

DIGITAL MULTITRACK RECORDER REMOTE CONTROLLER/LOCATOR

D24/RC-D24

SERVICE MANUAL



D24

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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.

■ PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to carefully follow the instructions below when servicing.

When checking the laser diode emission, keep your eyes more than 30 cm away from the objective lens.

WARNING

Laser Safety

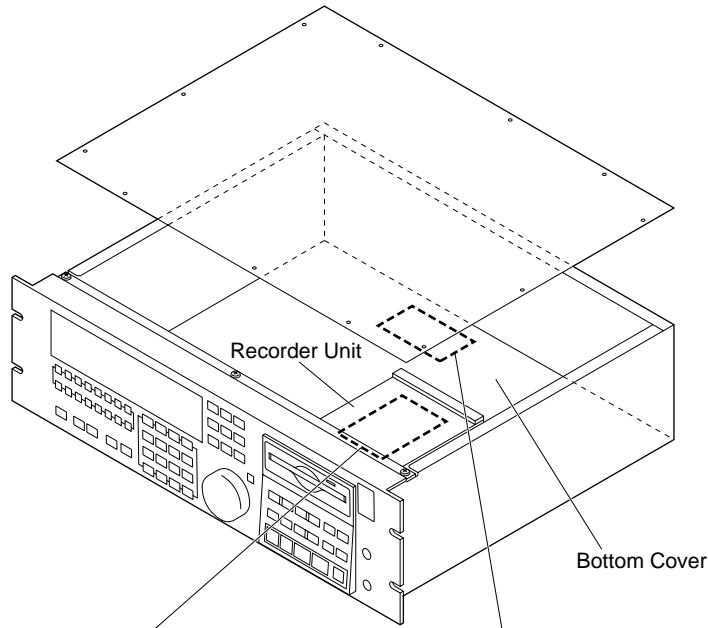
This product contains a laser beam component. This component may emit invisible, as well as visible radiation, which may cause eye damage. To protect your eyes and skin from laser radiation, the following precaution must be used during servicing of the unit.

- 1) When testing and / or repairing any component within the product, keep your eyes and skin more than 30 cm away from the laser pick-up unit at all time. Do not stare the laser beam at any time.
- 2) Do not attempt readjustment, disassemble and repair of the laser pick-up, unless noted elsewhere in this manual.
- 3) CAUTION - Use of controls or readjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser Diode Properties

- Material: AlGaInP
- Wavelength: 675–695nm
- Emission Duration: Continuous
- Laser Output Power: Less than 44.6 μ W

(Note) Laser output is measured at a distance of 20 cm from the object lens on the optical pick-up head.



DANGER APL
 INVISIBLE LASER RADIATION WHEN OPEN.
 AVOID DIRECT EXPOSURE TO BEAM.

DANGER
 RADIATIONS INVISIBLES DU LASER EN CAS D' OUVERTURE.
 EVITER TOUTE EXPOSITION DIRECTE AU FAISCEAU.

VORSICHT
 LASERSTRAHLUNG. WENN ABDECKUNG GEÖFFNET
 NICHT DEM STRAHL AUSSETZEN.

ADVARSEL
 USYNLIG LASERSTRÅLING VED ÅBNING NÅR
 SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION.
 UNDGÅ UDSÆTTELSE FOR STRÅLING.

- These labels are located on the interior.
- Varningsanvisning för laserstrålning. Placerad i apparaten.

VARNING
 OSYNLIG LASERSTRÅLING NÅR
 DENNA DEL ÄR ÖPPEND. STRÅLEN
 ÄR FARLIG.

CLASS 1 LASER PRODUCT
 LUOKAN 1 LASERLAITE
 KLASS 1 LASERAPPARAT

This label is located on the exterior.
 Klassmärkning för Finland.

■ SPECIFICATIONS

Recording medium		3.5" MO disk (ISO/ECMA) (Overwrite and normal type)
Sound file format		Yamaha proprietary format
Tracks	Main tracks	8
	Virtual tracks	64 (8 per main track)
	Simultaneous recording	8 tracks (44.1, 48 kHz), 4 tracks (88.2, 96 kHz)
	Simultaneous playback	8
Sampling rate		44.1, 48, 88.2 (Dual AES/EBU), 96 kHz (Dual AES/EBU)
Recording resolution		16, 20, 24-bit
Maximum recording time (44.1 kHz, 16-bit, 640 MB MO disks)		15 mins x8 tracks 30 mins x4 tracks 60 mins x2 tracks 120 mins x1 track
Shuttle playback		1/32 to 4x normal playback speed
Pitch control		±6 %
Repeat playback		A–B Repeat
Punch in/out		Auto, Manual, Rehearsal
Auto Punch multi-take recording		Up to 99 takes
Locate	Project Select/Search	
	Locate point set/search	LAST REC IN, LAST REC OUT, A, B
	Locate memory store/recall	99
	Return to zero	
	Roll back	
Editing		Undo/Redo, Copy, Insert Copy, Move, Erase, Delete, Time Comp/Expand, Pitch Change, Optimize
Time Compression/Expansion		50 %–200 %
Pitch Change		50 %–200 % (±1,200 cents or ±1 octave)
Display	Type	VFD (Vacuum Fluorescent Display)
	Characters	12-character lines x2
	Main counter	Hours, minutes, seconds, frames
	Counter mode	ABS (Absolute), REL (Relative)
	Track level meters	16 segment with OVER indicator x8

Synchronization	Parallel unit chase (up to 8 units)	
	Serial unit chase (2 units)	
	External SMPTE/EBU timecode chase (24, 25, 30D, 30 fps)	
	External MTC chase	
	External MMC control	
	9-pin protocol control	
Other functions	Solo Select	
	Monitor Select	Auto Input/All input
	Peak Hold	On/Off
Power requirements		U.S.A. & Canada 120 V AC, 60 Hz Europe 230 V AC, 50 Hz
Power consumption		100 W
Dimensions (W x H x D)		480 x 144 x 383.9 mm (18.9 x 5.7 x 15.1 inches)
Weight		13 kg (28.7 lbs)
Free-air operating temperature range		5 °C to 35 °C (41 °F to 95 °F)
Relative humidity		10 %–95 %
Accessories		Power cord, MO disk, disk eject tool
Options		Digital interface card (MY8, MY4 series) RC-D24 Remote Controller

Analog Output

Connection	For Use With Nominal	Output Level	Connector
PHONES*1	40 Ω phones	60 mW	Stereo phone jack (unbalanced)*2

*1. 20-bit 8-times oversampling D/A converter.

*2. PHONES stereo phone jack is unbalanced (tip = left, ring = right, sleeve = ground).

Digital Audio Input

Connection	Format	Wordlength	Level	Connector
COAXIAL STEREO DIGITAL INPUT	IEC-60958	16, 20, 24 bit	0.5 V pp (75 Ω)	Phono

Digital Audio Output

Connection	Format	Wordlength	Level	Connector
COAXIAL STEREO DIGITAL OUTPUT	IEC-60958*1 Consumer Use	16, 20, 24 bit	0.5 V pp (75 Ω)	Phono

*1. Channel status

Type: 2 audio channels

Category code: 2 channel PCM encoder/decoder

Copy prohibit: No

Emphasis: No

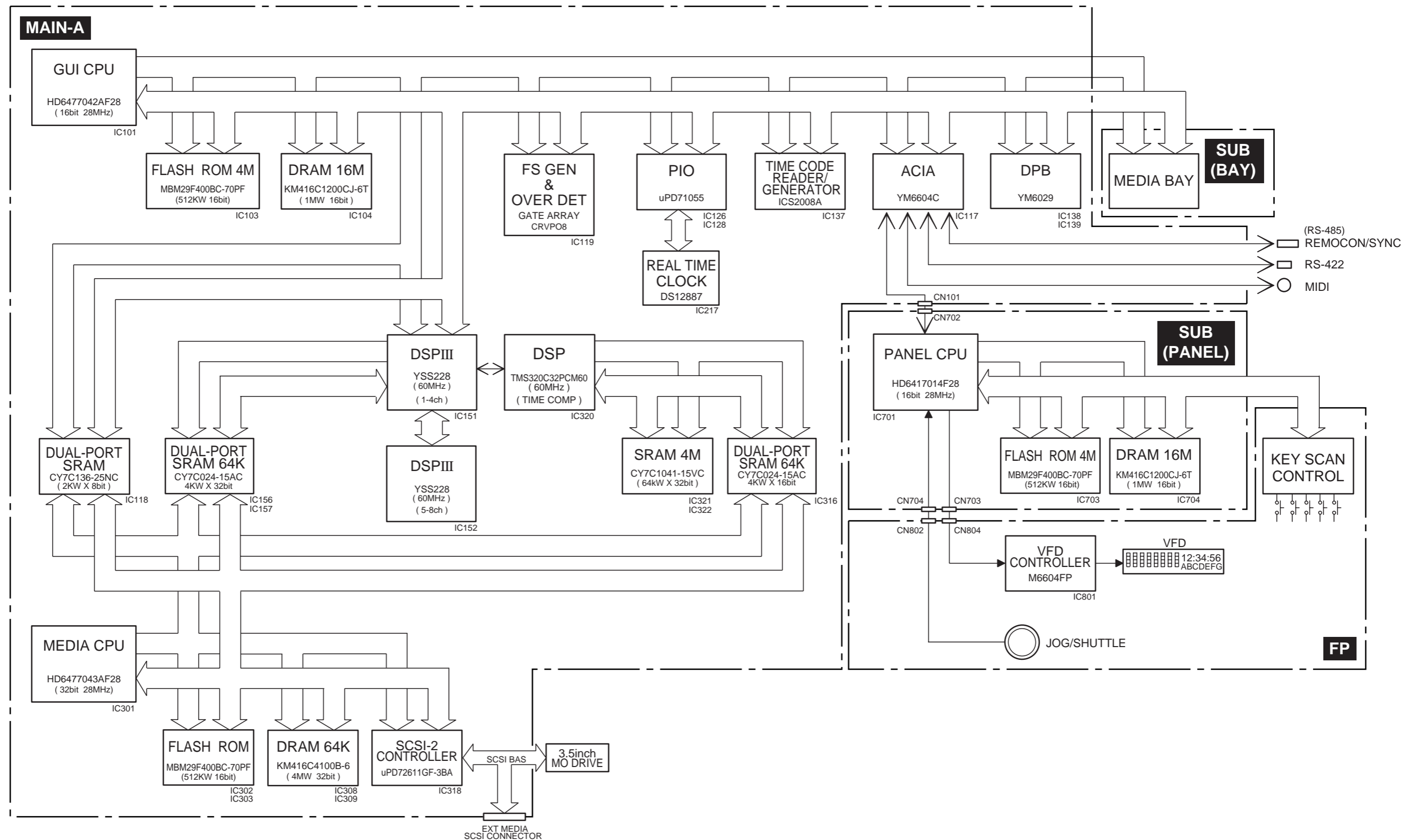
Sampling rate: depends on internal configuration

Control I/O

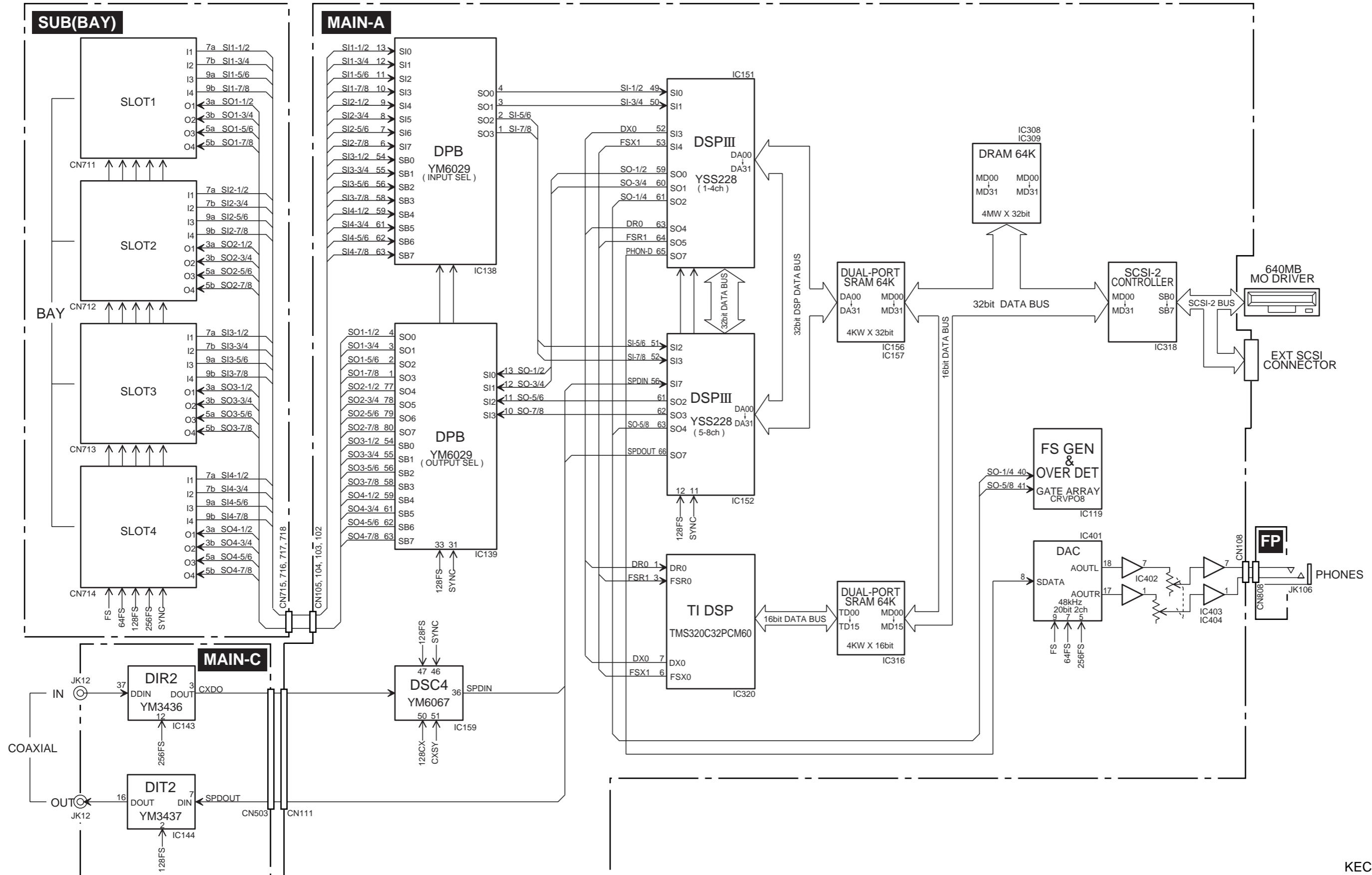
Connection	Format	Level	Connector
VIDEO INPUT	Composite (black burst or color bar)	—	BNC
VIDEO OUTPUT	Composite (black burst or color bar)	—	BNC
WORD CLOCK INPUT	—	TTL	BNC
WORD CLOCK OUTPUT	—	TTL	BNC
MIDI IN	MIDI	—	5-pin DIN
MIDI OUT	MIDI	—	5-pin DIN
MIDI THRU	MIDI	—	5-pin DIN
SCSI	Narrow SCSI-2 (FAST-20)	—	Half pitch 50-pin
SERIAL I/O	9-pin protocol	RS-422	9-pin D-sub
SYNC OUT	—	RS-422	15-pin D-sub
REMOTE IN/SYNC IN	—	RS-422	15-pin D-sub
TIMECODE INPUT	SMPTE/EBU	—	XLR-3-31 type (balanced)
TIMECODE OUTPUT	SMPTE/EBU	—	XLR-3-32 type (balanced)

■ BLOCK DIAGRAM

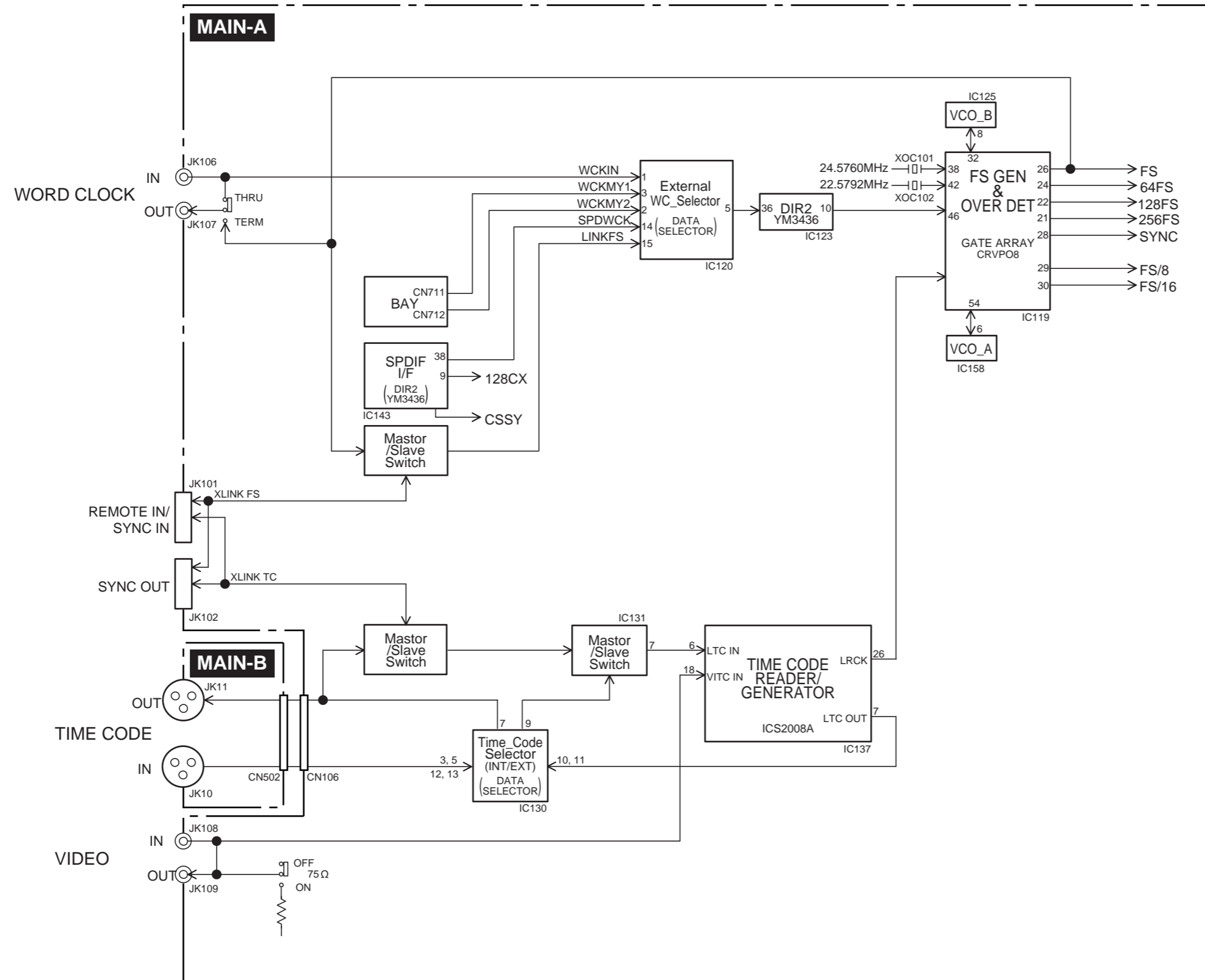
● CPU & SCI Section



● AUDIO DATA IN/OUT Section

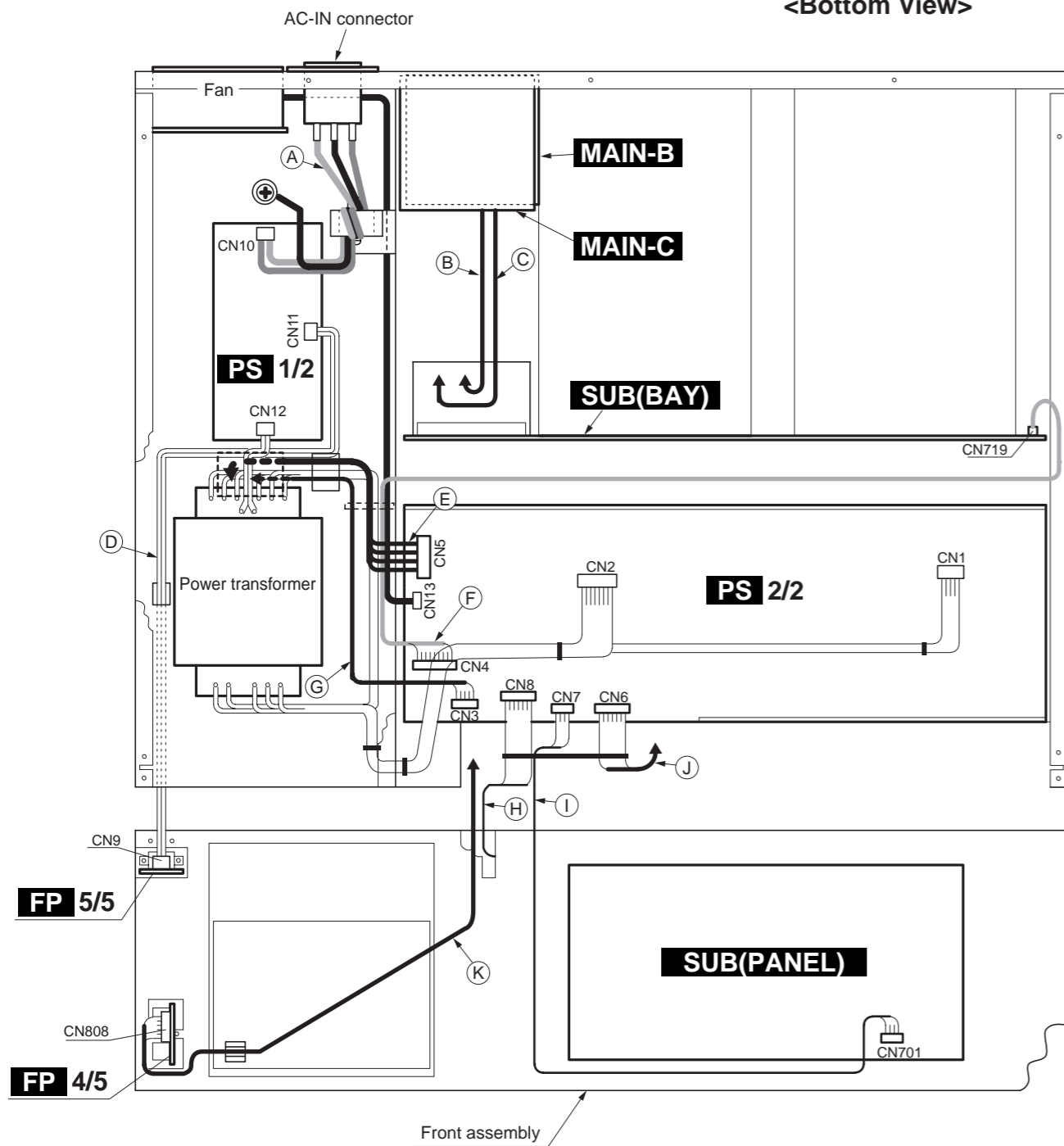


● FS GEN. & TIME CODE Section

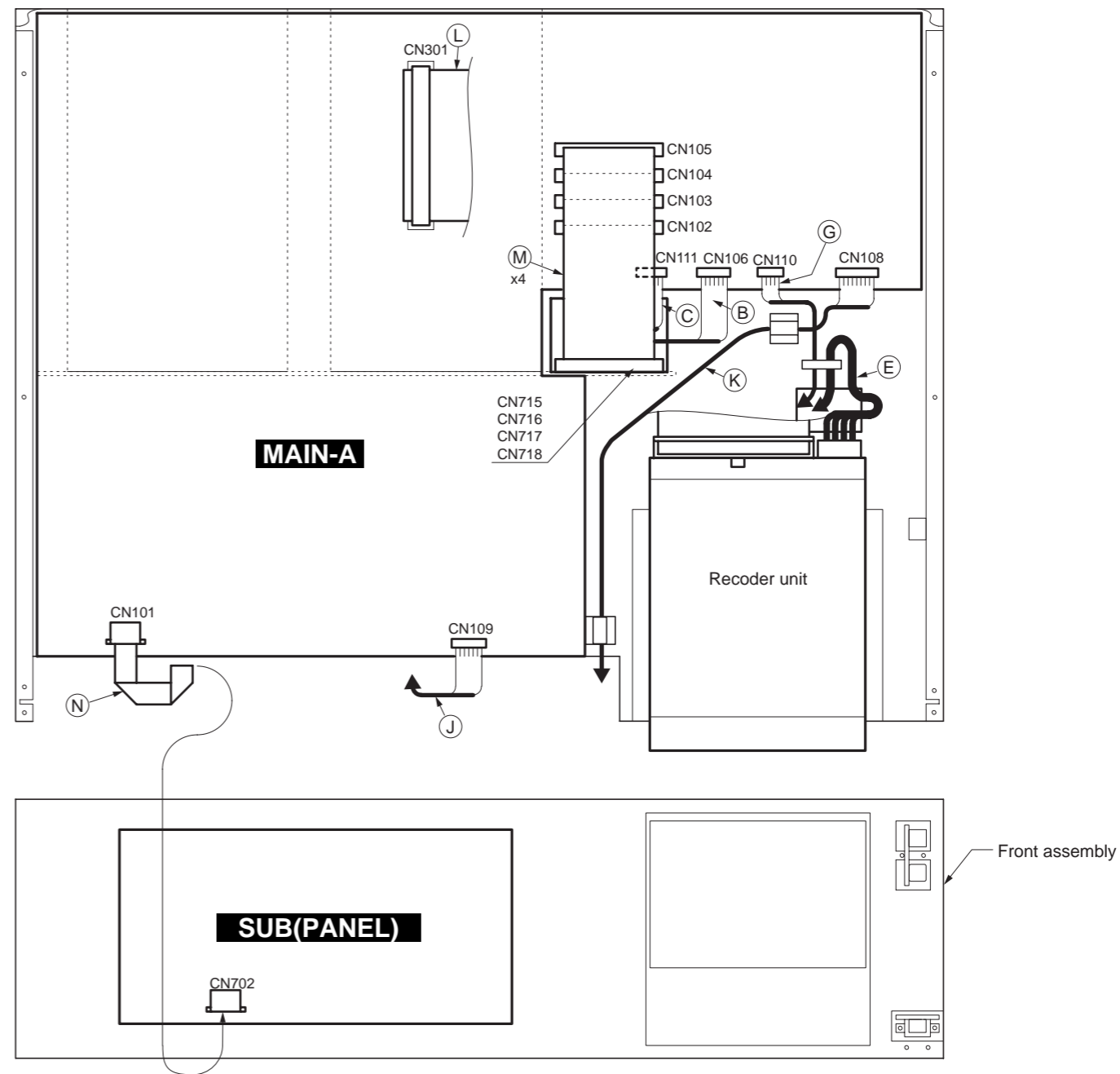


■ CIRCUIT BOARD LAYOUT

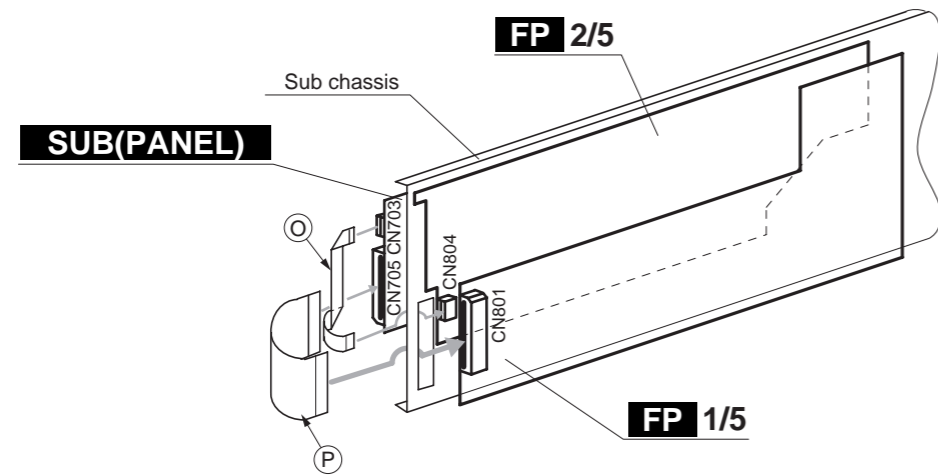
<Bottom View>



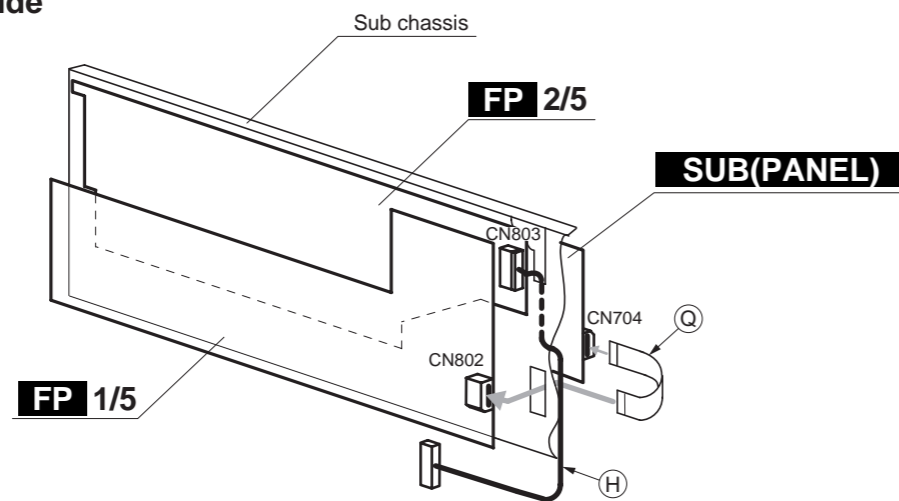
<Top View>



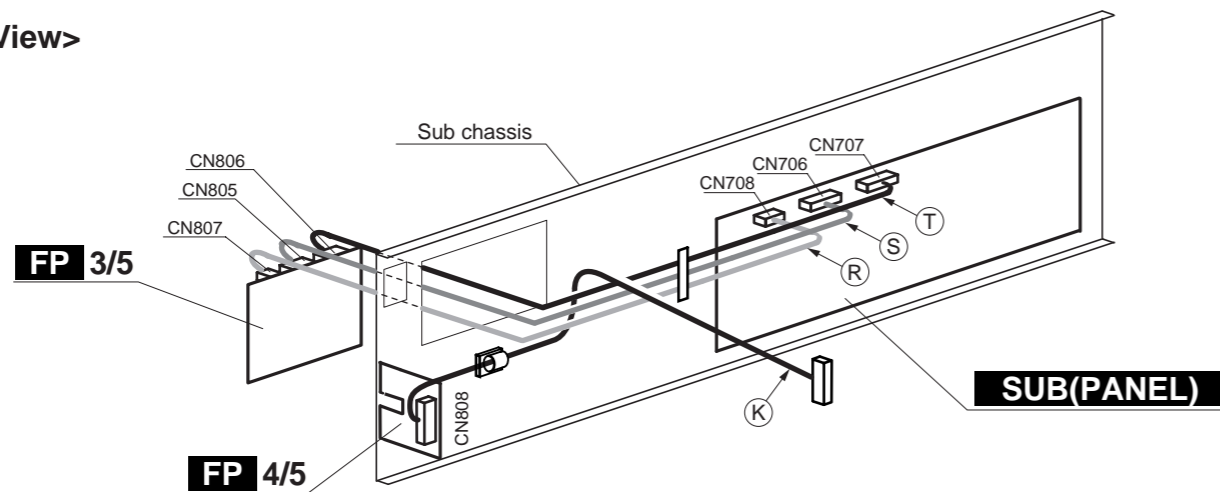
<Front View> Left side



<Front View> Right side

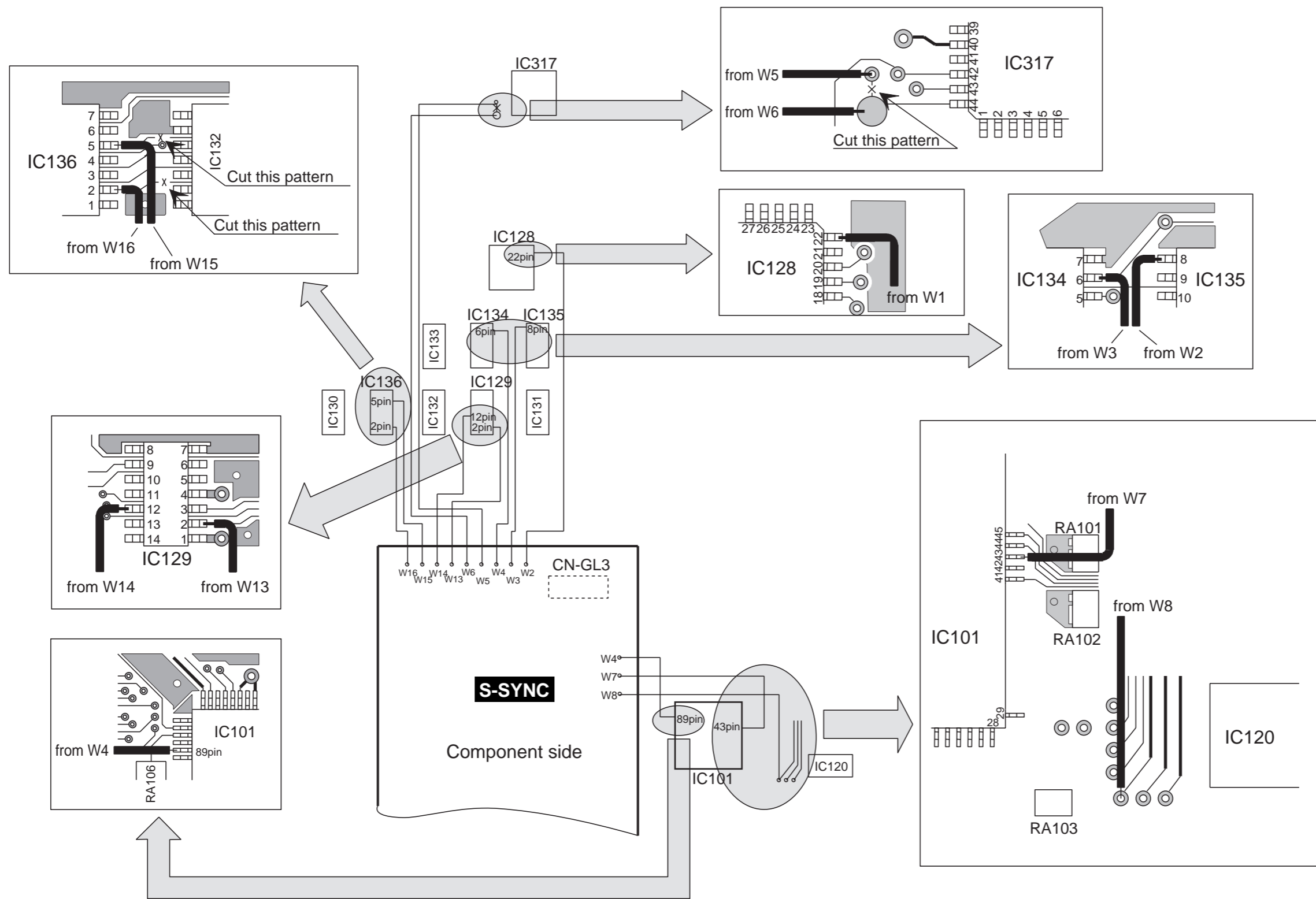


<Rear View>

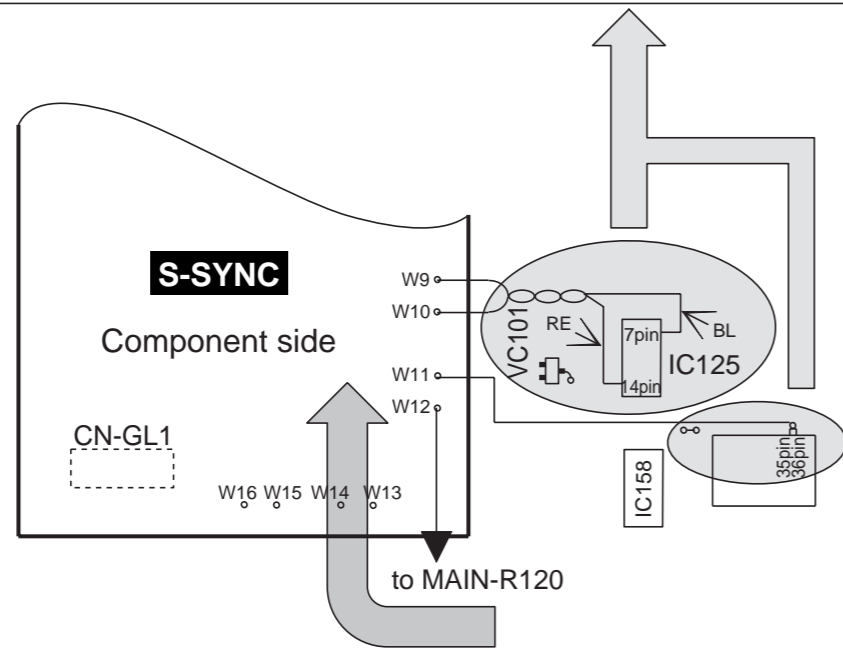
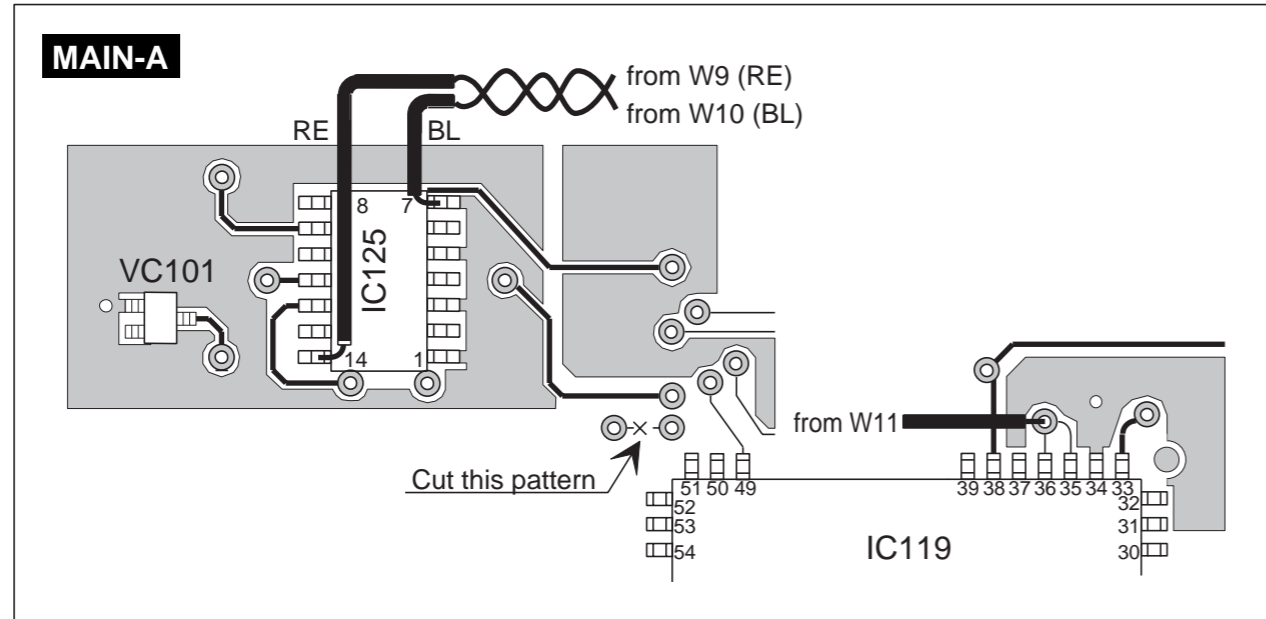


