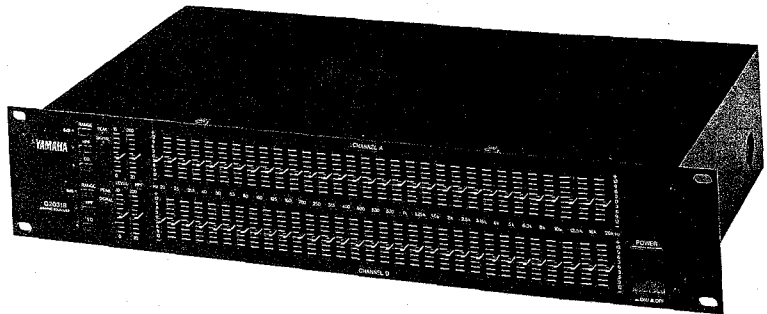


GRAPHIC EQUALIZER

Q2031B

SERVICE MANUAL



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YAMAHA CORP.

HAMAMATSU, JAPAN

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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 you body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss.)

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 WHATSOEVER 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.

■ WARNING

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

\triangle 印の商品は、安全を維持するために重要な部品です。交換する場合は、安全のため必ず指定の部品をご使用下さい。

SPECIFICATIONS

	Q2031B
FREQUENCY RESPONSE	20 Hz ~ 20 kHz ± 0.5 dB @ +4dB* 600 Ω
TOTAL HARMONIC DISTORTION	Less than 0.05% (THD+N), 20 Hz ~ 20 kHz @ +4 dB* 600 Ω , Equalizer...all flat (0dB)
HUM & NOISE (Average, Rs=600 Ω BPF : 20Hz ~ 20kHz)	-96 dB* Equalizer ... all flat (0 dB), Input Level ... Max.
MAXIMUM VOLTAGE GAIN	0 dB, Input Level ... Max.
EQUALIZER CONTROLS Center Frequencies:	31 band (1/3 octave) 20, 25, 31.5, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1k, 1.25k, 1.6k, 2k, 2.5k, 3.15k, 4k, 5k, 6.3k, 8k, 10k, 12.5k, 16k, 20kHz
Variable Range:	± 12 dB / ± 6 dB
HIGH PASS FILTER (Rolloff Frequency)	12dB/octave (20 ~ 200Hz at -3dB point.)
PEAK LED INDICATOR	Red LED on each channel turns on when post-EQ signal reaches the level 3 dB below clipping.
SIGNAL LED INDICATOR	Green LED on each channel turns on when post-EQ signal reaches the level 13 dB below nominal level.
POWER REQUIREMENTS	U. S. & Canadian Models : AC120V, 60Hz General Model : AC230V, 50Hz
POWER CONSUMPTION	20W
DIMENSIONS (W x H x D)	480 x 93.4 x 230mm
WEIGHT	4.0kg

* 0 dB is referenced to 0.775V RMS.

INPUT SPECIFICATIONS

INPUT Connectors	Input Impedance	Source Impedance	Input Level			Connectors **
			Sensitivity *	Nominal Level	Maximum Before Clipping	
INPUT (A, B)	15 k Ω	600 Ω Lines	+4 dB (1.23V)	+4 dB (1.23V)	+24 dB (12.3V)	XLR-3-31 Type Phone Jack (TRS)

OUTPUT SPECIFICATIONS

OUTPUT Connectors	Output Impedance	Load Impedance	Output Level		Connectors **
			Nominal Level	Maximum Before Clipping	
OUTPUT (A, B)	150 Ω	600 Ω Lines	+4 dB (1.23V)	+24 dB (12.3V)	XLR-3-32 Type Phone Jack (TRS)

* The input level required to obtain the nominal output level.

** XLR-type connectors are balanced. 1=Ground, 2=+, 3=-
Phone jacks are balanced. T=+, R=-, S=Ground

■ 総合仕様

Q2031B	
周波数特性	0±0.5dB 20Hz~20kHz @ +4dB 600Ω
全高調波歪率	0.05%以下 (THD+N) 20Hz~20kHz @ +4dB 600Ω イコライザーボリューム=中央(フラット)
ハム&ノイズ (平均値、Rs=600Ω BPF:20Hz~20kHz)	-96dB レベルコントロール最大、イコライザーボリューム=中央(フラット)
最大電圧利得	0dB レベルコントロール最大
イコライザーコントロール 中心周波数	31band (1/3 octave) 20, 25, 31.5, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1k, 1.25k, 1.6k, 2k, 2.5k, 3.15k, 4k, 5k, 6.3k, 8k, 10k, 12.5k, 16k, 20kHz
可変範囲	±12dB/±6dB
ハイパスフィルター(ロールオフ周波数)	12dB/octave (20~200Hz at -3dB point.)
ピークインジケータ(赤)	ポストEQ信号が、クリッピングレベルの3dB手前で点灯
シグナルインジケータ(緑)	ポストEQ信号が、ノミナルレベルの13dB手前で点灯
電源	AC100V 50/60Hz
消費電力	20W
寸法(W×H×D)	480×93.4×230mm
重量	4.0kg

●入力仕様

入力端子	入力インピーダンス	ソースインピーダンス	入力レベル			使用コネクタ **
			感度 *	規定レベル	最大ノンクリップレベル	
INPUT (A, B)	15kΩ	600Ω Lines	+4dB(1.23V)	+4dB(1.23V)	+24dB(12.3V)	XLR-3-31タイプ フォンジャック(TRS)

●出力仕様

出力端子	出力インピーダンス	負荷インピーダンス	出力レベル		使用コネクタ **
			規定レベル	最大ノンクリップレベル	
OUTPUT (A, B)	150Ω	600Ω Lines	+4dB(1.23V)	+24dB(12.3V)	XLR-3-32タイプ フォンジャック(TRS)

* 感度は、規定出力レベルを得るために必要な入力レベルを示す。

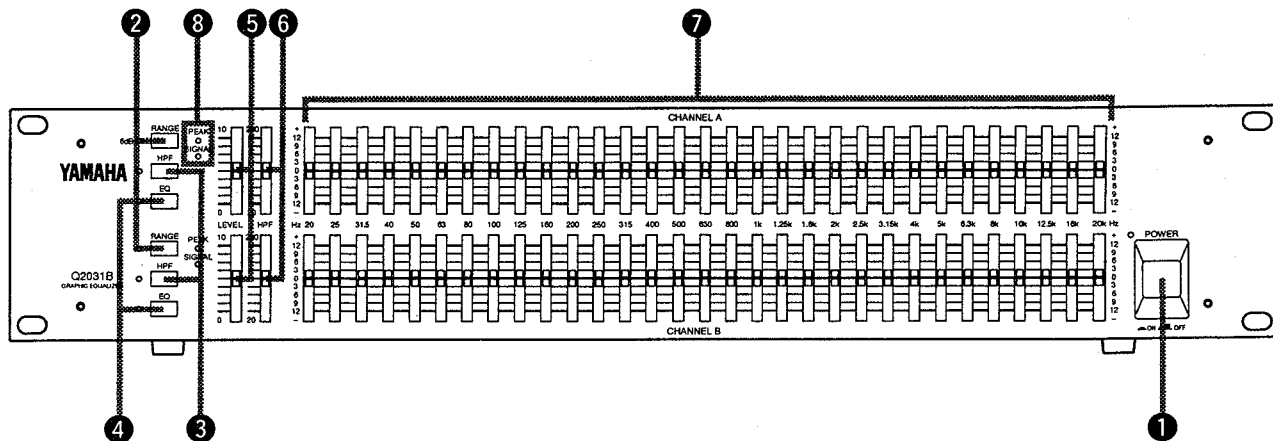
** XLRタイプコネクタは、1=グランド、2=+、3=-
フォンジャック(TRS)は、T=+、R=-、S=グランド

● 0dB=0.775Vrms

● この製品は、電気用品取締法に定める技術基準に適合しています。

■ PANEL LAYOUT (パネルレイアウト)

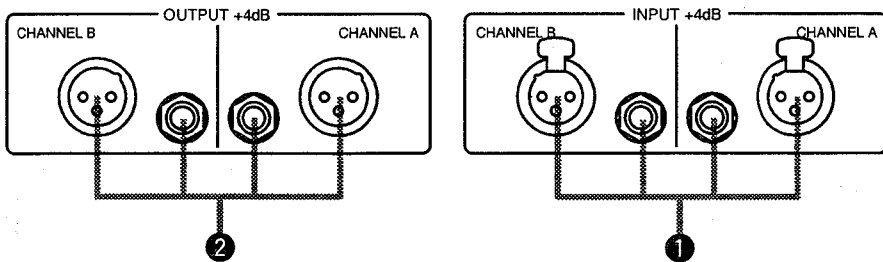
● Front Panel (フロントパネル)



- ① POWER switch
- ② RANGE switch
- ③ HPF switch
- ④ EQ switch
- ⑤ LEVEL control
- ⑥ HPF control
- ⑦ Equalizer controls
- ⑧ SIGNAL and PEAK indicators

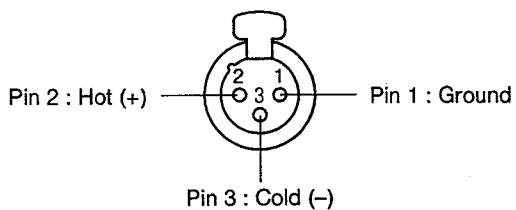
- ① POWERスイッチ
- ② RANGE切替スイッチ
- ③ HPFスイッチ
- ④ EQスイッチ
- ⑤ LEVELコントロール
- ⑥ HPFコントロール
- ⑦ イコライザーコントロール
- ⑧ SIGNAL, PEAKインジケーター

● Rear Panel (リアパネル)



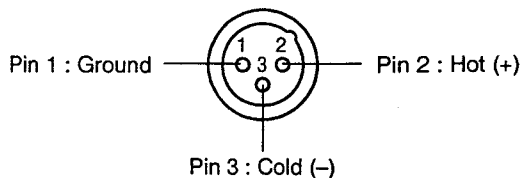
① INPUT connectors (INPUT端子)

- XLR-3-31 type connector



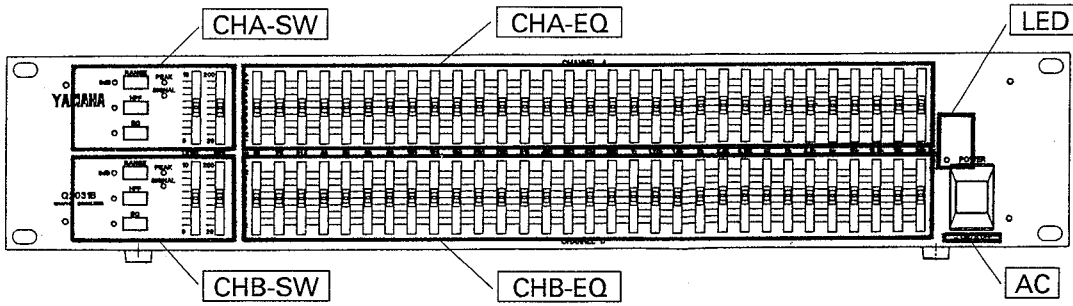
② OUTPUT connectors (OUTPUT端子)

- XLR-3-32 type connector

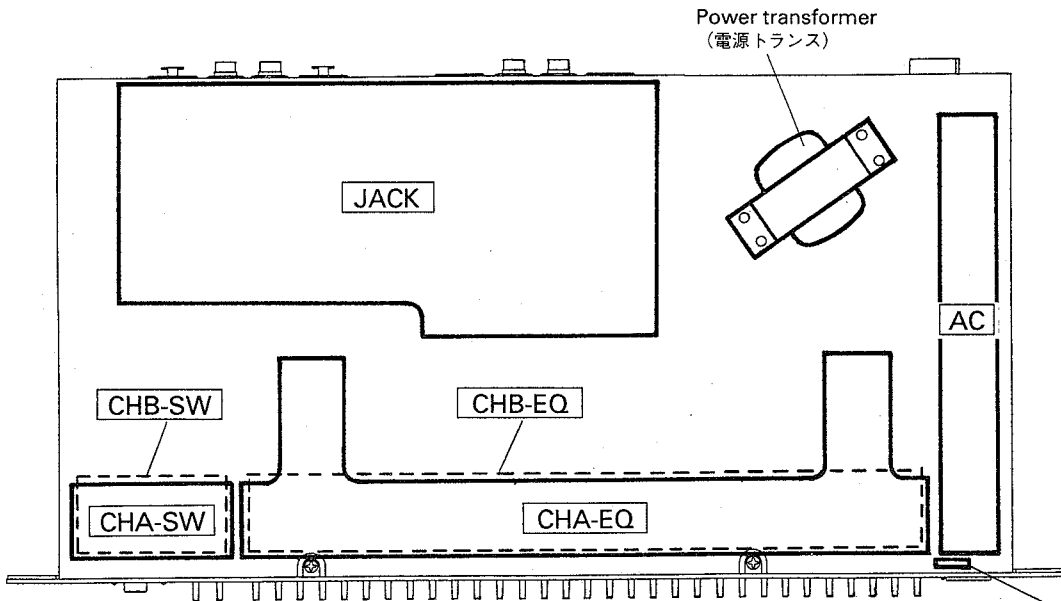


■ CIRCUIT BOARD LAYOUT (ユニットレイアウト)

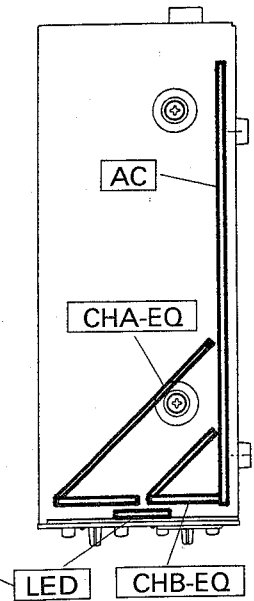
● Front View (前面)



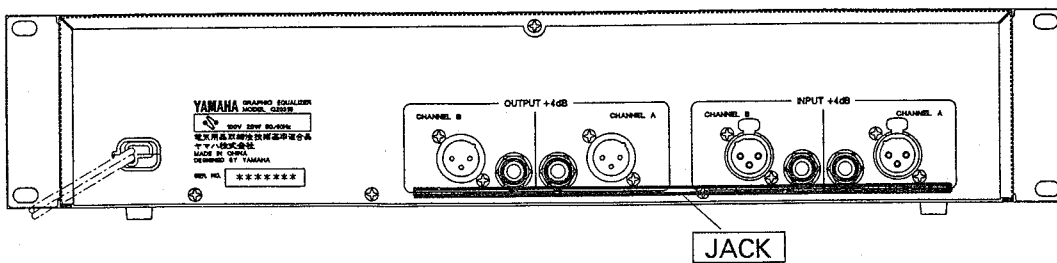
● Top View (上面)



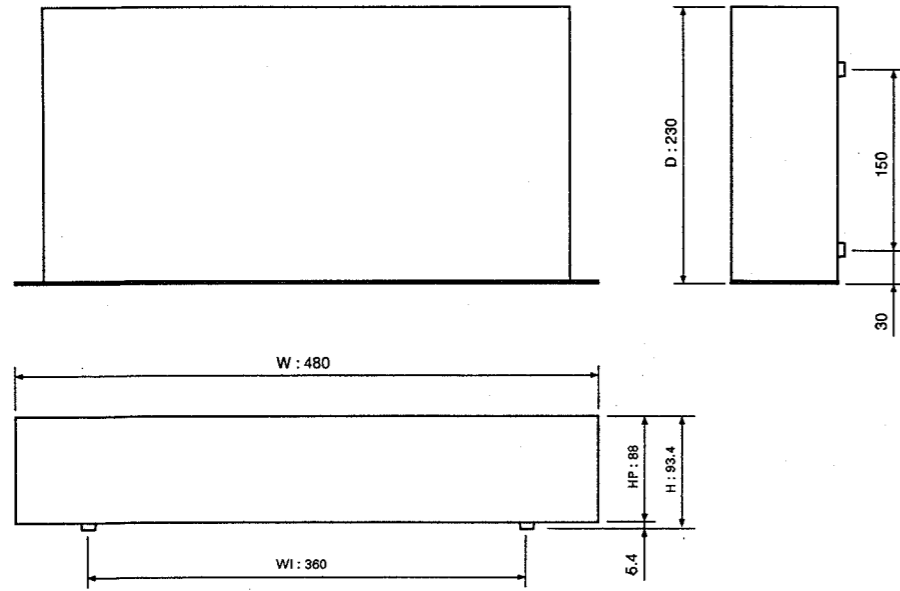
● Side View (右側面)



● Rear View (後面)



■ DIMENSIONS (寸法図)

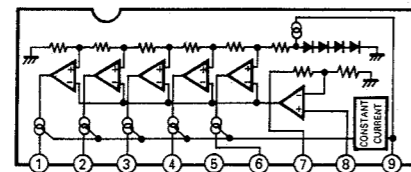
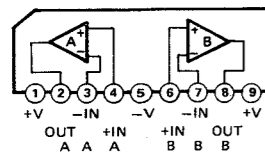


Units : mm

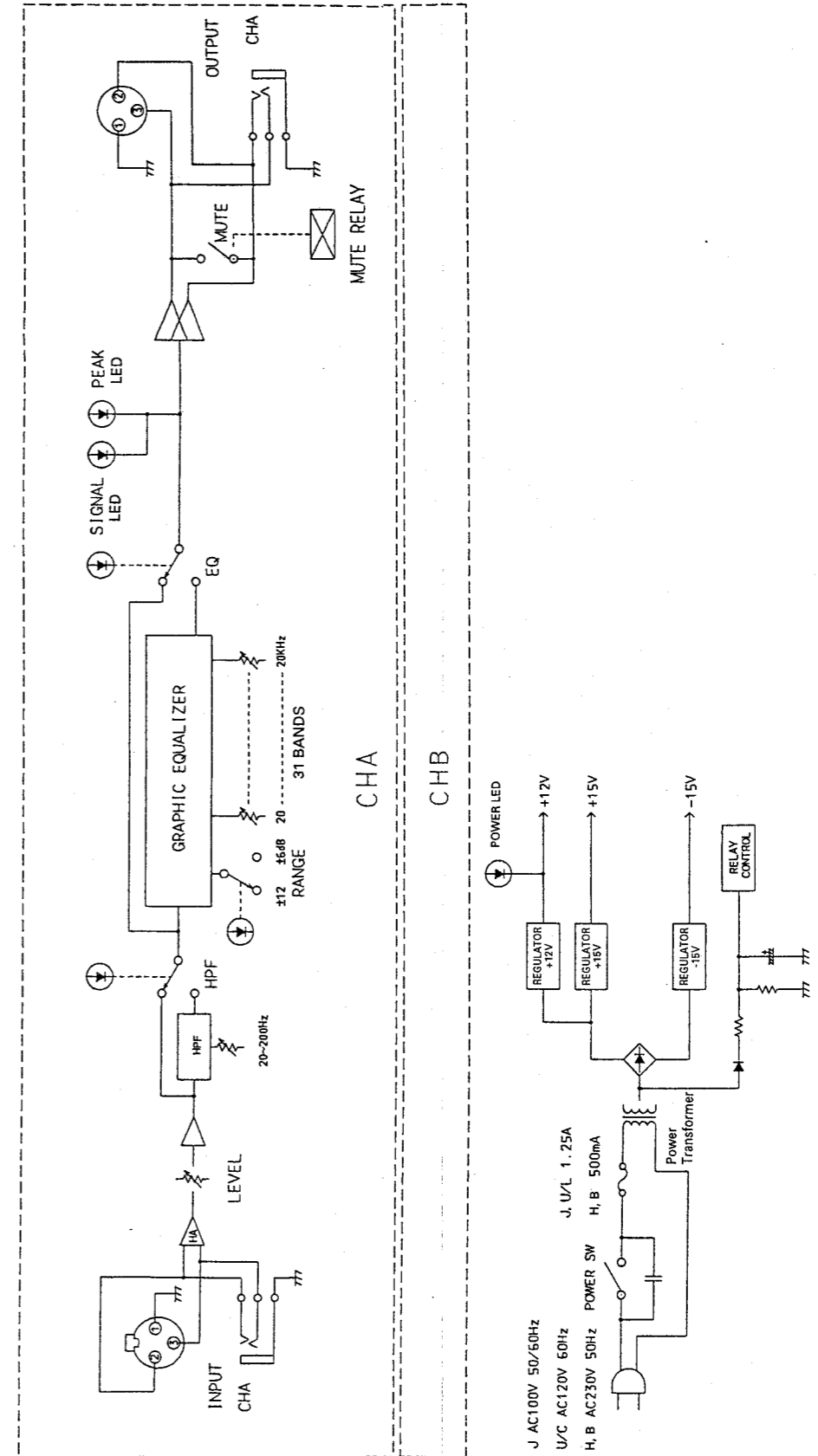
■ IC BLOCK DIAGRAM (ICブロック図)

- AN6557 (IG085200)
- μ PC4570HA (XB247401)

- BA6144 (XA552A00)
Meter Driver



■ BLOCK DIAGRAM (ブロックダイアグラム)



■ DISASSEMBLY PROCEDURE (分解手順)

1 Top Cover

1-1 Remove the four (4) screws marked as [33] and the three (3) screws marked as [35]; remove the top cover. (Fig. 1)

2 Front Panel

2-1 Remove the top cover. (See procedure 1)
2-2 Remove the six (6) screws marked as [34]; remove the front panel.

