

M-120

LINE MIXER

SERVICE NOTES

First Edition

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SPECIFICATIONS

Frequency Response	: 20Hz - 20kHz (±1dB)	Dimensions	: 482 (W) x 281 (D) x 44 (H) mm 19" (W) x 11-1/16" (D) x 1-3/4" (H)
Total Harmonic Distortion	: 0.05 % or less (20Hz - 20 kHz rated output)	Weight	: 3.9 kg/ 8 lb. 10 oz.
Noise Level	(Input Shorted, IHF-A, Typ.)	Accessories	: Owner's Manual
Equivalent Input Noise	: -123 dBm	English	(Part No. 7119622400)
Residual Noise	: -103 dBm [All Volume : min.] - 85 dBm [Master Volume : max.] - 79 dBm [All channel Volume : min.] [Master Volume : max.] [All Channel Volume : max.]	Japanese	(Part No. 7119622100)
Crosstalk	: - 70 dB or less (1 kHz between channels) - 60 dB or less (1 kHz between L and R)		
Power Consumption	: 14 W 100V : 16 W 117V/220V/240V		

SPECIFICATIONS

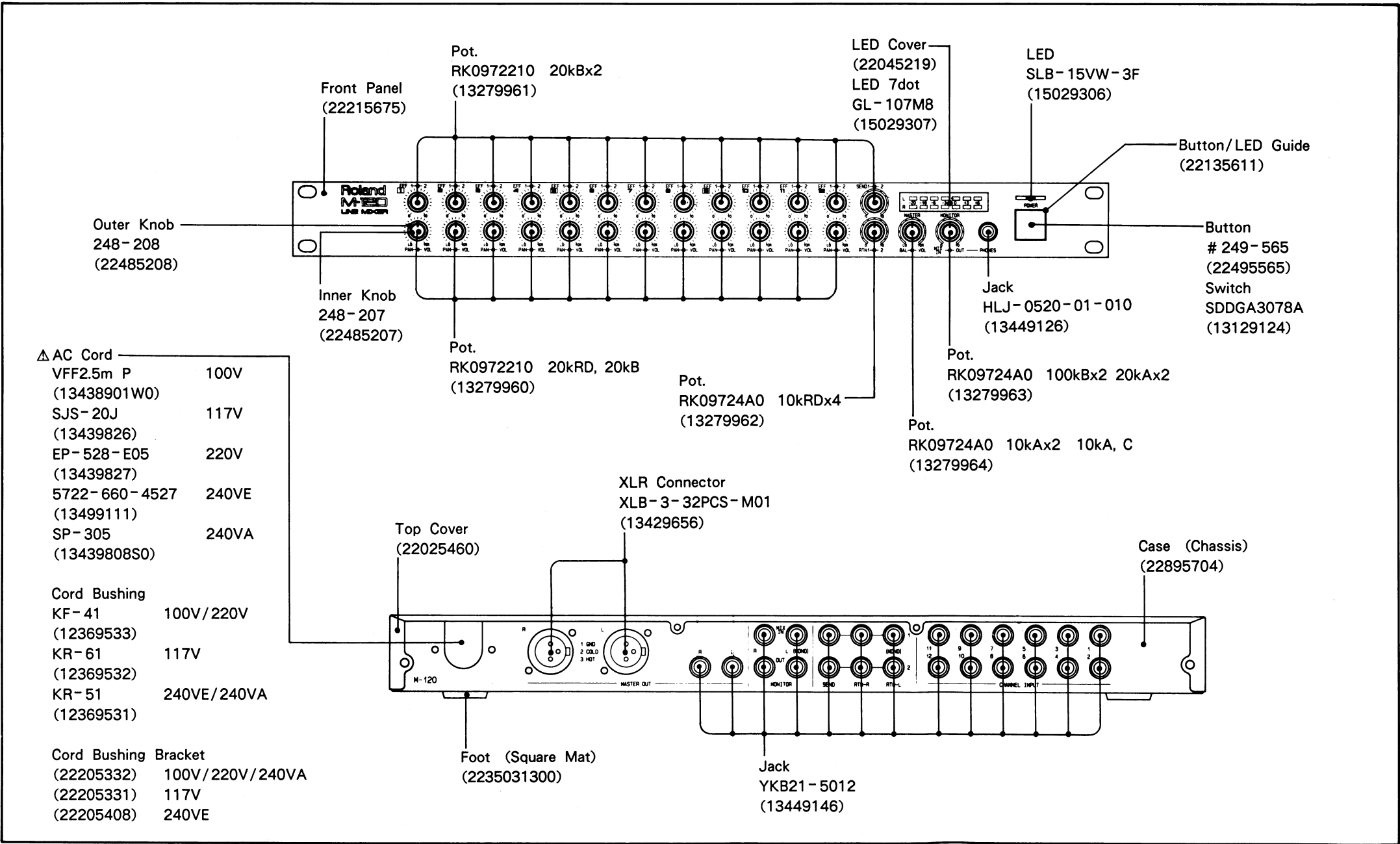
Input Standard

Input Socket		Input Sensitivity	Rated Input Level	Input Impedance	Recommended Source Impedance	Type of Connectors
CHANNEL INPUT	CH1-12 (PHONE-UNBAL)	-26 dBm (38.8 mV)	-20 dBm (77.5 mV)	20 kΩ	Less than 2 kΩ	PHONE
RETURN	1.(L,R) 2.(L,R)	-26 dBm (38.8 mV)	-20 dBm (77.5 mV)	20 kΩ	Less than 2 kΩ	PHONE
MONITOR MIX IN	L,R	-26 dBm (38.8 mV)	-20 dBm (77.5 mV)	10 kΩ	Less than 1 kΩ	PHONE

Output Standard

Output Socket		Rated Output Level	Non-Clip Max. Output	Output Impedance	Recommended Load Impedance	Type of Connectors
MASTER OUT	BALANCED	+4 dBm (1.23 V) ^{*1}	+20 dBm (7.75 V) ^{*1}	600 Ω	More than 600 Ω	XLR-3-32 (XLR Connector)
	UNBALANCED	+4 dBm (1.23 V)	+20 dBm (7.75 V)	300 Ω	More than 3 kΩ	PHONE
SEND	1,2	-20 dBm (77.5 mV)	-4 dBm (489 mV)	330 Ω	More than 3 kΩ	PHONE
MONITOR OUT		+4 dBm (1.23 V)	+20 dBm (7.75 V)	3.3 kΩ	More than 6 kΩ	PHONE
PHONES			70 mW+70 mW ^{*2}	100 Ω	More than 8 Ω	STEREO PHONE