	DESTINATION		CONNECTOR ASSEMBLY	PIN/LENGHT	PART LIST REF NO.
(A)	AC-IN	PS1/2-CN10	AC IN	3P/L230(BL,WH) L190(GR)	OVERALL ASSEMBLY [300]
(B)	MAIN A-CN106	MAIN B-CN502	KR	6P/L160	OVERALL ASSEMBLY [560]
(C)	MAIN A-CN111	MAIN C-CN503	KR	5P/L160	OVERALL ASSEMBLY [570]
(D)	FP5/5-CN9	PS1/2-CN11	PSW	3P/L300	OVERALL ASSEMBLY [500]
(E)	PS2/2-CN5	Recorder Unit	MO	4P/L250	OVERALL ASSEMBLY [550]
(F)	PS2/2-CN4	SUB(BAY)-CN719	PH&PH	12P/L500	OVERALL ASSEMBLY [520]
(G)	PS2/2-CN3	MAIN A-CN110	PS-MAIN	6P-7P/L300	OVERALL ASSEMBLY [510]
(H)	FP2/5-CN803	PS2/2-CN8	PH&PH	7P/L160	FRONT ASSEMBLY [330]
(I)	PS2/2-CN7	SUB(PANEL)-CN701	PH&PH	5P/L250	OVERALL ASSEMBLY [540]
(J)	PS2/2-CN6	MAIN A-CN109	PH&PH	8P/L160	OVERALL ASSEMBLY [530]
(K)	FP4/5-CN808	MAIN A-CN108	B&C	8P/L450	FP CIRCUIT BOARD [CN808]
(L)	MAIN A-CN301	Recorder Unit	MAIN-MO	50P/L300	OVERALL ASSEMBLY [580]
(M)	MAIN A-CN102	SUB(BAY)-CN718	FFC	36P/L170	OVERALL ASSEMBLY [600]
	MAIN A-CN103	SUB(BAY)-CN717	FFC	36P/L170	OVERALL ASSEMBLY [600]
	MAIN A-CN104	SUB(BAY)-CN716	FFC	36P/L170	OVERALL ASSEMBLY [600]
	MAIN A-CN105	SUB(BAY)-CN715	FFC	36P/L170	OVERALL ASSEMBLY [600]
(N)	MAIN A-CN101	SUB(PANEL)-CN702	FFC	5P/L80	OVERALL ASSEMBLY [590]
(O)	FP2/5-CN804	SUB(PANEL)-CN703	FFC	6P/L80	FRONT ASSEMBLY [300]
(P)	FP1/5-CN801	SUB(PANEL)-CN705	FFC	30P/L80	FRONT ASSEMBLY [320]
(Q)	FP1/5-CN802	SUB(PANEL)-CN704	FFC	8P/L80	FRONT ASSEMBLY [310]
(R)	FP3/5-CN807	SUB(PANEL)-CN708	B&C	6P/L250	FP CIRCUIT BOARD [CN807]
(S)	FP3/5-CN805	SUB(PANEL)-CN706	B&C	11P/L250	FP CIRCUIT BOARD [CN805]
(T)	FP3/5-CN806	SUB(PANEL)-CN707	B&C	10P/L250	FP CIRCUIT BOARD [CN806]

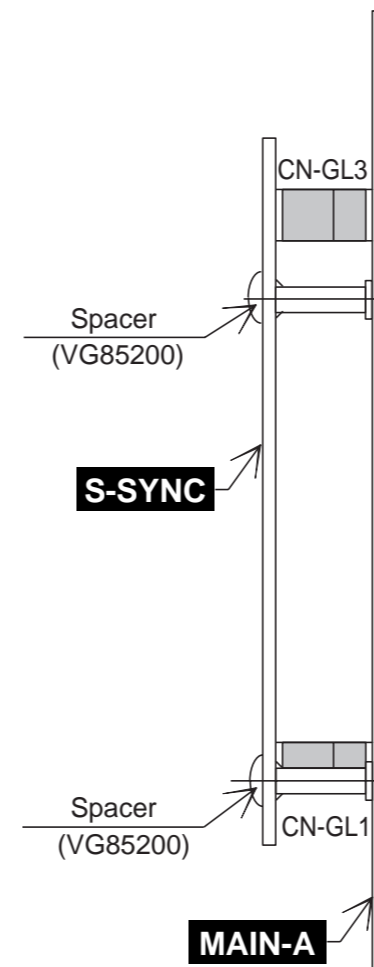
● S-SYNC Circuit Board Wiring 1/2



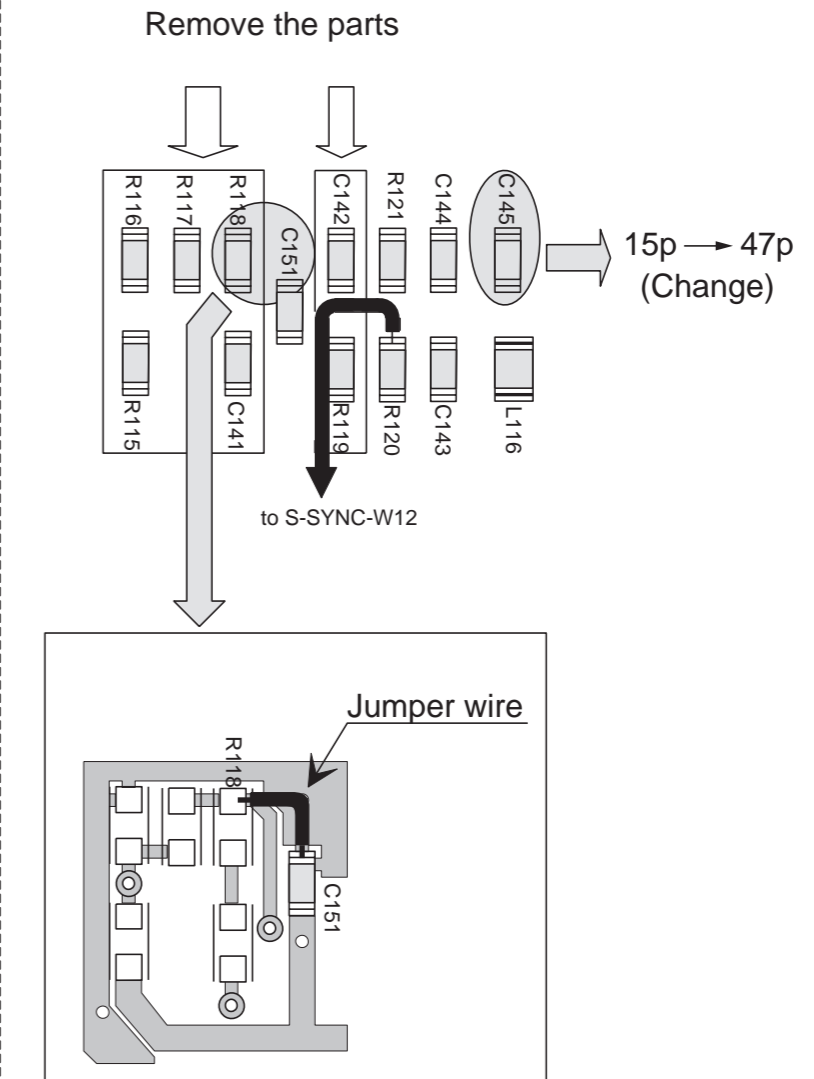
● S-SYNC Circuit Board Wiring 2/2



S-SYNC Circuit Board instillation

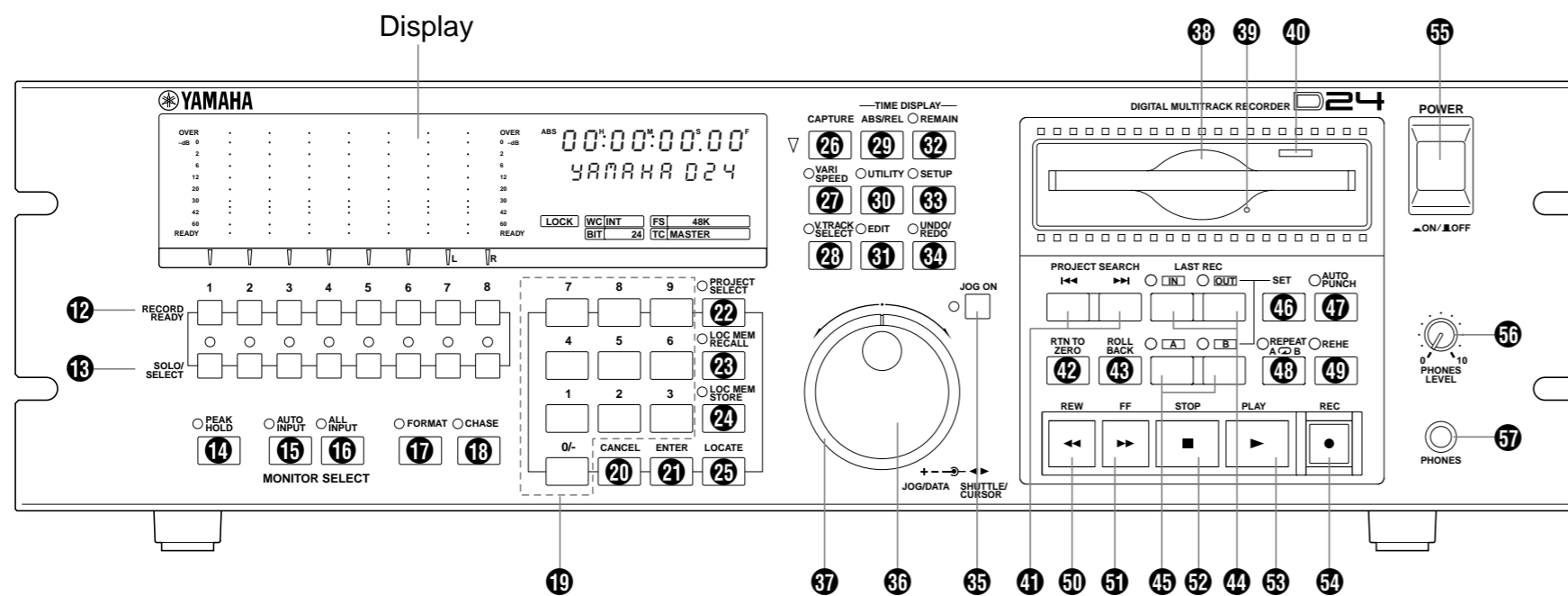


MAIN-A Circuit Board revision

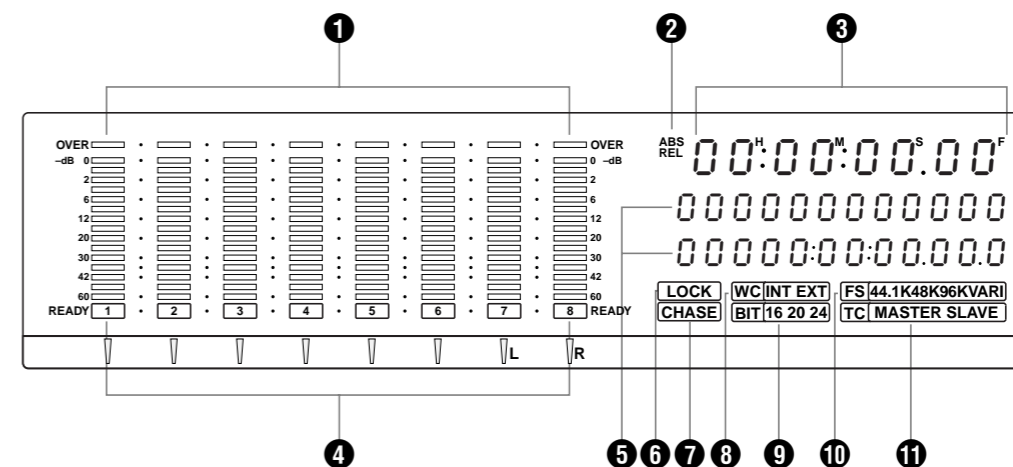


PANEL LAYOUT

● Front Panel



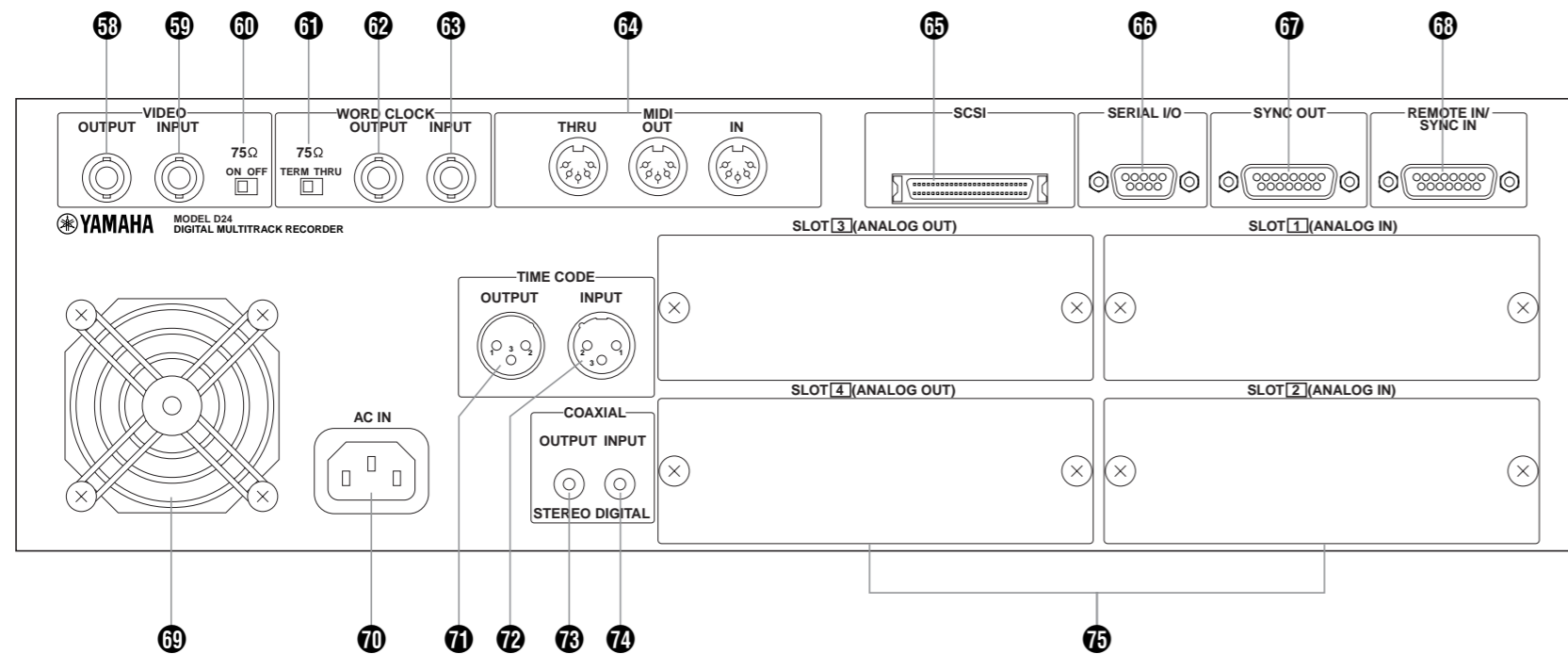
● Display



Display Section

- 1 Level meters
- 2 ABS/REL indicators
- 3 Counter
- 4 READY indicators
- 5 Message area
- 6 LOCK indicator
- 7 CHASE indicator
- 8 WC window
- 9 BIT window
- 10 FS window
- 11 TC window

● Rear panel



Track Buttons Section

- 12 RECORD READY buttons 1-8
- 13 SOLO/SELECT buttons & indicators 1-8

Peak, Monitor, Format & Chase Buttons Section

- 14 PEAK HOLD button & indicator
- 15 AUTO INPUT button & indicator
- 16 ALL INPUT button & indicator
- 17 FORMAT button & indicator
- 18 CHASE button & indicator

Keypad Section

- 19 Keypad buttons
- 20 CANCEL button
- 21 ENTER button
- 22 PROJECT SELECT button & indicator
- 23 LOC MEM RECALL button & indicator
- 24 LOC MEM STORE button & indicator
- 25 LOCATE button

Function Buttons Section

- 26 CAPTURE button
- 27 VARI SPEED button & indicator
- 28 V. TRACK SELECT button & indicator
- 29 ABS/REL button
- 30 UTILITY button & indicator
- 31 EDIT button & indicator
- 32 REMAIN button & indicator
- 33 SETUP button & indicator
- 34 UNDO/REDO button & indicator

Jog/Data & Shuttle/Cursor Controls Section

- 35 JOG ON button & indicator
- 36 JOG/DATA dial
- 37 SHUTTLE CURSOR ring

Transport Controls Section

- 38 MO disk drive slot
- 39 Manual eject hole
- 40 Eject button & activity indicator
- 41 PROJECT SEARCH buttons
- 42 RTN TO ZERO button
- 43 ROLL BACK button
- 44 LAST REC IN & OUT buttons & indicators
- 45 A & B buttons & indicators
- 46 SET button
- 47 AUTO PUNCH button & indicator
- 48 REPEAT button & indicator
- 49 REHE button & indicator
- 50 REW button
- 51 FF button
- 52 STOP button
- 53 PLAY button
- 54 REC button

Power Switch & Phones Section

- 55 POWER switch
- 56 PHONES LEVEL control
- 57 PHONES jack

Rear Panel

- 58 VIDEO OUTPUT connector
- 59 VIDEO INPUT connector
- 60 VIDEO 75 Ω ON/OFF switch
- 61 WORD CLOCK 75 Ω TERM/THRU switch
- 62 WORD CLOCK OUTPUT connector
- 63 WORD CLOCK INPUT connector
- 64 MIDI IN, OUT & THRU ports
- 65 SCSI port
- 66 SERIAL I/O port
- 67 SYNC OUT port
- 68 REMOTE IN/SYNC IN port
- 69 Cooling fan
- 70 AC IN connector
- 71 TIMECODE OUTPUT connector
- 72 TIMECODE INPUT connector
- 73 COAXIAL STEREO DIGITAL OUTPUT connector
- 74 COAXIAL STEREO DIGITAL INPUT connector
- 75 SLOTS 1-4

DISASSEMBLY PROCEDURE

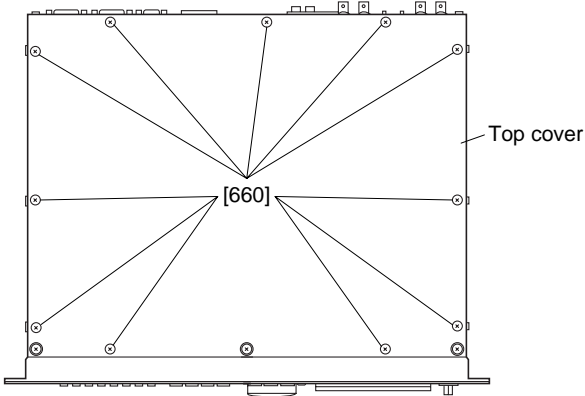
1. Top Cover

1-1 Remove the eleven (11) screws marked [660]. The top cover can then be removed. (Fig.1)

2. Bottom Assembly

2-1 Remove the eleven (11) screws marked [480]. The bottom assembly can then be removed. (Fig.2)

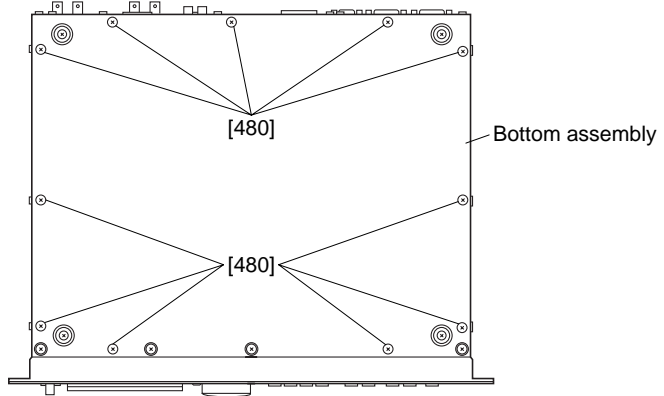
<Top View>



[660]: Bind Head Tapping Screw-B 4.0X8 MFZN2BL (VC688800)

(Fig. 1)

<Bottom View>



[480]: Bind Head Tapping Screw-B 4.0X8 MFZN2BL (VC688800)

(Fig. 2)

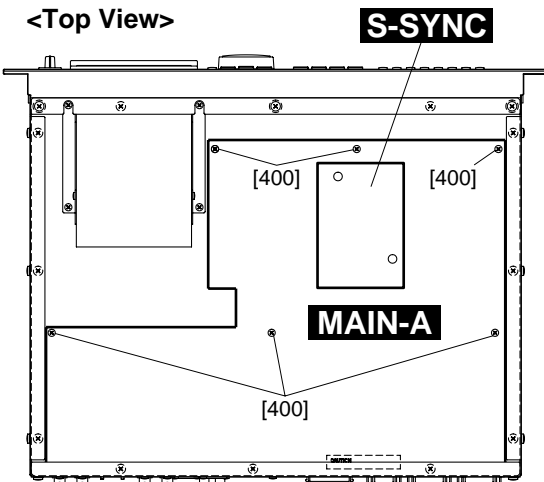
3. MAIN-A and S-SYNC Circuit Boards

3-1 Remove the top cover. (See procedure 1.)

3-2 Remove the six (6) screws marked [400]. (Fig.3)

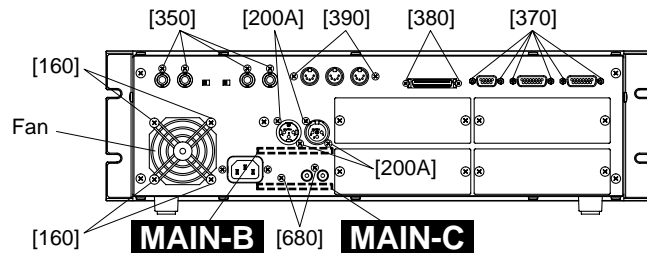
3-3 The four (4) screws marked [350], the two (2) screws marked [390], the two (2) screws marked [380] and the six (6) screws marked [370]. The MAIN-A circuit board and the S-SYNC circuit board can then be removed. (Fig.4)

<Top View>



[400]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (EP600190)

(Fig. 3)



[160]: Pan Head Screw SP4.0X25 MFZN2BL (VR116500)
 [200A]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (VP157000)
 [350]: Bind Head Screw A3.0X12 MFZN2BL (VP156600)
 [370]: Screw (VT362500)
 [380]: Pan Head Screw 2.6X6 MFNI33 (VT267800)
 [390]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (VP157000)
 [680]: Bind Head Screw 4.0X12 MFZN2BL (VP156900)

(Fig. 4)

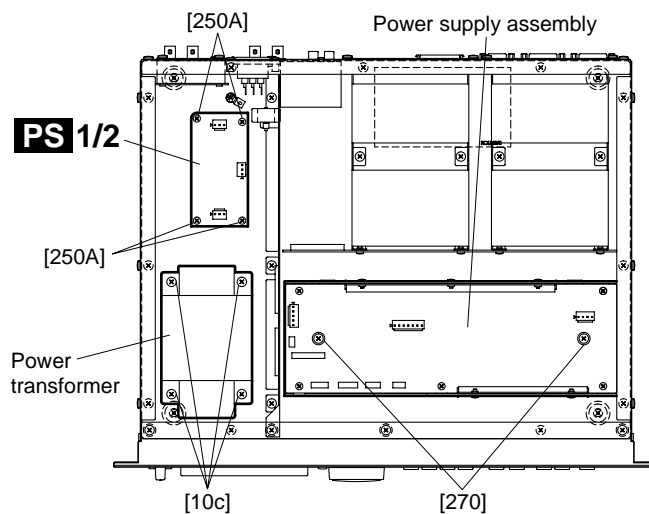
4. MAIN-B and MAIN-C Circuit Boards, Fan, Power Transformer, PS1/2 and PS2/2 Circuit Boards

- 4-1 Remove the bottom assembly. (See procedure 2.)
- 4-2 MAIN-B Circuit Board: Remove the four (4) screws marked [200A]. The MAIN-B circuit board can then be removed. (Fig.4)
- 4-3 MAIN-C Circuit Board: Remove the two (2) screws marked [680]. The MAIN-C circuit board can then be removed. (Fig.4)
- 4-4 Fan: Remove the four (4) screws marked [160]. The fan can then be removed. (Fig.4)
- 4-5 Power Transformer: Remove the four (4) screws marked [10c]. The power transformer can then be removed. (Fig.5)
- 4-6 PS1/2 Circuit Board: Remove the four (4) screws marked [250A]. The PS1/2 circuit board can then be removed. (Fig.5)
- 4-7 PS2/2 Circuit Board: Remove the two (2) screws marked [270]. The power supply assembly can then be removed. (Fig.5)

Remove the three (3) screws marked [80] and the two (2) screws marked [100]. The TR holder (A) and (B) can then be removed. (Fig.6)

Remove the five (5) screws marked [60A]. The PS2/2 circuit board can then be removed. (Fig.6)

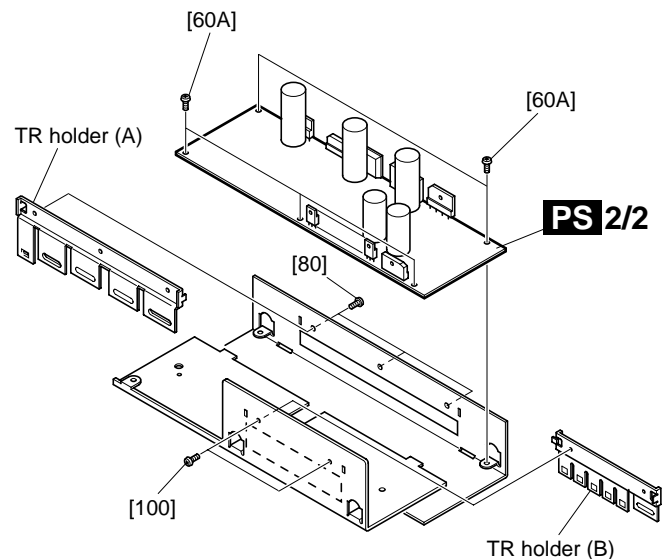
<Top View>



- [10c]: Bind Head Tapping Screw-B 4.0X8 MFZN2BL (VC688800)
 [250A]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (EP600190)
 [270]: Bind Head Tapping Screw-B 4.0X12 MFZN2BL (VD831800)

(Fig. 5)

• Power Supply Assembly

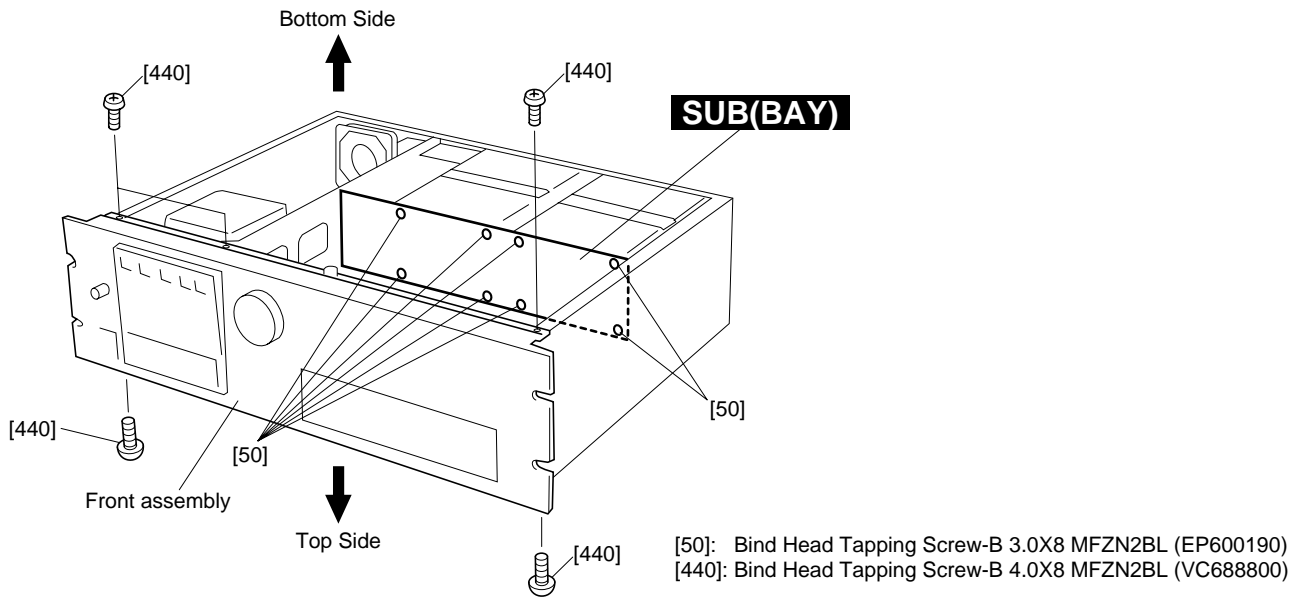


- [60A]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (EP600190)
 [80]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (VP157000)
 [100]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (VP157000)

(Fig. 6)

5. SUB(BAY) Circuit Board

- 5-1 Remove the bottom assembly. (See procedure 2.)
- 5-2 Remove the power supply assembly. (See procedure 4-7.)
- 5-3 Remove the five (5) screws marked [440]. The front assembly can then be removed. (Fig.7)
- 5-4 Remove the eight (8) screws marked [50]. The SUB(BAY) circuit board can then be removed. (Fig.7)

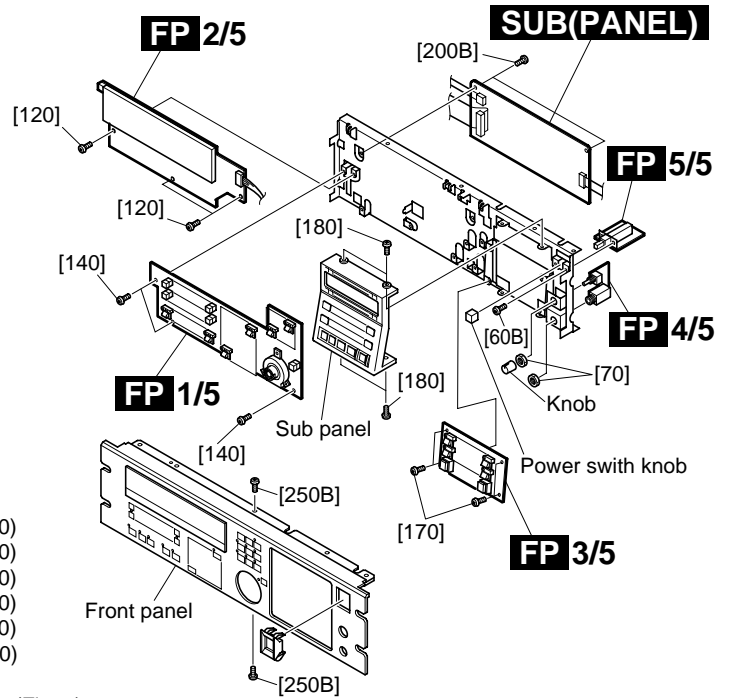


(Fig. 7)

