Head Tapping Screw-B 3.0X6 MFZN2BL (EP600230)	5	1
JK	380	Bonding Tapping Screw 3.0X8 MFZN2BL (VN41330)	16	2
DA	350	Bonding Tapping Screw 3.0X8 MFZN2BL (VN41330)	6	2
	360	Bind Head Tapping Screw-B 3.0X6 MFZN2BL (EP600230)	4	1
DC Assembly	200	Bind Head Tapping Screw-B A4.0X6 MFZN2BL (VC688800)	2	3
Power Transformer	180	Bind Head Tapping Screw-B A4.0X6 MFZN2BL (VC688800)	4	1

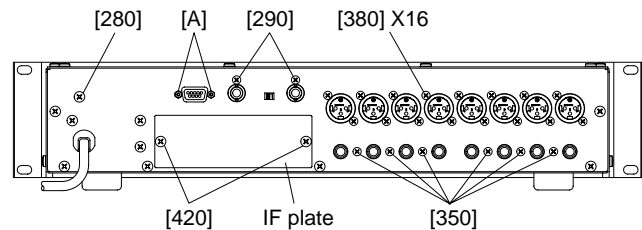
<Top View>



[400]: Bind Head Tapping Screw-B A4.0X8 MFZN2BL (VC688800)

(Fig. 1)

<Rear View>



[420]: Bind Head Screw A4.0X12 MFZN2BL (VP156900)

(Fig. 2)

3. MYSL Circuit Board

* Note that remove card before following operation.

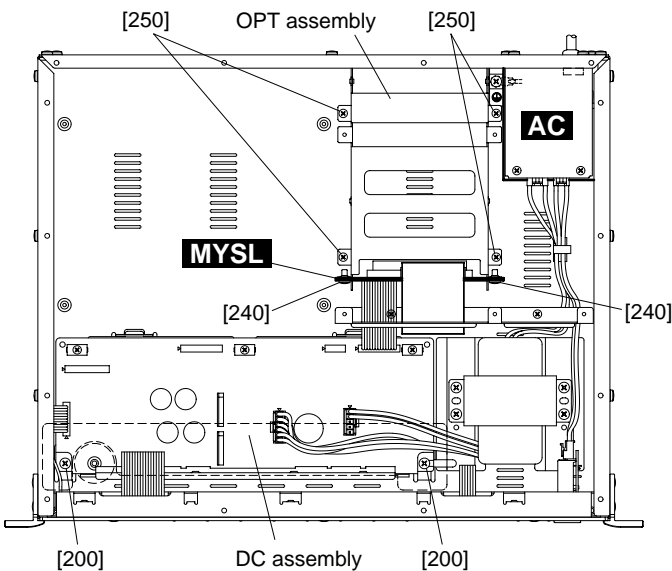
- 3-1 Remove the top cover. (See procedure 1.)
- 3-2 Remove the MAIN circuit board. (See procedure 2.)
- 3-3 Remove the two (2) screws marked [420]. The IF plate can then be removed. (Fig. 2)
- 3-4 Remove the four (4) screws marked [250]. The OPT assembly can then be removed. (Fig. 3)
- 3-5 Remove the two (2) screws marked [240]. The MYSL circuit board can then be removed. (Fig. 3)

4. AC Circuit Board

- 4-1 Remove the top cover. (See procedure 1.)
 4-2 Remove the three (3) screws marked [60A] and the two (2) screws marked [110]. The AC circuit board can then be removed. (Fig. 4)

* The fuse is not a part of the AC circuit Board. When you replace the AC circuit board, you should remove the fuse from the board, and put it back into the holder on the new board.

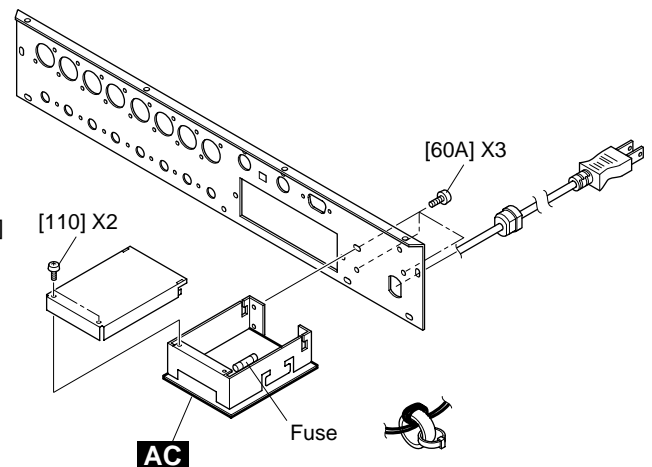
<Top View>



[240]: Bind Head Screw 4.0X8 MFZN2BL (EG340360)
 [250]: Bonding Tapping Screw-B 3.0X8 MFZN2BL (VN413300)

(Fig. 3)

• Rear Panel Assembly



[60A]: Bind Head Tapping Screw-B A4.0X8 MFZN2BL (VC688800)
 [110]: Bonding Tapping Screw-B 3.0X8 MFZN2BL (VN413300)

(Fig. 4)

5. DC Circuit Board

- 5-1 Remove the top cover. (See procedure 1.)
 5-2 Remove the DC assembly. (See procedure 2.)
 5-3 Remove the four (4) screws marked [60B]. The transistor holder can then be removed. (Fig. 5)
 5-4 Remove the three (3) screws marked [40]. The DC circuit board can then be removed. (Fig. 5)

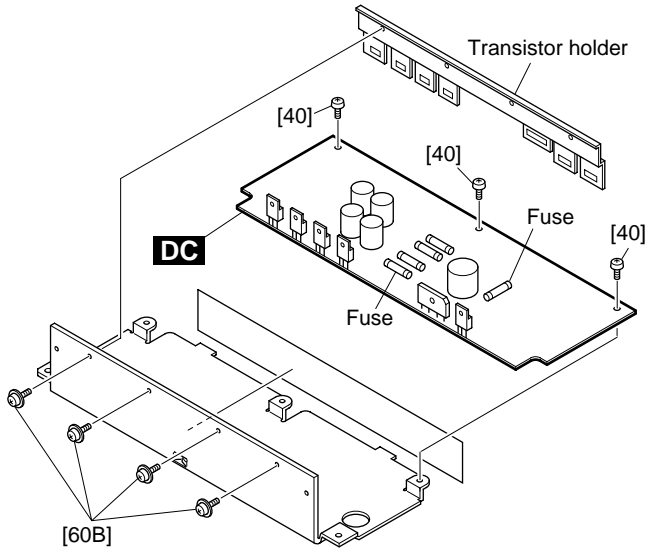
* The four fuses are not part of the DC circuit Board. When you replace the DC circuit board, you should remove the fuses from the board, and put it back into the holder on the new board.

6. PN Circuit Board and SW Circuit Board

- 6-1 Remove the top cover. (See procedure 1.)
 6-2 Remove the six (6) screws marked [130]. The right and left rack mount angles can then be removed. (Fig. 6)
 6-3 Remove the six (6) screws marked [70]. The front panel can then be removed. (Fig. 7)

- 6-4 PN Circuit Board:
Remove the four (4) screws marked [30]. The PN circuit board can then be removed. (Fig. 7)
- 6-5 SW Circuit Board:
Remove the two (2) screws marked [50]. The SW circuit board can then be removed. (Fig. 7)

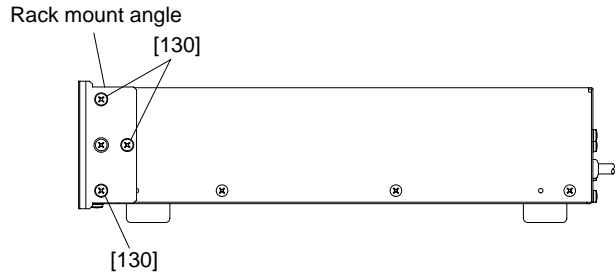
• DC Assembly



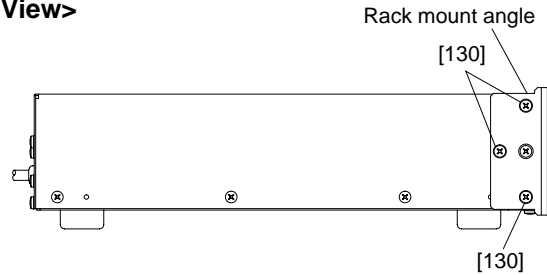
[40]: Bind Head Tapping Screw-B A3.0X8 MFZN2BL (VP157000)
[60B]: Bonding Tapping Screw-B 3.0X8 MFZN2BL (VN413300)

(Fig. 5)

<Right View>



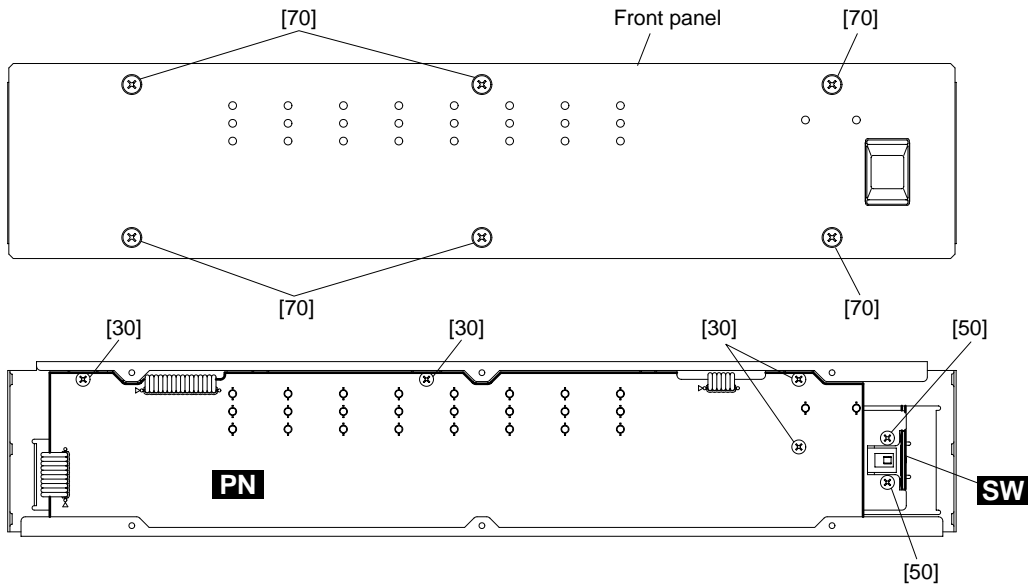
<Left View>



[130]: Oval Head Screw 4.0X8 MFZN2BL (VS153600)

(Fig. 6)

<Front View>



[30]: Bind Head Tapping Screw-B 3.0X6 MFZN2BL (EP600230)
[50]: Bonding Screw 3.0X6 MFZN2BL (VS863000)

[70]: Oval Head Screw 4.0X8 MFZN2BL (VS153600)

(Fig. 7)

■ LSI PIN DESCRIPTION

● YM3436DK (XG948E00) DIR2 (Digital Format Interface Receiver)

MAIN: IC917, 918

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	DAUX	I	Auxiliary input for audio data	23	RSTN	I	System reset input
2	HDLT	O	Asynchronous buffer operation flag	24	Vdda		VCO section power (+5V)
3	DOUT	O	Audio data output	25	CTLN	I	VCO control input N
4	VFL	O	Parity flag output	26	PCO	O	PLL phase comparison output
5	OPT	O	Fs x 1 Synchronous output signal for DAC	27	(NC)		
6	SYNC	O	Fs x 1 Synchronous output signal for DSP	28	CTLP	I	VCO control input P
7	MCC	O	Fs x 64 Bit clock output	29	Vssa		VCO section power (GND)
8	WC	O	FS x 1 Word clock output	30	TSTN	I	Test terminal. Open for normal use
9	MCB	O	Fs x 128 Bit clock output	31	KM2	I	Clock mode switching input 2
10	MCA	O	Fs x 256 Bit clock output	32	KM0	I	Clock mode switching input 0
11	SKSY	I	Clock synchronization control input	33	FS1	O	Channel status sampling frequency display output 1
12	XI	I	Crystal oscillator connection or external clock input	34	FS0	O	Channel status sampling frequency display output 0
13	XO	O	Crystal oscillator connection	35	CSM	I	Channel status output method selection
14	P256	O	VCO oscillating clock connection	36	EXTW	I	External synchronous auxiliary input word clock
15	LOCK	O	PLL lock flag	37	DDIN	I	EIAJ (AES/EBU) data input
16	Vss		Logic section power (GND)	38	LR	O	PLL word clock output
17	TC	O	PLL time constant switching output	39	Vdd		Logic section power (+5 V)
18	DIM1	I	Data input mode selection	40	ERR	O	Data error flag output
19	DIM0	I	Data input mode selection	41	EMP	O	Channel status emphasis control code output
20	DOM1	I	Data output mode selection	42	CD0	O	3-wire type microcomputer interface data output
21	DOM0	I	Data output mode selection	43	CCK	I	3-wire type microcomputer interface clock input
22	KM1	I	Clock mode switching input 1	44	CLD	I	3-wire type microcomputer interface load input

● AK4393-VS-E2 (XW029A00) DAC (Digital to Analog Converter)

DA: IC2-5

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	DVSS	-	Digital ground	15	BVSS	-	Substrate ground
2	DVDD	-	Digital power supply	16	VREFL	I	Low level voltage reference
3	MCLK	I	Master clock	17	VREFH	I	High level voltage reference
4	/PD	I	Power down mode	18	AVDD	-	Analog power supply +5 V
5	BICK	I	Audio serial data clock	19	AVSS	-	Analog ground
6	SDATA	I	Audio serial data input	20	AOUTR-	O	Rch negative analog output
7	LRCK	I	L/R clock	21	AOUTR+	O	Rch positive analog output
8	SMUTE//CS	I	Soft mute	22	AOUTL-	O	Lch negative analog output
9	DFS	I	Double speed sampling mode	23	AOUTL+	O	Lch positive analog output
10	DEMO/CCLK	I	De-emphasis enable	24	VCOM	O	Common voltage output
11	DEM1/CDTI	I		25	P//S	I	Parallel/serial select
12	DIF0	I		Digital input format	26	CKS0	I
13	DIF1	I	27		CKS1	I	
14	DIF2	I	28		CKS2	I	

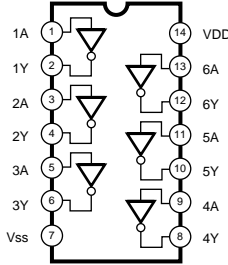
● HD6477042AF28 (XY721A00) CPU

MAIN: IC909

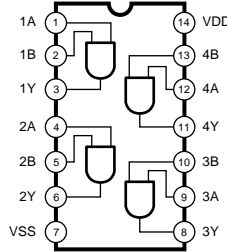
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION		
1	PE14	O	Port E	57	D11	I/O	Data bus		
2	PE15	O	Port E	58	D10	I/O			
3	VSS	I	Ground	59	D9	I/O			
4	A0	O	Address bus	60	D8	I/O	Data bus		
5	A1	O			61	VSS		I	Ground
6	A2	O			62	D7		I/O	Data bus
7	A3	O			63	D6	I/O		
8	A4	O			64	D5	I/O	Power supply	
9	A5	O			65	VCC	I		
10	A6	O			66	D4	I/O	Data bus	
11	A7	O			67	D3	I/O		
12	A8	O			68	D2	I/O		
13	A9	O			69	D1	I/O	Data bus	
14	A10	O			70	D0	I/O		
15	A11	O			71	VSS	I	Ground	
16	A12	O			72	XTAL	I	Crystal oscillator	
17	A13	O			73	MD3	I	Mode control	
18	A14	O			74	EXTAL	I	Crystal oscillator	
19	A15	O			75	MD2	I	Mode control	
20	A16	O		76	NMI	I	Non-maskable interrupt request		
21	VCC	I	Power supply	77	VCC	I	Power supply		
22	A17	O	Address bus	78	MD1	I	Mode control		
23	VSS	I	Ground	79	MD0	I	Mode control		
24	/RAS	O	Row address strobe	80	PLLVC	I	PLL Power supply		
25	/CASL	O	Column address strobe (low)	81	PLLCAP	I	PLL capacitor		
26	/CASH	O	Column address strobe (high)	82	PLLVSS	I	PLL Ground		
27	VSS	O	Ground	83	PA15 / CK	O	Port A / Clock		
28	RDWR / PB5	O	DRAM read/write / Port B	84	/RES	I	Reset		
29	A18	O	Address bus	85	PE0	I	Port E		
30	A19	O			86	PE1		I	
31	A20	O			87	PE2		I	
32	PB9 / A21	O		Port B / Address bus	88	PE3		I	
33	VSS	I	Ground	89	PE4	I	Ground		
34	/RD	O	Read	90	VSS	I			
35	/WDTOVF	O	Watch dog timer overflow	91	AN0 / PF0	I	Analog input / Port F		
36	/WRH	O	High write	92	AN1 / PF1	I			
37	VCC	I	Power supply	93	AN2 / PF2	I			
38	/WRL	O	Low write	94	AN3 / PF3	I			
39	VSS	I	Ground	95	AN4 / PF4	I			
40	/CS1	O	Chip select	96	AN5 / PF5	I	Analog ground		
41	/CS0	O	Chip select	97	AVSS	I			
42	PA9 / TCLKD	O	Port A / Timer clock	98	AN6 / PF6	I	Analog input / Port F		
43	/IRQ2 / TCLKC	I	Interrupt request / Timer clock	99	AN7 / PF7	I	Analog input / Port F		
44	/CS3	O	Chip select	100	AVCC	I	Power supply		
45	/CS2	O	Chip select	101	VSS	I	Ground		
46	/IRQ1	I	Interrupt request	102	PE5	O	Port E		
47	TXD	O	Data transmission	103	VCC	I	Power supply		
48	RXD	I	Data reception	104	PE6	O	Port E		
49	/IRQ0	I	Interrupt request	105	PE7	O			
50	PA1 / TXD0	O	Port A / Data transmission	106	PE8	O			
51	PA0 / RXD0	I	Port A / Data reception	107	PE9	O	Port E		
52	D15	I/O	Data bus	108	PE10	O			
53	D14	I/O			109	VSS	I	Ground	
54	D13	I/O			110	PE11	O	Port E	
55	VSS	I		Ground	111	PE12	O		
56	D12	I/O	Data bus	112	PE13	O			

IC BLOCK DIAGRAM

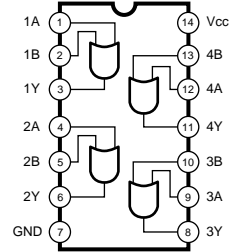
- **HD74LV04AFPEL** (IS000400)
HD74LVU04AFPEL (XY102A00)
Hex Inverter
MAIN: IC911,915



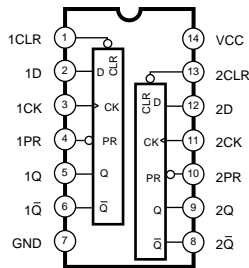
- **HD74LV08AFPEL** (IS000800)
Quad 2 Input AND
MAIN: IC912



- **HD74LV32AFPEL** (IS003200)
Quad 2 Input OR
MAIN: IC928

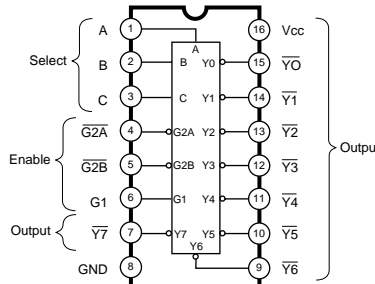


- **HD74LV74AFPEL** (IS007400)
Dual D-Type Flip-Flop
MAIN: IC914

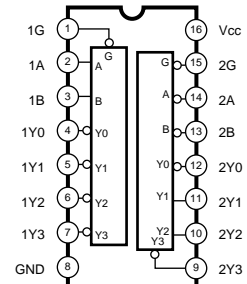


INPUTS				OUTPUTS	
PR	CLR	CLK	D	Q	Q̄
L	H	X	X	H	L
H	L	X	X	L	H
L	L	X	X	H	H
H	H	f	H	H	L
H	H	f	L	L	H
H	H	L	X	Q _o	Q _o

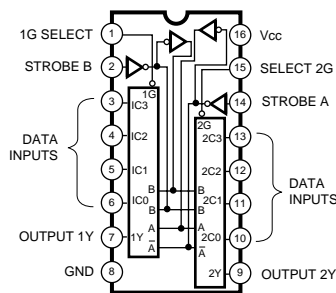
- **SN74LV138ANSR** (IS013810)
3 to 8 Demultiplexer
MAIN: IC913



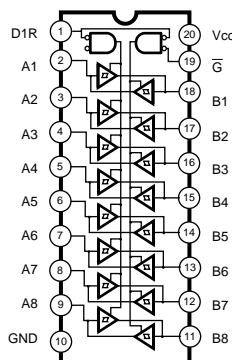
- **SN74LV139ANSR** (IS013910)
Dual 2 to 4 Demultiplexer
MAIN: IC920



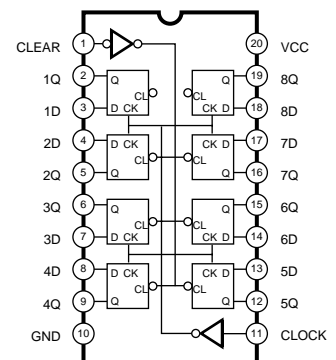
- **TC74HC153AFEL** (XY309A00)
Dual 4 to 1 Data Selectors
MAIN: IC910



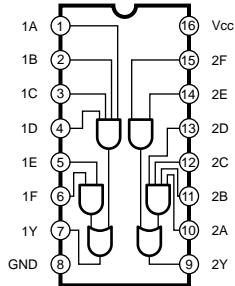
- **HD74LV245AFPEL** (IS024500)
Octal 3-State Bus Transceiver
MAIN: IC901,903-905,907,908,924
DA: IC101



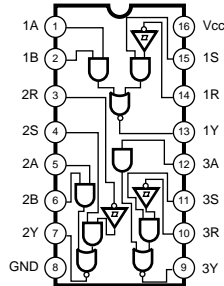
- **HD74LV273AFPEL** (IS027300)
Octal D-Type Flir Flop
MAIN: IC922



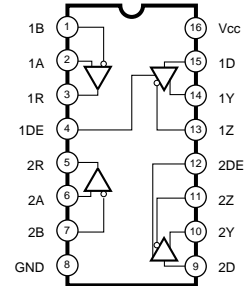
- **SN75121NSR** (XU816A00)
Dual Line Driver
MAIN: IC923