3 CHA-EQ Circuit Board

3-1 Remove the top cover. (See procedure 1)
3-2 Remove the front panel. (See procedure 2)
3-3 Remove all slide knobs (66 pcs.); remove the dust proof cover. (Fig. 1)
3-4 Remove the two (2) screws marked as [13A] and the nine (9) screws marked as [14A]; remove the CHA-EQ circuit board. (Fig. 2)

4 CHB-EQ Circuit Board

4-1 Remove the CHA-EQ Circuit Board. (See procedure 3)
4-2 Remove the two (2) screws marked as [13B] and the nine (9) screws marked as [14B]; remove the CHB-EQ circuit board. (Fig. 2)

5 CHA-SW Circuit Board

5-1 Remove the top cover. (See procedure 1)
5-2 Remove the front panel. (See procedure 2)
5-3 Remove the LED sheet. (Fig. 2)
5-4 Remove all slide knobs (66 pcs.); remove the slide volume mask. (Fig. 1)
5-5 Remove the screw marked as [13C] and the two (2) screws marked as [14C]; remove the CHA-SW circuit board. (Fig. 2)

Note: When you re-install the CHA-SW circuit board, make sure that the small protrusion on the side is properly inserted into side slot [A]. (Fig. 2)

6 CHB-SW Circuit Board

6-1 Remove the CHA-SW circuit board. (See procedure 5)
6-2 Remove the screw marked as [13D] and the two (2) screws marked as [14D]; remove the CHB-SW circuit board. (Fig. 2)

Note: When you re-install the CHA-SW circuit board, make sure that the small protrusion on the side is properly inserted into side slot [B]. (Fig. 2)

1 トップカバー

1-1 [33]のネジ4本と[35]のネジ3本を外し、トップカバーを外します。(図1)

2 フロントパネル

2-1 トップカバーを外します。(1項参照)
2-2 [34]のネジ6本を外し、フロントパネルを外します。(図1)

3 CHA-EQシート

3-1 トップカバーを外します。(1項参照)
3-2 フロントパネルを外します。(2項参照)
3-3 スライドツマミ全て(66個)を外し、ダストカバーを外します。(図1)
3-4 [13A]のネジ2本と[14A]のネジ9本を外し、CHA-EQシートを外します。(図2)

4 CHB-EQシート

4-1 CHA-EQシートを外します。(3項参照)
4-2 [13B]のネジ2本と[14B]のネジ9本を外し、CHB-EQシートを外します。(図2)

5 CHA-SWシート

5-1 トップカバーを外します。(1項参照)
5-2 フロントパネルを外します。(2項参照)
5-3 LEDシートを外します。
5-4 スライドツマミ全て(66個)を外し、スライドVRマスクを外します。(図1)
5-5 [13C]のネジ1本と[14C]のネジ2本を外し、CHA-SWシートを外します。(図2)

注: CHA-SWシートは、メインシャーシの側面の穴[A]に基板の凸部を差し込んで取り付けて下さい。(図2)

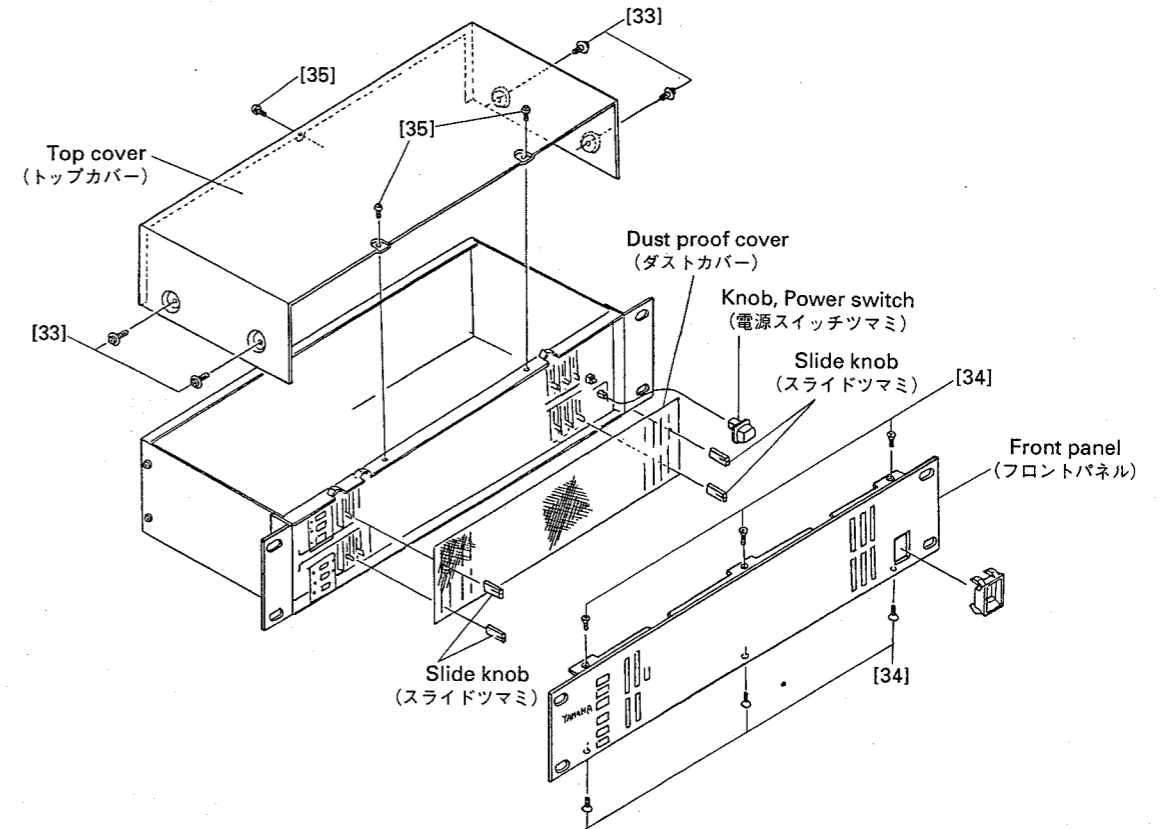
6 CHB-SWシート

6-1 CHA-EQシートを外します。(5項参照)
6-2 [13D]のネジ1本と[14D]のネジ2本を外し、CHB-SWシートを外します。(図2)

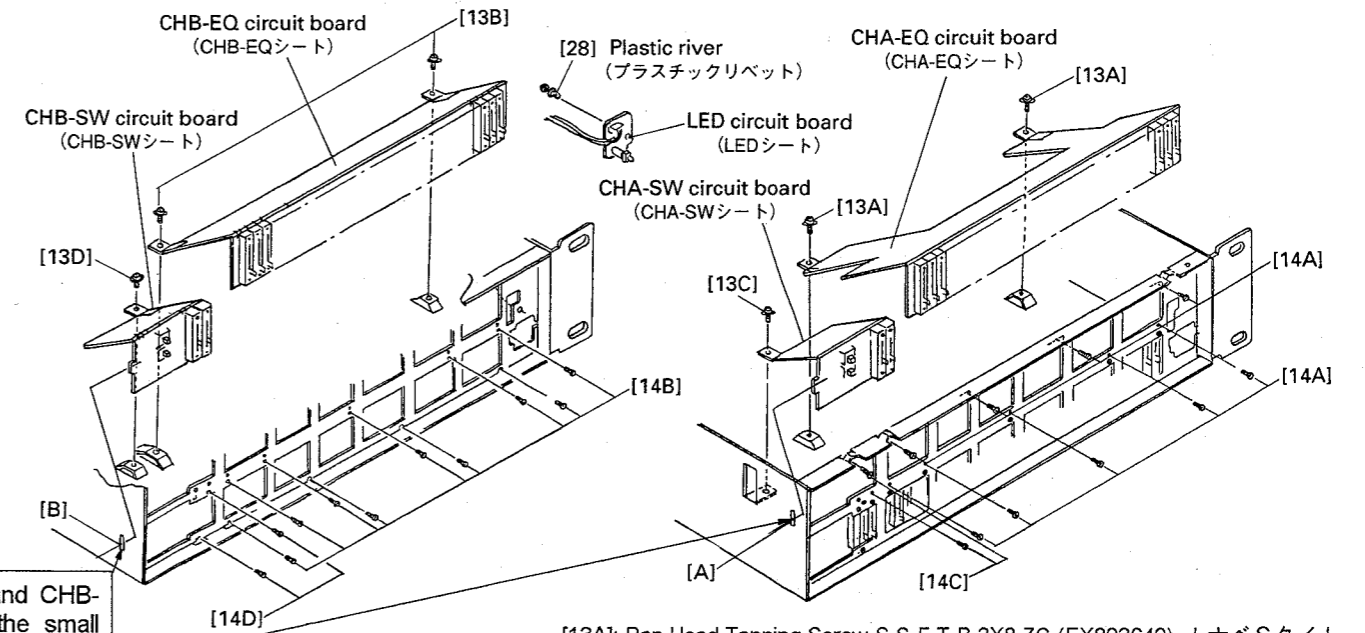
注: CHB-SWシートは、メインシャーシの側面の穴[B]に基板の凸部を差し込んで取り付けて下さい。(図2)

Note: When you re-install the CHA-SW and CHB-SW circuit boards, make sure that the small protrusion on the side is properly inserted into side slot [A] and [B].

注: CHA-SW と CHB-SW シートは、メインシャーシの側面の穴[A]と[B]に基板の凸部を差し込んで取り付けて下さい。



(Fig. 1) [33]: BW Head Tapping Screw-B 4X6 BL (EK365020) + BWH Bタイト
[34]: Flat Head Tapping Screw-S 3X6 BL A (VD780000) + 皿Sタイト
[35]: Bind Head Tapping Screw-B 3X6 BL B (EP600230) + バインドBタイト



(Fig. 2) [13A]: Pan Head Tapping Screw-S S-F T-B 3X8 ZC (EX803640) + ナベSタイト
[13B]: Pan Head Tapping Screw-S S-F T-B 3X8 ZC (EX803640) + ナベSタイト
[13C]: Pan Head Tapping Screw-S S-F T-B 3X8 ZC (EX803640) + ナベSタイト
[13D]: Pan Head Tapping Screw-S S-F T-B 3X8 ZC (EX803640) + ナベSタイト
[14A]: Flat Head Screw M2x4 ZC (EB020040) + 皿小ネジ
[14B]: Flat Head Screw M2x4 ZC (EB020040) + 皿小ネジ
[14C]: Flat Head Screw M2x4 ZC (EB020040) + 皿小ネジ
[14D]: Flat Head Screw M2x4 ZC (EB020040) + 皿小ネジ

7 AC Circuit Board

- 7-1 Remove the top cover. (See procedure 1)
 7-2 Remove the front panel. (See procedure 2)
 7-3 Remove the power switch knob. (Fig. 1)
 7-4 Remove the two (2) screws marked as [12] and the two (2) screws marked as [13E]; remove the AC circuit board. (Fig. 3)

8 LED Circuit Board

- 8-1 Remove the top cover. (See procedure 1)
 8-2 Remove the front panel. (See procedure 2)
 8-3 Remove the AC circuit board. (See procedure 7)
 8-4 Remove the plastic rivet marked as [28]; remove the LED circuit board. (Fig. 2)

9 JACK Circuit Board

- 9-1 Remove the top cover. (See procedure 1)
 9-2 Remove the four (4) hexagonal nuts marked as [21]. (Fig. 3)
 9-3 Remove the three (3) screws marked as [13F] and eight (8) screws marked as [15]; remove the JACK circuit board. (Fig. 3)

10 Power Transformer

- 10-1 Remove the top cover. (See procedure 1)
 10-2 Remove the four (4) screws marked as [20]; remove the power transformer. (Fig. 3)

7 ACシート

- 7-1 トップカバーを外します。(1項参照)
 7-2 フロントパネルを外します。(2項参照)
 7-3 電源スイッチツマミを外します。(図1)
 7-4 [13E]のネジ2本と[18]のネジ2本を外し、ACシートを電源SWブラケット付きで外します。(図3)
 7-5 [12]のネジ2本を外し、ACシートを外します。(図3)

8 LEDシート

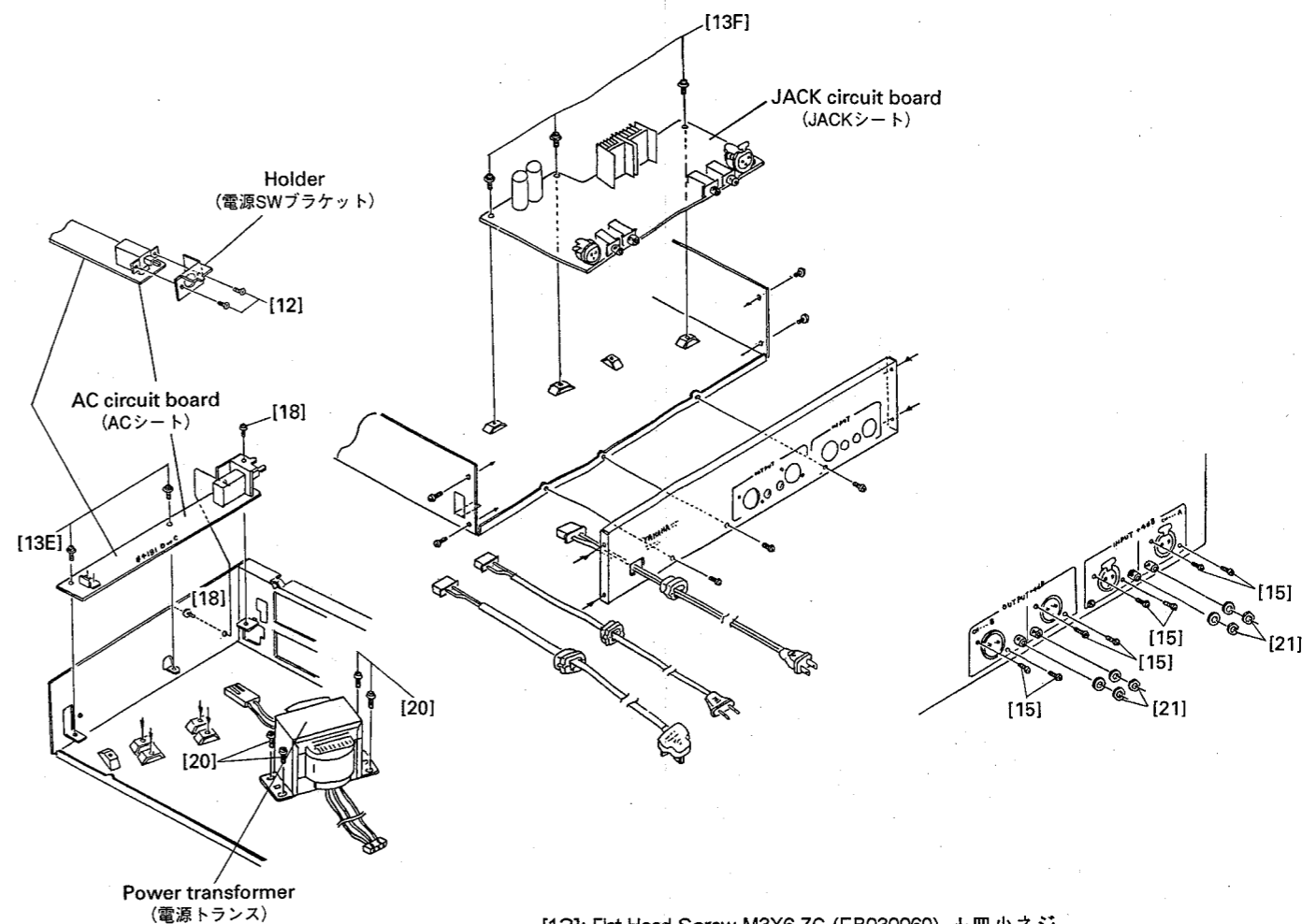
- 8-1 トップカバーを外します。(1項参照)
 8-2 フロントパネルを外します。(2項参照)
 8-3 ACシートを外します。(7項参照)
 8-4 [28]のプラスチックリベットを外し、LEDシートを外します。(図2)

9 JACKシート

- 9-1 トップカバーを外します。(1項参照)
 9-2 [21]の六角ナットを外します。(図3)
 9-3 [13F]のネジ3本と[15]のネジ8本を外し、JACKシートを外します。(図3)

10 電源トランス

- 10-1 トップカバーを外します。(1項参照)
 10-2 [20]のネジ4本を外し、電源トランスを外します。(図3)

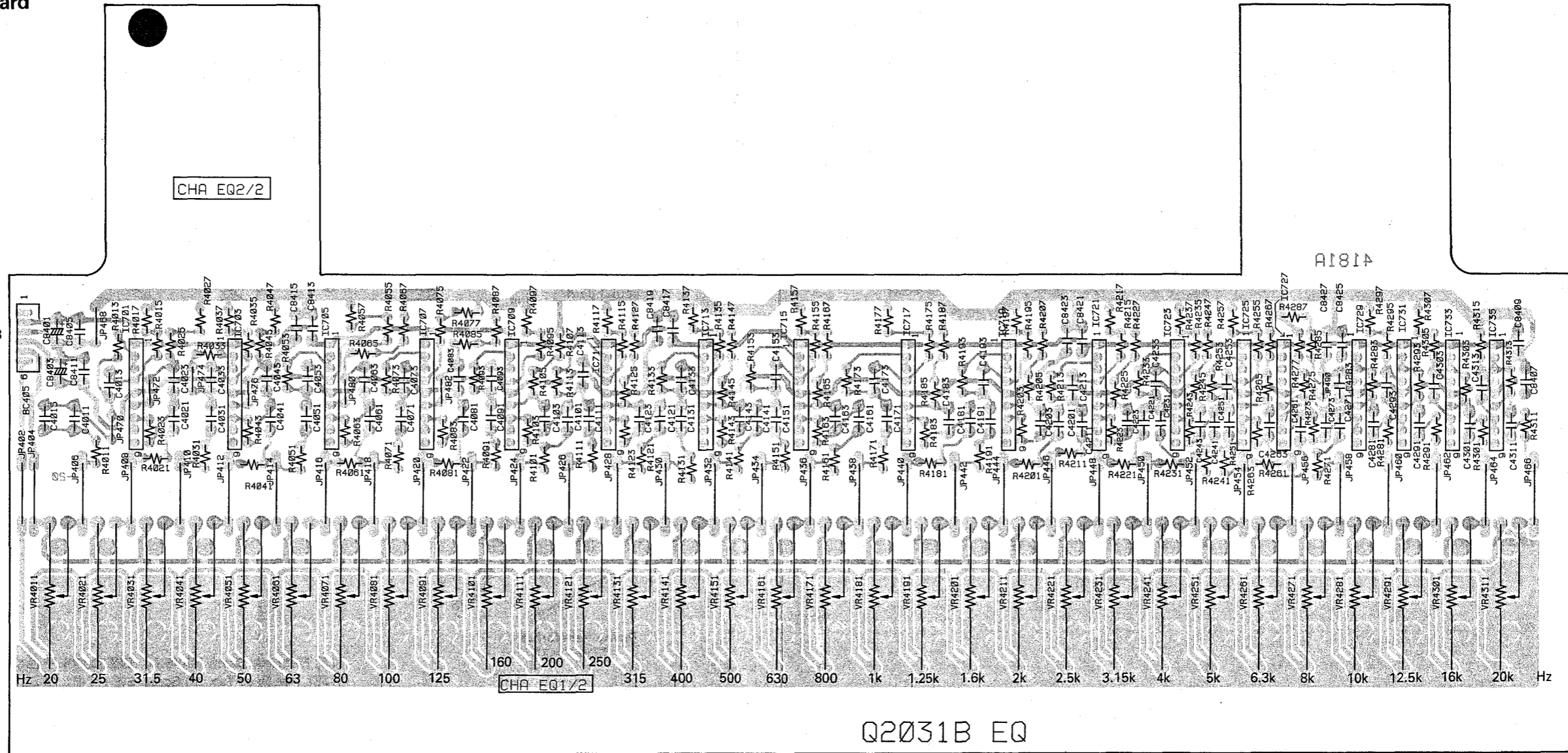


- [12]: Flat Head Screw M3X6 ZC (EB030060) + 皿小ネジ
 [13E]: Pan Head Tapping Screw-S S-F T-B 3X8 ZC (EX803640) + ナベSタイト
 [13F]: Pan Head Tapping Screw-S S-F T-B 3X8 ZC (EX803640) + ナベSタイト
 [15] & [18]: Bind Head Tapping Screw-B 3X6 BL (EP600230) + バインドBタイト
 [20]: Bind Head Tapping Screw-B 4X6 ZC (EI040066) + バインドBタイト
 [21]: Hexagonal Nut M12 BL (VB508600) 六角ナット
 [28]: Plastic Rivet(CX815720) プラスチックリベット

