

# BOSS SE-70 SUPER EFFECTS PROCESSOR

## SERVICE NOTES

First Edition

ERRATA & SUPPLEMENT is attached at the end of the page.  
最終頁に正誤表と追加情報があります。

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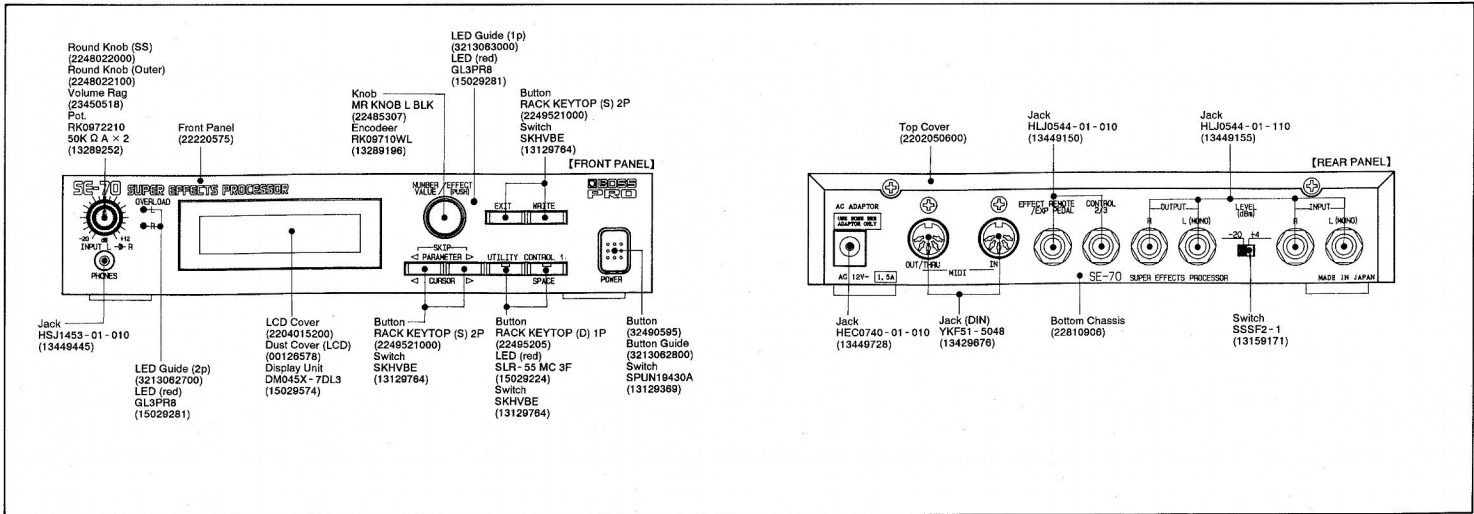
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### SPECIFICATIONS / 仕様

- Signal Processing/信号処理 ..... : AD Conversion /AD変換: 16 bit linear (84times oversampling,  $\Delta \Sigma$  process)  
: 16 ビットリニア (84 倍オーバーサンプリング、 $\Delta \Sigma$ 方式)
- DA Conversion/DA変換 ..... : 16 bit linear (8times oversampling)  
: 16 ビットリニア (8 倍オーバーサンプリング)
- Sampling Frequency/サンプリング周波数 ..... : 48kHz/24kHz (set every algorithm / アルゴリズム毎に設定)
- Programs/Memory Locations/プログラム・メモリ ..... : 145 in Total  
: User Area:101 to 100  
: Preset Area:101 to 145
- Frequency Response/周波数特性 ..... : 10Hz to 22kHz +0/- 3dB (Sampling Frequency:48kHz)  
: 10Hz to 15kHz +0/- 3dB (Sampling Frequency:32kHz)
- Nominal Input Level/公称入力レベル ..... : -20/+4dBm
- Input Impedance/入力インピーダンス ..... : 1M  $\Omega$
- Nominal Output Level/公称出力レベル ..... : -20/+4dBm
- Recommended Load Impedance/許容出力負荷 ..... : 20k  $\Omega$  or greater(20k  $\Omega$ 以上)
- Residual Noise/残留ノイズ ..... : -100dBm or less/ -100dB以下 (HF- A)  
(Level Switch: -20dBm, THRU)  
(0dBm=0.775Vrms)
- Input Gain/入力レベル調整 ..... : -20dB to +12dB
- Display/表示器 ..... : LCD (16 characters, 2 lines, Backlit LCD/16 桁  $\times$  2 行、バックライト付)
- Power/電源 ..... : 12V AC (BOSS BRB-100, 120, 220, 240)
- Current Draw/消費電流 ..... : 1.5A
- Dimensions ..... : 218(W)  $\times$  44(H)  $\times$  240(D) mm  
: 8.58(W)  $\times$  1.74(H)  $\times$  9.45(D) inches
- Weight/重量 ..... : 1.5kg/3.3lbs
- Accessories/付属品 ..... : 7001890 Owner's Manual Set (Japanese) (Owner's Manual / Algorithm Guide)  
: 7001900 Owner's Manual Set (English) (Owner's Manual / Algorithm Guide)  
: 1244961 Adaptor BRB-100  
: 1244961 Adaptor BRB-120  
: 1244961 Adaptor BRB-220  
: 1244961 Adaptor BRB-240E  
: 1244962 Adaptor BRB-240A  
: \*\*\*\*\* Foot Rubber  $\times$  4