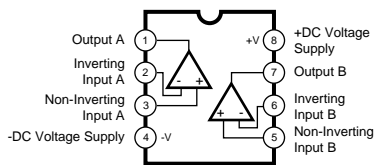
- **SN75124NS** (XN976A00)
Triple Line Receiver
MAIN: IC902



- **SN75C1168NSR** (XU073A00)
Line Driver / Receiver
MAIN: IC906



- **NJM2068D-D** (XA987A00)
NJM2068MD-T1 (XJ553A00)
NJM4556AL (XP844A00)
Dual Operational Amplifier
PN: IC101,301,501,701
DA: IC101-103,201-203,301-303,401-403,
501-503,601-603,701-703,801-803

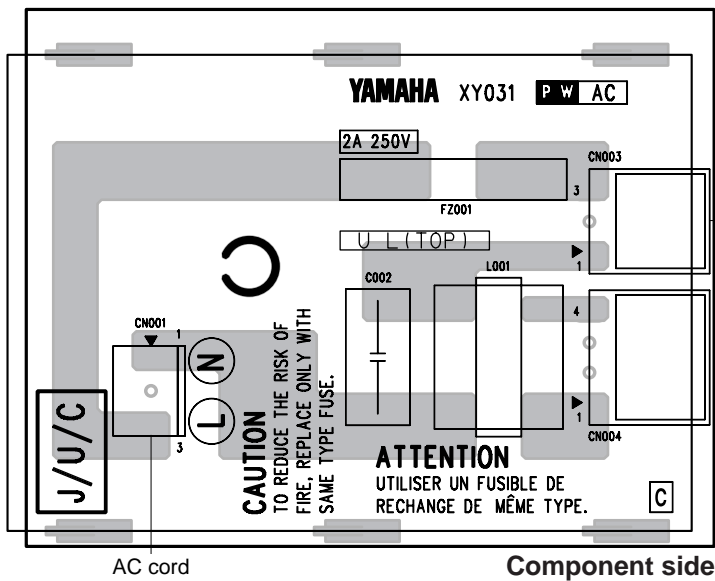


■ CIRCUIT BOARDS

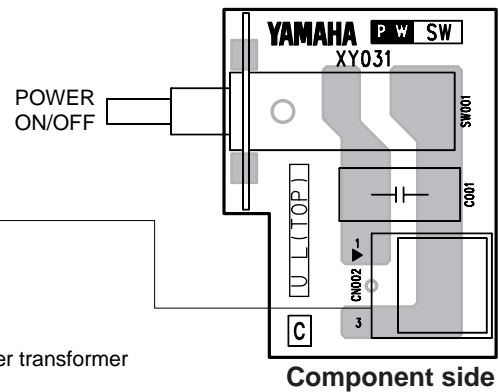
AC Circuit Board (H,W,B) (XY032C0)	15
AC Circuit Board (J, U, V) (XY031C0)	15
DA Circuit Board (XY035B0).....	23
DC Circuit Board (H,W,B) (XY032C0)	17
DC Circuit Board (J, U, V) (XY031C0)	16
JK Circuit Board (XY035B0)	24
MAIN Circuit Board (XY036B0).....	19
MYSL Circuit Board (XY036B0).....	20
PN Circuit Board (XY034A0).....	18
SW Circuit Board (H,W,B) (XY032C0).....	15
SW Circuit Board (J, U, V) (XY031C0)	15

Note: See parts list for details of circuit board component parts.

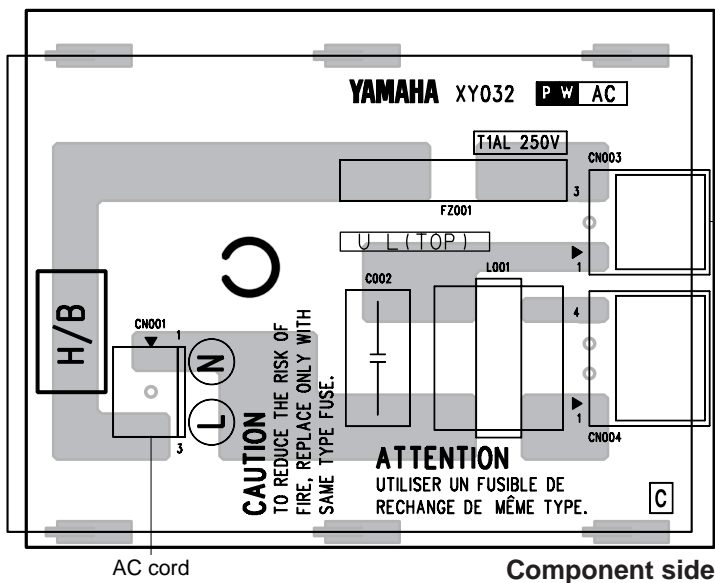
● AC Circuit Board (J, U, C)



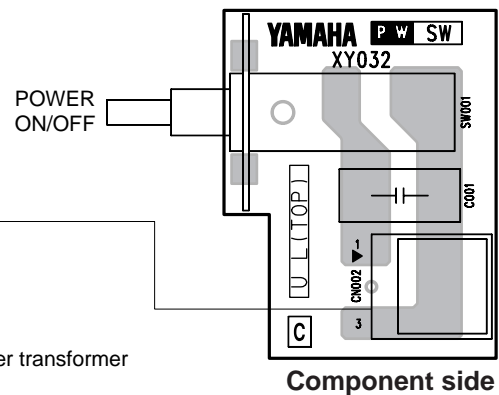
● SW Circuit Board (J, U, C)



● AC Circuit Board (H,W,B)

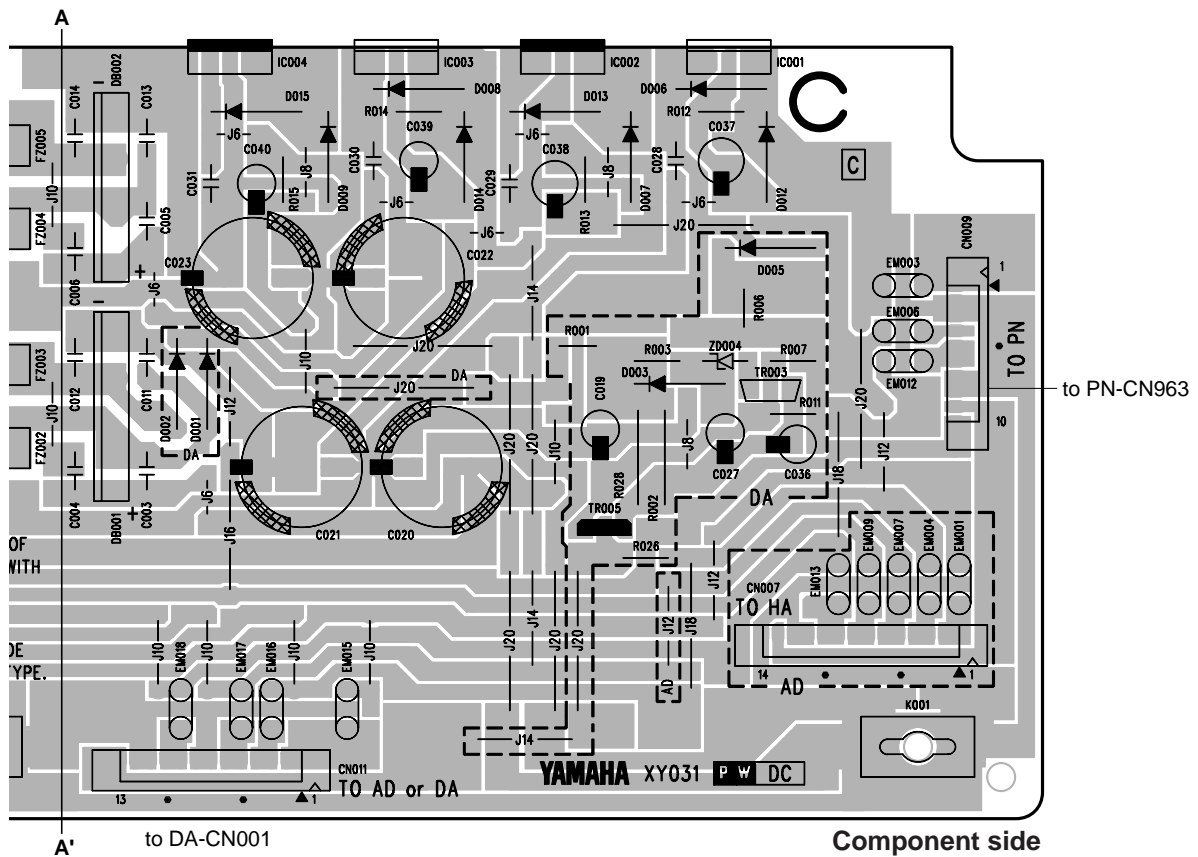
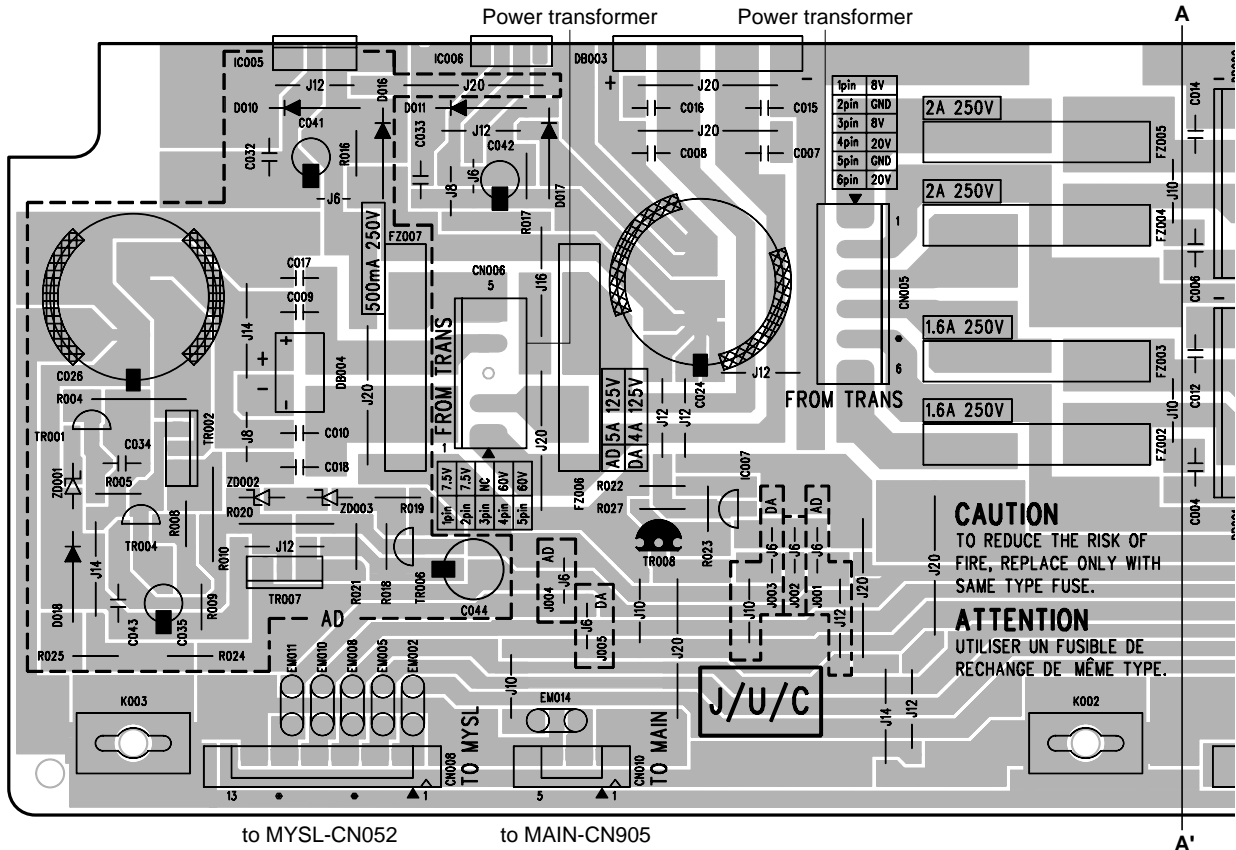


● SW Circuit Board (H,W,B)



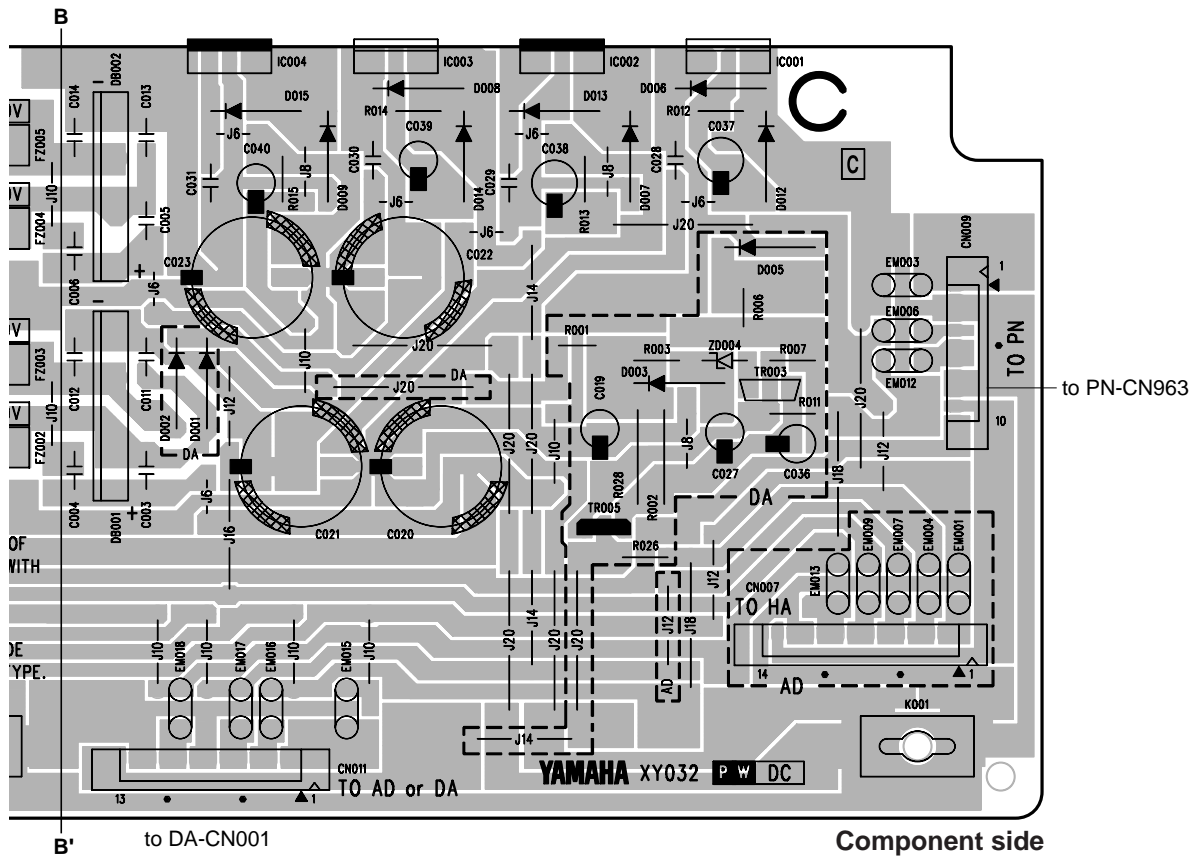
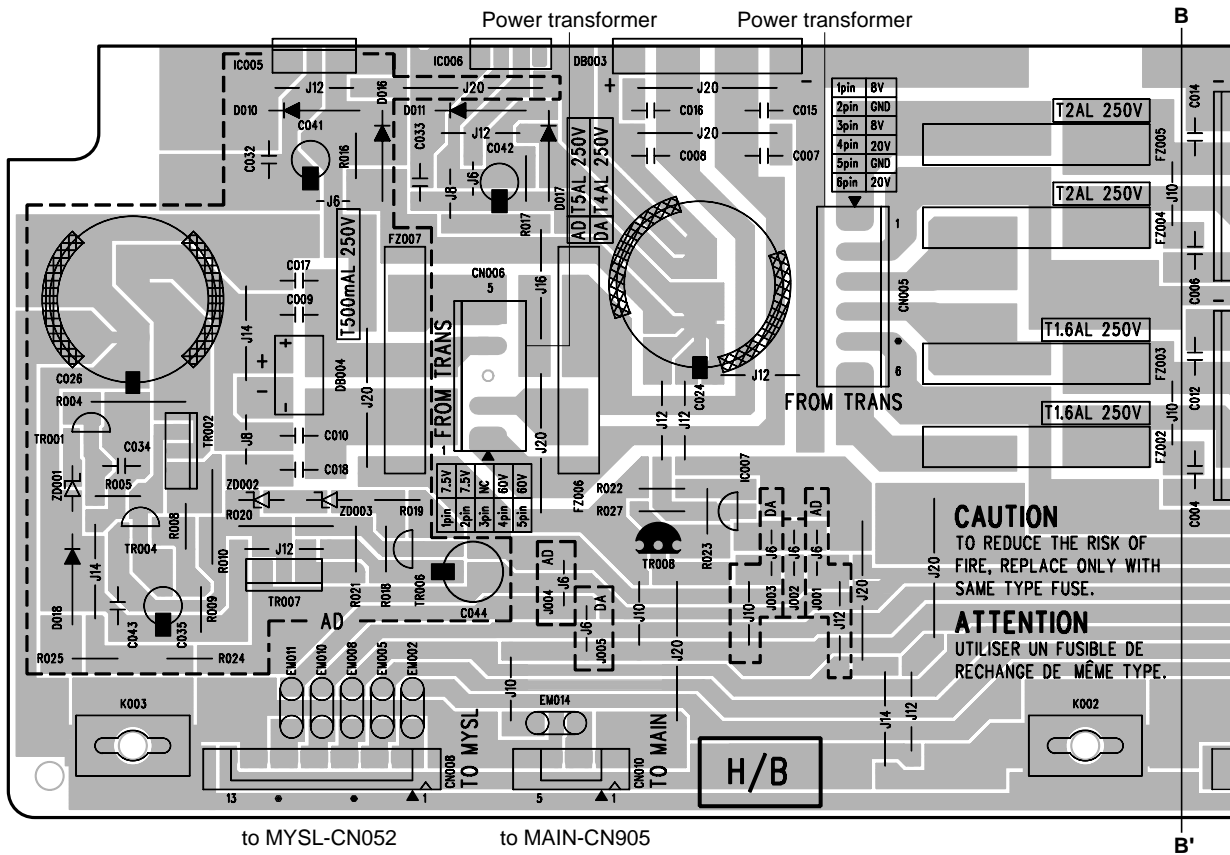
AC, SW(J,U,V): 3NA-V485500 △
 AC, SW(H,W,B): 3NA-V485540 △

● DC Circuit Board (J, U, C)