(Fig. 3)

CIRCUIT BOARDS (シート基板図)

CHA-EQ Circuit Board

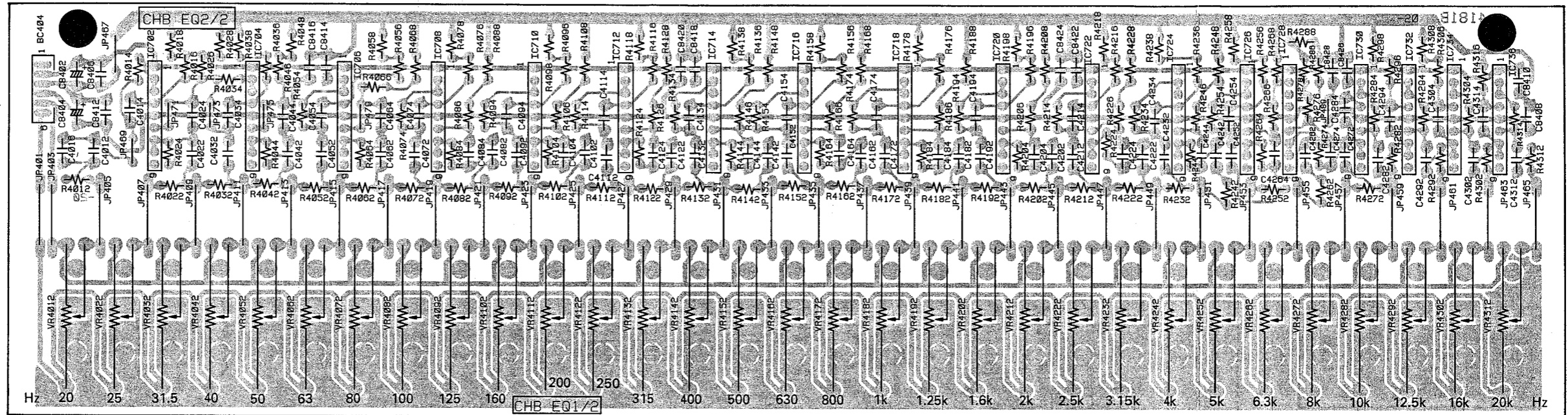


Components side (部品側)

Notes	Value	Value	Value	Value	Value	Value	Value
Circuit Board:	CHA-EQ (NX817080) (4181A)	C 4083,4084,4091,4092:	0.27 50V J (VG744300) M S	C 4173,7174,4181,4182:	0.039 50V J (UA354390) S 50V	C 4263,4264,4271,7272:	0.0047 50V J (UA353470) S 50V
Circuit Board:	CHB-EQ (NX817090) (4181B)		50V 274J T		393J T		472J T
1. IC		C 4103,4104,4111,4112:	0.18 50V J (VG744100) M S	C 4183,4184,4191,4192,4283,4284:	0.027 50V J (UA154270) S 50V	C 4273,7274,4281,4282:	0.0039 50V J (UA253390) S 50V
IC 701-736:	UPC4570HA (XB247401) OP AMP		50V 184J T		273J T		392J T
2. Polyester Multilay Cap.		C 4113,4114,4131,4132:	0.12 50V J (VG743900) M S	C 4193,4194,4201,4202,4293,4294:	0.022 50V J (UA154220) S 50V	C 4291,4292:	0.0027 50V J (UA253270) S 50V
C 4011,4012,4021,4022:	1.00 50V J (VG745500) M S		50V 124J T		223J T		272J T
	50V 105J T	C 4121,4122:	0.15 50V J (VG744000) M S	C 4203,4204,4211,4212,4303,4304:	0.018 50V J (UA354180) S 50V	C 4301,4302:	0.0022 50V J (UA253220) S 50V
C 4013,4014,4031,4032,4041,4042:	0.82 50V J (VG744500) M S		50V 154J T		183J T	C 4311,4312:	0.0018 50V J (UA353180) S 50V
	50V 824J T	C 4123,4124,4141,4142:	0.10 50V J (VG743800) M S	C 4213,4214,4221,4222,4313,4314:	0.015 50V J (UA354150) S 50V		182J T
C 4015,4016,4093,4094,4101,4102:	0.22 50V J (VG744200) M S		50V 104J T		153J T	4. Ceramic Capacitor	
	50V 224J T	C 4133,4134,4151,4152:	0.082 50V J (VG743700) M S	C 4223,4224,4231,4232:	0.012 50V J (UA354120) S 50V	C 8405-8412:	0.0220 50V Z (FG244220) S YF
			50V 823J T		123J T	C 8401-8404:	100.00 25V M (UJ648100) S 25V
C 4023,4024,4033,4034,4051,4052:	0.68 50V J (VG744800) M S	C 4143,4144:	0.068 50V J (VG743600) M S		822J T	5. Electrolytic Capacitor	
	50V 684J T		50V 683J T	C 4233,4234,4241,4242:	0.0082 50V J (UA353820) S 50V	C 8401-8404:	100.00 25V M (UJ648100) S 25V
C 4043,4044,4053,4054,4061,4062:	50V J (VG744700) M S	C 4153,4154,4161,4162:	0.056 50V J (VG743500) M S		822J T		101M T
	50V 564J T		50V 563J T	C 4243,4244,4251,4252:	0.0068 50V J (UA353680) S 50V	6. Carbon Resistor	
C 4063,4064:	0.47 50V J (VG744600) M S	3. Mylar Capacitor			862J T	R 4011,4012,4021,4022,4071,4072,4141,4142,4151,4152,4231,4232:	56.0 1/6 J (HF854560) H 1/6W
	50V 474J T	C 4163,4164,4171,4172:	0.047 50V J (UA154470) S 50V	C 4243,4244,4251,4252:	0.0068 50V J (UA353680) S 50V	R 4013,4014,4023,4024,4033,4034:	430.0 1/6 J (VB064000) RN 1/6W
C 4071,4072:	0.39 50V J (VG744500) M S		50V 334J T	C 4253,4254,4261,4262:	0.0056 50V J (UA353560) S 50V		4300F T
	50V 394J T				562J T	R 4015,4016,4097,4098,4147,4148:	47.0K 1/6 J (VB068800) RN 1/6W
C 4073,7074,4081,4082:	0.33 50V J (VG744400) M S					R 4017,4018:	100.0K 1/6 J (VB069600) RN 1/6W
	50V 334J T						1003F T

● CHB-EQ Circuit Board

to
CHB-SW-CN504



Components side (部品側)

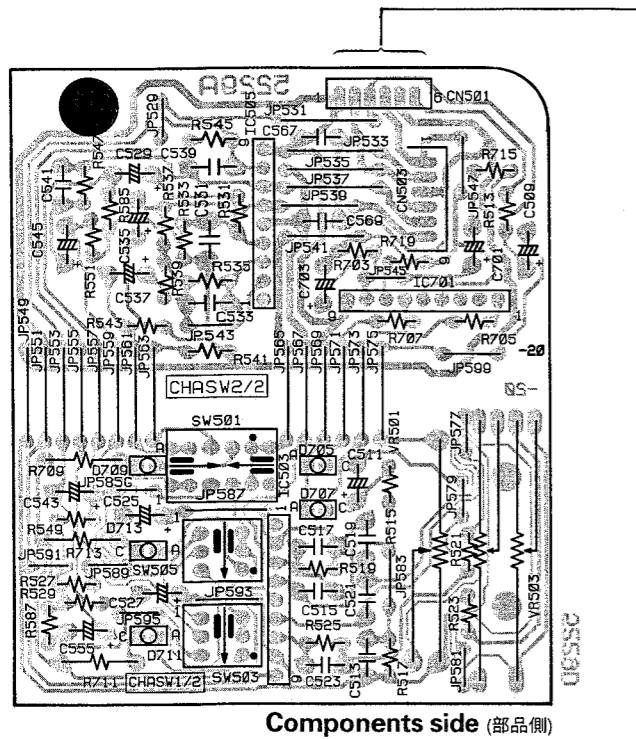
- R 4025-4028,4057, 4058,4127,4128, 4197,4198,4257, 4258: 68.0K 1/6 J (VB069200) RN 1/6W 6802F T
- R 4035,4036,4205, 4206,4215,4216: 15.0K 1/6 J (VA074600) RN 1/6W 1502F T
- R 4037,4038,4247, 4248: 91.0K 1/6 J (VB069500) RN 1/6W 9102F T
- R 4043,4044,4053, 4054,4063,4064, 4073,4074,4083, 4084,4093,4094, 4103,4104,4113, 4114,4123,4124, 4133,4134,4143, 4144,4153,4154, 4163,4164,4173, 4174,4183,4184, 4193,4194,4203, 4204,4213,4214, 4223,4224: 330.0 1/6 J (VB063700) RN 1/6W 3300F T
- R 4045,4046,4225, 4226: 22.0K 1/6 J (VB068100) RN 1/6W 2202F T

- R 4047,4048,4077, 4078,4087,4088: 82.0K 1/6 J (VB069400) RN 1/6W 8202F T
- R 4055,4056: 13.0K 1/6 J (VB067700) RN 1/6W 1302F T
- R 4065,4066,4125, 4126,4195,4196, 4275,4276: 11.0K 1/6 J (VA074500) RN 1/6W 1102F T
- R 4067,4068,4177, 4178: 62.0K 1/6 J (VB069100) RN 1/6W 6202F T
- R 4075,4076: 10.0K 1/6 J (VA074400) RN 1/6W 1002F T
- R 4085,4086,4285, 4286: 1.0K 1/6 J (VB065500) RN 1/6W 1001F T
- R 4095,4096,4135, 4136,4155-4158, 4165,4166: 33.0K 1/6 J (VB068400) RN 1/6W 3302F T
- R 4107,4108,4117, 4118,4267,4268: 75.0K 1/6 J (VB069300) RN 1/6W 7502F T
- R 4115,4116: 12.0K 1/6 J (VB067600) RN 1/6W 1202F T
- R 4137,4138,4187, 4188,4227,4228: 43.0K 1/6 J (VB068700) RN 1/6W 4302F T

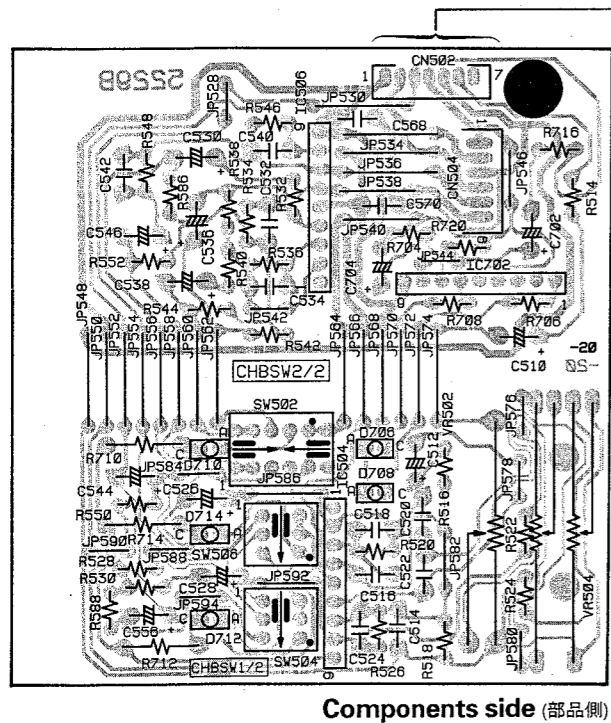
- R 4145,4146: 20.0K 1/6 J (VB068000) RN 1/6W 2002F T
- R 4167,4168: 39.0K 1/6 J (VB068600) RN 1/6W 3902F T
- R 4175,4176,4265, 4266: 2.0K 1/6 J (VB066200) RN 1/6W 2001F T
- R 4185,4186,4235, 4236: 27.0K 1/6 J (VB068300) RN 1/6W 2702F T
- R 4207,4208,4217, 4218,4237,4238, 4277,4278: 56.0K 1/6 J (VB069000) RN 1/6W 5602F T
- R 4233,4234,4243, 4244,4253,4254, 4263,4264,4273, 4274: 300.0 1/6 J (VB063600) RN 1/6W 3000F T
- R 4255,4256: 18.0K 1/6 J (VB067900) RN 1/6W 1802F T
- R 4283,4284,4293, 4294,4303,4304, 4313,4314: 390.0 1/6 J (VB063900) RN 1/6W 3900F T

- R 4287,4288,4297, 4298: 4.7K 1/6 J (VA074100) RN 1/6W 4701F T
- R 4295,4296: 1.8K 1/6 J (VB066100) RN 1/6W 1801F T
- R 4305,4306: 2.7K 1/6 J (VB066500) RN 1/6W 2701F T
- R 4307,4308: 3.3K 1/6 J (VB066700) RN 1/6W 3301F T
- R 4315,4316: 5.6K 1/6 J (VB067100) RN 1/6W 5601F T
- 8. Slide Variable Resistor
VR 4011-4312: RS25111 200KSW (HX808910)
- 9. Connector
BC 404,405: PH 6P (LX804390)

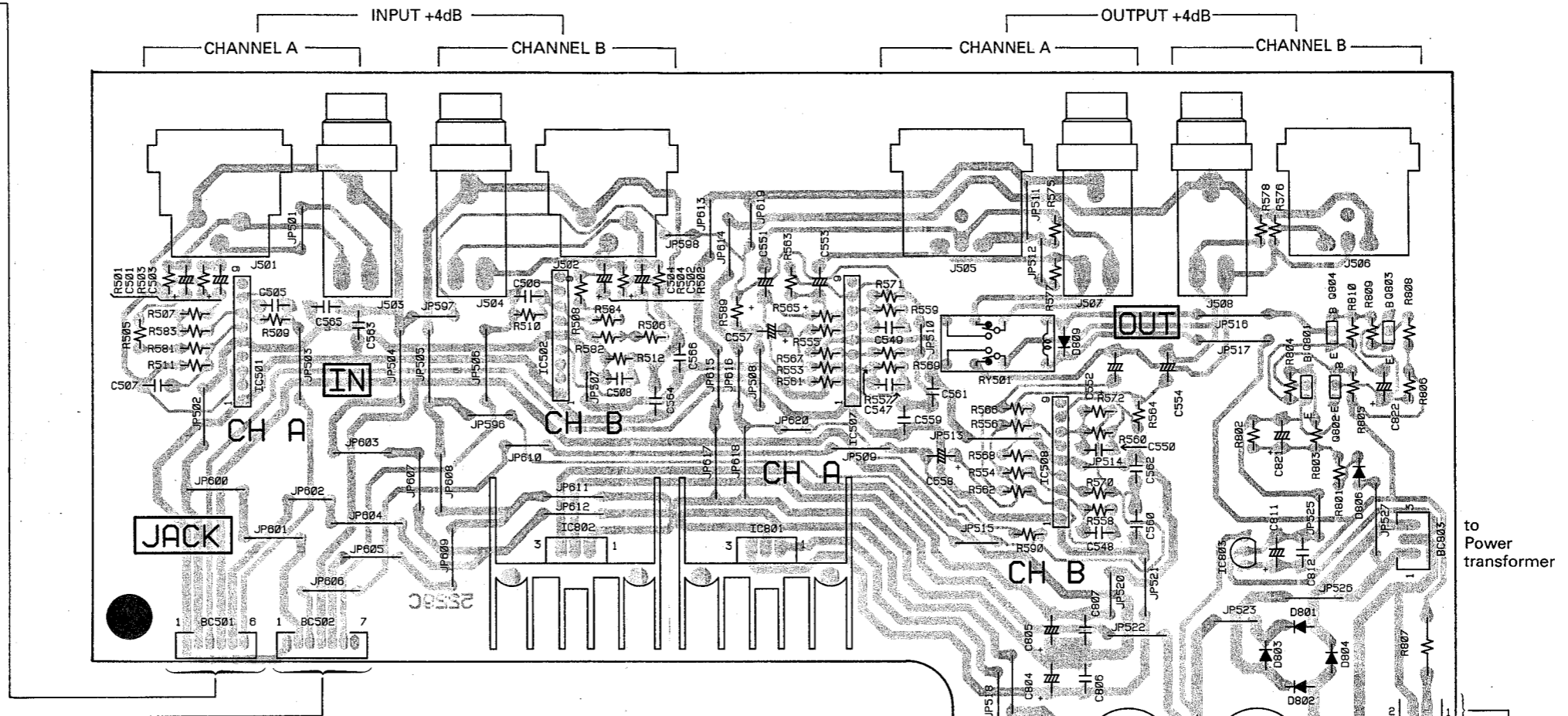
• CHA-SW Circuit Board



• CHB-SW Circuit Board

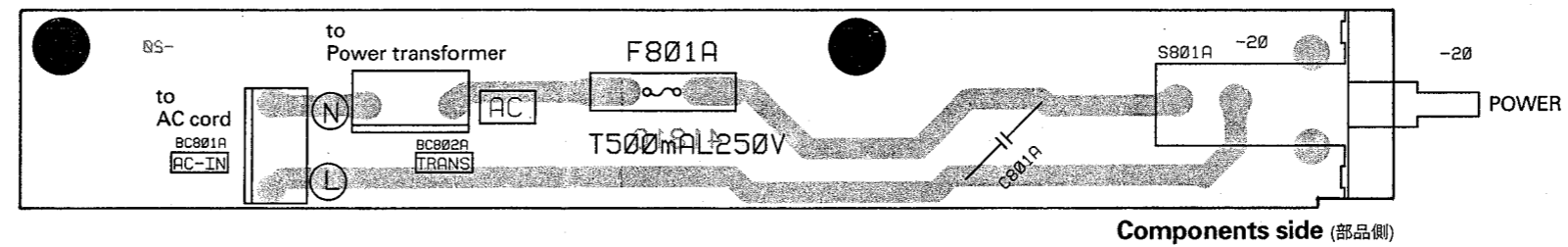


• JACK Circuit Board

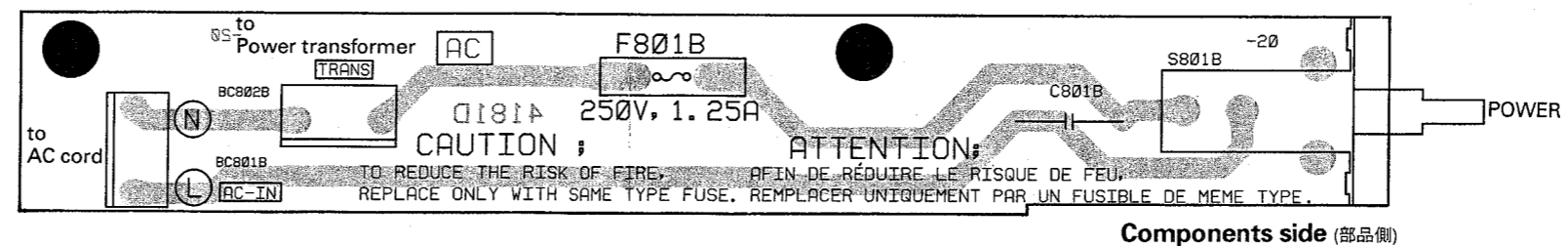


• AC Circuit Board

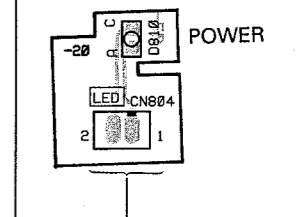
<Japanese, U. S. A. & Canadian models>



<European model>



• LED Circuit Board



Notes)