@ : 0 dBm=0.775 Vrms
*1 : 600 Ω Loaded
*2 : Both Channels 100 Ω Loaded



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

EXPLODED VIEW / 分解図

- | | | |
|-----|------------|------------------------------------|
| 1. | 22485207 | Inner Knob 248-207 |
| 2. | 22485208 | Outer Knob 248-208 |
| 3. | 22495565 | Button #249-565 POWER |
| 4. | 22215675 | Front Panel |
| 5. | 22045219 | LED Cover |
| 6. | 22205411 | JK Holder |
| 7. | 22205409 | Front Holder |
| 8. | 7119640000 | VR Board (pcb 2292581400 2/4) |
| 9. | 22245554 | LED Mask #554 |
| 10. | 7119632400 | LED Board (pcb 2292581300 3/3) |
| 11. | 7119640000 | CH Board (pcb 2202581400 1/4) |
| 12. | 22895704 | Case (Chassis) |
| 13. | 22205410 | Rear Holder |
| 14. | 7119640000 | JK Board (pcb 2202581400 3/4) |
| 15. | 2235031300 | Foot (Square Mat) |
| 16. | 7119632400 | Master Board (pcb 2292581300 1/3) |
| 17. | 7119640000 | Balance Board (pcb 2292581400 4/4) |
| 18. | | AC Cord |
| | 13439801W0 | VFF2.5m P 100V |
| | 13439826 | SJS-20J 117V |
| | 13439827 | EP-528-E05 220V |
| | 13499111 | 5722-660-4527 240VE |
| | 13439808S0 | SP-305 240VA |
| | | Cord Bushing |
| | 12369533 | KF-41 100V/220V |
| | 12369532 | KR-61 117V |
| | 12369531 | KR-51 240VE/240VA |
| | | Cord Bushing Bracket |
| | 22205332 | 100V/220V/240VA |
| | 22205331 | 117V |
| | 22205408 | 240VE |
| 19. | 2214021900 | External Lcd |
| 20. | 2215040400 | Sleeve |
| 21. | 7119632400 | PS Board(220/240V) |
| | | (pcb 2292581300 2/3) |
| 22. | 22455593N0 | Transformer 100/120V |
| | 22455594D0 | Transformer 220/240V |
| 23. | 22123568 | Rack Mount Angle |
| 24. | 22025460 | Top Cover |
| 25. | 22255303 | Insulating Sheet (2LOT以降) |

- a. VR Nut
b. Snap Plate
c. M3 standoff 12mm

● Top Cover Removal Screws.