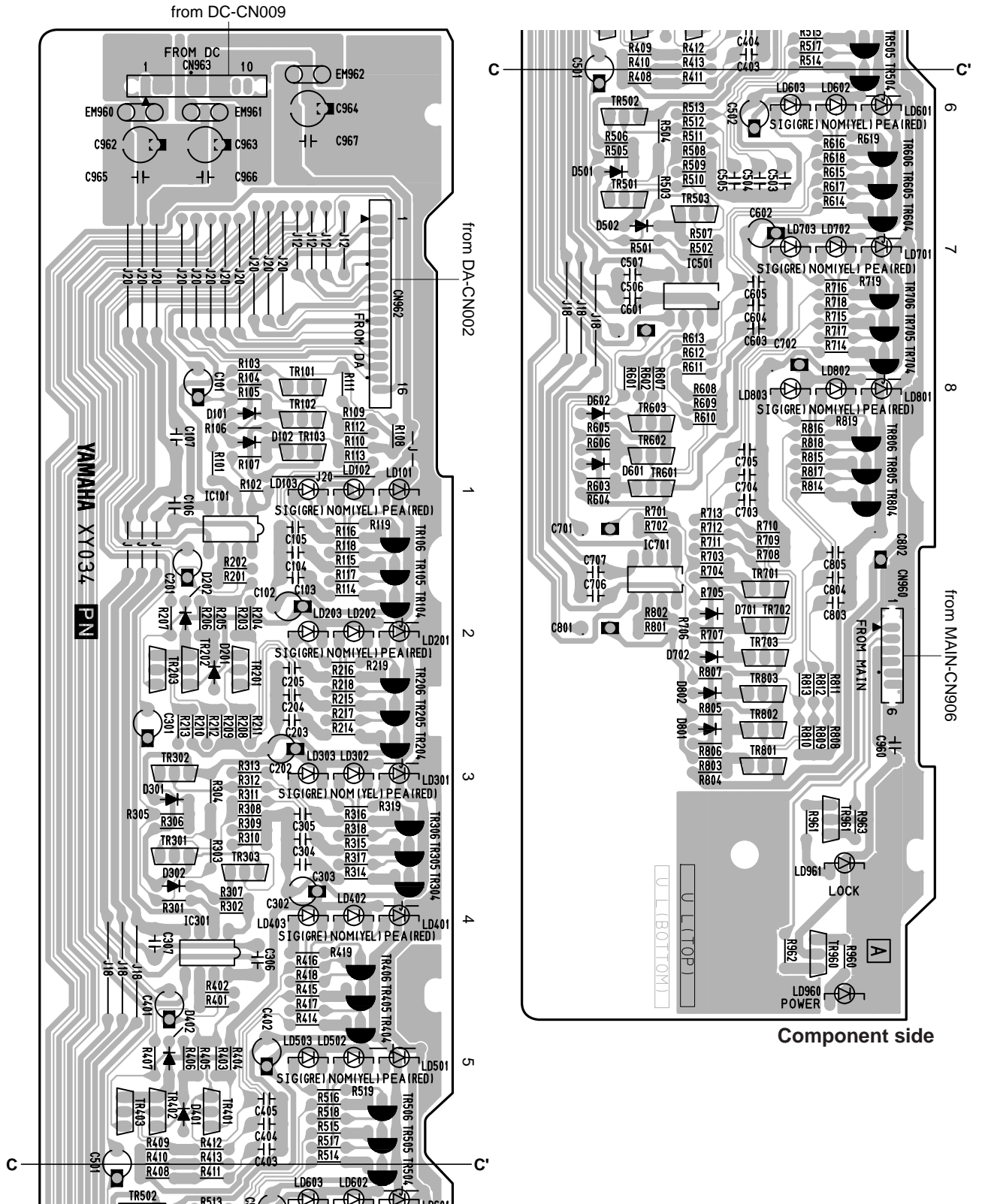


3NA-V485500

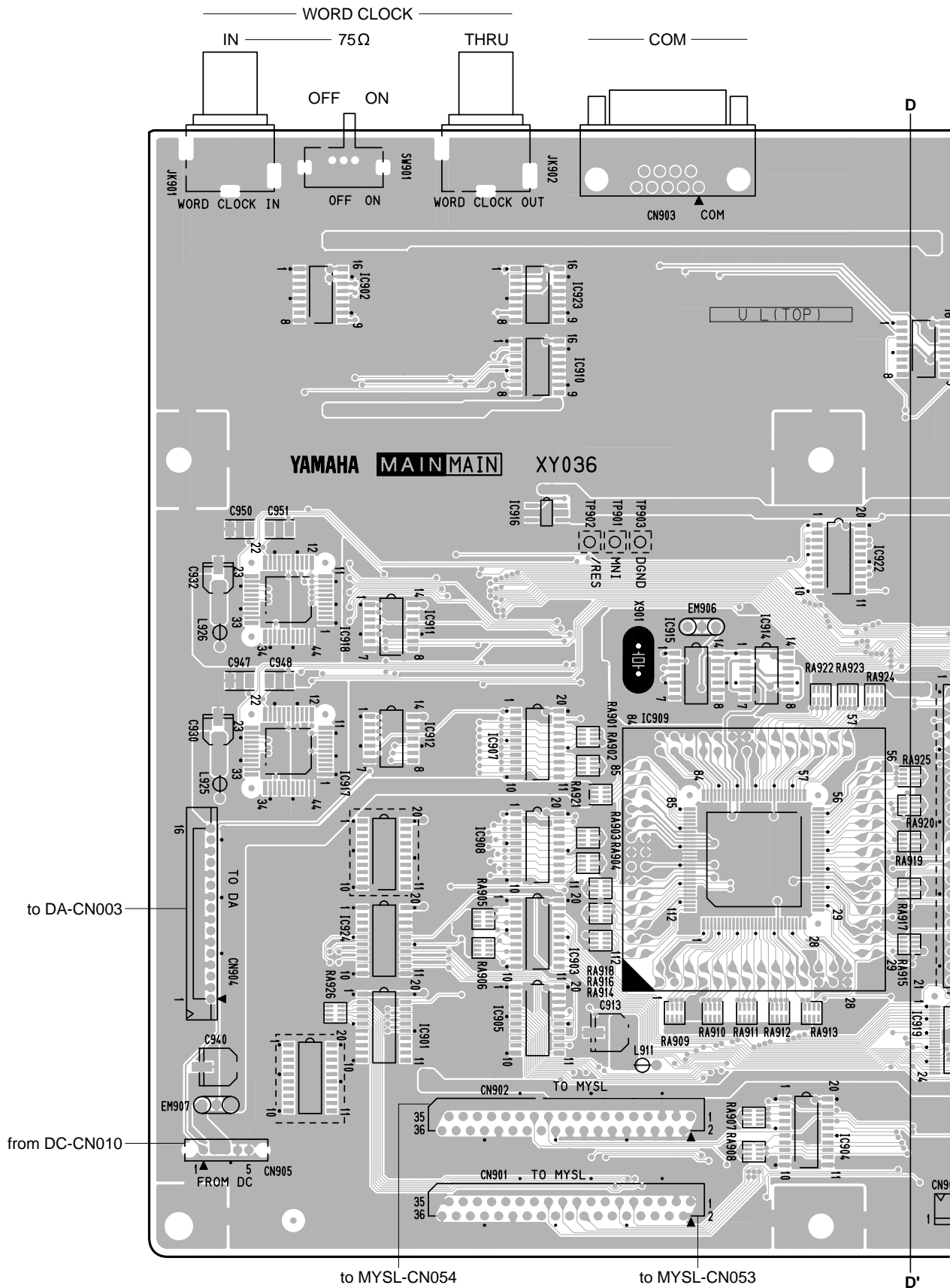
● DC Circuit Board (H,W,B)



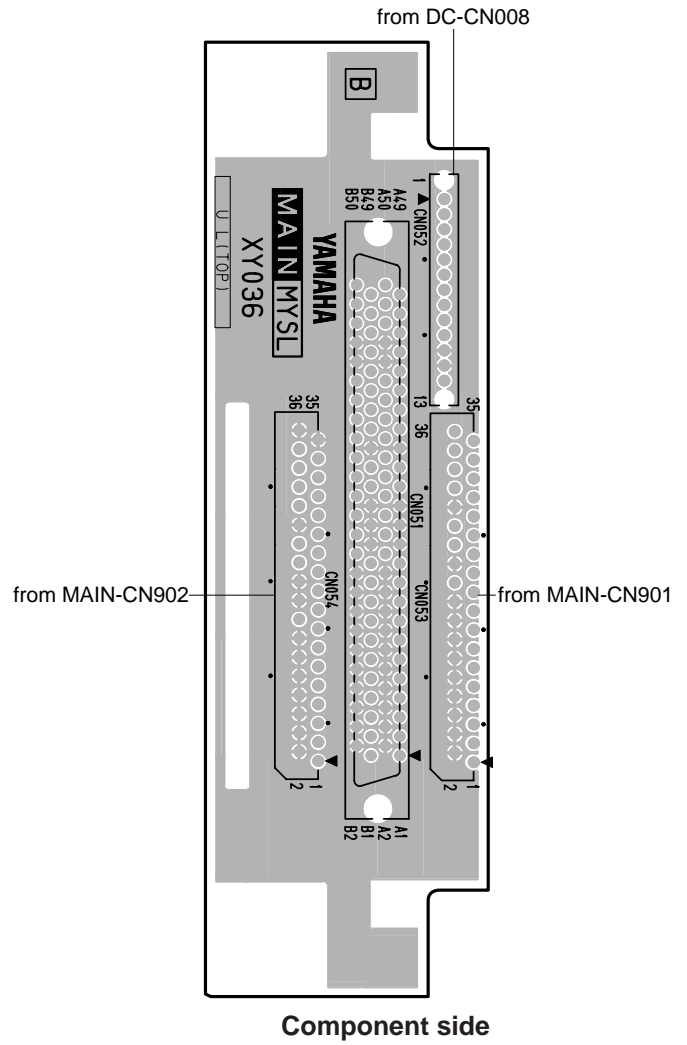
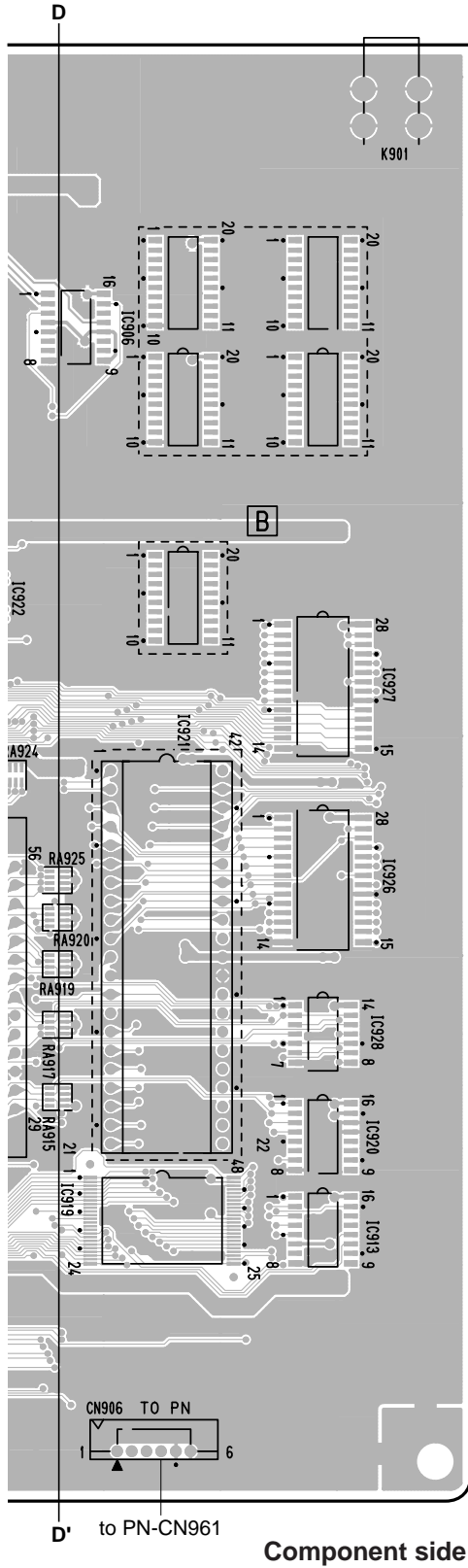
● PN Circuit Board



● MAIN Circuit Board

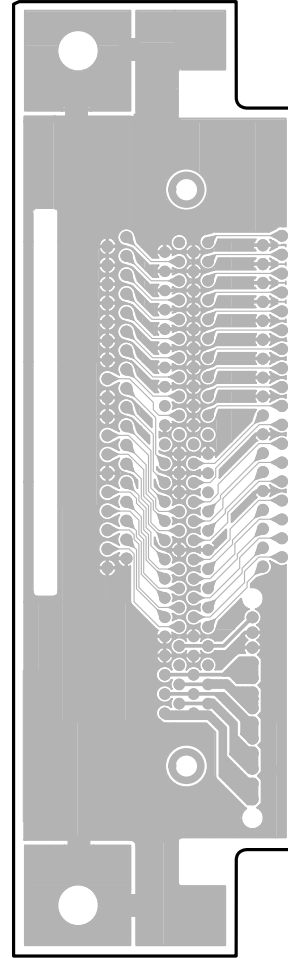
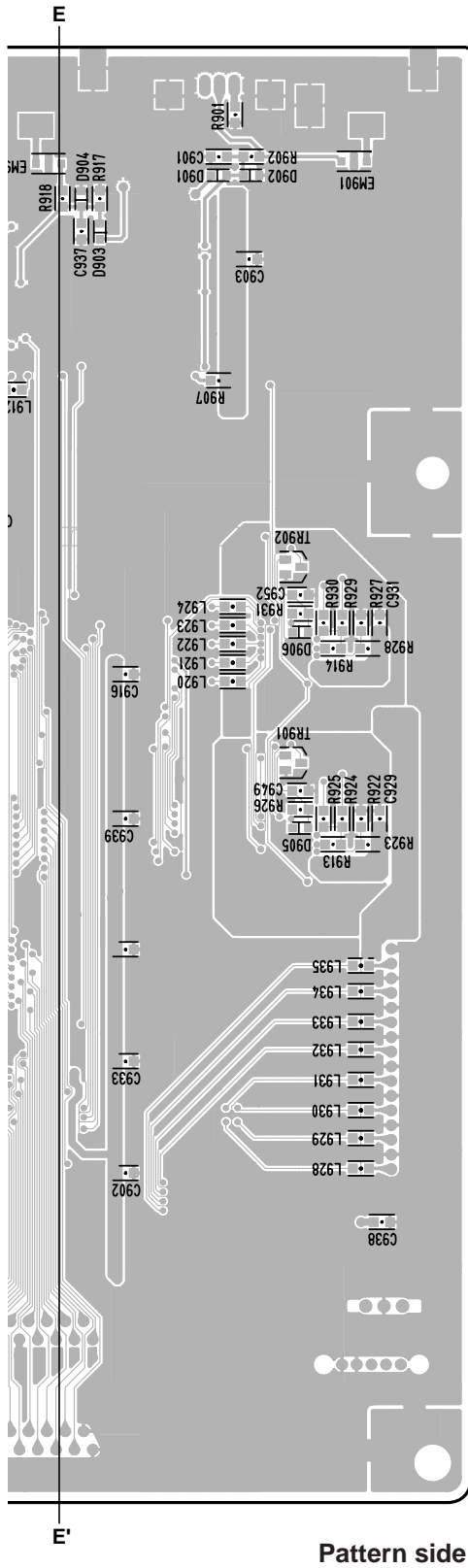


● MYSL Circuit Board



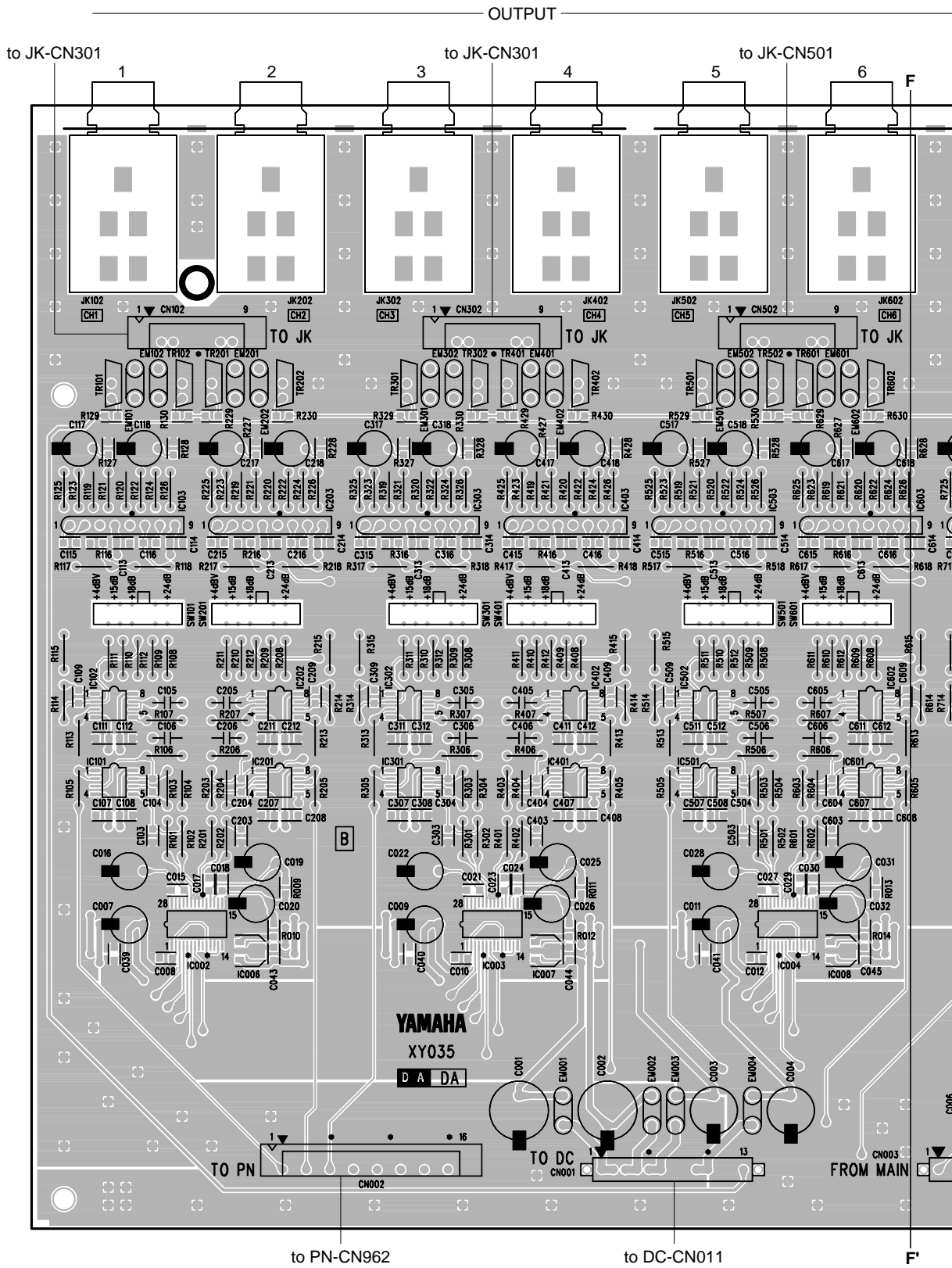
MAIN,MYSL: 3NA-V485480△

● MYSL Circuit Board

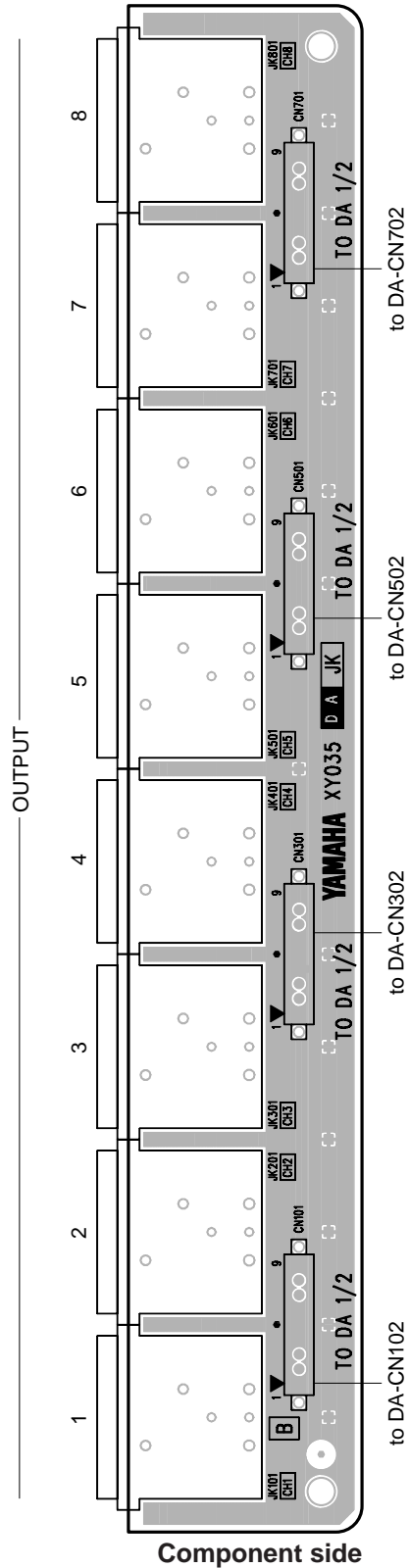
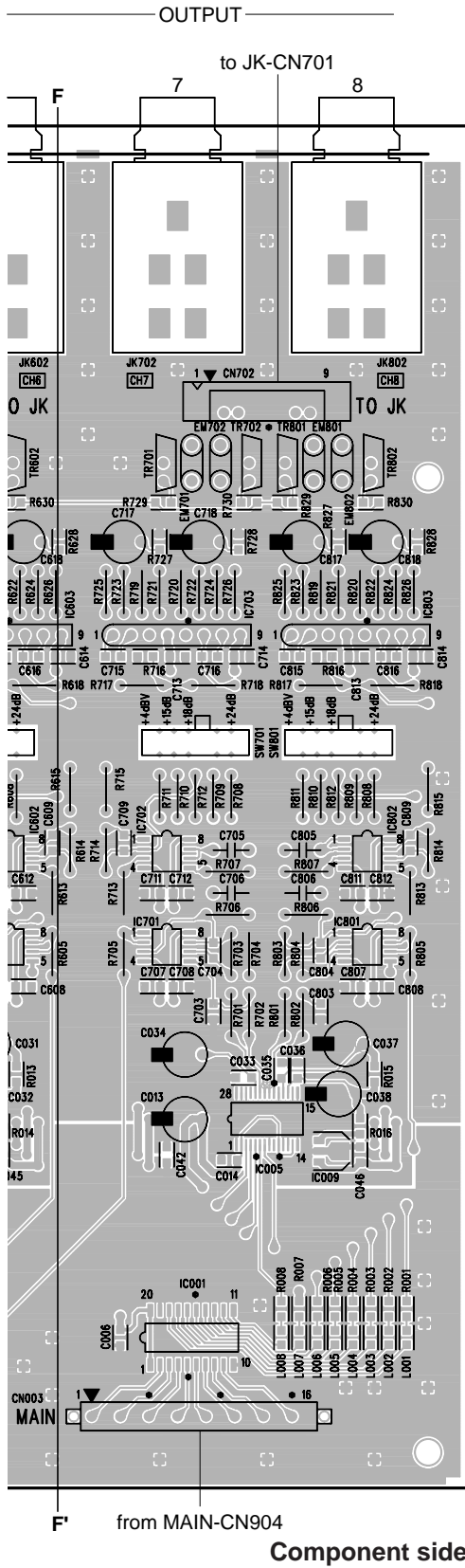