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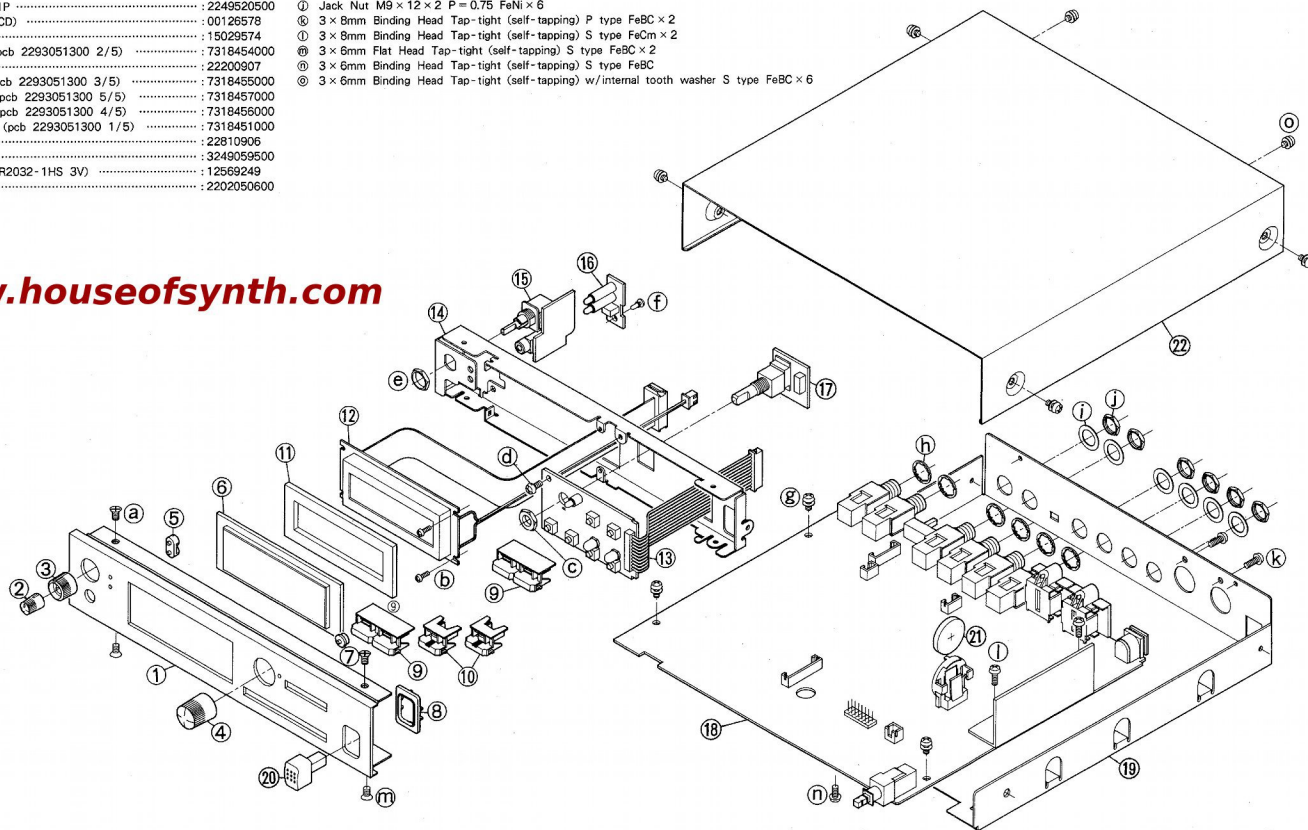