Circuit Board:	CHA-SW (NX817180) (5229A)
Circuit Board:	CHB-SW (NX817190) (5229B)
1. IC	
IC 503-506:	UPC4570HA (XB247401) OP AMP
IC 701,702:	BA6144 (XA552A00) METER DRIVER
2. LED	
D 705,706:	SEL4117R (IX808470)
D 707,708,711-714:	SEL4417G (IX808480)
D 709,710:	SEL4817D (IX808490)
3. Polyester Multilay Cap.	
C 519-522:	0.22 50V J (VG744200) M S 50V 224J T
4. Ceramic Capacitor	
C 513,514,523,524:	100P 50V J SL (FG252100) S SL 50V 101J T
C 515,516:	390P 50V K YB (FG252390) S YB 50V 391K T
C 517,518:	68P 50V J SL (FG212680) S SL 50V 680J T
C 531,532:	220P 50V J SL (FG252220) S SL 50V 221J T
C 533,534,539,540:	120P 50V J SL (FG252120) S SL 50V 121J T
C 541,542:	1000P 50V K YB (FG213100) S YB 50V 102K T
C 567-570:	0.0220 50V Z YF (FG244220) S YF 50V 223Z T
5. Electrolytic Capacitor	
C 509,510:	22.00 25V M (UM407220) S 25V 220M T
C 511,512,525-528, 555,556,703,704:	10.00 25V M (UM417100) S 25V 100M T
C 529,530,535-538, 543-546,701,702:	47.00 25V M (UJ667470) S 25V 470M T
6. Carbon Resistor	
R 513,514:	39.0 1/6 J (HF854390) H 1/6W 390J T
R 515,516,519,520, 525,526,531,532, 535,536:	2.2K 1/6 J (HF856220) H 1/6W 222J T
R 517,518,527-530, 533,534:	100.0K 1/6 J (HF858100) H 1/6W 104J T
R 521,522,537,538, 545,546:	3.3K 1/6 J (HF856330) H 1/6W 332J T
R 523,524:	5.6K 1/6 J (HF856560) H 1/6W 562J T
R 539,540,547,548:	820.0 1/6 J (HF855820) H 1/6W 821J T
R 541-544,549-552:	470.0K 1/6 J (HF858470) H 1/6W 474J T
R 585-588:	56.0K 1/6 J (HF857560) H 1/6W 563J T
R 703,704,715,716:	10.0K 1/6 J (HF857100) H 1/6W 103J T
R 705-708:	510.0 1/6 J (HF855510) H 1/6W 511J T
R 719,720:	680.0 1/6 J (HF855680) H 1/6W 681J T
R 709-714:	1.2K 1/4W J (HJ356120) H 1/4W 122J T
7. Push Switch	
SW 501,502:	SPEA12-3N-W (KX804600)
SW 503-506:	SPEA12-2N-W (KX804610)
8. Slide Variable Resistor	
VR 501,502:	RS25111 10KA (HX808940)
VR 503,504:	RS25112 50KD (HX808950)
9. Connector Assembly	
CN 501:	SAN-PH 6PX100 (LX804410)
CN 502:	SAN-PH 7PX100 (LX804420)
CN 503,504:	SAN-PH 6PX50 (LX804430)

Notes)

Circuit Board:	LED (NX817170) (5229D)
1. LED	
D 810:	SEL4117R (IX808470)
2. Connector Assembly	
CN 804:	SCN-EH 2PX250 P (LX804440)
Note	
Circuit Board:	JACK (NX817160) (5229C)
1. IC	
IC 501,502:	UPC4570HA (XB247401) OP AMP
IC 507,508:	AN6557 (IG085200) OP AMP
IC 801:	UPC78M15AHF (XQ179A00) REGULATOR +15V
IC 802:	UPC79M15AHF (XH767A00) REGULATOR +15V
IC 803:	UPC78L12J (IG027850) REGULATOR +12V
2. Transistor	
Q 801-804:	2SC2785 KEF T (IX808500)
3. Diode	
D 801-804:	1SR139-400 (VU264100)
D 806,809:	1SS136 T-77 (IX808510)
4. Electrolytic Capacitor	
C 501-504:	10.00 25V M (UM417100) S 25V 100M T
C 551-554:	220.00 25V M (UJ648220) S 25V 221M T
C 557,558:	47.00 25V M (UJ667470) S 25V 470M T
C 802,803:	2200 35V (FX803920) S 35V 222M
C 804,805,822:	100.00 25V M (UJ648100) S 25V 101M T
C 811:	33.00 25V M (UJ167330) S 25V 330M T
C 821:	4.70 25V M (UM416470) S 25V 478M T
5. Ceramic Capacitor	
C 505-508:	47P 50V J SL (FG251470) S SL 50V 470J T
C 547-550:	33P 50V J SL (FG251330) S SL 50V 330J T
C 559-566,806,807, 812:	0.0220 50V Z YF (FG244220) S YF 50V 223Z T
6. Carbon Resistor	
R 501-504,806:	100.0K 1/6 J (HF858100) H 1/6W 104J T
R 505-508:	15.0K 1/6 J (HF857150) H 1/6W 153J T
R 509-512,808:	10.0K 1/6 J (HF857100) H 1/6W 103J T
R 575-578,803-805:	22.0K 1/6 J (HF857220) H 1/6W 223J T
R 581-584:	1.0K 1/6 J (HF856100) H 1/6W 102J T
R 589,590:	56.0K 1/6 J (HF857560) H 1/6W 563J T
R 801:	2.2K 1/6 J (HF856220) H 1/6W 222J T
R 802,809,810:	4.7K 1/6 J (HF856470) H 1/6W 472J T
R 807:	1.2K 1/4W J (HF756120) H 1/4W 122J T
R 561-564:	75.0 1/6 J (HF854750) H 1/6W 750J T

7. Metal Film Resistor	T
R 553-556,569,570:	10.0K 1/6 F (VA074400) RN 1/6W 1002F T
R 557-560:	18.0K 1/6 F (VB067900) RN 1/6W 1802F T
R 565-568:	20.0K 1/6 F (VB068000) RN 1/6W 2002F T
R 571,572:	11.0K 1/6 F (VA074500) RN 1/6W 1102F T
8. Relay	
RY 501:	RY12W-K (KC001900)
9. Cannon Jack	
J 501,502:	NC3FAH1 (VS133800)
J 505,506:	NC3MAH (VS133700)
10. Phone Jack	
J 503,504,507,508:	HTJ064-11D (LX804400)
11. Connector	
BC 501:	PH 6P (LX804390)
BC 502:	PH 7P (LX804470)
BC 803:	XH 3P (LX804460)
BC 804:	EH 2P (LX804450)

Notes)

Circuit Board:	AC (NX817140) HB (4181C/D)
1. Capacitor	
C 801A,801B:	0.010 275VAC (VS741700) R40KI 275V 103M
2. Power Switch	
S 801A,801B:	SDDL1B-1E1 L4 (KX804590)
3. Fuse	
F 801A:	MT4-N1 1.25A (KX804620) JUC
F 801B:	BET 250V 500MA (KX804630) HB
4. Connector	
BC 801A,802A, 801B,802B:	VH 4P-2P (LX804380)
5. Fuse Holder	
F 801A,801B:	EYF-52BCT (VP206500)

■ INSPECTIONS/ADJUSTMENTS

1. Preparation

AC Power Supply	
US and Canadian models	: AC 120V 60 Hz
European model	: AC 230V 50 Hz
Signal Source	
Input Signal	: Sinusoidal
Level	: 0 dBs = 0.775 V _{r.m.s}
Output impedance	: 600 Ω (Balanced)
Panel Volumes and Switches Setting	
EQ Switch	: OFF
HPF Switch	: OFF
RANGE Switch	: OFF
LEVEL Volume	: Maximum
HPF Control	: Minimum
Equalizer Control	: Center (Flat)
Filter	: Wide Band
Output Terminal	
Load Impedance	: 600 Ω (Balanced)

2. Inspections

Inspect both channels A and B unless otherwise specified.
Connect the cables to either the XLR connector or the phone Jack.

2-1 Gain

When 1 kHz +4 dBs signal is applied to the input, the output level should be $+4 \pm 2$ dBs and also the EQ and the HPF switches are ON, the output signal level should be $+4 \pm 2$ dBs.

2-2 Frequency Response

When a signal is applied to the input and EQ switch is ON, the output level should be 0 ± 0.5 dB at 20 Hz and 20 kHz when 1 kHz is set as a reference (0 dB).

2-3 Equalizer Characteristic

Set the EQ switch ON. A signal corresponding to each equalizer control is applied to the input and the EQ level is changed from center position (flat) to maximum and minimum, the output level should be $\pm 12 \pm 2$ dB.

Set the RANGE switch ON and changed equalizer control as specified above, the output level should be $\pm 6 \pm 1.5$ dB.

If the result does not meet the above specification, change the input signal frequency so that the output signal can be at set level. At that time, its frequency should be in the range of $\pm 5\%$.

2-4 HPF Characteristic

Set the HPF switch ON. A 20 Hz signal is applied to the input, the output level should be $-3 \text{ dB} \pm 2$ dB at the HPF control minimum position when 1 kHz is set as a reference (0 dB).

A 200 Hz signal is applied to the input, the output level should be $-3 \text{ dB} \pm 2$ dB at the HPF control maximum position when 1 kHz is set as a reference (0 dB).

When 20 kHz signal is applied to the input, the output level should be $-0 \text{ dB} \pm 0.5$ dB at the HPF control minimum and maximum position when 1 kHz is set as a reference (0 dB).

2-5 Distortion

Set the EQ switch, HPF switch and RANGE switch ON and set the equalizer controls at center position (flat), when the output level is +4 dBs, the distortion should be less than 0.01 % within the range of 20 Hz through 20 kHz.

2-6 Maximum Output

Maximum output should be +24 dBs with less than 0.1 % distortion when 1 kHz signal is applied.

2-7 PEAK Indicator

When the 1 kHz signal is applied and the output level reach $+21 \pm \frac{2}{4}$ dBs, the PEAK indicator should start lighting.

2-8 SIGNAL Indicator

When the 1 kHz signal is applied and the output level reach $+9 \pm 3$ dBs, the SIGNAL indicator should start lighting.

2-9 Other Indicators

The POWER LED (Red) lights on when POWER switch is ON.

The EQ LED (Green) lights on when EQ switch is ON.

The HPF LED (Green) lights on when HPF switch is ON.

The RANGE LED (Yellow) lights on when RANGE switch is ON.

2-10 LEVEL Volume Minimum Position

When the 1 kHz signal is applied and LEVEL volumes set to minimum position, the output level should be less than -80 dB when the level of the maximum position is set as a reference (0 dB).

2-11 Crosstalk

When the 1 kHz signal is applied, the crosstalk between channel A and B should be less than -80 dB when the signal applied channel output level is set as a reference (0 dB). The XLR input terminal which is not applied the signal should be shorted with a 600 Ω (balanced).

2-12 Noise Level

When the EQ and HPF switches are ON and the INPUT XLR connector is shorted with a 600 Ω (balanced), the output noise level should be less than -96 dBs. When measure the noise level, apply DIN AUDIO filter.

2-13 Phase

Input signal and output signal should be positive phase.

■ 検査と調整

1. 準備

電源電圧.....AC 100V 50 Hz/60 Hz

信号源

波形.....正弦波
 レベル.....0 dBs=0.775 Vrms
 出力インピーダンス.....600 Ω (Balance)

パネルのスイッチとボリュームの設定

EQ Switch.....OFF
 HPF Switch.....OFF
 RANGE Switch.....OFF
 LEVEL Volume.....Maximum
 HPF Volume.....Minimum
 EQ Volume.....Center (Flat)
 Filter.....Wide Band

出力端子

負荷インピーダンス.....600 Ω (Balanced)

2. 検査

検査は、特に指定が無い限り CH. A, B 共に検査して下さい。

検査時は、XLR Connector または Phone Jack のどちらか一方のみに接続して下さい。

2-1 利得

INPUT の XLR Connector または Phone Jack に 1 kHz +4 dBs の信号を加えたとき、OUTPUT の XLR Connector または Phone Jack に、それぞれ +4±2 dBs の出力が得られることを確認します。次に EQ Switch と HPF Switch を ON した時も +4±2 dBs の出力が得られることを確認します。(この場合は、XLR IN → XLR OUT の 1 系統のみ確認して下さい)

2-2 周波数特性

XLR INPUT に信号を入力し、EQ Switch を ON したとき、OUTPUT の 20 Hz、20 kHz のレベルは 1 kHz を基準として 0±0.5 dB の範囲内であることを確認します。

2-3 EQ 変化特性

EQ Switch を ON 側にして下さい。INPUT に各 EQ Volume に対応する周波数の信号を入力し、各 EQ Volume を Maximum 及び Minimum に変化させたとき、OUTPUT で±12±2dB の範囲内のレベル変化が得られることを確認します。

次に RANGE Switch も ON して同様の測定を行った場合は、±6±1.5 dB の範囲内のレベル変化が得られることを確認します。

上記のレベルの範囲に入らない場合は、入力信号の周波数を変化させ、中心周波数が指定の周波数の ±5% 以内で、中心周波数における変化幅が上記の範囲内に入っていれば良いものとします。

2-4 HPF 特性

HPF Switch を ON 側にして下さい。20 Hz の信号を入力して HPF Volume を Minimum (20 側) にしたとき、20 Hz 出力レベルは 1 kHz を基準として -3 dB±2 dB の範囲内であることを確認します。

次に、200 Hz の信号を入力して HPF Volume を Maximum (200 側) にしたとき、200 Hz の出力レベルは 1 kHz を基準として -3 dB±2 dB の範囲内であることを確認します。

また、HPF Volume が Minimum、Maximum 共に 20 kHz の出力レベルは、1 kHz を基準として -0 dB ±0.5 dB の範囲内であることを確認します。

2-5 歪率

EQ Switch と HPF Switch、RANGE Switch を ON して EQ Volume を全て Center (Flat) としたとき、20 Hz～20 kHz の +4 dBs 出力での歪率は 0.01% 以下であることを確認します。

2-6 最大出力

1 kHz の信号を入力したとき、OUTPUT には +24 dBs の出力が歪率 0.1 % 以下で得られることを確認します。

2-7 PEAK LED の点灯レベル

1 kHz の信号を入力して PEAK LED が点灯を開始するように信号レベルを調節したとき、OUTPUT のレベルは $+21 \pm \frac{2}{4}$ dBs の範囲内であることを確認します。

2-8 SIGNAL LED の点灯レベル

1 kHz の信号を入力して SIGNAL LED が点灯を開始するように信号レベルを調節したとき、OUTPUT のレベルは $+9 \pm 3$ dBs の範囲内であることを確認します。

2-9 その他の LED の点灯

POWER Switch を ON したとき、POWER LED (Red) が点灯すること。

EQ Switch を ON したとき、EQ LED (Green) が点灯すること。

HPF Switch を ON したとき、HPF LED (Green) が点灯すること。

RANGE Switch を ON したとき、6 dB LED (Yellow) が点灯すること。

2-10 LEVEL Volume の絞りきり

1 kHz の信号を入力したとき、LEVEL Volume が Maximum の時の出力レベルを基準として、LEVEL Volume を Minimum にしたときの出力レベルは -80 dB 以下であることを確認します。

2-11 クロストーク

CHA から CH.B 及び CH.B から CH.A への信号の漏れは、信号が入力されている CH. の出力レベルを基準として 1 kHz で -80 dB 以下であることを確認します。このとき、信号を入力しない CH. の INPUT の XLR connector は 600 Ω (Balanced) でショートして下さい。

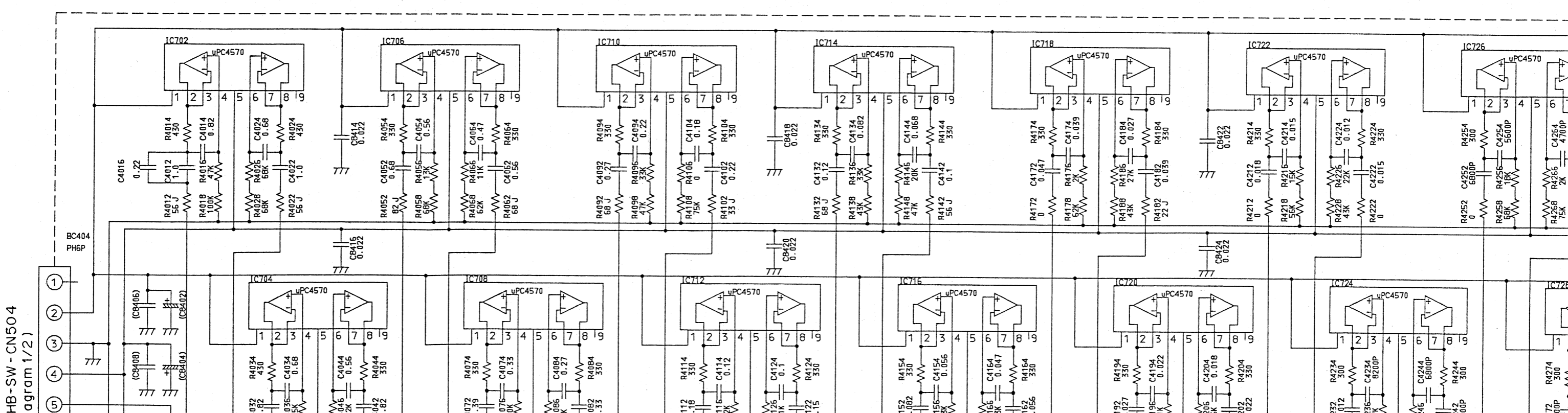
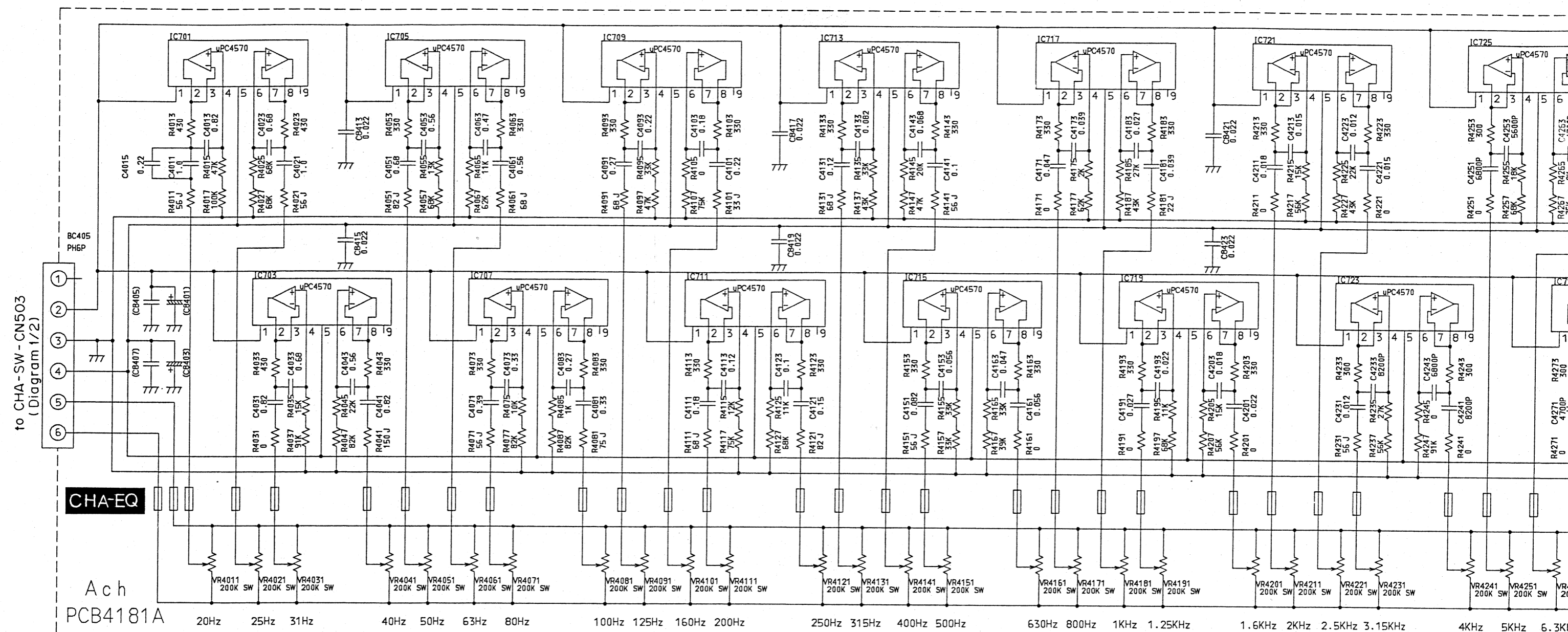
2-12 ノイズレベル