Pattern side

● DA Circuit Board

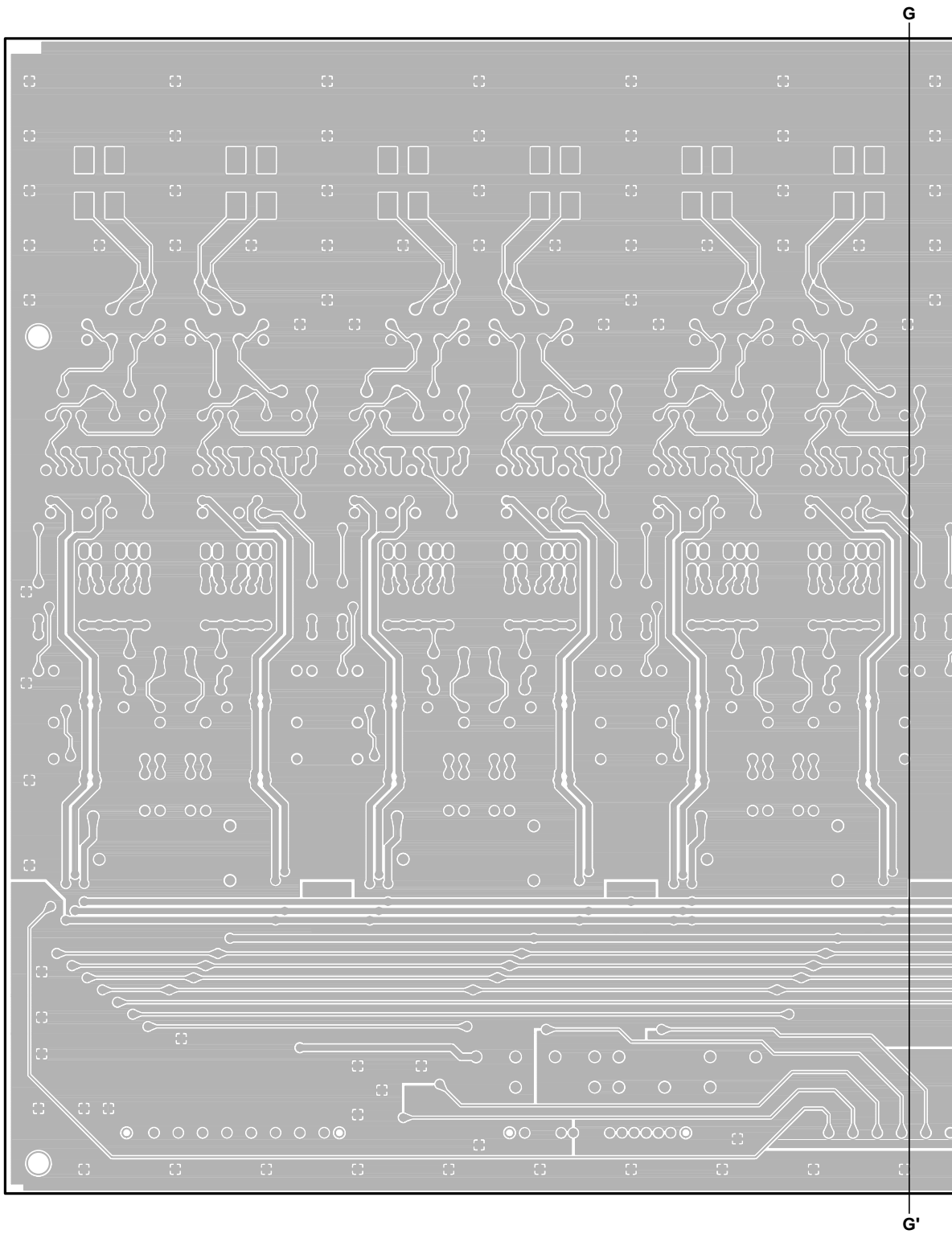


● JK Circuit Board

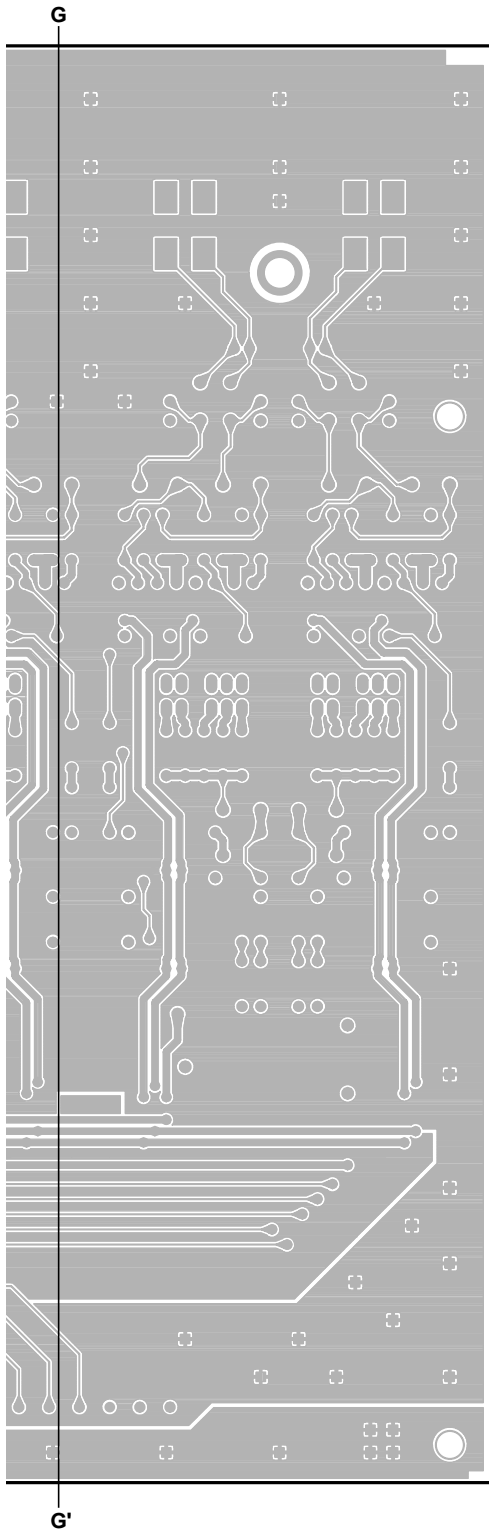


DA, JK: 3NA-V485470△

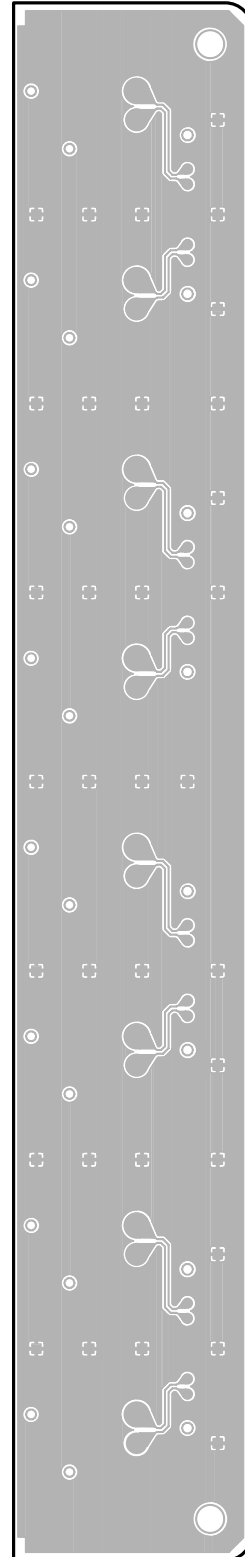
● DA Circuit Board



● JK Circuit Board



Pattern side



Pattern side

■ INSPECTION

1. Preparations

- 0 dBu=0.775 Vrms
- 0 dBV-1 Vrms=2.2 dBu
- The output impedance of the oscillator connected is 150 ohms.
- The input impedance of the oscilloscope and the level meter should be more than 100 k ohms.
- Distortion measurement is corrected at 80 kHz, -6 dB/OCT LPF.
- The load for output 1 to 8 is 600 ohms.
- Output 1 to 8 is measured at the cannon connector.
- Internal gain SW is +18 dB.
- Work clock in 75 ohms is set to on.
- Signal input of only the CH to be measured.
- Use AD824 and MY8-AE card and input signal.
- Input signal to AD824 NCH when measuring NCH.
- The setting for AD824 is gain 10 dB, word clock INT 48 kHz.

2. Inspections

2-1 OUTPUT1 to 8CH

(1) Gain

Input frequency	Input level (AD824)	Internal gain SW	Specified output level	Permissible range
1 kHz	+10 dBu	+24 dB	+10 dBu	+10±1 dBu
		+18 dB	+4 dBu	+4±1 dBu
		+15 dB	+1 dBu	+1±1 dBu
		+4 dBV	-10 dBV	-10±1 dBV

(2) f characteristics

Conditions: Permissible range uses 1 kHz as a reference.

Input frequency	Input level (AD824)	Internal gain SW	Permissible range
20 Hz	+10 dBu	+24 dB	-3 – +1 dB
		+18 dB	
		+15 dB	
		+4 dBV	
20 kHz	+10 dBu	+24 dB	-3 – +1 dB
		+18 dB	
		+15 dB	
		+4 dBV	

(3) Distortion ratio

Input frequency	Input level (AD824)	Internal gain SW	Specified output level	Permissible range
20 Hz	+10 dBu	+24 dB	+10 dBu	Less than 0.05 %
		+18 dB	+4 dBu	
		+15 dB	+1 dBu	
		+4 dBV	-10 dBV	
20 kHz		+24 dB	+10 dBu	Less than 0.05 %
		+18 dB	+4 dBu	
		+15 dB	+1 dBu	
		+4 dBV	-10 dBV	
1 kHz	+24 dBu	+24 dB	+24 dBu	Less than 0.01 %
		+18 dB	+18 dBu	
		+15 dB	+15 dBu	
		+4 dBV	+4 dBV	

(4) Difference between channels

Specify so that it will be less than the difference in the gain range measured at (1).

Permissible range
Within 1 dB

(5) Cross talk between odd channels and even channels

Conditions: Input signal into odd channels.

Even channels shorted using 150 ohms.

Input frequency	Output level (Odd CH)	Permissible range (Even CH)
1 kHz	+16 dBu	Less than -54 dBu

Even channels are also the same.

(6) Maximum output

Conditions: Inspect the cannon connector and phone connector individually.

Input frequency	Output level	Permissible range	Permissible range (Distortion ratio)
1 kHz	+18 dBu	+18±0.5 dBu	Less than 0.01 %

2-2 Operation confirmation of level meters 1 to 8

Conditions: Input specified level to AD824 input 1 to 8.

AD824 can also have simultaneous input of channels 1 to 8

Visually confirm the on and off of the peak, nominal and signal LEDs.

(1) On (Lit)

LED level	Input frequency	Input level (AD824)	Permissible range	Reference output level
PEAK	1 kHz	+21 dBu	0 – +2 dB	+15 dBu
NOMINAL	1 kHz	+10 dBu	0 – +2 dB	+4 dBu
SIGNAL	1 kHz	-10 dBu	0 – +2 dB	-16 dBu

(2) Off (Not lit)

LED level	Input frequency	Input level (AD824)	Permissible range	Reference output level
PEAK	1 kHz	+18 dBu	0 dB	+12 dBu
NOMINAL	1 kHz	+8 dBu	0 dB	+2 dBu
SIGNAL	1 kHz	-12 dBu	0 dB	-18 dBu

2-3 Jitter measurement

- Connect AD824 word clock out and DA824 word clock in.
- Insert MY8-AE card into the slot and connect to DSA1 via the D-sub-cannon converter box.
- Set AD824 word clock settings to 48 kHz and 44.1 kHz.

WORD CLOCK (AD824)	Permissible range
48 kHz	Less than 6 nsec
44.1 kHz	Less than 5 nsec

2-4 Fs operating range

- Connect the oscillator to AD824 word clock in.

(1) Fs=50.88 kHz (48 kHz+6 %)

- Set the oscillator to 50.88 kHz.
- Conduct a listening test for one minute to check that there is no noise.

Input frequency	Input level (AD824)	Output level	Permissible range
1 kHz	+10 dBu	+4 dBu	+4±1 dBu

(2) Fs=39.69 kHz (44.1 kHz-10 %)

- Set the oscillator to 39.69 kHz.
- Make the same input as 2-4 1 and confirm that the same output level is attained. Or, conduct a listening test for one minute to check that there is no noise.

3. Sound

Perform a listening test to confirm the following items.

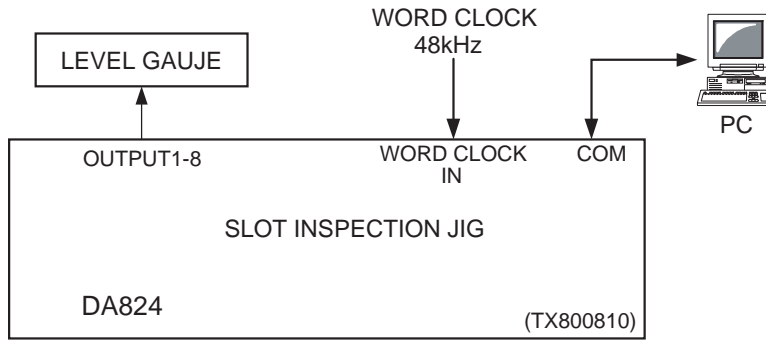
- OUTPUT

4. Settings after inspection

- Internal gain SW: +18 dB
- WORD CLOCK IN 75 ohms: ON

■ TEST PROGRAM

1. Reparations



- Connect PC (operating MS Windows) to COM terminal.
 - Input 48 kHz word clock to word clock IN terminal.
 - Insert the slot inspection jig (TX800810) into the slot.
- LMY-SLOT inspection jig specification manual

<Menu of Test Program>

The test program inspects the following eight items.

1. SRAM ↔ CPU connection check (automatic inspection)
2. SLOT ↔ CPU connection check (automatic inspection)
3. SLOT clock relationship check (automatic inspection)
4. SLOT power supply peripheral check (automatic inspection)
5. WORD CLOCK IN ↔ CPU connection check (automatic inspection)
6. Residual noise check (manual inspection)
7. COM terminal check (visual).
8. LOCK LED/POWER LED check (visual)

Execute the test program after loading DA824DIAG/V1.00 program.

2. Test procedure execution program

Connect the PC and COM terminals/ CN903 with a Dsub 9-pin serial cross cable and start the terminal software (such as Hyper Terminal).

The setting for the communication format is

Bit Rate: 38400 bps
 Data length: 8 bits
 Stop bit: 1
 Parity: none

The next time the power is turned on, the message

```
This is DA824 2000
DA824>
```

will be displayed in the window for the terminal software.

Use the keyboard for the PC to enter "diag" and screen display will change to

```
DA824>diag
DA824 Diagnosis version Vx.xx MAR.2000
DA824_DIAG>
```

and the DA824 will enter the test program mode. The version of the test program will be shown as x.xx. To remove the test program mode, enter "reset". It will be displayed as followed and it will be the same as when the power is turned on.

```
DA824_DIAG>reset
This is DA824 2000
DA824>
```

3. Automatic inspection

Use the keyboard for the PC to enter "test" and execute program

```
DA824_DIAG>test
```

The following items will be inspected automatically. At the end, a list of items determined to be NG (no good) will be displayed on the screen.

<Inspection items (test)>

1. SRAM (IC926, IC927) ↔ CPU connection check
2. SLOT ↔ CPU
3. SLOT clock relationship connection check
4. SLOT power supply peripheral check
5. WORD CLOCK IN terminal/JK901 ↔ CPU connection check

If the four items shown above are OK,

```
DIAGNOSIS RESULT    OK
DA824_DIAG>
```

appears on the screen and the program ends. If one of the items is NG,

```
DIAGNOSIS RESULT    NG
ERROR LIST
[2] SLOT DATA BUS      XXXX XXXX XXXX XXXX
   SLOT ADDR BUS       XXX XXXX XXX
      .
      .
```

appears and the error list is shown.

[ERROR LIST]

```
[1] SRAM DATA BUS      XXXX XXXX XXXX XXXX
   SRAM ADDR BUS       XXXX XXXX XXXX XXX
```

Results of SRAM (IC926, IC927) and CPU connection check

The first line on the screen shows the condition at the address bus from the left A15, A14 . . . A2, A1 (as viewed from the CPU)

The second line on the screen shows the condition at the data bus from the left D15, D14 . . . D1, D0.

```
[2] SLOT DATA BUS      XXXX XXXX XXXX XXXX
   SLOT ADDR BUS       XXX XXXX XXX
   SLOT CONTROL        XXXX
```

SLOT and CPU connection check

The first line on the screen shows the condition at the data bus from the left D15, D14 . . . D1, D0.

The second line on the screen shows the condition at the address bus from the left A15, A14 . . . A2, A1.

The third line on the screen shown the condition at other control lines from the left /CON-MY, /IRQ-MY, RX-MY, TX-MY.

For each item, an "0" is used to indicate normal and "X" is used to indicate an abnormality.

```
[3] SLOT CLOCK          XXX XXXX
```

Connection check of slot clock line

The condition is shown from the left as 256FS-MY, 128FS-MY, 64FS-MY, SYNC-MY, FS-MY, WCLK-MY.

For each item, an "0" is used to indicate normal and "X" is used to indicate an abnormality.

```
[4] SLOT +20D
   SLOT +5D
   SLOT -5A
   SLOT +5A
   SLOT -15A
   SLOT +15A
```

Slot power supply peripheral connection check

Only the NG systems from the test results will be shown on the screen.

[5] WC BNC

Displayed on the screen when the results of the word clock IN terminal/ JK901 and CPU connection are NG.

4. Manual inspections

In addition to the automatic tests, the residual noise is measured.

1. Measurement conditions

- 0 dBu=0.775 Vrms
- The input Impedances of the oscilloscope and the level meter should be more than 100 k ohms.
- The measurement is corrected by 12.7 kHz, -6 dB/OCT LPF.
- The load for output 1 to 8 is 600 ohms.
- Output 1 to 8 is measured at the cannon connector.
- The internal gain SW is +18 dB.
- Word clock in 75 ohms is set to on.
- Input the signal only into the channel being measured.

2. Measuring method

In the test program mode, a digital 0 will be output from the slot test jig when the following command is executed.

In this state, a level gauge is used to measure residual noise. Check that the permissible range is less than -92 dBu.

```
DA824_DIAG>zero
DA824_DIAG>
```

5. System reset

```
DA824_DIAG>reset
The system is reset.
```

When in the test program mode, entering “reset” and executing the program will reset the system.

■ FLASH ROM UPGRADE

The DA824 is equipped with flash memory (MAIN:IC919). The software in the flash memory can be upgraded from the COM terminal. Upgrades can also be performed from a Windows PC using the dedicated software.

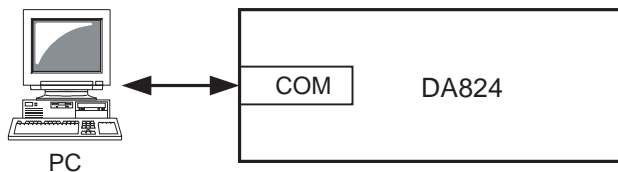
When the power is turned on, a check is made to confirm that the system program is in the flash memory. If the proper system is present, it is executed. If the program is not present, or if there is an error, the program boot mode is entered automatically.

* Warning*

When the inspection is jig inserted in the slot, the program cannot be loaded. Check that the inspection jig has been removed from the slot before performing the upgrade.

1. Connection

Connect the PC and DA824 COM terminals by Dsub 9 pin serial cross cables.



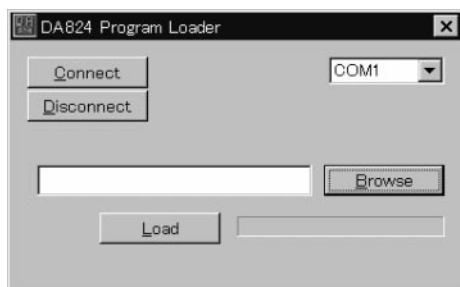
2. Software

LoadDA824/V1.0 is used as the software. When the folder is open, three files are displayed on the screen: LoadDA824.exe, TimeStamp.exe and 02rv2.dll. The two files requiring an upgrade are LoadDA824.exe and 02rv2.dll.



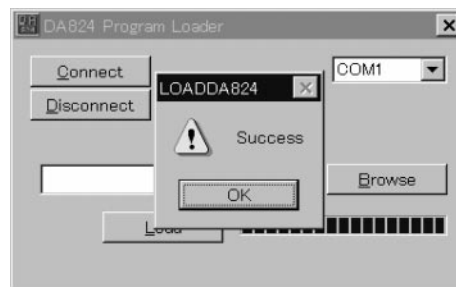
2-1. Start the software

Click on LoadDA824.exe. The program will start and the following screen will be displayed. (The dialog box can be used to switch the COM terminal connection.)



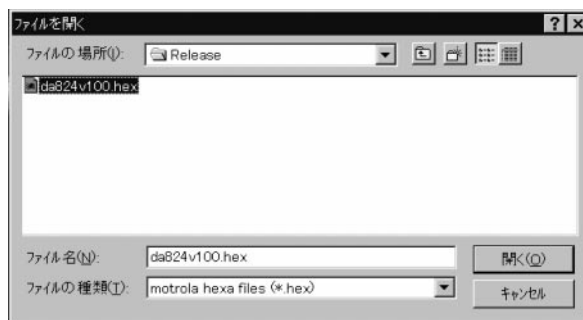
2-2. Connection with DA824

Click the [Connect] switch and the DA824 program is loaded. The commands are sent and if the connection is successful, the following message will appear. Click "OK" and LOCK LED and POWER LED on the DA824 will flash alternately.



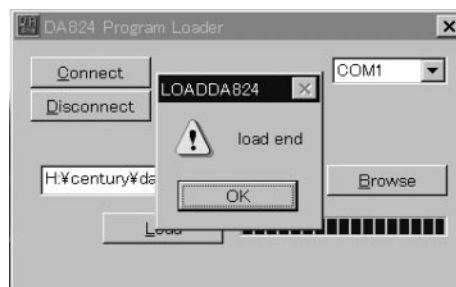
2-3. Reading the files to be loaded

Click the [Browse] switch and the following window will open. Designate the files to be loaded to the DA824 and click the [Open] switch.



2-4. Loading the program

Click the [Load] switch and the program will start to load. When completed, the following message will be displayed. Moreover, [Dev1] is placed in the upper center of the dialog box.



2-5. Others

Click the [Disconnect] switch to reset the DA824 to the regular mode.