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

## EXPLODED VIEW / 分解図

No.	PARTS NAME	PARTS No.	SCREW
①	Front Panel	:2220575	③ 3 × 6mm Flat Head Top-tight (self-tapping) S type FeCm × 2
②	Knob (SS)	:2248022000	④ 2 × 6mm Pan Head FeNi w/Spring Washer × 2
③	Knob (Outer)	:2248022100	⑤ VR Nut (M7)
④	M R-KNOB L BLK	:22485307	⑥ 3 × 6mm Binding Head Tap-tight (self-tapping) S type FeCm
⑤	LED Guide	:3213062700	⑦ VR Nut (M9)
⑥	LCD Cover	:2204015200	⑧ Nylon Revet NRP-345
⑦	LED Guide	:3213063000	⑨ 3 × 6mm Binding Head Tap-tight (self-tapping) w/internal tooth washer S type FeCm × 3
⑧	Guide of Button	:3213062800	⑩ M9, 1 × 13 Internal Tooth washer FeCm × 6
⑨	Rack Keytop (S)	:2248521000	⑪ Jack Washer M9, 2 × 14 × 0.5 FeCm × 6
⑩	Rack Keytop (D)	:2248520500	⑫ Jack Nut M9 × 12 × 2 P=0.75 FeNi × 6
⑪	Dust Cover (for LCD)	:00126578	⑬ 3 × 8mm Binding Head Tap-tight (self-tapping) P type FeBC × 2
⑫	LCD Assy	:15029574	⑭ 3 × 8mm Binding Head Tap-tight (self-tapping) S type FeCm × 2
⑬	SW Board Assy (pcb 2293051300 2/5)	:7318454000	⑮ 3 × 6mm Flat Head Tap-tight (self-tapping) S type FeBC × 2
⑭	Front Holder	:22200907	⑯ 3 × 6mm Binding Head Tap-tight (self-tapping) S type FeBC
⑮	VR Board Assy (pcb 2293051300 3/5)	:7318455000	⑰ 3 × 6mm Binding Head Tap-tight (self-tapping) w/internal tooth washer S type FeBC × 6
⑯	LED Board Assy (pcb 2293051300 5/5)	:7318457000	
⑰	ENC Board Assy (pcb 2293051300 4/5)	:7318456000	
⑱	MAIN Board Assy (pcb 2293051300 1/5)	:7318451000	
⑲	Bottom Chassis	:22810906	
⑳	Button	:3249059500	
㉑	Lithium Battery (CR2032-1HS 3V)	:12569249	
㉒	Top Cover	:2202050600	

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# PARTS LIST / パーツ・リスト

**SAFETY PRECAUTIONS:**  
 The parts marked Δ have safety-related characteristics. Use only listed parts for replacement.  
 安全上の注意:  
 Δが付いている部品は、安全上特異な特徴づけられたものです。  
 交換の際は、標記された品番のみ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 Switch key C-20/50  
 15 2247017300 Knob (orange) DAC-15D  
 Failure to completely fill the above items with correct number and/or 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、必ず下記の内容を正確に入力して下さい。(例外は除く)  
 数量 部品番号 品名 使用機種  
 Ex. 10 22575241 Switch key C-20/50  
 15 2247017300 Knob (orange) DAC-15D  
 もし記入漏れ、誤記等がある場合、必要部品の発送できなったり、大幅な遅れの原因になります。御協力をお願いします。

MB → Digital Board Assy SB → Switch Board Assy VB → VR Board Assy  
 EB → Encoder Board Assy LB → LED Board Assy

**CASING/ケース**

2202050600	Top Cover
22810906	Bottom Chassis
22220575	Front Panel
2204015200	LCD Cover

**CHASSIS/シャーシ**

22200907	Front Holder
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**KNOB, BUTTON/ツマミ, ボタン**

2248022000	Round Knob (SS)	INPUT VOLUME L
2248022100	Round Knob (Outer)	INPUT VOLUME R
22485307	MR KNOB L BLK	NUMBER VALUE/EFFECT
2249521000	RACK KEYTOP (S) 2P	PARAMETER (<, >), EXIT, WRITE
22495205	RACK KEYTOP (D) 1P	UTILITY, CONTROL
32490695	Button	POWER