6. FP1/5, FP2/5, FP3/5, FP4/5, FP5/5 and SUB(PANEL) Circuit Boards

- 6-1 Remove the top cover. (See procedure 1.)
- 6-2 Remove the bottom assembly. (See procedure 2.)
- 6-3 Remove the front assembly. (See procedure 5-3.)
- 6-4 **FP1/5 Circuit Board:** Remove the two (2) screws marked [250B]. The front panel can then be removed. (Fig.8)
 Remove the three (3) screws marked [140]. The FP1/5 circuit board can then be removed. (Fig.8)
- 6-5 **FP2/5 Circuit Board:** Remove the front panel and the FP1/5 circuit board. (See procedure 6-4.)
 Remove the three (3) screws marked [120]. The FP2/5 circuit board can then be removed. (Fig.8)
- 6-6 **FP3/5 Circuit Board:** Remove the front panel. (See procedure 6-4.)
 Remove the four (4) screws marked [180]. The sub panel can then be removed. (Fig.8)
 Remove the four (4) screws marked [170]. The FP3/5 circuit board can then be removed. (Fig.8)
- 6-7 **FP4/5 Circuit Board:** Remove the front panel. (See procedure 6-4.)
 Remove the knob, and remove the two (2) nuts marked [70]. The FP4/5 circuit board can then be removed. (Fig.8)

- 6-8 **FP5/5 Circuit Board:** Remove the front panel. (See procedure 6-4.)
Remove the power switch knob, and remove the two (2) screws marked [60B]. The FP5/5 circuit board can then be removed. (Fig.8)
- 6-9 **SUB(PANEL) Circuit Board:** Remove the two (2) screws marked [200B]. The SUB(PANEL) circuit board can then be removed. (Fig.8)

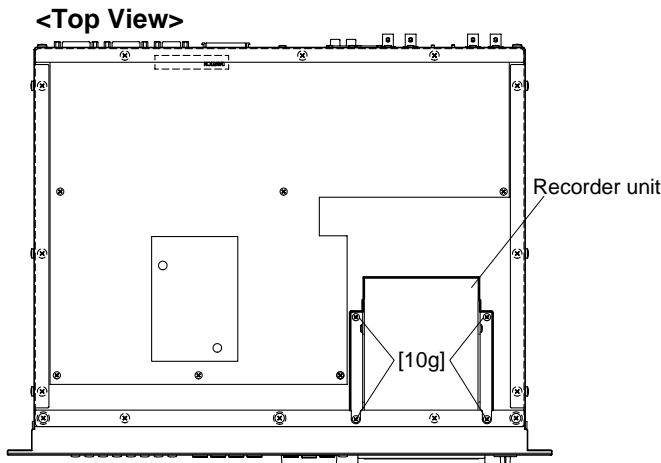


- [60B]: Bind Head Screw 3.0X12 MFZN2BL (VP156600)
- [120]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (EP600190)
- [140]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (EP600190)
- [170]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (EP600190)
- [180]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (EP600190)
- [200B]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (EP600190)
- [250B]: Bind Head Tapping Screw-B 4.0X8 MFZN2BL (VC688800)

(Fig. 8)

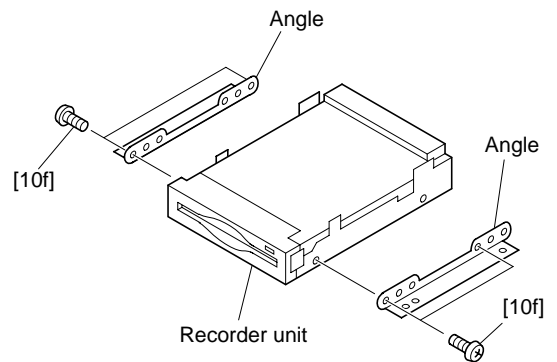
7. Recorder Unit

- 7-1 Remove the top cover. (See procedure 1.)
- 7-2 Remove the four (4) screws marked [10g]. The recorder unit can then be removed by sliding backward. (Fig.9)
- 7-3 Remove the four (4) screws marked [10f]. The two angles can then be removed. (Fig.10)



- [10g]: Bind Head Tapping Screw-B A3.0X8 MFZN2BL (VP157000)

(Fig. 9)



- [10f]: Bind Head Screw A3.0X6 MFZN2BL (VP156600)

(Fig. 10)

■ LSI PIN DESCRIPTION

M66004FP (XT828A00) Display Driver	19
HD6417014F28 (XU147A00) • EHD6477042AF28 (XV731A00) CPU	20
HD6477043AF28 (XV736A00) CPU	21
TMS320C32PCM60 (XU277A00) DSP	22
YM6067 (XH494A00) PSC4	23
YM6604 (XH497A00) ACIA	24
YSS228D-F (XQ962D00) DSP3	25
μPD72611GF-3BA (XU375A00) SCSI Controller	26
AK4321 (XS388A00) DAC	27
CRVP08 (XV740A00) Gate Array	27
DS12887 (XV618A00) Real Time Clock	28
ICS2008A (XV619A00) T.C. Reader/Generator	28
YM3437C-F (XM530A00) DIT2	29
YM6029 (XH746A00) DPB	29
YM3436DK (XG948E0) DIR2	30
μPD71055GB-3B4 (XH600A00) PIO	30

● M66004FP (XT828A00) Display Driver

FP: IC801

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	DIG11	O	Digital output	33	SEG26	O	Segment output
2	DIG10	O		34	SEG25	O	
3	DIG09	O		35	SEG24	O	
4	DIG08	O		36	SEG23	O	
5	DIG07	O		37	SEG22	O	
6	DIG06	O		38	SEG21	O	
7	DIG05	O		39	SEG20	O	
8	DIG04	O		40	SEG19	O	
9	DIG03	O		41	SEG18	O	
10	DIG02	O		42	SEG17	O	
11	DIG01	O		43	SEG16	O	
12	DIG00	O		44	SEG15	O	
13	/RESET	I	Reset	45	SEG14	O	Power Supply
14	/CS	I	Chip selection	46	SEG13	O	
15	SCK	I	Sift clock	47	SEG12	O	
16	SDATA	I	Serial data	48	SEG11	O	
17	P1	O	Output port 1	49	SEG10	O	
18	P0	O	Output port 0	50	SEG09	O	
19	VCC1	-	Power supply	51	SEG08	O	
20	XOUT	O	Clock out	52	SEG07	O	
21	XIN	I	Clock in	53	SEG06	O	
22	VSS	-	Ground	54	SEG05	O	
23	SEG35	O	Segment output	55	SEG04	O	
24	SEG34	O		56	SEG03	O	
25	SEG33	O		57	SEG02	O	
26	SEG32	O		58	SEG01	O	
27	SEG31	O		59	SEG00	O	
28	SEG30	O		60	VCC2	O	
29	SEG29	O		61	DIG15	O	
30	SEG28	O		62	DIG14	O	
31	SEG27	O		63	DIG13	O	
32	VP	-		(-) Power supply	64	DIG12	O

- HD6417014F28 (XU147A00) CPU
- HD6477042AF28 (XV731A00) CPU

SUB(BAY): IC701
MAIN: IC101

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

● HD6477043AF28 (XV736A00) CPU

MAIN: IC301

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION	
1	/WRHH	O	HH write	73	D15	I/O	Data bus	
2	PE14	I/O	Port E	74	D14	I/O		
3	/WRHL	O	HL write	75	D13	I/O		
4	/CASHH	O	HH Column address strobe	76	D12	I/O	Power supply	
5	DACK1	O	DMA transfer strobe	77	VCC	I		
6	VSS	I	Ground	78	D11	I/O	Data bus	
7	A0	O	Address bus	79	VSS	I	Ground	
8	A1	O						
9	A2	O						
10	A3	O						
11	A4	O						
12	VCC	I	Power supply	80	D10	I/O	Data bus	
13	A5	O	Address bus	81	D9	I/O		
14	VSS	I	Ground	82	D8	I/O		
15	A6	O	Address bus	83	D7	I/O	Power supply	
16	A7	O						
17	A8	O						
18	A9	O						
19	A10	O						
20	A11	O	Address bus	84	D6	I/O	Data bus	
21	A12	O						
22	A13	O						
23	A14	O						
24	A15	O						
25	A16	O	Power supply	85	VCC	I		
26	VCC	I		Power supply	86	D5	I/O	Data bus
27	A17	O	Address bus	87	VSS	I	Ground	
28	VSS	I	Ground	88	D4	I/O	Data bus	
29	/CASHL	O	HL Column address strobe	89	D3	I/O		
30	PA19	I/O	Port A	90	D2	I/O		
31	/RAS	O	Row address strobe	91	D1	I/O	Ground	
32	/CASL	O	Column address strobe (low)	92	D0	I/O		
33	PA18	I/O	Port A	93	VSS	I	Ground	
34	/CASH	O	Column address strobe (high)	94	XTAL	I	Crystal oscillator	
35	VSS	I	Ground	95	MD3	I	Mode select	
36	RDWR	O	DRAM read/write	96	EXTAL	I	Crystal oscillator	
37	A18	O	Address bus	97	MD2	I	Mode select	
38	A19	O						
39	A20	O						
40	VCC	I		Power supply	98	NMI	-	Non-maskable interrupt
41	A21	O		Address bus	99	VCC	I	Power supply
42	VSS	I	Ground	100	PA16	I/O	Port A	
43	/RD	O	Read	101	PA17	I/O	Port A	
44	/WDTOVF	O	Watch dog timer overflow	102	MD1	I	Mode select	
45	D31	I/O	Data bus	103	MD0	I	Mode select	
46	D30	I/O	Data bus	104	PLL VCC	I	PLL Power supply	
47	/WRH	O	High write	105	PLL CAP	I	PLL capacitor	
48	/WRL	O	Low write	106	PLL VSS	I	PLL Ground	
49	/CS1	O	Chip select	107	CK	I/O	Clock	
50	/CS0	O	Chip select	108	/RES	I	Reset	
51	/IRQ3	I	Interrupt request	109	PE0	I/O	Port E	
52	/IRQ2	I	Interrupt request	110	PE1	I/O	Port E	
53	/CS3	O	Chip select	111	/DREQ1	I	DMA transfer request	
54	/CS2	O	Chip select	112	VCC	I	Power supply	
55	VSS	I	Ground	113	PE3	I/O	Port E	
56	D29	I/O	Data bus	114	PE4	I/O		
57	D28	I/O						
58	D27	I/O						
59	D26	I/O						
60	D25	I/O						
61	VSS	I	Ground	115	PE5	I/O	Port F	
62	D24	I/O	Data bus	116	PE6	I/O		
63	VCC	I	Power supply	117	VSS	I		Ground
64	D23	I/O	Data bus	118	PF0	I/O	Port F	
65	D22	I/O						
66	D21	I/O						
67	D20	I/O						
68	D19	I/O						
69	D18	I/O	Ground	119	PF1	I/O		
70	D17	I/O						
71	VSS	I	Ground	120	PF2	I/O	Port E	
72	D16	I/O	Data bus	121	PF3	I/O		
				122	PF4	I/O		
				123	PF5	I/O	Analog ground	
				124	AVSS	I		
				125	PF6	I/O	Port F	
				126	PF7	I/O	Port F	
				127	AVREF	I	Analogreference voltage	
				128	AVCC	I	Analog power supply	
				129	VSS	I	Ground	
				130	RxDO	I	Receive data	
				131	TxDO	O	Transmit data	
				132	SCK0	I/O	Serial clock	
				133	RxD1	I	Receive data	
				134	TxD0	O	Transmit data	
				135	VCC	I	Power supply	
				136	SCK1	I/O	Serial clock	
				137	PE7	I/O	Port E	
				138	PE8	I/O		
				139	PE9	I/O		
				140	PE10	I/O	Ground	
				141	VSS	I		
				142	PE11	I/O	Port E	
				143	PE12	I/O		
				144	PE13	I/O		

• TMS320C32PCM60 (XU277A00) DSP

MAIN: IC320

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	DR0	I/O	Serial data receives port 0	73	CVSS	-	Ground
2	DVDD	-	Power supply +5 V	74	DVSS	-	Ground
3	FSR0	I/O	Frame-sync. pulse for receive	75	D21	I/O	Data ports
4	CLKR0	I/O	Serial-port 0 receive clock	76	D20	I/O	
5	CLKX0	I/O	Serial-port 0 transmit clock	77	D19	I/O	
6	FSX0	I/O	Frame-sync. pulse for transmit	78	D18	I/O	
7	DX0	I/O	Data-transmit output	79	DVDD	-	Power supply +5 V
8	IVSS	-	Ground	80	D17	I/O	
9	/SHZ	I	Shutdown high impedance	81	D16	I/O	Data ports
10	TCLK0	I/O	Timer clock 0	82	D15	I/O	
11	TCLK1	I/O	Timer clock 1	83	D14	I/O	
12	DVDD	-	Power supply +5 V	84	D13	I/O	
13	EMU3	O	Reserved for emulation	85	VDDL	-	Power supply +5 V
14	EMU0	I	Reserved for emulation	86	VDDL	-	Power supply +5 V
15	VDDL	-	Power supply +5 V	87	D12	I/O	Data port
16	VDDL	-	Power supply +5 V	88	IVSS	-	Ground
17	EMU1	I	Reserved for emulation	89	D11	I/O	Data port
18	EMU2	I	Reserved for emulation	90	DVDD	-	Power supply +5 V
19	VSSL	-	Ground	91	D10	I/O	Data port
20	MCBL/MP	I		92	CVSS	-	Ground
21	CVSS	-	Ground	93	DVSS	-	Ground
22	DVSS	-	Ground	94	VSSL	-	Ground
23	A23	O	Address ports	95	VSSL	-	Ground
24	A22	O					
25	A21	O					
26	A20	O					
27	A19	O					
28	A18	O	Power supply +5 V				
29	DVDD	-					
30	A17	O	Address ports				
31	A16	O					
32	A15	O					
33	A14	O					
34	A13	O	Ground				
35	CVSS	-					
36	DVSS	-	Ground				
37	NC	-		109	NC	-	
38	A12	O	Address port	110	VSUBS	-	Substrate, tie to ground
39	DVDD	-	Power supply +5 V	111	CVSS	-	Ground
40	A11	O	Address ports	112	DVSS	-	Ground
41	A10	O					
42	A9	O					
43	A8	O					
44	A7	O					
45	A6	O	Power supply +5 V				
46	DVDD	-					
47	A5	O	Address ports				
48	A4	O					
49	A3	O					
50	VDDL	-	Power supply +5 V	120	/STRB0_B3/A-1	O	External-memory access strobe 0
51	VDDL	-	Power supply +5 V	121	/STRB0_B2/A-2	O	External-memory access strobe 0
52	A2	O	Address port	122	/STRB0_B1	O	External-memory access strobe 0
53	CVSS	-	Ground	123	/STRB0_B0	O	External-memory access strobe 0
54	DVSS	-	Ground	124	VDDL	-	Power supply +5 V
55	A1	O	Address port	125	VDDL	-	Power supply +5 V
56	VSSL	-	Ground	126	/STRB1_B3/A-1	O	External-memory access strobe 1
57	VSSL	-	Ground	127	VSSL	-	Ground
58	A0	O	Address port	128	/STRB1_B2/A-2	O	External-memory access strobe 1
59	DVDD	-	Power supply +5 V	129	DVDD	-	Power supply +5 V
60	D31	I/O	Data ports	130	/STRB1_B1	O	External-memory access strobe 1
61	D30	I/O					
62	D29	I/O					
63	D28	I/O					
64	D27	I/O					
65	D26	I/O	Ground				
66	IVSS	-					
67	D25	I/O	Data port	131	/STRB1_B0	O	External-memory access strobe 1
68	DVDD	-	Power supply +5 V	132	R//W	O	Read / write
69	D24	I/O	Data ports	133	PRGW	I	Program memory width select
70	D23	I/O					
71	D22	I/O					
72	NC	-			134	/RESET	I
				135	CVSS	-	Ground
				136	DVSS	-	Ground
				137	XF0	I/O	External flag
				138	XF1	I/O	External flag
				139	/ACK	O	Interrupt acknowledge
				140	/INT0	I	External interrupts
				141	/INT1	I	
				142	//INT2	I	
				143	/INT3	I	
				144	NC	-	

● **YM6067 (XH494A00) PSC4 (Parallel Serial Converter)**

MAIN: IC159

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	D23	I/O	Parallel I/O ports (D00: LSB, D23: MSB)	40	EXCO	I	MSB/LSB reverse control terminal for internal parallel bus → serial output. Basic format is maintained when Lo. When this goes Hi, the MSB/LSB are reversed. Serial output selection terminal Ground Serial output selection terminal
2	D22	I/O		41	CO1	I	
3	D21	I/O		42	Vss		
4	D20	I/O		43	CO0	I	
5	D19	I/O					
6	D18	I/O					
7	D17	I/O					
8	D16	I/O					
9	D15	I/O					
10	Vss		Ground	44	BCKO	O	Parallel to serial conversion clock output terminal for serial output section. Normally connected to SCKO. Parallel to serial conversion clock input terminal for serial output section. Data from SO0-3 is output at the rising edge of the clock. *The start of a word must always be a rising edge. Sync word input terminal for serial output section. The start of a word is defined as the third rising edge of the MCKO after going from Hi to Lo. Master clock input terminal for serial output section. Receives 128 x fs (rising edge first) clock. Pin for LSI testing. Normally fixed at Lo System reset terminal Master clock input terminal for serial input section. Receives 128 x fs (rising edge first) clock. Sync word input terminal for serial input section. The start of a word is defined as the third rising edge of the MCKI after going from Hi to Lo. Serial to parallel conversion clock input terminal for serial input section. Data from SI0-3 is received at the falling edge of the clock. Normally connected to BCKI. Serial to parallel conversion clock output terminal for serial input section. Normally connected to SCKI.
11	D14	I/O		45	SCKO	I	
12	D13	I/O					
13	D12	I/O					
14	D11	I/O					
15	D10	I/O					
16	D09	I/O					
17	D08	I/O					
18	D07	I/O		Parallel I/O ports (D00: LSB, D23: MSB)	46	SYNO	
19	D06	I/O	47		MCKO	I	
20	D05	I/O	48		TST	I	
21	D04	I/O	49		RESN	I	
22	D03	I/O	50		MCKI	I	
23	D02	I/O					
24	D01	I/O					
25	D00	I/O					
26	VDD		Power supply Ground		51	SYNI	I
27	Vss			52	SCKI	I	
28	OENP	I		53	BCKI	O	
				54	CI1	I	
				55	CI0	I	
29	BA0	I		Output control terminal for parallel ports D00-D15. When Lo: internal bus → external When BA0 is Hi, the impedance of the parallel ports will be Hi even if this is set to Lo. Terminal for selecting origin of data writing for the serial output section. When Lo: serial input section → serial output section. When Hi: parallel port → serial output section However, control cannot be carried out except when MODA=MODB=Lo. 4 Internal Blocks 1: Serial Input section (SI) 2: Serial Output section (SO) 3: Buffering section (BUF) 4: Parallel port section (PARA) Terminals used to determine how connections are made.	56	EXCI	I
30	MODA	I			57	Vss	I
31	MODB	I			58	VDD	I
					59	AI1	I
			60		AI0	I	
32	OENO	I	The input and output channels are the same except when MODA=MODB=Lo. Output control terminal. Works in conjunction with the serial output terminals SO0-3. Output is 0 when Hi, and operation is normal when Lo. Serial data output terminals.	61	SI3	I	
33	SO3	O		62	SI2	I	
34	SO2	O		63	SI1	I	
35	SO1	O		64	SI0	I	
36	SO0	O					
37	AO1	I	Writing channel selection terminals for internal parallel bus → serial output latch. Control cannot be carried out unless MODA=MODB=Lo. Write signal to internal parallel bus → serial output latch. Parallel bus data can be received in the shift out latch when Hi → Lo → Hi. However, control cannot be carried out unless MODA=MODB=Lo.				
38	AO0	I					
39	WIN	I					

CO1	CO0	FORMAT
0	0	YAMAHA 24-1 (1 channel/1 line)
0	1	YAMAHA 24-2 (1 channel/1 line)
1	0	YAMAHA 48 (2 channel/1 line)
1	1	YAMAHA 96 (4 channel/1 line)

MODB	MODA	Signal Path	AI0, 1: A00, 1: BAO: WTN
0	0	SI → SO PARA	Enabled
0	1	SI → SO PARA	Disabled
1	0	SI → BUF → SO PARA	Disabled
1	1	SI → BUF → SO PARA	Disabled

	YAMAHA 24-1	YAMAHA 24-2	YAMAHA 48	YAMAHA 96
S00	ch 0	ch 0	ch 0, 1	ch 0, 1, 2, 3
S01	ch 1	ch 1	x	x
S02	ch 2	ch 2	ch 2, 3	x
S03	ch 3	ch 3	x	x

AO1	AO0	channel
0	0	0
0	1	1
1	0	2
1	1	3

CI1	CI0	FORMAT
0	0	YAMAHA 24-1 (1 channel/1 line)
0	1	YAMAHA 24-2 (1 channel/1 line)
1	0	YAMAHA 48 (2 channel/1 line)
1	1	YAMAHA 96 (4 channel/1 line)

AI1	AI0	channel
0	0	0
0	1	1
1	0	2
1	1	3

	YAMAHA 24-1	YAMAHA 24-2	YAMAHA 48	YAMAHA 96
SI0	ch 0	ch 0	ch 0, 1	ch 0, 1, 2, 3
SI1	ch 1	ch 1	x	x
SI2	ch 2	ch 2	ch 2, 3	x
SI3	ch 3	ch 3	x	x

● **YM6604 (XH497A00) ACIA (Asynchronous Communication Interface Adapter)**

MAIN: IC117

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	/RESET	I	Reset	65	/IRQ3	I	Interrupt request
2				66			
3	/CS	I	Chip select	67	/IRQ4	I	
4				68			
5	/AS	I	Address strobe	69	/IRQ5	I	
6				70			
7	/LDS	I	Data strobe	71	/IRQ6	I	
8				72			
9	A1	I	Address bus	73	/IRQ7	I	
10							
11	A2	I					
12							
13	A3	I					
14				74			Data transmission 1
15	A4	I		75	TXD1	O	
16				76	RXD1	I	Data reception 1
17	A5	I		77			Request to send 1
18				78			Clear to send 1
19	Vss		Ground	79	/RTS1	O	
20				80			Clear to send 1
21	CLK	I	System clock	81	/CST1	I	Clear to send 1
22				82			Data carrier detect 1
23	R/W	I	Read/write control	83	/DCD1	I	Data carrier detect 1
24				84			Ground
25	/DTACK	O	Data acknowledge	85	Vss		Ground
26	Vss		Ground	86			Data transmission 2
27	D0	I/O	Data bus	87	TXD2	O	Data transmission 2
28							
29	D1	I/O					
30							
31	D2	I/O		88			Data reception 2
32				89	RXD2	I	Data reception 2
33	D3	I/O		90			Request to send 2
34	Vss		Ground	91	/RTS2	O	Request to send 2
35	D4	I/O		92			Clear to send 2
36				93	/CTS2	I	Clear to send 2
37	D5	I/O	Data bus	94			Data carrier detect 2
38							
39	D6	I/O		95	/DCD2	I	Data carrier detect 2
40				96			Data transmission 3
41	D7	I/O		97	TXD3	O	Data transmission 3
42	Vss		Ground	98			Data reception 3
43	FC0	I	Function code	99	RXD3	I	Data reception 3
44							
45	FC1	I					
46				100			Request to send 3
47	FC2	I		101	/RTS3	O	Request to send 3
48				102			Clear to send 3
49	/IACK	O	Interrupt acknowledge	103	/CTS3	I	Clear to send 3
50				104			Data transmission 4
51	Vcc		Power supply	105	TXD4	O	Data transmission 4
52				106			Data reception 4
53	MODE	I	CPU mode select (When Hi:68000 mode, when Lo:6800 mode)	107	RXD4	I	Data reception 4
54				108			Request to send 4
55	/IPL0	O	Interrupt control	109	/RTS4	O	Request to send 4
56							
57	/IPL1	O					
58				110			Clear to send 4
59	/IPL2	O		111	/CTS4	I	Clear to send 4
60				112			Power supply
61	/IRQ1	I	Interrupt request	113	Vcc		Power supply
62				114			Data transmission 5
63	/IRQ2	I	Interrupt request	115	TXD5	O	Data transmission 5
64				116			Data reception 5
				117	RXD5	I	Data reception 5
				118			Data transmission 6
				119	TXD6	O	Data transmission 6
				120			Data reception 6
				121	RXD6	I	Data reception 6
				122	Vss		Ground
				123	FS	I	Counter clock
				124			
				125	XCLK2	I	Clock
				126			
				127	XCLK1	I	Clock
				128			

● YSS228E-F (XQ962D00) DSP3 (Digital Signal Processor)

MAIN: IC151

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	VSS		Ground	81	VSS	I/O	Ground
2	XI	I	System master clock input (60 M or 30 MHz)	82	DB13	I/O	
3	XO		System master clock input (60 M or 30 MHz)	83	DB14	I/O	
4	VDD		Power supply	84	DB15	I/O	
5	/SYNCl	I	System synch. input	85	DB16	I/O	
6	/SYNCO	O	System synch. output	86	DB17	I/O	
7	CKI	I	System clock input (30 MHz)	87	DB18	I/O	
8	CKO	O	System clock output (30 MHz)	88	DB19	I/O	
9	CKSL	I	System master clock select (0:60 M, 1:30 MHz)	89	DB20	I/O	
10	VSS		Ground	90	DB21	I/O	
11	MCKS	I	Master clock for serial I/O(128 xFs)	91	DB22	I/O	Parallel data bus
12	/SSYNCl	I	Synch. signal for serial I/O	92	DB23	I/O	
13	/IC	I	Initial clear	93	DB24	I/O	
14	/TEST	I	Test mode setting	94	DB25	I/O	
15	BTYP	O	CPU data bus 8/16 bit select(0:8, 1:16)	95	DB26	I/O	
16	/IRQ	O	Interrupt request	96	DB27	I/O	
17	TRIG	I/O	Trigger signal	97	DB28	I/O	
18	VDD		Power supply	98	DB29	I/O	
19	VSS		Ground	99	DB30	I/O	
20	/CS	I	Chip select	100	DB31	I/O	
21	/DS	I	Data strobe	101	TIMO/DBOE	I/O	Timing signal/Parallel data bus control
22	R/W	I	Read/Write select	102	VSS		
23	CA7	I	CPU address bus	103	VDD		Ground Power supply
24	CA6	I					
25	CA5	I					
26	CA4	I					
27	CA3	I					
28	CA2	I					
29	CA1	I					
30	CA0/CD15	I/O	CPU address/data bus	106	DA00	I/O	External memory data bus
31	CD14	I/O					
32	CD13	I/O	CPU data bus	107	DA01	I/O	
33	CD12	I/O					
34	CD11	I/O					
35	CD10	I/O					
36	CD09	I/O					
37	CD08	I/O					
38	CD07	I/O					
39	CD06	I/O					
40	VSS		Ground	108	DA02	I/O	
41	VDD		Power supply	109	DA03	I/O	
42	CD05	I/O	CPU data bus	110	DA04	I/O	
43	CD04	I/O					
44	CD03	I/O					
45	CD02	I/O					
46	CD01	I/O					
47	CD00	I/O					
48	/DTACK	O		DTACK signal output	111	DA05	I/O
49	SI0	I	Serial data input	112	DA06	I/O	
50	SI1	I					
51	SI2	I					
52	SI3	I					
53	SI4	I					
54	SI5	I					
55	SI6	I					
56	SI7	I					
57	VSS		Ground	113	DA07	I/O	
58	VDD		Power supply	114	DA08	I/O	
59	SO0	O	Serial data output	115	DA09	I/O	
60	SO1	O					
61	SO2	O					
62	SO3	O					
63	SO4	O					
64	SO5	O					
65	SO6	O					
66	SO7	O					
67	DB00	I/O	Parallel data bus	116	DA10	I/O	
68	DB01	I/O					
69	DB02	I/O					
70	DB03	I/O					
71	DB04	I/O					
72	DB05	I/O					
73	DB06	I/O					
74	DB07	I/O					
75	DB08	I/O					
76	DB09	I/O					
77	DB10	I/O	External memory address bus	117	DA11	I/O	
78	DB11	I/O					
79	DB12	I/O					
80	VDD			Power supply	118	DA12	I/O
				119	DA13	I/O	Ground Power supply
				120	VSS		
				121	VDD		External memory data bus
				122	DA16	I/O	
				123	DA17	I/O	
				124	DA18	I/O	
				125	DA19	I/O	
				126	DA20	I/O	
				127	DA21	I/O	
				128	DA22	I/O	
				129	DA23	I/O	
				130	DA24	I/O	
				131	DA25	I/O	Power supply Ground
				132	DA26	I/O	
				133	DA27	I/O	
				134	DA28	I/O	
				135	DA29	I/O	
				136	DA30	I/O	
				137	DA31	I/O	
				138	VDD		
				139	VSS		
				140	A00	O	
				141	A01	O	External memory address bus/Row address strobe External memory address bus/Column address strobe External memory address bus/Chip enable External memory write enable External memory output enable Power supply
				142	A02	O	
				143	A03	O	
				144	A04	O	
				145	A05	O	
				146	A06	O	
				147	A07	O	
				148	A08	O	
				149	A09	O	
				150	A10	O	
				151	A11	O	
				152	A12	O	
				153	A13	O	
				154	A14	O	
				155	A15/RAS	O	
				156	A16/CAS	O	
				157	A17/CE	O	
				158	/WE	O	
				159	/OE	O	
				160	VDD		

● uPD72611GF-3BA (XU375A00) SCSI Controller

MAIN: IC318

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION	
1	/32B	I	32-bit bus	51	D2	I/O	} Data bus	
2	/16B	I	16-bit bus	52	D1	I/O		
3	A3	I	Address 3	53	D0	I/O		
4	A2	I	Address 2	54	GND1	-	Ground	
5	A1//BE3	I	Address 1 / byte enable 3	55	/SBP	I/O	SCSI bus parity	
6	A0//BE2	I	Address 0 / byte enable 2	56	/SB0	I/O	SCSI bus	
7	/BE1	I	Byte enable 1	57	/SB1	I/O	SCSI bus	
8	/BE0//UBE	I	Byte enable 0 / upper byte enable	58	GND1	-	Ground	
9	DP3	I/O	} Data bus	59	/SB2	I/O	SCSI bus	
10	DP2	I/O						
11	DP1	I/O						
12	DP0	I/O	} Data bus	60	/SB3	I/O	SCSI bus	
13	GND0	-		Ground	61	GND1	-	Ground
14	D31	I/O						
15	D30	I/O	} Data bus	62	/SB4	I/O	SCSI bus	
16	D29	I/O		} Power supply	63	/SB5	I/O	SCSI bus
17	VDD	-			Ground	64	GND1	-
18	D28	I/O						
19	D27	I/O	} Data bus	65	/SB6	I/O	SCSI bus	
20	D26	I/O		} Power supply	66	/SB7	I/O	SCSI bus
21	D25	I/O			Ground	67	GND1	-
22	GND0	-	Ground		68	/ATN	I/O	Attention
23	D24	I/O	} Data bus	69	/ACK	I/O	Acknowledge	
24	D23	I/O		} Power supply	70	/REQ	I/O	Request
25	D22	I/O			Ground	71	GND1	-
26	D21	I/O	} Data bus		72	/MSG	I/O	Message
27	D20	I/O		} Power supply	73	/C/D	I/O	Command/Data
28	D19	I/O			Ground	74	/I/O	I/O
29	D18	I/O	} Data bus		75	GND1	-	Ground
30	GND0	-		Ground	76	/BSY	I/O	Busy
31	D17	I/O		} Data bus	77	/SEL	I/O	Select
32	D16	I/O	} Power supply		78	/RST	I/O	Reset
33	D15	I/O			Ground	79	GND1	-
34	D14	I/O		} Data bus	80	SBOE	O	SCSI bus out enable
35	D13	I/O	} Power supply		81	/SBIE	O	SCSI bus in enable
36	D12	I/O			Ground	82	IDSTR	O
37	VDD	-		Power supply	83	INIT	O	Initiator
38	D11	I/O	Data bus	84	TGT	O	Target	
39	GND0	-	Ground	85	BSYO	O	Busy out	
40	GND0	-	Ground	86	SELO	O	Select out	
41	D10	I/O	Data bus	87	RSTO	O	Reset out	
42	VDD	-	Power supply	88	CLK	I	Clock	
43	D9	I/O	} Data bus	89	/RESET	I	Reset	
44	D8	I/O		} Power supply	90	GND0	-	Ground
45	D7	I/O			Ground	91	GND0	-
46	D6	I/O	} Data bus		92	/CS	I	Chip select
47	D5	I/O		} Power supply	93	VDD	-	Power supply
48	D4	I/O			Ground	94	/EOP	O
49	GND0	-	Ground		95	INT	O	Interrupt request
50	D3	I/O	Data bus	96	/IOWR	I	I/O write	
				97	/IORD	I	I/O read	
				98	/DMARQ	O	DMA request	
				99	/DMAAK	I	DMA acknowledge	
				100	GND0	-	Ground	

• AK4321 (XS388A00) DAC

MAIN: IC401

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	CKS	I	Clock selection	13	DEM1	I	De-emphasis selection
2	DVDD	-	Digital power supply	14	DIF0	I	Input format selection
3	DVSS	-	Digital ground	15	DIF1	I	Input format selection
4	XTO	O	Clock output	16	BVDD	-	Board Power
5	XTI	I	Clock input	17	AOUTR	O	Analog R output
6	/PD	I	Power down reset	18	AOUTL	O	Analog L output
7	BICK	I	Serial bit clock	19	VCOM	O	Common voltage 1/2 AVDD
8	SDATA	I	Serial data	20	AVDD	-	Analog power supply
9	LRCK	I	L/R clock	21	AVSS	-	Analog ground
10	SMUTE	I	Soft mute	22	VREF	I	Reference voltage
11	DFS	I	Sampling mode selection	23	DZF	O	Zero input Detection
12	DEM0	I	De-emphasis selection	24	TTL	I	I/F level selection