DA CONVERTER

DA 824

PARTS LIST


■ CONTENTS



OVERALL ASSEMBLY.....	2
FRONT PANEL ASSEMBLY.....	4
REAR PANEL ASSEMBLY.....	5
DC ASSEMBLY.....	6
ELECTRICAL PARTS.....	7-21

Notes: DESTINATION ABBREVIATIONS

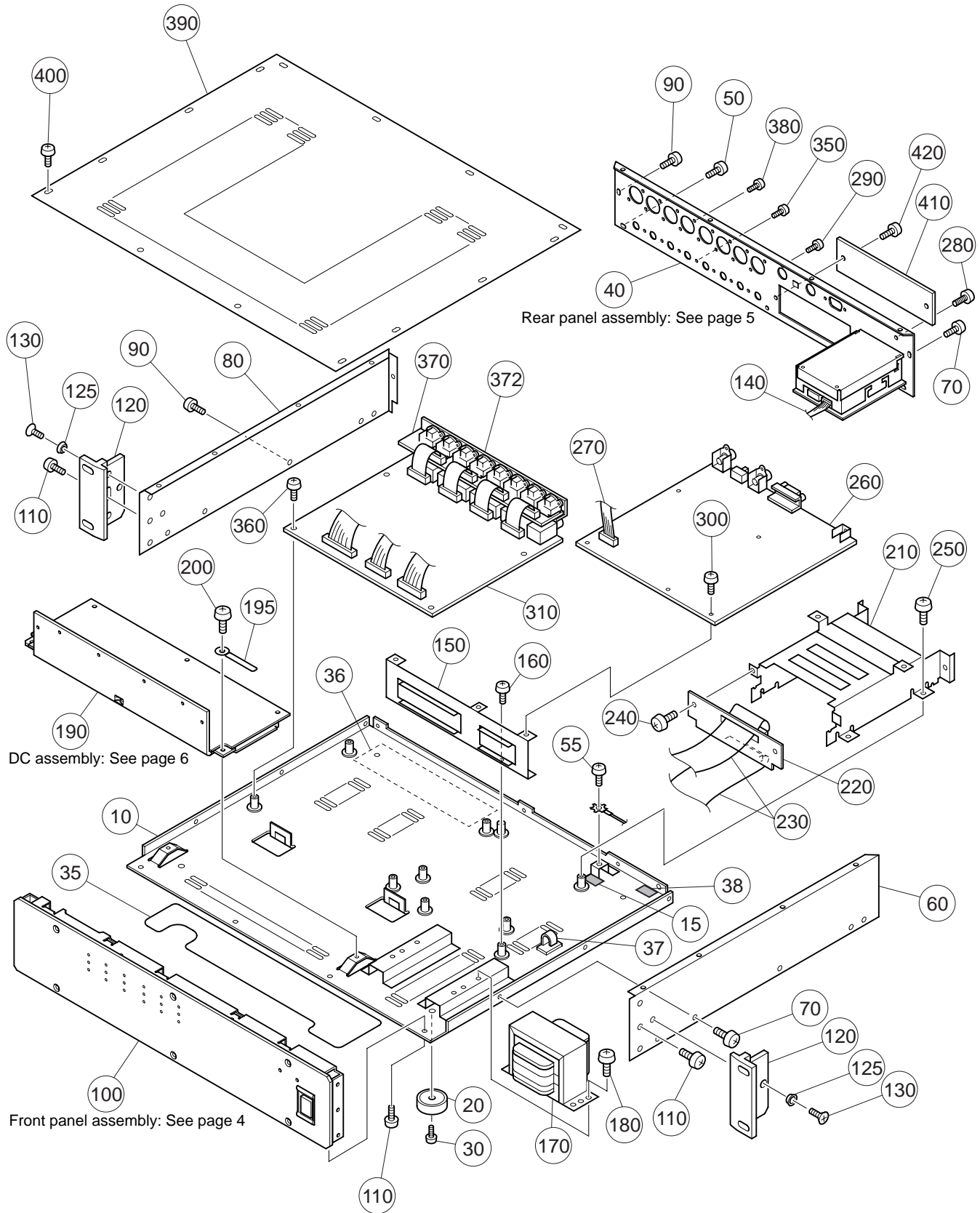
A: Australian model	M: South African model
B: British model	O: Chinese model
C: Canadian model	Q: South-east Asia model
D: German model	T: Taiwan model
E: European model	U: U.S.A. model
F: French model	V: General export model (110 V)
H: North European model	W: General export model (220 V)
I: Indonesian model	N,X: General export model
J: Japanese model	Y: Export model

■ WARNING

Components having special characteristics are marked  and must be replaced with parts having specification equal to those originally installed.

- The numbers in “QTY” show quantities for each unit.
- The parts with “- -” in “PART NO.” are not available as spare parts.
- The mark “}” in the remarks column indicates that these parts are interchangeable.
- The second letter of the shaded () part number is O, not zero.
- The second letter of the shaded () part number is I, not one.

OVERALL ASSEMBLY

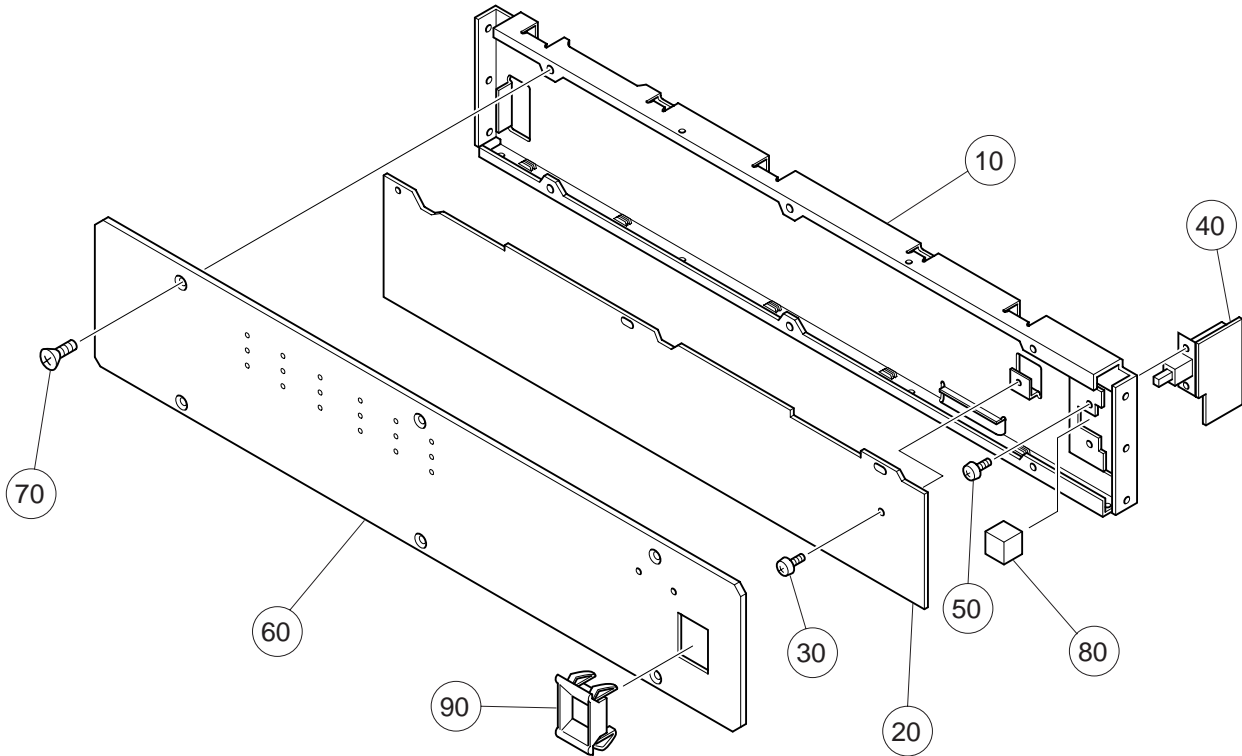


REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
		OVERALL ASSEMBLY		DA824		
	--	Overall Assembly		J (V536450)		
	--	Overall Assembly		U,V (V536470)		
	--	Overall Assembly		H,W (V536480)		
	--	Overall Assembly		B (V536490)		
* 10	V4067500	Bottom Chassis				
15	--	Label		H,W,B (V567270)		
20	CB806590	Leg	BL		4	03
30	VR138400	Bind Head Tapping Screw-B	4.0X12 MFZN2BL		4	01
35	--	Protection Sheet		(V553110)		
36	--	Label	CAUTION	U,V,H,W,B (V533520)		
37	CB095100	Cord Keep	K-103G	U (VA03930)		
38	--	Label				
40	--	Rear Panel Assembly		J (V545160)		
40	--	Rear Panel Assembly		U,V (V545170)		
40	--	Rear Panel Assembly		H,W (V545180)		
40	--	Rear Panel Assembly		B (V545190)		
50	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		4	01
55	EG340360	Bind Head Screw	4.0X8 MFZN2BL	U,V,H,W,B		01
60	V4068400	Side Panel	RIGHT			10
70	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		4	01
80	V4605100	Side Panel	LEFT			10
90	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		4	01
100	--	Front Panel Assembly		J,U,V (V545270)		
100	--	Front Panel Assembly		H,W,B (V561280)		
110	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		6	01
120	V4705100	Rack Mount Angle			2	08
* 125	V6161200	Toothed Lock Washer	4.0 MFZN2BL		6	
130	VS153600	Oval Head Screw	4.0X8 MFZN2BL		6	01
140	--	Connector Assembly	AC-SW VH- 3P	(V545950)		
150	--	PCB Support		(V527400)		
160	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL		2	01
△* 170	XY176A00	Power Transformer	J A			11
△* 170	XY177A00	Power Transformer	UL,CSA A	U,V		11
△* 170	XY178B00	Power Transformer	CEE A	H,W,B		11
180	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		4	01
* 190	V5452300	DC Assembly		J,U,V		
* 190	V5452500	DC Assembly		H,W,B		
195	CB817510	Cord Binder	S-14B			03
200	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		2	01
* 210	V4093800	Support, OPT				
* 220	V5462700	Circuit Board	MYSL			
230	VZ746000	Cable, FFC	P=1.25-K-36-200		2	03
240	EG340360	Bind Head Screw	4.0X8 MFZN2BL		2	01
250	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL		4	01
* 260	V5462900	Circuit Board	MAIN			
280	VS154500	Bonding Screw	4.0X8 MFZN2BL			01
290	VS863000	Bonding Screw	3.0X6 MFZN2BL		2	01
300	EP600230	Bind Head Tapping Screw-B	3.0X6 MFZN2BL		5	01
* 310	V5462500	Circuit Board	DA			
350	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL		6	01
360	EP600230	Bind Head Tapping Screw-B	3.0X6 MFZN2BL		4	01
* 370	V5462600	Circuit Board	JK			
* 372	V6009000	Ground Film, DA				
380	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL		16	01
* 390	V5202400	Top Cover				
400	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		14	01
410	VZ678500	IF Plate				05
420	VP156900	Bind Head Screw	A4.0X12 MFZN2BL		2	01

*: New Parts

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FRONT PANEL ASSEMBLY

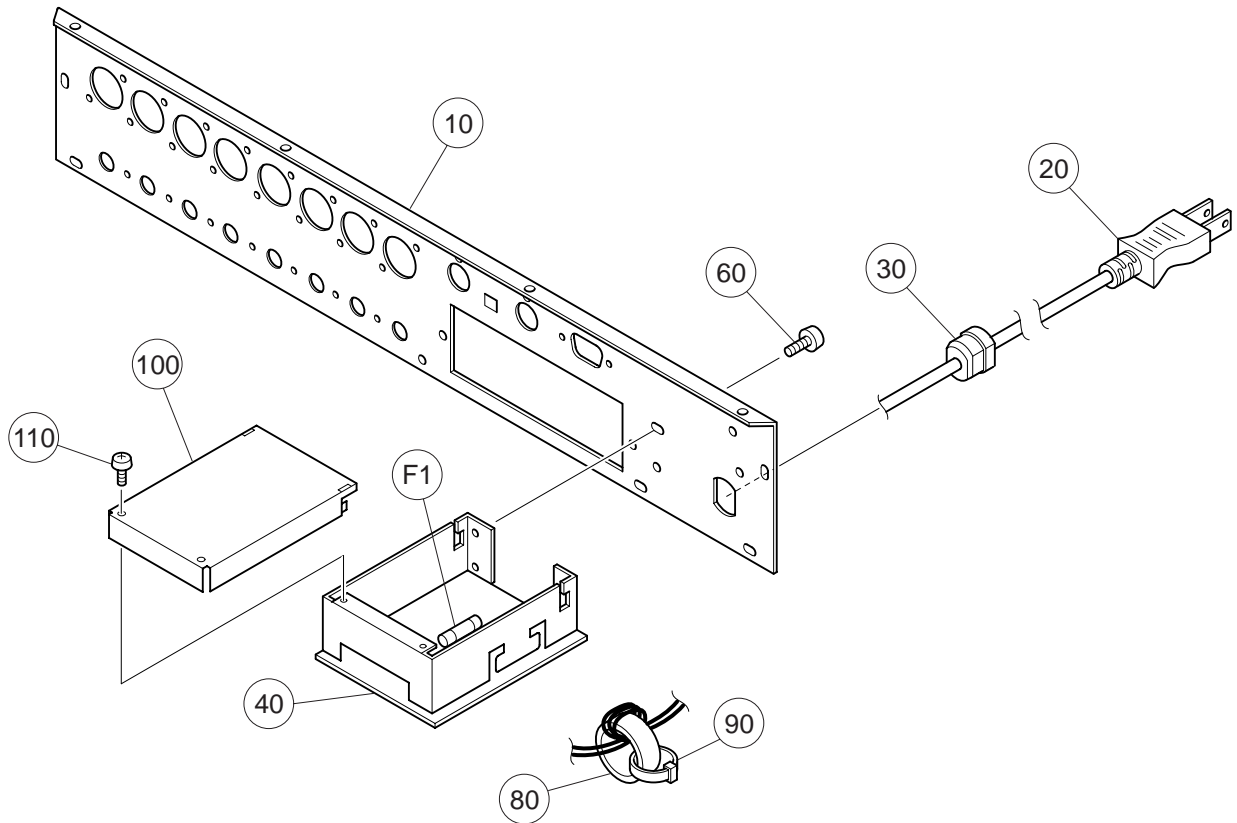


REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
		FRONT PANEL ASSEMBLY		DA824		
	--	Front Panel Assembly		J,U,V (V545270)		
	--	Front Panel Assembly		H,W,B (V561280)		
* 10	V4067800	Sub Chassis				
* 20	V4854600	Circuit Board	PN			
30	EP600230	Bind Head Tapping Screw-B	3.0X6 MFZN2BL		4	01
* 40	V4855300	Circuit Board	SW	J,U,V		
* 40	V4855700	Circuit Board	SW	H,W,B		
50	VS863000	Bonding Screw	3.0X6 MFZN2BL		2	01
* 60	V4106600	Front Panel				
70	VS153600	Oval Head Screw	4.0X8 MFZN2BL		6	01
80	VL812900	Power Switch Knob		POWER ON/OFF		03
90	VL813000	Escutcheon, Power Switch				03

*: New Parts

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REAR PANEL ASSEMBLY

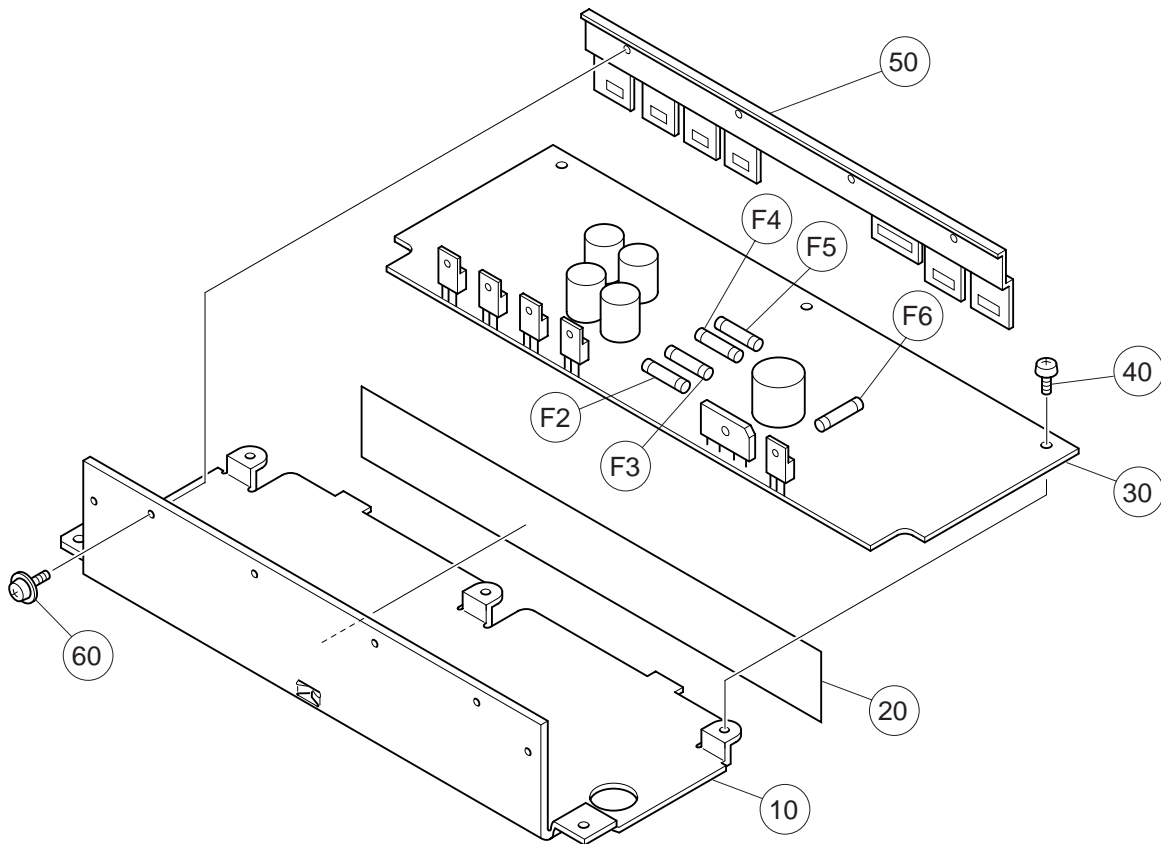


REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
		REAR PANEL ASSEMBLY		DA824		
	--	Rear Panel Assembly		J (V545160)		
	--	Rear Panel Assembly		U,V (V545170)		
	--	Rear Panel Assembly		H,W (V545180)		
	--	Rear Panel Assembly		B (V545190)		
*	10	V6035200	Rear Panel	DA		
*	10	V5254400	Rear Panel	DA		
*	10	V5254500	Rear Panel	DA		
△	20	VS228900	AC Cord Assembly	2P 15A 2.1m		09
△	20	VS229000	AC Cord Assembly	3P 10A 2.5m		10
△	20	VS229100	AC Cord Assembly	3P 6A 2.5m		10
△	20	VS229200	AC Cord Assembly	3P 10A 2.5m		11
	30	CB806850	Cord Strain Relief	SR-6N3-4		02
	30	CB811230	Cord Strain Relief	SR-6N-4		02
	30	CB032840	Cord Strain Relief	SR-5N-4		03
*	40	V4855100	Circuit Board	AC		
*	40	V4855500	Circuit Board	AC		
	60	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		3 01
	70	EG340360	Bind Head Screw	4.0X8 MFZN2BL		01
	80	VC362700	Ferrite Core	FR25/15/12-1400L		04
	90	CB069250	Cord Holder	BK-1		01
*	100	V5274400	AC Shield Cover			
	110	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL		2 01
△	F1	KB003570	Fuse	2.00A JU 250V	J,U,V	01
△	F1	KB003040	Fuse	1.00A S 250V	H,W,B	01

*: New Parts

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DC ASSEMBLY



REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
		DC ASSEMBLY		DA824		
*	V5452300	DC Assembly		J,U,V		
*	V5452500	DC Assembly		H,W,B		
10	--	Heat Sink		(V406870)		
*	V4068800	Insulation Sheet				
*	V4855200	Circuit Board	DC	J,U,V		
*	V4855600	Circuit Board	DC	H,W,B		
40	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL		3	01
50	--	Holder, Transistor		(V406820)		
60	EL200020	Pan Head Screw	SP 4.0X8 MFZN2Y		4	01
△	F2	KB003560	Fuse	1.60A JU		01
△	F2	KB003060	Fuse	1.60A S		01
△	F3	KB003560	Fuse	1.60A JU		01
△	F3	KB003060	Fuse	1.60A S		01
△	F4	KB003570	Fuse	2.00A JU		01
△	F4	KB003070	Fuse	2.00A S		01
△	F5	KB003570	Fuse	2.00A JU		01
△	F5	KB003070	Fuse	2.00A S		01
△	F6	KB003620	Fuse	4.00A JU 125V		01
△	F6	KB003100	Fuse	4.00A S 250V		01

*: New Parts

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ELECTRICAL PARTS

REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
		ELECTRICAL PARTS		DA824		
*	V4855100	Circuit Board	AC	J,U,V (XY031C0)		
*	V4855500	Circuit Board	AC	H,W,B (XY032C0)		
*	V4855200	Circuit Board	DC	J,U,V (XY031C0)		
*	V4855600	Circuit Board	DC	H,W,B (XY032C0)		
*	V4855300	Circuit Board	SW	J,U,V (XY031C0)		
*	V4855700	Circuit Board	SW	H,W,B (XY032C0)		
*	V5462500	Circuit Board	DA	(XY035B0)		
*	V5462600	Circuit Board	JK	(XY035B0)		
*	V5462900	Circuit Board	MAIN	(XY036B0)		
*	V5462700	Circuit Board	MYSL	(XY036B0)		
*	V4854600	Circuit Board	PN	(XY034A0)		
*	V4855100	Circuit Board	AC	J,U,V (XY031C0)		
*	V4855500	Circuit Board	AC	H,W,B (XY032C0)		
*	V4855200	Circuit Board	DC	J,U,V (XY031C0)		
*	V4855600	Circuit Board	DC	H,W,B (XY032C0)		
*	V4855300	Circuit Board	SW	J,U,V (XY031C0)		
*	V4855700	Circuit Board	SW	H,W,B (XY032C0)		
*	V5273900	AC Shield Plate				
	VA078900	Jumper Wire	0.55		54	
△	C1 V3311600	Capacitor	0.010 250V J.U.C.S			01
△	C2 V5170300	Capacitor	0.220 275V U.C.S			01
	C3 VS589000	Ceramic Capacitor-E	4700P 500V M			01
	-8 VS589000	Ceramic Capacitor-E	4700P 500V M			01
	C11 VS589000	Ceramic Capacitor-E	4700P 500V M			01
	-16 VS589000	Ceramic Capacitor-E	4700P 500V M			01
	C19 UR867100	Electrolytic Cap.	10.00 50.0V			01
	C20 UR659220	Electrolytic Cap.	2200 35.0V			02
	C21 UR659220	Electrolytic Cap.	2200 35.0V			02
	C22 UR639470	Electrolytic Cap.	4700 16.0V			02
	C23 UR639470	Electrolytic Cap.	4700 16.0V			02
	C24 VT947800	Electrolytic Cap.	10000 16 USP			04
	C27 UR838100	Electrolytic Cap.	100.00 16.0V			01
	C28 UA355100	Mylar Capacitor	0.1000 50V J			01
	-31 UA355100	Mylar Capacitor	0.1000 50V J			01
	C33 UA355100	Mylar Capacitor	0.1000 50V J			01
	C36 UR857470	Electrolytic Cap.	47.00 35.0V			01
	C37 UR858100	Electrolytic Cap.	100.00 35.0V			01
	C38 UR858100	Electrolytic Cap.	100.00 35.0V			01
	C39 UR838100	Electrolytic Cap.	100.00 16.0V			01
	C40 UR838100	Electrolytic Cap.	100.00 16.0V			01
	C42 UR838100	Electrolytic Cap.	100.00 16.0V			01
	CN1 LB932030	Base Post Connector	VH 3P TE			01
	-3 LB933030	Base Post Connector	VH 3P SE			01
	CN4 LB933040	Base Post Connector	VH 4P SE			01
	CN5 LB932060	Base Post Connector	VH 6P TE			01
	CN6 LB932050	Base Post Connector	VH 5P TE			01
	CN8 VK025700	Wire Trap	52147 13P TE			01
	CN9 VF728200	Wire Trap	52147 10P TE			01
	CN10 VK024900	Wire Trap	52147 5P TE			01
	CN11 VK025700	Wire Trap	52147 13P TE			01
	D1 VB481900	Diode	11ES4			01
	-3 VB481900	Diode	11ES4			01
	D5 VB481900	Diode	11ES4			01
	-9 VB481900	Diode	11ES4			01
	D11 VB481900	Diode	11ES4			01
	-15 VB481900	Diode	11ES4			01
	D17 VB481900	Diode	11ES4			01
	DB1 VN011300	Diode Stack	D3SBA20 4.0A 200V			03
	-3 VN011300	Diode Stack	D3SBA20 4.0A 200V			03
	EM2 FZ006970	LC Filter	LS MT Y223NB			02
	EM3 FZ006970	LC Filter	LS MT Y223NB			02
	EM5 FZ006970	LC Filter	LS MT Y223NB			02
	EM6 FZ006970	LC Filter	LS MT Y223NB			02
	EM8 FZ006970	LC Filter	LS MT Y223NB			02
	EM10 FZ006970	LC Filter	LS MT Y223NB			02
	-12 FZ006970	LC Filter	LS MT Y223NB			02
	EM14 FZ006970	LC Filter	LS MT Y223NB			02
	-18 FZ006970	LC Filter	LS MT Y223NB			02