**SWITCH/スイッチ**

13158171	SSSF2-1	LEVEL	SW8 on MB
13129369	SPUN19430A	POWER	SW9 on MB
13129764	SKHVBE	Tact SW (Tapping)	SW2 to 7 on SB

**JACK, SOCKET/ジャック/ソケット**

13429676	YKF51-5048	DIN Socket MIDI	JK3 on MB
13449155	HLJ0544-01-110	INPUT (L, R), OUTPUT (L, R)	JK6 to 9 on MB
13449150	HLJ0544-01-010	EFFECT REMOTE/EXP PEDAL CONTROL 2/3	JK1 on MB JK2 on MB
13449728	HEC0740-01-010	ADAPTOR	JK5 on MB
13449445	HSJ1453-01-010	PHONES	JK10 on VB

**DISPLAY UNIT/表示ユニット**

15029574 DM045X-7DL3 LCD Assy  
 [NOTE] : Replacement should be made on a unit basis.  
 No replacements is available for individual parts.  
 Replacement only by a unit.  
 [注意] : 交換は、ユニット単位で行なって下さい。  
 増修品は、ユニット単位です。

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**PCB ASSY/基板完成品**

7318451000	Main Board Assy (pcb 2293051300 1/5)
7318454000	Switch Board Assy (pcb 2293051300 3/5)
7318455000	Volume Board Assy (pcb 2293051300 3/5)
7318456000	Encoder Board Assy (pcb 2293051300 4/5)
7318457000	LED Board Assy (pcb 2293051300 5/5)

[NOTE] : Replacement Main Board Assy does not include the Lithium Battery.  
 Because lithium battery does not use for the back-up of factory presets.  
 Order proper the lithium battery separately if necessary.

[注意] : Main Board Assy上に装着されているリチウム電池は、“工場出荷時のデータ”を保持する目的では使用されていません。  
 Main Board Assyを、オーダしても、リチウム電池は装着されていませんので注意して下さい。  
 リチウム電池は、必要ならば別途オーダーして下さい。  
 12569249S0 Lithium Battery CR2032 (leadless/+3V)

**IC**

15190776	HD6415108F10	CPU	IC28 on MB
15239177	TC8088AF (CSP)	Custom LSI	IC28 on MB
15239242	μ PD5622GF040-3B9	Custom IC	IC25 on MB
00124456	LH534R29	MASK ROM (Ver1.02)	IC29 on MB
00121790	MBM27C4001-15Z-G	4M EPROM (programed)	IC29 on MB
15209385	MBM27C4001-15Z-G	4M EPROM (blank)	IC29 on MB
15279651	TC511864BJ-10	DRAM	IC27 on MB
15179488	MB81464P-10	DRAM	IC9 on MB
15279532	LC36256PML-12	SRAM	IC10 on MB
15289716	AK5389-VS	AD Converter	IC34 on MB
15289718	LC78613M	DA Converter	IC35 on MB
15193941	LC7883CM	DA Converter	IC35 on MB
15289705	M51953APF	Reset IC	IC30 on MB
15249106	TC74HC132AF	Quad 2 input NAND	IC31 on MB
15289157	M5222FP	VCA	IC24 on MB
15259105	TC4013BF	Flip-flop	IC36 on MB
15289155	μ PC4072G2	OP Amp	IC1, 5, 14 on MB
15289138	M5218AFP	OP Amp	IC2, 4, 6, 7, 8, 15 to 23 on MB
15229744	PC-410	Photo Coupler	IC24 on MB
15199212	TA7805S	+5V Voltage Regulator	IC13 on MB
15199240	TA78L05S	+5V Voltage Regulator	IC11 on MB
15199241	TA79L005P	-5V Voltage Regulator	IC12 on MB

**TRANSISTOR/トランジスター**

15129944	2SD2012	Power Tr.	Q18 on MB
15119823	2SB1375	Power Tr.	Q6 on MB
15129426	2SC2235Y-TPE6		Q7 on MB
15119423	2SA965Y-TPE6		Q19 on MB
15309106	2SA1586GR-TE85R (chip)		Q5, on MB
15319110	2SC4116GR-TE85R (chip)		Q8 to 11, 16, 17 on MB
15319119	2SC4213A-TE85L (chip)		Q12 to 15 on MB
15329523	RN1307-TE85R (chip)	Digital Tr.	Q2, 3, 4 on MB
15319113	2SK880GR-TE85R (chip)	PET	Q20 to 34 on MB

**DIODE/ダイオード**

15339202	U1PC44 (chip)		D27, 28, 29, 43, 44 on MB
15339122	1SS301 (chip)		D9 on MB
15339123	1SS302 (chip)		D1, 2, 7, 12, 13, 14, 20 on MB
15339137	1SS352 (chip)		on MB
15339330	RD4.7MB2	Zener	D45, 46 on MB
15339331	RD6.2MB2	Zener	D47 on MB
15339318	RD16MB2	Zener	D48, 49 on MB
15029224	SLR-55 MC 3F	LED (red)	D50, 51 on SB
15029281	GL3PR8	LED (red)	D52 on SB, D53, 54 on LB