1. I x 10 pcs

2. II x 2 pcs

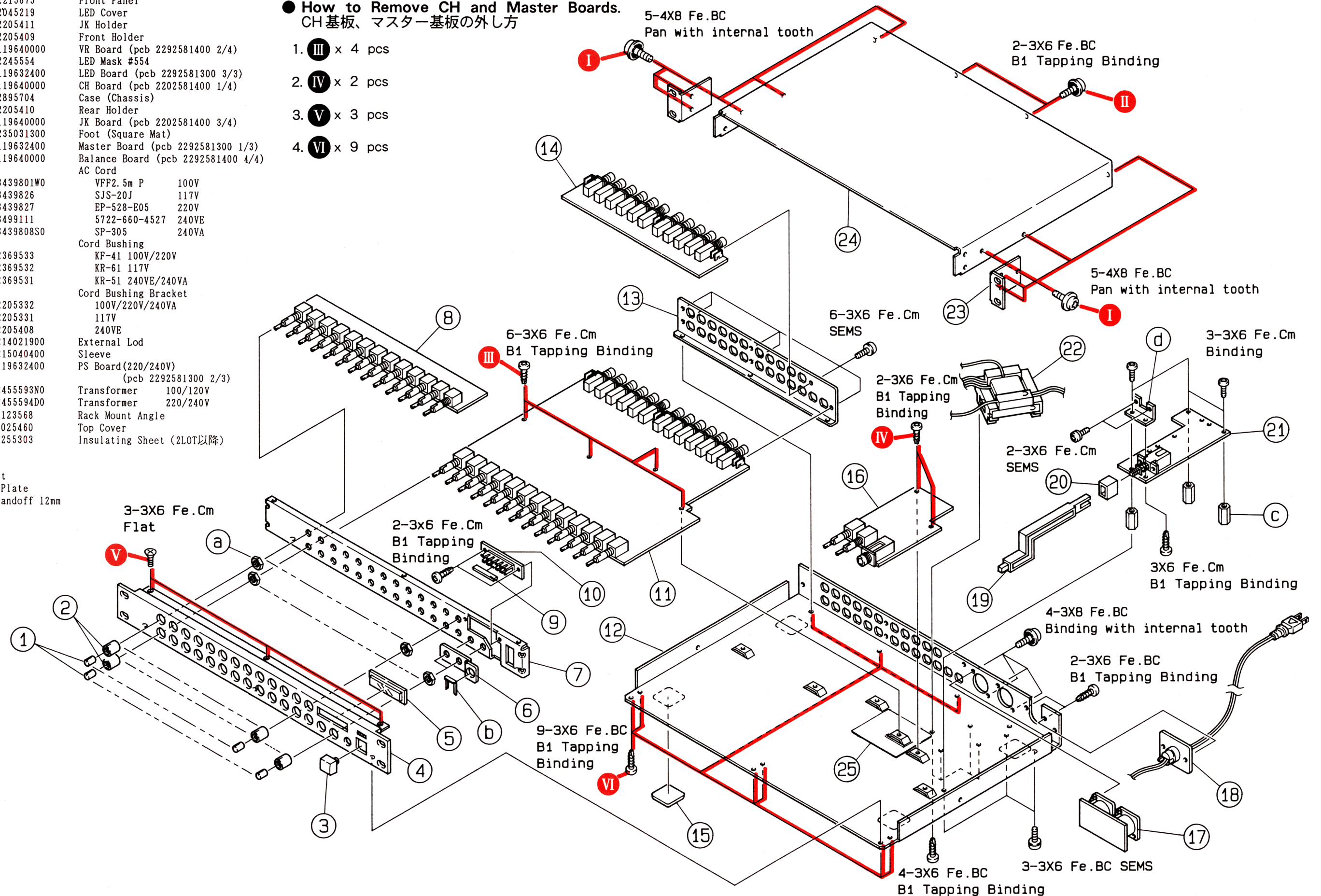
● How to Remove CH and Master Boards.
CH基板、マスター基板の外し方

1. III x 4 pcs

2. IV x 2 pcs

3. V x 3 pcs

4. VI x 9 pcs



PARTS LIST

SAFETY PRECAUTIONS:

The parts marked $\triangle$ have safety-related characteristics. Use only listed parts for replacement.

安全上の注意：

$\triangle$ が付いている部品は、安全上特別な規格でつくられたものです。交換の際は、指定された部品番号以外の部品は使わないようにして下さい。

CONSIDERATIONS ON PARTS ORDERING

When ordering any parts listed in the parts list, please specify the following items in the order sheet.

	QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER
Ex.	10	22575241	Sharp Key	C-20/50
	15	2247017300	Knob (orange)	DAC-15D

Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.