*: New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
FZ1	VP206500	Fuse Holder	EYF-52BC			01
-6	VP206500	Fuse Holder	EYF-52BC			01
IC1	XJ603A00	IC	NJM78M15FA	REGULATOR +15V 0.5A		02
IC2	XG505A00	IC	NJM79M15FA	REGULATOR -15V		03
IC3	XR607A00	IC	UPC2405AHF	REGULATOR +5V		04
IC4	XK309A00	IC	NJM7905FA	REGULATOR -5V		03
IC6	XH672A00	IC	PQ05RF2	REGULATOR +5V 2A		04
IC7	XD631A00	IC	PST518B-TP	SYSTEM RESET		02
J3	VA078900	Jumper Wire	0.55			
J5	VA078900	Jumper Wire	0.55			
K1	BB069510	Land Terminal	#6951 A-8			01
-3	BB069510	Land Terminal	#6951 A-8			01
△ L1	VQ764500	Line Filter	PLAC1522R0R01B1			03
R1	HV756150	Flame Proof C. Resistor	1.5K 1/4 J			01
R2	VC747900	Metal Oxide Film Resistor	1.5K 1W J			01
R3	HF757680	Carbon Resistor	68.0K 1/4 J			01
R6	HV754680	Flame Proof C. Resistor	68.0 1/4 J			01
R7	HF756470	Carbon Resistor	4.7K 1/4 J			01
R11	HF756470	Carbon Resistor	4.7K 1/4 J			01
R12	HF757100	Carbon Resistor	10.0K 1/4 J			01
-15	HF757100	Carbon Resistor	10.0K 1/4 J			01
R17	HF757100	Carbon Resistor	10.0K 1/4 J			01
R22	HF757100	Carbon Resistor	10.0K 1/4 J			01
R23	HF757100	Carbon Resistor	10.0K 1/4 J			01
R26	HF758100	Carbon Resistor	100.0K 1/4 J			01
R27	HF756470	Carbon Resistor	4.7K 1/4 J			01
R28	VC747900	Metal Oxide Film Resistor	1.5K 1W J			01
△ SW1	V3127000	Push Switch	ESB92S23B J.U.C.S	POWER ON/OFF		02
TR3	VK432900	Transistor	2SD1915(F) S,T			
* TR5	VV911300	Digital Transistor	DTA114TSA-TP			01
TR8	IA101590	Transistor	2SA1015 O,Y			01
ZD4	VQ552200	Zener Diode	MTZJ2.7B 2.7V			01
* V5462500	V5462500	Circuit Board	DA	(XY035B0)		
* V5462600	V5462600	Circuit Board	JK	(XY035B0)		
* V5274300	V5274300	Jack Holder				
* C1	V5829200	Electrolytic Cap. (chip)	100 20V 20SG100M+T			
* -4	V5829200	Electrolytic Cap. (chip)	100 20V 20SG100M+T			
C6	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C7	UU167100	Electrolytic Cap.	10.00 50.0V			
C8	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C9	UU167100	Electrolytic Cap.	10.00 50.0V			
C10	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C11	UU167100	Electrolytic Cap.	10.00 50.0V			
C12	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C13	UU167100	Electrolytic Cap.	10.00 50.0V			
C14	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C15	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C16	UU167100	Electrolytic Cap.	10.00 50.0V			
C17	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C18	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C19	UU167100	Electrolytic Cap.	10.00 50.0V			
C20	UU167100	Electrolytic Cap.	10.00 50.0V			
C21	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C22	UU167100	Electrolytic Cap.	10.00 50.0V			
C23	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C24	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C25	UU167100	Electrolytic Cap.	10.00 50.0V			
C26	UU167100	Electrolytic Cap.	10.00 50.0V			
C27	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C28	UU167100	Electrolytic Cap.	10.00 50.0V			
C29	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C30	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C31	UU167100	Electrolytic Cap.	10.00 50.0V			
C32	UU167100	Electrolytic Cap.	10.00 50.0V			
C33	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C34	UU167100	Electrolytic Cap.	10.00 50.0V			
C35	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C36	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C37	UU167100	Electrolytic Cap.	10.00 50.0V			

*: New Parts

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C38	UU167100	Electrolytic Cap.	10.00 50.0V			
C39	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
-42	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C43	UB245220	Monolithic Ceramic Cap.	F 0.220 25V Z			01
-46	UB245220	Monolithic Ceramic Cap.	F 0.220 25V Z			01
C103	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C104	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C105	UA353680	Mylar Capacitor	6800P 50V J			01
C106	UA353300	Mylar Capacitor	3000P 50V J			01
C107	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C108	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C109	UB052220	Monolithic Ceramic Cap.	SL 220P 50V J			01
C111	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
-114	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C115	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C116	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C117	UU168100	Electrolytic Cap.	100.00 50V			
C118	UU168100	Electrolytic Cap.	100.00 50V			
C203	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C204	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C205	UA353680	Mylar Capacitor	6800P 50V J			01
C206	UA353300	Mylar Capacitor	3000P 50V J			01
C207	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C208	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C209	UB052220	Monolithic Ceramic Cap.	SL 220P 50V J			01
C211	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
-214	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C215	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C216	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C217	UU168100	Electrolytic Cap.	100.00 50V			
C218	UU168100	Electrolytic Cap.	100.00 50V			
C303	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C304	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C305	UA353680	Mylar Capacitor	6800P 50V J			01
C306	UA353300	Mylar Capacitor	3000P 50V J			01
C307	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C308	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C309	UB052220	Monolithic Ceramic Cap.	SL 220P 50V J			01
C311	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
-314	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C315	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C316	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C317	UU168100	Electrolytic Cap.	100.00 50V			
C318	UU168100	Electrolytic Cap.	100.00 50V			
C403	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C404	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C405	UA353680	Mylar Capacitor	6800P 50V J			01
C406	UA353300	Mylar Capacitor	3000P 50V J			01
C407	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C408	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C409	UB052220	Monolithic Ceramic Cap.	SL 220P 50V J			01
C411	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
-414	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C415	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C416	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C417	UU168100	Electrolytic Cap.	100.00 50V			
C418	UU168100	Electrolytic Cap.	100.00 50V			
C503	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C504	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C505	UA353680	Mylar Capacitor	6800P 50V J			01
C506	UA353300	Mylar Capacitor	3000P 50V J			01
C507	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C508	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C509	UB052220	Monolithic Ceramic Cap.	SL 220P 50V J			01
C511	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
-514	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C515	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C516	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C517	UU168100	Electrolytic Cap.	100.00 50V			
C518	UU168100	Electrolytic Cap.	100.00 50V			

*: New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C603	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C604	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C605	UA353680	Mylar Capacitor	6800P 50V J			01
C606	UA353300	Mylar Capacitor	3000P 50V J			01
C607	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C608	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C609	UB052220	Monolithic Ceramic Cap.	SL 220P 50V J			01
C611	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
-614	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C615	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C616	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C617	UU168100	Electrolytic Cap.	100.00 50V			
C618	UU168100	Electrolytic Cap.	100.00 50V			
C703	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C704	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C705	UA353680	Mylar Capacitor	6800P 50V J			01
C706	UA353300	Mylar Capacitor	3000P 50V J			01
C707	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C708	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C709	UB052220	Monolithic Ceramic Cap.	SL 220P 50V J			01
C711	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
-714	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C715	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C716	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C717	UU168100	Electrolytic Cap.	100.00 50V			
C718	UU168100	Electrolytic Cap.	100.00 50V			
C803	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C804	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C805	UA353680	Mylar Capacitor	6800P 50V J			01
C806	UA353300	Mylar Capacitor	3000P 50V J			01
C807	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C808	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C809	UB052220	Monolithic Ceramic Cap.	SL 220P 50V J			01
C811	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
-814	UB044100	Monolithic Ceramic Cap.	F 0.010 50V Z			01
C815	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C816	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C817	UU168100	Electrolytic Cap.	100.00 50V			
C818	UU168100	Electrolytic Cap.	100.00 50V			
CN1	VI879100	Wire Trap	51048 13P TE			
CN2	VJ861600	Wire Trap	52147 16P TE			01
CN3	VI879400	Wire Trap	51048 16P TE			
CN101	VI878700	Wire Trap	51048 9P TE			
CN102	VK025300	Wire Trap	52147 9P TE			01
CN301	VI878700	Wire Trap	51048 9P TE			
CN302	VK025300	Wire Trap	52147 9P TE			01
CN501	VI878700	Wire Trap	51048 9P TE			
CN502	VK025300	Wire Trap	52147 9P TE			01
CN701	VI878700	Wire Trap	51048 9P TE			
CN702	VK025300	Wire Trap	52147 9P TE			01
EM001	FZ006970	LC Filter	LS MT Y223NB			02
-004	FZ006970	LC Filter	LS MT Y223NB			02
EM101	FZ006920	LC Filter	LS MT B271KB			01
EM102	FZ006920	LC Filter	LS MT B271KB			01
EM201	FZ006920	LC Filter	LS MT B271KB			01
EM202	FZ006920	LC Filter	LS MT B271KB			01
EM301	FZ006920	LC Filter	LS MT B271KB			01
EM302	FZ006920	LC Filter	LS MT B271KB			01
EM401	FZ006920	LC Filter	LS MT B271KB			01
EM402	FZ006920	LC Filter	LS MT B271KB			01
EM501	FZ006920	LC Filter	LS MT B271KB			01
EM502	FZ006920	LC Filter	LS MT B271KB			01
EM601	FZ006920	LC Filter	LS MT B271KB			01
EM602	FZ006920	LC Filter	LS MT B271KB			01
EM701	FZ006920	LC Filter	LS MT B271KB			01
EM702	FZ006920	LC Filter	LS MT B271KB			01
EM801	FZ006920	LC Filter	LS MT B271KB			01
EM802	FZ006920	LC Filter	LS MT B271KB			01
IC1	IS024500	IC	HD74LV245AFPEL	TRANSCEIVER		02
* IC2	XW029A00	IC	AK4393-VF-E2	DAC		07

*: New Parts

RANK: Japan only

REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
* -5	XW029A00	IC	AK4393-VF-E2	DAC		07
IC6	XJ598A00	IC	NJM78L05UA	REGULATOR +5V		02
-9	XJ598A00	IC	NJM78L05UA	REGULATOR +5V		02
IC101	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC102	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC103	XP844A00	IC	NJM4556AL	OP AMP		02
IC201	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC202	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC203	XP844A00	IC	NJM4556AL	OP AMP		02
IC301	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC302	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC303	XP844A00	IC	NJM4556AL	OP AMP		02
IC401	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC402	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC403	XP844A00	IC	NJM4556AL	OP AMP		02
IC501	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC502	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC503	XP844A00	IC	NJM4556AL	OP AMP		02
IC601	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC602	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC603	XP844A00	IC	NJM4556AL	OP AMP		02
IC701	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC702	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC703	XP844A00	IC	NJM4556AL	OP AMP		02
IC801	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC802	XJ553A00	IC	NJM2068MD-T1	OP AMP		02
IC803	XP844A00	IC	NJM4556AL	OP AMP		02
JK101	VS133700	XLM Connector	NC3MAH	OUTPUT(BAL) 1CH		04
JK102	LB301920	Phone Jack	HLJ4306 STEREO	OUTPUT(BAL) 1CH		02
JK201	VS133700	XLM Connector	NC3MAH	OUTPUT(BAL) 2CH		04
JK202	LB301920	Phone Jack	HLJ4306 STEREO	OUTPUT(BAL) 2CH		02
JK301	VS133700	XLM Connector	NC3MAH	OUTPUT(BAL) 3CH		04
JK302	LB301920	Phone Jack	HLJ4306 STEREO	OUTPUT(BAL) 3CH		02
JK401	VS133700	XLM Connector	NC3MAH	OUTPUT(BAL) 4CH		04
JK402	LB301920	Phone Jack	HLJ4306 STEREO	OUTPUT(BAL) 4CH		02
JK501	VS133700	XLM Connector	NC3MAH	OUTPUT(BAL) 5CH		04
JK502	LB301920	Phone Jack	HLJ4306 STEREO	OUTPUT(BAL) 5CH		02
JK601	VS133700	XLM Connector	NC3MAH	OUTPUT(BAL) 6CH		04
JK602	LB301920	Phone Jack	HLJ4306 STEREO	OUTPUT(BAL) 6CH		02
JK701	VS133700	XLM Connector	NC3MAH	OUTPUT(BAL) 7CH		04
JK702	LB301920	Phone Jack	HLJ4306 STEREO	OUTPUT(BAL) 7CH		02
JK801	VS133700	XLM Connector	NC3MAH	OUTPUT(BAL) 8CH		04
JK802	LB301920	Phone Jack	HLJ4306 STEREO	OUTPUT(BAL) 8CH		02
L1	VS740100	Chip Inductance	BLM21B751S 2125			03
-8	VS740100	Chip Inductance	BLM21B751S 2125			03
R1	RD255100	Carbon Resistor (chip)	100.0 0.1 J			01
-8	RD255100	Carbon Resistor (chip)	100.0 0.1 J			01
R10	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
R12	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
R14	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
R16	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
* R101	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R102	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R103	VC329200	Metal Film Resistor	15.0K 1/4 F			01
* R104	VC329200	Metal Film Resistor	15.0K 1/4 F			01
R105	HF754390	Carbon Resistor	39.0 1/4 J			01
R106	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R107	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R108	VC327200	Metal Film Resistor	2.2K 1/4 F			01
R109	VC328000	Metal Film Resistor	4.7K 1/4 F			01
* R110	VC328500	Metal Film Resistor	7.5K 1/4 F			01
* R111	VC330500	Metal Film Resistor	51.0K 1/4 F			01
R112	VC329600	Metal Film Resistor	22.0K 1/4 F			01
* R113	VC327100	Metal Film Resistor	2.0K 1/4 F			01
* R114	VC327100	Metal Film Resistor	2.0K 1/4 F			01
R115	HF754390	Carbon Resistor	39.0 1/4 J			01
R116	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R117	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R118	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R119	VC328900	Metal Film Resistor	11.0K 1/4 F			01

*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R120	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R121	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R122	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R123	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R124	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R125	HF754750	Carbon Resistor	75.0 1/4 J			01
R126	HF754750	Carbon Resistor	75.0 1/4 J			01
R127	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R128	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R129	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R130	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
* R201	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R202	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R203	VC329200	Metal Film Resistor	15.0K 1/4 F			01
* R204	VC329200	Metal Film Resistor	15.0K 1/4 F			01
R205	HF754390	Carbon Resistor	39.0 1/4 J			01
R206	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R207	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R208	VC327200	Metal Film Resistor	2.2K 1/4 F			01
R209	VC328000	Metal Film Resistor	4.7K 1/4 F			01
* R210	VC328500	Metal Film Resistor	7.5K 1/4 F			01
* R211	VC330500	Metal Film Resistor	51.0K 1/4 F			01
R212	VC329600	Metal Film Resistor	22.0K 1/4 F			01
* R213	VC327100	Metal Film Resistor	2.0K 1/4 F			01
* R214	VC327100	Metal Film Resistor	2.0K 1/4 F			01
R215	HF754390	Carbon Resistor	39.0 1/4 J			01
R216	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R217	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R218	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R219	VC328900	Metal Film Resistor	11.0K 1/4 F			01
R220	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R221	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R222	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R223	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R224	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R225	HF754750	Carbon Resistor	75.0 1/4 J			01
R226	HF754750	Carbon Resistor	75.0 1/4 J			01
R227	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R228	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R229	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R230	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
* R301	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R302	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R303	VC329200	Metal Film Resistor	15.0K 1/4 F			01
* R304	VC329200	Metal Film Resistor	15.0K 1/4 F			01
R305	HF754390	Carbon Resistor	39.0 1/4 J			01
R306	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R307	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R308	VC327200	Metal Film Resistor	2.2K 1/4 F			01
R309	VC328000	Metal Film Resistor	4.7K 1/4 F			01
* R310	VC328500	Metal Film Resistor	7.5K 1/4 F			01
* R311	VC330500	Metal Film Resistor	51.0K 1/4 F			01
R312	VC329600	Metal Film Resistor	22.0K 1/4 F			01
* R313	VC327100	Metal Film Resistor	2.0K 1/4 F			01
* R314	VC327100	Metal Film Resistor	2.0K 1/4 F			01
R315	HF754390	Carbon Resistor	39.0 1/4 J			01
R316	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R317	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R318	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R319	VC328900	Metal Film Resistor	11.0K 1/4 F			01
R320	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R321	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R322	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R323	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R324	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R325	HF754750	Carbon Resistor	75.0 1/4 J			01
R326	HF754750	Carbon Resistor	75.0 1/4 J			01
R327	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R328	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R329	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01

*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R330	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
* R401	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R402	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R403	VC329200	Metal Film Resistor	15.0K 1/4 F			01
* R404	VC329200	Metal Film Resistor	15.0K 1/4 F			01
R405	HF754390	Carbon Resistor	39.0 1/4 J			01
R406	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R407	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R408	VC327200	Metal Film Resistor	2.2K 1/4 F			01
R409	VC328000	Metal Film Resistor	4.7K 1/4 F			01
* R410	VC328500	Metal Film Resistor	7.5K 1/4 F			01
* R411	VC330500	Metal Film Resistor	51.0K 1/4 F			01
R412	VC329600	Metal Film Resistor	22.0K 1/4 F			01
* R413	VC327100	Metal Film Resistor	2.0K 1/4 F			01
* R414	VC327100	Metal Film Resistor	2.0K 1/4 F			01
R415	HF754390	Carbon Resistor	39.0 1/4 J			01
R416	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R417	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R418	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R419	VC328900	Metal Film Resistor	11.0K 1/4 F			01
R420	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R421	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R422	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R423	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R424	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R425	HF754750	Carbon Resistor	75.0 1/4 J			01
R426	HF754750	Carbon Resistor	75.0 1/4 J			01
R427	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R428	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R429	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R430	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
* R501	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R502	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R503	VC329200	Metal Film Resistor	15.0K 1/4 F			01
* R504	VC329200	Metal Film Resistor	15.0K 1/4 F			01
R505	HF754390	Carbon Resistor	39.0 1/4 J			01
R506	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R507	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R508	VC327200	Metal Film Resistor	2.2K 1/4 F			01
R509	VC328000	Metal Film Resistor	4.7K 1/4 F			01
* R510	VC328500	Metal Film Resistor	7.5K 1/4 F			01
* R511	VC330500	Metal Film Resistor	51.0K 1/4 F			01
R512	VC329600	Metal Film Resistor	22.0K 1/4 F			01
* R513	VC327100	Metal Film Resistor	2.0K 1/4 F			01
* R514	VC327100	Metal Film Resistor	2.0K 1/4 F			01
R515	HF754390	Carbon Resistor	39.0 1/4 J			01
R516	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R517	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R518	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R519	VC328900	Metal Film Resistor	11.0K 1/4 F			01
R520	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R521	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R522	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R523	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R524	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R525	HF754750	Carbon Resistor	75.0 1/4 J			01
R526	HF754750	Carbon Resistor	75.0 1/4 J			01
R527	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R528	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R529	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R530	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
* R601	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R602	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R603	VC329200	Metal Film Resistor	15.0K 1/4 F			01
* R604	VC329200	Metal Film Resistor	15.0K 1/4 F			01
R605	HF754390	Carbon Resistor	39.0 1/4 J			01
R606	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R607	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R608	VC327200	Metal Film Resistor	2.2K 1/4 F			01
R609	VC328000	Metal Film Resistor	4.7K 1/4 F			01

