

# DIGITAL IO BOX

# DIO 8

## SERVICE MANUAL



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**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

<b>Sampling frequency (external sync)</b>	39.69 kHz – 50.88 kHz
<b>Power supply</b>	USA and Canada: 120 V, 60 Hz
	Others: 230 V, 50 Hz
<b>Power consumption</b>	70 W
<b>Dimensions (W x H x D)</b>	480 mm x 185.5 mm x 411.6 mm
<b>Weight</b>	15.5 kg
<b>Operating temperature</b>	10 – 35 °C
<b>Power cable length</b>	1.5 m
<b>Accessories</b>	Connection cable (68-pin, D-sub, half-pitch) x 2, Length: 3 m

### I/Os

I/O connectors	Level	Type
INPUT A, B	RS422	D-sub, half-pitch, 68-pin connector (female)
OUTPUT A, B	RS422	D-sub, half-pitch, 68-pin connector (female)
COM	RS232C	D-sub,9-pin connector (male)
WORD CLOCK IN	TTL/75 Ω (ON/OFF) *1	BNC connector
WORD CLOCK OUT (X4)	TTL/75 Ω	BNC connector

\*1: On the rear panel

### Slots

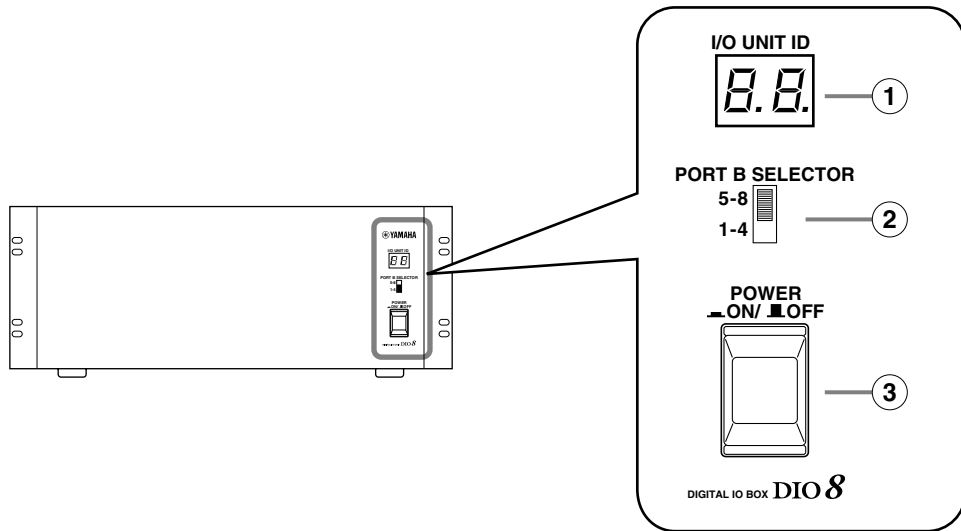
Eight slots (slots 1-8) are available on the DIO8 for installing digital I/O cards and analog I/O cards. Slot 1 supports a serial interface card (not released yet).

### <Optional interface cards>

Card	Format	Input	Output
MY8-TD	TASCAM	8 IN	8 OUT
MY8-AT	ADAT	8 IN	8 OUT
MY8-AE	AES/EBU	8 IN	8 OUT
MY8-AD	ANALOG IN	8 IN	—
MY4-AD	ANALOG IN	4 IN	—
MY4-DA	ANALOG OUT	—	4 OUT

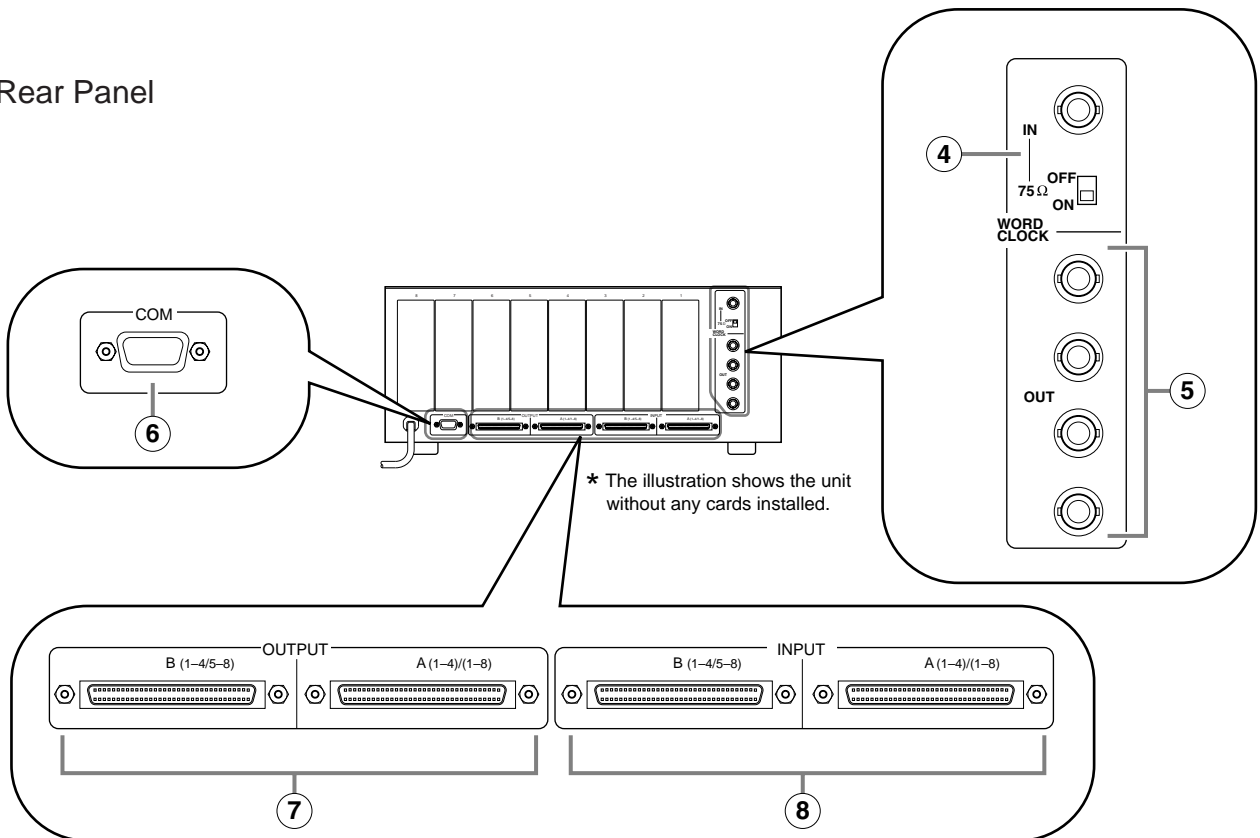
## ■ PANEL LAYOUT

### ● Front Panel



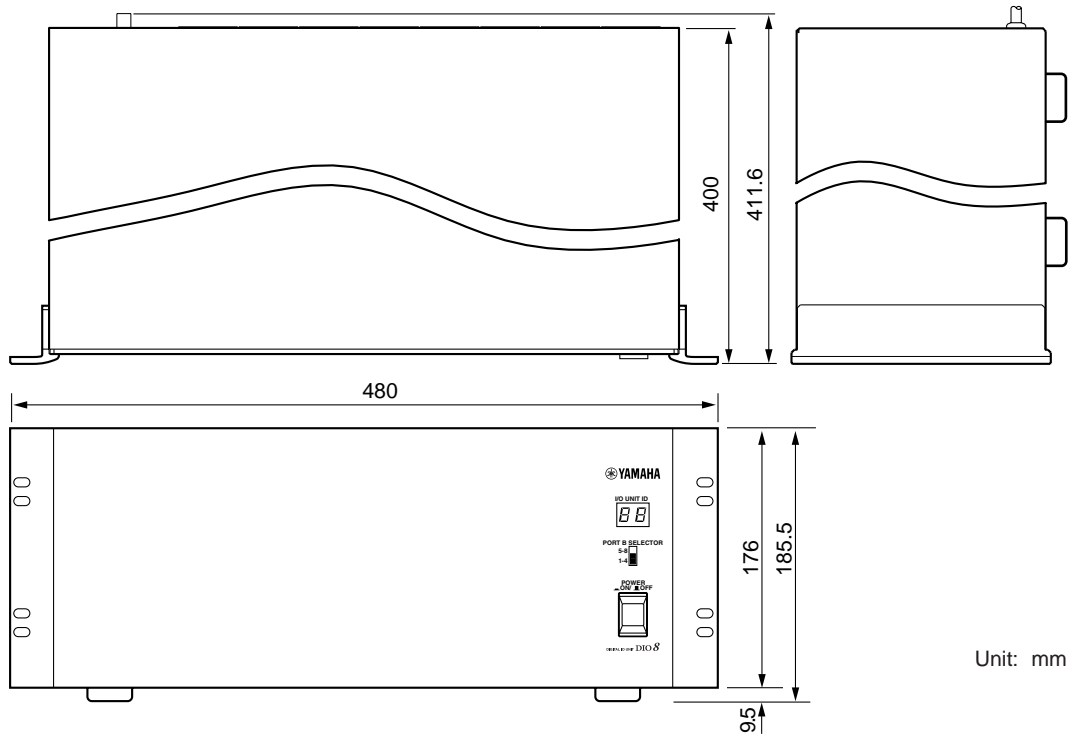
- ① I/O UNIT ID indicator
- ② PORT B SELECTOR switch
- ③ POWER ON/OFF switch

### ● Rear Panel



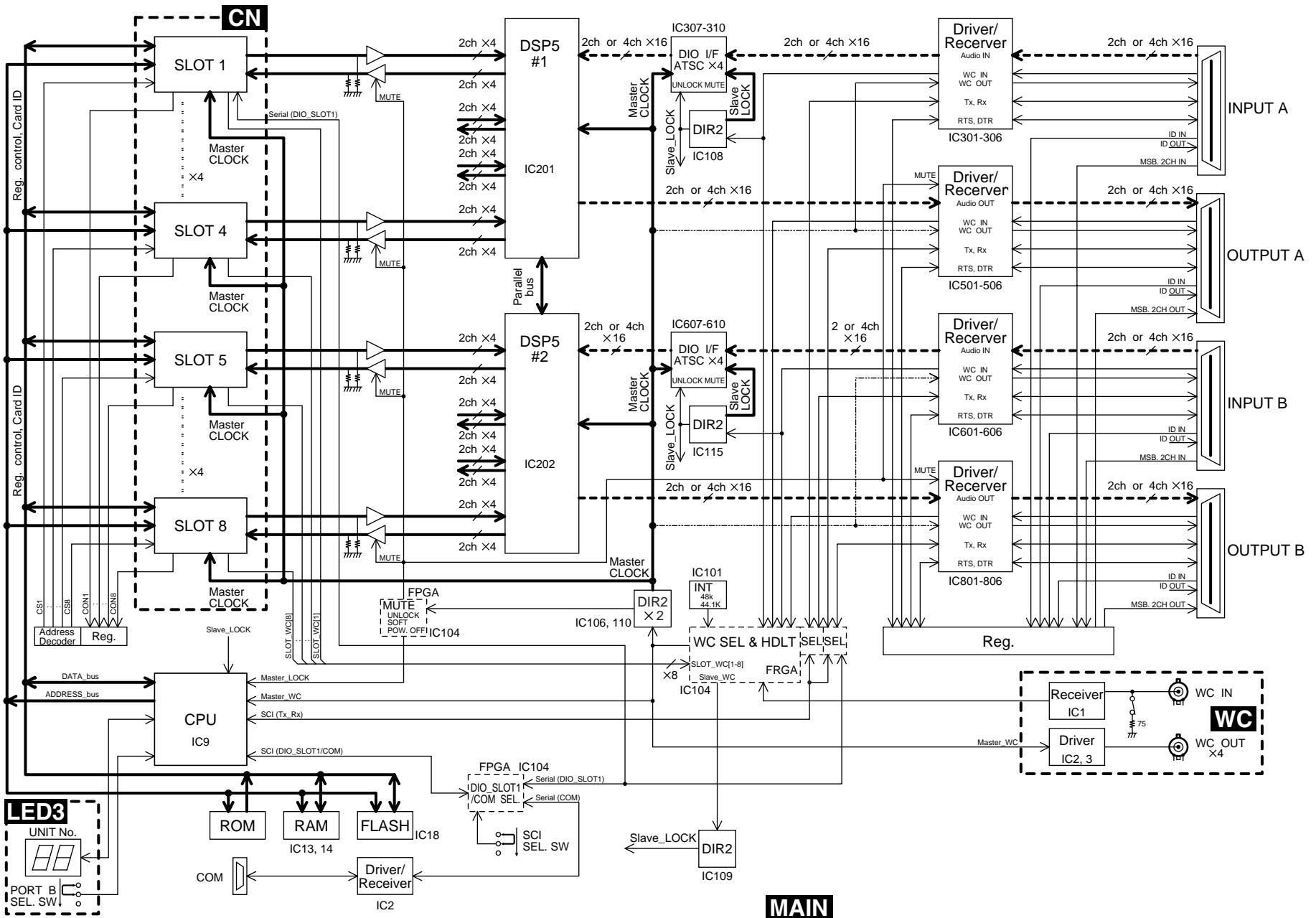
- ④ WORD CLOCK IN jack, ON/OFF switch
- ⑤ WORD CLOCK OUT jacks
- ⑥ COM port
- ⑦ OUTPUT connectors A (1-4)/(1-8), B (1-4/5-8)
- ⑧ INPUT connectors A (1-4)/(1-8), B (1-4/5-8)

## DIMENSIONS



Unit: mm

# ■ BLOCK DIAGRAM



**MAIN**

KEC-92496

## ■ DISASSEMBLY PROCEDURE

### 1. Top Cover

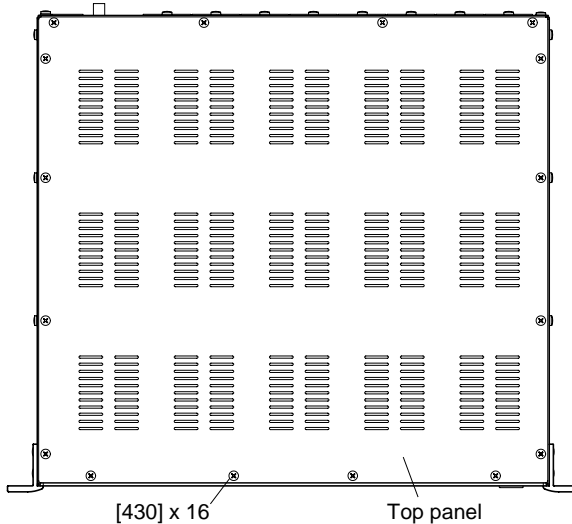
- 1-1 Remove the sixteen screws (16) marked [430]. The top cover can then be removed. (Fig. 1)

### 2. Circuit Boards and Unit

Remove the top cover, each circuit board and unit can then be removed. (Fig. 2)

Circuit Board and Unit	Ref. No.	Screw	QTY
DC Assembly	350	Bind Head Tapping Screw-B A4.0x6 MFZN2BL (VC688800)	4
Power Transformer	370	Bind Head Tapping Screw-B A4.0x6 MFZN2BL (VC688800)	4
WC	220	Flat Head Screw 3.0x6 MFZN2BL (VS863000)	5

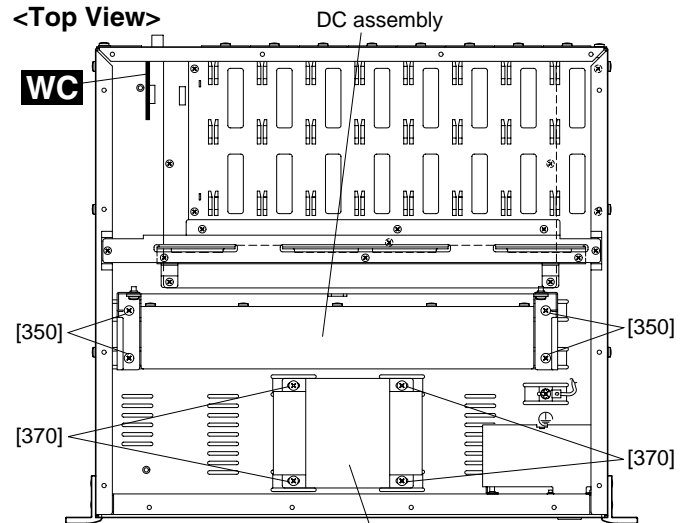
<Top View>



[430]: Bind Head Tapping Screw-B A4.0x8 MFZN2BL (VC688800)