パーツ発注に関するお願い

オーダーシートには、必ず下記の4項目は正確に記入して下さい。(例外は除く)

	必要数	パーツナンバー	品名	使用機種
例)	10	22575241	Sharp Key	C-20/50
	15	2247017300	Knob (orange)	DAC-15D

もし記入漏れ、誤記等がある場合、必要部品が発送出来なかったり、大幅な遅れの原因になります。御協力をお願いします。

C A S I N G		ケース	
	22025460	Top Cover	トップカバー
	22215675	Front Panel	フロントパネル
	22205409	Front Holder	フロントホルダー
	22205410	Rear Holder	リアホルダー
	22205411	Jk Holder	JKホルダー
	2235031300	Foot (Square Mat)	ゴム足
	22895704	Case (Chassis)	ケース(シャーシ)
	22045219	LED Cover	LEDカバー
	22123568	Rack Mount Angle	ラックアングル
K N O B , B U T T O N		ツマミ, ボタン	
	22495565	Button #249-565 POWER	
	22485207	Inner Knob 248-207	
	22485208	Outer Knob 248-208	
A C C O R D		A Cコード	
△	13439801W0	VFF2. 5m P	100V
△	13439826	SJS-20J	117V
△	13439827	EP-528-E05	220V
△	13499111	5722-660-4527	240VE
△	13439808S0	SP-305	240VA
J A C K		ジャック	
	13449126	HLJ-0520-01-010 (PHONES)	
	13449146	YKB21-5012	
	13429656	XLB-3-32PCS-M01 (BALANCE OUT)	
S W I T C H		スイッチ	
△	13129124	SDDGA3078A	(POWER)
F U S E		ヒューズ	
△	12559339	GGs 0. 2A	100/117V
△	12559536	CEE 63mA T	220/240V
P O W E R T R A N S F O R M E R		電源トランス	
△	22455593N0	100/120V	
△	22455594D0	220/240V	
P C B A S S Y		基板完成品	
7119640000	CH Board	(pcb 2292581400)	
	Replacement CH Board includes the following.		
	補修用CH Boardは下記の基板を含みます。		
	CH Board	(pcb 2292581400 1/4)	
	VR Board	(pcb 2292581400 2/4)	
	JK Board	(pcb 2292581400 3/4)	
	Balance Board	(pcb 2292581400 4/4)	
7119632400	Master Board(220/240V)	(pcb 2292581300)	
	Replacement Master Board includes the following.		
	補修用Master Boardは下記の基板を含みます。		
	Master Board	(pcb 2292581300 1/3)	
	PS Board(220/240V)	(pcb 2292581300 2/3)	
	LED Board	(pcb 2292581300 3/3)	

IC DATA

OP AMP
 μ PC4570HA

S TYPE

1. V+
2. OUTPUT A
3. - INPUT A
4. + INPUT A
5. V-
6. + INPUT B
7. - INPUT B
8. OUTPUT B
9. V+

OP AMP
M5218L

1. OUTPUT A
2. - INPUT A
3. + INPUT A
4. V-
5. + INPUT B
6. - INPUT B
7. OUTPUT B
8. V+

7-Dot x 2-Channel LED Display Driver IR2E28

NOTE: Replacement is 220/240V version only. Master Board and LED Board can be used for all voltage versions except PS Board. As to PS Board, 220/240V version differs from 100/117V version only in fuse system. Order proper fuse and fuse label separately if necessary. (See table below.)

注：補修用基板は220/240V用が共通使用されます。Master BoardとLED Boardについては全電圧共通です。ただしPS Boardについては電圧区分による違いがあります。電圧区分による違いはヒューズ、ヒューズ貼マークのみです。100/117V用のヒューズ、ヒューズ貼マークが必要な場合は別途発注してください。(下表参照)

	FUSE (F1)	FUSE LABEL
100/117V	GGs 0.2A(12559339)	200mA/250V
220/240V	CEE 63mA(12559536)	T63mA/250V

I C

15189189	μ PC 4570HA	Op Amp
15189136	M5218L	Op Amp
13209130	IR2E28	LED Driver

T R A N S I S T O R

$\triangle$	15119701	2SA968Y
$\triangle$	15129704	2SC2238Y
	15119113	2SA1015GR
	15129114	2SC1815GR
	15129136	2SC2878A

D I O D E , L E D

$\triangle$	15019165	EU1Z
$\triangle$	15039105	1B4B1
	15039119	S568G
$\triangle$	15019524	MTZ-16B Zener
	15029307	7dot GL-107M8 LED 7dot
	15029306	SLB-15VW-3F LED