*: New Parts

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
* R610	VC328500	Metal Film Resistor	7.5K 1/4 F			01
* R611	VC330500	Metal Film Resistor	51.0K 1/4 F			01
R612	VC329600	Metal Film Resistor	22.0K 1/4 F			01
* R613	VC327100	Metal Film Resistor	2.0K 1/4 F			01
* R614	VC327100	Metal Film Resistor	2.0K 1/4 F			01
R615	HF754390	Carbon Resistor	39.0 1/4 J			01
R616	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R617	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R618	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R619	VC328900	Metal Film Resistor	11.0K 1/4 F			01
R620	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R621	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R622	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R623	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R624	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R625	HF754750	Carbon Resistor	75.0 1/4 J			01
R626	HF754750	Carbon Resistor	75.0 1/4 J			01
R627	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R628	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R629	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R630	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
* R701	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R702	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R703	VC329200	Metal Film Resistor	15.0K 1/4 F			01
* R704	VC329200	Metal Film Resistor	15.0K 1/4 F			01
R705	HF754390	Carbon Resistor	39.0 1/4 J			01
R706	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R707	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R708	VC327200	Metal Film Resistor	2.2K 1/4 F			01
R709	VC328000	Metal Film Resistor	4.7K 1/4 F			01
* R710	VC328500	Metal Film Resistor	7.5K 1/4 F			01
* R711	VC330500	Metal Film Resistor	51.0K 1/4 F			01
R712	VC329600	Metal Film Resistor	22.0K 1/4 F			01
* R713	VC327100	Metal Film Resistor	2.0K 1/4 F			01
* R714	VC327100	Metal Film Resistor	2.0K 1/4 F			01
R715	HF754390	Carbon Resistor	39.0 1/4 J			01
R716	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R717	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R718	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R719	VC328900	Metal Film Resistor	11.0K 1/4 F			01
R720	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R721	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R722	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R723	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R724	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R725	HF754750	Carbon Resistor	75.0 1/4 J			01
R726	HF754750	Carbon Resistor	75.0 1/4 J			01
R727	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R728	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R729	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R730	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
* R801	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R802	VC327600	Metal Film Resistor	3.3K 1/4 F			01
* R803	VC329200	Metal Film Resistor	15.0K 1/4 F			01
* R804	VC329200	Metal Film Resistor	15.0K 1/4 F			01
R805	HF754390	Carbon Resistor	39.0 1/4 J			01
R806	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R807	VC326500	Metal Film Resistor	1.0K 1/4 F			01
R808	VC327200	Metal Film Resistor	2.2K 1/4 F			01
R809	VC328000	Metal Film Resistor	4.7K 1/4 F			01
* R810	VC328500	Metal Film Resistor	7.5K 1/4 F			01
* R811	VC330500	Metal Film Resistor	51.0K 1/4 F			01
R812	VC329600	Metal Film Resistor	22.0K 1/4 F			01
* R813	VC327100	Metal Film Resistor	2.0K 1/4 F			01
* R814	VC327100	Metal Film Resistor	2.0K 1/4 F			01
R815	HF754390	Carbon Resistor	39.0 1/4 J			01
R816	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R817	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R818	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R819	VC328900	Metal Film Resistor	11.0K 1/4 F			01

*: New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R820	VC328800	Metal Film Resistor	10.0K 1/4 F			01
R821	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R822	VC329500	Metal Film Resistor	20.0K 1/4 F			01
R823	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R824	VC329400	Metal Film Resistor	18.0K 1/4 F			01
R825	HF754750	Carbon Resistor	75.0 1/4 J			01
R826	HF754750	Carbon Resistor	75.0 1/4 J			01
R827	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R828	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R829	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R830	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
* SW101	V3737500	Slide Switch	SSSS214-11	1CH (+4/+15/+18/+24dB)		02
* SW201	V3737500	Slide Switch	SSSS214-11	2CH (+4/+15/+18/+24dB)		02
* SW301	V3737500	Slide Switch	SSSS214-11	3CH (+4/+15/+18/+24dB)		02
* SW401	V3737500	Slide Switch	SSSS214-11	4CH (+4/+15/+18/+24dB)		02
* SW501	V3737500	Slide Switch	SSSS214-11	5CH (+4/+15/+18/+24dB)		02
* SW601	V3737500	Slide Switch	SSSS214-11	6CH (+4/+15/+18/+24dB)		02
* SW701	V3737500	Slide Switch	SSSS214-11	7CH (+4/+15/+18/+24dB)		02
* SW801	V3737500	Slide Switch	SSSS214-11	8CH (+4/+15/+18/+24dB)		02
TR101	VK432900	Transistor	2SD1915(F) S,T			01
TR102	VK432900	Transistor	2SD1915(F) S,T			01
TR201	VK432900	Transistor	2SD1915(F) S,T			01
TR202	VK432900	Transistor	2SD1915(F) S,T			01
TR301	VK432900	Transistor	2SD1915(F) S,T			01
TR302	VK432900	Transistor	2SD1915(F) S,T			01
TR401	VK432900	Transistor	2SD1915(F) S,T			01
TR402	VK432900	Transistor	2SD1915(F) S,T			01
TR501	VK432900	Transistor	2SD1915(F) S,T			01
TR502	VK432900	Transistor	2SD1915(F) S,T			01
TR601	VK432900	Transistor	2SD1915(F) S,T			01
TR602	VK432900	Transistor	2SD1915(F) S,T			01
TR701	VK432900	Transistor	2SD1915(F) S,T			01
TR702	VK432900	Transistor	2SD1915(F) S,T			01
TR801	VK432900	Transistor	2SD1915(F) S,T			01
TR802	VK432900	Transistor	2SD1915(F) S,T			01
W001	--	Ribbon Cable	P=2.0 #26 13P 70L	(V542940)		
W003	--	Ribbon Cable	P=2.0 #26 16P 150L	(V543000)		
W103	--	Ribbon Cable	P=2.0 #26 9P 70L	(V542930)		
W301	--	Ribbon Cable	P=2.0 #26 9P 70L	(V542930)		
W501	--	Ribbon Cable	P=2.0 #26 9P 70L	(V542930)		
W601	--	Ribbon Cable	P=2.0 #26 9P 70L	(V542930)		
*	V5462900	Circuit Board	MAIN	(XY036B0)		
*	V5462700	Circuit Board	MYSL	(XY036B0)		
C901	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
C902	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
-912	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C913	UF018100	Electrolytic Cap. (chip)	100 6.3V			01
C914	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
-918	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C919	UB012470	Monolithic Ceramic Cap.	B 470P 50V K			01
C920	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C921	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C922	UB051150	Monolithic Ceramic Cap.	SL 15P 50V J			01
C923	UB051150	Monolithic Ceramic Cap.	SL 15P 50V J			01
C924	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
-926	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C929	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C930	UF017470	Electrolytic Cap. (chip)	47 6.3V			01
C931	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C932	UF017470	Electrolytic Cap. (chip)	47 6.3V			01
C933	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
-935	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C937	UB052100	Monolithic Ceramic Cap.	SL 100P 50V J			01
C938	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C939	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C940	UF018100	Electrolytic Cap. (chip)	100 6.3V			01
C941	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C942	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C944	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
-946	UB245100	Monolithic Ceramic Cap.	F 0.100 25V Z			01
C947	VR327300	Mylar Capacitor (chip)	0.0820 16V J			01
C950	VR327300	Mylar Capacitor (chip)	0.0820 16V J			01
CN51	VU328200	Plug	PHEC 100P TE	SLOT		05
CN52	VI879100	Cable Holder	51048 13P TE			01
CN53	VQ048500	Connector, FFC	52045 36P TE			02
CN54	VQ048500	Connector, FFC	52045 36P TE			02
CN901	VQ048500	Connector, FFC	52045 36P TE			02
CN902	VQ048500	Connector, FFC	52045 36P TE			02
CN903	VU196300	Connector Socket	17LE-23090-27 D4CH	COM (RS422)		04
CN904	VJ861600	Wire Trap	52147 16P TE			01
CN905	VI878300	Cable Holder	51048 5P TE			01
CN906	VF728300	Wire Trap	52147 6P TE			01
D901	VT332900	Diode	1SS355 TE-17			01
-904	VT332900	Diode	1SS355 TE-17			01
EM901	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
-905	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
EM906	FZ006970	LC Filter	LS MT Y223NB			02
EM907	FZ006970	LC Filter	LS MT Y223NB			02
EM908	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
IC901	IS024500	IC	HD74LV245AFPEL	TRANSCEIVER		02
IC902	XN976A00	IC	SN75124NS	LINE RECEIVER		05
IC903	IS024500	IC	HD74LV245AFPEL	TRANSCEIVER		02
-905	IS024500	IC	HD74LV245AFPEL	TRANSCEIVER		02
IC906	XU073A00	IC	SN75C1168NSR	LINE DRIVER/RECEIVER		05
IC907	IS024500	IC	HD74LV245AFPEL	TRANSCEIVER		02
IC908	IS024500	IC	HD74LV245AFPEL	TRANSCEIVER		02
IC909	XY721A00	IC	HD6477042AF28	MASK CPU		01
* IC910	XY309A00	IC	TC74HC153AFEL	DATA SELECTOR		02
IC911	IS000400	IC	HD74LV04AFPEL	INVERTER		01
IC912	IS000800	IC	HD74LV08AFPEL	AND		01
IC913	IS013810	IC	SN74LV138ANSR	DECODER		01
IC914	IS007400	IC	HD74LV74AFPEL	D-FF		01
IC915	XY102A00	IC	HD74LVU04AFPEL	INVERTER		01
IC916	XP226A00	IC	IC-PST591DMT	SYSTEM RESET		03
IC917	XG948E00	IC	YM3436DK	DIR2		11
IC918	XG948E00	IC	YM3436DK	DIR2		11
IC919	XU948A00	IC	MBM29F800BA-70PFTN	FLASH ROM 8M		14
IC920	IS013910	IC	SN74LV139ANSR	DECODER		01
IC922	IS027300	IC	HD74LV273AFPEL	D-FF		02
IC923	XU816A00	IC	SN75121NSR	LINE DRIVER		05
IC924	IS024500	IC	HD74LV245AFPEL	TRANSCEIVER		02
IC926	XV411A00	IC	W24258S-70LE-EL10	SRAM 256K		07
IC927	XV411A00	IC	W24258S-70LE-EL10	SRAM 256K		07
IC928	IS003200	IC	HD74LV32AFPEL	OR		01
JK901	VI552200	BNC Connector	YKS11-0 1P	WORD CLOCK IN		05
JK902	VI552200	BNC Connector	YKS11-0 1P	WORD CLOCK OUT		05
K901	VI474400	Terminal Plate				01
L901	VS740100	Chip Inductance	BLM21B751S 2125			03
-910	VS740100	Chip Inductance	BLM21B751S 2125			03
L911	GE300610	Ferrite Bead	BL02RN1-R62T4			01
L912	VS740100	Chip Inductance	BLM21B751S 2125			03
-914	VS740100	Chip Inductance	BLM21B751S 2125			03
L920	VS740100	Chip Inductance	BLM21B751S 2125			03
-924	VS740100	Chip Inductance	BLM21B751S 2125			03
L925	GE300610	Ferrite Bead	BL02RN1-R62T4			01
L926	GE300610	Ferrite Bead	BL02RN1-R62T4			01
L927	VS740100	Chip Inductance	BLM21B751S 2125			03
-935	VS740100	Chip Inductance	BLM21B751S 2125			03
R901	RD254750	Carbon Resistor (chip)	75.0 0.1 J			01
R902	RD254470	Carbon Resistor (chip)	47.0 0.1 J			01
R903	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R904	RD254100	Carbon Resistor (chip)	10.0 0.1 J			01
R905	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
R906	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
R907	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R908	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R909	RD256300	Carbon Resistor (chip)	3.0K 0.1 J			01
R910	RD255200	Carbon Resistor (chip)	200.0 0.1 J			01
R911	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R912	RD259100	Carbon Resistor (chip)	1.0M 0.1 J			01
R913	RD256200	Carbon Resistor (chip)	2.0K 0.1 J			01
R914	RD256200	Carbon Resistor (chip)	2.0K 0.1 J			01
R917	RD256220	Carbon Resistor (chip)	2.2K 0.1 J			01
R918	RD253470	Carbon Resistor (chip)	4.7 0.1 J			01
R919	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R921	RD256150	Carbon Resistor (chip)	1.5K 0.1 J			01
R922	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
R924	VI195100	Metal Film Resistor (chip)	1.2K 1/10			01
R927	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
R929	VI195100	Metal Film Resistor (chip)	1.2K 1/10			01
RA901	RE047100	Resistor Array	10KX4			01
-926	RE047100	Resistor Array	10KX4			01
SW901	VR365100	Slide Switch	SSSF112-S06N1	W. CLOCK IN 75ohm ON/OFF		02
W052	--	Ribbon Cable	P=2.0 #26 13P 100L	(V542950)		
W905	--	Ribbon Cable	P=2.0 #26 5P 100L	(V542920)		
* X901	VL907400	Quartz Crystal Unit	19.6608MHz AT-51			04
* V4854600		Circuit Board	PN	(XY034A0)		
VA078900		Jumper Wire	0.55		33	
C101	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C102	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C103	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
-107	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
C201	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C202	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C203	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
-205	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
C301	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C302	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C303	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
-307	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
C401	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C402	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C403	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
-405	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
C501	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C502	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C503	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
-507	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
C601	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C602	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C603	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
-605	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
C701	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C702	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C703	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
-707	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
C801	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C802	UM407100	Electrolytic Cap.-KS	10.00 25.0V			01
C803	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
-805	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
C960	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
C962	UM407220	Electrolytic Cap.-KS	22.00 25.0V			01
-964	UM407220	Electrolytic Cap.-KS	22.00 25.0V			01
C965	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
-967	VT439600	Monolithic Ceramic Cap.	0.100 50V Z			01
CN960	VI878400	Cable Holder	51048 6P TE			01
CN962	VI879400	Cable Holder	51048 16P TE			01
CN963	VI878800	Cable Holder	51048 10P TE			01
D101	VB941200	Diode	1SS133,1SS176			01
D102	VB941200	Diode	1SS133,1SS176			01
D201	VB941200	Diode	1SS133,1SS176			01
D202	VB941200	Diode	1SS133,1SS176			01
D301	VB941200	Diode	1SS133,1SS176			01
D302	VB941200	Diode	1SS133,1SS176			01
D401	VB941200	Diode	1SS133,1SS176			01
D402	VB941200	Diode	1SS133,1SS176			01
D501	VB941200	Diode	1SS133,1SS176			01
D502	VB941200	Diode	1SS133,1SS176			01

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
D601	VB941200	Diode	1SS133,1SS176			01
D602	VB941200	Diode	1SS133,1SS176			01
D701	VB941200	Diode	1SS133,1SS176			01
D702	VB941200	Diode	1SS133,1SS176			01
D801	VB941200	Diode	1SS133,1SS176			01
D802	VB941200	Diode	1SS133,1SS176			01
EM960	FZ006970	LC Filter	LS MT Y223NB			02
-962	FZ006970	LC Filter	LS MT Y223NB			02
IC101	XA987A00	IC	NJM2068D-D	OP AMP		01
IC301	XA987A00	IC	NJM2068D-D	OP AMP		01
IC501	XA987A00	IC	NJM2068D-D	OP AMP		01
IC701	XA987A00	IC	NJM2068D-D	OP AMP		01
LD101	VT838500	LED	SLZ-135B-08-T1 RE	PRAK 1		01
LD102	V4845500	LED	SLZ-435B-08-T1 YE	NOMINAL 1		01
LD103	VU091400	LED	SLZ-235B-08-T1 GR	SIGNAL 1		01
LD201	VT838500	LED	SLZ-135B-08-T1 RE	PRAK 2		01
LD202	V4845500	LED	SLZ-435B-08-T1 YE	NOMINAL 2		01
LD203	VU091400	LED	SLZ-235B-08-T1 GR	SIGNAL 2		01
LD301	VT838500	LED	SLZ-135B-08-T1 RE	PRAK 3		01
LD302	V4845500	LED	SLZ-435B-08-T1 YE	NOMINAL 3		01
LD303	VU091400	LED	SLZ-235B-08-T1 GR	SIGNAL 3		01
LD401	VT838500	LED	SLZ-135B-08-T1 RE	PRAK 4		01
LD402	V4845500	LED	SLZ-435B-08-T1 YE	NOMINAL 4		01
LD403	VU091400	LED	SLZ-235B-08-T1 GR	SIGNAL 4		01
LD501	VT838500	LED	SLZ-135B-08-T1 RE	PRAK 5		01
LD502	V4845500	LED	SLZ-435B-08-T1 YE	NOMINAL 5		01
LD503	VU091400	LED	SLZ-235B-08-T1 GR	SIGNAL 5		01
LD601	VT838500	LED	SLZ-135B-08-T1 RE	PRAK 6		01
LD602	V4845500	LED	SLZ-435B-08-T1 YE	NOMINAL 6		01
LD603	VU091400	LED	SLZ-235B-08-T1 GR	SIGNAL 6		01
LD701	VT838500	LED	SLZ-135B-08-T1 RE	PRAK 7		01
LD702	V4845500	LED	SLZ-435B-08-T1 YE	NOMINAL 7		01
LD703	VU091400	LED	SLZ-235B-08-T1 GR	SIGNAL 7		01
LD801	VT838500	LED	SLZ-135B-08-T1 RE	PRAK 8		01
LD802	V4845500	LED	SLZ-435B-08-T1 YE	NOMINAL 8		01
LD803	VU091400	LED	SLZ-235B-08-T1 GR	SIGNAL 8		01
LD960	VU091400	LED	SLZ-235B-08-T1 GR	POWER indicator		01
LD961	VU091400	LED	SLZ-235B-08-T1 GR	LOCK		01
* R101	VC330800	Metal Film Resistor	68.0K 1/4 F			01
R102	VB070300	Metal Film Resistor	200.0K 1/5 F			01
R103	VC331200	Metal Film Resistor	100K 1/4 F			01
R104	VC328700	Metal Film Resistor	9.1K 1/4 F			01
R105	VC331200	Metal Film Resistor	100K 1/4 F			01
* R106	VC330300	Metal Film Resistor	43.0K 1/4 F			01
R107	HF757100	Carbon Resistor	10.0K 1/4 J			01
R108	HF757470	Carbon Resistor	47.0K 1/4 J			01
-110	HF757470	Carbon Resistor	47.0K 1/4 J			01
R111	HF756220	Carbon Resistor	2.2K 1/4 J			01
-113	HF756220	Carbon Resistor	2.2K 1/4 J			01
R114	HF757470	Carbon Resistor	47.0K 1/4 J			01
-116	HF757470	Carbon Resistor	47.0K 1/4 J			01
R117	HF755390	Carbon Resistor	390.0 1/4 J			01
-119	HF755390	Carbon Resistor	390.0 1/4 J			01
* R201	VC330800	Metal Film Resistor	68.0K 1/4 F			01
R202	VB070300	Metal Film Resistor	200.0K 1/5 F			01
R203	VC331200	Metal Film Resistor	100K 1/4 F			01
R204	VC328700	Metal Film Resistor	9.1K 1/4 F			01
R205	VC331200	Metal Film Resistor	100K 1/4 F			01
* R206	VC330300	Metal Film Resistor	43.0K 1/4 F			01
R207	HF757100	Carbon Resistor	10.0K 1/4 J			01
R208	HF757470	Carbon Resistor	47.0K 1/4 J			01
-210	HF757470	Carbon Resistor	47.0K 1/4 J			01
R211	HF756220	Carbon Resistor	2.2K 1/4 J			01
-213	HF756220	Carbon Resistor	2.2K 1/4 J			01
R214	HF757470	Carbon Resistor	47.0K 1/4 J			01
-216	HF757470	Carbon Resistor	47.0K 1/4 J			01
R217	HF755390	Carbon Resistor	390.0 1/4 J			01
-219	HF755390	Carbon Resistor	390.0 1/4 J			01
* R301	VC330800	Metal Film Resistor	68.0K 1/4 F			01
R302	VB070300	Metal Film Resistor	200.0K 1/5 F			01

*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R303	VC331200	Metal Film Resistor	100K 1/4 F			01
R304	VC328700	Metal Film Resistor	9.1K 1/4 F			01
R305	VC331200	Metal Film Resistor	100K 1/4 F			01
* R306	VC330300	Metal Film Resistor	43.0K 1/4 F			01
R307	HF757100	Carbon Resistor	10.0K 1/4 J			01
R308	HF757470	Carbon Resistor	47.0K 1/4 J			01
-310	HF757470	Carbon Resistor	47.0K 1/4 J			01
R311	HF756220	Carbon Resistor	2.2K 1/4 J			01
-313	HF756220	Carbon Resistor	2.2K 1/4 J			01
R314	HF757470	Carbon Resistor	47.0K 1/4 J			01
-316	HF757470	Carbon Resistor	47.0K 1/4 J			01
R317	HF755390	Carbon Resistor	390.0 1/4 J			01
-319	HF755390	Carbon Resistor	390.0 1/4 J			01
* R401	VC330800	Metal Film Resistor	68.0K 1/4 F			01
R402	VB070300	Metal Film Resistor	200.0K 1/5 F			01
R403	VC331200	Metal Film Resistor	100K 1/4 F			01
R404	VC328700	Metal Film Resistor	9.1K 1/4 F			01
R405	VC331200	Metal Film Resistor	100K 1/4 F			01
* R406	VC330300	Metal Film Resistor	43.0K 1/4 F			01
R407	HF757100	Carbon Resistor	10.0K 1/4 J			01
R408	HF757470	Carbon Resistor	47.0K 1/4 J			01
-410	HF757470	Carbon Resistor	47.0K 1/4 J			01
R411	HF756220	Carbon Resistor	2.2K 1/4 J			01
-413	HF756220	Carbon Resistor	2.2K 1/4 J			01
R414	HF757470	Carbon Resistor	47.0K 1/4 J			01
-416	HF757470	Carbon Resistor	47.0K 1/4 J			01
R417	HF755390	Carbon Resistor	390.0 1/4 J			01
-419	HF755390	Carbon Resistor	390.0 1/4 J			01
* R501	VC330800	Metal Film Resistor	68.0K 1/4 F			01
R502	VB070300	Metal Film Resistor	200.0K 1/5 F			01
R503	VC331200	Metal Film Resistor	100K 1/4 F			01
R504	VC328700	Metal Film Resistor	9.1K 1/4 F			01
R505	VC331200	Metal Film Resistor	100K 1/4 F			01
* R506	VC330300	Metal Film Resistor	43.0K 1/4 F			01
R507	HF757100	Carbon Resistor	10.0K 1/4 J			01
R508	HF757470	Carbon Resistor	47.0K 1/4 J			01
-510	HF757470	Carbon Resistor	47.0K 1/4 J			01
R511	HF756220	Carbon Resistor	2.2K 1/4 J			01
-513	HF756220	Carbon Resistor	2.2K 1/4 J			01
R514	HF757470	Carbon Resistor	47.0K 1/4 J			01
-516	HF757470	Carbon Resistor	47.0K 1/4 J			01
R517	HF755390	Carbon Resistor	390.0 1/4 J			01
-519	HF755390	Carbon Resistor	390.0 1/4 J			01
* R601	VC330800	Metal Film Resistor	68.0K 1/4 F			01
R602	VB070300	Metal Film Resistor	200.0K 1/5 F			01
R603	VC331200	Metal Film Resistor	100K 1/4 F			01
R604	VC328700	Metal Film Resistor	9.1K 1/4 F			01
R605	VC331200	Metal Film Resistor	100K 1/4 F			01
* R606	VC330300	Metal Film Resistor	43.0K 1/4 F			01
R607	HF757100	Carbon Resistor	10.0K 1/4 J			01
R608	HF757470	Carbon Resistor	47.0K 1/4 J			01
-610	HF757470	Carbon Resistor	47.0K 1/4 J			01
R611	HF756220	Carbon Resistor	2.2K 1/4 J			01
-613	HF756220	Carbon Resistor	2.2K 1/4 J			01
R614	HF757470	Carbon Resistor	47.0K 1/4 J			01
-616	HF757470	Carbon Resistor	47.0K 1/4 J			01
R617	HF755390	Carbon Resistor	390.0 1/4 J			01
-619	HF755390	Carbon Resistor	390.0 1/4 J			01
* R701	VC330800	Metal Film Resistor	68.0K 1/4 F			01
R702	VB070300	Metal Film Resistor	200.0K 1/5 F			01
R703	VC331200	Metal Film Resistor	100K 1/4 F			01
R704	VC328700	Metal Film Resistor	9.1K 1/4 F			01
R705	VC331200	Metal Film Resistor	100K 1/4 F			01
* R706	VC330300	Metal Film Resistor	43.0K 1/4 F			01
R707	HF757100	Carbon Resistor	10.0K 1/4 J			01
R708	HF757470	Carbon Resistor	47.0K 1/4 J			01
-710	HF757470	Carbon Resistor	47.0K 1/4 J			01
R711	HF756220	Carbon Resistor	2.2K 1/4 J			01
-713	HF756220	Carbon Resistor	2.2K 1/4 J			01
R714	HF757470	Carbon Resistor	47.0K 1/4 J			01