Fig. 1

<Top View>



<Rear View>

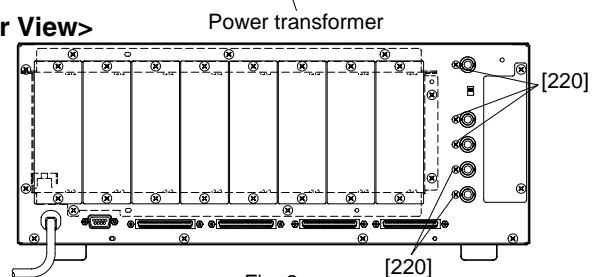


Fig. 2

### 3. DC Circuit Board

- 3-1 Remove the DC assembly. (See Procedure 2.)  
 3-2 Remove the four (4) screws marked [80]. The transistor holder 1 can then be removed. (Fig. 3)  
 3-3 Remove the five (5) screws marked [100]. The transistor holder 2 can then be removed. (Fig. 3)  
 3-4 Remove the three (3) screws marked [50] and the two (2) screws marked [60]. The DC circuit board can then be removed. (Fig. 3)

### 4. CN Circuit Board

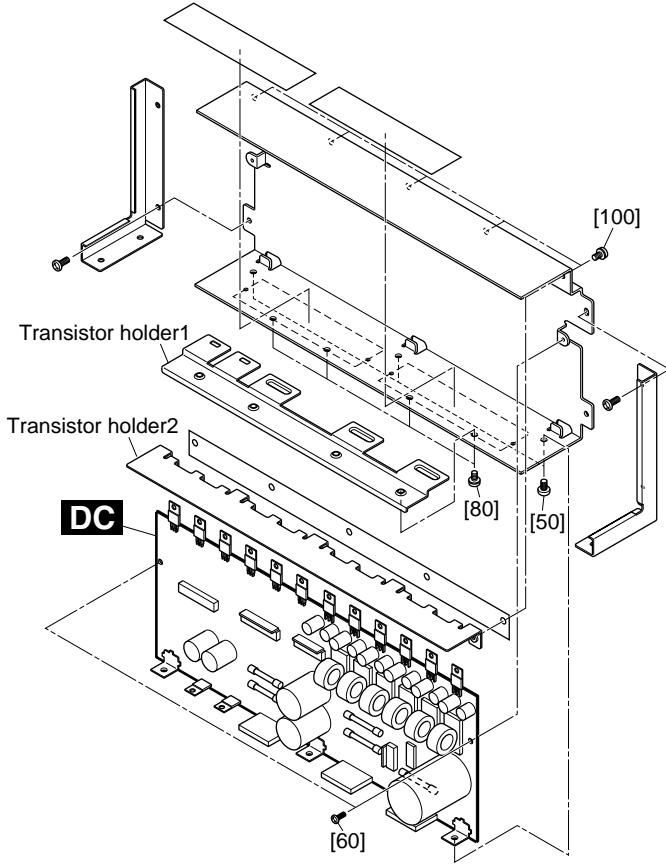
\* Note that remove all cards before following operation.

- 4-1 Remove the top cover. (See Procedure 1.)  
 4-2 Remove the eight (8) screws marked [330]. The angle bracket can then be removed. (Fig. 4)



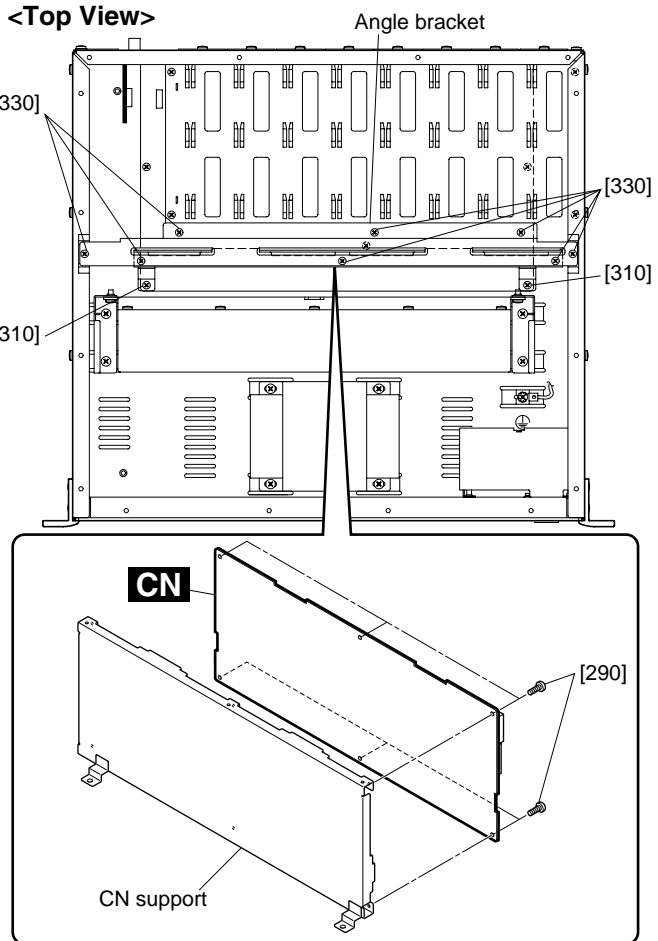
- 4-3 Remove the two (2) screws marked [310]. The CN support can then be removed. (Fig. 4)
- 4-4 Remove the six (6) screws marked [290]. The CN circuit board can then be removed. (Fig. 4)

• DC Assembly



- [50]: Bind Head Screw A4.0x8 MFZN2BL (VP156800)
- [60]: Bind Head Tapping Screw-B 3.0x8 MFZN2BL (EP600190)
- [80]: Pan Head Screw SP 4.0x8 MFZN2Y (EL200020)
- [100]: Pan Head Screw SP 4.0x8 MFZN2Y (EL200020)

Fig. 3



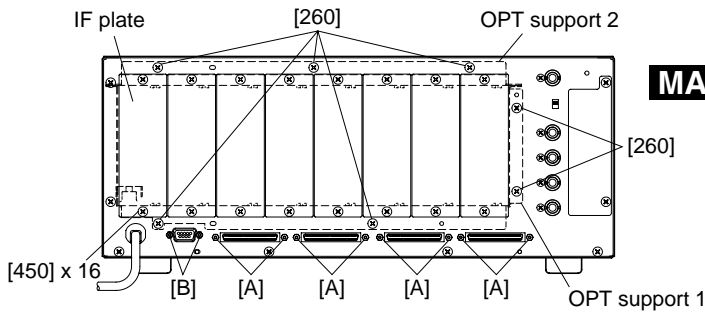
- [290]: Bind Head Tapping Screw-B 3.0x6 MFZN2BL (EP600230)
- [310]: Bonding Tapping Screw-B 3.0x8 MFZN2BL (VN413300)
- [330]: Bonding Tapping Screw-B 3.0x8 MFZN2BL (VN413300)

Fig. 4

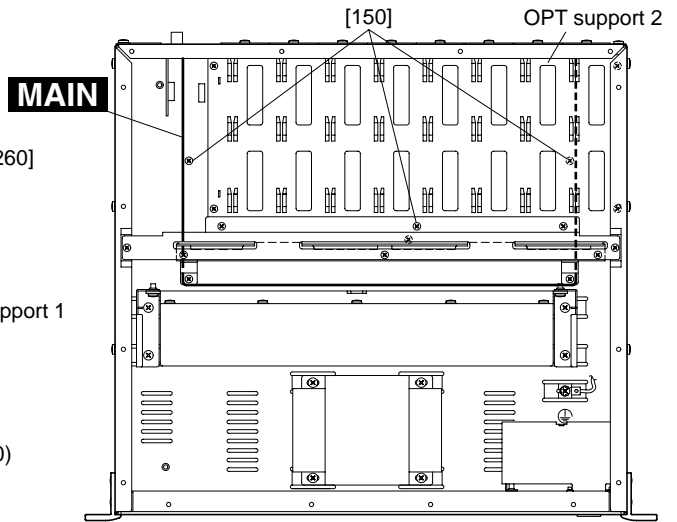
5. MAIN Circuit Board

- 5-1 Remove the top cover. (See Procedure 1.)
- 5-2 Remove the CN circuit board. (See Procedure 4.)
- 5-3 Remove the sixteen screws (16) marked [450]. The IF plate can then be removed. (Fig. 5)
- 5-4 Remove the seven (7) screws marked [260]. The OPT support can then be removed. (Fig. 5)
- 5-5 Remove the three (3) screws marked [150]. (Fig. 5)
- 5-6 Remove the eight (8) screws marked [A] and the two (2) screws marked [B]. The MAIN circuit board can then be removed. (Fig. 5)

<Rear View>



<Top View>



- [150]: Bind Head Tapping Screw-B 3.0x6 MFZN2BL (EP600230)
- [260]: Bind Head Tapping Screw-B A4.0x8 MFZN2BL (VC688800)
- [450]: Bind Head Screw A4.0x12 MFZN2BL (VP156900)

Fig. 5

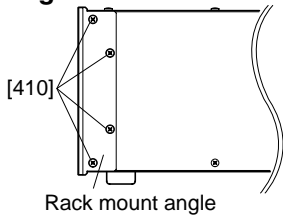
**6. Front Panel Assembly**

- 6-1 Remove the eight (8) screws marked [410]. The rack mount angle can then be removed. (Fig. 6)
- 6-2 Remove the three (3) screws marked [390]. The front panel assembly can then be removed. (Fig. 6)

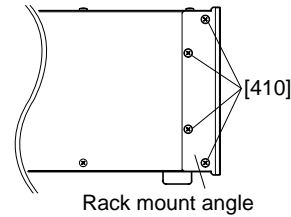
**7. LED3 Circuit Board, AC Circuit Board**

- 7-1 Remove the front panel assembly. (See Procedure 6.)
- 7-2 Remove the five (5) screws marked [100]. The front panel can then be removed. (Fig. 7)
- 7-3 Remove the two (2) screws marked [60]. The LED3 circuit board can then be removed. (Fig. 7)
- 7-4 Remove the four (4) screws marked [80]. The AC circuit board can then be removed. (Fig. 7)

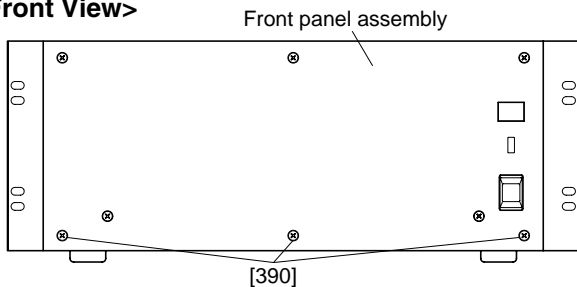
<Right side View>



<Left side View>



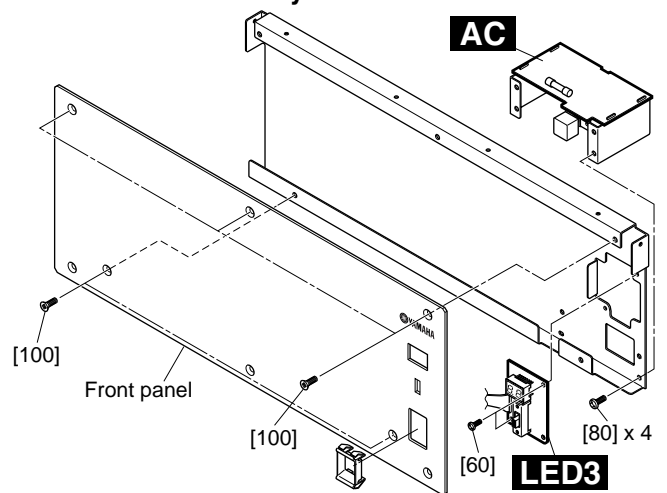
<Front View>



- [390]: Oval Head Screw 4.0x8 MFZN2BL (VS153600)
- [410]: Oval Head Screw 4.0x8 MFZN2BL (VS153600)

Fig. 6

**• Front Panel Assembly**



- [60]: Bind Head Tapping Screw-B 3.0x6 MFZN2BL (EP600230)
- [80]: Bind Head Tapping Screw-B A4.0x8 MFZN2BL (VC688800)
- [100]: Oval Head Screw 4.0x8 MFZN2BL (VS153600)

Fig. 7

## ■ LSI PIN DESCRIPTION

### ● HD6437042AF53F (XY721A00) CPU

MAIN: IC009

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					
6	A2	O		Ground	61	VSS	I
7	A3	O					
8	A4	O		Data bus	62	D7	I/O
9	A5	O					
10	A6	O		Power supply	63	D6	I/O
11	A7	O					
12	A8	O		Data bus	64	D5	I/O
13	A9	O					
14	A10	O		Ground	65	VCC	I
15	A11	O					
16	A12	O		Crystal oscillator	66	D4	I/O
17	A13	O					
18	A14	O		Mode control	67	D3	I/O
19	A15	O					
20	A16	O	Non-maskable interrupt request	68	D2	I/O	
21	VCC	I		Power supply	69	D1	I/O
22	A17	O	Address bus		70	D0	I/O
23	VSS	I		Ground	71	VSS	I
24	/RAS	O	Row address strobe		72	XTAL	I
25	/CASL	O		Column address strobe (low)	73	MD3	I
26	/CASH	O	Column address strobe (high)		74	EXTAL	I
27	VSS	O		Ground	75	MD2	I
28	RDWR / PB5	O	DRAM read/write / Port B		76	NMI	I
29	A18	O		Address bus	77	VCC	I
30	A19	O	Port B / Address bus		78	MD1	I
31	A20	O		Ground	79	MD0	I
32	PB9 / A21	O	Port B / Address bus		80	PLL VCC	I
33	VSS	I		Ground	81	PLLCAP	I
34	/RD	O	Read		82	PLL VSS	I
35	/WDTOVF	O		Watch dog timer overflow	83	PA15 / CK	O
36	/WRH	O	High write		84	/RES	I
37	VCC	I		Power supply	85	PE0	I
38	/WRL	O	Low write		86	PE1	I
39	VSS	I		Ground	87	PE2	I
40	/CS1	O	Chip select		88	PE3	I
41	/CS0	O		Chip select	89	PE4	I
42	PA9 / TCLKD	O	Port A / Timer clock		90	VSS	I
43	/IRQ2 / TCLKC	I		Interrupt request / Timer clock	91	AN0 / PF0	I
44	/CS3	O	Chip select		92	AN1 / PF1	I
45	/CS2	O		Chip select	93	AN2 / PF2	I
46	/IRQ1	I	Interrupt request		94	AN3 / PF3	I
47	TXD	O		Data transmission	95	AN4 / PF4	I
48	RXD	I	Data reception		96	AN5 / PF5	I
49	/IRQ0	I		Interrupt request	97	AVSS	I
50	PA1 / TXD0	O	Port A / Data transmission		98	AN6 / PF6	I
51	PA0 / RXD0	I		Port A / Data reception	99	AN7 / PF7	I
52	D15	I/O	Data bus		100	AVCC	I
53	D14	I/O		Ground	101	VSS	I
54	D13	I/O					
55	VSS	I	Ground	102	PE5	O	
56	D12	I/O		Data bus	103	VCC	I
					104	PE6	O
				105	PE7	O	
				106	PE8	O	
				107	PE9	O	
				108	PE10	O	
				109	VSS	I	
				110	PE11	O	
				111	PE12	O	
				112	PE13	O	