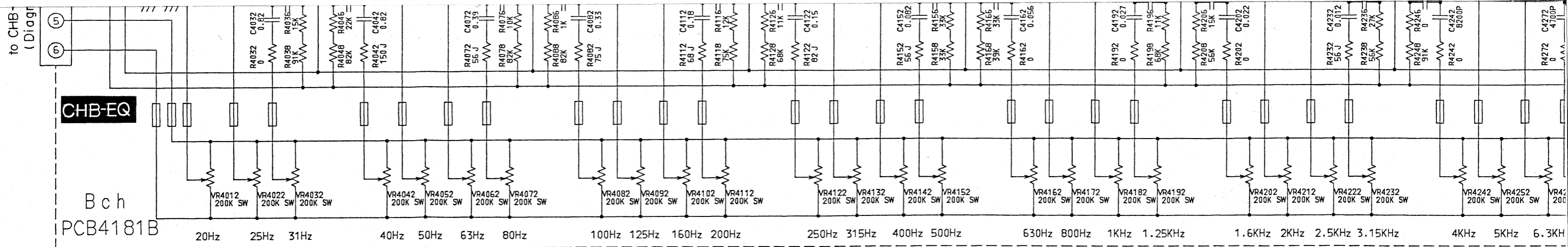
EQ Switch と HPF Switch を ON し、INPUT の XLR Connector を 600 Ω (Balanced) でショートしたとき、OUTPUT のノイズレベルは -96 dBs 以下であることを確認します。測定には DIN AUDIO Filter を使用して下さい。

2-13 位相

入力信号と出力信号の位相は同相であることを確認します。

Q2031 OVERALL CIRCUIT DIAGRAM 2/2 (EQ)





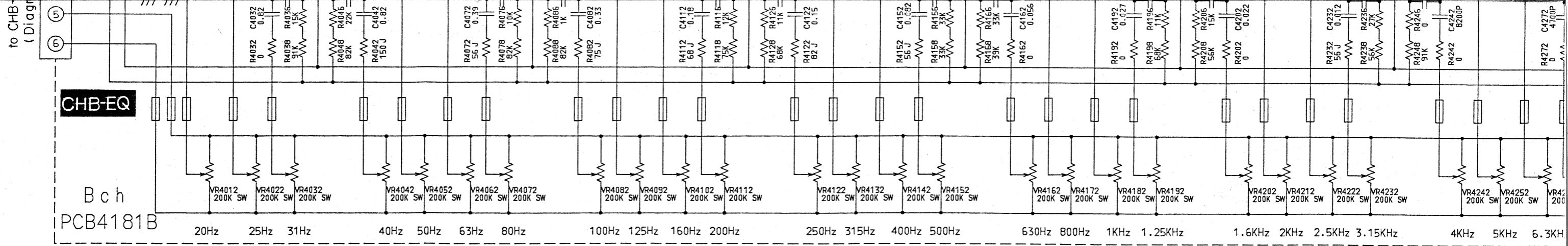
*1 Tolerance of the resistor values are $\pm 1\%$ unless otherwise specified.
 (抵抗許容誤差表示のない抵抗は、全て $\pm 1\%$ 精度です。)
 *2 symbols show jumper wires.
 (回路中のは、ジャンパー線です。)

Notes)

Circuit Board:	CHA-EQ (NX817080) (4181A)	C 4143,4144:	0.068
Circuit Board:	CHB-EQ (NX817090) (4181B)	C 4153,4154,4161,	50V 683J
1. IC		4162:	0.056
IC 701-736:	UPC4570HA (XB247401) OP AMP	3. Mylar Capacitor	
2. Polyester Multilay Cap.		C 4163,4164,4171,	
C 4011,4012,4021,		4172:	0.047 5
4022:	1.00 50V J (VG745500) M S	4173,4174,4181,	473J T
	50V 105J T	4182:	0.039 5
C 4013,4014,4031,		4183,4184,4191,	393J T
4032,4041,4042:	0.82 50V J (VG744500) M S	4192,4283,4284:	0.027 5
	50V 824J T	4193,4194,4201,	273J T
C 4015,4016,4093,		4202,4293,4294:	0.022 5
4094,4101,4102:	0.22 50V J (VG744200) M S	4203,4204,4211,	223J T
	50V 224J T	4212,4303,4304:	0.018 5
C 4023,4024,4033,		4213,4214,4221,	0.015 5
4034,4051,4052:	0.68 50V J (VG744800) M S	4222,4313,4314:	0.015 5
	50V 684J T	4223,4224,4231,	153J T
C 4043,4044,4053,4054,4061,4062:	0.56 50V J (VG744700) M S	4232:	0.012 5
	50V 564J T	4233,4234,4241,	123J T
C 4063,4064:	0.47 50V J (VG744600) M S	4242:	0.0082 5
	50V 474J T	4243,4244,4251,	822J T
C 4071,4072:	0.39 50V J (VG744500) M S	4252:	0.0068 5
	50V 394J T	4253,4254,4261,	682J T
C 4073,7074,4081,		4262:	0.0056 5
4082:	0.33 50V J (VG744400) M S	4263,4264,4271,	562J T
	50V 334J T	4272:	0.0047 5
C 4083,4084,4091,		4273,4274,4281,	472J T
4092:	0.27 50V J (VG744300) M S	4282:	0.0039 5
	50V 274J T	4283,4284,4291,	392J T
C 4103,4104,4111,		4292:	0.0027 5
4112:	0.18 50V J (VG744100) M S		
	50V 184J T		
C 4113,4114,4131,			
4132,:	0.12 50V J (VG743900) M S		
	50V 124J T		
C 4121,4122:	0.15 50V J (VG744000) M S		
	50V 154J T		
C 4123,4124,4141,			
4142:	0.10 50V J (VG743800) M S		
	50V 104J T		
C 4133,4134,4151,			
4152:	0.082 50V J (VG743700) M S		
	50V 823J T		

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A B C D E F G H



*1 Tolerance of the resistor values are $\pm 1\%$ unless otherwise specified.

(抵抗許容誤差表示のない抵抗は、全て $\pm 1\%$ 精度です。)

*2 \square symbols show jumper wires.

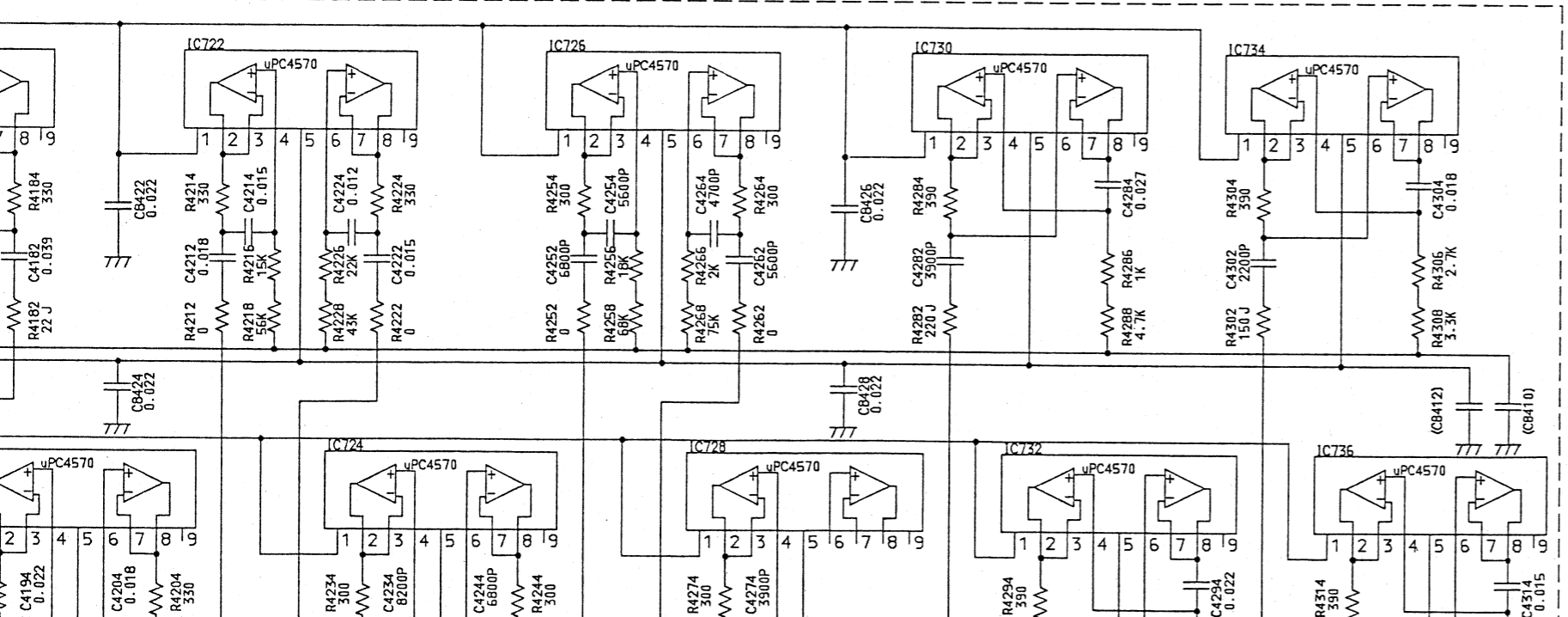
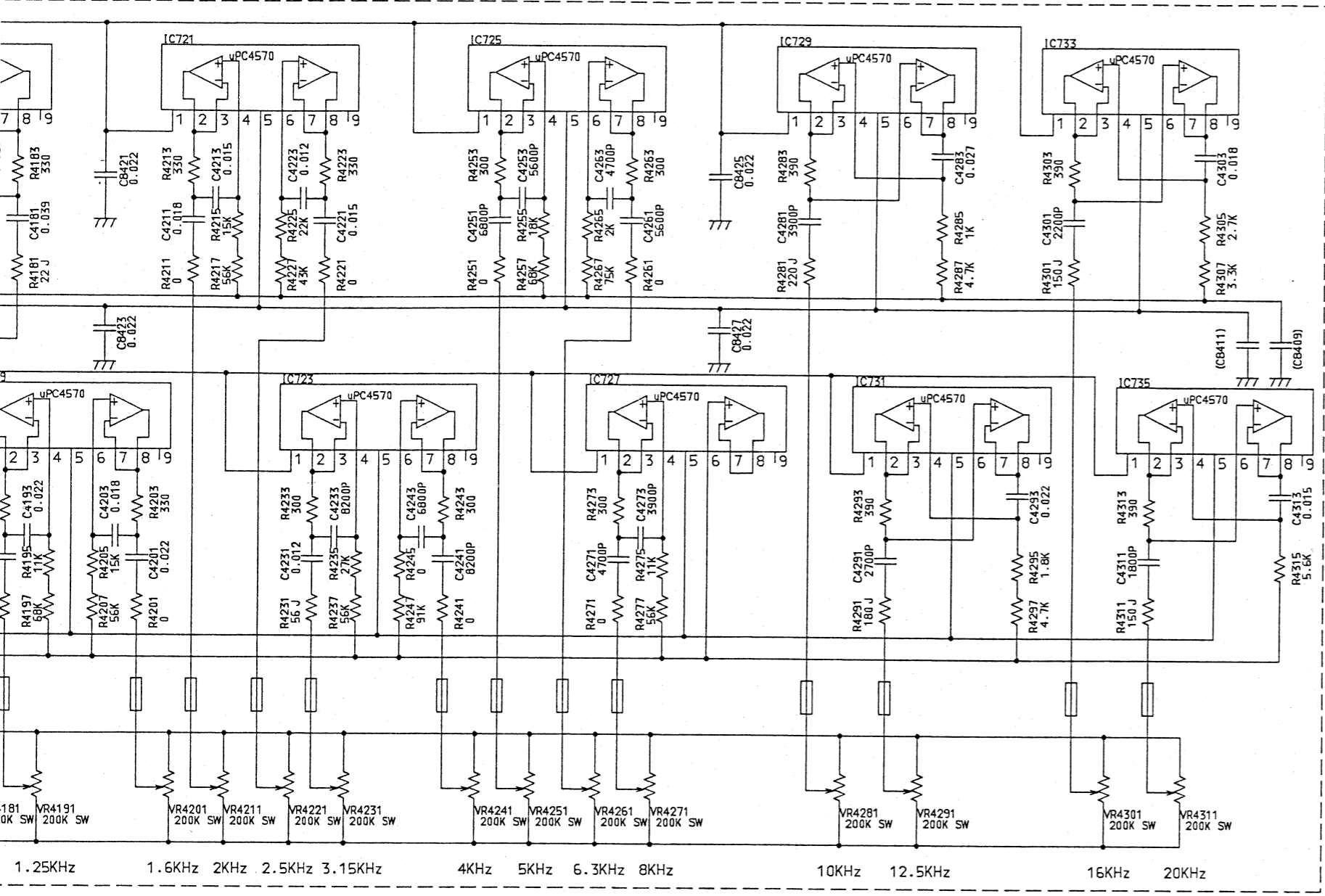
(回路中の \square は、ジャンパー線です。)

Notes)

Circuit Board:	CHA-EQ (NX817080) (4181A)	C 4143,4144:	0.068
Circuit Board:	CHB-EQ (NX817090) (4181B)	C 4153,4154,4161,	50V 683J
1. IC		4162:	0.056
IC 701-736:	UPC4570HA (XB247401) OP AMP		50V 563J
2. Polyester Multilay Cap.		3. Mylar Capacitor	
C 4011,4012,4021,		C 4163,4164,4171,	
4022:	1.00 50V J (VG745500) M S	4172:	0.047 5
	50V 105J T		473J T
C 4013,4014,4031,		C 4173,7174,4181,	
4032,4041,4042:	0.82 50V J (VG744500) M S	4182:	0.039 5
	50V 824J T		393J T
C 4015,4016,4093,		C 4183,4184,4191,	
4094,4101,4102:	0.22 50V J (VG744200) M S	4192,4283,4284:	0.027 5
	50V 224J T		273J T
C 4023,4024,4033,		C 4193,4194,4201,	
4034,4051,4052:	0.68 50V J (VG744800) M S	4202,4293,4294:	0.022 5
	50V 684J T		223J T
C 4043,4044,4053,4054,4061,4062:	0.56	C 4203,4204,4211,	
	50V J (VG744700) M S 50V 564J T	4212,4303,4304:	0.018 5
C 4063,4064:	0.47 50V J (VG744600) M S		183J T
	50V 474J T	C 4213,4214,4221,	
C 4071,4072:	0.39 50V J (VG744500) M S	4222,4313,4314:	0.015 5
	50V 394J T		153J T
C 4073,7074,4081,		C 4223,4224,4231,	
4082:	0.33 50V J (VG744400) M S	4232:	0.012 5
	50V 334J T		123J T
C 4083,4084,4091,		C 4233,4234,4241,	
4092:	0.27 50V J (VG744300) M S	4242:	0.0082 5
	50V 274J T		822J T
C 4103,4104,4111,		C 4243,4244,4251,	
4112:	0.18 50V J (VG744100) M S	4252:	0.0068 5
	50V 184J T		682J T
C 4113,4114,4131,		C 4253,4254,4261,	
4132,:	0.12 50V J (VG743900) M S	4262:	0.0056 5
	50V 124J T		562J T
C 4121,4122:	0.15 50V J (VG744000) M S	C 4263,4264,4271,	
	50V 154J T	7272:	0.0047 5
C 4123,4124,4141,			472J T
4142:	0.10 50V J (VG743800) M S	C 4273,7274,4281,	
	50V 104J T	4282:	0.0039 5
C 4133,4134,4151,			392J T
4152:	0.082 50V J (VG743700) M S	C 4291,4292:	0.0027 5
	50V 823J T		272J T

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A B C D E F G H



- R 4025-4028,4057, 4058,4127,4128, 4197,4198,4257, 4258: 68.0K 1/6 J (VB069200) RN 1/6W 6802F T
- R 4035,4036,4205, 4206,4215,4216: 15.0K 1/6 J (VA074600) RN 1/6W 1502F T
- R 4037,4038,4247, 4248: 91.0K 1/6 J (VB069500) RN 1/6W 9102F T
- R 4043,4044,4053, 4054,4063,4064, 4073,4074,4083, 4084,4093,4094, 4103,4104,4113, 4114,4123,4124, 4133,4134,4143, 4144,4153,4154, 4163,4164,4173, 4174,4183,4184, 4193,4194,4203, 4204,4213,4214, 4223,4224: 330.0 1/6 J (VB063700) RN 1/6W 3300F T
- R 4045,4046,4225, 4226: 22.0K 1/6 J (VB068100) RN 1/6W 2202F T
- R 4047,4048,4077, 4078,4087,4088: 82.0K 1/6 J (VB069400) RN 1/6W 8202F T
- R 4055,4056: 13.0K 1/6 J (VB067700) RN 1/6W 1302F T
- R 4065,4066,4125, 4126,4195,4196, 4275,4276: 11.0K 1/6 J (VA074500) RN 1/6W 1102F T
- R 4067,4068,4177, 4178: 62.0K 1/6 J (VB069100) RN 1/6W 6202F T
- R 4075,4076: 10.0K 1/6 J (VA074400) RN 1/6W 1002F T
- R 4085,4086,4285, 4286: 1.0K 1/6 J (VB065500) RN 1/6W 1001F T
- R 4095,4096,4135, 4136,4155-4158, 4165,4166: 33.0K 1/6 J (VB068400) RN 1/6W 3302F T
- R 4107,4108,4117, 4118,4267,4268: 75.0K 1/6 J (VB069300) RN 1/6W 7502F T
- R 4115,4116: 12.0K 1/6 J (VB067600) RN 1/6W 1202F T
- R 4137,4138,4187, 4188,4227,4228: 43.0K 1/6 J (VB068700) RN 1/6W 4302F T
- R 4145,4146: 20.0K 1/6 J (VB068000) RN 1/6W 2002F T
- R 4167,4168: 39.0K 1/6 J (VB068600) RN 1/6W 3902F T
- R 4175,4176,4265, 4266: 2.0K 1/6 J (VB066200) RN 1/6W 2001F T
- R 4185,4186,4235, 4236: 27.0K 1/6 J (VB068300) RN 1/6W 2702F T
- R 4207,4208,4217, 4218,4237,4238, 4277,4278: 56.0K 1/6 J (VB069000) RN 1/6W 5602F T
- R 4233,4234,4243, 4244,4253,4254, 4263,4264,4273, 4274: 300.0 1/6 J (VB063600) RN 1/6W 3000F T
- R 4255,4256: 18.0K 1/6 J (VB067900) RN 1/6W 1802F T
- R 4283,4284,4293, 4294,4303,4304, 4313,4314: 390.0 1/6 J (VB063900) RN 1/6W 3900F T
- R 4287,4288,4297, 4298: 4.7K 1/6 J (VA074100) RN 1/6W 4701F T
- R 4295,4296: 1.8K 1/6 J (VB066100) RN 1/6W