• CRVP08 (XV740A00) Gate Array

MAIN: IC119

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	VDD	-	Power supply	33	VDD	-	Power supply
2	VSS	-	Ground	34	VSS	-	Ground
3	XSCS	I	Chip select	35	PDOUTNB	O	PLLB phase comparison output (-)
4	XSWR	I	Light	36	PDOUTPB	O	PLLB phase comparison output (+)
5	XSRD	I	Read	37	XPDOB	O	PLLB out of phase
6	SA0	I	Address bus	38	XTALAI	I	XTALA input
7	SA1	I		39	XTALAO	O	XTALA output
8	SA2	I		40	SDINA	I	Serial data (OVR 1-4)
9	SA3	I		41	SDINB	I	Serial data (OVR 5-8)
10	SD0	I/O	Data bus	42	XTALBI	I	XTALCB input
11	SD1	I/O		43	XTALBO	O	XTALCB output
12	SD2	I/O		44	UNLINB	I	UNLOCKB signal input
13	SD3	I/O		45	UNLOCKB	O	UNLOCKB signal output
14	SD4	I/O		46	XTALCI	I	XTALC input
15	SD5	I/O		47	XTALCO	O	XTALC output
16	SD6	I/O		48	UNLINA	I	UNLOCKA signal input
17	SD7	I/O	49	UNLOCKA	O	UNLOCKA signal output	
18	VSS	-	Ground	50	VSS	-	Ground
19	VDD	-	Power supply	51	VDD	-	Power supply
20	FS512	O	Fs x 512 Bit clock output	52	RCKINA	I	External clock input A
21	FS256	O	Fs x 256 Bit clock output	53	RCKINB	I	External clock input B
22	FS128	O	Fs x 128 Bit clock output	54	VCOAI	I	Input clock (PLLA)
23	VSS	-	Ground	55	VCOAO	O	Output clock (PLLA)
24	FS64	O	Fs x 64 Bit clock output	56	PDOUTNA	O	PLLB phase comparison output (-)
25	XFS64	O	Receives Fs64 clock	57	PDOUTPA	O	PLLB phase comparison output (+)
26	FS	O	Sampling frequency display (Audio)	58	XPDOA	O	PLLA out of phase
27	VSS	-	Ground	59	XRST	I	Reset signal
28	XSSYNC	O	Sync signal for DSP	60	XTCL	I	Reset signal (TEST)
29	D8FS	O	One eighth clock (FS)	61	TEST0	O	Test signal output
30	D16FS	O	One sixteenth clock (FS)	62	TEST1	O	
31	VC0BI	I	Input clock (PLLB)	63	TEST2	O	
32	VC0BO	O	Output clock (PLLB)	64	TEST3	O	

• DS12887 (XV618A00) Real Time Clock

MAIN: IC127

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	MOT	I	Bus type selection	13	/CS	I	Chip select
2	N.C	-		14	AS	I	Address strobe
3	N.C	-	Multiplexed address / Data bus	15	R/W	I	Read / Write
4	AD0	I/O		16	N.C	-	
5	AD1	I/O		17	DS	I	Data strobe
6	AD2	I/O		18	/RESET	I	Reset
7	AD3	I/O		19	/IRQ	O	Interrupt request
8	AD4	I/O		20	N.C	-	
9	AD5	I/O		21	N.C	-	
10	AD6	I/O		22	N.C	-	
11	AD7	I/O	Ground	23	SQW	O	Square wave
12	GND	-		24	VCC	-	Power supply +5 V

• ICS2008A (XV619A00) T.C. Reader/Generator

MAIN: IC137

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	INTR	O	Interrupt request	23	CTS	I	Clear to send
2	RESET	I	Master reset	24	TXD	O	UART transmit data
3	FRAME	I	Color frame A / B input	25	RTS	O	Ready to send
4	CLICK	I	LTC SYNC input	26	LRCLK	O	SMPTE LTC receive clock
5	LTCIN-	I	SMPTE LTC input -	27	VITCGATE	O	VITE cord is for video overlay
6	LTCIN+	I	SMPTE LTC input +	28	VITCOUT	O	SMPTE VITE output
7	LTCOUT	O	SMPTE LTC output	29	A0	I	Address bus
8	LFC	I	External RC circuit	30	A1	I	Address bus
9	XTAL2	O	14.318 MHz crystal oscillator	31	/SMPTECS	I	SMPTE port chip select
10	XTAL1	I	14.318 MHz crystal oscillator	32	/UARTSC	I	UART chip select
11	AVDD	-	Analog power supply	33	/IOR	I	Read enable
12	AVSS	-	Analog ground	34	VSS	-	Digital ground
13	COUT	O	C(Chroma) output	35	VDD	-	Digital power supply
14	YOUT	O	Y(Luma) output	36	/IOW	I	Write enable
15	C2	I	C(Chroma) input	37	D0	I/O	Data bus
16	Y2	I	Y(Luma) input	38	D1	I/O	
17	C1	I	C(Chroma) input	39	D2	I/O	
18	Y1	I	Y(Luma) input	40	D3	I/O	
19	STHRESH	I	SYNC threshold bypass input	41	D4	I/O	
20	CTHRESH	I	Clamp threshold bypass input	42	D5	I/O	
21	DTHRESH	I	Data threshold bypass input	43	D6	I/O	
22	RXD	I	UART receive data	44	D7	I/O	

● YM3437C-F (XM530A00) DIT2 (Digital Format Interface Transmitter)

MAIN: IC144

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	Vss		Ground	9	MUTE	I	Mute
2	MCLK	I	Master clock input	10	VFL	I	Validity flag
3	DM0	I	DIN/BCLK/WCLK format select DM1,DM0=0,0 DSP,LDSP (64 bit,LSB first) DM1,DM0=0,1 stereo,DSP (64 bit,MSB first) DM1,DM0=1,0 DSP2 (128 bit,MSB first) DM1,DM0=1,1 BB (64 bit,MSB first)	11	CCK	I	C,U bit clock input/C bit data input
4	DM1	I		12	CIN	I	C,U bit data input/U bit data input
5	RES	I		13	CLD	I	End of C,U bit input/16,20 bit/24 bit select
6	WCIN	I		14	CNTR	I	32 bit counter reset/Top of block
7	DIN	I	Digital audio serial data input	15	CSM	I	Channel status input mode select CSM=0 Asynchronous mode CSM=1 Synchronous mode
8	VDD		Power supply (+5 V)	16	DOUT	O	Digital interface formatted data output

● YM6029 (XH746A00) DPB (Digital Patch-Bay)

MAIN: IC138

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	SO3	O	Signal outputs that are selected by Patch-Bay (channel 0-3)	41	D6	I/O	Data bus
2	SO2	O		42	D7	I/O	Data bus
3	SO1	O		43	NC		
4	SO0	O		44	NC		
5	Vss		Ground	45	/WT	I	Writ strove
6	SI7	I	Patch-Bay connection signal input (channel 0-7)	46	/RD	I	Read strove
7	SI6	I		47	A0	I	Register select
8	SI5	I		48	A1	I	
9	SI4	I		49	A2	I	
10	SI3	I		50	/CE	I	Chip enable
11	SI2	I		51	NC		
12	SI1	I		52	NC		
13	SI0	I	53	Vss			
14	NC		54	SB0	I/O	Patch-Bay connection signal input /Signal outputs that are selected by Patch-Bay	
15	NC		55	SB1	I/O		
16	Vss		56	SB2	I/O		
17	PA7	I/O	57	Vss			
18	PA6	I/O	58	SB3	I/O		
19	PA5	I/O	59	SB4	I/O		
20	PA4	I/O	60	Vss			
21	NC		61	SB5	I/O		
22	NC		62	SB6	I/O		
23	PA3	I/O	63	SB7	I/O		
24	PA2	I/O	64	Vss		Ground Interrupt request Reset Ground Synch signal for serial output	
25	PA1	I/O	65	SB8	I/O		
26	PA0	I/O	66	SB9	I/O		
27	PB3	I/O	67	Vss			
28	PB2	I/O	68	/IRQ	I		
29	PB1	I/O	69	/RESET	I		
30	PB0	I/O	70	Vss			
31	/SYW	I	71	XCLK	I		
32	VDD		72	VDD			Power supply
33	MCLK	I	73	/CRS	O	Serial line clear control	
34	Vss		74	CDO	O	Serial data output port	
35	D0	I/O	75	CDI	I	Serial data input port	
36	D1	I/O	76	Vss		Ground	
37	D2	I/O	77	SO7	O	Signal outputs that are selected by Patch-Bay (channel 4-7)	
38	D3	I/O	78	SO6	O		
39	D4	I/O	79	SO5	O		
40	D5	I/O	80	SO4	O		

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

MAIN: IC123

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

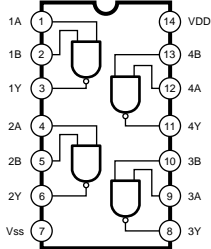
● **μPD71055GB-3B4 (XH600A00) PIO (Parallel Interface Unit)**

MAIN: IC126

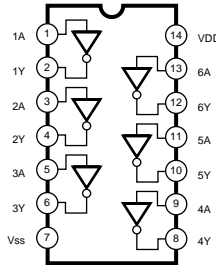
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	NC			23	VDD		Power supply
2	/CS	I	Chip select	24	D7	I/O	
3	GND		Ground	25	D6	I/O	Data bus
4	A1	I	Address bus	26	D5	I/O	
5	A0	I					
6	P27	I/O	Port 2	27	D4	I/O	
7	P26	I/O					
8	P25	I/O					
9	P24	I/O					
10	P20	I/O	Port 1	28	D3	I/O	
11	P21	I/O					
12	P22	I/O					
13	P23	I/O	Internally Connected (N.C.)	29	D2	I/O	
14	P10	I/O					
15	P11	I/O	Port 1	30	D1	I/O	
16	P12	I/O					
17	IC						
18	P13	I/O					
19	P14	I/O	Port 0	31	D0	I/O	
20	P15	I/O					
21	P16	I/O					
22	P17	I/O					
				32	RESET	I	Reset
				33	NC		
				34	NC		
				35	/WR	I	Write strobe
				36	P07	I/O	Port 0
				37	P06	I/O	
				38	P05	I/O	
				39	P04	I/O	
				40	P03	I/O	Port 0
				41	P02	I/O	
				42	P01	I/O	
				43	P00	I/O	Port 0
				44	/RD	I	

IC BLOCK DIAGRAM

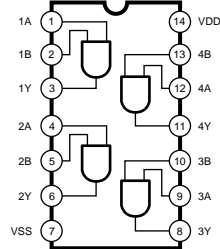
- **TC74HC00AF** (XD655A00)
Quad 2 Input NAND
MAIN: IC423



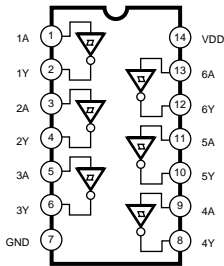
- **SN74HCU04NSR** (XC723A00)
SN74HC04NSR (XD830A00)
SN74LS06NST-EL (XP985A00)
Hex Inverter
MAIN: IC125,132,134,142,158,419,501



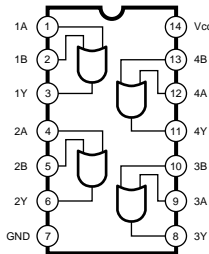
- **HD74HC08FPEL** (XL093A00)
SN74HC08NSR (XD831A00)
Quad 2 Input AND
MAIN: IC114,133,141,410,421,422



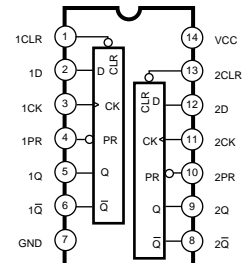
- **SN74HC14NSR** (XC725A00)
Hex Inverter
MAIN: IC107,135,418
S-SYNC: IC601



- **SN74HC32NSR** (XD833A00)
HD74AC32FPEL (XK452A00)
Quad 2 Input OR
MAIN: IC136,304,411,424
SUB: IC705
S-SYNC: IC605

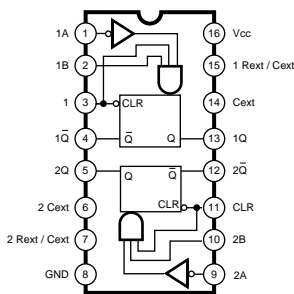


- **SN74HC74NSR** (XC726A00)
Dual D-Type Flip-Flop
MAIN: IC124,129,140

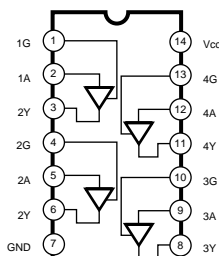


INPUTS			OUTPUTS	
PR	CLR	CLK	D	Q
L	H	X	X	H
H	L	X	X	L
L	L	X	X	H
H	H	f	H	L
H	H	f	L	H
H	H	L	X	Q _o

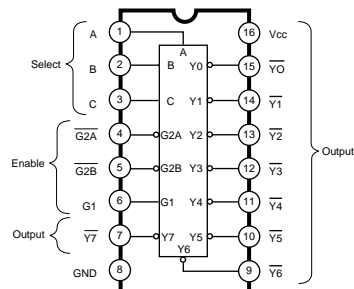
- **HD74HC123AFPTR** (XL106A00)
Dual Retriggerable Single Shot
MAIN: IC406



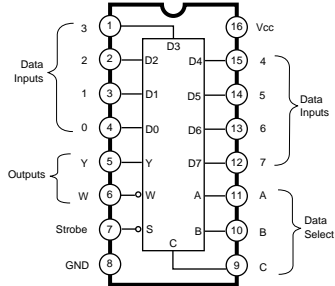
- **SN74HC126NSR** (XN514A00)
Bus Buffer
MAIN: IC416



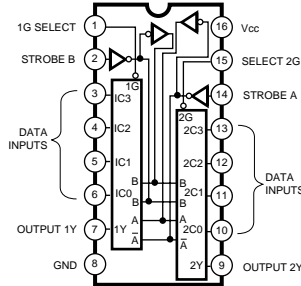
- **HD74AC138FPEL** (XP446A00)
SN74HC138NSR (XD835A00)
3 to 8 Demultiplexer
MAIN: IC307
SUB: IC706,708,710



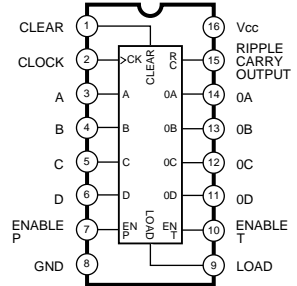
- **SN74HC151NSR** (XV734A00)
8 to 1 Data Selector
MAIN: IC120



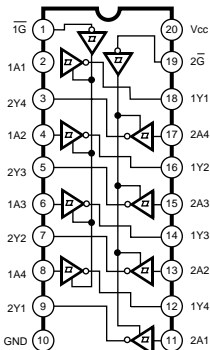
- **SN74HC153NSR** (XN515A00)
Dual 4 to 1 Data Selectors
MAIN: IC130,131
S-SYNC: IC602



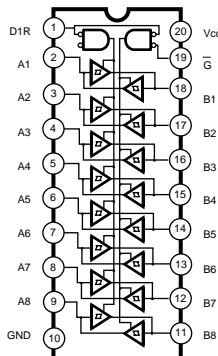
- **SN74HC163NSR** (XM161A00)
SYNC. Binary Counter
S-SYNC: IC603



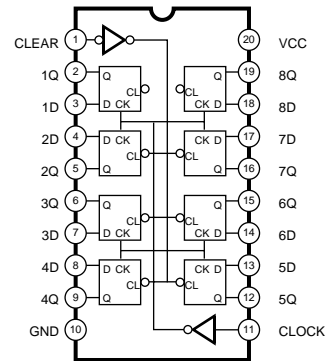
- **SN74HC240NSR** (XV735A00)
Octal Bus Inverter
MAIN: IC145



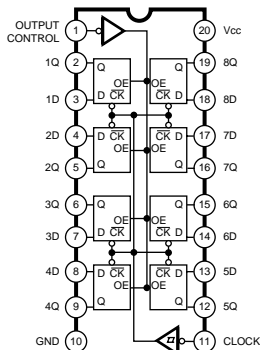
- **HD74AC245FPV** (XV613A00)
HD74HC245FPV (XV611A00)
SN74HC245NSR (XD838A00)
Octal 3-State Bus Transceiver
MAIN: IC113,115,116,146-150,305,306
SUB: IC709



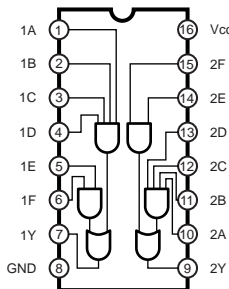
- **SN74HC273NSR** (XH223A00)
Octal D-Type Flir Flop
SUB: IC712



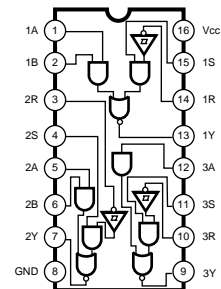
- **HD74HC374FPEL** (XL342A00)
Octal 3-State D-Type Flip-Flop
SUB: IC707



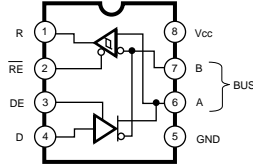
- **SN75121NSR** (XU816A00)
Dual Line Driver
MAIN: IC409



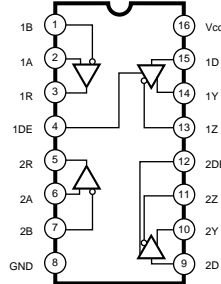
- **SN75124NSR** (XV930A00)
Triple Line Receiver
MAIN: IC408



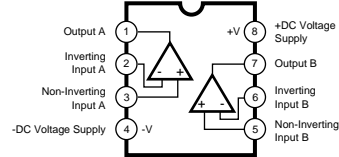
- **SN75176BPS** (XJ704A00)
Line Driver
MAIN: IC415



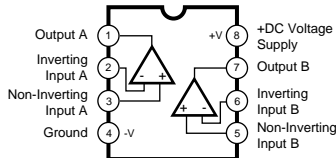
- **SN75C1168NSR** (XU073A00)
Line Driver / Receive
MAIN: IC420



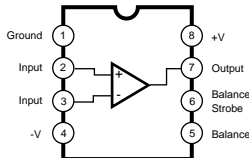
- **NJM4558MT-1** (IG103520)
NJM4556AMT1 (XQ138A00)
Dual Operational Amplifier
MAIN: IC402-404,412,414



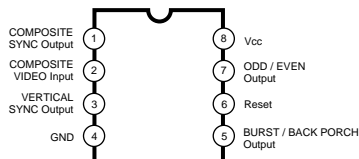
- **NJM2115M-T1** (XS511A00)
Dual Operational Amplifier
S-SYNC: IC604



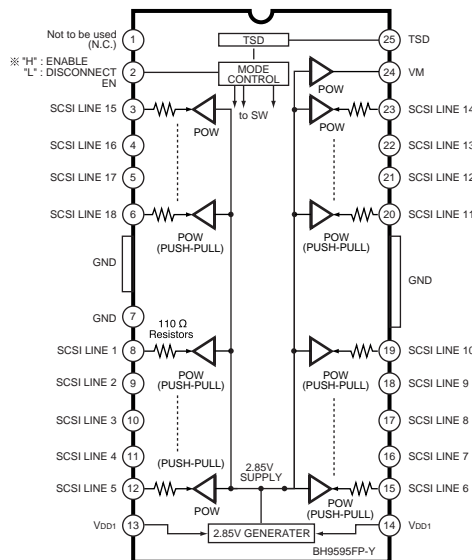
- **LM311MX** (XQ830A00)
Voltage Comparator
MAIN: IC407,413



- **LM1881M** (XU069A00)
V SYNC. Separator
MAIN: IC405

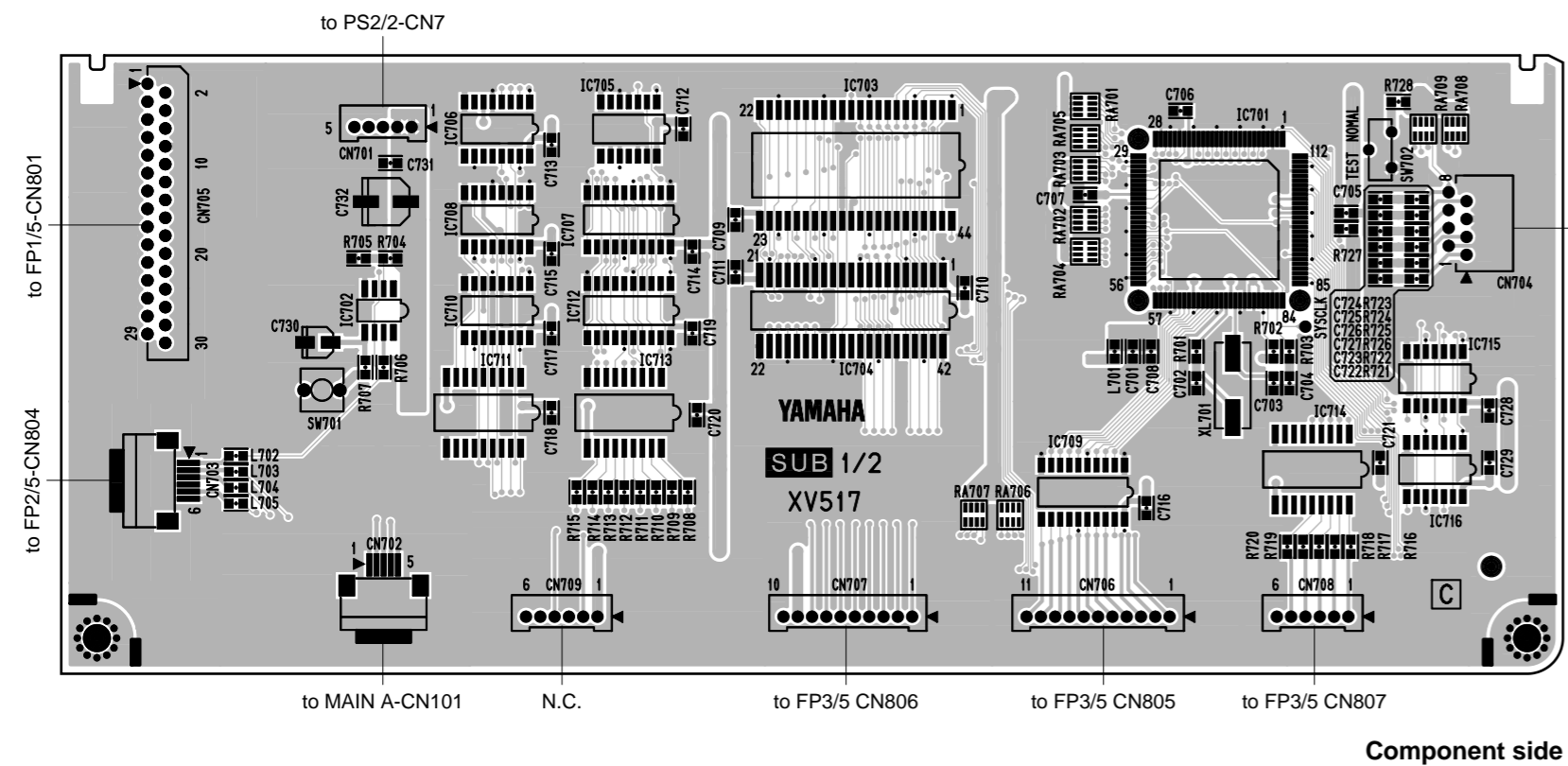


- **BH9595FP-Y** (XV617A00)
SCSI Terminator
MAIN: IC319

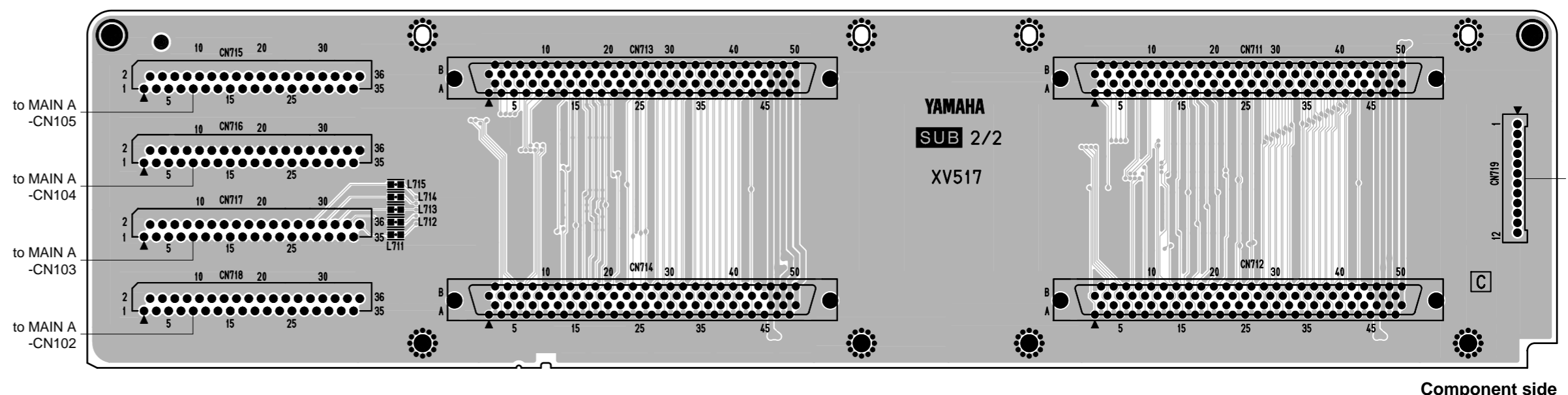


■ CIRCUIT BOARDS

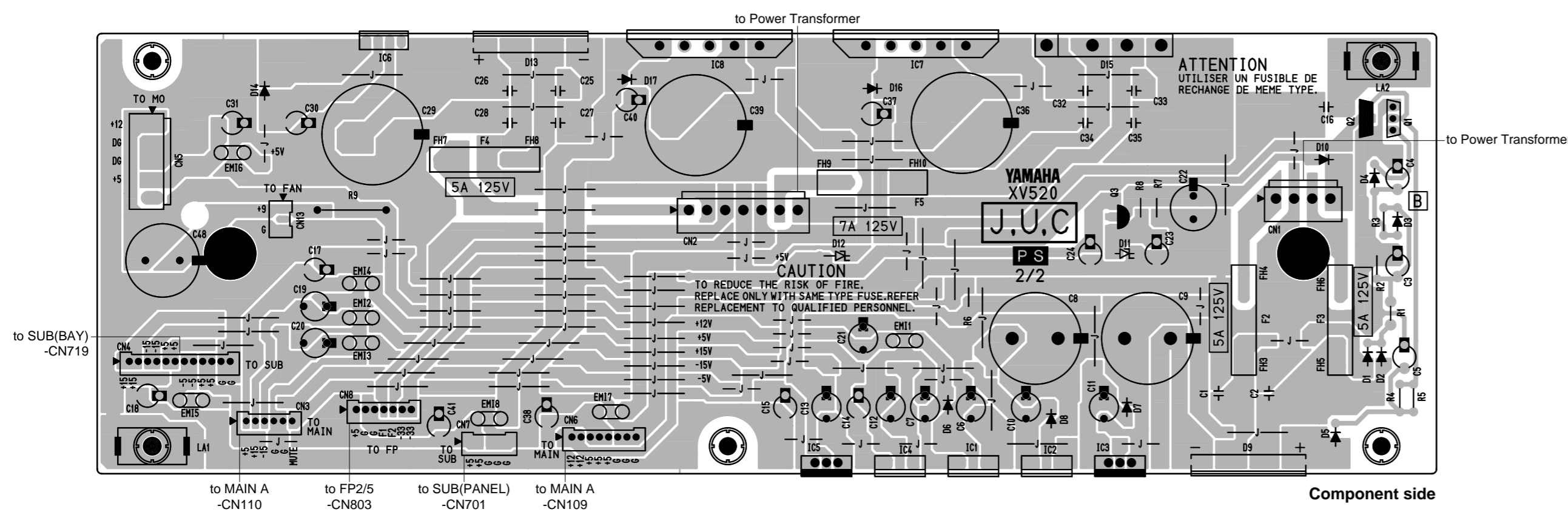
● SUB(PANEL) Circuit Board



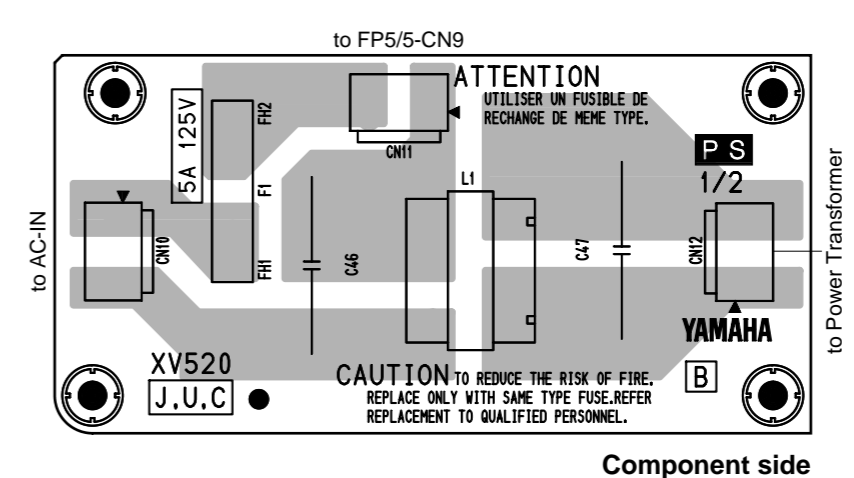
● SUB(BAY) Circuit Board



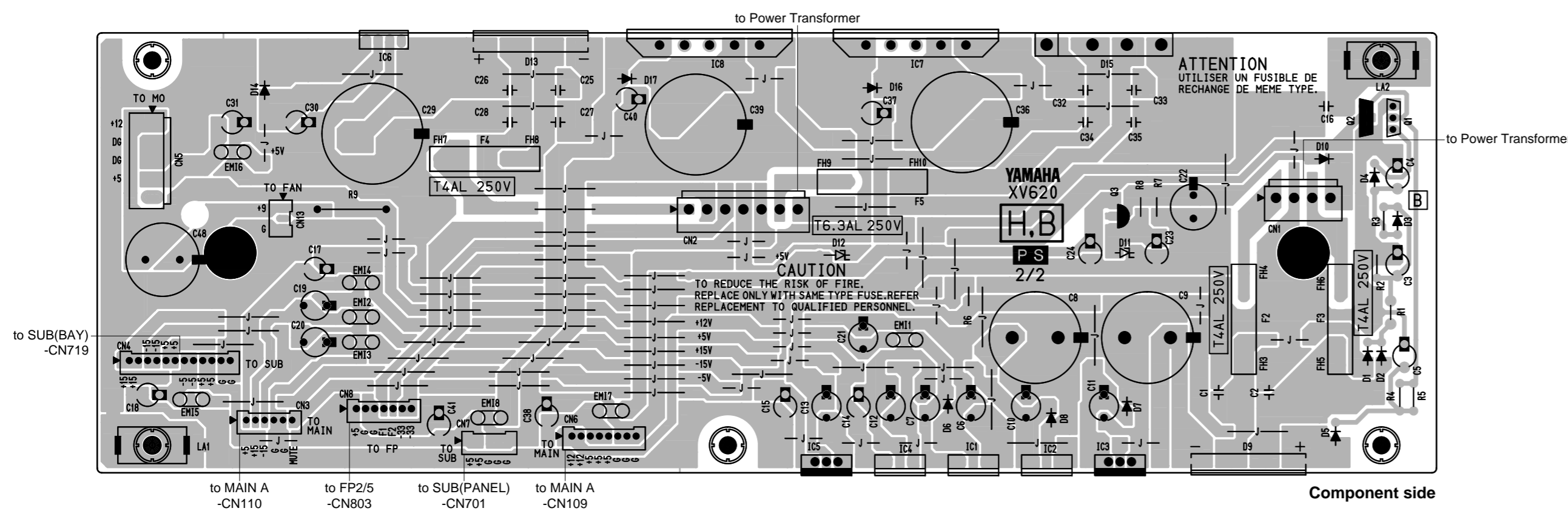
● PS 2/2 Circuit Board (Japanese, U.S., Canadian & General export (110V) models)



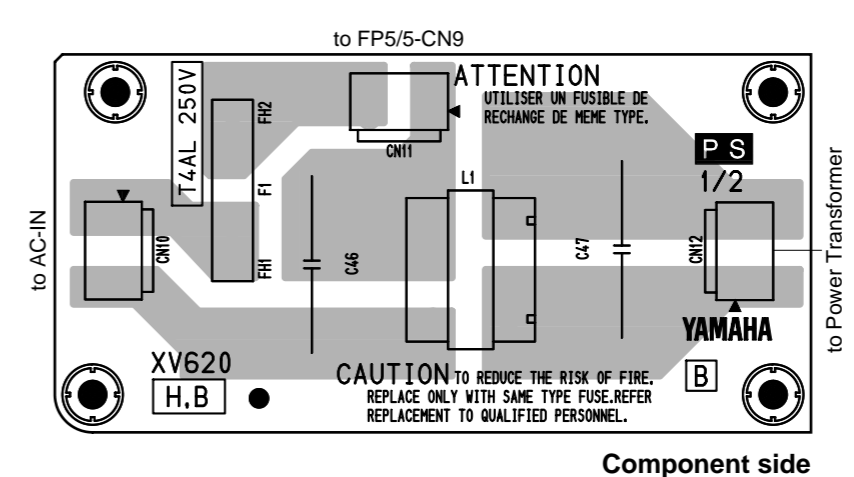
● PS 1/2 Circuit Board (Japanese, U.S., Canadian & General export (110V) models)



● PS 2/2 Circuit Board (North European, British & General export (220V) models)



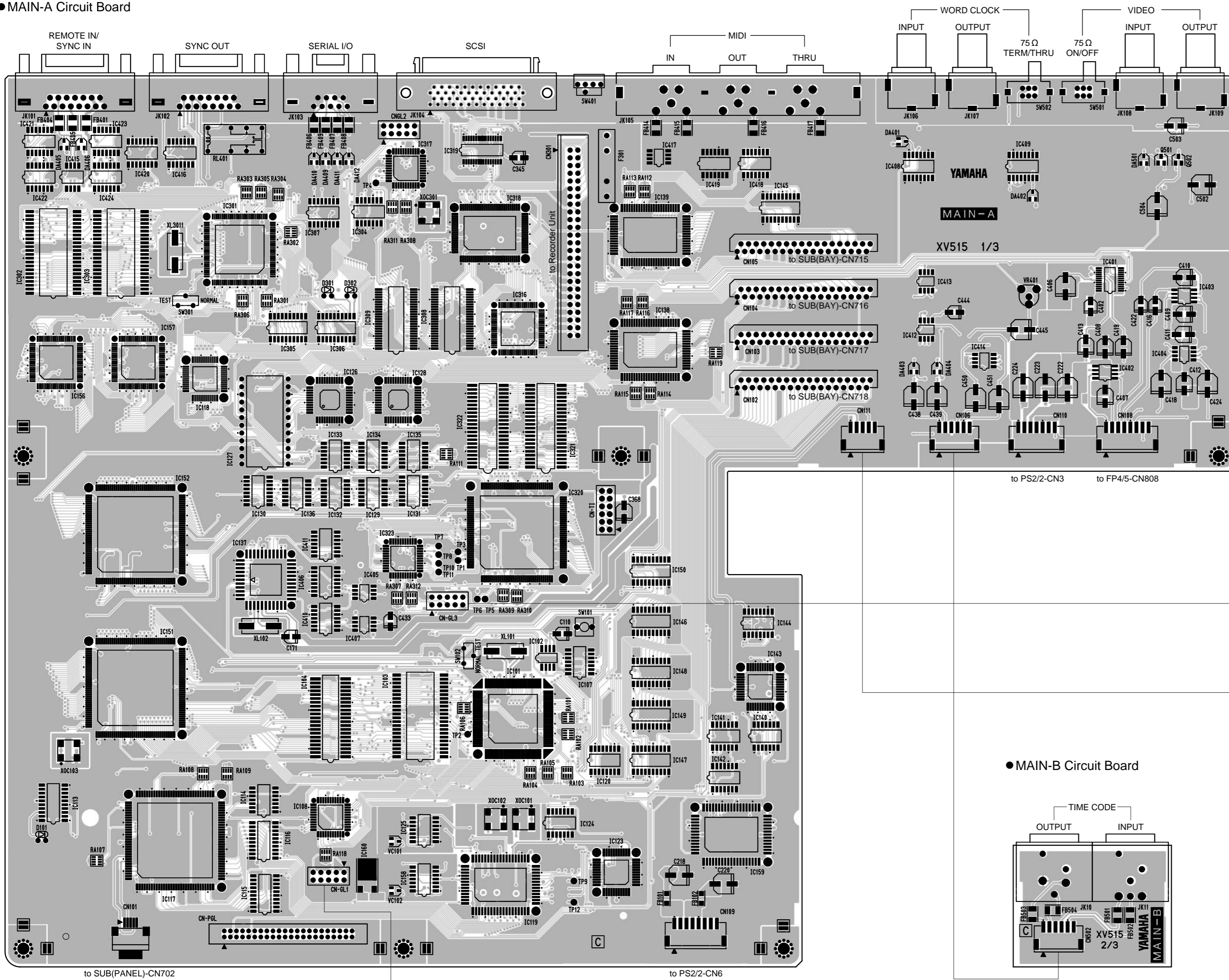
● PS 1/2 Circuit Board (North European, British & General export (220V) models)