**RESISTOR/抵抗**

13829159	CRH100FH11470 1W 47 Ω		R135 on MB
15409114	EXBV8V103J 10k Ω	Resistor Array	RA1, 2, 4 on MB
15409116	EXBV8V223J 2.2k Ω	Resistor Array	RA3 on MB

POTENTIOMETER/ボリューム			
13286252	RK0972210 50K Ω A × 2	Input Volume	VR1 on MB
CAPASITOR/コンデンサ			
1363925380	100M V220HW	220 μ / 100V	Electro C112,113 on MB
1362962450	ESC10M + T	10 μ / 6.3V	OS Cap C49,141 on MB
153552225	GRM40B 104K25PT (chip)	0.1 μ K	Ceramic C54, 57, 71, 73, 76 on MB
15359781	GRM40F 334Z16PT (chip)	0.33 μ	Ceramic C64, 67, 69, 72 on MB
15389651	ECST1C1Y106R (chip)	1 μ	Tantalum C41, 42 on MB
INDUCTOR, COIL, FILTER/インダクター、コイル、フィルター			
13529120M1	BNP002-02	EMI Filter	FL1 on MB
12449472	BLM32A06PT (chip)	Inductor	L1, 2, 7, 8, 9 on MB
12449457	BLM32A07PT (chip)	Inductor	L5, 6 on MB, L10, 11 on VB
CRYSTAL RESONATOR/クリスタル、発振子			
15299217	MA-506 24.576Hz	Crystal	X1 on MB
15299173	MA-506 16.000MHz	Crystal	X2 on MB
15299218	SG-531YH 65.152MHz	Crystal Oscillator	X3 on MB
ENCODER/エンコーダー			
13289196	RK09710WL	Rotary Encoder	on EB
CONNECTOR/コネクター			
13369567	B4B-PH-K-S (4p)		CN1 on MB
13369565	B11B-PH-K-S (11p)		CN2 on MB
13439344	IL-S-3P-S212-EF (3p)		CN4 on MB
13439397	IL-S-8P-S212-EF (8p)		CN5 on MB
13369506	RF-H14-2TD-1190 (14p)	To LCD Assy	CN3 on MB
13439474	B2B-X-HA (2p)	To LCD Back Light	CN6 on MB
WIRING, CABLE/ワイヤリング、ケーブル			
23410781	Wiring Assy (11p)		CN10 on SB ↔ CN2 on MB
23410779	Wiring Assy (8p7p)		CN9 on VB ↔ CN5 on MB
23410780	Wiring Assy (4p)		CN8 on EB ↔ CN1 on MB
23410778	Wiring Assy (3p)		CN7 on LB ↔ CN4 on MB
BATTERY/電池			
12869249S0	CR2032	Lithium Battery	
SCREW/ネジ類			
*****	3 × 6mm Binding Tap-tight (Self-Tapping) w/Internal Tooth Washer	S Type FeCm	
*****	3 × 8mm Binding Tap-tight (Self-Tapping) S Type FeCm		
*****	3 × 6mm Binding Tap-tight (Self-Tapping) S Type FeBC		
*****	3 × 6mm Binding Tap-tight (Self-Tapping) w/Internal Tooth Washer	S Type FeBC	
*****	3 × 8mm Binding P Type FeBC		
*****	3 × 5mm Pan w/Spring Washer	FeNi	
*****	3 × 6mm Flat Tap-tight (Self-Tapping) S Type FeBC		
*****	3 × 6mm Flat Tap-tight (Self-Tapping) S Type FeCm		
*****	Nylon Revet NRP-345		
*****	Jack Washer 9.2 × 14 × 0.5	FeNi	
*****	M5.1 × 13 Internal Tooth Washer		
*****	Jack Nut M9 × 12 × 2p.75	FeNi	
*****	Jack Nut M7		
MISCELLANEOUS/その他			
12189828	BV-32	Battery Holder	on MB
2246052000	Heat Sink		on MB
23450518	Volume Rag		on VB
3213062800	Button Guide		
3213062700	LED Guide (2p)		
3213063000	LED Guide (1p)		
00126578	Dust Cover (LCD)		on SB
*****	P×パイプ 3.2 × 5 × 5mm		on LB
*****	P×パイプ 3.2 × 5 × 15mm		on LB