● **YM3436DK (XG948E0) DIR2 (Digital Format Interface Receiver)**

MAIN: IC106, 108–110, 115

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

● SGH609080F-47F (XU235A00) ATSC

MAIN: IC307-310, 607-610

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	syncati	I	Synch. word input terminal for ati, siat3-0 input	41	synci	I	Synch. word input terminal for si3-0 input
2	mccti	I	64 fs clock input terminal for ati, siat3-0 input	42	mcci	I	64 fs clock input terminal for si3-0 input
3	mcbti	I	128 fs clock input terminal for ati, siat3-0 input	43	mcbi	I	128 fs clock input terminal for si3-0 input
4	VCC		Power supply (+5 V)	44	VCC		Power supply (+5 V)
5	GND		Ground	45	GND		Ground
6	mcati	I	256 fs clock input terminal for ati, siat3-0 input	46	mcai	I	256 fs clock input terminal for si3-0 input
7	GND		Ground	47	GND		Ground
8	siat0	I	Serial data input terminal	48	si0	I	Serial data input terminal
9	siat1	I		49	si1	I	
10	siat2	I		50	si2	I	
11	siat3	I		51	si3	I	
12	ati	I	Optical input terminal	52	GND		Ground
13	GND		Ground	53	so3	O	Serial data output terminal
14	ato	O	Optical output terminal	54	so2	O	
15	soat3	O	Serial data output terminal	55	so1	O	
16	soat2	O		56	so0	O	
17	soat1	O		57	VCC		Power supply (+5 V)
18	soat0	O		58	GND		Ground
19	VCC		Power supply (+5 V)	59	mcao	I	256 fs clock input terminal for so3-0 output
20	GND		Ground	60	GND		Ground
21	mcato	I	256 fs clock input terminal for ato, soat3-0 output	61	mcbo	I	128 fs clock input terminal for so3-0 output
22	GND		Ground	62	mcco	I	64 fs clock input terminal for so3-0 output
23	mcbto	I	128 fs clock input terminal for ato, soat3-0 output	63	synco	I	Synch. word input terminal for so3-0 output
24	mccto	I	64 fs clock input terminal for ato, soat3-0 output	64	so-sel1	I	Format select terminal for soat3-0 output
25	syncato	I	Synch. word input terminal for ato, soat3-0 output	65	so-sel0	I	Format select terminal for soat3-0 output
26	clkssel	I	Clock select terminal for ato, soat3-0 output 0: mcato,mcbto,mccto,syncato 1: mcai,mcbi,mcci,synci	66	uo3	O	U-bit output terminal for optical output
27	ato-sel0	I	Format select terminal for ato, soat3-0 output	67	uo2	O	
28	ato-sel1	I	Format select terminal for ato, soat3-0 output	68	uo1	O	
29	bitsel2		Bit shift select terminal for the ato output	69	uo0	O	
30	bitsel1			70	ext-sync1	O	Synch. detect output terminal 1
31	bitsel0			71	VCC		Power supply (+5 V)
32	VCC			72	GND		Ground
33	GND		73	clk	I	Clock input terminal for word clock extract	
34	ext-sync2		Synch. detect output terminal 2	74	GND		Ground
35	ui0		U-bit input terminal for optical output	75	/res	I	System reset input terminal
36	ui1			76	GND		Ground
37	ui2			77	wc-at	O	Word clock output terminal
38	ui3			78	mute	I	Data mute input terminal
39	si-sel0		input format select terminal for si3-0	79	ati-sel1	I	Input format select terminal for ati, siat3-0.
40	si-sel1		input format select terminal for si3-0	80	ati-sel0	I	input format select terminal for ati, siat3-0.

so sel1	so sel0	input format
1	1	not enable to set
1	0	so0 (8ch/line)
0	1	so2, 0 (4ch/line)
0	0	so3-0 (2ch/line)

ato sel1	ato sel0	output format
1	1	ato
1	0	soat0 (8ch/line)
0	1	soat2, 0 (4ch/line)
0	0	soat3-0 (2ch/line)

si sel1	si sel0	input format
1	1	not enable to set
1	0	si0 (8ch/line)
0	1	si2, 0 (4ch/line)
0	0	si3-0 (2ch/line)

ati sel1	ati sel0	input format
1	1	ati
1	0	ati0 (8ch/line)
0	1	ati2, 0 (4ch/line)
0	0	ati3-0 (2ch/line)

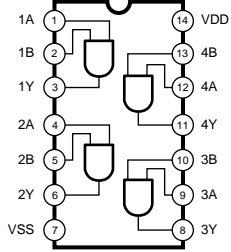
● YSS904-F (XV989A00) DSP5 (Digital Signal Processor)

MAIN: IC201, 202

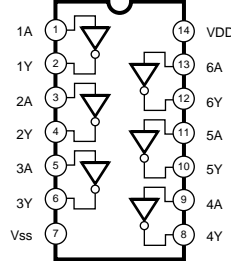
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION	
1	NC		} Not used	105	NC		} Not used	
2	NC							
3	NC							
4	Vdd		Ground	106	NC		} Serial data bus	
5	Vss	I	Power supply	107	NC			
6	XI	O	System master clock input (60 MHz or 30 MHz)	108	NC			
7	XO	O	System master clock output (High or 30 MHz)	109	SIO28	I/O		
8	Vdd		Ground	110	SIO29	I/O		
9	/SYNCL	I	Sync. signal input	111	SIO30	I/O		
10	/SYNCO	O	Sync. signal output	112	SIO31	I/O		
11	Vdd		Ground	113	Vss		} Power supply	
12	CKI	I	System clock input (30 MHz)	114	Vdd			
13	CKO	O	System clock output (30 MHz)	115	SIO32	I/O	} Ground	
14	CKSEL	I	System master clock select	116	SIO33	I/O		
15	Vss		Power supply	117	SIO34	I/O	} Serial data bus	
16	MCKD	I	Serial clock input (256 fs)	118	SIO35	I/O		
17	/SSYNC	I	Serial. signal input	119	SIO36	I/O		
18	/IC	I	Initial clear	120	SIO37	I/O		
19	/TEST	I	Test mode setting (0: TEST, 1: Normal)	121	SIO38	I/O	} Power supply	
20	NC		} Not used	122	SIO39	I/O		
21	NC							
22	NC							
23	Vdd		Ground	123	Vss		} Ground	
24	Vss		Power supply	124	Vdd			
25	/CS	I	Chip select	125	SIO40	I/O	} Serial data bus	
26	/WR	I	Write enable input	126	SIO41	I/O		
27	/RD	I	Read enable input	127	SIO42	I/O		
28	CA7	I	} CPU address bus	128	SIO43	I/O		
29	CA6	I						
30	CA5	I						
31	CA4	I						
32	CA3	I						
33	CA2	I	} Power supply					
34	CA1	I						
35	Vss		Power supply	133	Vss			
36	Vdd		Ground	134	SIO48	I/O	} Power supply	
37	CD15	I/O						
38	CD14	I/O	} CPU data bus	135	SIO49	I/O		
39	CD13	I/O						
40	CD12	I/O						
41	CD11	I/O						
42	CD10	I/O						
43	CD09	I/O		} Serial data bus				
44	CD08	I/O						
45	CD07	I/O						
46	CD06	I/O						
47	Vss		} Power supply					
48	Vdd			Ground	140	SIO54	I/O	
49	NC		} Not used	141	SIO55	I/O		
50	NC							
51	NC							
52	NC		} Power supply					
53	NC							
54	NC		} Ground					
55	NC							
56	NC							
57	Vdd		} Power supply					
58	Vdd			Parallel data bus controll signal	142	Vss		
59	CD05	I/O	} Power supply					
60	CD04	I/O		Power supply	143	Vdd		
61	CD03	I/O	} CPU data bus	144	Vdd			
62	CD02	I/O						
63	CD01	I/O						
64	CD00	I/O		} Parallel data bus				
65	/WAIT	O			Wait output	145	SIO56	I/O
66	Vss				Power supply	146	SIO57	I/O
67	SIO00	I/O			} Power supply			
68	SIO01	I/O	Power supply	147		SIO58	I/O	
69	SIO02	I/O	} Serial data bus	148	SIO59	I/O		
70	SIO03	I/O						
71	SIO04	I/O						
72	SIO05	I/O	} Ground					
73	SIO06	I/O		Ground	149	SIO60	I/O	
74	SIO07	I/O	} Parallel data bus					
75	Vss			Power supply	150	SIO61	I/O	
76	Vdd			Ground	151	SIO62	I/O	
77	SIO08	I/O		} Power supply				
78	SIO09	I/O	Power supply		152	SIO63	I/O	
79	SIO10	I/O	} Not used					
80	SIO11	I/O		Not used	153	NC		
81	SIO12	I/O		} Parallel data bus				
82	SIO13	I/O	Parallel data bus		154	NC		
83	SIO14	I/O	} Power supply					
84	SIO15	I/O		Power supply	155	NC		
85	Vss		} Ground					
86	Vdd			Ground	156	NC		
87	SIO16	I/O	} Power supply					
88	SIO17	I/O		Power supply	157	NC		
89	SIO18	I/O	} Serial data bus					
90	SIO19	I/O						
91	SIO20	I/O						
92	SIO21	I/O	} Power supply					
93	SIO22	I/O		Power supply	158	NC		
94	SIO23	I/O	} Ground					
95	Vss			Power supply	159	NC		
96	Vdd		Ground	160	NC			
97	SIO24	I/O	} Parallel data bus					
98	SIO25	I/O		Parallel data bus	161	Vss		
99	SIO26	I/O		Parallel data bus	162	/POE	I	
100	SIO27	I/O		Parallel data bus	163	Vss		
101	NC		} Power supply					
102	NC			Power supply	164	PIO00	I/O	
103	NC		} Not used					
104	NC			Not used	165	PIO01	I/O	
				166	PIO02	I/O		
				167	PIO03	I/O		
				168	PIO04	I/O		
				169	PIO05	I/O		
				170	PIO06	I/O		
				171	PIO07	I/O		
				172	Vss			
				173	Vdd			
				174	Vdd			
				175	PIO08	I/O		
				176	PIO09	I/O		
				177	PIO10	I/O		
				178	PIO11	I/O		
				179	PIO12	I/O		
				180	PIO13	I/O		
				181	PIO14	I/O		
				182	PIO15	I/O		
				183	Vss			
				184	NC			
				185	PIO16	I/O		
				186	PIO17	I/O		
				187	PIO18	I/O		
				188	PIO19	I/O		
				189	PIO20	I/O		
				190	PIO21	I/O		
				191	PIO22	I/O		
				192	PIO23	I/O		
				193	Vss			
				194	Vdd			
				195	Vdd			
				196	PIO24	I/O		
				197	PIO25	I/O		
				198	PIO26	I/O		
				199	PIO27	I/O		
				200	PIO28	I/O		
				201	PIO29	I/O		
				202	PIO30	I/O		
				203	PIO31	I/O		
				204	Vss			
				205	NC			
				206	NC			
				207	NC			
				208	NC			

## IC BLOCK DIAGRAM

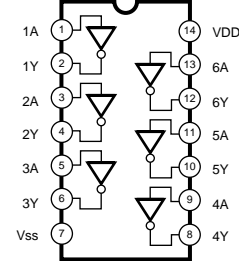
- **HD74LV00AFPEL** (IS000000)  
Quad 2 Input NAND  
MAIN: IC118



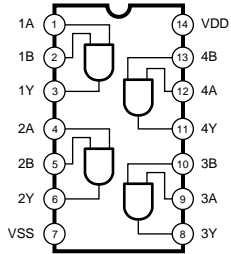
- **HD74LVU04AFPEL** (XY102A00)  
Hex Inverter  
MAIN: IC101



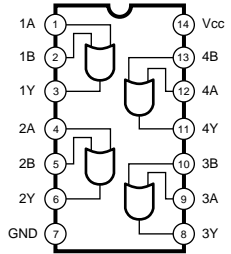
- **HD74LV04AFPEL** (IS000400)  
Hex Inverter  
MAIN: IC107



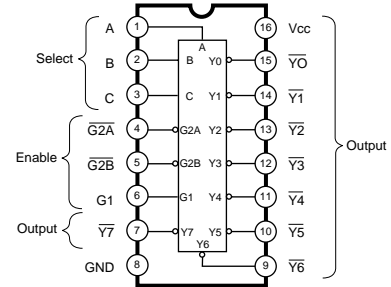
- **HD74LV08AFPEL** (IS000800)  
Quad 2 Input AND  
MAIN: IC8, 119



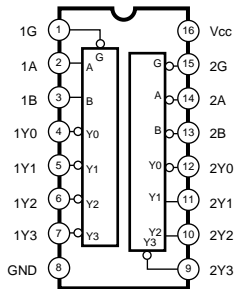
- **HD74LV32AFPEL** (IS003200)  
Quad 2 Input OR  
MAIN: IC16, 17



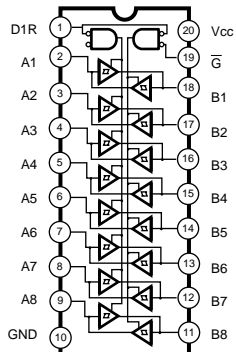
- **SN74LV138ANSR** (IS013810)  
3 to 8 Demultiplexer  
MAIN: IC10, 11



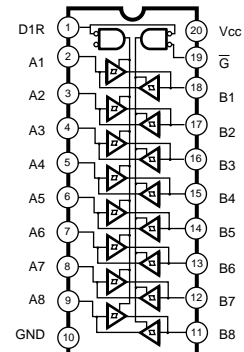
- **SN74LV139ANSR** (IS013910)  
Dual 2 to 4 Demultiplexer  
MAIN: IC24



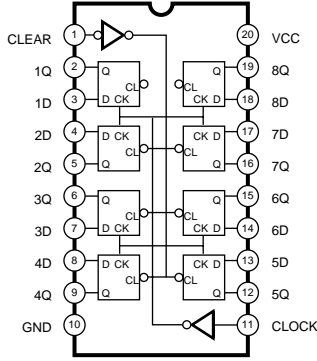
- **HD74LV245AFPEL** (IS024500)  
Octal 3-State Bus Transceiver  
MAIN: IC1, 3-6, 19-22, 30-35, 103,  
112-114, 203,210



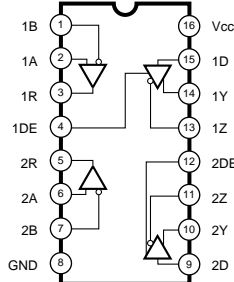
- **TC74HC245AF** (XS720A00)  
Octal 3-State Bus Transceiver  
MAIN: IC25-29



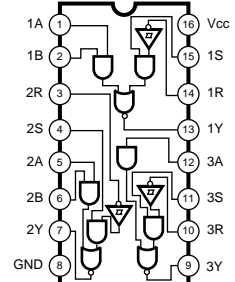
- **HD74LV273AFPEL** (IS027300)  
Octal D-Type Flir Flop  
MAIN: IC7, 15



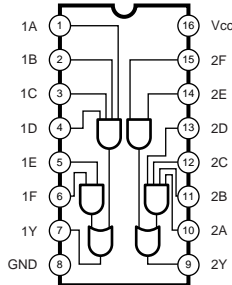
- **SN75C1168NSR** (XU073A00)  
Line Driver / Receiver  
MAIN: IC2



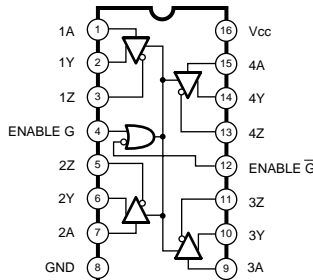
- **SN75124NS** (XN976A00)  
Triple Line Receiver  
WC: IC1



- **SN75121NSR** (XU816A00)  
Dual Line Driver  
WC: IC2, 3



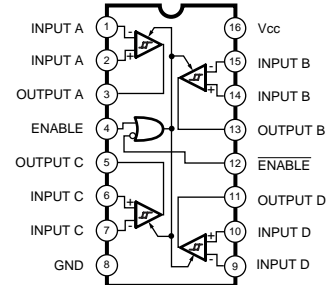
- **AM26LS31CNSR** (XU996A00)  
Quad Line Driver  
MAIN: IC301, 501-505, 601, 801-805



INPUT A	ENABLES		OUTPUTS	
	G	$\bar{G}$	Y	Z
H	H	X	H	L
L	H	X	L	H
H	X	L	H	L
L	X	L	L	H
X	L	H	Z	Z

H= high level X= irrelevant  
L= low level Z= high impedance (off)

- **DS26C32ATMX** (XU815A00)  
Quad Differential Line Receiver  
MAIN: IC302-306, 506, 602-606, 806