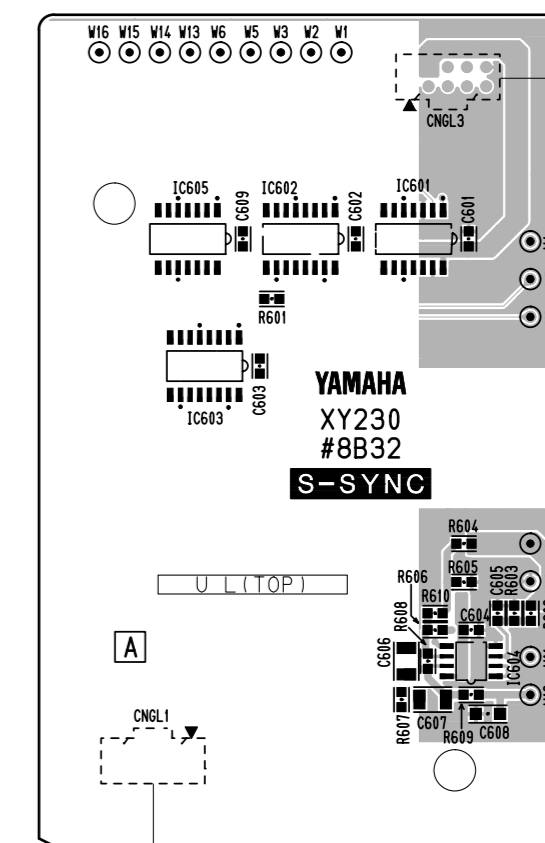
SUB(PANEL), SUB(BAY): 3NA-V312450-2
 PS1/2, 2/2 (J, U, C, V): 3NA-V312460-2 A
 PS1/2, 2/2 (H, W, B): 3NA-V312460-7 A

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

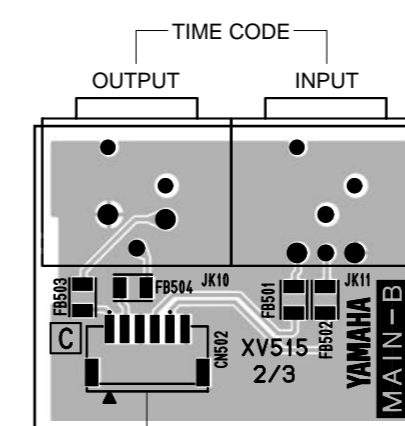
● MAIN-A Circuit Board



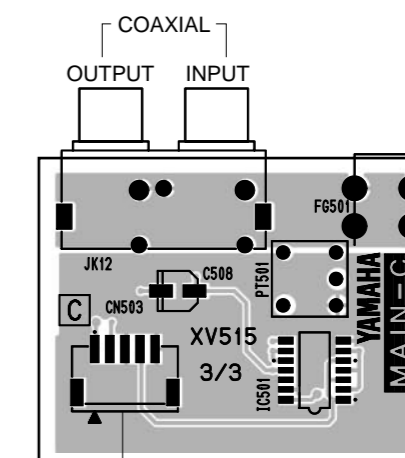
● S-SYNC Circuit Board



● MAIN-B Circuit Board



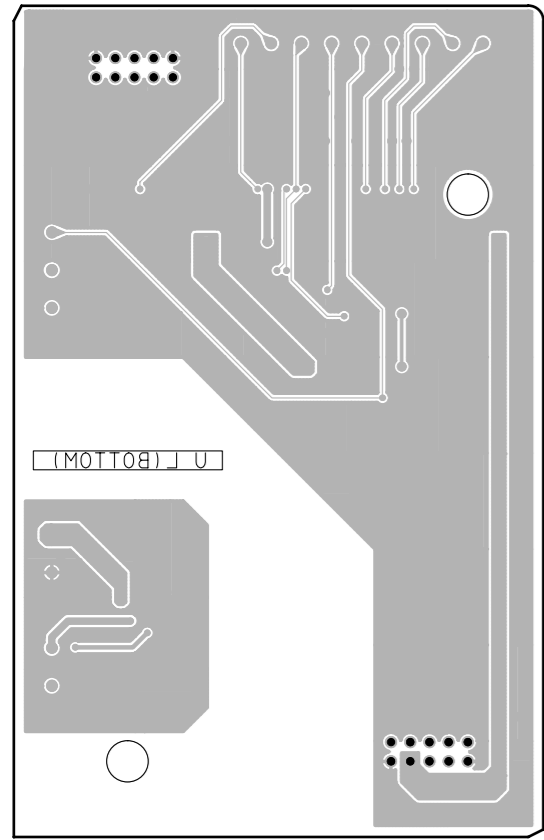
● MAIN-C Circuit Board



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

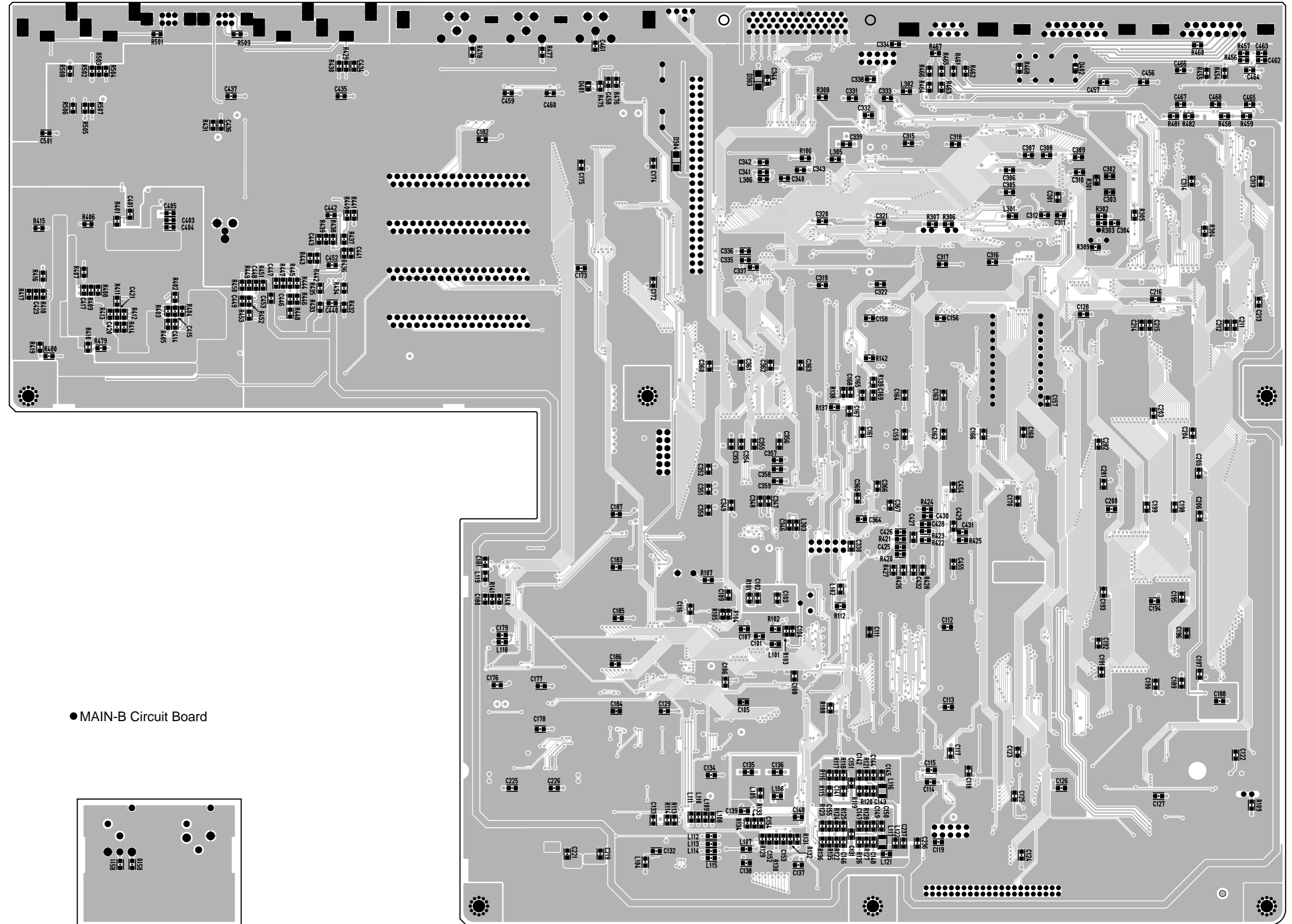
MAIN-A, MAIN-B, MAIN-C: 3NA-V312430-2
S-SYNC: 3NA-V519530-2

● S-SYNC Circuit Board



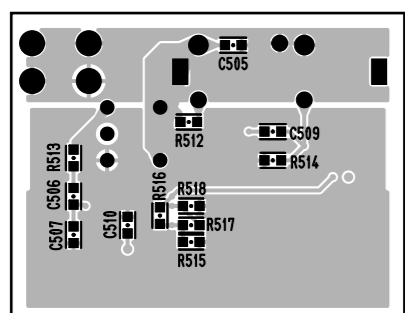
Pattern side

● MAIN-A Circuit Board



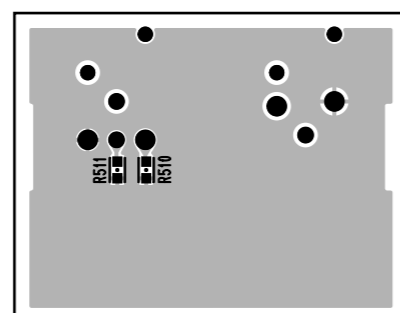
Pattern side

● MAIN-C Circuit Board



Pattern side

● MAIN-B Circuit Board



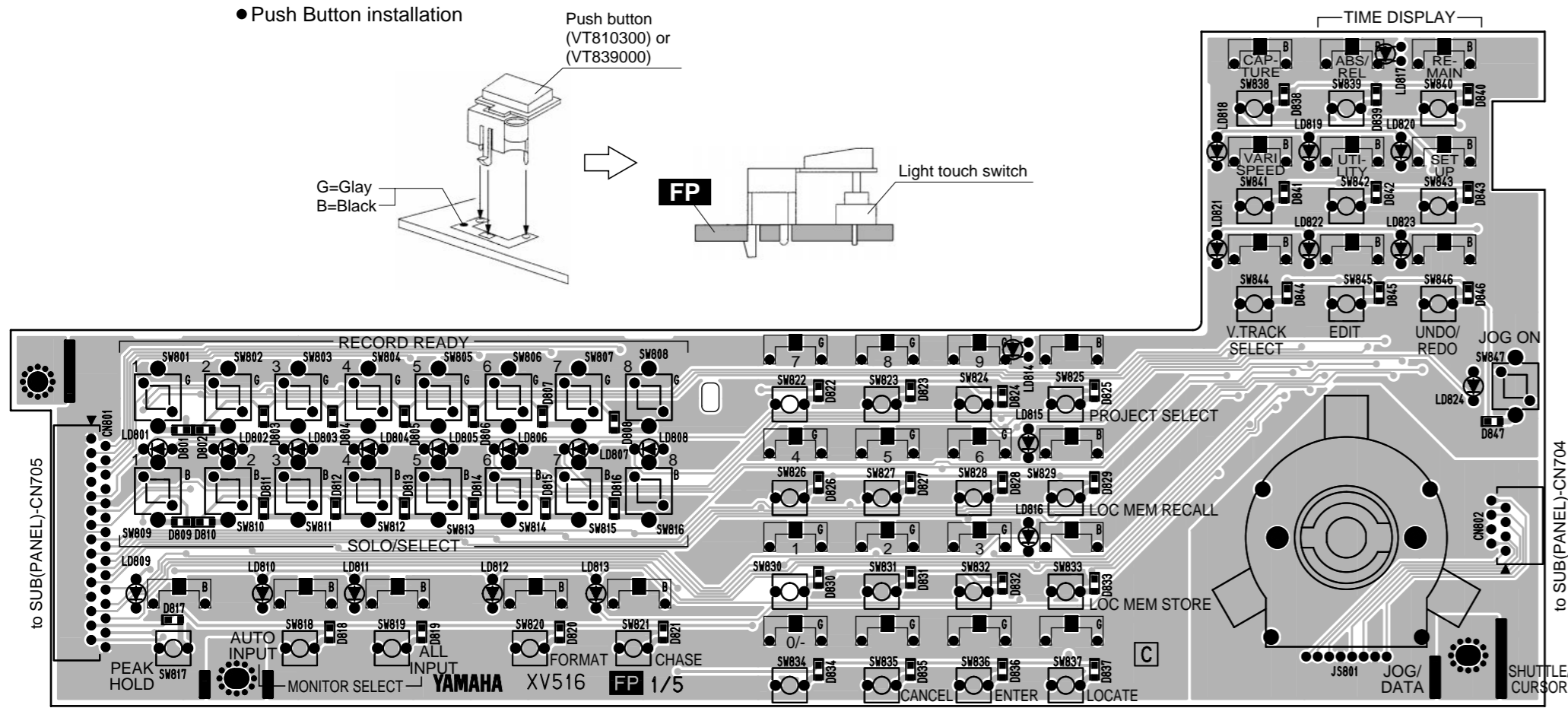
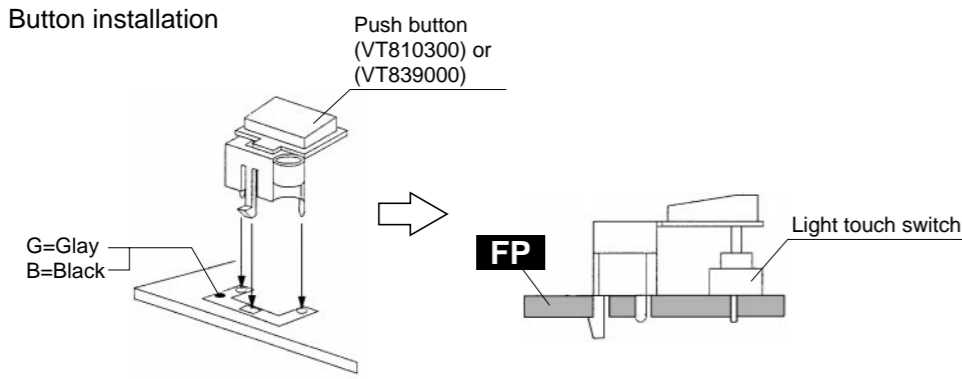
Pattern side

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

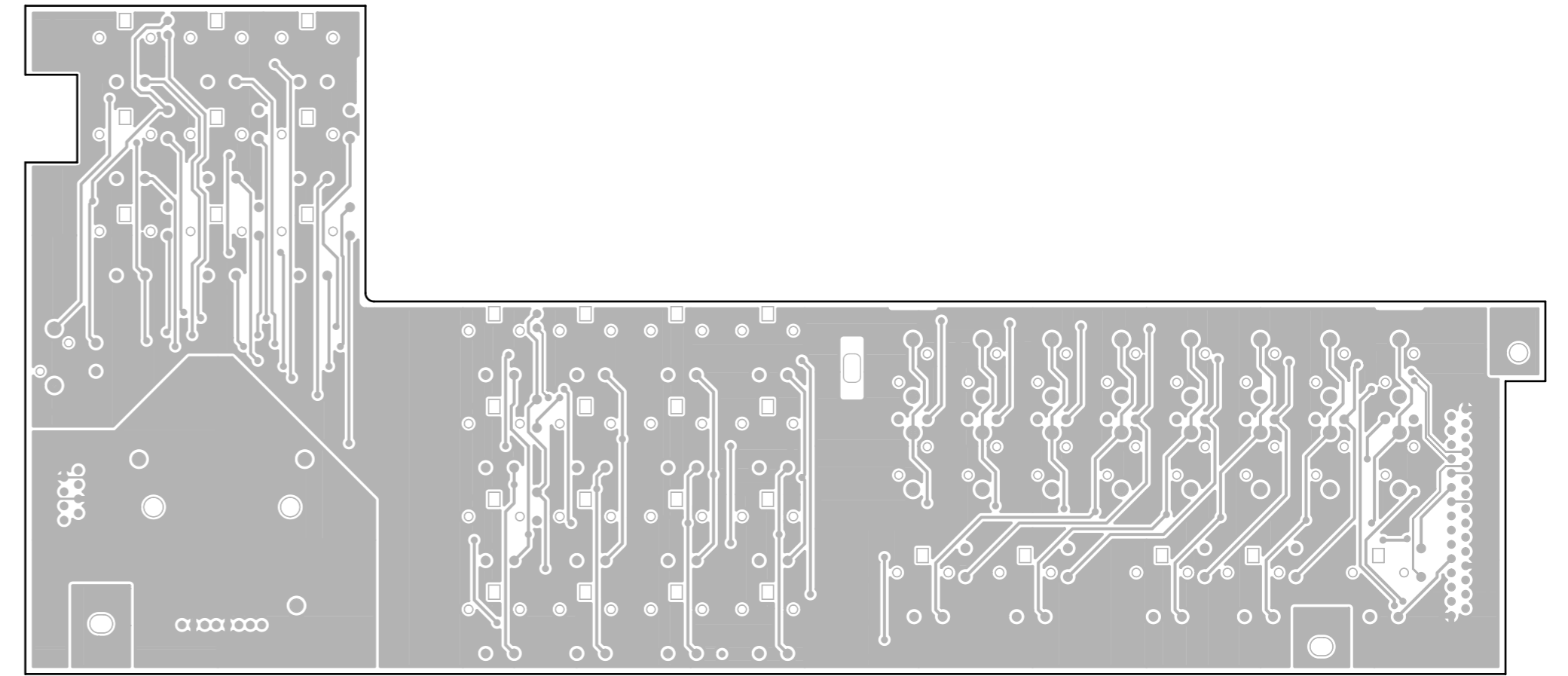
MAIN-A, MAIN-B, MAIN-C: 3NA-V312430-3 △
S-SYNC: 3NA-V519530-2

●FP1/5 Circuit Board

●Push Button installation

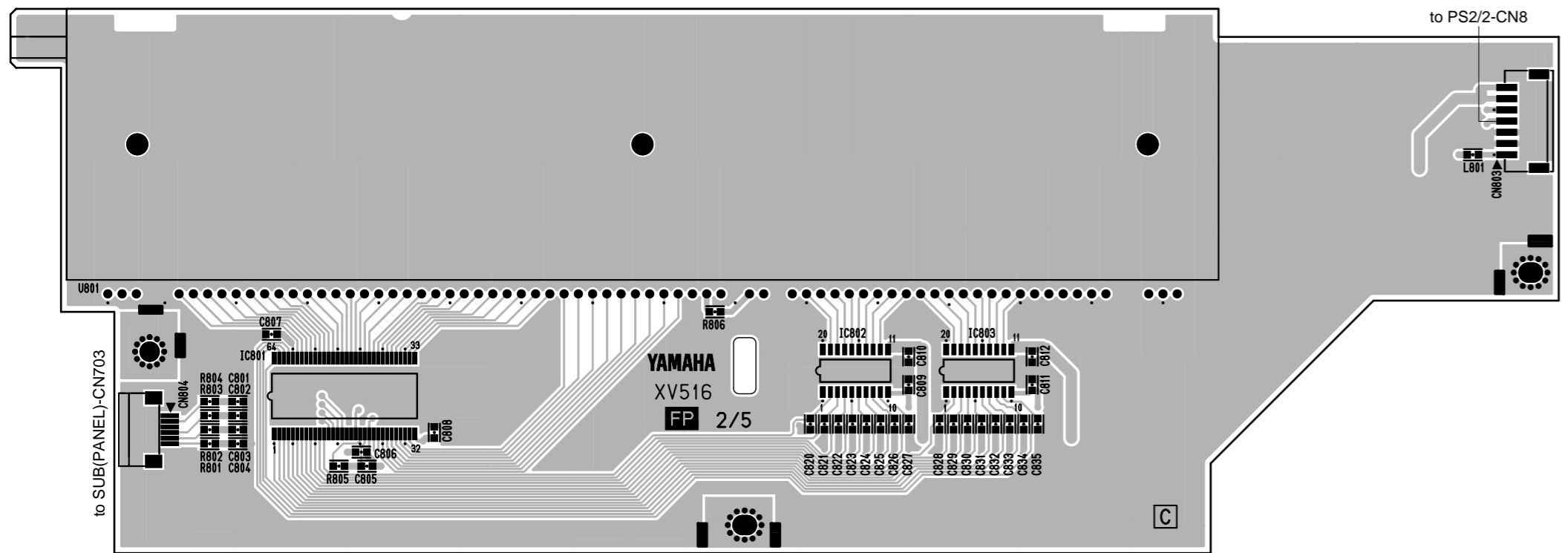


Component side

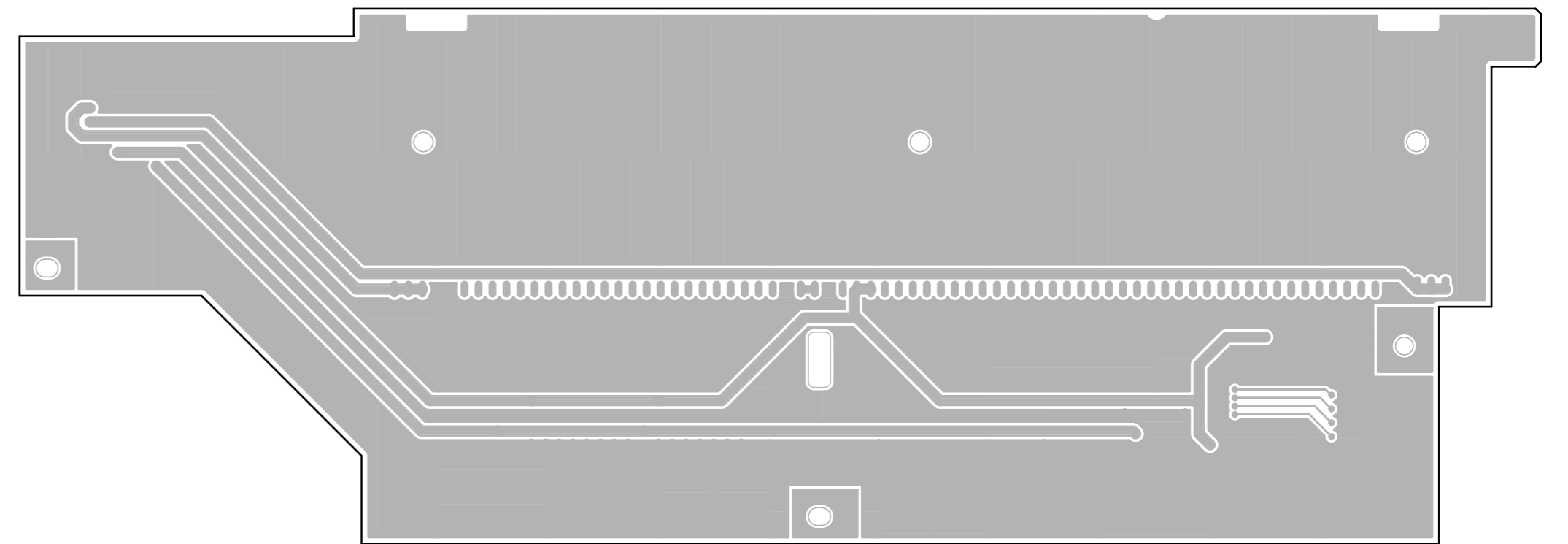


Pattern side

●FP2/5 Circuit Board

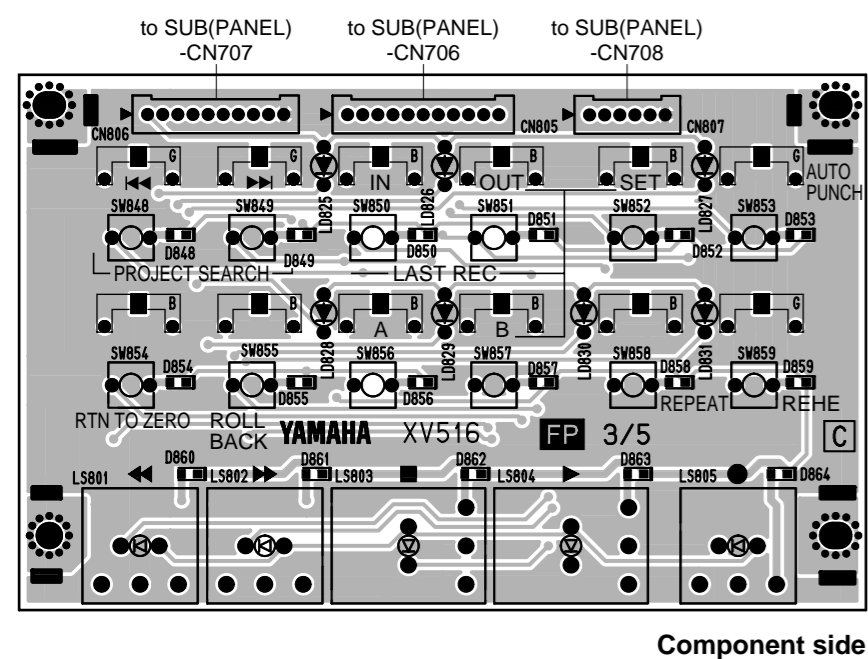


Component side

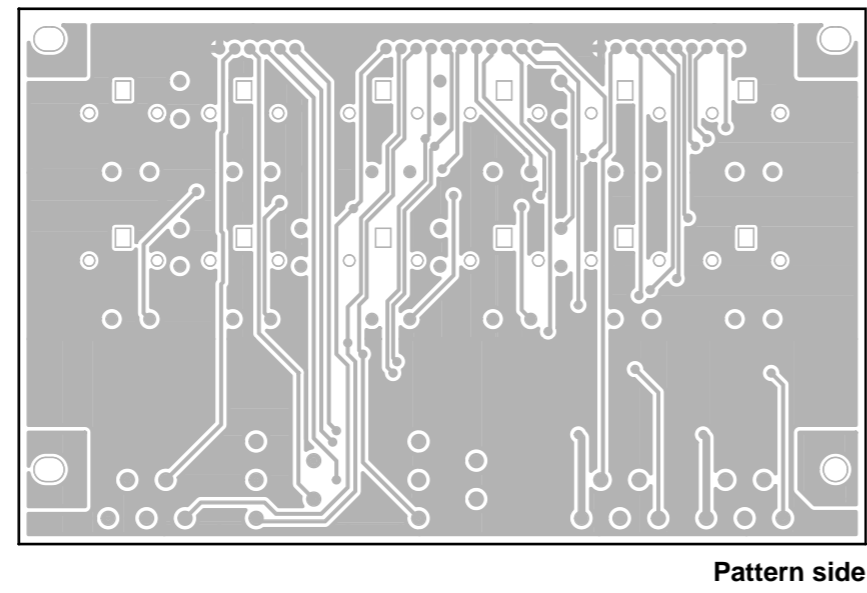


Pattern side

●FP3/5 Circuit Board

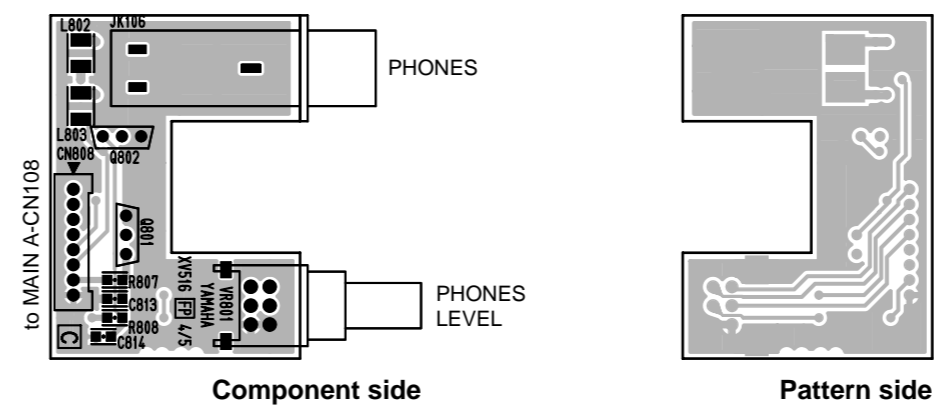


Component side

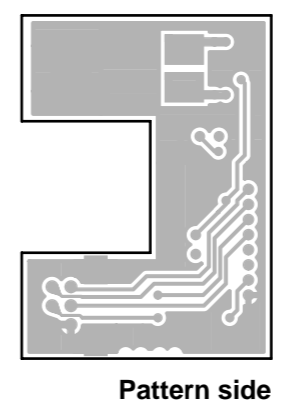


Pattern side

●FP 4/5 Circuit Board

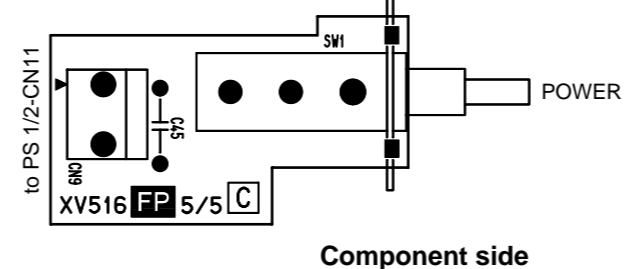


Component side

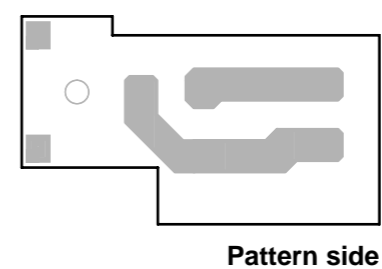


Pattern side

●FP 5/5 Circuit Board

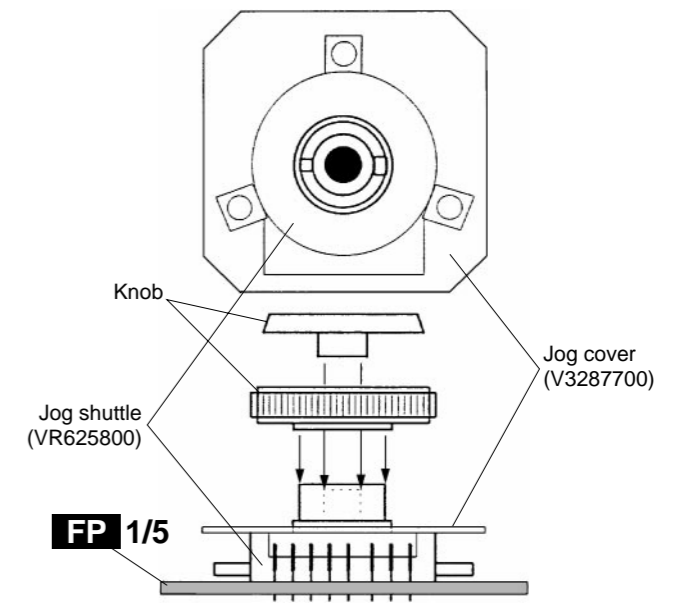


Component side



Pattern side

●Jog Shuttle



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

FP 1/5-5/5: 3NA-V312440-2
3NA-V312440-3

■ ERROR MESSAGES

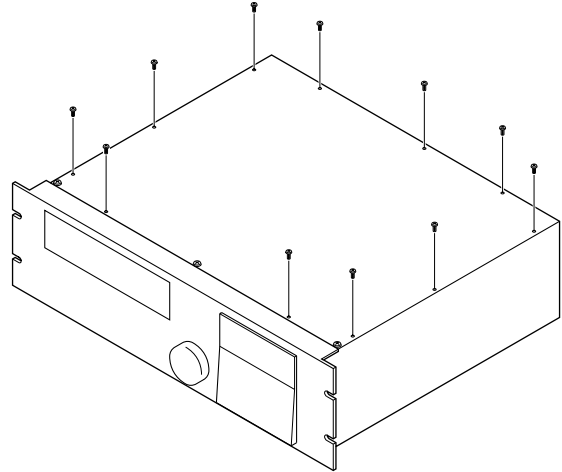
If the D24 displays an error message, follow the instructions below.

Message	Meaning	Remedy
Sync no comm	The slave machine is not connected properly.	Check the connections to the slave machine.
TC not read	The timecode source cannot be read properly.	Check the timecode settings.
WC not read	The wordclock source cannot be read properly.	Check the wordclock settings.
FILE ERROR	The MO disk data is not correct.	Follow the instructions on the display. If “TURN OFF” is displayed, turn the D24 off and then on again.
DEV CONT ERR	SCSI communication error. External device connection.	Follow the instructions on the display.
SCSI BREAK n	SCSI communication error. Command break.	Follow the instructions on the display.
FIFO UO ERR n	SCSI communication error. FIFO under/over.	Follow the instructions on the display.
INVALID COM n	SCSI communication error. Invalid command.	Follow the instructions on the display.
PARITY ERR n	SCSI communication error. Parity error.	Follow the instructions on the display.
SCSI OUT n	SCSI communication error. Time out.	Follow the instructions on the display.
SCSI ERR nn	SCSI error. SCSI error other than those listed above.	Follow the instructions on the display.
MEDIA ERR nn	Error due to media.	Try the following: 1) Clean the media or disk drive head. 2) Physically reformat the disk. If the error persists, change the media.
DRIVE ERR nn	Error due to media or drive.	Reload the disk. If the error persists, change the media. If that doesn't fix it, the drive may be broken.
REC ERROR	An incorrectly recorded track has been detected and its contents may be distorted. This message may appear after recording on a disk containing heavily edited tracks and is due to the D24's disk drive not been able to keep up with the excessive workload.	Press the [UNDO] button to undo the last recording, reduce the number of tracks selected for simultaneous recording, and try recording again. Temporarily assigning unused virtual tracks to main tracks is another way to reduce the D24's workload.
TOO SHORT	The interval between the points is too short.	For part editing, the minimum interval between the start and end points is 15 ms. For punch in/out recording, the minimum interval is 15 ms. Increase the interval as necessary.
DISK FULL	There is no space available for storing sound files.	Retrieve some disk space by using the Optimize function. Delete or erase an unwanted project.
FS DIFFER	Recording is not possible because the sampling rate of the selected project is not the same as the current D24 setting.	Set the sampling rate on the D24 to match that of the project.
RECCH NOTSEL	No tracks are selected for recording.	Select a track for recording.
MO PROTECT	The disk is write protected.	Turn off the write protection.
PROJ PROTECT	The project is write protected.	Turn off the write protection.
DATA FULL	There is no space available for storing project management files.	Retrieve some disk space by using the Optimize function. Delete or erase an unwanted project.