## ACCESSORIES(standard)/標準付属品

2235012000	Rubber Foot	Owner's Manual Set (Japanese)
70018990		<b>[NOTE]</b> : Owner's Manual Set (J) consists of the following 2 parts. <b>[注意]</b> : Owner's Manual Set (J)は、下記の2部品から構成されます。
		Owner's Manual (Japanese) Algorithm Guide (Japanese)
70019001		Owner's Manual Set (English) <b>[NOTE]</b> : Owner's Manual Set (E) consists of the following 2 parts. <b>[注意]</b> : Owner's Manual Set (E)は、下記の2部品から構成されます。
		Owner's Manual (English) Algorithm Guide (English)
12449616	Adaptor BRB-100	
12449617	Adaptor BRB-120	
12449618	Adaptor BRB-220	
12449619	Adaptor BRB-240E	
12449620	Adaptor BRB-240A	

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"12. Bypass"  
 "13. In/Out 32kHz"  
 "14. In/Out 48kHz"

Inputting the square wave (2KHz, 40mVp-p), observe the output (L and R).

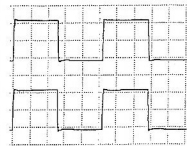


FIG-1

<OUTPUT> Input volume : MAX (L, R)  
 Level SW : - 20dB  
 Range : 0.1mS/DIV, 50mV/DIV

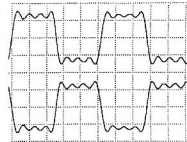


FIG-2

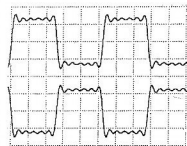


FIG-3

And when the "LEVEL SW" on the rear panel is switched, it should be right that the level of wave has little change. Then turn the input volume-L for "-20" in order to identify that the output level\_L becomes low and the overload LED-L turns off. And checking the input volume\_R on the same way.

また、リアパネルの"LEVEL SW"を切り換えた時に、波形レベルに大きな変化が無ければ正常。そして、インプット・ボリュームのLを"-20"方向に回して、L側の出力が小さくなることとL側のオーバーロードLEDが消えることを確認する。R側についても同様に確認する。

"12 Bypass"  
 "13In/Out 32kHz"  
 "14.In/Out 48kHz"

矩形波(2KHz,40mVp-p)を入力し、出力を観測する。

"15. OD"

"16. DS"

Inputting the sine wave (2KHz: -30dBm), observe the output (L and R).

"15.OD"

"16.DS"

sine波(2KHz: -30dBm)を入力し、出力を観測する。

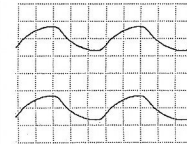


FIG-4

<OUTPUT> Input volume : MAX (L, R)  
 Level SW : - 20dB  
 Range : 0.1mS/DIV, 50mV/DIV

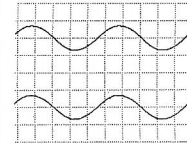


FIG-5

#### "17. Factory Load"

It is able to load the factory preset data.  
 Push the [WRITE] some times.

#### CAUTION

If the factory data has once loaded, the programed data of the user should be disappeared.

#### "17.Factory Load"

ファクトリー・プリセット・データの書き込みができます。  
 [WRITE]を数回押して下さい。

#### 注意

一旦、ファクトリー・プリセットをロードすると、ユーザーのプログラムしたデータは、消えてしまいます。

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## IDENTIFYING VERSION NUMBER

## バージョン・ナンバーの確認法

1. Turn the power off.
2. Turn the power on while pressing [EXIT] and [UTILITY].

1. 電源オフ。
2. [VALUE] と [UTILITY] を押しながら、電源オン。

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3. Press the key in the following order;

3次の順でキーを押します。

[UTILITY] → [PARAMETER <] → [PARAMETER >] → [CONTROL 1]

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## FACTORY SETUP

## ファクトリー・データの書き込み

\* [VALUE] → NUMBER, VALUE/EFFECT KNOB

## CAUTION

If the factory data has once been loaded, the data the user programmed be erased.

## 注意

一旦、ファクトリー・プリセットをロードすると、ユーザーのプログラムしたデータは、消えてしまいます。

1. Turn the power off.
2. Turn the power on while pressing the [VALUE] knob.
3. Press [PARAMETER <] and select the data type by turning [VALUE].

1. 電源オフ。
2. [VALUE] を押しながら、電源オン。
3. [PARAMETER <] を押してから [VALUE] を回してデータのタイプを選びます。

Factory Preset  
Type: Standard

Factory Preset  
Type: Guitar

Standard : general type/一般用  
Guitar : special type for the guitar/ギター用

4. After the type is selected, press [WRITE].

4. タイプを選択したあと、[WRITE] を押します。

\* The factory data can also be loaded by the procedure explained in "17. Factory Load" during test mode. But the data type is "Standard" only.