## ■ CIRCUIT BOARDS CONTENTS

<b>AC Circuit Board</b> (XW293B0).....	18
<b>CN Circuit Board</b> (XW283B0).....	17
<b>DC Circuit Board</b> (XW282A0).....	16
<b>LED3 Circuit Board</b> (XW286B0).....	18
<b>MAIN Circuit Board</b> (XW293B0).....	14
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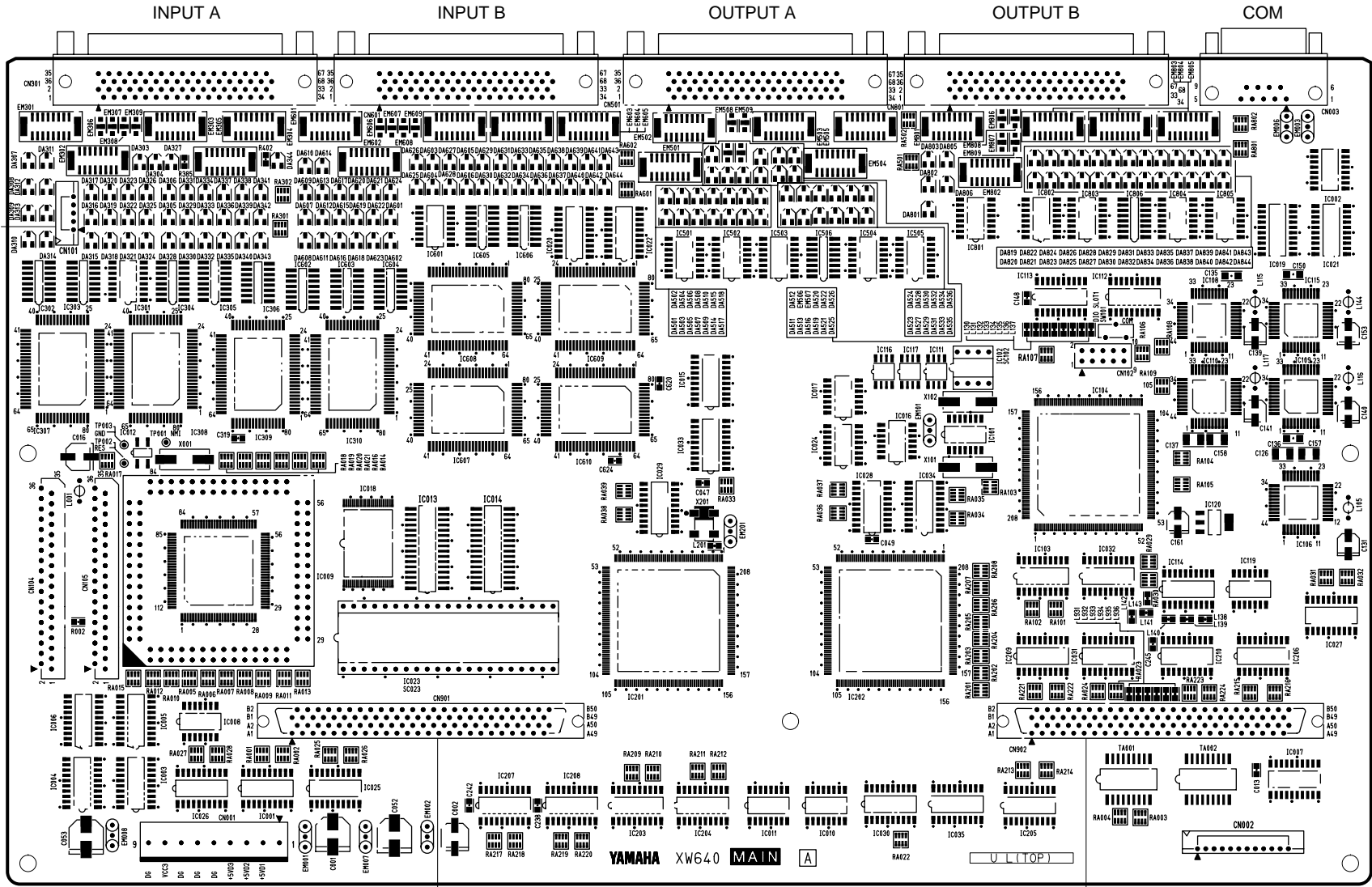
**Note:** See parts list for details of circuit board component parts.



# CIRCUIT BOARDS

## MAIN Circuit Board

to WC-CN001



from DC-CN401

to CN-CN909

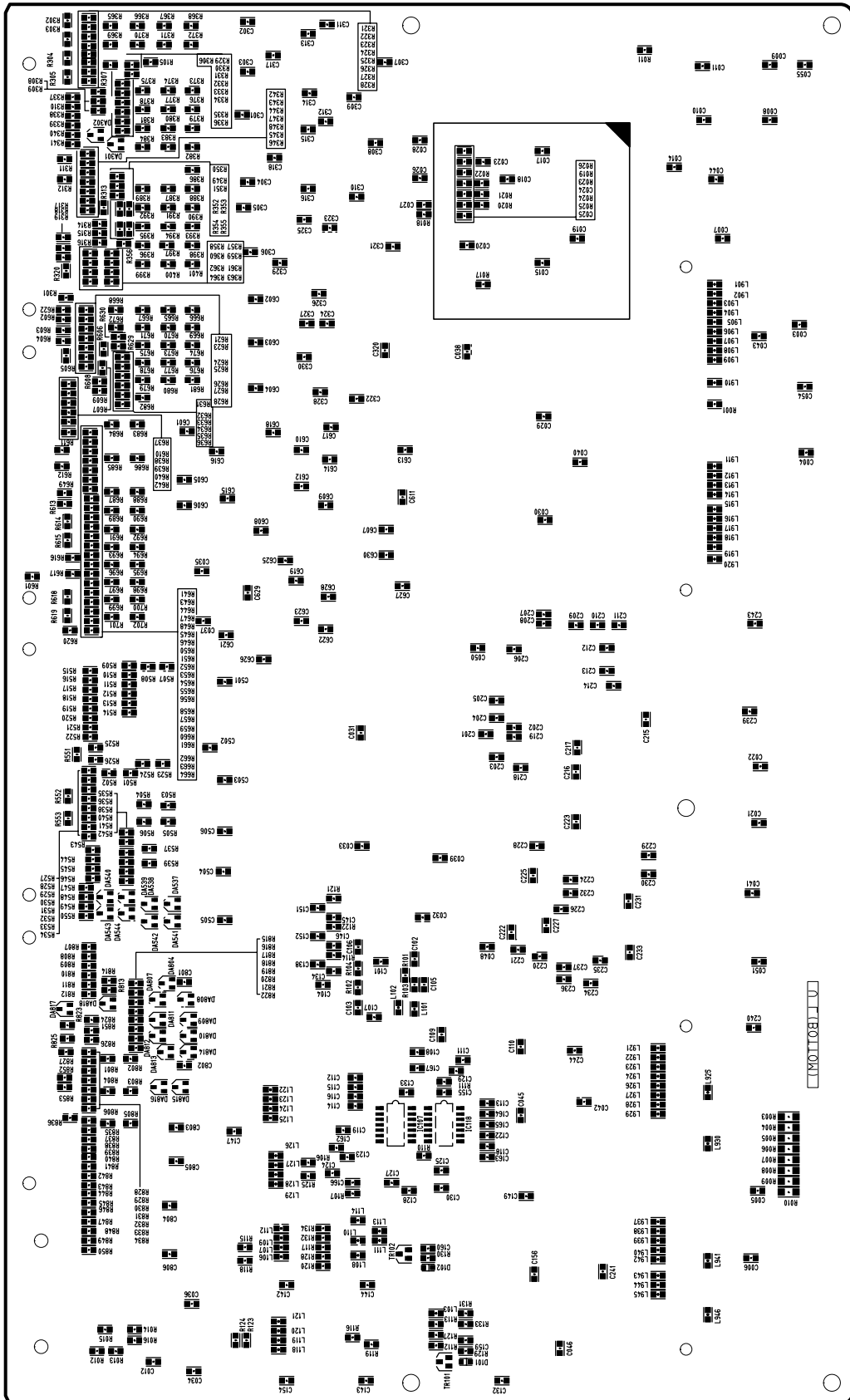
to CN-CN910

to LED3-CN100

Component side

3NA-V446020

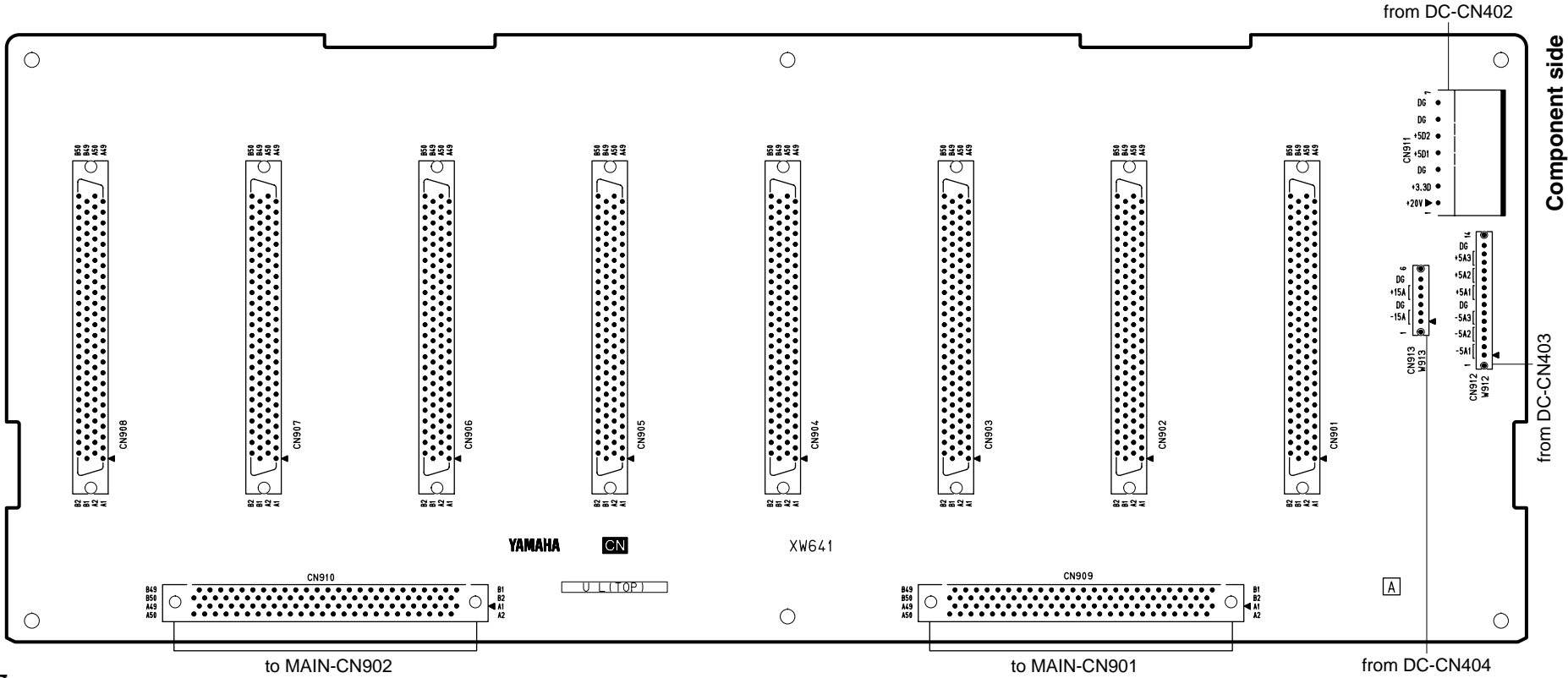
● MAIN Circuit Board



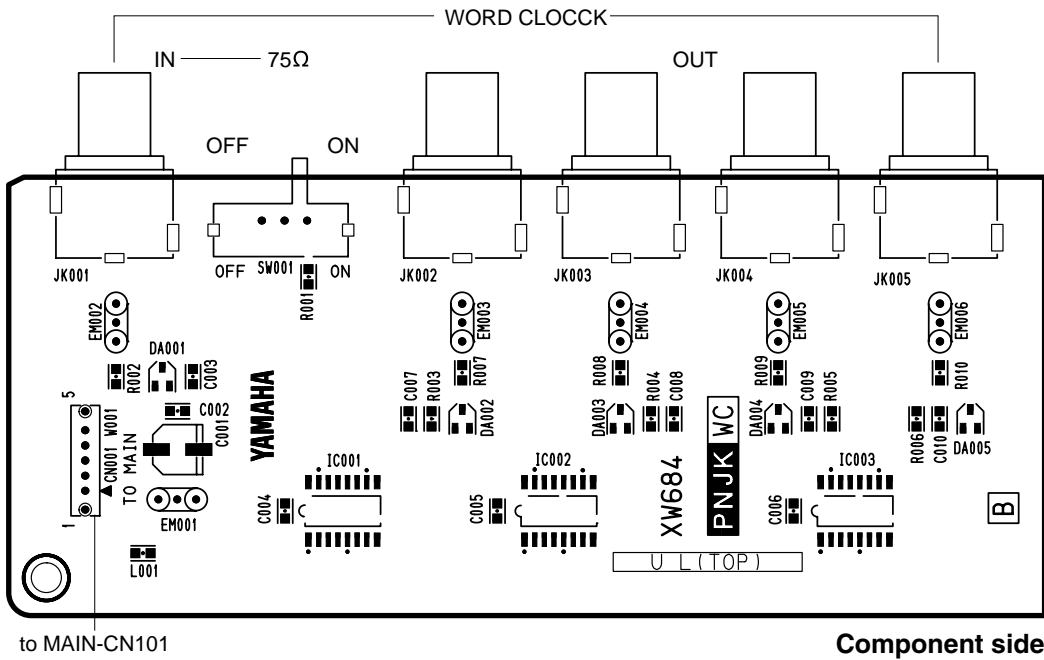
Pattern side



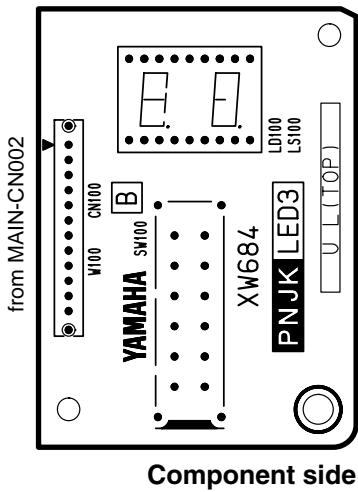
● CN Circuit Board



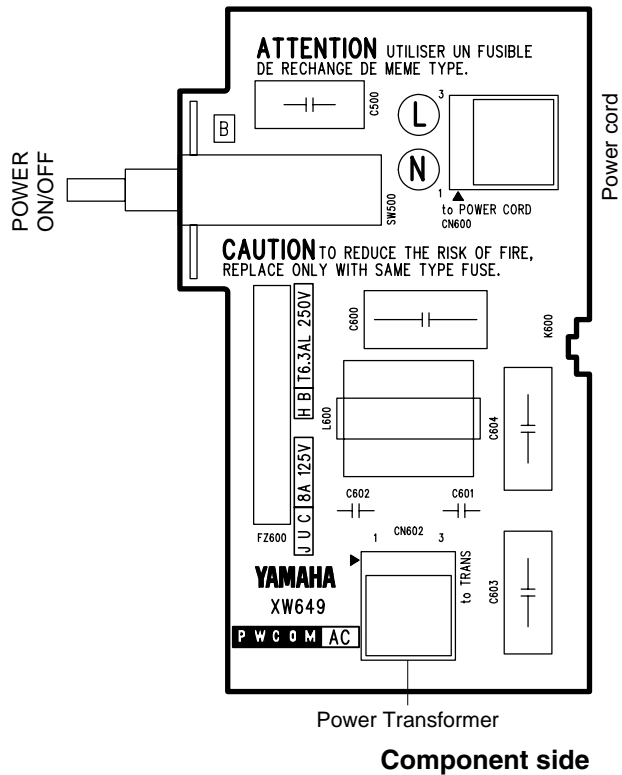
● WC Circuit Board



● LED3 Circuit Board



● AC Circuit Board



WC, LED3: 3NA-V505510△  
 AC: 3NA-V449590△

## INSPECTION

### 1. Range of Applicability

These specifications apply to the DIO8.

### 2. Preparations

#### 2-1. Conditions

◇ Connect the DIO8 COM terminal (D-sub, 9-pin) and the PC serial port with a serial cross cable and carry out the various measurements by inputting commands from the terminal software on the PC.

◇ The function generator used for inspection must be the Sony Tektronix AFG310 or equivalent. When using the AFG310, the settings are as follows.

```

FUNC: PULS
MODE: CONT
MODUL: OFF
AMPL: 1.800
OFFSET: 0.900

```

◇ Unless otherwise specified, the conditions are as follows.