W I R I N G C O N N E C T O R

23475318	Flat Cable (Set for CH Board)
23485465	#348-465A J (Set for CH Board)
23485466	#348-466A C (Set for Master Board)

P O T E N T I O M E T E R

13279960	RK0972210	20k RD	20kB	(CH/PAN)
13279962	RK09724A0	10k RDx4		(RTN)
13279961	RK0972210	20k Bx2		(EFF SEND)
13279963	RK09724A0	100kBx2	20kAx2	(MIX IN/OUT)
13279964	RK09724A0	10kAx2	10kA, C	(MASTER BAL)

R E S I S T O R

$\triangle$	12559705	FRNB 1/4W 10 Ω	Fuse Resistor
$\triangle$	12559706	FRNB 1/4W 33 Ω	Fuse Resistor
	13749134T0	SR50NJ 1/2W 390 Ω	

C A P A C I T O R

NOTE: Use only listed capacitors for replacement, or the tone color might be changed delicately.

注: 下記以外のコンデンサが補修用として使用された場合微妙に音色が変わる場合があります。下記のコンデンサを使用する事をお勧めします。

13639146J0	SME16VB10	10/16
13639147J0	SME16VB22	22/16
13639149J0	SME16VB47	47/16
13639150J0	SME16VB100	100/16
13639153J0	SME16VB470	470/16
13639165J0	SME25VB4R7	4R7/25
13639166J0	SME25VB10	10/25
13649685	SME35VB22	22/35
13639201J0	SME50VBR47	R47/50
13639202J0	SME50VB1	1/50
13639209J0	SME50VB47	47/50
13639198	SME35VB1000	1000/35

M I S C E L L A N E O U S

22245554	LED Mask #554
2214021900	External Lod
2215040400	Sleeve
22135611	Button/LED Guide
12199550	Fuse Holder H0446
12199584	Terminal M1698
12369533	Cord Bushing KF-41 100V/220V
12369532	Cord Bushing KR-61 117V
12369531	Cord Bushing KR-51 240VE/240VA
22205332	Cord Bushing Bracket 100V/220V/240VA
22205331	Cord Bushing Bracket 117V
22205408	Cord Bushing Bracket 240VE
22255303	Insulating Sheet (2 ϕ 以下以降)