\* ファクトリー・データの書き込みは、テストモード中の "17. Factory Load" でもできます。但し、データは Standard タイプとなります。

## DATA SAVE

## データの保存

1. Make connections between MIDI OUT/THRU on SE-70 and MIDI IN on the receiving side.

If the receiving side is a sequencer, set it in the recording state. If the receiving side is another SE-70, make sure that the MIDI Channel is the same as that of the transmitting side and set to the bulk load mode (refer to the following section, "DATA LOAD").

1. SE-70 の MIDI OUT/THRU と受信側の MIDI IN とを接続します。受信側がシーケンサー等の場合はレコーディングの状態にしておきます。

受信側も SE-70 の場合には、MIDI チャンネルを送信側と一致させてからバルク・ロード状態にします (後述のデータの受信を参照して下さい)。

2. Press [UTILITY] several times to call at the next display.

2. [UTILITY] を数回押して、次の画面表示にします。

MIDI Channel  
Channel = \*\*

3. Next press [PARAMETER >] several times to call at the next display.

3. [PARAMETER >] を数回押して、次の画面表示にします。

MIDI Out/Thru  
MIDI Out

Change to "MIDI Out", if "MIDI Thru" was selected.

"MIDI Thru" が選ばれているときは、"MIDI Out" を指定します。

4. Press [PARAMETER <] several times to call at the next display.

4. [PARAMETER <] を数回押して、次の画面表示にします。

MIDI Bulk Dump  
System → #100

5. Press [WRITE] to send data through MIDI OUT.

5. [WRITE] を押すと、データの送信を開始します。

Data Saving ...

## DATA LOAD

## データの受信

1. Make connections between MIDI IN on SE-70 and MIDI OUT/THRU on the receiving side.

1. SE-70 の MIDI OUT/THRU と受信側の MIDI IN とを接続します。

2. Press [UTILITY] several times to call at the next display. Make sure that the MIDI Channel is the same as that of the transmitting side.