- Set the PORT B SELECTOR switch to 5-8.
- Connect the function generator BNC output to DIO8 WORD CLOCK IN (BNC).
- Set DIO8 WORD CLOCK IN 75 Ω to ON.
- Switch the DIO8 clock master to WORD CLOCK IN (BNC).  
Input set wc 0x07 from the PC.
- 0 dBu = 0.775 Vrms
- The oscillator output impedance is to be 150 Ω.
- The input impedance for the oscilloscope, level meter, etc. is to be at least 100 kΩ.
- The MY4-DA analog output load is to be 600 Ω.
- Set the MY4-AD and MY4-DA gain select switch to +18 dB.

#### 2-2. Test Program

After the power on the DIO8 is started, inputting diag from the PC connected to the DIO8 starts the test program.

For details on the starting method etc., refer to the Test Program Specifications KES-92623.

### 3. Inspection

#### 3-1. Inspection with Test Program

- Inspect based on the Test Program Specifications KES-92623.

#### 3-2. Jitter Measurement

- Insert the MY8-AE card into the DIO8 slot and connect to DSA1 through the D-sub Canon conversion box.
- Set the function generator to 48 kHz and 44.1 kHz and measure the jitter at DSA1.

	Range of tolerance
48 kHz	6 nsec max.
44.1 kHz	5 nsec max.

#### 3-3. Frequency Operation Range

- Insert the MY4-AD card into DIO8 Slot 1 and the MY4-DA card into DIO8 Slot 5.
- Connect OUTPUT A and INPUT B with a SCSI cable.

##### (1) $F_s = 51.12 \text{ kHz}$ (48 kHz + 6.5 %)

- Set the function generator to 51.12 kHz.
- Input as in the table below. The output levels in the table below must be obtained. Also, test listen for one minute and verify that there is no noise.

Input frequency	Input level	Input terminal MY4-AD	Output terminal MY4-DA	Tolerance range
1 kHz	+16 dBu	Ch1	Ch1	+16 +/- 2 dBu
		Ch2	Ch2	+16 +/- 2 dBu
		Ch3	Ch3	+16 +/- 2 dBu
		Ch4	Ch4	+16 +/- 2 dBu

##### (2) $F_s = 39.69 \text{ kHz}$ (44.1 kHz -10 %)

- Set the function generator to 39.69 kHz.
- Input the same as in 3-3 (1). The same output levels must be obtained. Also, test listen for one minute and verify that there is no noise.

#### 4. **Factory Settings**

· Front panel

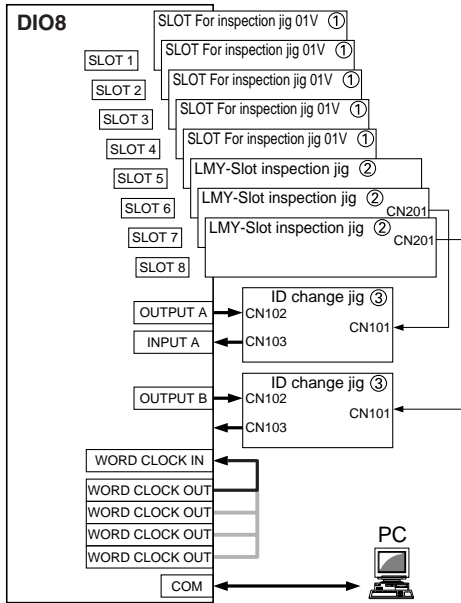
PORT B Selector: 5-8

· Rear panel

WORD CLOCK IN 75  $\Omega$ : On

## ■ TEST PROGRAM

### A. DIO8 Overall Inspection Configuration



① Drawing Management Number 8B34E Drawing Number KBS-92495  
01V Test Program Specifications  
Refer to the "Slot Inspection Jig Circuit Diagram".

② Drawing Management Number 8B87E Drawing Number KBS-92650  
LMY-Slot Inspection Jig Specifications  
Refer to the "LMY-Slot Inspection Jig Circuit Diagram".

③ Refer to the "ID Change Jig Circuit Diagram" on the same drawing.

#### <Inspection Items>

The overall inspection items are (1) automatic inspection that checks connections automatically, (2) the Port B Selector inspection, (3) the 68-pin D-sub terminal (CN301, 501, 601, and 801) ID port inspection, (4) the WORD CLOCK terminal inspection, (5) the 7-segment LED inspection. Also, the COM terminal connection check is OK if the test program starts.

Load dio8diag program Version V1.01 before inspecting.  
(See Page 30 for the upgrade method.)

### <Overall Assembly Diagnostics>

#### •Test program execution method

Connect the PC and the DIO8 COM terminal with a D-sub 9-pin serial cross cable and start up Hyper Terminal or some other terminal program.

Set the communications format settings to:

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

Next, switch on the DIO8 power. The following is displayed in the terminal software window.

```
This is DIO8 2000
DIO8>
```

Use the PC keyboard to input "diag". The display changes to

```
DIO8>diag
DIO8 Diagnosis version VX.X JAN.2000
DIO8_DIAG>
```

The DIO8 goes into test program mode. X.X is the test program version.

To exit test program mode, input "reset" and the DIO8 goes into the following state, the same as when the power was first switched on.

```
DIO8_DIAG>reset
This is DIO8 2000
DIO8>
```

### (1) Automatic Inspection

When you execute

```
DIO8_DIAG>test
```



the items below are inspected automatically and finally the OK/NG judgments are displayed plus the error list if there were any NGs.

[Inspection items (test command)]

1. DSP5 #1 (IC201) and CPU connection check
2. DSP5 #2 (IC202) and CPU connection check
3. DSP5 parallel bus connection check
4. DSP5 #1 (IC201) and DIO IN A (CN301), DIO OUT A (CN501) connection check
5. DSP5 #2 (IC202) and DIO IN B (CN601), DIO OUT B (CN801) connection check
6. DSP5 #1 (IC201) and Slot 1 - Slot 4 connection check
7. DSP5 #2 (IC202) and Slot 5 - Slot 8 connection check
8. Slot control line connection check
9. DIO IN A, DIO IN B, DIO OUT A, DIO OUT B control line connection check
10. SRAM (IC013, IC014) and CPU connection check
11. Slot 1 serial interface connection check
12. Slot power line (12V system) check

If the above 12 items are all OK,

```
DIAGNOSIS RESULT      OK
DIO8_DIAG>
```

is displayed and the program ends. If there was an NG item, an error list such as

```
DIAGNOSIS RESULT      NG
ERROR LIST
[4]  DIOA AUDIO LINE   XXXX XXXX XXXX XXXX
[5]  DIOD AUDIO LINE   XXXX XXXX XXXX XXXX
      :
```

is displayed. (Only NG items)

[ERROR LIST]

- [1] DSP5-1 <==> CPU  
Shows that there is an abnormality in the connection between DSP5 #1 (IC201) and the CPU.
- [2] DSP5-2 <==> CPU  
Shows that there is an abnormality in the connection between DSP5 #2 (IC202) and the CPU.
- [3] DSP PARALLEL BUS    XXXX XXXX XXXX XXXX  
Shows that there is an abnormality in the DSP5 #1 (IC201) and DSP5 #2 (IC202) parallel bus connection. The PIO31, PIO30, ...PIO01, PIO00 states are displayed from the left. 0 is displayed for normal locations and X for abnormal locations.
- [4] DIOA AUDIO LINE    X0XX 0000 XXXX 000X  
These are the results of the DSP5 #1 and CN301 and CN501 connection checks. The path states  
SIO31-->CN501-->CN301-->SIO15  
SIO30-->CN501-->CN301-->SIO14  
      :  
      :  
SIO17-->CN501-->CN301-->SIO01  
SIO16-->CN501-->CN301-->SIO00  
are displayed from the left. 0 is displayed for normal locations and X for abnormal locations.
- [5] DIOD AUDIO LINE    XXXX XXXX XXXX XXXX  
These are the results of the DSP5 #2 (IC202) and CN601 and CN801 connection checks. The path states  
SIO31-->CN801-->CN601-->SIO15  
SIO30-->CN801-->CN601-->SIO14  
      :  
      :  
SIO17-->CN801-->CN601-->SIO01  
SIO16-->CN801-->CN601-->SIO00  
are displayed from the left. 0 is displayed for normal locations and X for abnormal locations.



## (2) Port B Selector Inspection

When

```
DIO8_DIAG>sw
```

is executed, the display is as below and the system stands by for Port B Selector inspection.

```
CHANGE PORT B SELECTOR in 10 seconds .....
```

If you switch the switch within 10 seconds and there is no abnormality in the connection,

```
CHANGE PORT B SELECTOR in 10 seconds .....PORT B SELECTOR [OK]
DIO8_DIAG>
```

is displayed and the Port B Selector ends. If the switch is not switched within 10 seconds or there was any abnormality in the connection,

```
CHANGE PORT B SELECTOR in 10 seconds .....Time out or [NG]
DIO8_DIAG>
```

is displayed.

## (3) D-sub 68-pin ID port inspection

Set DIAF inspection jig SW101 to ALL OFF and SW102 2 and 4 only On, then execute the command below. This executes the ID0-6 IN port inspection.

```
DIO8_DIAG>id in
```

If there is any abnormality, a message like the following is displayed.

```
DIO ID IN check NG
DIOA IN ID IN LINE      XXX XXXX
DIOA OUT ID IN LINE     XXX XXXX
DIOB IN ID IN LINE      XXX XXXX
DIOB OUT ID IN LINE     XXX XXXX
```

The ID 6, 5, 4, 3, 2, 1, and 0 IN states are displayed from the left. 0 is displayed for normal and X for abnormal.

Next, switch on only 4, 5, and 6 for SW101 of the DAIF inspection jig and switch SW102 ALL OFF, then execute the command below. This executes the ID0-6 OUT port inspection.

```
DIO8_DIAG>id out
```

If there is any abnormality, a message like the following is displayed.

```
DIO ID IN check NG
DIOA IN ID OUT LINE     XXX XXXX
DIOA OUT ID OUT LINE    XXX XXXX
DIOB IN ID OUT LINE     XXX XXXX
DIOB OUT ID OUT LINE    XXX XXXX
```

The ID 6, 5, 4, 3, 2, 1, and 0 OUT states are displayed from the left. 0 is displayed for normal and X for abnormal.

## (4) Word Clock terminal inspection

Connect the WORD CLOCK IN terminal and the WORD CLOCK OUT 1st terminal with a BNC cable. When

```
DIO8_DIAG>wc
```

is executed, the display is as below. Execute this for the other three WORD CLOCK OUT terminals and judge the results.

```
check WC BNC      OK
DIO8_DIAG>
```

## (5) LED inspection

When

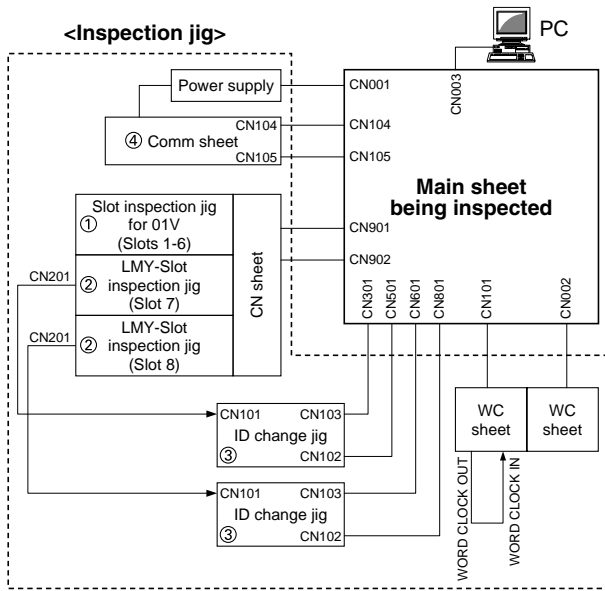
```
DIO8_DIAG>led
```

is executed,

```
0 1,0 2,0 3,0 4,0 5,0 6,0 7,0 8,0 8.
1 0,2 0,3 0,4 0,5 0,6 0,7 0,8 0,8.0
8.8.
```

is displayed, so judge the results visually.

## B. DIO8 Main Sheet Inspection Configuration



- ① Drawing Management Number 8B34E Drawing Number KBS-92495  
01V Test Program Specifications  
Refer to the "Slot Inspection Jig Circuit Diagram".
- ② Drawing Management Number 8B87E Drawing Number KBS-92650  
LMY-Slot Inspection Jig Specifications  
Refer to the "LMY-Slot Inspection Jig Circuit Diagram".
- ③ Refer to the "ID Change Jig Circuit Diagram" on the same drawing.
- ④ Refer to the COMM Circuit Diagram on Page 21 of this drawing.

### <Inspection Items>

The overall inspection items are (1) automatic inspection that checks connections automatically, (2) the 8-pin D-sub terminal (CN301, 501, 601, and 801) ID port inspection, (3) the CN002 inspection. Also, the CN003 terminal connection check is OK if the test program starts. Furthermore, check the CN105 CSLED line visually. If the three LEDs other than the blue one on the COMM sheet are flashing, the line is OK.

Load the dio8diag program Version V1.01 before inspecting.  
(See Page 30 for the upgrading method.)

## <Main Sheet Diagnostics>

### •Test program execution method

Connect the PC and the DIO8 COM terminal with a D-sub 9-pin serial cross cable and start up Hyper Terminal or some other terminal program.

Set the communications format settings to:

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

Next, switch on the power. The following is displayed in the terminal software window.

```
This is DIO8 2000
DIO8>
```

Use the PC keyboard to input "diag". The display changes to

```
DIO8>diag
DIO8 Diagnosis version VX.X JAN.2000
DIO8_DIAG>
```

The DIO8 goes into test program mode. X.X is the test program version.

To exit test program mode, input "reset" and the DIO8 goes into the following state, the same as when the power was first switched on.

```
DIO8_DIAG>reset
This is DIO8 2000
DIO8>
```

## (1) Automatic Inspection

When you execute

```
DIO8_DIAG>sheet
```

the items below are inspected automatically and finally the OK/NG judgments are displayed plus the error list if there were any NGs.

[Inspection items (sheet command)]

1. DSP5 #1 (IC201) and CPU connection check
2. DSP5 #2 (IC202) and CPU connection check
3. DSP5 parallel bus connection check
4. DSP5 #1 (IC201) and DIO IN A (CN301), DIO OUT A (CN501) connection check
5. DSP5 #2 (IC202) and DIO IN B (CN601), DIO OUT B (CN801) connection check
6. DSP5 #1 (IC201) and Slot 1 - Slot 4 connection check
7. DSP5 #2 (IC202) and Slot 5 - Slot 8 connection check
8. Slot control line connection check
9. DIO IN A, DIO IN B, DIO OUT A, DIO OUT B control line connection check
10. SRAM (IC013, IC014) and CPU connection check
11. Slot 1 serial interface connection check
12. WORD CLOCK IN/OUT connection check
13. Option (IEEE1394) connector (CN105, CN105) connection check

If the above 13 items are all OK,

```
DIAGNOSIS RESULT      OK
DIO8_DIAG>
```

is displayed and the program ends. If there was an NG item, an error list such as

```
DIAGNOSIS RESULT      NG
ERROR LIST
[4]  DIOA AUDIO LINE      XXXX XXXX XXXX XXXX
[5]  DIOB AUDIO LINE      XXXX XXXX XXXX XXXX
      :
```

is displayed. (Only NG items)

### [ERROR LIST]

For [1] - [11], see the error list for overall assembly.

[12]WC BNC

This is displayed when the result of the WORD CLOCK IN/OUT connection check is NG.

```
[13]OPTION DATA BUS      XXXX XXXX XXXX XXXX
      OPTION ADDR BUS      XXX XXX
      OPTION CTRL LINE     XX XXXX
```

This displays the result of the Option (IEEE1394) connector (CN104, CN105) connection check. The first line shows the results of the data bus connection checks from the left D15, D14, ... D1, D0. The second line shows the states of the address bus from the left A6, A5, A4, A3, A2, A1. The third line shows the results of other connection checks and displays the results for

```
/RDLINK, /WRLINK, /CS1394, /DREQ, /DRAK, /INT
from the left.
```

## (2) D-sub 68-pin ID Port Inspection

See the same item (Page 27) for the overall assembly.

## (3) CN002 Connection Check

When

```
DIO8_DIAG>sw
```

is executed,

```
CHANGE PORT B SELECTOR in 10 seconds .....
```

is displayed and the system stands by for PORT B SELECTOR (SW100) inspection.