A C C E S S O R I E S

7119622400	Owner's Manual	English
7119622100	Owner's Manual	Japanese

CH BOARD

MASTER BOARD

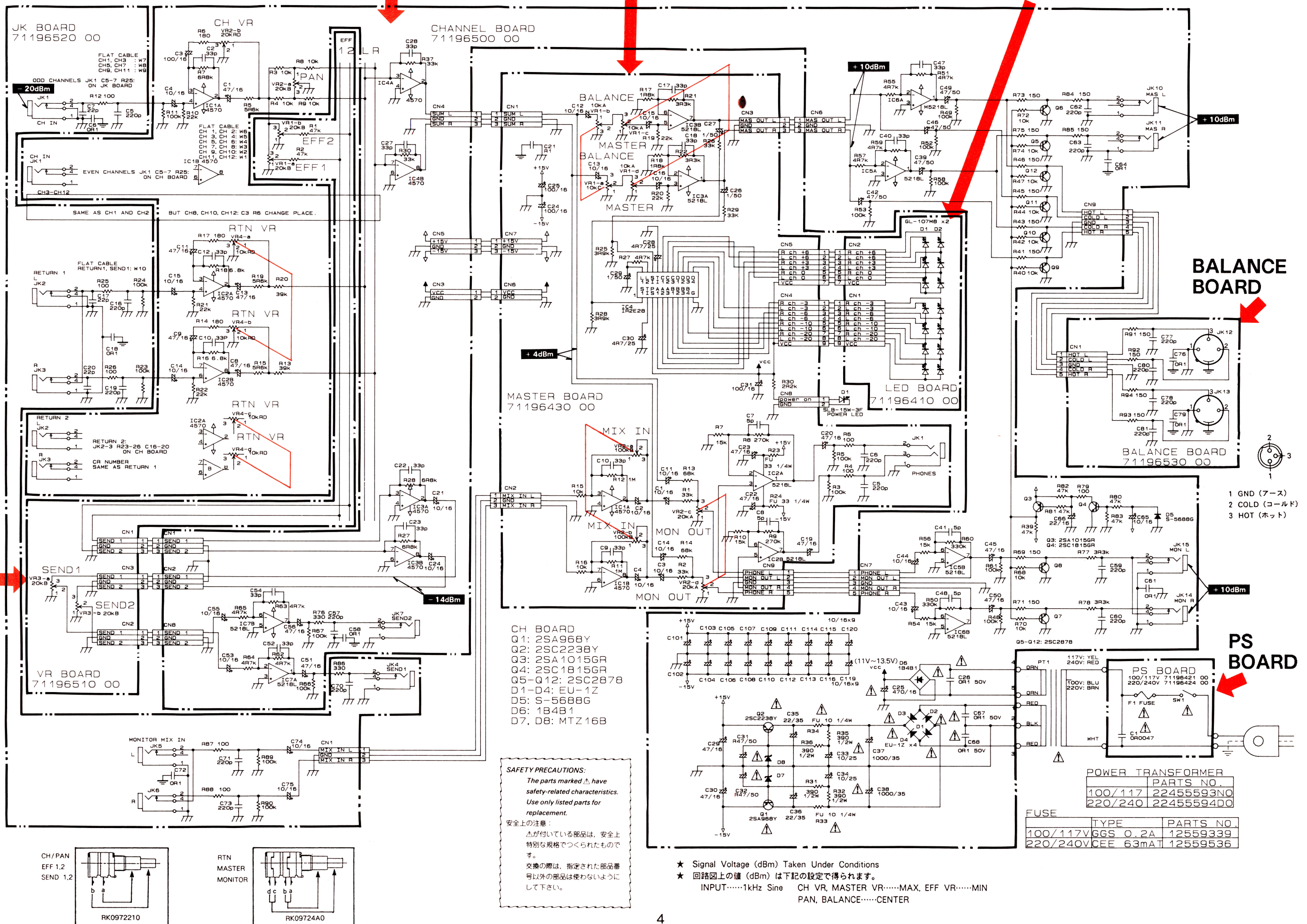
LED BOARD

JK BOARD

VR BOARD

BALANCE BOARD

PS BOARD



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

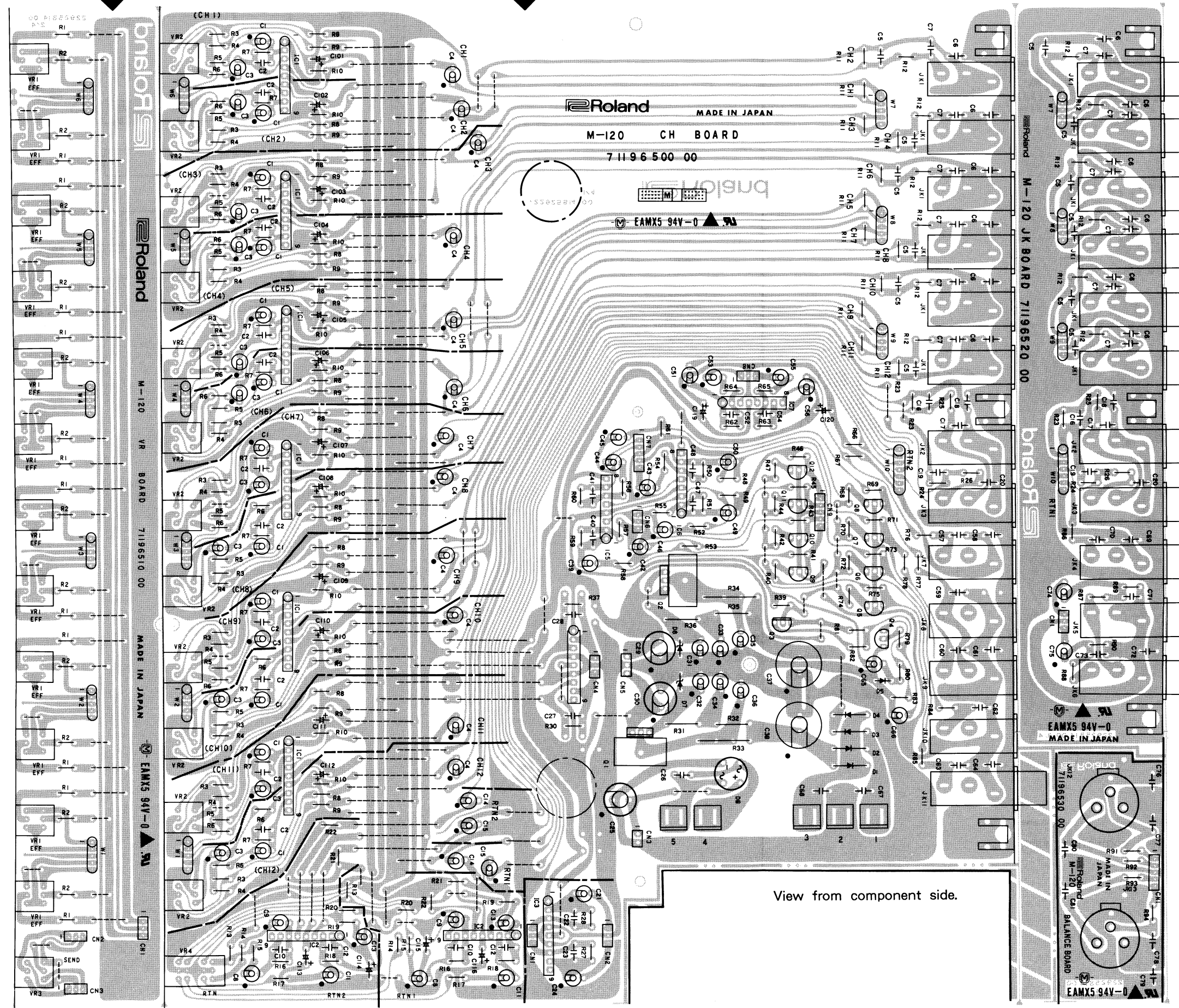
VR BOARD

(pcb 2292581400 2/4)

CH BOARD

ASSY 7119640000

(pcb 2292581400 1/4)

**JK BOARD**

(pcb 2292581400 3/4)

REPLACEMENT

補修用

CH BOARD

ASSY 7119640000

(pcb 2292581400)

Replacement CH Board includes the following.
補修用 CH Board は、下記の基板を含みます。

CH Board (pcb 2292581400 1/4)

VR Board (pcb 2292581400 2/4)

JK Board (pcb 2292581400 3/4)

Balance Board (pcb 2292581400 4/4)

BALANCE BOARD

(pcb 2292581400 4/4)