■ SETTING THE SCSI ID

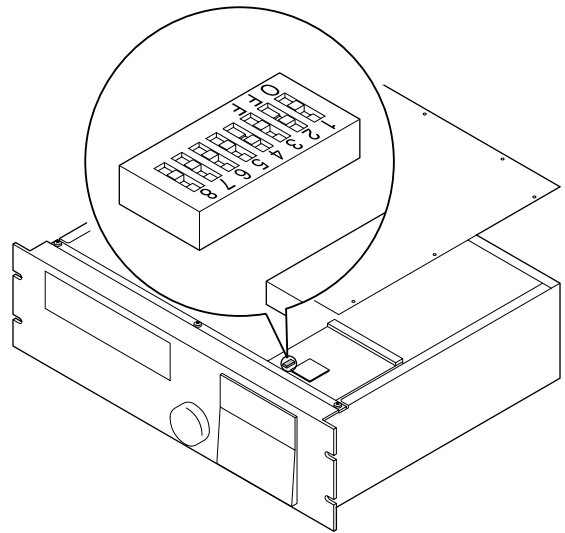
Setting the SCSI ID of the internal MO disk drive involves removing the D24's top cover and setting the DIP switch located on the MO drive's circuit board.

- 1 Remove the top-cover fixing screws (11), as shown here.



- 2 Remove the top cover.

- 3 Using a small flat-bladed screwdriver, or something similar, set DIP switches 1 through 3, as listed below, to achieve the required SCSI ID.



SCSI ID	DIP switch number		
	1	2	3
5	ON	OFF	ON
4	ON	OFF	OFF
3	OFF	ON	ON
2 (default)	OFF	ON	OFF
1	OFF	OFF	ON
0	OFF	OFF	OFF

SCSI IDs 6 and 7 are not listed, since they are reserved for other purposes.

■ INITIALIZE

You can reset the D24 to its initial settings as follows.

- 1 Turn off the D24 Power switch.
- 2 While holding down the [RTN TO ZERO] button, turn on the D24 Power switch.
The D24 is initialized and “**INITIALIZED**” appears on the display.

■ CHECKING THE VERSION NUMBER

You can check the version number of the D24 system software as follows.

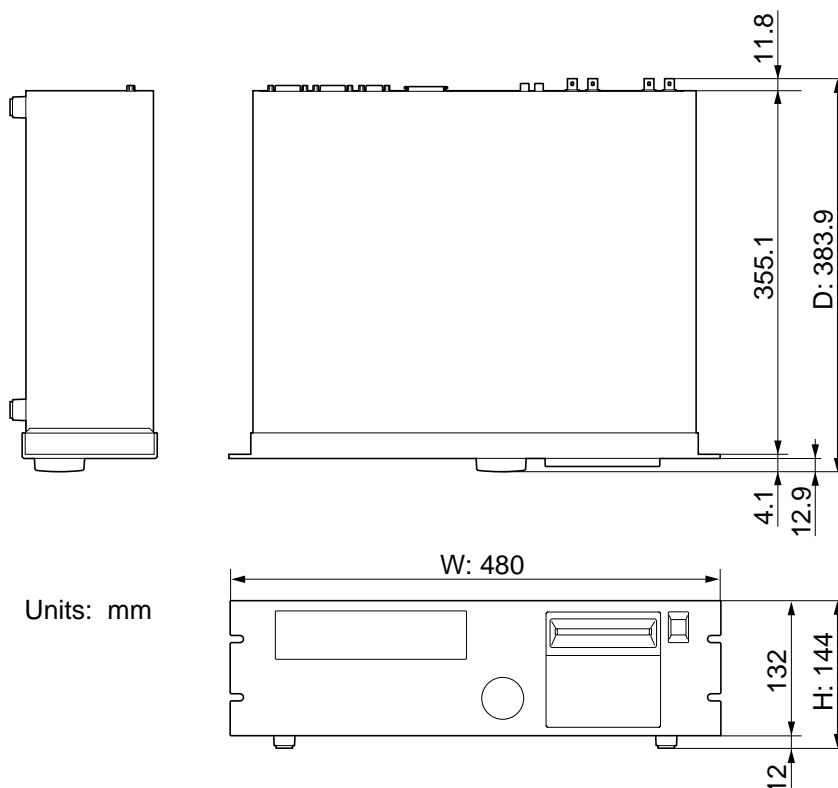
- 1 Turn off the D24 Power switch.
- 2 While holding down the [UTILITY] button, turn on the D24 Power switch.
The version number appears on the display.

■ UPDATING THE SYSTEM SOFTWARE

See the Yamaha Professional Audio Web site at the address below for information on system updates.

<<http://www.yamaha.co.jp/product/proaudio/homeenglish/>>

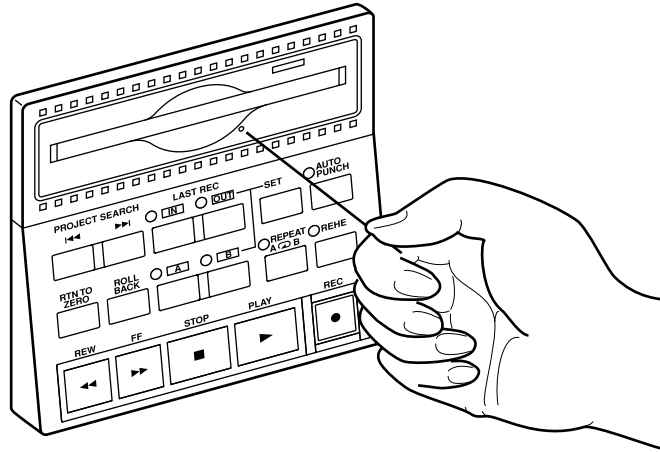
■ DIMENSIONS



■ EJECTING TROUBLESOME DISKS (EMERGENCY USE)

If the D24 is turned off inadvertently, or the disk loading mechanism fails, you may not be able to eject a disk in the normal way. In this case, the disk can be ejected using the supplied disk eject tool. Note that this technique should only be used as a last resort, as frequent use may lead to malfunction.

- 1 Turn off the D24 Power switch.
- 2 Insert the disk eject tool into the manual eject hole, as shown below, and push gently to eject the disk.



- 3 The disk ejects.

■ TEST PROGRAM

1. Measuring Conditions

- Unless specifically indicated, the unit is in the no MO DISC mode.
- All switches are set to OFF and the [PHONES LEVEL] is set to "0"

<Input Signal>

- With the MY8-AD card mounted in [SLOT 1], input a 1 kHz-10 dBmsine wave.
- Use the stereo plug to connect a 40 Ω load to the PHONES terminal.

2. Check Initial Operation of Main Circuit Board

With POWER ON, check that the CPU RUN indicator LEDs mounted on the MAIN-A circuit board are flashing.

GUI CPU & peripheral I/O:	D101 (Red LED at front left side of main sheet.)
MEDIA CPU & peripheral I/O:	D302 (Red LED at rear left side of main sheet.)
TIDSP & peripheral I/O:	D301 (Green LED at rear left side of main sheet.)

3. Communication Inspection Between MAIN Circuit Board ↔ SUB Circuit Board

With POWER ON, check that OK is displayed on the fluorescent display tube.

Example: YAMAHA D24, SCSI-IO OK ...

4. Check ROM Version

Hold down the [Utility] key when turning on the power to display the ROM version in the fluorescent display tube.

D24 V**.** (**.** is the version number)

5. Test Program

<Measuring Device>

Low-frequency oscillator, AC voltmeter, distortion meter, MY Card, SCSI compatible HDD (there are model restrictions), device with VIDEO OUT, D24

<Preparations>

- Connect the inspection equipment (FAT D24) and main unit [TIME CODE IN/OUT] connector with a CANNON cable.
- Connect the inspection equipment (FAT D24) and main unit [SYNC IN/OUT] connector with D-SUB 15 PIN cable.
- Connect the [COAXIAL IN/OUT] connectors with RCA PIN cable.
- Connect the [MIDI IN/OUT] connectors with MIDI cable.
- Connect the D-SUB 9 PIN plug (Pin) connector for inspection to the [SERIAL I/O] connector. (Connect between 3 Pin ↔ 7 Pin and 2 Pin ↔ 8 Pin)

<Start>

Hold the [SETUP] key and turn on the power to enter the test program. The following will be displayed on the fluorescent display tube.

00 DIAG RDY (Due to MO mount processing, key entry is not accepted until after normal operation has started, approximately 10 seconds.)

<Test Procedure>

Select test items: Use the keypad to enter the test item number. Press [ENTER] to execute the test.

Test result determination: The determination of each test item will be displayed as "OK" or "NG" in the fluorescent tube display.

Interrupting the test: Press [CANCEL] to interrupt a test in progress. (If it is being used for test determination, press [CANCEL] once again.)

Test Items

No.	Test Item	Display	Test Functions and Judgment Criteria
00	Play output system check		<p>When the Media CPU sine wave program (1 CH=500 Hz, 6 CH= 440 Hz -3 dB) starts there is output to the output CH lines for the 1 CH, 6 CH for [PHONES], [SLOT 1-4]. The output terminals for these are measured. The determinations are as follows.</p> <p>(1) Display on fluorescent tube display: [WC]INT, [FS]48K, [BIT]24, [TC]MASTER.</p> <p>(2) Level meter display: 1 TR, 6 TR both display -3 dB.</p> <p>(3) PHONE OUT: Asound can be heard on the headphones or by waveform observation. (L=500 Hz, R=440 Hz 40 Ω Load 2.5 Vp-p)</p> <p>(4) SLOT OUT: Check output of MY Card.</p>
01	Software version information	01 VNO G*** M*** U***	Checks the version of the software that has been installed for use by the G (GUI CPU), M (Media CPU) and U (Panel CPU). (Check by the number displayed in the * * * section.)
02	GUI-CPU peripheral operation	02 G-CPU	Checks the operation of peripheral devices the GUI-CPU is controlling. OK or NG is displayed.
03	TI-DSP peripheral operation	03 TI DSP	Checks the operation of peripheral devices the TI-DSP is controlling. OK or NG is displayed.
04	Media CPU peripheral operation	04 M-CPU	Checks the operation of peripheral devices the Media CPU is controlling. OK or NG is displayed.
05	Fluorescent tube display	05 VFD	Checks that each segment of the fluorescent tube display lights in sequence. After all segments have been lit, press the [ENTER] key. An OK will be displayed. If an abnormality occurs, press [CANCEL]. A NG will be displayed and the test will be interrupted.
06	Switch/LED display	06 SW ***	<p>Checks the operation of the front panel switches and the lighting of the LEDs. When the key displayed in the *** section of the fluorescent tube display is pushed, the name of the key for the next test will be displayed if there has been proper operation. If the switch has an LED, it also checks that the LED lights when the key is pushed. When the check for all switches has been completed, an OK is displayed.</p> <p>If there is an abnormality or if the test is to be interrupted, press the [REC] key. A NG will be displayed and the test will be stopped.</p>
07	JOG/SHUTTLE input	07 JOG 00 SHU 00	<p>Checks that each data display is displaced by the title operation of [JOG] and [SHUTTLE].</p> <p>(1) JOG data displacement value In + direction (clockwise) hexadecimal display: 00 → 01 → 02 → → → FF → 00 → 01 → 02 → → → In - direction (counterclockwise) hexadecimal display: 00 → FF → FE → → → 01 → 02 → FF → FE → → →</p> <p>(2) SHUTTLE data displacement value In + direction (clockwise) hexadecimal display: 00 → 01 → 02 → 03 → 04 → 05 → 06 → 07 In - direction (counterclockwise) hexadecimal display: 00 → FF → FE → FD → FC → FB → FA → F9</p> <p>After all data displacement values have been checked, press the [ENTER] key and an OK is displayed. If there is an abnormality, press the [CANCEL] key. A NG will be displayed and the test will be stopped.</p>
08	COAXIAL I/O (Status)	08 COAX1	<p>Checks the sending and receiving of channel status signals.</p> <p>If normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.</p>

No.	Test Item	Display	Test Functions and Judgment Criteria
09	System clock (FS) detection	09 FS	Checks the result of the automatic measurement of the oscillating frequency of the FS signals (44.1 kHz, 48.0 kHz) for the internal system clock generator. First it measures the frequency of the 44.1 kHz signal, then the frequency of the 48.0 kHz signal. If both frequencies are normal, an OK is displayed. If there is an abnormality, a NG is displayed. In addition, it also checks that "44.1 K" and "48 K" are lit in the FS area of the fluorescent display tube after each signal frequency has been measured.
10	VARI SPEED Variable operation	10 VARI	Automatically measures and checks the FS signals (44.1 kHz, 48.0 kHz) oscillating frequencies at 5 step settings. First it measures the frequency of the 44.1 kHz signal settings, then the frequency of the 48.0 kHz signal settings at each of the 5 steps (-6.00% → -3.00% → 0.00% → +3.00% → 6.00%), automatically makes the settings and measures the oscillating frequency at each step. If both frequencies are normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.
11	RTC operation, Date registration	11 RTC *****	Checks the date registration and operation of the Real Time Clock. Date recording: Press the [CANCEL] key and all the data in the *** section will be displayed as "0". Use the keypad to enter the date in AD format in the following sequence: year / month / day / hour / minute / seconds. Press the [Enter] key to set. (In the AD format, only the last two digits are entered. The entry for May 6, 2000 at 15 minutes and 9 seconds past 3 o'clock (3:15:09 PM) would appear as "000506151509". When the [ENTER] key is pushed and the date is registered, check that the seconds display has started counting. When the [ENTER] key is pushed again, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.
12	SERIAL I/O	12 SERIAL	Checks that the SERIAL signal (RS-422) is being sent and received. Prior to the test, connect the inspection connector (D-SUB 9 PIN) to the [SERIAL IN/OUT] connector. If it is normal an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped
13	REMOTE/SYNC I/O	13 REMOTE	Checks that the SERIAL signal for REMOTE/SYNC (RS-485) is being sent and received. Prior to the test, connect a D-SUB 15 PIN cable to the inspection equipment (FAT D24) and [SYNC IN/OUT] connector of the main unit. If it is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.
14	VIDEO IN	14 VIDEO	Checks the operation of the VIDEO vertical synchronization signal count function. If it is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.
15	TIME CODE OUT	15 TC OUT 00:00:00:00	Checks the output of the Time Code Generator. Prior to the test, connect a CANNON cable to the inspection equipment (FAT D24) and the [TIME CODE IN/OUT] connector on the main unit. When the test is started, the receiving time data display on the fluorescent display tube starts to count upward. When the test program for the inspection equipment (FAT D24) is started and Test No. 16 is executed, the receiving time data on the inspection equipment and the receiving time data on the main unit display the same time and the counting up of the data is checked. The [ENTER] key on the main unit is pushed. If the test is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.

No.	Test Item	Display	Test Functions and Judgment Criteria
16	TIME CODE IN	16 TC IN XLR 00:00:00:00	<p>Checks the Time Code Reader input.</p> <p>Prior to the test, connect a CANNON cable to the inspection equipment (FAT D24) and the [TIME CODE IN/OUT] connector on the main unit. When the test program is started on the inspection equipment (FAT D24) and Test No. 15 is executed, the receiving time data display on the fluorescent display tube starts to count upward. The receiving time data on the inspection equipment and the receiving time data on the main unit display the same time and the counting up of the data is checked</p> <p>Next, push the [ENTER] key on the main unit and the XLR display on the fluorescent display tube will change to RMT. Also at this time, the receiving time data on the inspection equipment and the receiving time data on the main unit display the same time and the counting up of the data is checked.</p> <p>Push the [ENTER] key one more time. If the test is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.</p>
17	SCSI operation	17 SCSI	<p>Checks the internal and external SCSI operations.</p> <p>Prior to the test, connect a SCSI cable to the HDD that is D24 operation guaranteed (one that has been formatted in the normal mode). (The SCSI ID is "0" or "1".) If the test is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.</p>
18	SLOT	18 BAY IO SLOT 1 ENTER	<p>Checks the connection of the SLOT for MY Card.</p> <p>Prior to the test, mount MY SLOT CHECK CARD in [SLOT 1-4]. Press the [ENTER] key and [SLOT 1] is checked. If it is normal, OK and GO TO SLOT 2 will be displayed. The check then moves to [SLOT 2]. This same process is also carried out for [SLOT 3] and [SLOT 4]. If all connections are normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.</p>
19	Data initialize	19 INIT RDY	<p>Initializes basic data with exception of date data.</p> <p>Once this test is started, the RDY display section of the fluorescent display tube will flash. Press the [ENTER] key to execute the initialization. To interrupt the test, press [CANCEL]. A NG will be displayed and the test will be stopped.</p>
20	EXIT (Inspection completed)	20 EXIT	<p>Removes unit from test mode and restores it to standard mode.</p> <p>Press the [ENTER] key and if all test items have been completed, an OK will be displayed. After a few seconds, the unit will be in the same mode as it is after POWER ON. If one of the test items has not been completed, a NG will be displayed. Press the [CANCEL] key to return to the test mode and execute the incomplete tests.</p>
21	SYNC MASTER	21 SYNC-M ***	<p>Checks the output of the SYNC MASTER.</p> <p>Prior to the test, connect a D-SUB 15 PIN cable to the inspection equipment (FAT D24) and [SYNC IN/OUT] connector of the main unit. Start the test program for the inspection equipment (FAT D24) is started and Test No. 22. Each time the [ENTER] key is pushed on the main unit, the *** section display on both the main unit and the inspection equipment will start to count up simultaneously and can be checked.</p> <p>Press the [CANCEL] key on the main unit. If the test is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.</p>
22	SYNC SLAVE	22 SYNC-S ***	<p>Checks the SYNC SLAVE input.</p> <p>Prior to the test, connect a D-SUB 15 PIN cable to the inspection equipment (FAT D24) and [SYNC IN/OUT] connector of the main unit. The test program is started on the inspection equipment (FAT D24) and Test No. 21 is executed. Each time the [ENTER] key is pushed on the test equipment, the *** section display on both the main unit and the inspection equipment will start to count up simultaneously and can be checked.</p> <p>Press the [CANCEL] key on the inspection equipment. If the test is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.</p>

No.	Test Item	Display	Test Functions and Judgment Criteria
23	SYNC 8FS	23 SYNC-F	Checks the connection signal of the 8FS interrupt signal. If the test is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.
24	EXT WORD CLOCK IN	24 WC IN	Checks the synchronizing function of the [WORD CLOCK INPUT] signal. Displays the following on the fluorescent display tube for checking. [LOCK]: Lights. [WC] Column: EXT lights. [FS] Column: 44.1 or 48 K lights. (input WORLD CLOCK frequency) Push the [CANCEL] key. If the test is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.
25	PHONE OUT-1	25 OSC-1	Check [PHONES] CH1/CH2 output. Check the output from the [PHONES] by the sound in the headphones.
26	PHONE OUT-2	26 OSC-2	Check [PHONES] CH3/CH4 output. Check the output from the [PHONES] by the sound in the headphones
27	PHONE OUT-3	27 OSC-3	Check [PHONES] CH5/CH6 output. Check the output from the [PHONES] by the sound in the headphones
28	PHONE OUT-4	28 OSC-4	Check [PHONES] CH7/CH8 output. Check the output from the [PHONES] by the sound in the headphones
29	Switches SLOT input	29 SLOT	Checks the input of [SLOT 1-4]. Each press of the [ENTER] key switches the [SLOT]. The absence or presence of a signal is displayed at the level meter display of the fluorescent display tube and a [PHONES] output sound can be heard. After checking up to [SLOT 4], press the [ENTER] key once again. If the test is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.
30	COAXIAL INPUT	30 COAX	Checks input signal of [COAXIAL INPUT]. Press the [ENTER] key. The absence or presence of a signal is displayed at the level meter display of the fluorescent display tube and a [PHONES] output sound can be heard. If the input is normal, an OK is displayed. If there is an abnormality, NG will be displayed and the test will be stopped.
31	AES CH STATUS	31 AES C/S A100200	Checks the STATUS data of the AES CARD (MY-4) input signal. Press the [ENTER] key. The flashing A100200 display on the fluorescent display tube will stop and OK will be displayed. If no signal has been detected, NG will be displayed and the test will be stopped.
32	COAXIAL CH STATUS	32 COAX C/S 00000000	Checks the STATUS data of the COAXIAL input signal. Press the [ENTER] key. The flashing 00000000 display on the fluorescent display tube will stop and OK will be displayed. If no signal has been detected, NG will be displayed and the test will be stopped.
40	Inspection support mode	40 MASTER OK	This mode has been provided for inspecting while linked to input and output of the [TIME CODE INPUT/OUTPUT] etc. It receives the MIDI Program change from the main unit subject to inspection and the corresponding test items can be started. It can be ended by turning on the power again or by pressing the [CANCEL] key.
99	EXIT (Forced termination)		Removes unit from test mode and restores it to standard mode.

YAMAHA [Digital Multitrack Recorder]

Date: 18 Feb 1999

Model: D24

MIDI Implementation Chart

Version: 1.0

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	X X	X X	
Mode	Default Messages Altered	X X *****	X X X	
Note Number	True Voice	X *****	X X	
Velocity	Note On Note Off	X X	X X	
After Touch	Keys Ch's	X X	X X	
Pitch bend		X	X	
Control Change		X	X	
Prog Change	:True#	X *****	X X	
System Exclusive		X	O	*1
System Common	:Song Pos :Song Sel :Tune	X X X	X X X	
System Real Time	:Clock :Commands	X X	X X	
Aux Messages	:Local ON/OFF :All Notes OFF :Active Sense :Reset	X X X X	X X X X	
Notes	MTC quarter frame messages are received in MTC Sync slave mode MTC quarter frame messages are transmitted in MTC Sync master mode. *1: MMC			

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONO

O: Yes
X: No

DIGITAL MULTITRACK RECORDER



PARTS LIST


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Notes : DESTINATION ABBREVIATIONS

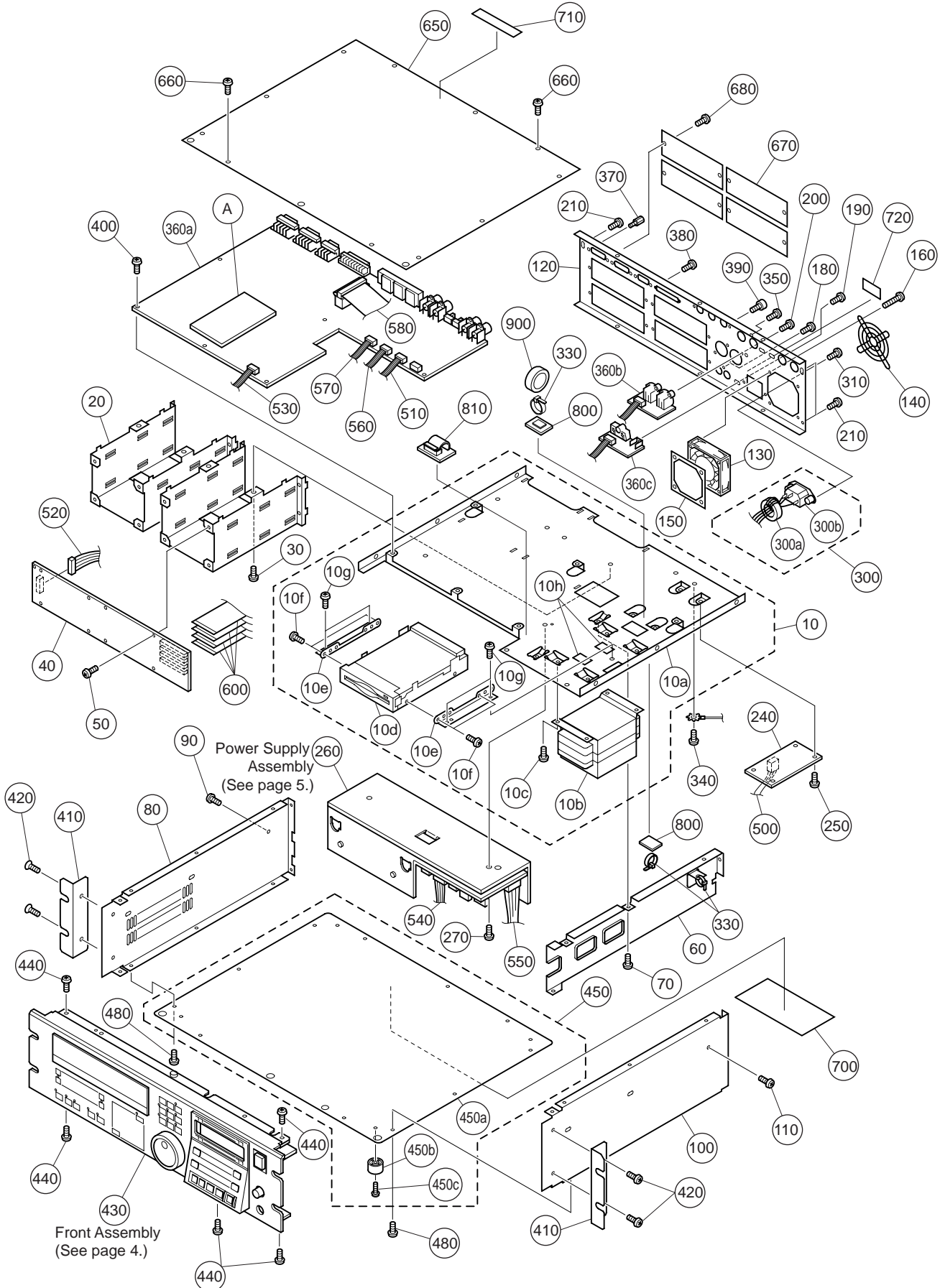
A: Australian model	M: South African model
B: British model	O: Chinese model
C: Canadian model	Q: South-east Asia model
D: German model	T: Taiwan model
E: European model	U: U.S.A. model
F: French model	V: General export model (110 V)
H: North European model	W: General export model (220 V)
I : Indonesian 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	D24 J,U,C,V,H,W,B		
	--	Overall Assembly	J (V309960)		
	--	Overall Assembly	U,C,V (V309970)		
	--	Overall Assembly	H,W (V309980)		
	--	Overall Assembly	B (V309990)		
* A	V5195300	Circuit Board	S-SYNC		
10	--	Sub Assembly	J (V325920)		
10	--	Sub Assembly	U,C,V (V325930)		
10	--	Sub Assembly	H,W,B (V325940)		
10a	--	Partition	(V310120)		
* 10b	XU676A00	Power Transformer	J		
* 10b	XU677A00	Power Transformer	U,C,V		
* 10b	XU678A00	Power Transformer	H,W,B		
10c	VC688800	Bind Head Tapping Screw-B	UL CSA		
			CEE		
10d	V3125400	Recorder Unit	A4.0X8 MFZN2BL	4	01
			MCB3064SS		
* 10e	V3103700	Angle		2	
10f	VP156600	Bind Head Screw	A3.0X6 MFZN2BL	4	01
10g	VP157000	Bind Head Tapping Screw-B	A3.0X8 MFZN2BL	4	01
10h	--	Spacer	(V413330)	2	
20	--	YGDI Angle	(V310130)	2	
30	VC688800	Bind Head Tapping Screw-B	4.0X8 MFZN2BL	4	01
* 40	V3268800	Circuit Board	SUB(BAY)		
50	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL	8	01
60	--	Stay	(V310140)		
70	VC688800	Bind Head Tapping Screw-B	4.0X8 MFZN2BL	3	01
* 80	V3101500	Side Panel	LEFT		
90	VC688800	Bind Head Tapping Screw-B	4.0X8 MFZN2BL	3	01
* 100	V3101600	Side Panel	RIGHT		
110	VC688800	Bind Head Tapping Screw-B	4.0X8 MFZN2BL	3	01
* 120	V3101800	Rear Panel	J		
* 120	V3101900	Rear Panel	U,C,V		
* 120	V3102000	Rear Panel	H,W,B		
* 130	V3125300	Fan	MMS-06E12DL		
140	VN003900	Finger Guard	FG-06ULB		05
150	VM964700	Fan Angle			09
160	VR116500	Pan Head Screw	SP 4.0X25 MFZN2BL	4	01
180	VP157000	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		01
190	VP156600	Bind Head Screw	3.0X6 ZMC2BL		01
200	VP157000	Bind Head Tapping Screw-B	3.0X8 MFZN2BL	4	01
210	VC688800	Bind Head Tapping Screw-B	4.0X8 MFZN2BL	5	01
* 240	V3268200	Circuit Board	PS 1/2		
* 240	V3268400	Circuit Board	PS 1/2		
250	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL	4	01
* 260	V3117900	Power Supply Assembly	J,U,C,V		
* 260	V3124900	Power Supply Assembly	H,W,B		
270	VD831800	Bind Head Tapping Screw-B	4.0X12 MFZN2BL	2	01
300	--	Connector Assembly	AC IN ASSY 0		
300a	VC362700	Ferrite Core	FR25/15/12-1400L		04
300b	VL785200	AC-IN Connector	AC AC-P01CR02		03
310	VC161100	Bind Head Tapping Screw-P	3.0X12 ZMC2BL	2	01
330	CB069250	Cord Holder	BK-1	11	01
330	CB069250	Cord Holder	BK-1	12	01
340	EG340360	Bind Head Screw	4.0X8 MFZN2BL		01
350	VP156600	Bind Head Screw	3.0X6 MFZMC2BL	4	01
* 360a	NX820720	Circuit Board	MAIN A		
* 360b	NX820730	Circuit Board	MAIN B		
* 360c	NX820740	Circuit Board	MAIN C		
370	VT362500	Jack Socket	17L-003A3	6	01
380	VT267800	Pan Head Screw	2.6X6 MFNI33	2	01
390	VP157000	Bind Head Tapping Screw-B	3.0X8 MFZN2BL	2	01
400	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL	6	01
* 410	V3103800	Angle		2	
420	VP063700	Flat Head Tapping Screw-B	4.0X10 MFZN2BL	4	01
430	--	Front Assembly	(V311770)		
440	VC688800	Bind Head Tapping Screw-B	4.0X8 MFZN2BL	5	01
* 450	V3496600	Bottom Assembly			
450a	--	Bottom Cover	(V310390)		
450b	CB651110	Foot	TL-014	4	02
* 450c	VS756600	Bind Head Tapping Screw-B	3.0X14 MFZN2B	4	
480	VC688800	Bind Head Tapping Screw-B	4.0X8 MFZN2BL	11	01

*: New Parts

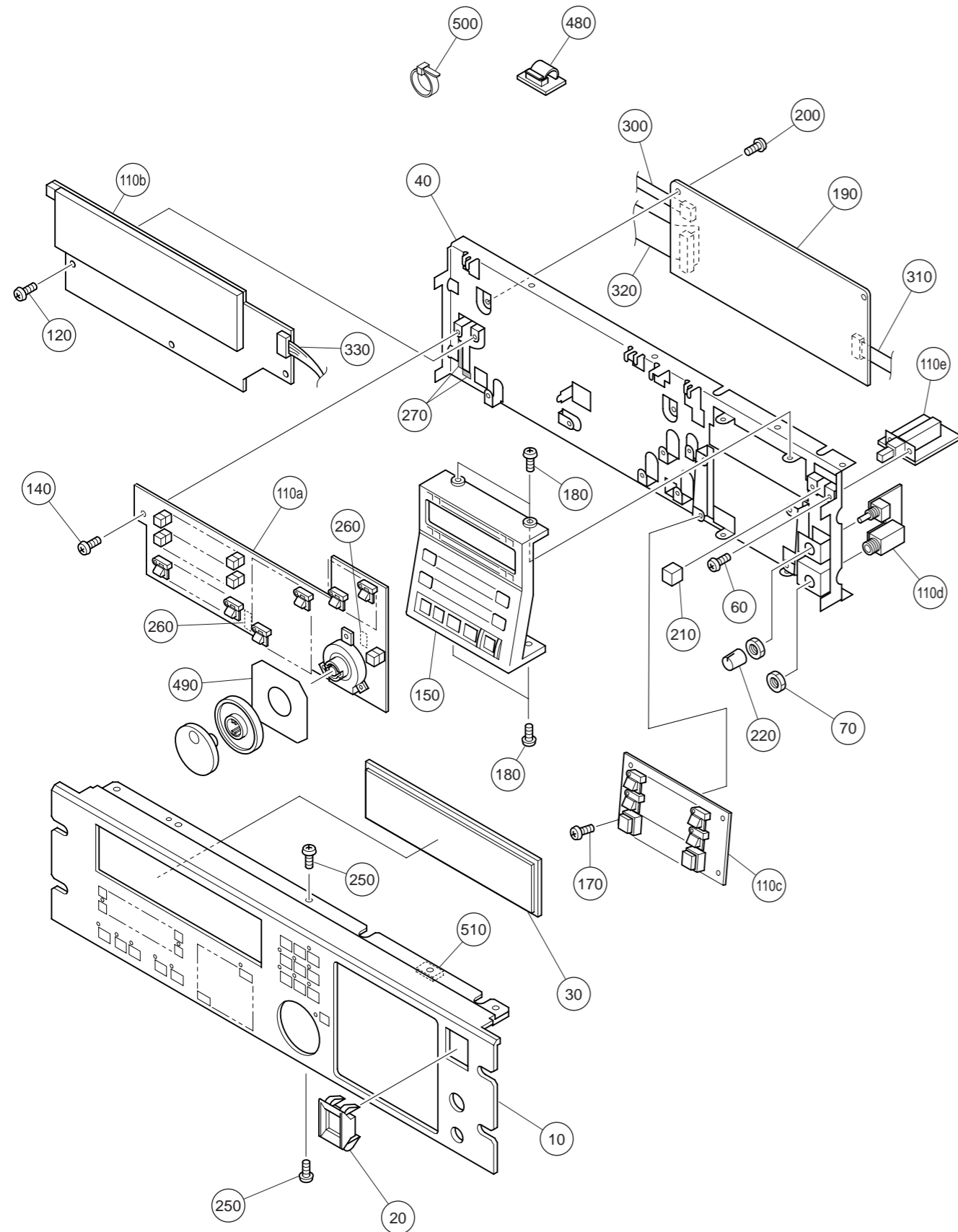
RANK: Japan only

REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
500	--	Connector Assembly	PSW ASSY (V314570)		
510	--	Connector Assembly	PS-MAIN ASSY (V412780)		
520	--	Connector Assembly	PH&PH 12P 500L (V325400)		
530	--	Connector Assembly	PH&PH 8P 160L (V325410)		
540	--	Connector Assembly	PH&PH 5P 250L (V325420)		
* 550	V3254300	Connector Assembly	MO ASSY		
560	--	KR Connector Assembly	6 160mm C&C 2mm (VR78720)		
570	--	KR Connector Assembly	5 160mm C&C 2mm (VR78550)		
* 580	V3261800	Connector Assembly	MAIN TO MO D24		
* 590	V3583900	FFC Cable	P=1.0-K-5-80		
* 600	V3116600	FFC Cable	P=1.25-K-36-170	4	
* 650	V3104000	Top Cover			
660	VC688800	Bind Head Tapping Screw-B	4.0X8 MFZN2BL	11	01
670	VZ678500	IF Plate		4	05
680	VP156900	Bind Head Screw	4.0X12 MFZN2BL	8	01
700	--	Label	CAUTION A (V332560)		
700	--	Label	CAUTION B (V332570)		
710	--	Label	CAUTION C (V333500)		
720	--	Label,Date Coad	U,C,V (VA03930)		
720	--	Label,Date Coad	H,W (CB07612)		
800	CB835590	Holder	TMS-20	2	01
810	CB825280	Holder	CKN-05		01
900	VC362700	Ferrite Core	FR25/15/12-1400L		04
		ACCESSORIES			
	--	MO Disk	RO-M640 (V360310)		
△	VQ240200	Adapter, AC Cord	KPR-25		06
△	VT119800	AC Cord	J 7A 125V 3P 2.5m		06
△	VB927800	AC Cord	CSA		08
△	VB928000	AC Cord	VDE		08
△	VP204400	AC Cord	BS 3		10