If you switch the switch within 10 seconds and there is no abnormality in the connection,

```
CHANGE PORT B SELECTOR in 10 seconds .....PORT B SELECTOR [OK]
DIO8_DIAG>
```

is displayed and the Port B Selector inspection ends. If the switch is not switched within 10 seconds or there was any abnormality in the connection between CN002 Pin 12 (DIO\_B\_SEL) and the CPU,

```
CHANGE PORT B SELECTOR in 10 seconds .....Time out or [NG]
DIO8_DIAG>
```

is displayed.

If you input the command below, the LEDs on the LED3 sheet should light up in the order given on Page 10. Verify that they do so to verify that the other connections for CN002 are correct.

```
DIO8_DIAG>led
```

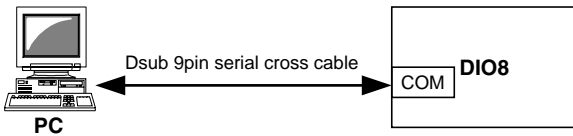
### C. Version Upgrade Method

The DIO8 has flash memory, so the firmware can be updated from the COM port. The version can also be upgraded from a Windows PC using special software.

When the power is switched on, the system judges whether or not the system program is present in flash memory. If a normal system program is present, the system starts normally. If the program is not present or there is an abnormality in the program, then the system automatically goes into program boot mode.

#### 1. Connections

The connections are simple. Just connect the PC and the DIO8 COM terminal with a D-sub 9-pin serial cross cable as in the diagram below.



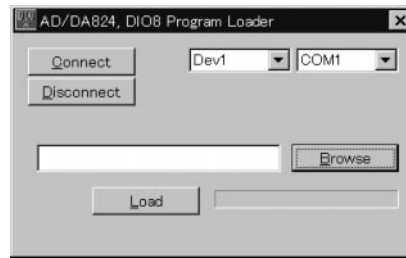
#### 2. Software

For the software, use LoadDio8/V1.0. When you open the folder, the three files LoadDio8.exe, TimeStamp.exe, and 02rv2.dll appear. The files needed for the version upgrade are LoadDio8.exe and 02rv2.dll.



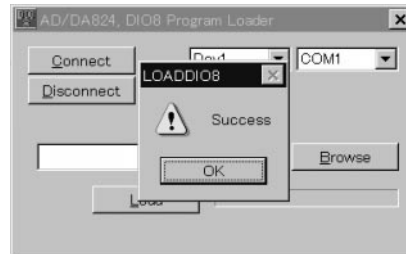
##### 2.1 Starting the software

When you double click the LoadDio8.exe icon, the program starts and the display is as below. The COM terminal connected can be switched with the dialog box on the top right. (In this figure, COM1 has been selected.)



##### 2.2 Connection with DIO8

When you click the “Connect” switch, the command to put the DIO8 into program load mode is sent. If the connection is successful, the message below appears. When you click “OK”, “dl” and “x.x” appear on the DIO8 7-segment LEDs alternating. (Where “x.x” is the software version; if F.F is displayed, the program, is not present.)



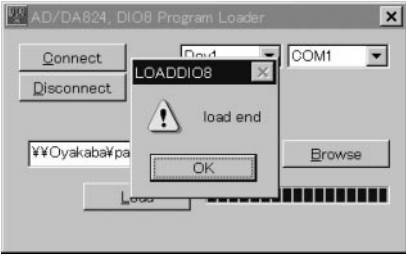
##### 2.3 Reading in the load file

When you press the Browse switch, a window like that below opens, so specify the file to load into the DIO8, then click the “Open” switch.



2.4 Loading the program

Make sure you have "Dev1" set in the center top dialog box. When you click the "Load" switch, the program load starts. When it ends, the message below appears.



2.5 Others

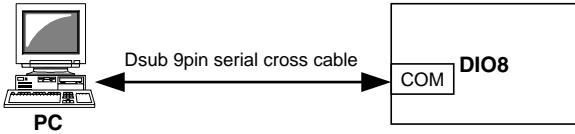
You can reset the DIO8 to normal mode by clicking the Disconnect switch.

D. Writing the Date of Manufacture

In order to support future protection methods, the year, month, and day of manufacture are written into the flash ROM using special software running on a PC.

1. Connections

The connections are simple. Just connect the PC and the DIO8 COM terminal with a D-sub 9-pin serial cross cable as in the diagram below.



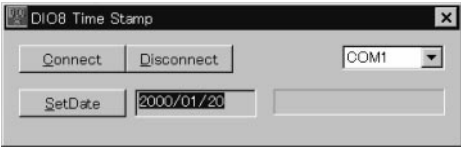
2. Software

For the software, use LoadDio8/V1.0. When you open the folder, the three files LoadDio8.exe, TimeStamp.exe, and 02rv2.dll appear. The files needed for writing the manufacturing date are TimeStamp.exe and 02rv2.dll.



2.1 Starting the software

When you double click the TimeStamp.exe icon, the program starts and the display is as below. The PC COM terminal can be switched with the dialog box on the top right. (In this figure, COM1 has been selected.)



2.2 Connection with DIO8

When you click the "Connect" switch, the command to put the DIO8 into program load mode is sent. If the connection is successful, the message below appears. "dl" and "x.x" appear on the DIO8 7-segment LEDs alternating. (Where "x.x" is the software version)



2.3 Writing the date of manufacture

When you click the SetDate switch, the year, month, and day of manufacture are written. When the date has been written, the message below appears.



2.4 Others

You can reset the DIO8 to normal mode by clicking the Disconnect switch.

# DIGITAL IO BOX

# DIO 8

# PARTS LIST


## ■ CONTENTS



OVERALL ASSEMBLY .....	2
DC ASSEMBLY .....	4
FRONT PANEL ASSEMBLY .....	6
ELECTRICAL PARTS .....	7-11

## 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

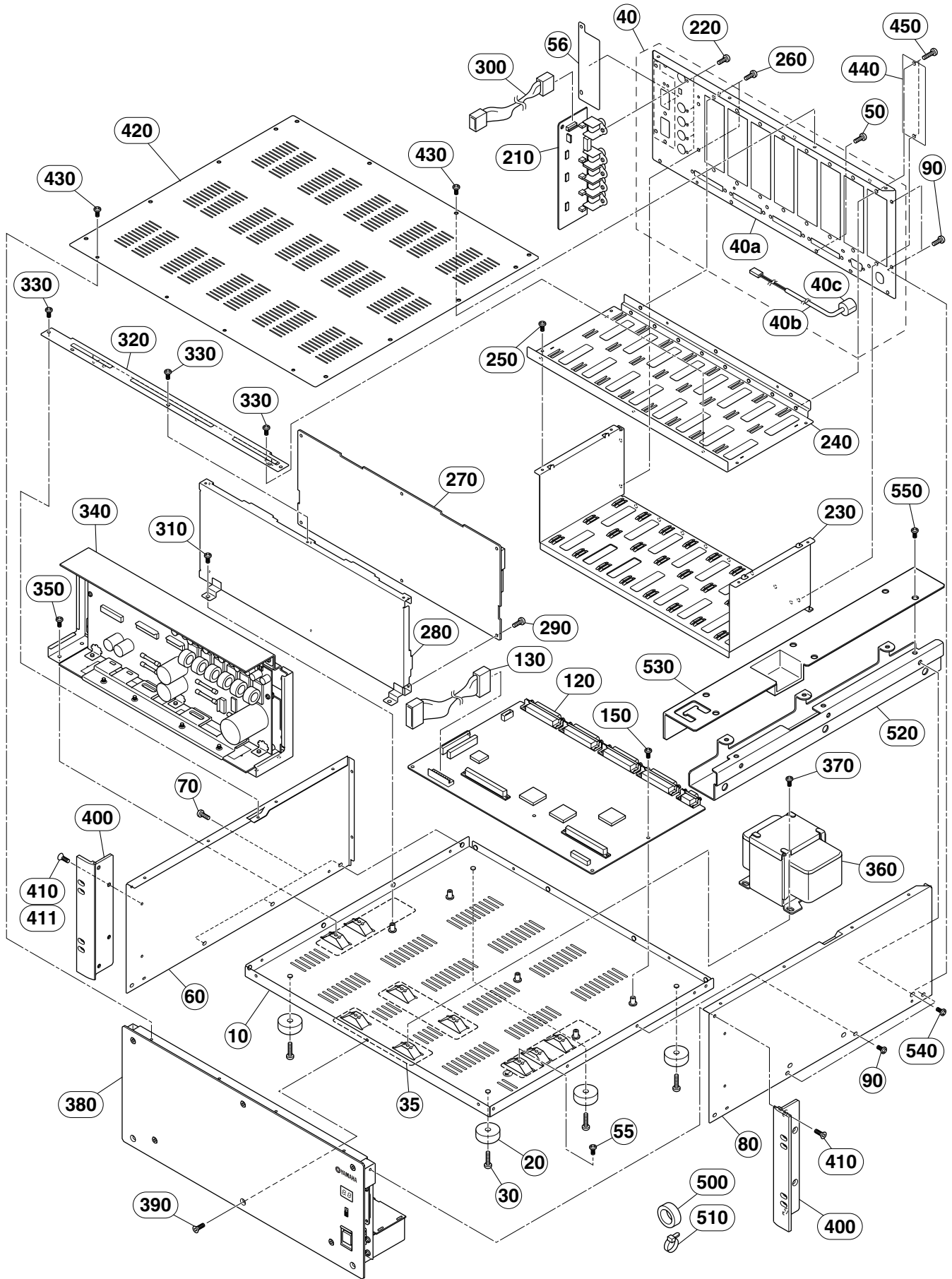
## ■ WARNING

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

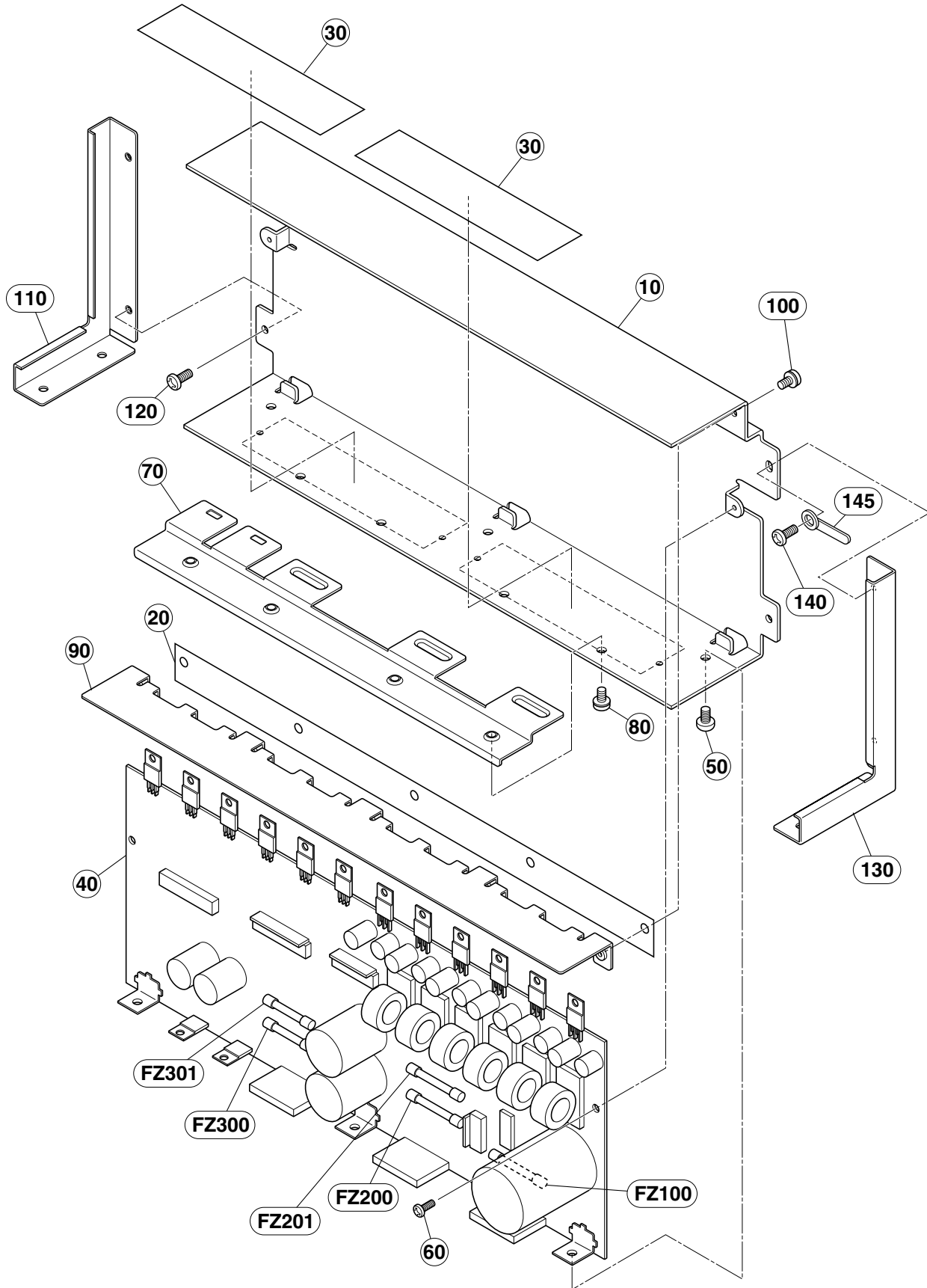


REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	--	OVERALL ASSEMBLY		DIO8		
	--	Overall Assembly		J (V476380)		
	--	Overall Assembly		U,C,V (V476390)		
	--	Overall Assembly		H,W (V476400)		
	--	Overall Assembly		B (V476410)		
*	10	V4761600	Bottom Shassis			
	20	CB806590	Leg	BL		4 03
	30	VR138400	Bind Head Tapping Screw-B	4.0X12 MFZN2BL		4 01
	35	--	PET Sheet		(V527490)	4
	40	--	Rear Panel Assembly	J	(V476330)	
	40	--	Rear Panel Assembly	U,C,V	(V476340)	
	40	--	Rear Panel Assembly	H,W	(V476360)	
	40	--	Rear Panel Assembly	B	(V476370)	
*	40a	V4810900	Rear Panel	J		12
*	40a	V4762900	Rear Panel	U,C,V		12
*	40a	V4763000	Rear Panel	H,W,B		12
△	40b	VS228900	AC Cord Assembly	2P 15A 2.1m	J	09
△	40b	VS229000	AC Cord Assembly	3P 10A 2.5m	U,C,V	10
△	40b	VS229100	AC Cord Assembly	3P 6A 2.5m	H,W	10
△	40b	VS229200	AC Cord Assembly	3P 10A 2.5m	B	11
	40c	CB806850	Cord Strain Relief	SR-6N3-4	J	02
	40c	CB811230	Cord Strain Relief	SR-6N-4	U,C,V	02
	40c	CB032840	Cord Strain Relief	SR-5N-4	H,W	03
	50	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		4 01
	55	EG340360	Bind Head Screw	4.0X8 MFZN2BL	U,C,V,H,W,B	01
*	56	V5362900	Panel			06
*	60	V4761900	Side Panel	LEFT		
	70	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		5 01
*	80	V4762000	Side Panel	RIGHT		
	90	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		5 01
*	120	V4460200	Circuit Board	DIO8 MAIN		83
	130	--	Connector Assembly	MAIN-DC VH 9P	(V514320)	
	150	EP600230	Bind Head Tapping Screw-B	3.0X6 MFZN2BL		3 01
*	210	V4535500	Circuit Board	DIO8 WC (PNJK)		18
	220	VS863000	Flat Head Screw	3.0X6 MFZN2BL		5 01
	230	--	Support	OPT 1	(V476100)	
	240	--	Support	OPT 2	(V476110)	
	250	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL		4 01
	260	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		7 01
*	270	V4460400	Circuit Board	DIO8 CN		32
	280	--	CN Support		(V476120)	
	290	EP600230	Bind Head Tapping Screw-B	3.0X6 MFZN2BL		6 01
	300	--	Connector Assembly	CN-DC VH 7P	(V514310)	
	310	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL		2 01
	320	--	Angle Bracket		(V476130)	
	330	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL		8 01
*	340	V4774400	DC Assembly		J,U,C,V	47
*	340	V4775000	DC Assembly		H,W,B	
	350	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		4 01
△	360	XW304A00	Power Transformer	J A	J	18
△	360	XW305A00	Power Transformer	UL,CSA A	U,C,V	18
△	360	XW306B00	Power Transformer	CEE A	H,W,B	18
	370	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		4 01
	380	--	Front Panel Assembly		J,U,C,V (V516390)	
	380	--	Front Panel Assembly		H,W,B (V516400)	
	390	VS153600	Oval Head Screw	4.0X8 MFZN2BL		3 01
*	400	V4762700	Rack Mount Angle			2 09
	410	VS153600	Oval Head Screw	4.0X8 MFZN2BL		8 01
*	420	V4774300	Top Cover			13
	430	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		16 01
	440	VZ678500	IF Plate			8 05
	450	VP156900	Bind Head Screw	A4.0X12 MFZN2BL		16 01
	500	VC362700	Ferrite Core	FR25/15/12-1400L		2 04
	510	CB069250	Cord Holder	BK-1		2 01
	520	--	Shield Angle	LOWER	(V581800)	
	530	--	Shield Angle	UPPER	(V581790)	
	540	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		3 01
	550	VC688800	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL		6 01
			ACCESSORIES			
*		V4789400	SCSI Cable	DHK-HA2-3000		2 27