1

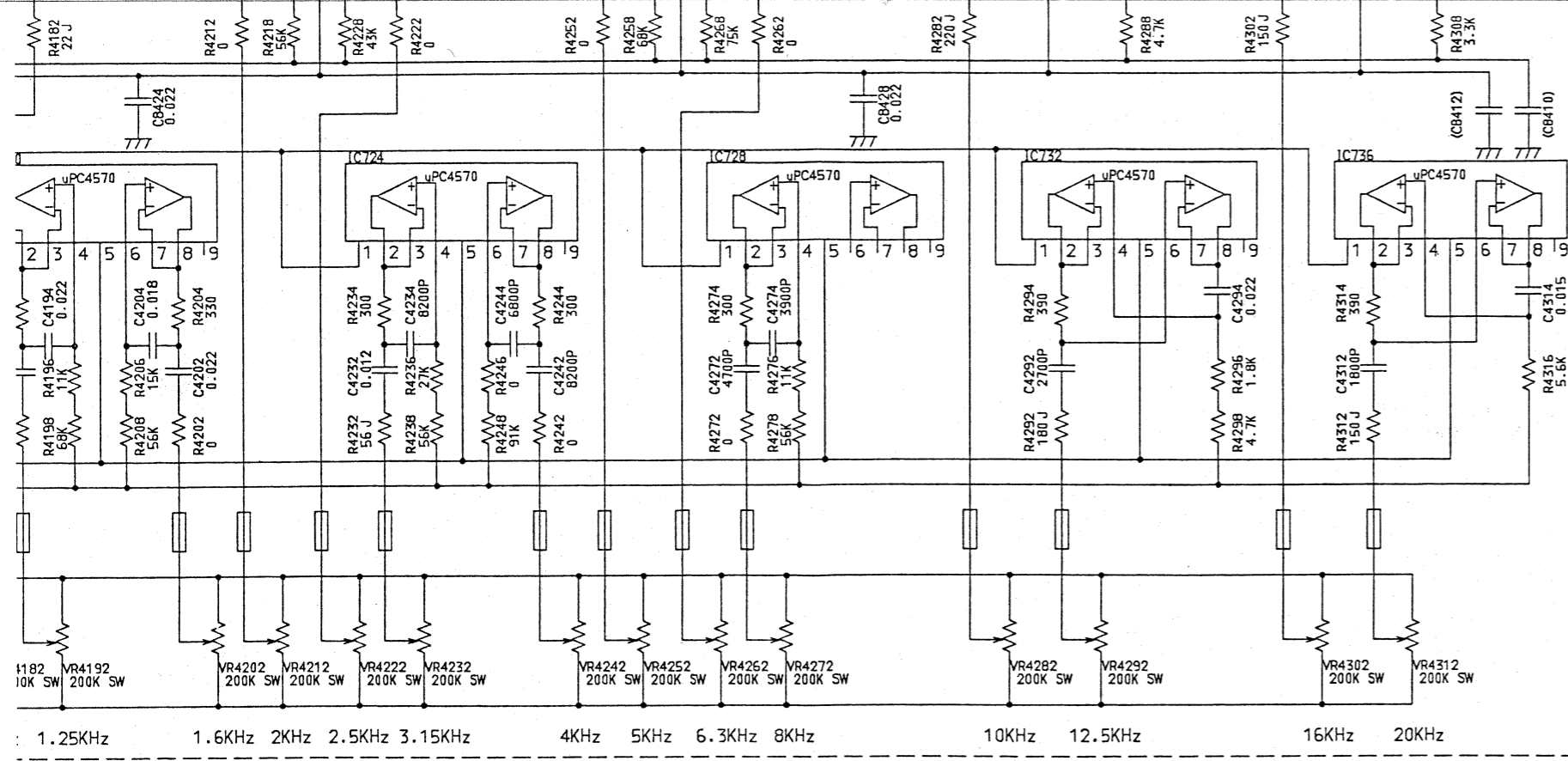
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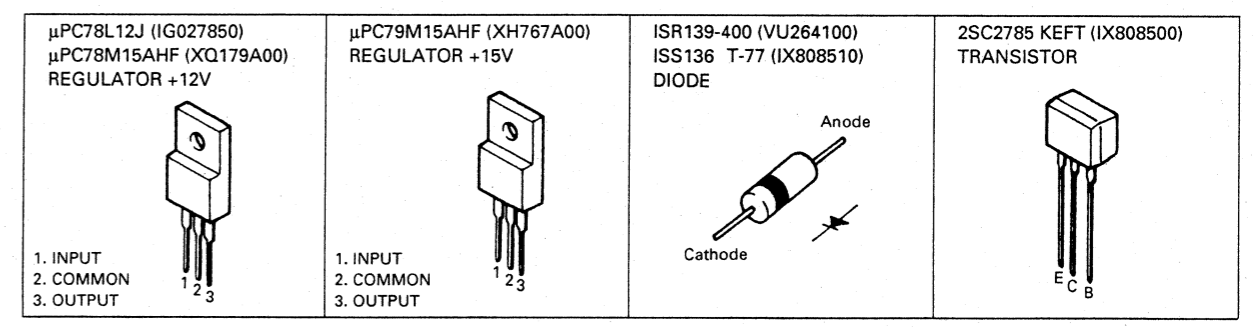


- R 4233,4234,4243,4244,4253,4254,4263,4264,4273,4274: 300.0 1/6 J (VB063600) RN 1/6W 3000F T
 - R 4255,4256: 18.0K 1/6 J (VB067900) RN 1/6W 1802F T
 - R 4283,4284,4293,4294,4303,4304,4313,4314: 390.0 1/6 J (VB063900) RN 1/6W 3900F T
 - R 4287,4288,4297,4298: 4.7K 1/6 J (VA074100) RN 1/6W 4701F T
 - R 4295,4296: 1.8K 1/6 J (VB066100) RN 1/6W 1801F T
 - R 4305,4306: 2.7K 1/6 J (VB066500) RN 1/6W 2701F T
 - R 4307,4308: 3.3K 1/6 J (VB066700) RN 1/6W 3301F T
 - R 4315,4316: 5.6K 1/6 J (VB067100) RN 1/6W 5601F T
8. Slide Variable Resistor
VR 4011-4312: RS25111 200KSW (HX808910)
9. Connector
BC 404,405: PH 6P (LX804390)

- Board: CHA-EQ (NX817080) (4181A)
Board: CHB-EQ (NX817090) (4181B)
- 736: UPC4570HA (XB247401) OP AMP
- er Multilay Cap.
.4012,4021,
1.00 50V J (VG745500) M S 50V 105J T
.4014,4031,
.4041,4042: 0.82 50V J (VG744500) M S 50V 824J T
.4016,4093,
.4101,4102: 0.22 50V J (VG744200) M S 50V 224J T
.4024,4033,
.4051,4052: 0.68 50V J (VG744800) M S 50V 684J T
4044,4053,4054,4061,4062: 0.56 50V J (VG744700) M S 50V 564J T
4064: 0.47 50V J (VG744600) M S 50V 474J T
4072: 0.39 50V J (VG744500) M S 50V 394J T
7074,4081,
0.33 50V J (VG744400) M S 50V 334J T
4084,4091,
0.27 50V J (VG744300) M S 50V 274J T
4104,4111,
0.18 50V J (VG744100) M S 50V 184J T
4114,4131,
2.: 0.12 50V J (VG743900) M S 50V 124J T
4122: 0.15 50V J (VG744000) M S 50V 154J T
4124,4141,
0.10 50V J (VG743800) M S 50V 104J T
4134,4151,
0.082 50V J (VG743700) M S 50V 823J T

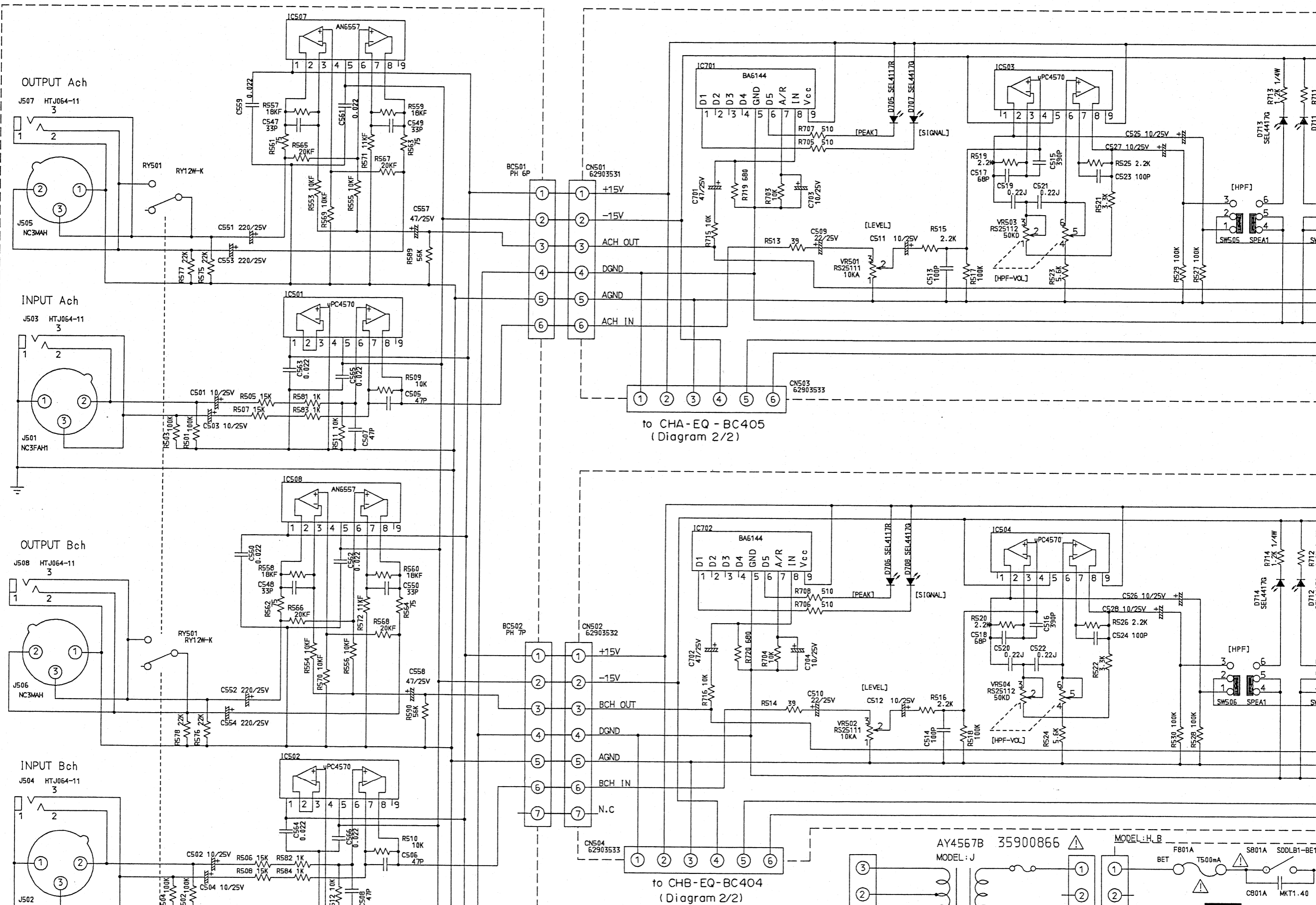
- C 4143,4144: 0.068 50V J (VG743600) M S 50V 683J T
- C 4153,4154,4161,4162: 0.056 50V J (VG743500) M S 50V 563J T
3. Mylar Capacitor
C 4163,4164,4171,4172: 0.047 50V J (UA154470) S 50V 473J T
C 4173,7174,4181,4182: 0.039 50V J (UA354390) S 50V 393J T
C 4183,4184,4191,4192,4283,4284: 0.027 50V J (UA154270) S 50V 273J T
C 4193,4194,4201,4202,4293,4294: 0.022 50V J (UA154220) S 50V 223J T
C 4203,4204,4211,4212,4303,4304: 0.018 50V J (UA354180) S 50V 183J T
C 4213,4214,4221,4222,4313,4314: 0.015 50V J (UA354150) S 50V 153J T
C 4223,4224,4231,4232: 0.012 50V J (UA354120) S 50V 123J T
C 4233,4234,4241,4242: 0.0082 50V J (UA353820) S 50V 822J T
C 4243,4244,4251,4252: 0.0068 50V J (UA353680) S 50V 682J T
C 4253,4254,4261,4262: 0.0056 50V J (UA353560) S 50V 562J T
C 4263,4264,4271,7272: 0.0047 50V J (UA353470) S 50V 472J T
C 4273,7274,4281,4282: 0.0039 50V J (UA253390) S 50V 392J T
C 4291,4292: 0.0027 50V J (UA253270) S 50V 272J T

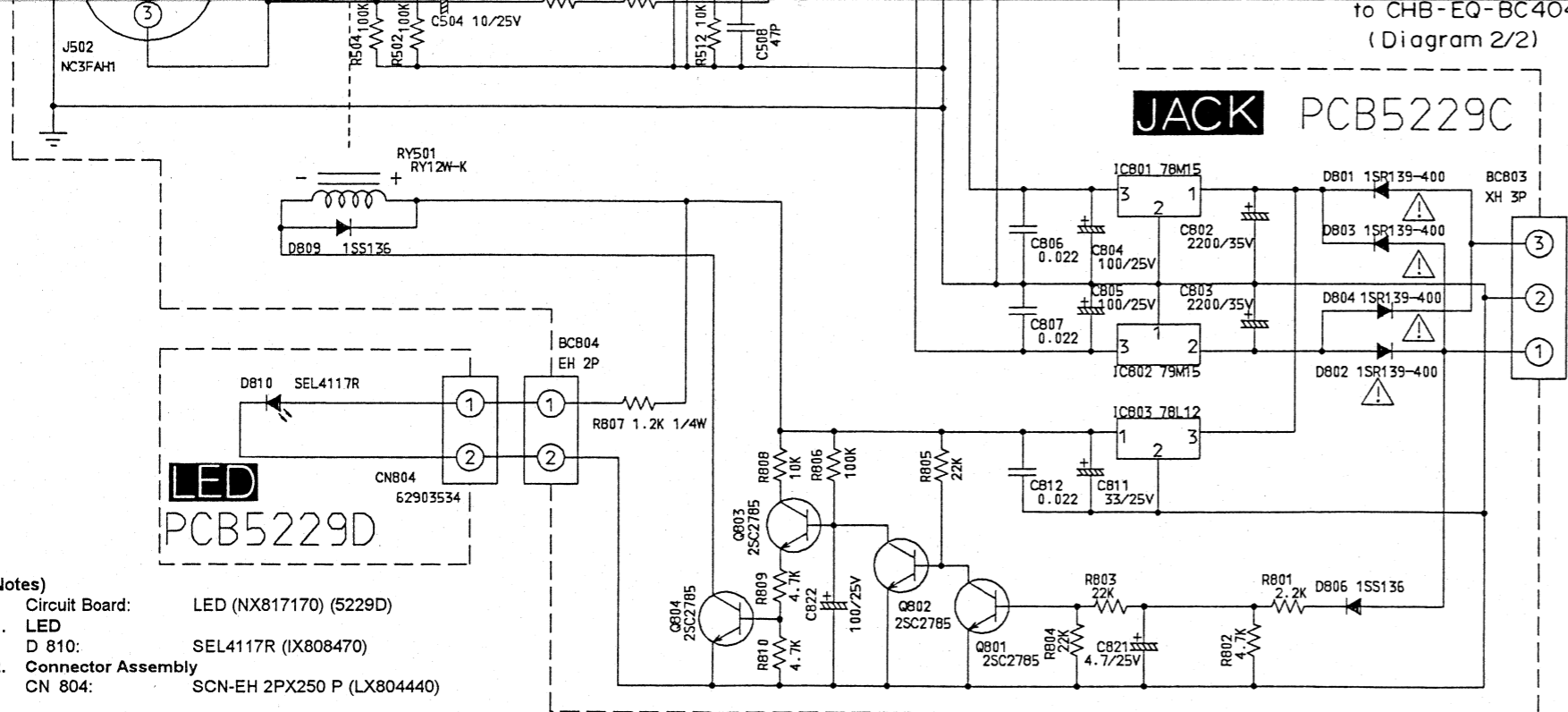
- C 4301,4302: 0.0022 50V J (UA253220) S 50V 222J T
- C 4311,4312: 0.0018 50V J (UA353180) S 50V 182J T
4. Ceramic Capacitor
C 8405-8412: 0.0220 50V Z (FG244220) S YF 50V 223Z T
5. Electrolytic Capacitor
C 8401-8404: 100.00 25V M (UJ648100) S 25V 101M T
6. Carbon Resistor
R 4011,4012,4021,4022,4071,4072,4141,4142,4151,4152,4231,4232: 56.0 1/6 J (HF854560) H 1/6W 560J T
R 4141,4042,4301,4302,4311,4312: 150.0 1/6 J (HF855150) H 1/6W 151J T
R 4051,4052,4121,4122: 82.0 1/6 J (HF854820) H 1/6W 820J T
R 4061,4062,4091,4092,4111,4112,4131,4132: 68.0 1/6 J (HF854680) H 1/6W 680J T
R 081,4082: 75.0 1/6 J (HF854750) H 1/6W 750J T
R 4101,4102: 33.0 1/6 J (HF854330) H 1/6W 330J T
R 4181,4182: 22.0 1/6 J (HF854220) H 1/6W 220J T
R 4281,4282: 220.0 1/6 J (HF855220) H 1/6W 221J T
R 4291,4292: 180.0 1/6 J (HF855180) H 1/6W 181J T
7. Metal Film Resistor
R 4013,4014,4023,4024,4033,4034: 430.0 1/6 J (VB064000) RN 1/6W 4300F T
R 4015,4016,4097,4098,4147,4148: 47.0K 1/6 J (VB068800) RN 1/6W 4702F T
R 4017,4018: 100.0K 1/6 J (VB069600) RN 1/6W 1003F T



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Q2031 OVERALL CIRCUIT DIAGRAM 1/2 (MAIN)





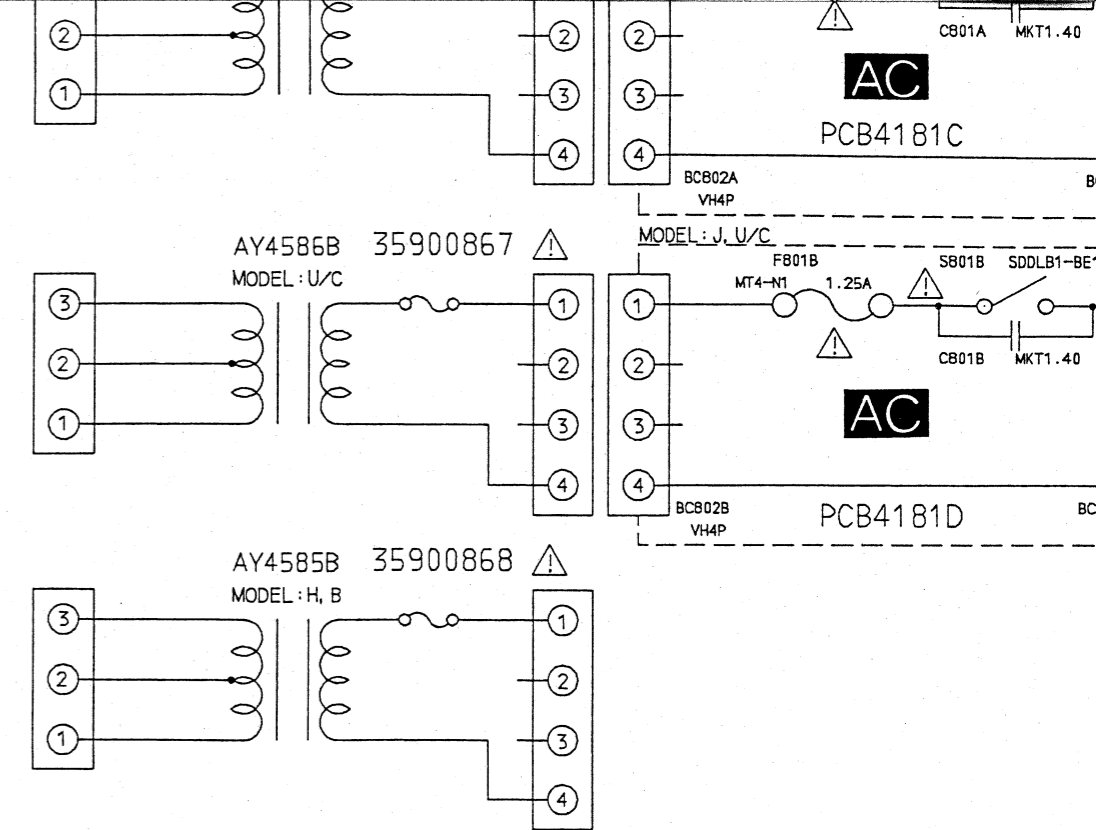
- Notes**
- Circuit Board: LED (NX817170) (5229D)
- LED**
D 810: SEL4117R (IX808470)
 - Connector Assembly**
CN 804: SCN-EH 2PX250 P (LX804440)

- Note**
- Circuit Board: JACK (NX817160) (5229C)
- IC**
IC 501,502: UPC4570HA (XB247401) OP AMP
IC 507,508: AN6557 (IG085200) OP AMP
IC 801: UPC78M15AHF (XQ179A00) REGULATOR +15V
IC 802: UPC79M15AHF (XH767A00) REGULATOR +15V
IC 803: UPC78L12J (IG027850) REGULATOR +12V
 - Transistor**
Q 801-804: 2SC2785 KEF T (IX808500)
 - Diode**
D 801-804: 1SR139-400 (VU264100)
D 806,809: 1SS136 T-77 (IX808510)
 - Electrolytic Capacitor**
C 501-504: 10.00 25V M (UM417100) S 25V 100M T
C 551-554: 220.00 25V M (UJ648220) S 25V 221M T
C 557,558: 47.00 25V M (UJ667470) S 25V 470M T
C 802,803: 2200 35V (FX803920) S 35V 222M
C 804,805,822: 100.00 25V M (UJ648100) S 25V 101M T
C 811: 33.00 25V M (UJ167330) S 25V 330M T
C 821: 4.70 25V M (UM416470) S 25V 478M T