*: New Parts

RANK: Japan only

FRONT ASSEMBLY

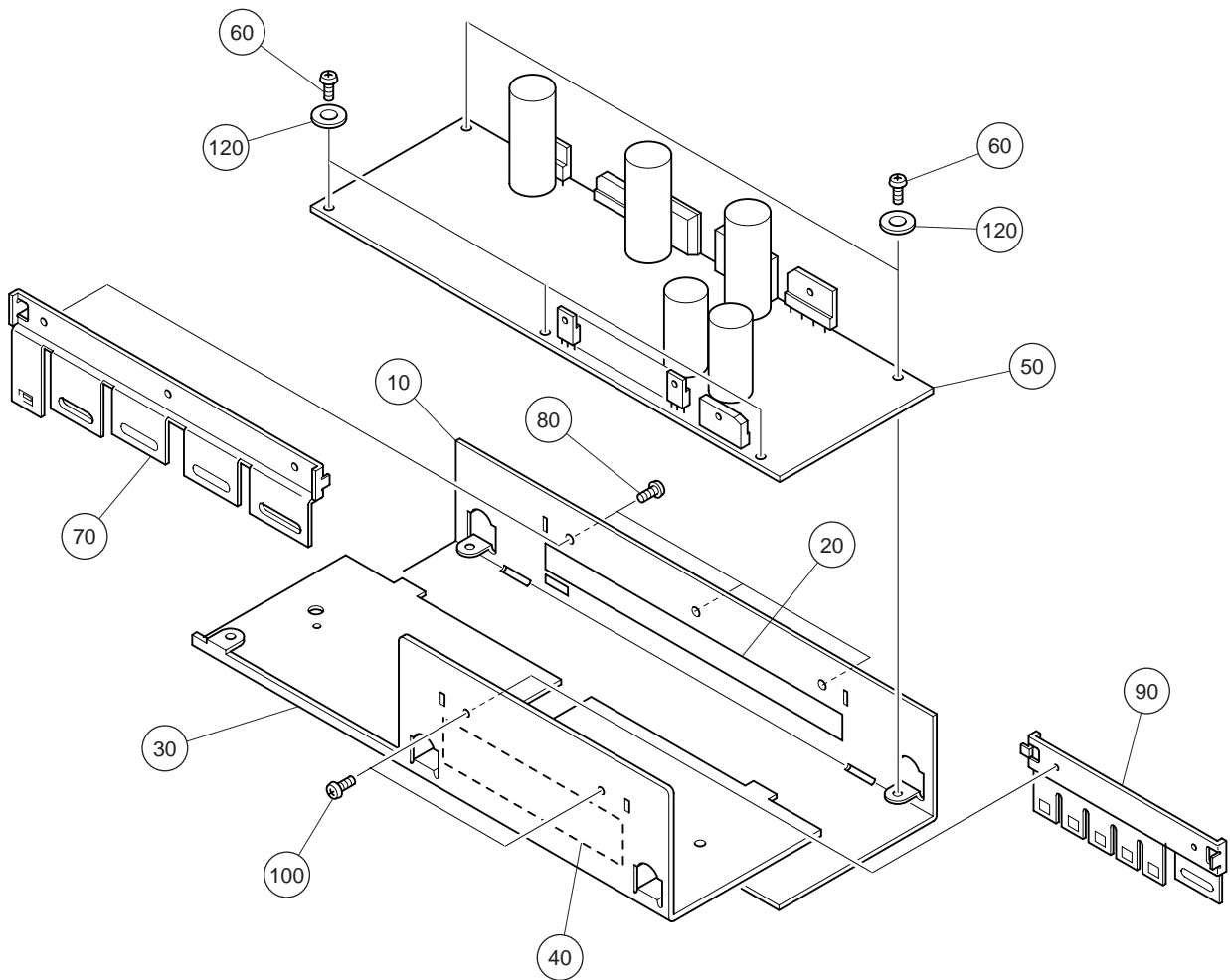


REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
	--	FRONT ASSEMBLY		D24		
	--	Front Assembly		(V311770)		
* 10	V3114300	Front Panel				03
20	VL813000	Escutcheon, Power Switch				
* 30	V3114400	Window				
40	--	Sub Chassis		(V311460)		
60	VP156600	Bind Head Screw	3.0X6 MFZN2BL		2	01
70	V2431400	Hexagonal Nut	9.0			01
* 110a	NX820670	Circuit board	FP 1/5			
* 110b	NX820680	Circuit board	FP 2/5			
* 110c	NX820690	Circuit board	FP 3/5			
* 110d	NX820700	Circuit board	FP 4/5			
* 110e	NX820710	Circuit board	FP 5/5			
120	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		3	01
140	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		5	01
* 150	V3114900	Sub Panel				
170	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		4	01
180	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		4	01
* 190	V3268700	Circuit Board	SUB(PANEL)			
200	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		2	01
210	VL812900	Power Switch Knob		POWER		03
220	VQ920800	Knob	L GY /D GY	PHONES LEVEL		03
250	VC688800	Bind Head Tapping Screw-B	4.0X8 MFZN2BL		2	01
260	--	Spacer		(V413330)		
270	--	Adhesive Tape		(CB55090)		
* 300	V3583700	FFC Cable	P=1.0-K-6-80 BNCD			
* 310	V3266100	FFC Cable	P=1.25-K-8-80 BNCD			
* 320	V3583800	FFC Cable	P=1.25-K-30-80 BNCD			
330	--	Connector Assembly	PH&PH 7P 160L	(VR92670)		
480	CB825280	Cranp	CKN-05			01
* 490	V3287700	JOG Cover				03
500	CB069250	Cord Holder	BK-1			01
510	--	Cushion		(V453250)		

*: New Parts

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POWER SUPPLY ASSEMBLY



REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
*	V3117900	POWER SUPPLY ASSEMBLY		D24		
*	V3124900	Power Supply Assembly		J,U,C,V		
	--	Power Supply Assembly		H,W,B		
10	--	Heat Sink		(V311500)		
*	V3115100	Insulation Sheet	A			
30	--	Heat Sink	B	(V326940)		
*	V3115900	Insulation Sheet	B			
40	V3268300	Circuit Board	PS 2/2	J,U,C,V		
*	V3268500	Circuit Board	PS 2/2	H,W,B		
60	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		5	01
70	--	TR holder (A)		(V311560)		
80	VP157000	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		3	01
90	--	TR Holder (B)		(V311600)		
100	VP157000	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		2	01
120	03765160	Spring Washer	#2 M3.0		2	

*: New Parts

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ELECTRICAL PARTS

REF. NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
		ELECTRICAL PARTS	D24		
*	NX820670	Circuit Board	FP 1/5 (XV516C0)		
*	NX820680	Circuit Board	FP 2/5 (XV516C0)		
*	NX820690	Circuit Board	FP 3/5 (XV516C0)		
*	NX820700	Circuit Board	FP 4/5 (XV516C0)		
*	NX820710	Circuit Board	FP 5/5 (XV516C0)		
*	NX820720	Circuit Board	MAIN-A (XV515C0)		
*	NX820730	Circuit Board	MAIN-B (XV515C0)		
*	NX820740	Circuit Board	MAIN-C (XV515C0)		
*	V3268200	Circuit Board	PS 1/2 (XV520B0)	J,U,C,V	
*	V3268400	Circuit Board	PS 1/2 (XV620B0)	H,W,B	
*	V3268300	Circuit Board	PS 2/2 (XV520B0)	J,U,C,V	
*	V3268500	Circuit Board	PS 2/2 (XV620B0)	H,W,B	
*	V3268800	Circuit Board	SUB(BAY) (XV517C0)		
*	V3268700	Circuit Board	SUB(PANEL) (XV517C0)		
*	V5195300	Circuit Board	S-SYNC (XY230A0)		
*	NX820670	Circuit Board	FP 1/5 (XV516C0)		
*	NX820680	Circuit Board	FP 2/5 (XV516C0)		
*	NX820690	Circuit Board	FP 3/5 (XV516C0)		
*	NX820700	Circuit Board	FP 4/5 (XV516C0)		
*	NX820710	Circuit Board	FP 5/5 (XV516C0)		
	VT810300	Push Button	PEAK HOLD,AUTO INPUT, ALL INPUT,FORMAT,CHASE, PROJECT SELECT,UNDO/REDO, LOC MEM(RECALL,STORE), CUPTURE,ABS/REL,REMAIN, VARI SPEED,UTILITY,SETUP, V TRACKSELECT,EDIT, LAST REC(IN,OUT,SET), RTN TO ZERO,ROLL BACK,A, B,REPEAT	25	03
	VT839000	Push Button	1-9,0/-,CANCEL,LOCATE, PROJECT SEARCH(FF,REW), AUTO PUNCH,REHE	17	03
*	V3117400	Button	RECORD READY1-8,JOE ON	9	
*	V3117500	Spacer			
*	V3259500	Button	SOLO/SEL 1-8	8	
*	V3358580	LED Spacer			
	VB939700	Flat Head Screw	3.0X8 ZMC2BL		01
	ES200030	Hexagonal Nut	3.0 ZMC2BL		01
C45	VT575200	Capacitor	0.01 400V J.U.C.S		01
C801	UB051470	Monolithic Ceramic Cap.	SL 47P 50V J		01
-803	UB051470	Monolithic Ceramic Cap.	SL 47P 50V J		01
C804	UB052100	Monolithic Ceramic Cap.	SL 100P 50V J		01
C805	UB052100	Monolithic Ceramic Cap.	SL 100P 50V J		01
C806	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z		01
-812	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z		01
C813	UB044220	Monolithic Ceramic Cap.	F 0.022 50V Z		01
C814	UB044220	Monolithic Ceramic Cap.	F 0.022 50V Z		01
C820	UB012220	Monolithic Ceramic Cap.	B 220P 50V K		01
-835	UB012220	Monolithic Ceramic Cap.	B 220P 50V K		01
CN9	VG879900	Base Post Connector	VA- 2P TE		01
CN801	VQ045900	Connector, FFC	52044 30P SE		02
CN802	VP682300	Connector, FFC	52045 8P SE		01
* CN803	VR134400	Base Post	PH- 7P SE		
* CN804	VZ991900	Connector, FFC	52207 6P SE		
* CN805	VY921500	Connector Assembly	11P 250mm B&C 2mm		
* CN806	VY919900	Connector Assembly	10P 250mm B&C 2mm		
CN807	VQ616000	Connector Assembly	6P 250mm B&C 2mm		02
CN808	VY917100	Connector Assembly	8P 450mm B&C 2mm		
D801	VT332900	Diode	1SS355 TE-17		01
-864	VT332900	Diode	1SS355 TE-17		01
IC801	XT828A00	IC	M66004FP	FL DRIVER	07
* IC802	V3117600	Transistor Array	M54564FP		
* IC803	V3117600	Transistor Array	M54564FP		
JK106	LB302070	Phone Jack	HLJ0544	PHONES	03
JS801	VR625800	Jog Shuttle	SRGPHJ-A-3-1	JOE/DATA SHUTTLE/CURSORE	07
L801	VS740100	Chip Inductance	BLM21B751S 2125		03
* L802	VQ723100	Chip Bead	EXC CL3225U		01

*: New Parts

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
* L803	VQ723100	Chip Bead	EXC CL3225U			01
LD801	VU091400	LED	SLZ-235B-08-T1 GR	RECORD READY/SOLO/SEL 1-8		01
-808	VU091400	LED	SLZ-235B-08-T1 GR			01
LD809	VT838500	LED	SLZ-135B-08-T1 RE	PEAK HOLD, AUTO INPUT,		01
-813	VT838500	LED	SLZ-135B-08-T1 RE	ALL INPUT, FORMAT, CHASE		01
LD814	VT942200	LED	SLP-135B-51 RE	PROJECT SELECT		01
LD815	VT838500	LED	SLZ-135B-08-T1 RE	LOC MEM RECALL		01
LD816	VT838500	LED	SLZ-135B-08-T1 RE	LOC MEM STORE		01
LD817	VT942200	LED	SLP-135B-51 RE	REMAIN		01
LD818	VT838500	LED	SLZ-135B-08-T1 RE	VARI SPEED,		01
-831	VT838500	LED	SLZ-135B-08-T1 RE,REHA		01
* LS801	V3123700	Push Switch	UB-15SKP4Y	REW		
* LS802	V3266700	Push Switch	UB-15SKP4Y	FF		
* LS803	V3123800	Push Switch	UB-15RNKP4Y	STOP		
* LS804	V3266800	Push Switch	UB-15RNKP4Y	PLAY		
* LS805	V3123900	Push Switch	UB-15SKP4R	REC		
Q801	VK432900	Transistor	2SD1915(F) S,T			01
Q802	VK432900	Transistor	2SD1915(F) S,T			01
R801	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R802	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
-804	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
R805	RD257270	Carbon Resistor (chip)	27.0K 0.1 J			01
R806	RD257510	Carbon Resistor (chip)	51.0K 0.1 J			01
R807	RD256470	Carbon Resistor (chip)	4.7K 0.1 J			01
R808	RD256470	Carbon Resistor (chip)	4.7K 0.1 J			01
* SW1	V3127000	Push Switch	ESB92S23B J.U.C.S	POWER		
* SW801	V3123600	Push Switch	SKECAF	RECORD READY/SOLO/SEL 1-8		
* -816	V3123600	Push Switch	SKECAF			
SW817	VT513600	Light Touch Switch	EVQ 22C 05B	MONITOR SELECT,		01
-846	VT513600	Light Touch Switch	EVQ 22C 05B, TIME DISOLAY		01
* SW847	V3123600	Push Switch	SKECAF	JOG ON		
SW848	VT513600	Light Touch Switch	EVQ 22C 05B	PROJECT SEARCH,		01
-859	VT513600	Light Touch Switch	EVQ 22C 05B, REHA		01
* U801	V3117800	Fluorescent display	BJ643GK			
* VR801	V3123000	Rotary Variable Resistor	RK09L12B0 A10K X 2	PHONES LEVEL		
*	NX820720	Circuit Board	MAIN-A	(XV515C0)		
*	NX820730	Circuit Board	MAIN-B	(XV515C0)		
*	NX820740	Circuit Board	MAIN-C	(XV515C0)		
	VC719300	Terminal Plate	P-424			01
C101	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C102	UB051220	Monolithic Ceramic Cap.	SL 22P 50V J			01
C103	UB051220	Monolithic Ceramic Cap.	SL 22P 50V J			01
C104	UB012470	Monolithic Ceramic Cap.	B 470P 50V K			01
C105	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-109	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C110	UF066100	Electrolytic Cap. (chip)	1 50V			01
C111	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-119	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C122	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-129	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C131	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C132	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C133	UB044470	Monolithic Ceramic Cap.	F 0.047 50V Z			01
C134	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-138	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C139	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
-140	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C143	UB013100	Monolithic Ceramic Cap.	B 1000P 50V K			01
C144	UB013100	Monolithic Ceramic Cap.	B 1000P 50V K			01
C145	UB051470	Monolithic Ceramic Cap.	SL 47P 50V J			01
C146	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C147	UB014220	Monolithic Ceramic Cap.	B 0.022 50V K			01
C148	UB013100	Monolithic Ceramic Cap.	B 1000P 50V K			01
C149	UB013100	Monolithic Ceramic Cap.	B 1000P 50V K			01
C150	UB051150	Monolithic Ceramic Cap.	SL 15P 50V J			01
C151	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
-153	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C154	UB013100	Monolithic Ceramic Cap.	B 1000P 50V K			01
C155	UB013100	Monolithic Ceramic Cap.	B 1000P 50V K			01

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C156	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-165	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C166	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C167	UB051390	Monolithic Ceramic Cap.	SL 39P 50V J			01
-169	UB051390	Monolithic Ceramic Cap.	SL 39P 50V J			01
C170	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C171	UF037100	Electrolytic Cap. (chip)	10 16V			01
C172	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-179	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C180	UB013470	Monolithic Ceramic Cap.	B 4700P 50V K			01
C181	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
-183	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C184	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-191	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C192	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C193	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-206	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C211	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-216	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C218	UF037470	Electrolytic Cap. (chip)	47 16V			01
C219	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C220	UF018100	Electrolytic Cap. (chip)	100 6.3V			01
C221	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C222	UF037470	Electrolytic Cap. (chip)	47 16V			01
C223	UF037470	Electrolytic Cap. (chip)	47 16V			01
C224	UF018100	Electrolytic Cap. (chip)	100 6.3V			01
C225	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C226	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C236	UB445330	Monolithic Ceramic Cap.	F 0.33 16V Z			01
C237	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C301	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C302	UB051220	Monolithic Ceramic Cap.	SL 22P 50V J			01
C303	UB051220	Monolithic Ceramic Cap.	SL 22P 50V J			01
C304	UB012470	Monolithic Ceramic Cap.	B 470P 50V K			01
C305	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-322	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C330	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-344	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
* C345	UF066220	Electrolytic Cap. (chip)	2.2 50V			01
C346	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-367	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C368	UF017470	Electrolytic Cap. (chip)	47 6.3V			01
C401	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C402	UF037100	Electrolytic Cap. (chip)	10 16V			01
C403	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-405	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C406	UF037470	Electrolytic Cap. (chip)	47 16V			01
C407	UF047100	Electrolytic Cap. (chip)	10 25V			01
-412	UF047100	Electrolytic Cap. (chip)	10 25V			01
C413	UF037220	Electrolytic Cap. (chip)	22 16V			01
C414	UB052180	Monolithic Ceramic Cap.	SL 180P 50V J			01
C415	UB051470	Monolithic Ceramic Cap.	SL 47P 50V J			01
C416	UF066100	Electrolytic Cap. (chip)	1 50V			01
C417	UB051470	Monolithic Ceramic Cap.	SL 47P 50V J			01
C418	UF028100	Electrolytic Cap. (chip)	100 10V			01
C419	UF037220	Electrolytic Cap. (chip)	22 16V			01
C420	UB052180	Monolithic Ceramic Cap.	SL 180P 50V J			01
C421	UB051470	Monolithic Ceramic Cap.	SL 47P 50V J			01
C422	UF066100	Electrolytic Cap. (chip)	1 50V			01
C423	UB051470	Monolithic Ceramic Cap.	SL 47P 50V J			01
C424	UF028100	Electrolytic Cap. (chip)	100 10V			01
C425	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
* C426	UB052510	Monolithic Ceramic Cap.	SL 510P 50V J			01
C427	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-429	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C430	UB013100	Monolithic Ceramic Cap.	B 1000P 50V K			01
C431	UB013100	Monolithic Ceramic Cap.	B 1000P 50V K			01
C432	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C433	UF037100	Electrolytic Cap. (chip)	10 16V			01
C434	UB051330	Monolithic Ceramic Cap.	SL 33P 50V J			01

*: New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C435	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C436	UB052100	Monolithic Ceramic Cap.	SL 100P 50V J			01
C437	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C438	UF037470	Electrolytic Cap. (chip)	47 16V			01
C439	UF037470	Electrolytic Cap. (chip)	47 16V			01
C440	UB052100	Monolithic Ceramic Cap.	SL 100P 50V J			01
C441	UB012680	Monolithic Ceramic Cap.	B 680P 50V K			01
C442	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C443	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C444	UF037100	Electrolytic Cap. (chip)	10 16V			01
C445	UF037470	Electrolytic Cap. (chip)	47 16V			01
C446	UB012470	Monolithic Ceramic Cap.	B 470P 50V K			01
-449	UB012470	Monolithic Ceramic Cap.	B 470P 50V K			01
C450	UF037470	Electrolytic Cap. (chip)	47 16V			01
C451	UF037470	Electrolytic Cap. (chip)	47 16V			01
C452	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
-460	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C461	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C462	UB012330	Monolithic Ceramic Cap.	B 330P 50V K			01
C463	UB012330	Monolithic Ceramic Cap.	B 330P 50V K			01
C464	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
-467	UB215100	Monolithic Ceramic Cap.	B 0.1 25V K			01
C468	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C501	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C502	UF018100	Electrolytic Cap. (chip)	100 6.3V			01
C503	UF047100	Electrolytic Cap. (chip)	10 25V			01
C504	FG644100	Ceramic Cap. (chip)	0.01 50V Z			01
C505	UB044100	Monolithic Ceramic Cap.	F 0.01 50V Z			01
C506	UB044100	Monolithic Ceramic Cap.	F 0.01 50V Z			01
C507	UB052220	Monolithic Ceramic Cap.	SL 220P 50V J			01
C508	UF037220	Electrolytic Cap. (chip)	22 16V			01
C509	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
C510	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
CN101	VT006000	Connector , FFC	52207 5P SE			02
CN102	VQ048500	Connector , FFC	52045 36P TE			02
-105	VQ048500	Connector , FFC	52045 36P TE			02
CN106	VR134300	Base Post	PH- 6P SE			01
* CN108	VR134500	Base Post	PH- 8P SE			
* CN109	VR134500	Base Post	PH- 8P SE			
* CN110	VR134400	Base Post	PH- 7P SE			
* CN111	VR134200	Base Post	PH- 5P SE			
CN301	VL536600	Connector Header	HIF3FC-50PA2.54DSA			03
CN502	VR134300	Base Post	PH- 6P SE			01
* CN503	VR134200	Base Post	PH- 5P SE			
CNGL1	VQ623900	Pin Header	HIF3H-10PB-2.54DSA			03
-3	VQ623900	Pin Header	HIF3H-10PB-2.54DSA			03
CNPGL	VT321500	Pin Header	A3E 44P TE			04
CNTI	VQ624000	Pin Header	HIF3H-12PB-2.54DSA			03
* D101	VT439400	LED	SLR-342VC3F RE			
D301	VR745300	LED	SLR-342MC3F GY			01
* D302	VT439400	LED	SLR-342VC3F RE			
D303	VS597600	Diode	RB160L-40 TE25			01
D304	VT532500	Diode	1SR154-400			01
D401	VT332900	Diode	1SS355 TE-17			01
D402	VT332900	Diode	1SS355 TE-17			01
DA401	VD303900	Diode Array	1SS226 TE85R			01
-406	VD303900	Diode Array	1SS226 TE85R			01
DA409	VD303900	Diode Array	1SS226 TE85R			01
-412	VD303900	Diode Array	1SS226 TE85R			01
DA501	VD303900	Diode Array	1SS226 TE85R			01
△ F301	KB003530	Fuse	1.00A JU			01
F301	VP206500	Fuse Holder	EYF-52BC			01
FB101	VZ007300	Chip Inductance	FBMJ3216HM600-T			
FB102	VZ007300	Chip Inductance	FBMJ3216HM600-T			
FB401	VQ723100	Chip Inductance	EXC CL3225U 3			01
FB404	VQ723100	Chip Inductance	EXC CL3225U 3			01
-409	VQ723100	Chip Inductance	EXC CL3225U 3			01
FB414	VQ723100	Chip Inductance	EXC CL3225U 3			01
-417	VQ723100	Chip Inductance	EXC CL3225U 3			01
FB501	VQ723100	Chip Inductance	EXC CL3225U 3			01

*: New Parts

RANK: Japan only

REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
-504	VQ723100	Chip Inductance	EXC CL3225U 3			01
FG501	VC719300	Terminal Plate	P-424			01
* IC101	XV731A00	IC	HD6477042AF28	CPU		
IC102	XM529A00	IC	M51957BFP	RESET		03
* IC103	XV923A00	IC	MBM29F400BC-70PF	FLASH MEMORY 4M		
IC104	XV145A00	IC	KM416C1200	DRAM 16M		12
IC107	XC725A00	IC	SN74HC14NSR	INVERTER		03
* IC108	XV927A00	IC	EPM7032STC44-7	FPGA		
* IC113	XV611A00	IC	HD74HC245FPV	TRANSCEIVER		
IC114	XL093A00	IC	HD74HC08FPEL	AND		01
* IC115	XV611A00	IC	HD74HC245FPV	TRANSCEIVER		
* IC116	XV611A00	IC	HD74HC245FPV	TRANSCEIVER		
IC117	XH497A00	IC	YM6604	ACIA		18
* IC118	XV733A00	IC	CY7C136-55NC	DPRAM		
* IC119	XV740A00	IC	CRVP08	GATE ARRAY		
* IC120	XV734A00	IC	SN74HC151NSR	DATA SELECTOR		
IC123	XG948E00	IC	YM3436DK	DIR2		11
IC124	XC726A00	IC	SN74HC74NSR	D-FF		01
IC125	XC723A00	IC	SN74HCU04NSR	INVERTER		01
IC126	XH600A00	IC	UPD71055GB-3B4	PIO		06
* IC127	XV618A00	IC	DS12887	REAL TIME CLOCK		
IC128	XH600A00	IC	UPD71055GB-3B4	PIO		06
IC129	XC726A00	IC	SN74HC74NSR	D-FF		01
IC130	XN515A00	IC	SN74HC153NSR	DATA SELECTOR		02
IC131	XN515A00	IC	SN74HC153NSR	DATA SELECTOR		02
IC132	XD830A00	IC	SN74HC04NSR	INVERTER		01
IC133	XD831A00	IC	SN74HC08NSR	AND		01
IC134	XP985A00	IC	SN74LS06NST-EL	INVERTER		
IC135	XC725A00	IC	SN74HC14NSR	INVERTER		03
IC136	XD833A00	IC	SN74HC32NSR	OR		01
* IC137	XV619A00	IC	ICS2008A	T.C.READER/GENERATOR		
IC138	XH746A00	IC	YM6029	DPB		11
IC139	XH746A00	IC	YM6029	DPB		11
IC140	XC726A00	IC	SN74HC74NSR	D-FF		01
IC141	XD831A00	IC	SN74HC08NSR	AND		01
IC142	XD830A00	IC	SN74HC04NSR	INVERTER		01
IC143	XG948E00	IC	YM3436DK	DIR2		11
IC144	XM530A00	IC	YM3437C-F	DIT2		07
* IC145	XV735A00	IC	SN74HC240NSR	INVERTER		
IC146	XD838A00	IC	SN74HC245NSR	BUFFER		04
-150	XD838A00	IC	SN74HC245NSR	BUFFER		04
IC151	XQ962D00	IC	YSS228E-F	DSP3		20
IC152	XQ962D00	IC	YSS228E-F	DSP3		20
* IC156	XV605A00	IC	CY7C024-15AC	} SRAM 64K		
* IC156	XW163A00	IC	IDT7024S15PF			
* IC157	XV605A00	IC	CY7C024-15AC	} SRAM 64K		
* IC157	XW163A00	IC	IDT7024S15PF			
IC158	XC723A00	IC	SN74HCU04NSR	INVERTER		01
IC159	XH494A00	IC	YM6067	PSC4		10
IC160	XS534A00	IC	NJM78M05DLA	REGULATOR +5V		02
* IC301	XV736A00	IC	HD6477043AF28	CPU		
* IC302	XV924A00	IC	MBM29F400BC-70PF	FLASH MEMORY 4M		
* IC303	XV925A00	IC	MBM29F400BC-70PF	FLASH MEMORY 4M		
IC304	XK452A00	IC	HD74AC32FPEL	OR		02
* IC305	XV613A00	IC	HD74AC245FPV	TRANSCEIVER		
* IC306	XV613A00	IC	HD74AC245FPV	TRANSCEIVER		
IC307	XP446A00	IC	HD74AC138FPEL	DECODER		03
* IC308	XV737A00	IC	KM416C4100B-6	} DRAM 64M		
* IC308	XV781A00	IC	KM416C4100A-6			
* IC309	XV737A00	IC	KM416C4100B-6	} DRAM 64M		
* IC309	XV781A00	IC	KM416C4100A-6			
* IC316	XV605A00	IC	CY7C024-15AC	} SRAM 64K		
* IC316	XW163A00	IC	IDT7024S15PF			
* IC317	XV928A00	IC	EPM7032STC44-7	FPGA		
* IC318	XU375A00	IC	UPD72611GF-3BA	SCSI CONTROLER		
* IC319	XV617A00	IC	BH9595FP-Y	SCSI TERMINATOR		
* IC320	XU277A00	IC	TMS320C32PCM60	DSP		
* IC321	XV738A00	IC	KM6164002A-15	} SRAM 4M		
* IC321	XV739A00	IC	CY7C1041-15VC			
* IC322	XV738A00	IC	KM6164002A-15	} SRAM 4M		

*: New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
* IC322	XV739A00	IC	CY7C1041-15VC			
* IC323	XV929A00	IC	EPM7032STC44-7	FPGA		
IC401	XS388A00	IC	AK4321	DAC		07
IC402	IG103520	IC	NJM4558MT-1	OP AMP		03
IC403	IG103520	IC	NJM4558MT-1	OP AMP		03
IC404	XQ138A00	IC	NJM4556AMT1	OP AMP		03
* IC405	XU069A00	IC	LM1881M	V SYNC.SEPARATOR		
IC406	XL106A00	IC	HD74HC123AFPTR	1SHOT		02
IC407	XQ830A00	IC	LM311MX	OP AMP		03
* IC408	XV930A00	IC	SN75124NSR	LINE RECEIVER		
IC409	XU816A00	IC	SN75121NSR	LINE DRIVER		05
IC410	XD831A00	IC	SN74HC08NSR	AND		01
IC411	XD833A00	IC	SN74HC32NSR	OR		01
IC412	XQ138A00	IC	NJM4556AMT1	OP AMP		03
IC413	XQ830A00	IC	LM311MX	OP AMP		03
IC414	XQ138A00	IC	NJM4556AMT1	OP AMP		03
IC415	XJ704A00	IC	SN75176BPS	LINE DRIVER		08
* IC416	XN514A00	IC	SN74HC126NSR	BUS BUFFER		
IC417	VN406200	Photo Coupler	HCPL-0600-500			05
IC418	XC725A00	IC	SN74HC14NSR	INVERTER		03
IC419	XP985A00	IC	SN74LS06NST-EL	INVERTER		
IC420	XU073A00	IC	SN75C1168NSR	LINE DRIVER		05
IC421	XD831A00	IC	SN74HC08NSR	AND		01
IC422	XD831A00	IC	SN74HC08NSR	AND		01
IC423	XD655A00	IC	TC74HC00AF	NAND		01
IC424	XD833A00	IC	SN74HC32NSR	OR		01
IC501	XC723A00	IC	SN74HCU04NSR	INVERTER		01
JK10	VS133800	XLR Connector	NC3FAH1-0	TIME CODE INPUT		04
JK11	VS133700	XLR Connector	NC3MAH	TIME CODE OUTPUT		04
* JK12	VS166600	Pin Jack	2P	COAXIAL OUTPUT/INPUT		
JK101	VT362400	Connector Socket	17LE 15P SE	REMOTE IN/SYNC IN		04
JK102	VT362400	Connector Socket	17LE 15P SE	SYNC OUT		04
* JK103	V3584100	Connector Socket	17LE 9P SE	RERIAL I/O		04
JK104	VT890000	SCSI Connector	NHS050-022-BS2	SCSI		05
JK105	VI466400	DIN Connector	3P YKF51-5046	MIDI(IN,OUT,THRU)		04
JK106	VI552200	BNC Connector	YKS11-01P	WORD CLOCK INPUT/OUTPUT		05
-109	VI552200	BNC Connector	YKS11-01P	VIDEO INPUT/OUTPUT		05
L101	VS740100	Chip Inductance	BLM21B751S 2125			03
L102	VS740100	Chip Inductance	BLM21B751S 2125			03
L104	VS740100	Chip Inductance	BLM21B751S 2125			03
-115	VS740100	Chip Inductance	BLM21B751S 2125			03
L116	VU374000	Chip Inductance	ELJFA2R2 KF2			01
L117	VU374000	Chip Inductance	ELJFA2R2 KF2			01
L118	VS740100	Chip Inductance	BLM21B751S 2125			03
L119	VS740100	Chip Inductance	BLM21B751S 2125			03
L121	VS740100	Chip Inductance	BLM21B751S 2125			03
L122	VS740100	Chip Inductance	BLM21B751S 2125			03
L301	VS740100	Chip Inductance	BLM21B751S 2125			03
L303	VS740100	Chip Inductance	BLM21B751S 2125			03
L305	VS740100	Chip Inductance	BLM21B751S 2125			03
L306	VS740100	Chip Inductance	BLM21B751S 2125			03
PT501	VC548200	Coil	TC-1019-06 7mm			04
Q501	VV556500	Transistor	2SA1037K Q,R,S			01
Q502	VV556400	Transistor	2SC2412K Q,R,S			01
R101	RD255220	Carbon Resistor (chip)	220.0 0.1 J			01
R102	RD255220	Carbon Resistor (chip)	220.0 0.1 J			01
R103	RD256330	Carbon Resistor (chip)	3.3K 0.1 J			01
R104	RD256390	Carbon Resistor (chip)	3.9K 0.1 J			01
R105	RD256150	Carbon Resistor (chip)	1.5K 0.1 J			01
R106	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R107	RD254220	Carbon Resistor (chip)	22.0 0.1 J			01
R108	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R109	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
R112	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R113	RD256330	Carbon Resistor (chip)	3.3K 0.1 J			01
R114	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
R115	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R116	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R117	RD257150	Carbon Resistor (chip)	15.0K 0.1 J			01
R118	VI197400	Carbon Resistor (chip)	10.0K 0.1 J			01