\*: New Parts

RANK: Japan only

# DC ASSEMBLY

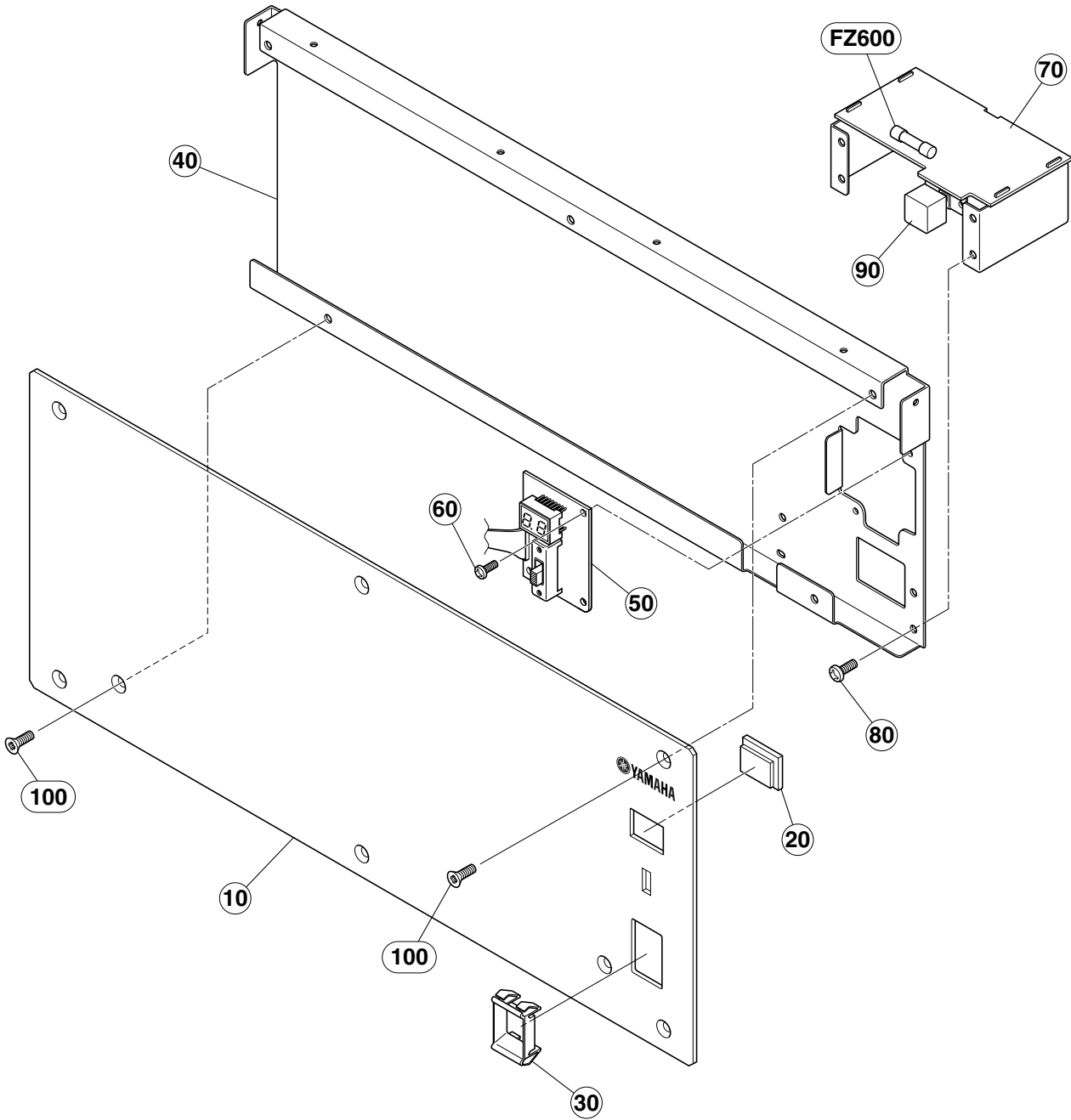


REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
*	<b>V4774400</b>	DC ASSEMBLY	DIO8		
*	<b>V4775000</b>	DC Assembly	J,U,V		47
	--	Heat Sink	H,W,B		
10	--		(V476260)		
* 20	<b>V4766200</b>	Heat Radiation Sheet 2			03
* 30	<b>V4766100</b>	Heat Radiation Sheet 1		2	02
* 40	<b>V4496900</b>	Circuit Board	DIO8 DC (PWCOM)		36
50	<b>VP156800</b>	Bind Head Screw	A4.0X8 MFZN2BL	3	01
60	<b>EP600190</b>	Bind Head Tapping Screw-B	3.0X8 MFZN2BL	2	01
70	--	Transistor Holder 1			
			(V476590)		
80	<b>EL200020</b>	Pan Head Screw	SP 4.0X8 MFZN2Y	4	01
90	--	Transistor Holder 2			
			(V476600)		
100	<b>EL200020</b>	Pan Head Screw	SP 4.0X8 MFZN2Y	5	01
110	--	DC Support L			
			(V516140)		
120	<b>VP156800</b>	Bind Head Screw	A4.0X8 MFZN2BL	2	01
130	--	DC Support R			
			(V516150)		
140	<b>VP156800</b>	Bind Head Screw	A4.0X8 MFZN2BL	2	01
145	<b>CB817510</b>	Cord Binder	S-14B		03
△ FZ100	<b>VS823300</b>	Fuse	T 8.00A JU		02
△ FZ100	<b>KB003250</b>	Fuse	TL 6.30A S	J,U,V	01
				H,W,B	
△ FZ200	<b>KB003640</b>	Fuse	T 6.00A JU	J,U,V	01
△ FZ200	<b>KB003250</b>	Fuse	TL 6.30A S	H,W,B	01
△ FZ201	<b>KB003640</b>	Fuse	T 6.00A JU	J,U,V	01
△ FZ201	<b>KB003250</b>	Fuse	TL 6.30A S	H,W,B	01
△ FZ300	<b>KB003620</b>	Fuse	T 4.00A JU	J,U,V	01
△ FZ300	<b>KB003090</b>	Fuse	T 3.15A S	H,W,B	01
△ FZ301	<b>KB003620</b>	Fuse	T 4.00A JU	J,U,V	01
△ FZ301	<b>KB003090</b>	Fuse	T 3.15A S	H,W,B	01

\*: New Parts

RANK: Japan only

# FRONT PANEL ASSEMBLY



REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
		FRONT PANEL ASSEMBLY	DIO8		
	--	Front Panel Assembly	J,U,V (V516390)		
	--	Front Panel Assembly	H,W,B (V516400)		
* 10	<b>V4762500</b>	Front Panel			
* 20	<b>V4278800</b>	Window, 7-seg.			05
30	<b>VL813000</b>	Escutcheon, Power Switch			03
40	--	Front Chassis	(V476180)		
* 50	<b>V4769700</b>	Circuit Board	DIO8 LED3 (PNJK)		09
60	<b>EP600230</b>	Bind Head Tapping Screw-B	3.0X6 MFZN2BL	2	01
* 70	<b>V4496400</b>	Circuit Board	DIO8 AC (PWCOM)		09
80	<b>VC688800</b>	Bind Head Tapping Screw-B	A4.0X8 MFZN2BL	4	01
90	<b>VL812900</b>	Power Switch Knob			03
100	<b>VS153600</b>	Oval Head Screw	4.0X8 MFZN2BL	5	01
△ * FZ600	<b>VS823300</b>	Fuse	T 8.00A JU		02
△ * FZ600	<b>KB003090</b>	Fuse	T 3.15A S		01

\*: New Parts

RANK: Japan only

## ELECTRICAL PARTS

REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
		ELECTRICAL PARTS	DIO8		
*	V4496400	Circuit Board	DIO8 AC (PWCOM)	(XW649B0)	09
*	V4496900	Circuit Board	DIO8 DC (PWCOM)	(XW649B0)	36
*	V4460400	Circuit Board	DIO8 CN	(XW641A0)	32
*	V4769700	Circuit Board	DIO8 LED3 (PNJK)	(XW684B0)	09
*	V4535500	Circuit Board	DIO8 WC (PNJK)	(XW684B0)	18
*	V4460200	Circuit Board	DIO8 MAIN	(XW640A0)	83
*	V4496400	Circuit Board	DIO8 AC (PWCOM)	(XW649B0)	09
*	V4496900	Circuit Board	DIO8 DC (PWCOM)	(XW649B0)	36
C104	VY830900	Electrolytic Cap.	15000 63.0V		11
* C105	UR868470	Electrolytic Cap.	470.00 50.0V		01
C107	UR848470	Electrolytic Cap.	470.00 25.0V		01
* C108	UR868470	Electrolytic Cap.	470.00 50.0V		01
C110	UR848470	Electrolytic Cap.	470.00 25.0V		01
* C111	UR868470	Electrolytic Cap.	470.00 50.0V		01
C113	UR848470	Electrolytic Cap.	470.00 25.0V		01
* C114	UR868470	Electrolytic Cap.	470.00 50.0V		01
C116	UR848470	Electrolytic Cap.	470.00 25.0V		01
* C117	UR868470	Electrolytic Cap.	470.00 50.0V		01
C119	UR848470	Electrolytic Cap.	470.00 25.0V		01
* C120	UR868470	Electrolytic Cap.	470.00 50.0V		01
C122	UR848470	Electrolytic Cap.	470.00 25.0V		01
C204	VT598600	Electrolytic Cap.	22000 16 USP		05
C205	VT598600	Electrolytic Cap.	22000 16 USP		05
C208	UR838100	Electrolytic Cap.	100.00 16.0V		01
C209	UR838100	Electrolytic Cap.	100.00 16.0V		01
C212	UR838100	Electrolytic Cap.	100.00 16.0V		01
C213	UR838100	Electrolytic Cap.	100.00 16.0V		01
C216	UR838100	Electrolytic Cap.	100.00 16.0V		01
C217	UR838100	Electrolytic Cap.	100.00 16.0V		01
C304	UR759220	Electrolytic Cap.	2200 35.0V		02
C305	UR759220	Electrolytic Cap.	2200 35.0V		02
C308	UR848100	Electrolytic Cap.	100.00 25.0V		01
C309	UR848100	Electrolytic Cap.	100.00 25.0V		01
C500	V3311600	Capacitor	0.01 250V J.U.C.S		01
* C600	V5170300	Capacitor	0.22 275V U.C.S		01
	VS589000	Ceramic Capacitor-E	4700P 500V M		01
	FG644100	Ceramic Capacitor-F	0.01 50V Z		01
	UA355100	Mylar Capacitor	0.1 50V J		01
CN001	LB932050	Base Post Connector	VH- 5P TE		01
CN002	LB932030	Base Post Connector	VH- 3P TE		01
CN400	VK025200	Wire Trap	52147 8P TE		01
CN401	LB932090	Base Post Connector	VH- 9P TE		01
CN402	LB932070	Base Post Connector	VH- 7P TE		01
CN403	VK025800	Wire Trap	52147 14P TE		01
CN404	VF728300	Wire Trap	52147 6P TE		01
CN600	LB933030	Base Post Connector	VH- 3P SE		01
CN602	LB933030	Base Post Connector	VH- 3P SE		01
* D100	V5129900	Diode	D3S6M-4001P15		02
* -105	V5129900	Diode	D3S6M-4001P15		02
D200	VB481900	Diode	11ES4		01
-211	VB481900	Diode	11ES4		01
D300	VB481900	Diode	11ES4		01
-303	VB481900	Diode	11ES4		01
DB100	VT682400	Diode Stack	D6SB60L 6.0A 600V		04
DB200	VT682400	Diode Stack	D6SB60L 6.0A 600V		04
DB300	VT682400	Diode Stack	D6SB60L 6.0A 600V		04
EM100	FZ006970	LC Filter	LS MT Y223NB		02
-105	FZ006970	LC Filter	LS MT Y223NB		02
EM200	FZ006970	LC Filter	LS MT Y223NB		02
-205	FZ006970	LC Filter	LS MT Y223NB		02
EM300	FZ006920	LC Filter	LS MT B271KB		01
EM301	FZ006920	LC Filter	LS MT B271KB		01
FZ100	VP206500	Fuse Holder	EYF-52BC		01
FZ200	VP206500	Fuse Holder	EYF-52BC		01
FZ201	VP206500	Fuse Holder	EYF-52BC		01
FZ300	VP206500	Fuse Holder	EYF-52BC		01
FZ301	VP206500	Fuse Holder	EYF-52BC		01
FZ600	VP206500	Fuse Holder	EYF-52BC		01

\*: New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
IC100	XT514A00	IC	SI-8050S(LF1103)	DC-DC CONVERTER		05
-104	XT514A00	IC	SI-8050S(LF1103)	DC-DC CONVERTER		05
* IC105	XW241A00	IC	SI-8033S	REGULATOR +3.3V		05
IC200	XR607A00	IC	UPC2405AHF	REGULATOR +5V		04
IC201	XK309A00	IC	NJM7905FA	REGULATOR -5V		03
IC202	XR607A00	IC	UPC2405AHF	REGULATOR +5V		04
IC203	XK309A00	IC	NJM7905FA	REGULATOR -5V		03
IC204	XR607A00	IC	UPC2405AHF	REGULATOR +5V		04
IC205	XK309A00	IC	NJM7905FA	REGULATOR -5V		03
IC300	XR608A00	IC	UPC2415AHF	REGULATOR +15V		04
IC301	XD854A00	IC	NJM7915FA	REGULATOR -15V		03
IC302	XD631A00	IC	PST518B-TP	SYSTEM RESET		02
K400	--	Land Terminal		(V476150)		
-402	--	Land Terminal		(V476150)		
K600	--	AC Shield Plate		(V516130)		
* L100	V2379700	Coil	HP-033JY 150			06
* -105	V2379700	Coil	HP-033JY 150			06
* L600	V4122100	Line Filter	PLH10A7003R6P02			02
△ SW500	V3127000	Push Switch	ESB92S23B J.U.C.S	POWER ON/OFF		02
TR300	IA101590	Transistor	2SA1015 O.Y			01
	HF757100	Carbon Resistor	10.0K 1/4 J			01
	HF756470	Carbon Resistor	4.7K 1/4 J			01
* CN901	V4460400	Circuit Board	DIO8 CN	(XW641A0)		32
-908	VU328200	Plug	PHEC 100P TE	1,2,3,4,5,6,7,8		05
CN909	VU328200	Plug	PHEC 100P TE			05
CN910	VT640300	Receptacle	PHEC 100P SE			04
CN911	VT640300	Receptacle	PHEC 100P SE			04
CN912	LB933070	Base Post Connector	VH- 7P SE			01
CN913	VI879200	Cable Holder	51048 14P TE			01
W912	VI878400	Cable Holder	51048 6P TE			01
W913	--	Ribbon Cable	P=2.0 #26 14P 260L	(V513050)		
	--	Ribbon Cable	P=2.0 #26 6P 240L	(V513020)		
* C1	V4769700	Circuit Board	DIO8 LED3 (PNJK)	(XW684B0)		09
	V4535500	Circuit Board	DIO8 WC (PNJK)	(XW684B0)		18
	UF037470	Electrolytic Cap. (chip)	47 16V			01
	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01
	UB052100	Monolithic Ceramic Cap.	SL 100P 50V J			01
	UB245100	Monolithic Ceramic Cap.	F 0.1 25V Z			01
CN001	VI878300	Cable Holder	51048 5P TE			01
CN100	VI879000	Cable Holder	51048 12P TE			01
DA001	VV556300	Diode Array	DAN217 0.3A X2			01
-005	VV556300	Diode Array	DAN217 0.3A X2			01
EM001	FZ006970	LC Filter	LS MT Y223NB			02
-006	FZ006920	LC Filter	LS MT B271KB			01
IC001	XN976A00	IC	SN75124NS	LINE RECEIVER		05
IC002	XU816A00	IC	SN75121NSR	LINE DRIVER		05
IC003	XU816A00	IC	SN75121NSR	LINE DRIVER		05
JK001	VI552200	BNC Connector	YKS11-0 1P	WORD CLOCK IN,OUT		05
-005	VI552200	BNC Connector	YKS11-0 1P			05
L001	VS740100	Chip Inductance	BLM21B751S 2125			03
* LD100	V4078200	LED Display	LNM423AS01	I/O UNIT ID		06
LS100	--	Spacer, 7-seg.	2S	(V441160)		
SW001	VQ907900	Slide Switch	SSSU112-S06N-1	WORD CLOCK 75ohm OFF/ON		01
SW100	VG837400	Slide Switch	SSSB04	PORT B SELECTOR 5-8/1-4		03
W001	--	Ribbon Cable	P=2.0 #26 5P 180L	(V513010)		
W100	--	Ribbon Cable	P=2.0 #26 12P 320L	(V229760)		
	RD253470	Carbon Resistor (chip)	4.7 0.1 J			01
	RD254470	Carbon Resistor (chip)	47.0 0.1 J			01
	RD254750	Carbon Resistor (chip)	75.0 0.1 J			01
	RD256220	Carbon Resistor (chip)	2.2K 0.1 J			01
* C1	V4460200	Circuit Board	DIO8 MAIN	(XW640A0)		83
C2	UF118330	Electrolytic Cap. (chip)	330 6.3V UUR0J3			01
C16	UF018100	Electrolytic Cap. (chip)	100 6.3V			01
C52	UF118330	Electrolytic Cap. (chip)	330 6.3V UUR0J3			01
C53	UF118330	Electrolytic Cap. (chip)	330 6.3V UUR0J3			01
C131	UF017470	Electrolytic Cap. (chip)	47 6.3V			01