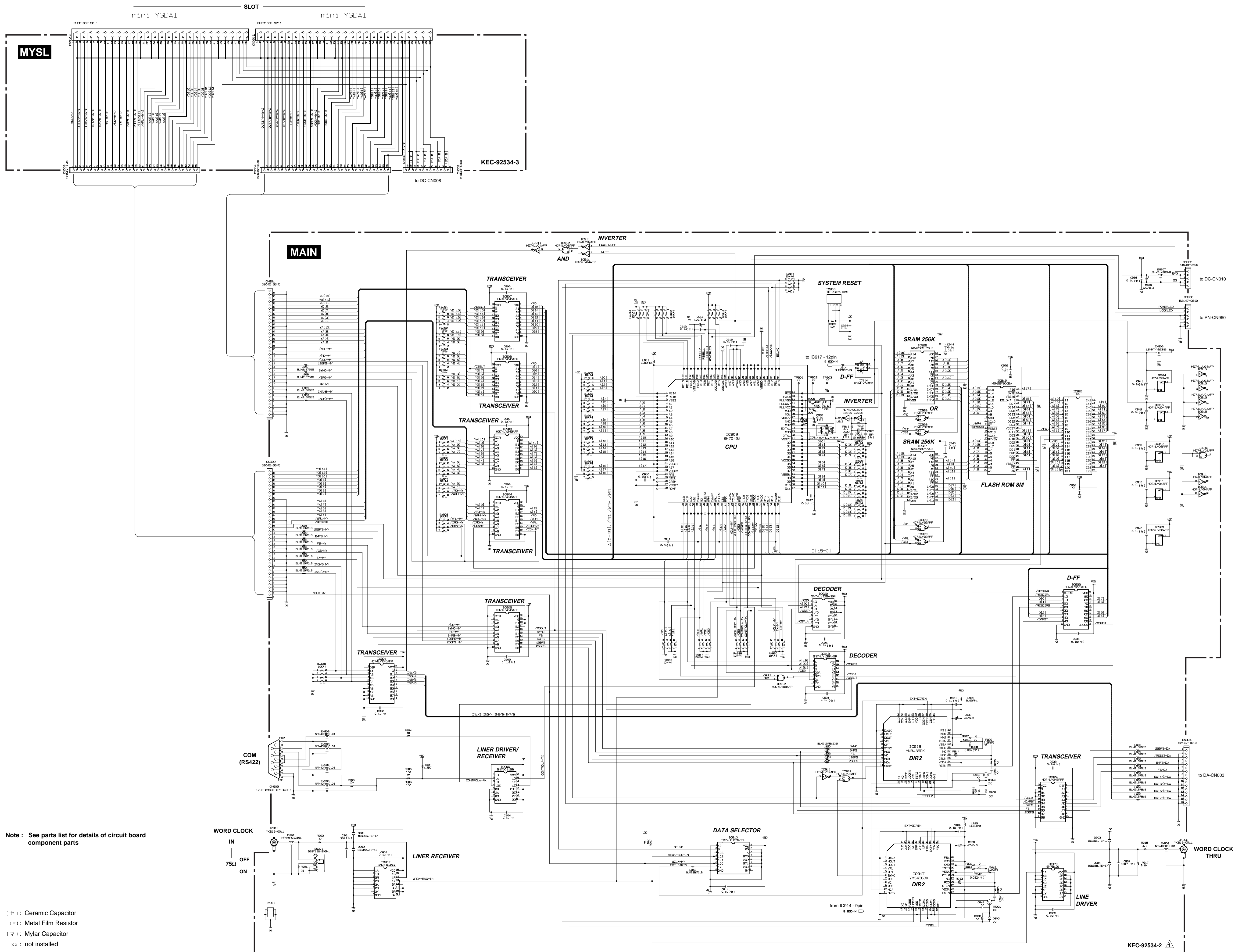
*: New Parts

RANK: Japan only

REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
-716	HF757470	Carbon Resistor	47.0K 1/4 J			01
R717	HF755390	Carbon Resistor	390.0 1/4 J			01
-719	HF755390	Carbon Resistor	390.0 1/4 J			01
* R801	VC330800	Metal Film Resistor	68.0K 1/4 F			01
R802	VB070300	Metal Film Resistor	200.0K 1/5 F			01
R803	VC331200	Metal Film Resistor	100K 1/4 F			01
R804	VC328700	Metal Film Resistor	9.1K 1/4 F			01
R805	VC331200	Metal Film Resistor	100K 1/4 F			01
* R806	VC330300	Metal Film Resistor	43.0K 1/4 F			01
R807	HF757100	Carbon Resistor	10.0K 1/4 J			01
R808	HF757470	Carbon Resistor	47.0K 1/4 J			01
-810	HF757470	Carbon Resistor	47.0K 1/4 J			01
R811	HF756220	Carbon Resistor	2.2K 1/4 J			01
-813	HF756220	Carbon Resistor	2.2K 1/4 J			01
R814	HF757470	Carbon Resistor	47.0K 1/4 J			01
-816	HF757470	Carbon Resistor	47.0K 1/4 J			01
R817	HF755390	Carbon Resistor	390.0 1/4 J			01
-819	HF755390	Carbon Resistor	390.0 1/4 J			01
R960	HF755390	Carbon Resistor	390.0 1/4 J			01
R961	HF755390	Carbon Resistor	390.0 1/4 J			01
R962	HF757100	Carbon Resistor	10.0K 1/4 J			01
R963	HF757100	Carbon Resistor	10.0K 1/4 J			01
TR101	IC174020	Transistor	2SC1740S R,S			01
-103	IC174020	Transistor	2SC1740S R,S			01
TR104	VV912400	Transistor	2SA933ASTP R.S			01
-106	VV912400	Transistor	2SA933ASTP R.S			01
TR201	IC174020	Transistor	2SC1740S R,S			01
-203	IC174020	Transistor	2SC1740S R,S			01
TR204	VV912400	Transistor	2SA933ASTP R.S			01
-206	VV912400	Transistor	2SA933ASTP R.S			01
TR301	IC174020	Transistor	2SC1740S R,S			01
-303	IC174020	Transistor	2SC1740S R,S			01
TR304	VV912400	Transistor	2SA933ASTP R.S			01
-306	VV912400	Transistor	2SA933ASTP R.S			01
TR401	IC174020	Transistor	2SC1740S R,S			01
-403	IC174020	Transistor	2SC1740S R,S			01
TR404	VV912400	Transistor	2SA933ASTP R.S			01
-406	VV912400	Transistor	2SA933ASTP R.S			01
TR501	IC174020	Transistor	2SC1740S R,S			01
-503	IC174020	Transistor	2SC1740S R,S			01
TR504	VV912400	Transistor	2SA933ASTP R.S			01
-506	VV912400	Transistor	2SA933ASTP R.S			01
TR601	IC174020	Transistor	2SC1740S R,S			01
-603	IC174020	Transistor	2SC1740S R,S			01
TR604	VV912400	Transistor	2SA933ASTP R.S			01
-606	VV912400	Transistor	2SA933ASTP R.S			01
TR701	IC174020	Transistor	2SC1740S R,S			01
-703	IC174020	Transistor	2SC1740S R,S			01
TR704	VV912400	Transistor	2SA933ASTP R.S			01
-706	VV912400	Transistor	2SA933ASTP R.S			01
TR801	IC174020	Transistor	2SC1740S R,S			01
-803	IC174020	Transistor	2SC1740S R,S			01
TR804	VV912400	Transistor	2SA933ASTP R.S			01
-806	VV912400	Transistor	2SA933ASTP R.S			01
TR960	IC174020	Transistor	2SC1740S R,S			01
TR961	IC174020	Transistor	2SC1740S R,S			01
W960	--	Jumper Wire	FVP=2.0C26SB6-250	(VY68980)		
W962	--	Jumper Wire	FVP=2.0C26SB16-200	(V201570)		
W963	--	Ribbon Cable	P=2.0 #26 10P 170L	(V542980)		
△*	XY176A00	Power Transformer	J A	J		11
△*	XY177A00	Power Transformer	UL,CSA A	U,V		11
△*	XY178B00	Power Transformer	CEE A	H,W,B		11
△	VS228900	AC Cord Assembly	2P 15A 2.1m	J		09
△	VS229000	AC Cord Assembly	3P 10A 2.5m	U,V		10
△	VS229100	AC Cord Assembly	3P 6A 2.5m	H,W		10
△	VS229200	AC Cord Assembly	3P 10A 2.5m	B		11
△	KB003040	Fuse	1.00A S	H,W,B		01

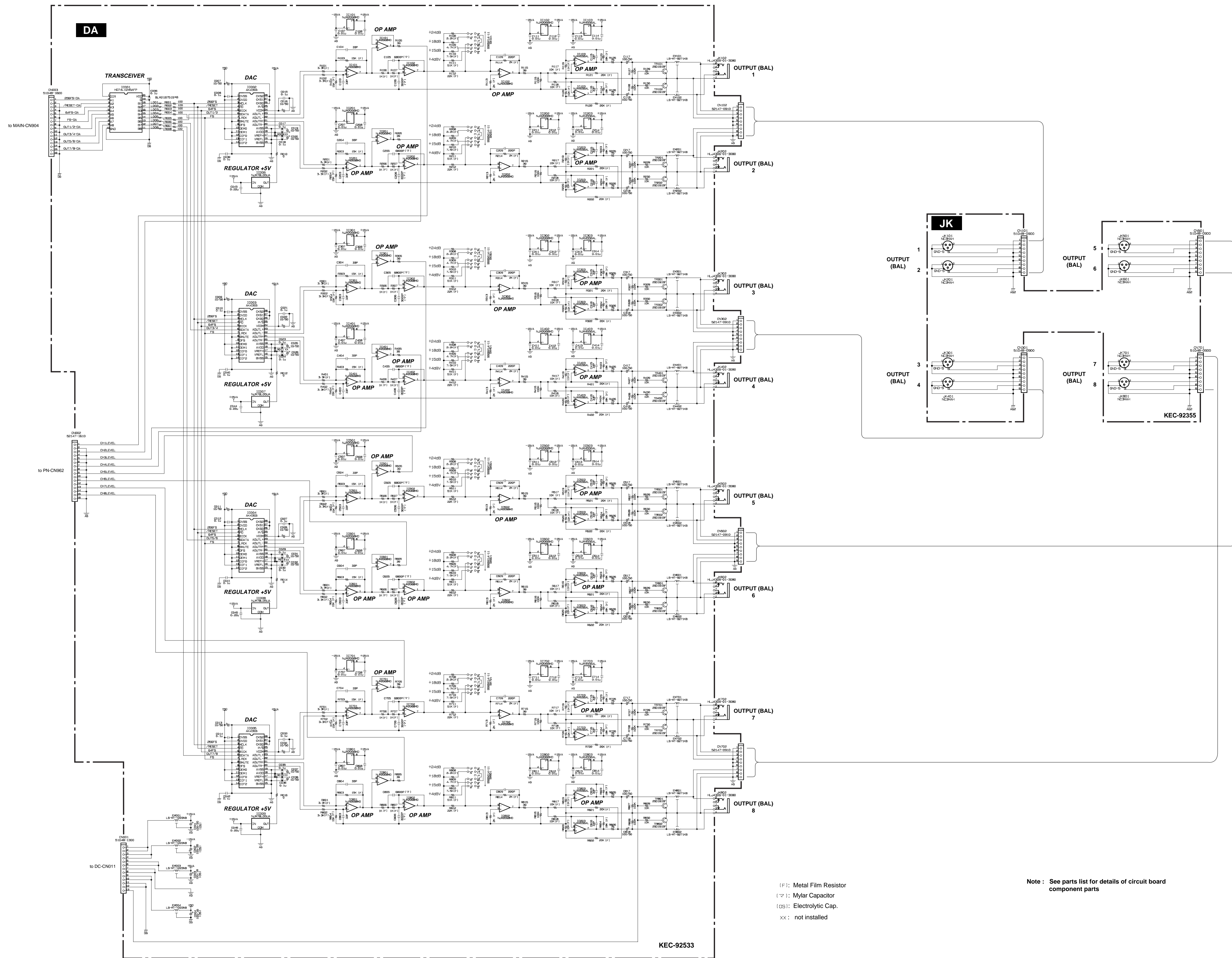
*: New Parts

RANK: Japan only



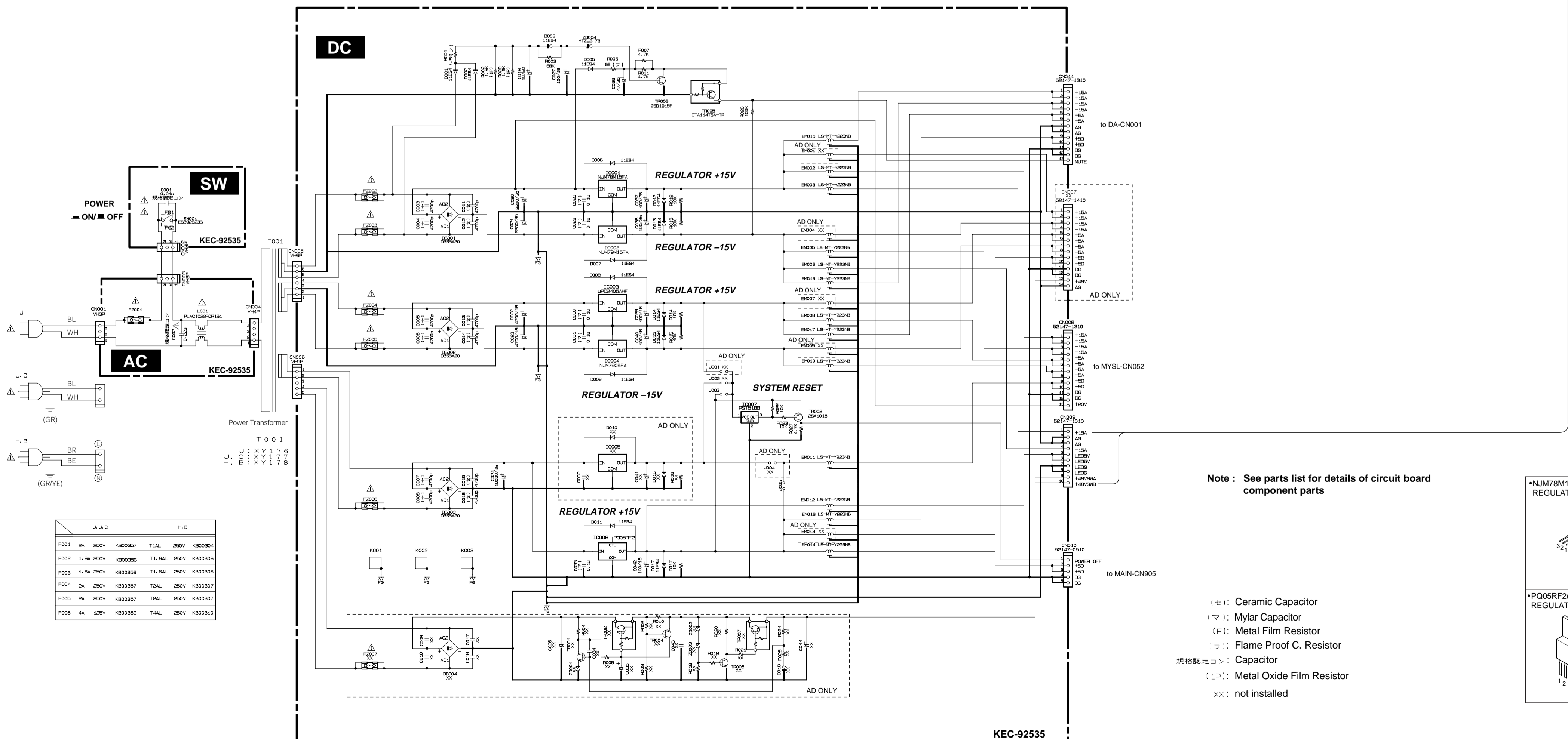
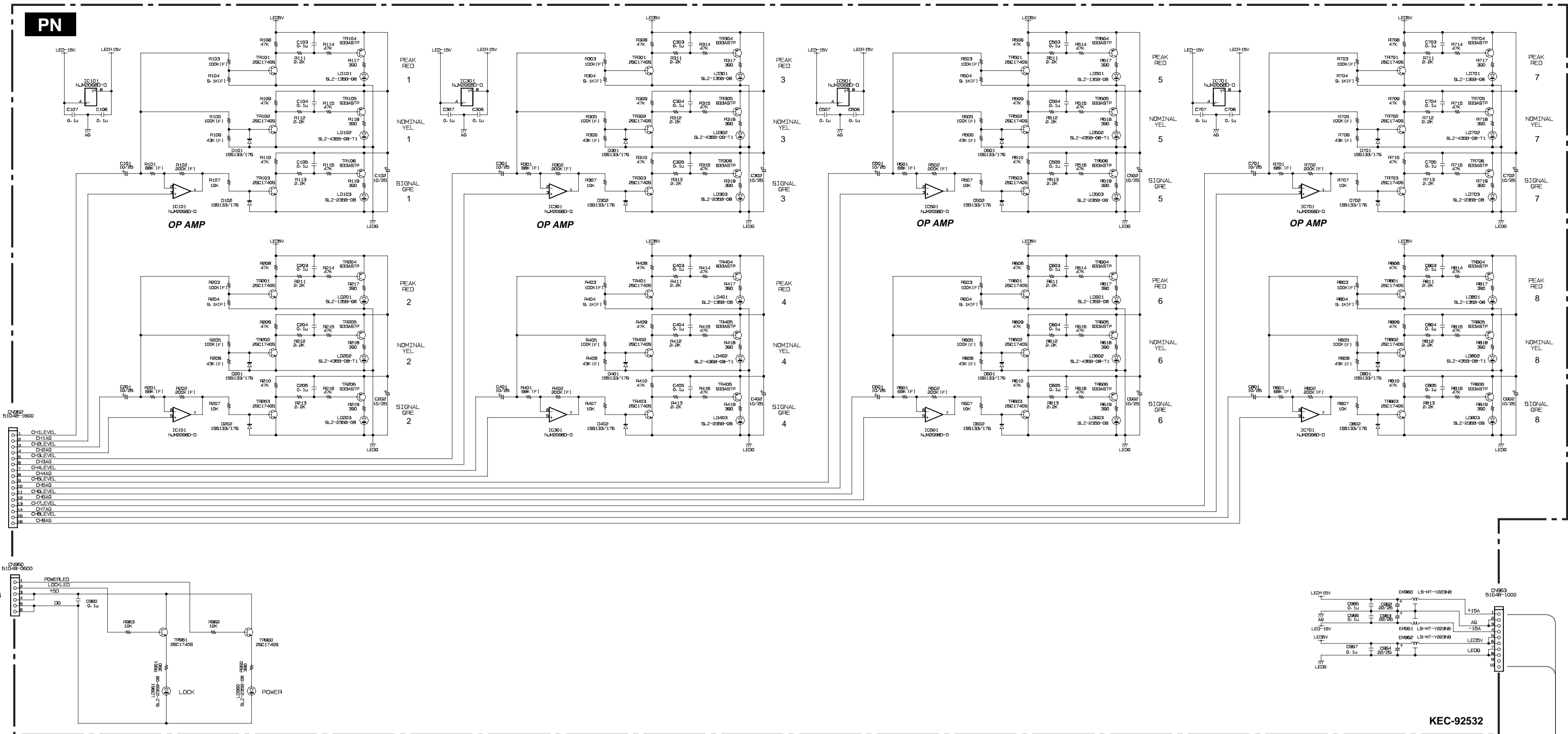
Note : See parts list for details of circuit board component parts

- [C] : Ceramic Capacitor
- [F] : Metal Film Resistor
- [M] : Mylar Capacitor
- XX : not installed



(F): Metal Film Resistor
 (M): Mylar Capacitor
 (ES): Electrolytic Cap.
 xx: not installed

Note: See parts list for details of circuit board component parts



TO SERVICE PERSONNEL
Critical Components Information
Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.

	U.C	H.B
F001	2A 250V H800307	T1AL 250V H800304
F002	1-6A 250V H800306	T1-6AL 250V H800306
F003	1-6A 250V H800306	T1-6AL 250V H800306
F004	2A 250V H800307	T1AL 250V H800307
F005	2A 250V H800307	T1AL 250V H800307
F006	4A 125V H800309	T4AL 250V H800310

Note : See parts list for details of circuit board component parts

- (C): Ceramic Capacitor
- (M): Mylar Capacitor
- (F): Metal Film Resistor
- (P): Flame Proof C. Resistor
- 規格認定コン: Capacitor
- (1P): Metal Oxide Film Resistor
- XX: not installed

 *NUM78M15FA(XJ603A00) REGULATOR +15V	 *NUM79M15FA(XG505A00) REGULATOR -15V	 *PC2405AHF (XR607A00) REGULATOR +5V	 *NUM7905FA(XK309A00) REGULATOR -5V
 *PQ05RF2(XH672A00) REGULATOR +5V 2A	 *NUM78L05UA(XJ598A00) REGULATOR +5V	 *D3SBA20 (XN011300) DIODE STACK 4.0A 200V	 *MTZ J 2.7B 2.7V (VQ552200) ZENER DIODE