*: New Parts

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REF.NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
R119	RD257330	Carbon Resistor (chip)	33.0K 0.1 J		01
R120	VI198500	Carbon Resistor (chip)	30K 0.1 J		01
R121	RD259100	Carbon Resistor (chip)	1.0M 0.1 J		01
R122	RD258100	Carbon Resistor (chip)	100.0K 0.1 J		01
R123	RD258100	Carbon Resistor (chip)	100.0K 0.1 J		01
R124	RD257150	Carbon Resistor (chip)	15.0K 0.1 J		01
R125	VI197400	Carbon Resistor (chip)	10.0K 0.1 J		01
R126	RD257330	Carbon Resistor (chip)	33.0K 0.1 J		01
R127	VI198500	Carbon Resistor (chip)	30K 0.1 J		01
R128	RD259100	Carbon Resistor (chip)	1.0M 0.1 J		01
R133	RD255220	Carbon Resistor (chip)	220.0 0.1 J		01
R134	RD259100	Carbon Resistor (chip)	1.0M 0.1 J		01
R135	RD255220	Carbon Resistor (chip)	220.0 0.1 J		01
R136	RD259100	Carbon Resistor (chip)	1.0M 0.1 J		01
R137	RD256220	Carbon Resistor (chip)	2.2K 0.1 J		01
-139	RD256220	Carbon Resistor (chip)	2.2K 0.1 J		01
R140	RD256330	Carbon Resistor (chip)	3.3K 0.1 J		01
R141	RD255100	Carbon Resistor (chip)	100.0 0.1 J		01
R142	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R301	RD255220	Carbon Resistor (chip)	220.0 0.1 J		01
R302	RD255220	Carbon Resistor (chip)	220.0 0.1 J		01
R303	RD256330	Carbon Resistor (chip)	3.3K 0.1 J		01
R304	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R305	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R306	RD255470	Carbon Resistor (chip)	470.0 0.1 J		01
R307	RD255470	Carbon Resistor (chip)	470.0 0.1 J		01
R308	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R309	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R401	RD254100	Carbon Resistor (chip)	10.0 0.1 J		01
R402	RD256510	Carbon Resistor (chip)	5.1K 0.1 J		01
R403	RD257180	Carbon Resistor (chip)	18.0K 0.1 J		01
R404	RD256330	Carbon Resistor (chip)	3.3K 0.1 J		01
R405	RD256240	Carbon Resistor (chip)	2.4K 0.1 J		01
R406	RD258100	Carbon Resistor (chip)	100.0K 0.1 J		01
R407	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
-409	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R410	RD258100	Carbon Resistor (chip)	100.0K 0.1 J		01
R411	RD256510	Carbon Resistor (chip)	5.1K 0.1 J		01
R412	RD257180	Carbon Resistor (chip)	18.0K 0.1 J		01
R413	RD256330	Carbon Resistor (chip)	3.3K 0.1 J		01
R414	RD256240	Carbon Resistor (chip)	2.4K 0.1 J		01
R415	RD258100	Carbon Resistor (chip)	100.0K 0.1 J		01
R416	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
-418	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R419	RD258100	Carbon Resistor (chip)	100.0K 0.1 J		01
R420	RD255470	Carbon Resistor (chip)	470.0 0.1 J		01
R421	RD255620	Carbon Resistor (chip)	620.0 0.1 J		01
R422	RD258680	Carbon Resistor (chip)	680.0K 0.1 J		01
R423	RD256100	Carbon Resistor (chip)	1.0K 0.1 J		01
R424	RD256620	Carbon Resistor (chip)	6.2K 0.1 J		01
* R425	RD258130	Carbon Resistor (chip)	130.0K 0.1 J		01
R426	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R427	RD257120	Carbon Resistor (chip)	12.0K 0.1 J		01
R428	RD256100	Carbon Resistor (chip)	1.0K 0.1 J		01
R429	RD254470	Carbon Resistor (chip)	47.0 0.1 J		01
R430	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R431	RD256220	Carbon Resistor (chip)	2.2K 0.1 J		01
R432	RD256330	Carbon Resistor (chip)	3.3K 0.1 J		01
R433	RD256330	Carbon Resistor (chip)	3.3K 0.1 J		01
R434	RD257330	Carbon Resistor (chip)	33.0K 0.1 J		01
R435	RD257330	Carbon Resistor (chip)	33.0K 0.1 J		01
R436	RD256100	Carbon Resistor (chip)	1.0K 0.1 J		01
R437	RD256100	Carbon Resistor (chip)	1.0K 0.1 J		01
R438	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R439	RD256470	Carbon Resistor (chip)	4.7K 0.1 J		01
R440	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R441	RD256100	Carbon Resistor (chip)	1.0K 0.1 J		01
R442	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
-445	RD257100	Carbon Resistor (chip)	10.0K 0.1 J		01
R446	RD257220	Carbon Resistor (chip)	22.0K 0.1 J		01

*: New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R447	RD257220	Carbon Resistor (chip)	22.0K 0.1 J			01
R448	RD255330	Carbon Resistor (chip)	330.0 0.1 J			01
R449	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R450	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R451	RD257220	Carbon Resistor (chip)	22.0K 0.1 J			01
R452	RD257220	Carbon Resistor (chip)	22.0K 0.1 J			01
R453	RD255330	Carbon Resistor (chip)	330.0 0.1 J			01
R454	RD257200	Carbon Resistor (chip)	20.0K 0.1 J			01
R455	RD257200	Carbon Resistor (chip)	20.0K 0.1 J			01
R456	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
R457	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
R458	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R459	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R460	RD255150	Carbon Resistor (chip)	150.0 0.1 J			01
R461	RD254100	Carbon Resistor (chip)	10.0 0.1 J			01
R462	RD254100	Carbon Resistor (chip)	10.0 0.1 J			01
R463	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R464	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R465	RD256100	Carbon Resistor (chip)	1.0K 0.1 J			01
R466	RD256100	Carbon Resistor (chip)	1.0K 0.1 J			01
R467	RD255150	Carbon Resistor (chip)	150.0 0.1 J			01
R468	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R475	RD255220	Carbon Resistor (chip)	220.0 0.1 J			01
R476	RD256100	Carbon Resistor (chip)	1.0K 0.1 J			01
R477	RD255220	Carbon Resistor (chip)	220.0 0.1 J			01
R478	RD255220	Carbon Resistor (chip)	220.0 0.1 J			01
R479	RD255180	Carbon Resistor (chip)	180.0 0.1 J			01
R480	RD255180	Carbon Resistor (chip)	180.0 0.1 J			01
R481	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R482	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R501	RD254750	Carbon Resistor (chip)	75.0 0.1 J			01
R502	RD257220	Carbon Resistor (chip)	22.0K 0.1 J			01
R503	RD257220	Carbon Resistor (chip)	22.0K 0.1 J			01
R504	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
R505	RD256100	Carbon Resistor (chip)	1.0K 0.1 J			01
R506	RD255470	Carbon Resistor (chip)	470.0 0.1 J			01
R507	RD256100	Carbon Resistor (chip)	1.0K 0.1 J			01
R508	RD255220	Carbon Resistor (chip)	220.0 0.1 J			01
R509	RD254750	Carbon Resistor (chip)	75.0 0.1 J			01
R510	RD256150	Carbon Resistor (chip)	1.5K 0.1 J			01
R511	RD256220	Carbon Resistor (chip)	2.2K 0.1 J			01
R512	RD254750	Carbon Resistor (chip)	75.0 0.1 J			01
R513	RD254470	Carbon Resistor (chip)	47.0 0.1 J			01
R514	RD254750	Carbon Resistor (chip)	75.0 0.1 J			01
R515	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R516	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R517	RD256470	Carbon Resistor (chip)	4.7K 0.1 J			01
R518	RD256220	Carbon Resistor (chip)	2.2K 0.1 J			01
RA101	RE047100	Resistor Array	10KX4			01
-109	RE047100	Resistor Array	10KX4			01
RA111	RE046470	Resistor Array	4.7KX4			01
RA112	RE047100	Resistor Array	10KX4			01
-117	RE047100	Resistor Array	10KX4			01
RA118	RE046100	Resistor Array	1KX4			01
RA119	RE047100	Resistor Array	10KX4			01
RA301	RE047100	Resistor Array	10KX4			01
-310	RE047100	Resistor Array	10KX4			01
RA311	RE046100	Resistor Array	1KX4			01
RA312	RE046100	Resistor Array	1KX4			01
RL401	KC001900	Relay	DC RY12W 12V			07
SW101	VT513600	Light Touch Switch	EVQ 22C 05B			01
SW102	VP804700	Slide Switch	SSSS2-12-01			01
SW301	VP804700	Slide Switch	SSSS2-12-01			01
SW501	VV104500	Slide Switch	SSSF122-S06N0	VIDEO 75 ohm ON/OFF		01
SW502	VV104500	Slide Switch	SSSF122-S06N0	WORD CLOCK 75ohm TERM/THR		01
VC101	VU384000	Diode	HVM17			02
VC102	VU384000	Diode	HVM17			02
VR401	VA787900	Trimmer Potentiometer	B 4.7K 3P RHE			01
XC101	VZ568300	Quartz Crystal Unit	24.576MHz DSO751S			06
XC102	VZ568200	Quartz Crystal Unit	22.5792MHz DSO751S			06

*: New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
XC103	VZ156100	Quartz Crystal Unit	60MHz DSO751S			06
XC301	VV349100	Quartz Crystal Unit	20.0MHz DSO751S			08
XL101	VV762900	Quartz Crystal Unit	7MHz SMD-49			03
* XL102	VZ751900	Quartz Crystal Unit	14.31818MHz SMD-49			
XL301	VV762900	Quartz Crystal Unit	7MHz SMD-49			03
* V3268200	V3268200	Circuit Board	PS 1/2	J,U,C,V (XV520B0)		
* V3268400	V3268400	Circuit Board	PS 1/2	H,W,B (XV620B0)		
* V3268300	V3268300	Circuit Board	PS 2/2	J,U,C,V (XV520B0)		
* V3268500	V3268500	Circuit Board	PS 2/2	H,W,B (XV620B0)		
VA078900	VA078900	Jumper Wire	0.55		77	
C1	FG644100	Ceramic Capacitor-F	0.01 50V Z			01
C2	FG644100	Ceramic Capacitor-F	0.01 50V Z			01
C3	UR866470	Electrolytic Cap.	4.70 50.0V			01
C4	UR818220	Electrolytic Cap.	220.00 6.3V			
C5	UR857470	Electrolytic Cap.	47.00 35.0V			01
C6	UR858100	Electrolytic Cap.	100.00 35.0V			01
C7	UR858100	Electrolytic Cap.	100.00 35.0V			01
* C8	V3582300	Electrolytic Cap.	10000 25.0V			
* C9	V3582300	Electrolytic Cap.	10000 25.0V			
C10	UR858100	Electrolytic Cap.	100.00 35.0V			01
-15	UR838100	Electrolytic Cap.	100.00 16.0V			01
C16	VT439600	Monolithic Ceramic Cap.	0.1 50V Z			01
C17	UR838100	Electrolytic Cap.	100.00 16.0V			01
-21	UR858100	Electrolytic Cap.	100.00 35.0V			01
C22	UR868220	Electrolytic Cap.	220.00 50.0V			
C23	UR867100	Electrolytic Cap.	10.00 50.0V			01
C24	UR867100	Electrolytic Cap.	10.00 50.0V			01
C25	FG644100	Ceramic Capacitor-F	0.01 50V Z			01
-28	FG644100	Ceramic Capacitor-F	0.01 50V Z			01
* C29	V3582400	Electrolytic Cap.	22000 16.0V			
C30	UR838100	Electrolytic Cap.	100.00 16.0V			01
C31	UR838100	Electrolytic Cap.	100.00 16.0V			01
C32	FG644100	Ceramic Capacitor-F	0.01 50V Z			01
-35	FG644100	Ceramic Capacitor-F	0.01 50V Z			01
* C36	V3582400	Electrolytic Cap.	22000 16.0V			
C37	UR838100	Electrolytic Cap.	100.00 16.0V			01
C38	UR838100	Electrolytic Cap.	100.00 16.0V			01
* C39	V3582400	Electrolytic Cap.	22000 16.0V			
C40	UR838100	Electrolytic Cap.	100.00 16.0V			01
C41	UR838100	Electrolytic Cap.	100.00 16.0V			01
C46	FR203100	Capacitor	0.1u JUCS			03
C47	FR203100	Capacitor	0.1u JUCS			03
C48	UR839470	Electrolytic Cap.	4700 16.0V			03
CN1	LB932040	Base Post Connector	VH- 4P TE			01
CN2	LB932070	Base Post Connector	VH- 7P TE			01
CN3	VB390200	Connector Base Post	PH- 6P TE			01
CN4	VB390800	Connector Base Post	PH-12P TE			01
CN5	LB932050	Base Post Connector	VH- 5P TE			01
CN6	VB390400	Connector Base Post	PH- 8P TE			01
CN7	VB390100	Connector Base Post	PH- 5P TE			01
CN8	VB390300	Connector Base Post	PH- 7P TE			01
CN10	VG879900	Base Post Connector	VA- 2P TE			01
-12	VG879900	Base Post Connector	VA- 2P TE			01
CN13	VB389900	Connector Base Post	PH- 3P TE			01
D1	VB941200	Diode	1SS133,1SS176			01
-8	VB941200	Diode	1SS133,1SS176			01
D9	VN011300	Diode Stack	D3SBA20 4.0A 200V			03
D10	VU652800	Diode	1SR139-400 T-31			01
* D11	VQ558600	Zener Diode	MTZ J 33.0C 33.0V			
* D12	V3222600	Zener Diode	MA2075B 7.5V			
D13	VN011300	Diode Stack	D3SBA20 4.0A 200V			03
D14	VU652800	Diode	1SR139-400 T-31			01
D15	VL834300	Diode Stack	RBV-602 LF-B 6.0A			03
D16	VU652800	Diode	1SR139-400 T-31			01
D17	VU652800	Diode	1SR139-400 T-31			01
EMI1	FZ006970	LC Filter	LS MT Y223NB			02
-8	FZ006970	LC Filter	LS MT Y223NB			02
F1	KB003630	Fuse	5.00A JU	J,U,C,V		01
F1	KB003100	Fuse	4.00A S	H,W,B		01

* : New Parts

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REF.NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK	
△	F2	KB003630	Fuse	5.00A JU		J,U,C,V	01
△	F2	KB003100	Fuse	4.00A S		H,W,B	01
△	F3	KB003630	Fuse	5.00A JU		J,U,C,V	01
△	F3	KB003100	Fuse	4.00A S		H,W,B	01
△	F4	KB003630	Fuse	5.00A JU		J,U,C,V	01
△	F4	KB003100	Fuse	4.00A S		H,W,B	01
△	F5	KB003720	Fuse	7.00A JU		J,U,C,V	01
△	F5	KB003250	Fuse	6.30A S		H,W,B	01
	FH1	VP206500	Fuse Holder	EYF-52BC			01
	-10	VP206500	Fuse Holder	EYF-52BC			01
	IC1	XJ608A00	IC	NJM7812FA		REGULATOR +12V	02
	IC2	XD853A00	IC	NJM7815FA		REGULATOR +15V	03
	IC3	XD854A00	IC	NJM7915FA		REGULATOR -15V	03
	IC4	XJ607A00	IC	NJM7805FA		REGULATOR +5V	02
	IC5	XK309A00	IC	NJM7905FA		REGULATOR -5V	03
	IC6	XH672A00	IC	PQ05RF2		REGULATOR +5V	04
	IC7	XM482A00	IC	STR9005		REGULATOR +5V	07
	IC8	XM482A00	IC	STR9005		REGULATOR +5V	07
	L1	VZ677000	Line Filter	PLH11A1811R2P01B1			03
	LA1	BB069510	Angle				01
	LA2	BB069510	Angle				01
	Q1	IC174070	Transistor	2SC1740S R,S			01
	Q2	VD678500	Digital Transistor	DTA114ES			01
	Q3	VZ580200	Transistor	2SA1533			01
	R1	HV754680	Flame Proof C. Resistor	68.0 1/4 J			01
	R2	HF755680	Carbon Resistor	680.0 1/4 J			01
	R3	HF757470	Carbon Resistor	47.0K 1/4 J			01
	R4	HF756330	Carbon Resistor	3.3K 1/4 J			01
	R5	HF756330	Carbon Resistor	3.3K 1/4 J			01
	R6	HF758100	Carbon Resistor	100.0K 1/4 J			01
	R7	HF757330	Carbon Resistor	33.0K 1/4 J			01
	R8	HF756100	Carbon Resistor	1.0K 1/4 J			01
	R9	VC757500	Metal Oxide Film Resistor	33.0 2W J			01
*		V3268800	Circuit Board	SUB(BAY)		(XV517C0)	
*		V3268700	Circuit Board	SUB(PANEL)		(XV517C0)	
	C701	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
	C702	UB051100	Monolithic Ceramic Cap.	SL 10P 50V D			01
	C703	UB051100	Monolithic Ceramic Cap.	SL 10P 50V D			01
	C704	US062470	Multilayer Ceramic Cap.Chi	470P 50V J			01
	C705	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
	-720	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
	C721	UB044100	Monolithic Ceramic Cap.	F 0.01 50V Z			01
	-726	UB044100	Monolithic Ceramic Cap.	F 0.01 50V Z			01
	C727	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
	-729	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
	C730	UF066100	Electrolytic Cap. (chip)	1 50V			01
	C731	UB045100	Monolithic Ceramic Cap.	F 0.1 50V Z			01
	C732	UF018100	Electrolytic Cap. (chip)	100 6.3V			01
	CN701	VB390100	Connector Base Post	PH- 5P TE			01
	CN702	VT006000	Connector, FFC	52207 5P SE			02
*	CN703	VZ991900	Connector, FFC	52207 6P SE			
	CN704	VP682300	Connector, FFC	52045 8P SE			01
	CN705	VP327200	Connector, FFC	52045 30P TE			01
	CN706	VB390700	Connector Base Post	PH-11P TE			01
	CN707	VB390600	Connector Base Post	PH-10P TE			01
	CN708	VB390200	Connector Base Post	PH- 6P TE			01
	CN709	VB390200	Connector Base Post	PH- 6P TE			01
	CN711	VU328200	Plug	PHEC 100P TE		SLOT 1-4	05
	-714	VU328200	Plug	PHEC 100P TE			05
	CN715	VQ048500	Connector, FFC	52045 36P TE			02
	-718	VQ048500	Connector, FFC	52045 36P TE			02
	CN719	VB390800	Connector Base Post	PH-12P TE			01
	IC701	XU147A00	IC	HD6417014F28		CPU	09
	IC702	XM529A00	IC	M51957BFP		RESET	03
*	IC703	XV926A00	IC	MBM29F400BC-70PF		FLASH MEMORY 4M	
	IC704	XV145A00	IC	KM416C1200		DRAM 16M	12
	IC705	XD833A00	IC	SN74HC32NSR		OR	01
	IC706	XD835A00	IC	SN74HC138NSR		DECODER	02
	IC707	XL342A00	IC	HD74HC374FPEL		LATCH	03

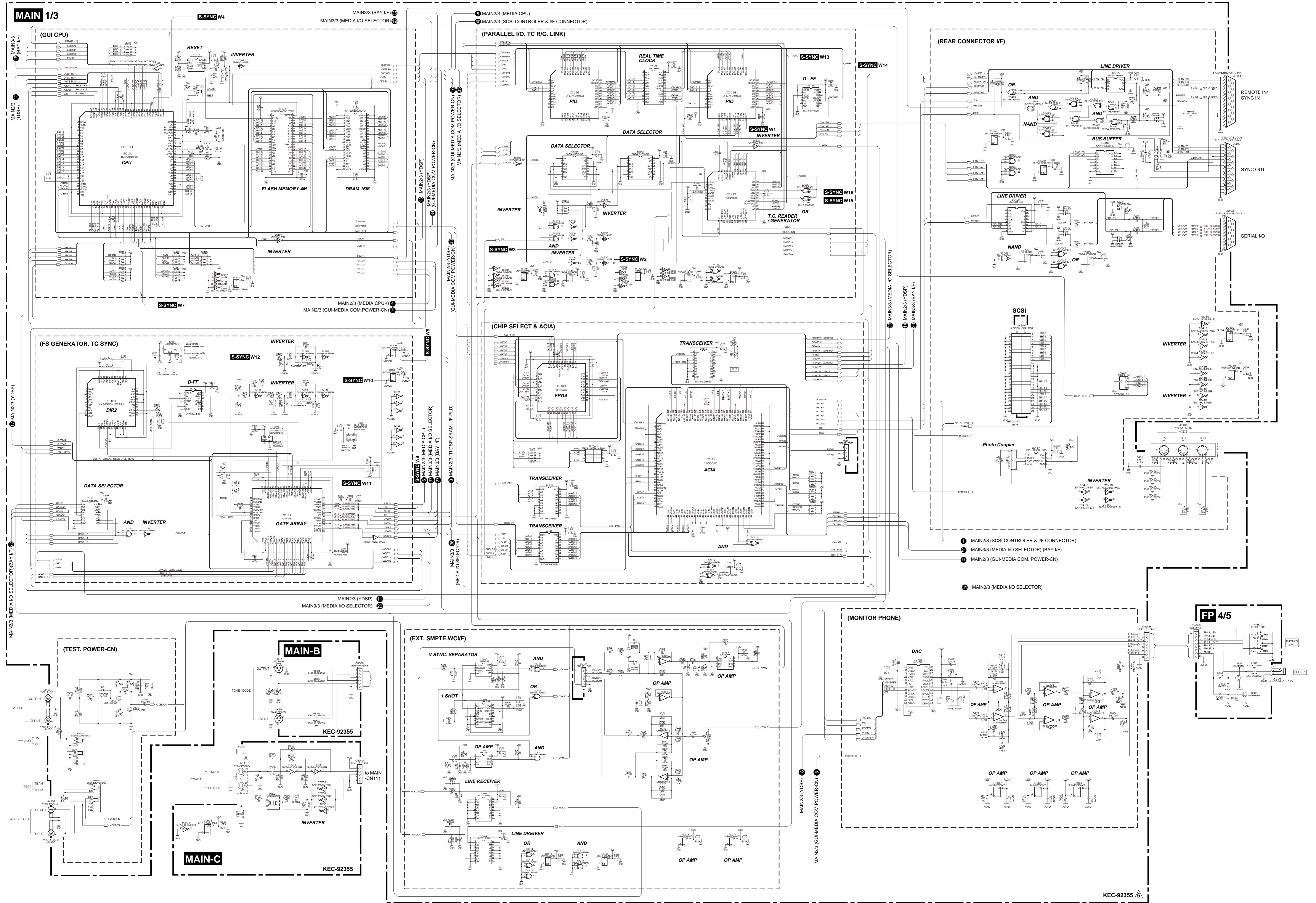
*: New Parts

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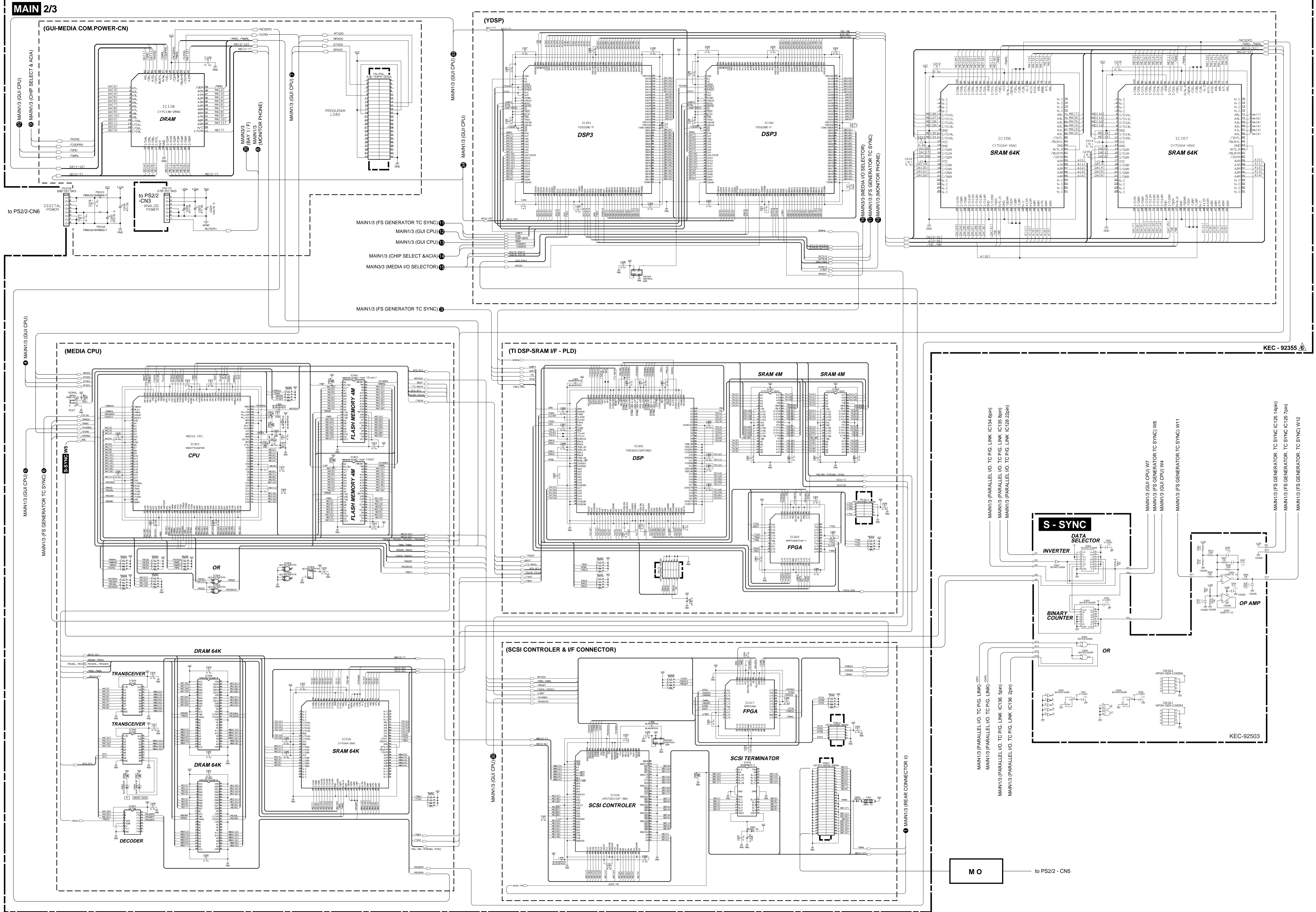
REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
IC708	XD835A00	IC	SN74HC138NSR	DECODER		02
IC709	XD838A00	IC	SN74HC245NSR	BUFFER		04
IC710	XD835A00	IC	SN74HC138NSR	DECODER		02
IC711	VT943400	Transistor Array	TD62785F(TP1)			04
IC712	XH223A00	IC	SN74HC273NSR	D-FF		01
IC713	VQ248500	Transistor Array	TD62381F			04
IC714	VQ248500	Transistor Array	TD62381F			04
IC715	XC725A00	IC	SN74HC14NSR	INVERTER		03
IC716	XC725A00	IC	SN74HC14NSR	INVERTER		03
L701	VS740100	Chip Inductance	BLM21B751S 2125			03
L702	VQ724900	Chip Inductance	BK2125HM601-T			01
-705	VQ724900	Chip Inductance	BK2125HM601-T			01
L711	VS740100	Chip Inductance	BLM21B751S 2125			03
-715	VS740100	Chip Inductance	BLM21B751S 2125			03
R701	RD255220	Carbon Resistor (chip)	220.0 0.1 J			01
R702	RD255220	Carbon Resistor (chip)	220.0 0.1 J			01
R703	RD256330	Carbon Resistor (chip)	3.3K 0.1 J			01
R704	RD256390	Carbon Resistor (chip)	3.9K 0.1 J			01
R705	RD256150	Carbon Resistor (chip)	1.5K 0.1 J			01
R706	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R707	RD254220	Carbon Resistor (chip)	22.0 0.1 J			01
R708	RD254560	Carbon Resistor (chip)	56.0 0.1 J			01
-715	RD254560	Carbon Resistor (chip)	56.0 0.1 J			01
R716	RD255330	Carbon Resistor (chip)	330.0 0.1 J			01
R717	RD255330	Carbon Resistor (chip)	330.0 0.1 J			01
R718	RD255120	Carbon Resistor (chip)	120.0 0.1 J			01
R719	RD255120	Carbon Resistor (chip)	120.0 0.1 J			01
R720	RD255240	Carbon Resistor (chip)	240.0 0.1 J			01
R721	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
-726	RD258100	Carbon Resistor (chip)	100.0K 0.1 J			01
R727	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R728	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
RA701	RE047100	Resistor Array	10KX4			01
-709	RE047100	Resistor Array	10KX4			01
SW701	VT513600	Light Touch Switch	EVQ 22C 05B			01
SW702	VP804700	Slide Switch	SSSS2-12-01	TEST/NOMAL		01
* XL701	VZ683900	Quartz Crystal Unit	6.144MHz SMD-49			
*	V5195300	Circuit Board	S-SYNC	(XY230A0)		
--		Spacer	KGPS-14RF	(VG85200)		
--		Cable Assembly	SIGNAL	(V518840)		
--		Cable Assembly	POWER	(V518880)		
C601	UB044100	Monolithic Ceramic Cap.	F 0.01 50V Z			01
-605	UB044100	Monolithic Ceramic Cap.	F 0.01 50V Z			01
C606	VR327400	Mylar Capacitor (Chip)	0.1 16V J			01
C607	VR327400	Mylar Capacitor (Chip)	0.1 16V J			01
C608	VR326600	Mylar Capacitor (Chip)	0.022 16V J			01
C609	UB044100	Monolithic Ceramic Cap.	F 0.01 50V Z			01
CNGL1	VQ624300	Receptacle	HIF3H-10DA-2.54DSA			03
CNGL3	VQ624300	Receptacle	HIF3H-10DA-2.54DSA			03
IC601	XC725A00	IC	SN74HC14NSR	INVERTER		03
IC602	XN515A00	IC	SN74HC153NSR	DATA SELECTOR		02
IC603	XM161A00	IC	SN74HC163NSR	BINARY COUNTER		03
IC604	XS511A00	IC	NJM2115M-T1	OP AMP		02
IC605	XD833A00	IC	SN74HC32NSR	OR		02
R601	RD257100	Carbon Resistor (chip)	10.0K 0.1 J			01
R602	VI197400	Carbon Resistor (chip)	10.0K 1/10 D			01
R603	VI197400	Carbon Resistor (chip)	10.0K 1/10 D			01
R604	VI196600	Carbon Resistor (chip)	4.7K 1/10 D			01
R605	VI196600	Carbon Resistor (chip)	4.7K 1/10 D			01
R606	VI197400	Carbon Resistor (chip)	10.0K 1/10 D			01
R607	VI197400	Carbon Resistor (chip)	10.0K 1/10 D			01
R608	VI200000	Carbon Resistor (chip)	100.0K 1/10 D			01
R609	VI197400	Carbon Resistor (chip)	10.0K 1/10 D			01
R610	VI581800	Carbon Resistor (chip)	220.0K 1/10 D			01
△*	XU676A00	Power Transformer		J		
△*	XU677A00	Power Transformer	UL CSA	U,C,V		
△*	XU678A00	Power Transformer	CEE	H,W,B		

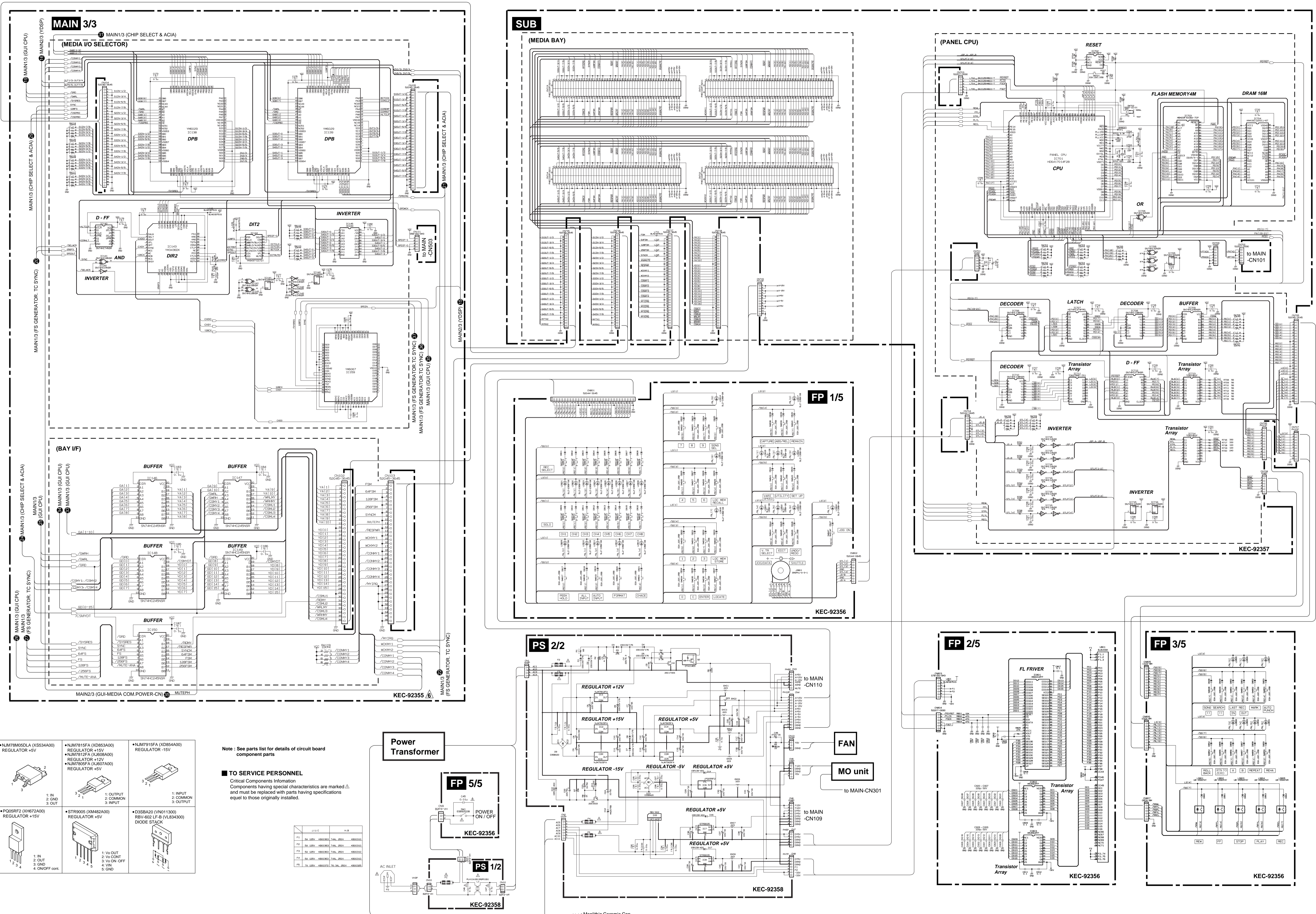
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- 1 MAIN2/3 (SCSI CONTROLLER & I/F CONNECTOR)
- 2 MAIN3/3 (MEDIA I/O SELECTOR) (BAY I/F)
- 3 MAIN2/3 (GUI-MEDIA COM. POWER-CN)
- 4 MAIN3/3 (MEDIA I/O SELECTOR)





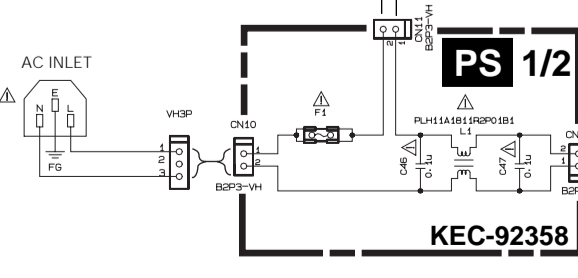
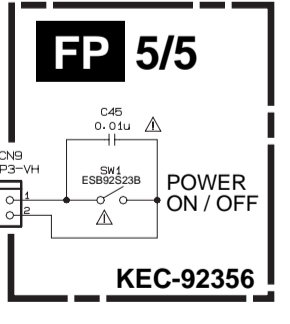
- NUM7890SLA (XSS34A00) REGULATOR +5V
- NUM7815FA (XD833A00) REGULATOR +15V
- NUM7812FA (XJ608A00) REGULATOR +12V
- NUM7805FA (XJ607A00) REGULATOR +5V
- P008RF2 (XH672A00) REGULATOR +15V
- STR9005 (XM482A00) REGULATOR +5V
- D33BA20 (VN011300) RBV-602 LF-B (VL834300) DIODE STACK

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

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

IC	UIC	HLB
U1	SA12V_000300	SA12V_000300
U2	SA15V_000300	SA15V_000300
U3	SA15V_000300	SA15V_000300
U4	SA12V_000300	SA12V_000300
U5	SA12V_000300	SA12V_000300

Power Transformer



(e) : Multilithic Ceramic Cap.
(f) : Flame Proof Carbon Resistor