\*: New Parts

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C139	UF017470	Electrolytic Cap. (chip)	47 6.3V			01
-141	UF017470	Electrolytic Cap. (chip)	47 6.3V			01
C153	UF017470	Electrolytic Cap. (chip)	47 6.3V			01
C161	UF017470	Electrolytic Cap. (chip)	47 6.3V			01
	UB051220	Monolithic Ceramic Cap.	SL 22P 50V J			01
	UB012470	Monolithic Ceramic Cap.	B 470P 50V K			01
	UB445330	Monolithic Ceramic Cap.	F 0.33 16V Z			01
	UB245100	Monolithic Ceramic Cap.	F 0.1 25V Z			01
	VR327000	Mylar Capacitor (chip)	F 0.047 25V Z			01
	VR327300	Mylar Capacitor (chip)	F 0.082 25V Z			01
CN001	LB932090	Base Post Connector	VH- 9P TE			01
CN002	VK025600	Wire Trap	52147 12P TE			01
CN003	VU196300	Socket	17LE-23090-27(D4CH	COM		04
CN101	VK024900	Wire Trap	52147 5P TE			01
CN102	VQ623900	Pin Header	HIF3H-10PB-2.54DSA			03
CN104	VQ048500	Connector, FFC	52045 36P TE			02
CN105	VQ048500	Connector, FFC	52045 36P TE			02
* CN301	V4158600	Connector	230R(SCSI) 68P SE	INPUT A(1-4)(1-8)		06
* CN501	V4158600	Connector	230R(SCSI) 68P SE	OUTPUT A(1-4)(1-8)		06
* CN601	V4158600	Connector	230R(SCSI) 68P SE	INPUT B(1-4/5-8)		06
* CN801	V4158600	Connector	230R(SCSI) 68P SE	OUTPUT B(1-4/5-8)		06
CN901	VU328200	Plug	PHEC 100P TE			05
CN902	VU328200	Plug	PHEC 100P TE			05
DA301	VV556300	Diode Array	DAN217 0.3A X2			01
-344	VV556300	Diode Array	DAN217 0.3A X2			01
DA501	VV556300	Diode Array	DAN217 0.3A X2			01
-544	VV556300	Diode Array	DAN217 0.3A X2			01
DA601	VV556300	Diode Array	DAN217 0.3A X2			01
-644	VV556300	Diode Array	DAN217 0.3A X2			01
DA801	VV556300	Diode Array	DAN217 0.3A X2			01
-844	VV556300	Diode Array	DAN217 0.3A X2			01
EM001	FZ006970	LC Filter	LS MT Y223NB			02
EM002	FZ006970	LC Filter	LS MT Y223NB			02
EM003	FZ006920	LC Filter	LS MT B271KB			01
EM006	FZ006920	LC Filter	LS MT B271KB			01
EM007	FZ006970	LC Filter	LS MT Y223NB			02
EM008	FZ006970	LC Filter	LS MT Y223NB			02
EM101	FZ006970	LC Filter	LS MT Y223NB			02
EM201	FZ006970	LC Filter	LS MT Y223NB			02
EM301	VL534100	LC Filter	NFA81R00C101			05
-305	VL534100	LC Filter	NFA81R00C101			05
EM306	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
-309	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
EM501	VL534100	LC Filter	NFA81R00C101			05
-505	VL534100	LC Filter	NFA81R00C101			05
EM506	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
-509	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
EM601	VL534100	LC Filter	NFA81R00C101			05
-605	VL534100	LC Filter	NFA81R00C101			05
EM606	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
-609	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
EM801	VL534100	LC Filter	NFA81R00C101			05
-805	VL534100	LC Filter	NFA81R00C101			05
EM806	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
-809	VQ761400	EMI Filter (chip)	NFM40R01C101T1			01
IC001	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
IC002	XU073A00	IC	SN75C1168NSR	LINE TRANSCEIVER		05
IC003	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
-006	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
* IC007	IS027300	IC	HD74LV273AFPEL	D-FF		02
* IC008	IS000800	IC	HD74LV08AFPEL	AND		01
IC009	XV721A00	IC	HD6437042AF53F	CPU		09
* IC010	IS013810	IC	SN74LV138ANSR	DECODER		01
* IC011	IS013810	IC	SN74LV138ANSR	DECODER		01
IC012	XP226A00	IC	IC-PST591DMT	SYSTEM RESET		03
* IC013	XV305A00	IC	IS61C1024-20J	SRAM 1M		09
* IC014	XV305A00	IC	IS61C1024-20J	SRAM 1M		09
* IC015	IS027300	IC	HD74LV273AFPEL	D-FF		02
* IC016	IS003200	IC	HD74LV32AFPEL	OR		01
* IC017	IS003200	IC	HD74LV32AFPEL	OR		01

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
IC018	XU948A00	IC	MBM29F800BA-70PFTN	FLASH ROM 8M		14
IC019	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
-022	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
* IC024	IS013910	IC	SN74LV139ANSR	COUNTER		01
IC025	XS720A00	IC	TC74HC245AF	TRANSCEIVER		03
-029	XS720A00	IC	TC74HC245AF	TRANSCEIVER		03
IC030	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
-035	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
* IC101	XY102A00	IC	HD74LVU04AFPEL	INVERTER		01
* IC102	XW239A00	IC	EPC1PC8	EPROM 1M		09
IC103	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
* IC104	XY217A00	IC	EPF10K50EQC208	FPGA		25
IC106	XG948E00	IC	YM3436DK	DIR2		11
* IC107	IS000400	IC	HD74LV04AFPEL	INVERTER		01
IC108	XG948E00	IC	YM3436DK	DIR2		11
-110	XG948E00	IC	YM3436DK	DIR2		11
* IC111	XW422A00	IC	M51953AFP	SYSTEM RESET		01
IC112	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
-114	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
IC115	XG948E00	IC	YM3436DK	DIR2		11
* IC116	XW422A00	IC	M51953AFP	SYSTEM RESET		01
* IC117	XW422A00	IC	M51953AFP	SYSTEM RESET		01
* IC118	IS000000	IC	HD74LV00AFPEL	NAND		01
* IC119	IS000800	IC	HD74LV08AFPEL	AND		01
* IC120	XY094A00	IC	LT1118CST-2.5	REGULATOR +2.5V		08
* IC201	XV989A00	IC	YSS904-F	DSP5		11
* IC202	XV989A00	IC	YSS904-F	DSP5		11
IC203	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
-210	XT487A00	IC	TC74VHC245F	TRANSCEIVER		03
IC301	XU996A00	IC	AM26LS31CNSR	LINE DRIVER		05
IC302	XU815A00	IC	DS26C32ATMX	LINE RECEIVER		06
-306	XU815A00	IC	DS26C32ATMX	LINE RECEIVER		06
IC307	XU235A00	IC	SGH609080F-47F	ATSC		10
-310	XU235A00	IC	SGH609080F-47F	ATSC		10
IC501	XU996A00	IC	AM26LS31CNSR	LINE DRIVER		05
-505	XU996A00	IC	AM26LS31CNSR	LINE DRIVER		05
IC506	XU815A00	IC	DS26C32ATMX	LINE RECEIVER		06
IC601	XU996A00	IC	AM26LS31CNSR	LINE DRIVER		05
IC602	XU815A00	IC	DS26C32ATMX	LINE RECEIVER		06
-606	XU815A00	IC	DS26C32ATMX	LINE RECEIVER		06
IC607	XU235A00	IC	SGH609080F-47F	ATSC		10
-610	XU235A00	IC	SGH609080F-47F	ATSC		10
IC801	XU996A00	IC	AM26LS31CNSR	LINE DRIVER		05
-805	XU996A00	IC	AM26LS31CNSR	LINE DRIVER		05
IC806	XU815A00	IC	DS26C32ATMX	LINE RECEIVER		06
L001	GE300610	Ferrite Bead	BL02RN1-R62T4			01
L101	VS740100	Chip Inductance	BLM21B751S 2125			03
-103	VS740100	Chip Inductance	BLM21B751S 2125			03
L105	GE300610	Ferrite Bead	BL02RN1-R62T4			01
L106	VS740100	Chip Inductance	BLM21B751S 2125			03
-114	VS740100	Chip Inductance	BLM21B751S 2125			03
L115	GE300610	Ferrite Bead	BL02RN1-R62T4			01
-117	GE300610	Ferrite Bead	BL02RN1-R62T4			01
L118	VS740100	Chip Inductance	BLM21B751S 2125			03
-143	VS740100	Chip Inductance	BLM21B751S 2125			03
L144	GE300610	Ferrite Bead	BL02RN1-R62T4			01
L201	VS740100	Chip Inductance	BLM21B751S 2125			03
L901	VS740100	Chip Inductance	BLM21B751S 2125			03
-946	VS740100	Chip Inductance	BLM21B751S 2125			03
R112	VI196100	Carbon Resistor (chip)	3.3K 1/10 D			01
R113	VI194600	Carbon Resistor (chip)	750.0 1/10 D			01
R115	VI196100	Carbon Resistor (chip)	3.3K 1/10 D			01
-117	VI196100	Carbon Resistor (chip)	3.3K 1/10 D			01
R118	VI194100	Carbon Resistor (chip)	470.0 1/10 D			01
R119	VI194100	Carbon Resistor (chip)	470.0 1/10 D			01
R120	VI194600	Carbon Resistor (chip)	750.0 1/10 D			01
R123	VI196100	Carbon Resistor (chip)	3.3K 1/10 D			01
R124	VI194100	Carbon Resistor (chip)	470.0 1/10 D			01
	RD250000	Carbon Resistor (chip)	0.0 0.0 J			01
	RD254100	Carbon Resistor (chip)	10.0 0.1 J			01

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
*	<b>RD154270</b>	Carbon Resistor (chip)	27.0 1/4 J			01
	<b>RD255100</b>	Carbon Resistor (chip)	100.0 0.1 J			01
	<b>RD255150</b>	Carbon Resistor (chip)	150.0 0.1 J			01
	<b>RD255200</b>	Carbon Resistor (chip)	200.0 0.1 J			01
	<b>RD255220</b>	Carbon Resistor (chip)	220.0 0.1 J			01
	<b>RD255470</b>	Carbon Resistor (chip)	470.0 0.1 J			01
	<b>RD256100</b>	Carbon Resistor (chip)	1.0K 0.1 J			01
	<b>RD256150</b>	Carbon Resistor (chip)	1.5K 0.1 J			01
	<b>RD256300</b>	Carbon Resistor (chip)	3.0K 0.1 J			01
	<b>RD257100</b>	Carbon Resistor (chip)	10.0K 0.1 J			01
	<b>RD257220</b>	Carbon Resistor (chip)	22.0K 0.1 J			01
	<b>RD259100</b>	Carbon Resistor (chip)	1.0M 0.1 J			01
RA001	<b>RE047100</b>	Resistor Array	10KX4			01
-039	<b>RE047100</b>	Resistor Array	10KX4			01
RA101	<b>RE047100</b>	Resistor Array	10KX4			01
-103	<b>RE047100</b>	Resistor Array	10KX4			01
RA104	<b>RE046100</b>	Resistor Array	1KX4			01
-109	<b>RE046100</b>	Resistor Array	1KX4			01
RA201	<b>RE047100</b>	Resistor Array	10KX4			01
-224	<b>RE047100</b>	Resistor Array	10KX4			01
RA301	<b>RE047100</b>	Resistor Array	10KX4			01
RA302	<b>RE047100</b>	Resistor Array	10KX4			01
RA501	<b>RE047100</b>	Resistor Array	10KX4			01
RA502	<b>RE047100</b>	Resistor Array	10KX4			01
RA601	<b>RE047100</b>	Resistor Array	10KX4			01
RA602	<b>RE047100</b>	Resistor Array	10KX4			01
RA801	<b>RE047100</b>	Resistor Array	10KX4			01
RA802	<b>RE047100</b>	Resistor Array	10KX4			01
SC102	<b>VV047100</b>	IC Socket	DICF-8CS-E			01
TA001	<b>VQ248500</b>	Transistor Array	TD62381F			04
TA002	<b>VQ248400</b>	Transistor Array	TD62783AF			04
TP001	<b>VE340300</b>	Test Pin	IRS-1169			01
-003	<b>VE340300</b>	Test Pin	IRS-1169			01
X001	<b>V3719200</b>	Quartz Crystal Unit	6.7584MHz SMD-49			03
X101	<b>VS167000</b>	Quartz Crystal Unit	24.576MHz SMD-49			03
X102	<b>VS107600</b>	Quartz Crystal Unit	22.5792MHz SMD-49			04
X201	<b>VZ156100</b>	Quartz Crystal Unit	60MHz DSO751S			06
△	<b>VS228900</b>	AC Cord Assembly	2P 15A 2.1m	J		09
△	<b>VS229000</b>	AC Cord Assembly	3P 10A 2.5m	U,C,V		10
△	<b>VS229100</b>	AC Cord Assembly	3P 6A 2.5m	H,W		10
△	<b>VS229200</b>	AC Cord Assembly	3P 10A 2.5m	B		11
△*	<b>XW304A00</b>	Power Transformer	J A	J		18
△*	<b>XW305A00</b>	Power Transformer	UL,CSA A	U,C,V		18
△*	<b>XW306B00</b>	Power Transformer	CEE A	H,W,B		18
△*	FZ600 <b>VS823300</b>	Fuse	T 8.00A JU	J,U,C,V		02
△	FZ600 <b>KB003090</b>	Fuse	T 3.15A S	H,W,B		01
△	FZ100 <b>VS823300</b>	Fuse	T 8.00A JU	J,U,C,V		02
△	FZ100 <b>KB003250</b>	Fuse	TL 6.30A S	H,W,B		01
△	FZ200 <b>KB003640</b>	Fuse	T 6.00A JU	J,U,C,V		01
△	FZ200 <b>KB003250</b>	Fuse	TL 6.30A S	H,W,B		01
△	FZ201 <b>KB003640</b>	Fuse	T 6.00A JU	J,U,C,V		01
△	FZ201 <b>KB003250</b>	Fuse	TL 6.30A S	H,W,B		01
△	FZ300 <b>KB003620</b>	Fuse	T 4.00A JU	J,U,C,V		01
△	FZ300 <b>KB003090</b>	Fuse	T 3.15A S	H,W,B		01
△	FZ301 <b>KB003620</b>	Fuse	T 4.00A JU	J,U,C,V		01
△	FZ301 <b>KB003090</b>	Fuse	T 3.15A S	H,W,B		01

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