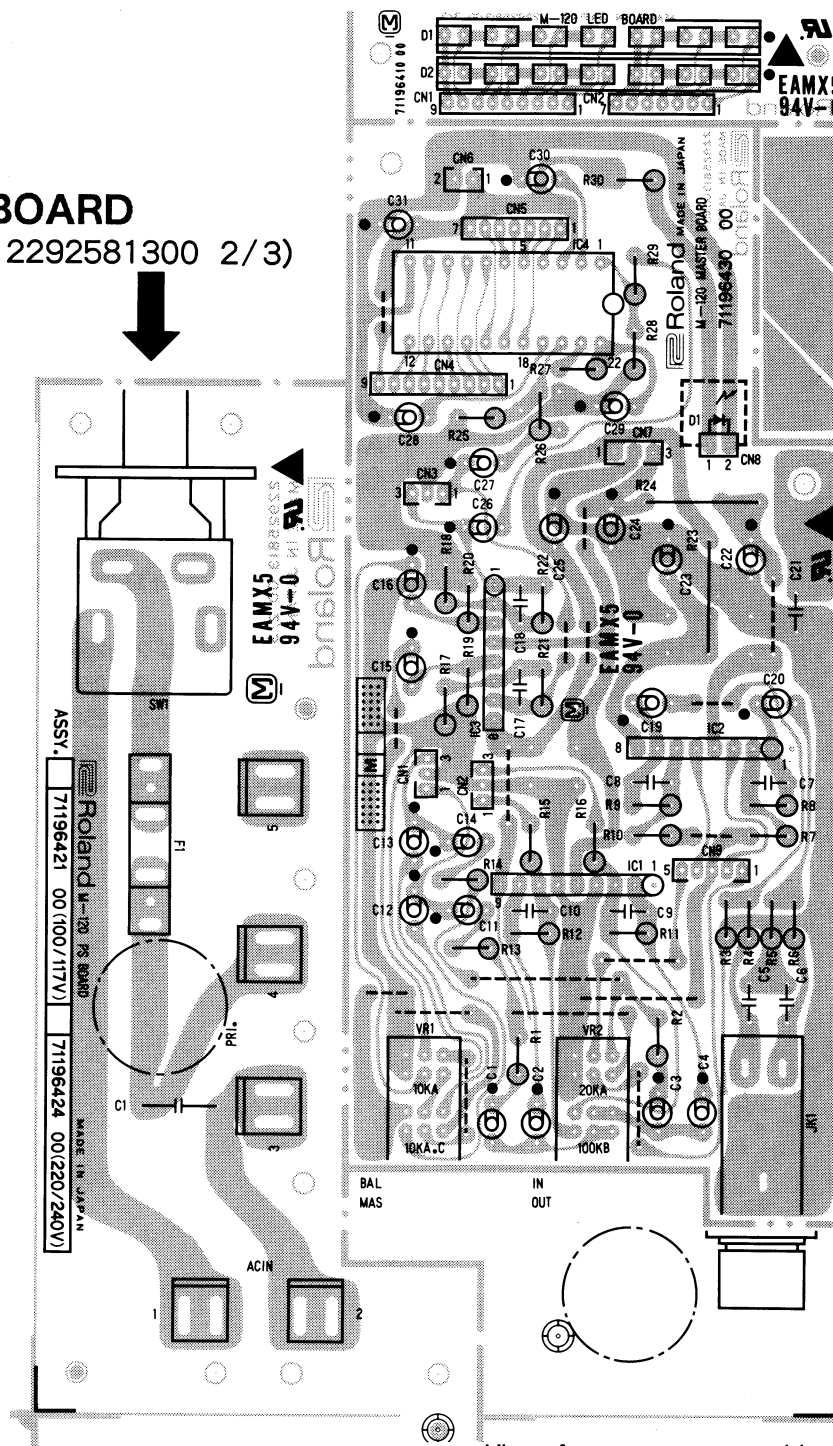
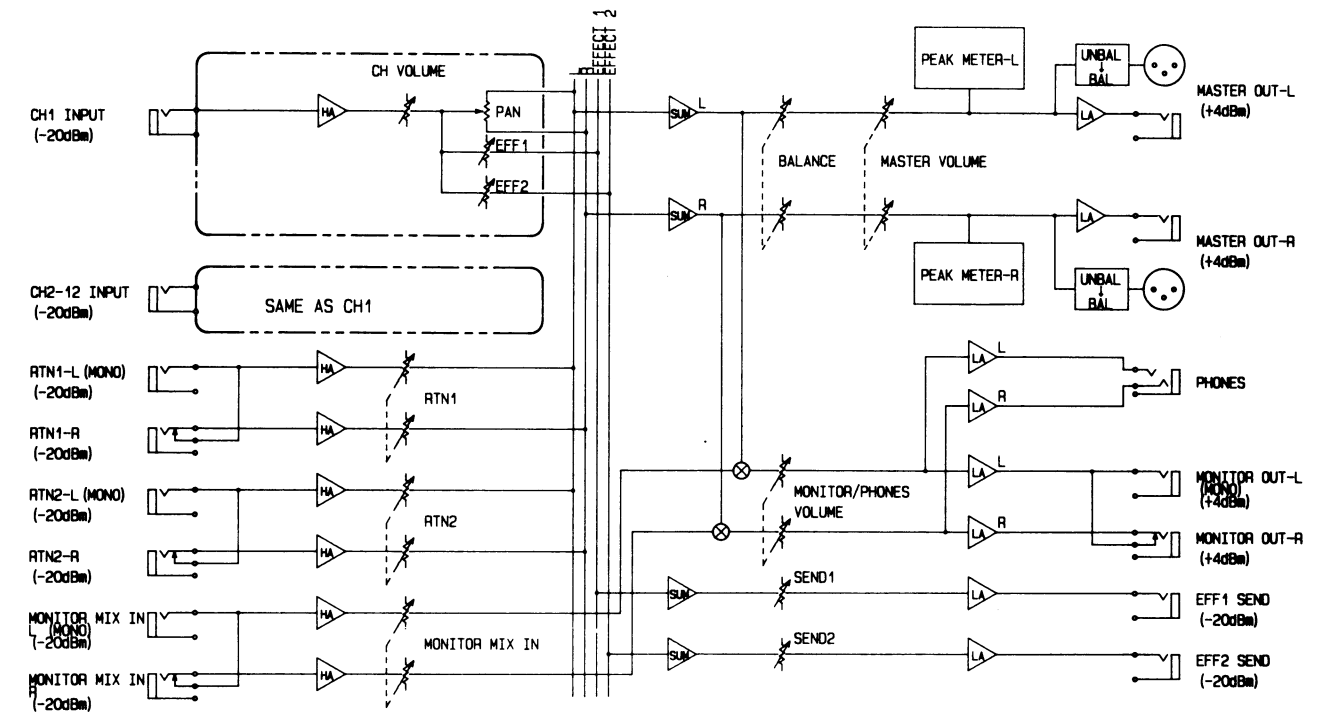
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

LED BOARD

(pcb 2292581300 3/3)

PS BOARD

(pcb 2292581300 2/3)

**BLOCK DIAGRAM****MASTER BOARD**

ASSY 7119632400

(pcb 2292581300 1/3)

REPLACEMENT 補修用**MASTER BOARD (220V/240V)**

ASSY 7119632400

(pcb 2292581300)

Replacement Master Board includes the following.

補修用 Master Board は、下記の基板を含みます。

Master Board (pcb 2292581300 1/3)

PS Board (220V/240V) (pcb 2292581300 2/3)

LED Board (pcb 2292581300 3/3)