- Ceramic Capacitor**
C 505-508: 47P 50V J SL (FG251470) S SL 50V 470J T
C 547-550: 33P 50V J SL (FG251330) S SL 50V 330J T
C 559-566,806,807,812: 0.0220 50V Z YF (FG244220) S YF 50V 223Z T
- Carbon Resistor**
R 501-504,806: 100.0K 1/6 J (HF858100) H 1/6W 104J T
R 505-508: 15.0K 1/6 J (HF857150) H 1/6W 153J T
R 509-512,808: 10.0K 1/6 J (HF857100) H 1/6W 103J T
R 575-578,803-805: 22.0K 1/6 J (HF857220) H 1/6W 223J T
R 581-584: 1.0K 1/6 J (HF856100) H 1/6W 102J T
R 589,590: 56.0K 1/6 J (HF857560) H 1/6W 563J T
R 801: 2.2K 1/6 J (HF856220) H 1/6W 222J T
R 802,809,810: 4.7K 1/6 J (HF856470) H 1/6W 472J T
R 807: 1.2K 1/4W J (HF756120) H 1/4W 122J T
R 561-564: 75.0 1/6 J (HF854750) H 1/6W 750J T

- Metal Film Resistor** T
R 553-556,569,570: 10.0K 1/6 F (VA074400) RN 1/6W 1002F T
R 557-560: 18.0K 1/6 F (VB067900) RN 1/6W 1802F T
R 565-568: 20.0K 1/6 F (VB068000) RN 1/6W 2002F T
R 571,572: 11.0K 1/6 F (VA074500) RN 1/6W 1102F T
- Relay**
RY 501: RY12W-K (KC001900)
- Cannon Jack**
J 501,502: NC3FAH1 (VS133800)
J 505,506: NC3MAH (VS133700)
- Phone Jack**
J 503,504,507,508: HTJ064-11D (LX804400)
- Connector**
BC 501: PH 6P (LX804390)
BC 502: PH 7P (LX804470)
BC 803: XH 3P (LX804460)
BC 804: EH 2P (LX804450)

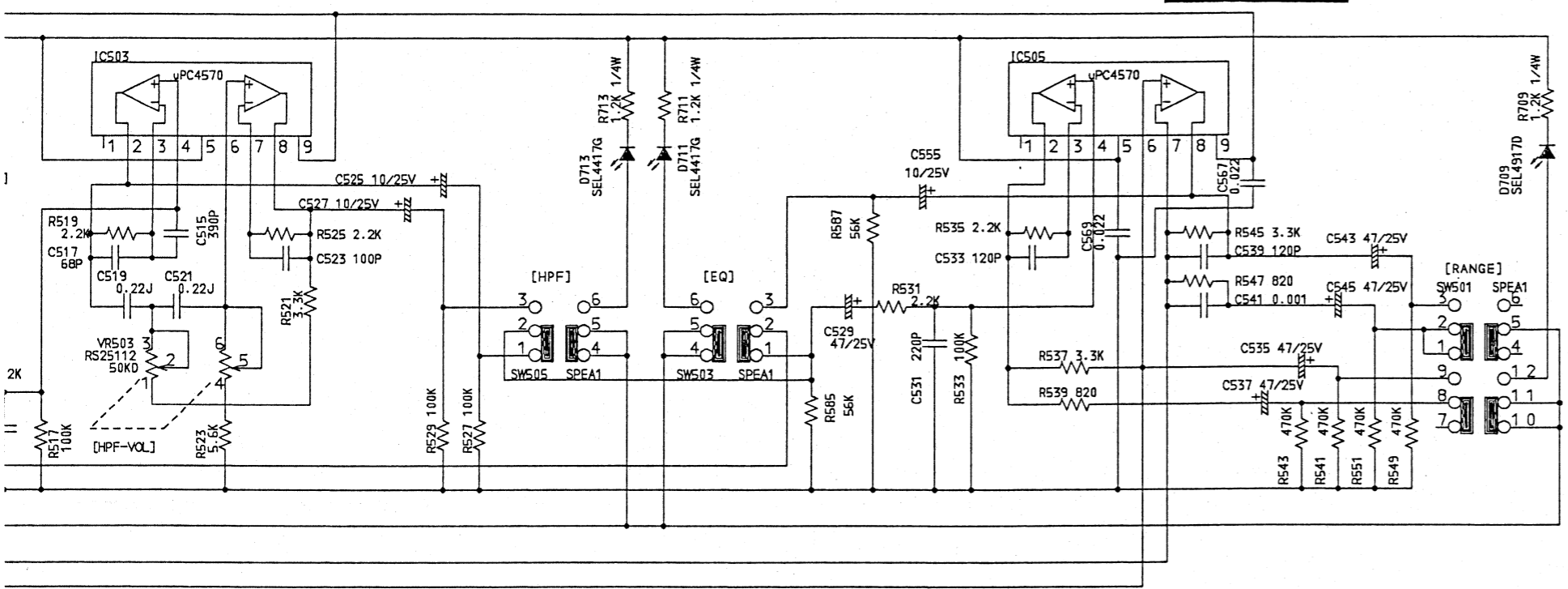
- Notes**
- Circuit Board: AC (NX817140) HB (4181C/D)
- Capacitor**
C 801A,801B: 0.010 275VAC (VS741700) R40KI 275V 103M
 - Power Switch**
S 801A,801B: SDDL1B-1E1 L4 (KX804590)
 - Fuse**
F 801A: MT4-N1 1.25A (KX804620) JUC
F 801B: BET 250V 500MA (KX804630) HB
 - Connector**
BC 801A,802A,801B,802B: VH 4P-2P (LX804380)
 - Fuse Holder**
F 801A,801B: EYF-52BCT (VP206500)



Q2031

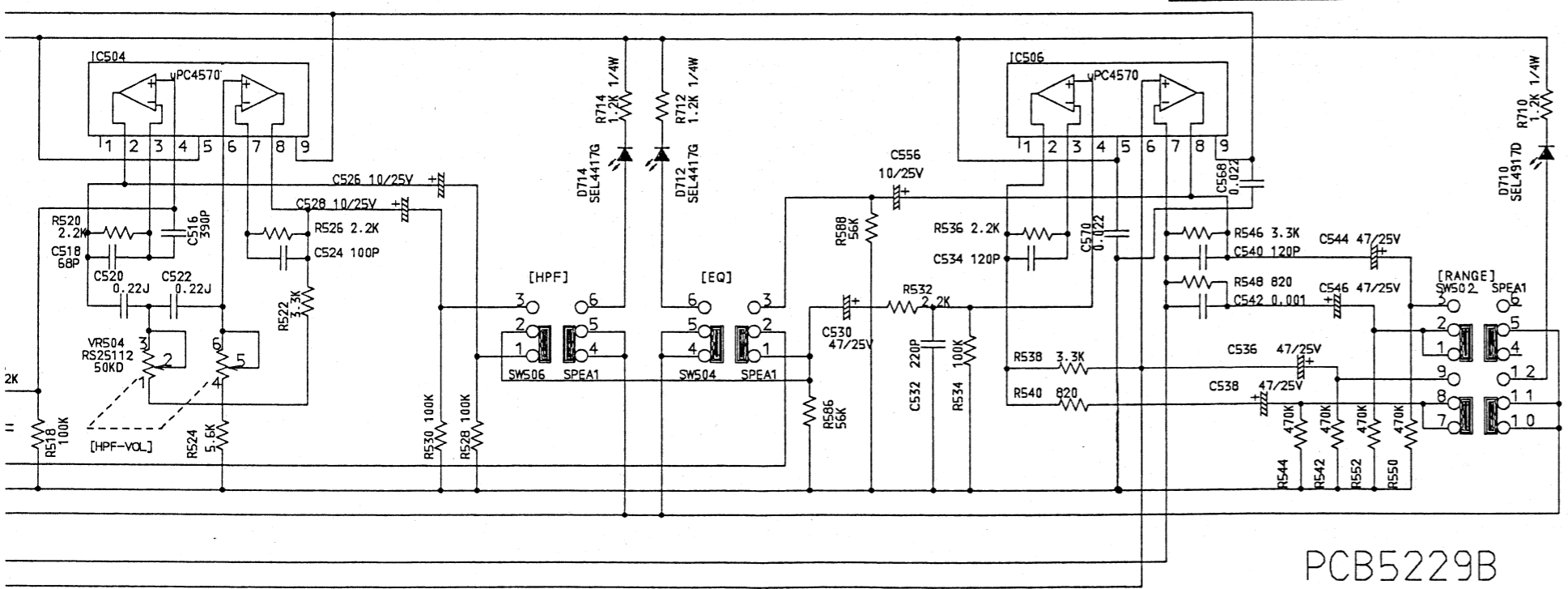
A B C D E F G H

CHA-SW



PCB5229A

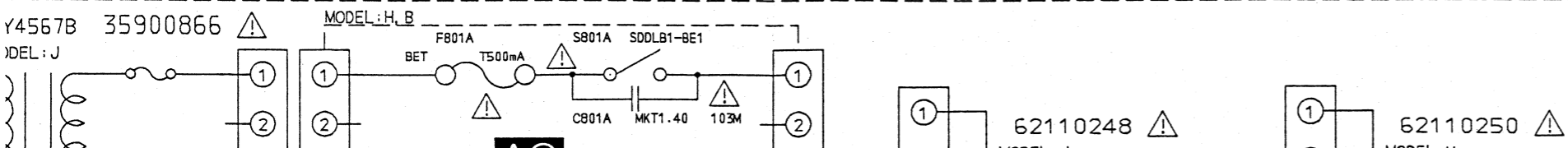
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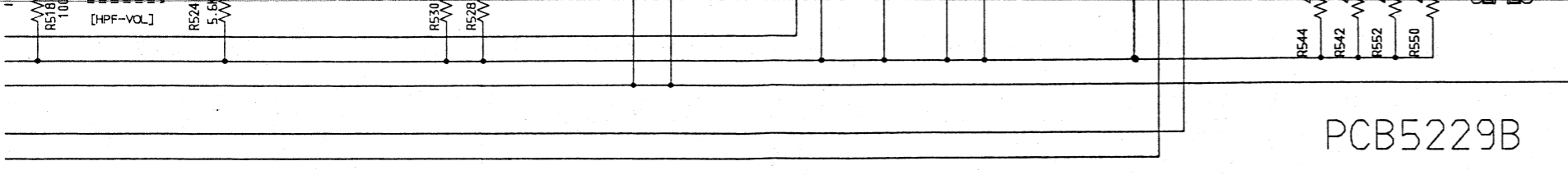


PCB5229B

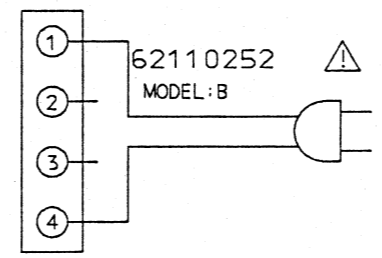
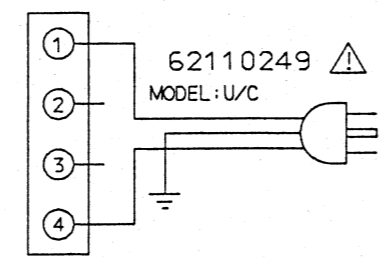
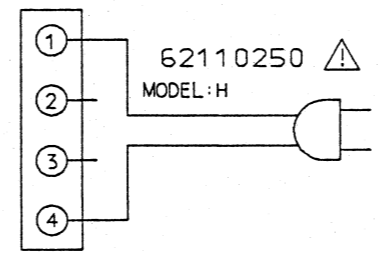
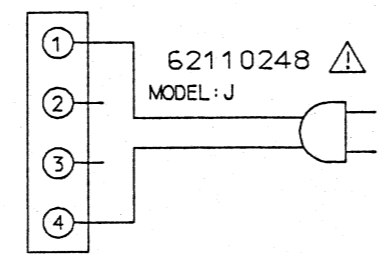
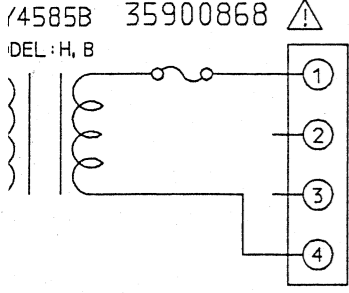
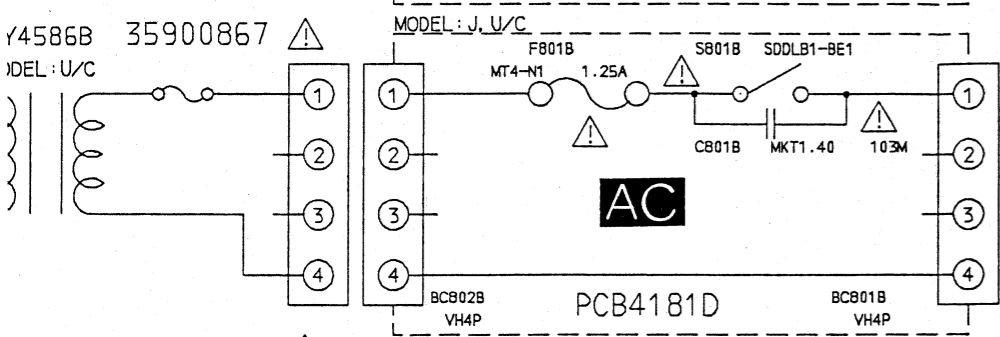
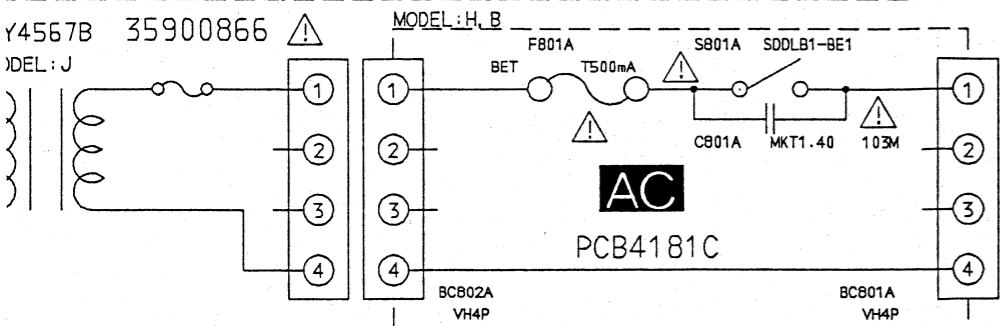
Notes)

- Circuit Board: CHA-SW (NX817180) (5229A)
- Circuit Board: CHB-SW (NX817190) (5229B)
- 1. IC
IC 503-506: UPC4570HA (XB247401) OP AMP
IC 701,702: BA6144 (XA552A00) METER DRIVER
- 2. LED
D 705,706: SEL4117R (IX808470)
D 707,708,711-714: SEL4417G (IX808480)
D 709,710: SEL4817D (IX808490)
- 3. Polyester Multilay Cap.
C 519-522: 0.22 50V J (VG744200) M S
50V 224J T
- 4. Ceramic Capacitor
C 513,514,523,524: 100P 50V J SL (FG252100) S SL
50V 101J T
C 515,516: 390P 50V K YB (FG252390) S YB
50V 391K T
C 517,518: 68P 50V J SL (FG212680) S SL
50V 680J T
C 531,532: 220P 50V J SL (FG252220) S SL
50V 221J T
C 533,534,539,540: 120P 50V J SL (FG252120) S SL
50V 121J T
C 541,542: 1000P 50V K YB (FG213100) S YB
50V 102K T
C 567-570: 0.0220 50V Z YF (FG244220) S YF
50V 223Z T
- 5. Electrolytic Capacitor
C 509,510: 22.00 25V M (UM407220) S 25V
220M T
C 511,512,525-528, 555,556,703,704: 10.00 25V M (UM417100) S 25V
100M T
C 529,530,535-538, 543-546,701,702: 47.00 25V M (UJ667470) S 25V
470M T
- 6. Carbon Resistor
R 513,514: 39.0 1/6 J (HF854390) H 1/6W
390J T
R 515,516,519,520, 525,526,531,532, 535,536: 2.2K 1/6 J (HF856220) H 1/6W
222J T
R 517,518,527-530, 533,534: 100.0K 1/6 J (HF858100) H 1/6W
104J T
R 521,522,537,538, 545,546: 3.3K 1/6 J (HF856330) H 1/6W
332J T
R 523,524: 5.6K 1/6 J (HF856560) H 1/6W
562J T
R 539,540,547,548: 820.0 1/6 J (HF855820) H 1/6W
821J T
R 541-544,549-552: 470.0K 1/6 J (HF858470) H 1/6W
474J T
R 585-588: 56.0K 1/6 J (HF857560) H 1/6W
563J T
R 703,704,715,716: 10.0K 1/6 J (HF857100) H 1/6W
103J T
R 705-708: 510.0 1/6 J (HF855510) H 1/6W
511J T
R 719,720: 680.0 1/6 J (HF855680) H 1/6W
681J T
R 709-714: 1.2K 1/4W J (HJ356120) H 1/4W
122J T
- 7. Push Switch
SW 501,502: SPEA12-3N-W (KX804600)
SW 503-506: SPEA12-2N-W (KX804610)
- 8. Slide Variable Resistor
VR 501,502: RS25111 10KA (HX808940)
VR 503,504: RS25112 50KD (HX808950)
- 9. Connector Assembly
CN 501: SAN-PH 6PX100 (LX804410)
CN 502: SAN-PH 7PX100 (LX804420)
CN 503,504: SAN-PH 6PX50 (LX804430)





- 7. Push Switch
 SW 501,502: SPEA12-3N-W (KX804600)
 SW 503-506: SPEA12-2N-W (KX804610)
- 8. Slide Variable Resistor
 VR 501,502: RS25111 10KA (HX808940)
 VR 503,504: RS25112 50KD (HX808950)
- 9. Connector Assembly
 CN 501: SAN-PH 6PX100 (LX804410)
 CN 502: SAN-PH 7PX100 (LX804420)
 CN 503,504: SAN-PH 6PX50 (LX804430)



* Tolerance of the resistor values are $\pm 5\%$ unless otherwise specified.

- 7140) HB (4181C/D)
- 5VAC (VS741700) R40KI
- 1E1 L4 (KX804590)
- 25A (KX804620) JUC
- 500MA (KX804630) HB
- VH 4P-2P (LX804380)
- T (VP206500)

GRAPHIC EQUALIZER

Q2031B

PARTS LIST

■ CONTENTS (目次)

OVERALL ASSEMBLY (総組立)	1
ELECTRICAL PARTS (電気部品)	3~5

Note) DESTINATION ABBREVIATIONS

J : Japanese model	A : Australian model
U : U.S.A. model	E : European model
C : Canadian model	D : German model
X : General model	B : British model
M : South African model	I : Indonesian model
H : North European model	O : Chinese model

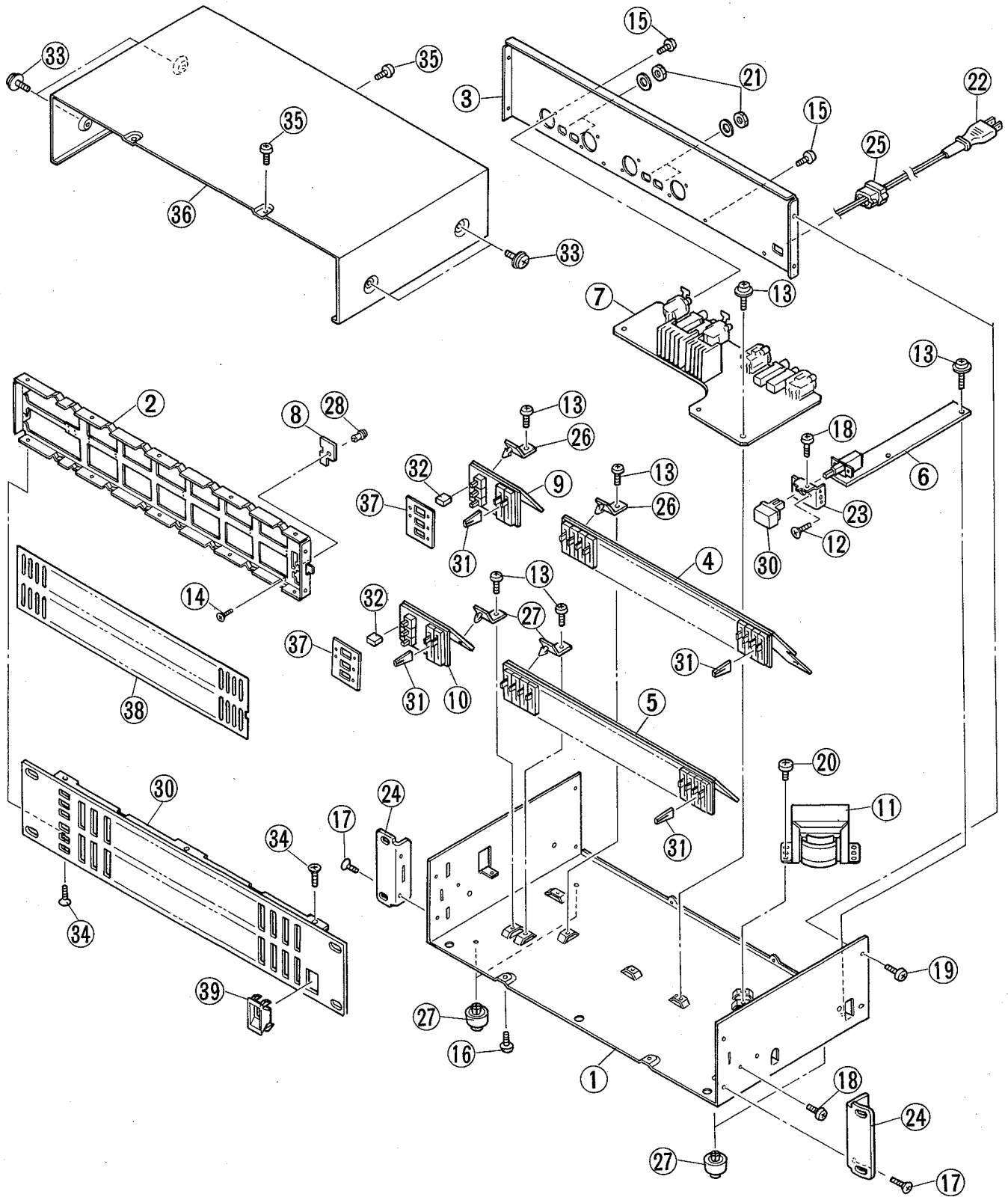
■ WARNING

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

Δ 印の部品は、安全を維持するために重要な部品です。交換をする場合は、安全のため必ず指定の部品をご使用下さい。

- The numbers with "pc." or "pcs" in "Remarks" show quantities for each unit.
- The parts with "--" in "Part No." are not available as spare parts.
- 部品価格ランクは、変更になることがあります。
- Remarks欄に記されている数字は、使用個数です。
- 部品No.が"--"の部品は、サービス用部品として準備されておりません。

OVERALL ASSEMBLY (総組立)



ELECTRICAL PARTS (電気部品)

Ref.	Part No.	Description	部品名	Remarks	ランク
		<ELECTRICAL PARTS>			
*	NX817080	Circuit Board	CHA-EQ	<電気部品> CHA-EQシート	Q2031B (4181A)
*	NX817090	Circuit Board	CHB-EQ	CHB-EQシート	(4181B)
*	NX817100	Circuit Board	AC	ACシート	JUC (4181C/D)
*	NX817160	Circuit Board	JACK	JACKシート	
*	NX817170	Circuit Board	LED	LEDシート	
*	NX817180	Circuit Board	CHA-SW	CHA-SWシート	
*	NX817190	Circuit Board	CHB-SW	CHB-SWシート	
*	NX817140	Circuit Board	AC	ACシート	HB (4181C/D)
△	VS741700	Capacitor	0.010 275VAC	規格認定コン	R40KI 275V 103M
△	KX804590	Power Switch	SDDL1-B1E1 L4	電源スイッチ	JUC
△	KX804620	Fuse	MT4-N1 1.25A	ヒューズ	HB
△	KX804630	Fuse	BET 250V 500MA	ヒューズ	
△	LX804380	Connector	VH 4P-2P	コネクタ	
*	NX817080	Circuit Board	CHA-EQ	CHA-EQシート	(4181A)
*	NX817090	Circuit Board	CHB-EQ	CHB-EQシート	(4181B)
*	XB247401	IC	UPC4570HA	IC	OP AMP
*	VG743800	Monolithic Mylar Capacitor	0.10 50V J	積層マイラーコン	M S 50V 104J T
*	VG745500	Monolithic Mylar Capacitor	1.00 50V J	積層マイラーコン	M S 50V 105J T
*	VG743900	Monolithic Mylar Capacitor	0.12 50V J	積層マイラーコン	M S 50V 124J T
*	VG744000	Monolithic Mylar Capacitor	0.15 50V J	積層マイラーコン	M S 50V 154J T
*	VG744100	Monolithic Mylar Capacitor	0.18 50V J	積層マイラーコン	M S 50V 184J T
*	VG744200	Monolithic Mylar Capacitor	0.22 50V J	積層マイラーコン	M S 50V 224J T
	VG744300	Monolithic Mylar Capacitor	0.27 50V J	積層マイラーコン	M S 50V 274J T
	VG744400	Monolithic Mylar Capacitor	0.33 50V J	積層マイラーコン	M S 50V 334J T
	VG744500	Monolithic Mylar Capacitor	0.39 50V J	積層マイラーコン	M S 50V 394J T
	VG744600	Monolithic Mylar Capacitor	0.47 50V J	積層マイラーコン	M S 50V 474J T
	VG743500	Monolithic Mylar Capacitor	0.056 50V J	積層マイラーコン	M S 50V 563J T
	VG744700	Monolithic Mylar Capacitor	0.56 50V J	積層マイラーコン	M S 50V 564J T
	VG743600	Monolithic Mylar Capacitor	0.068 50V J	積層マイラーコン	M S 50V 683J T
	VG744800	Monolithic Mylar Capacitor	0.68 50V J	積層マイラーコン	M S 50V 684J T
	VG743700	Monolithic Mylar Capacitor	0.082 50V J	積層マイラーコン	M S 50V 823J T
	VG744500	Monolithic Mylar Capacitor	0.82 50V J	積層マイラーコン	M S 50V 824J T
	UA354120	Mylar Capacitor	0.012 50V J	マイラーコン	S 50V 123J T
	UA354150	Mylar Capacitor	0.015 50V J	マイラーコン	S 50V 153J T
	UA353180	Mylar Capacitor	0.0018 50V J	マイラーコン	S 50V 182J T
	UA354180	Mylar Capacitor	0.018 50V J	マイラーコン	S 50V 183J T
	UA253220	Mylar Capacitor	0.0022 50V J	マイラーコン	S 50V 222J T
	UA154220	Mylar Capacitor	0.022 50V J	マイラーコン	S 50V 223J T
	UA253270	Mylar Capacitor	0.0027 50V J	マイラーコン	S 50V 272J T
	UA154270	Mylar Capacitor	0.027 50V J	マイラーコン	S 50V 273J T
	UA253390	Mylar Capacitor	0.0039 50V J	マイラーコン	S 50V 392J T
	UA354390	Mylar Capacitor	0.039 50V J	マイラーコン	S 50V 393J T
	UA353470	Mylar Capacitor	0.0047 50V J	マイラーコン	S 50V 472J T
	UA154470	Mylar Capacitor	0.047 50V J	マイラーコン	S 50V 473J T
	UA353560	Mylar Capacitor	0.0056 50V J	マイラーコン	S 50V 562J T
	UA353680	Mylar Capacitor	0.0068 50V J	マイラーコン	S 50V 682J T
	UA353820	Mylar Capacitor	0.0082 50V J	マイラーコン	S 50V 822J T
	FG244220	Ceramic Capacitor	0.0220 50V Z	セラコン	S YF 50V 223Z T
	UJ648100	Electrolytic Capacitor	100.00 25V M	ケミコン	S 25V 101M T
	HF855150	Carbon Resistor	150.0 1/6 J	カーボン抵抗	H 1/6W 151J T
	HF855180	Carbon Resistor	180.0 1/6 J	カーボン抵抗	H 1/6W 181J T
	HF854220	Carbon Resistor	22.0 1/6 J	カーボン抵抗	H 1/6W 220J T
	HF855220	Carbon Resistor	220.0 1/6 J	カーボン抵抗	H 1/6W 221J T
	HF854330	Carbon Resistor	33.0 1/6 J	カーボン抵抗	H 1/6W 330J T
	HF854560	Carbon Resistor	56.0 1/6 J	カーボン抵抗	H 1/6W 560J T
	HF854680	Carbon Resistor	68.0 1/6 J	カーボン抵抗	H 1/6W 680J T
	HF854750	Carbon Resistor	75.0 1/6 J	カーボン抵抗	H 1/6W 750J T
	HF854820	Carbon Resistor	82.0 1/6 J	カーボン抵抗	H 1/6W 820J T
	VB065500	Metal Film Resistor	1.0K 1/6 J	金属被膜抵抗	RN 1/6W 1001F T
	VA074400	Metal Film Resistor	10.0K 1/6 J	金属被膜抵抗	RN 1/6W 1002F T
	VB069600	Metal Film Resistor	100.0K 1/6 J	金属被膜抵抗	RN 1/6W 1003F T
	VA074500	Metal Film Resistor	11.0K 1/6 J	金属被膜抵抗	RN 1/6W 1102F T
	VB067600	Metal Film Resistor	12.0K 1/6 J	金属被膜抵抗	RN 1/6W 1202F T
	VB067700	Metal Film Resistor	13.0K 1/6 J	金属被膜抵抗	RN 1/6W 1302F T
	VA074600	Metal Film Resistor	15.0K 1/6 J	金属被膜抵抗	RN 1/6W 1502F T
	VB066100	Metal Film Resistor	1.8K 1/6 J	金属被膜抵抗	RN 1/6W 1801F T
	VB067900	Metal Film Resistor	18.0K 1/6 J	金属被膜抵抗	RN 1/6W 1802F T

Ref.	Part No.	Description	部品名	Remarks	ランク
	VB066200	Metal Film Resistor	2.0K 1/6 J	金属被膜抵抗	RN 1/6W 2001F T 01
	VB068000	Metal Film Resistor	20.0K 1/6 J	金属被膜抵抗	RN 1/6W 2002F T 01
	VB068100	Metal Film Resistor	22.0K 1/6 J	金属被膜抵抗	RN 1/6W 2202F T 01
	VB066500	Metal Film Resistor	2.7K 1/6 J	金属被膜抵抗	RN 1/6W 2701F T 01
	VB068300	Metal Film Resistor	27.0K 1/6 J	金属被膜抵抗	RN 1/6W 2702F T 01
	VB063600	Metal Film Resistor	300.0 1/6 J	金属被膜抵抗	RN 1/6W 3000F T 01
	VB063700	Metal Film Resistor	330.0 1/6 J	金属被膜抵抗	RN 1/6W 3300F T 01
	VB066700	Metal Film Resistor	3.3K 1/6 J	金属被膜抵抗	RN 1/6W 3301F T 01
	VB068400	Metal Film Resistor	33.0K 1/6 J	金属被膜抵抗	RN 1/6W 3302F T 01
	VB063900	Metal Film Resistor	390.0 1/6 J	金属被膜抵抗	RN 1/6W 3900F T 01
	VB068600	Metal Film Resistor	39.0K 1/6 J	金属被膜抵抗	RN 1/6W 3902F T 01
	VB064000	Metal Film Resistor	430.0 1/6 J	金属被膜抵抗	RN 1/6W 4300F T 01
	VB068700	Metal Film Resistor	43.0K 1/6 J	金属被膜抵抗	RN 1/6W 4302F T 01
	VA074100	Metal Film Resistor	4.7K 1/6 J	金属被膜抵抗	RN 1/6W 4701F T 01
	VB068800	Metal Film Resistor	47.0K 1/6 J	金属被膜抵抗	RN 1/6W 4702F T 01
	VB067100	Metal Film Resistor	5.6K 1/6 J	金属被膜抵抗	RN 1/6W 5601F T 01
	VB069000	Metal Film Resistor	56.0K 1/6 J	金属被膜抵抗	RN 1/6W 5602F T 01
	VB069100	Metal Film Resistor	62.0K 1/6 J	金属被膜抵抗	RN 1/6W 6202F T 01
	VB069200	Metal Film Resistor	68.0K 1/6 J	金属被膜抵抗	RN 1/6W 6802F T 01
	VB069300	Metal Film Resistor	75.0K 1/6 J	金属被膜抵抗	RN 1/6W 7502F T 01
	VB069400	Metal Film Resistor	82.0K 1/6 J	金属被膜抵抗	RN 1/6W 8202F T 01
	VB069500	Metal Film Resistor	91.0K 1/6 J	金属被膜抵抗	RN 1/6W 9102F T 01
	LX804390	Connector	PH 6P	コネクタ	
	HX808910	Slide Variable Resistor	RS25111 200KSW	スライダVR	
	VP206500	Fuse Holder	EYF-52BCT	ヒューズホルダー	
	--	PCB 4181-20		プリント基板	
	NX817160	Circuit Board	JACK	JACKシート	(5229C)
	XB247401	IC	UPC4570HA	IC	OP AMP 01
	IG085200	IC	AN6557	IC	OP AMP 03
	XQ179A00	IC	UPC78M15AHF	IC	REGULATOR +15V 02
	XH767A00	IC	UPC79M15AHF	IC	REGULATOR +15V 02
	IG027850	IC	UPC78L12J	IC	REGULATOR +12V 03
	IX808500	Transistor	2SC2785 KEF T	トランジスタ	
	IX808510	Diode	1SS136 T-77	ダイオード	
	VU264100	Diode	1SR139-400	ダイオード	
	UM416470	Electrolytic Capacitor	4.70 25V M	ケミコン	S 25V 478M T 01
	UM417100	Electrolytic Capacitor	10.00 25V M	ケミコン	S 25V 100M T 01
	UJ167330	Electrolytic Capacitor	33.00 25V M	ケミコン	S 25V 330M T 01
	UJ667470	Electrolytic Capacitor	47.00 25V M	ケミコン	S 25V 470M T 01
	UJ648100	Electrolytic Capacitor	100.00 25V M	ケミコン	S 25V 101M T 01
	UJ648220	Electrolytic Capacitor	220.00 25V M	ケミコン	S 25V 221M T 01
	FX803920	Electrolytic Capacitor	2200 35V	ケミコン	S 35V 222M
	FG251330	Ceramic Capacitor	33P 50V J SL	セラコン	S SL 50V 330J T 01
	FG251470	Ceramic Capacitor	47P 50V J SL	セラコン	S SL 50V 470J T 01
	FG244220	Ceramic Capacitor	0.0220 50V Z YF	セラコン	S YF 50V 223Z T 01
	HF854750	Carbon Resistor	75.0 1/6 J	カーボン抵抗	H 1/6W 750J T 01
	HF856100	Carbon Resistor	1.0K 1/6 J	カーボン抵抗	H 1/6W 102J T 01
	HF856220	Carbon Resistor	2.2K 1/6 J	カーボン抵抗	H 1/6W 222J T 01
	HF856470	Carbon Resistor	4.7K 1/6 J	カーボン抵抗	H 1/6W 472J T 01
	HF857100	Carbon Resistor	10.0K 1/6 J	カーボン抵抗	H 1/6W 103J T 01
	HF857150	Carbon Resistor	15.0K 1/6 J	カーボン抵抗	H 1/6W 153J T 01
	HF857220	Carbon Resistor	22.0K 1/6 J	カーボン抵抗	H 1/6W 223J T 01
	HF857560	Carbon Resistor	56.0K 1/6 J	カーボン抵抗	H 1/6W 563J T 01
	HF858100	Carbon Resistor	100.0K 1/6 J	カーボン抵抗	H 1/6W 104J T 01
	HF756120	Carbon Resistor	1.2K 1/4 J	カーボン抵抗	
	VA074400	Metal Film Resistor	10.0K 1/6 F	金属被膜抵抗	RN 1/6W 1002F T 01
	VA074500	Metal Film Resistor	11.0K 1/6 F	金属被膜抵抗	RN 1/6W 1102F T 01
	VB067900	Metal Film Resistor	18.0K 1/6 F	金属被膜抵抗	RN 1/6W 1802F T 01
	VB068000	Metal Film Resistor	20.0K 1/6 F	金属被膜抵抗	RN 1/6W 2002F T 01
	KC001900	Relay	RY12W-K	リレー	
	VS133700	Cannon Jack	NC3MAH	コネクタ	OUTPUT A/B
	VS133800	Cannon Jack	NC3FAH1	コネクタ	INPUT A/B
	LX804400	Phone Jack	HTJ064-11D	コネクタ	INPUT/OUTPUT
	LX804450	Connector	EH 2P	コネクタ	
	LX804460	Connector	XH 3P	コネクタ	
	LX804390	Connector	PH 6P	コネクタ	
	LX804470	Connector	PH 7P	コネクタ	
	EX803660	Pan Head Tapping Screw-S	M3X10 ZC	ナベスタイト	
	BX801020	Heat Sink		放熱板	

*New Parts (新規部品)

ランク:Japan only

Ref.	Part No.	Description	部品名	Remarks	ランク	
* * *	NX817170 IX808470 LX804440	Circuit Board LED Connector Assembly	LED SEL4117R SCN-EH 2PX250 P	L E D シート L E D 束線	(5229D)	
* * * *	NX817180 NX817190 XB247401 XA552A00 IX808470	Circuit Board Circuit Board IC IC LED	CHA-SW CHB-SW UPC4570HA BA6144 SEL4117R	C H A - S W シート C H B - S W シート I C I C L E D	(5229A) (5229B) OP AMP METER DRIVER	01 03
* *	IX808480 IX808490 VG744200 FG212680 FG252100	LED LED Monolithic Mylar Capacitor Ceramic Capacitor Ceramic Capacitor	SEL4417G SEL4917D 0.22 50V J 68P 50V J SL 100P 50V J SL	L E D L E D 積層マイラーコン セラコン セラコン	M S 50V 224J T S SL 50V 680J T S SL 50V 101J T	01 01 01 01
	FG252120 FG252220 FG252390 FG213100 FG244220	Ceramic Capacitor Ceramic Capacitor Ceramic Capacitor Ceramic Capacitor Ceramic Capacitor	120P 50V J SL 220P 50V J SL 390P 50V K YB 1000P 50V K YB 0.0220 50V Z YF	セラコン セラコン セラコン セラコン セラコン	S SL 50V 121J T S SL 50V 221J T S YB 50V 391K T S YB 50V 102K T S YF 50V 223Z T	01 01 01 01 01
	UM407220 UM417100 UJ667470 HF854390 HF855510	Electrolytic Capacitor Electrolytic Capacitor Electrolytic Capacitor Carbon Resistor Carbon Resistor	22.00 25V M 10.00 25V M 47.00 25V M 39.0 1/6 J 510.0 1/6 J	ケミコン ケミコン ケミコン カーボン抵抗 カーボン抵抗	S 25V 220M T S 25V 100M T S 25V 470M T H 1/6W 390J T H 1/6W 511J T	01 01 01 01 01
	HF855680 HF855820 HF856220 HF856330 HF856560	Carbon Resistor Carbon Resistor Carbon Resistor Carbon Resistor Carbon Resistor	680.0 1/6 J 820.0 1/6 J 2.2K 1/6 J 3.3K 1/6 J 5.6K 1/6 J	カーボン抵抗 カーボン抵抗 カーボン抵抗 カーボン抵抗 カーボン抵抗	H 1/6W 681J T H 1/6W 821J T H 1/6W 222J T H 1/6W 332J T H 1/6W 562J T	01 01 01 01 01
	HF857100 HF857560 HF858100 HF858470 HF756120	Carbon Resistor Carbon Resistor Carbon Resistor Carbon Resistor Carbon Resistor	10.0K 1/6 J 56.0K 1/6 J 100.0K 1/6 J 470.0K 1/6 J 1.2K 1/4 J	カーボン抵抗 カーボン抵抗 カーボン抵抗 カーボン抵抗 カーボン抵抗	H 1/6W 103J T H 1/6W 563J T H 1/6W 104J T H 1/6W 474J T	01 01 01 01 01
* * * * *	LX804410 LX804420 LX804430 KX804600 KX804610	Connector Assembly Connector Assembly Connector Assembly Push Switch Push Switch	SAN-PH 6PX100 SAN-PH 7PX100 SAN-PH 6PX50 SPEA12-3N-W SPEA12-2N-W	束線 束線 束線 プッシュスイッチ プッシュスイッチ		
* * *	HX808940 HX808950 CX815790 CX815800	Slide Variable Resistor Slide Variable Resistor LED Spacer LED Spacer	RS25111 10KA RS25112 50KD LH-5-8 LH-5-15	スライドVR スライドVR LEDスパーサ LEDスパーサ		
△* △* △* △* △*	GX804330 GX804340 GX804350 MX801960 MX801970	Power Transformer Power Transformer Power Transformer AC Cord AC Cord	KP211-VA2.1M KP30-VA/M4 2.1M	電源トランス 電源トランス 電源トランス 電源コード 電源コード	J UC HB J UC	
△* △*	MX801980 MX801990	AC Cord AC Cord	KP419C-VA 2.1M KP610-VA 2.1M	電源コード 電源コード	H B	