2. [UTILITY] を数回押して、次の画面表示にします。MIDI チャンネルを送信側と一致させます。

MIDI Channel  
Channel = \*\*

3. Next press [PARAMETER >] several times to call at the next display.

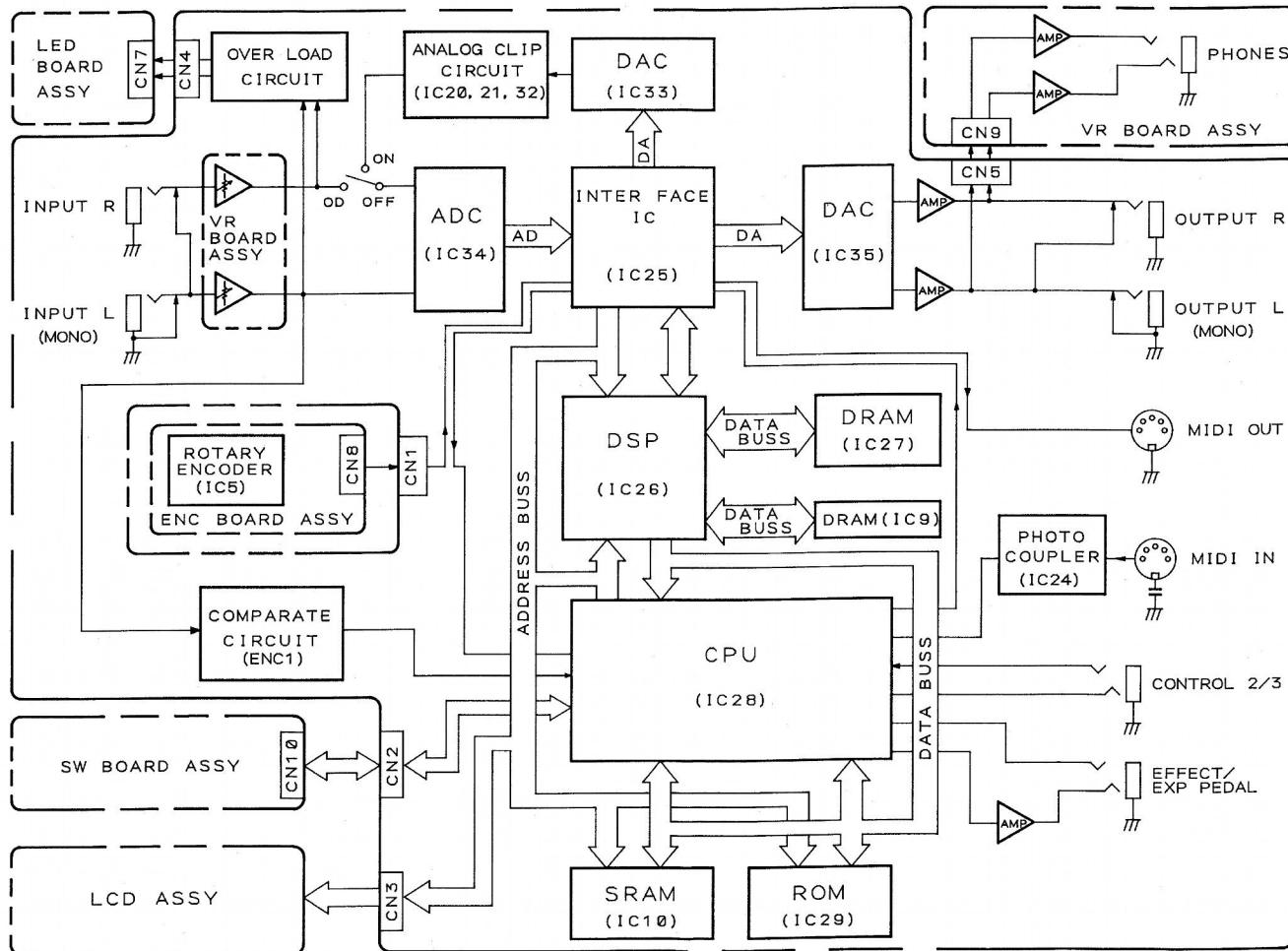
3. [PARAMETER >] を数回押して、次の画面表示にします。

MIDI Bulk Load  
Waiting ...

4. Start transmitting data from the transmitting side.

4. 送信側からデータを送信します。

## BLOCK DIAGRAM / ブロック図





**E MAIN BOARD**  
 Assy 73184581000  
 (pcb 22930513 1/5)

**NOTE**

Replacement Main Board Assy does not include the Lithium Battery.  
 Because lithium battery does not use for the back-up of factory presets.  
 Order proper the lithium battery separately if necessary.

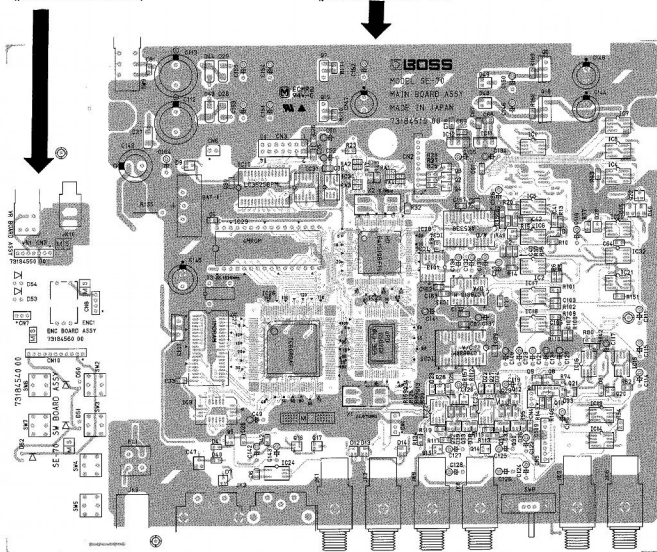
Main Board Assy 上に装着されているリチウム電池は、「工場出荷時のデータ」を保持する目的では使用されていません。  
 Main Board Assy を、オーダーしても、リチウム電池は装着されていませんので注意して下さい。  
 リチウム電池は、必要な方は別途オーダーして下さい。  
 1256924950 Lithium Battery CR2032 (leadless+3V)

[www.houseofsynth.com](http://www.houseofsynth.com)

**LED Board Assy**  
 (pcb 2293051300 5/5)

**Volume Board Assy**  
 (pcb 2293051300 3/5)

**Main Board Assy**  
 (pcb 2293051300 1/5)



View from component side.

**Switch Board Assy**  
 (pcb 2293051300 2/5)

**Encoder Board Assy**  
 (pcb 2293051300 4/5)

**Apparatus containing Lithium batteries**

For Nordic Countries

**ADVARSEL!**

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.  
 Ussiklingning må kun ske med batteri af samme fabrikat og type.  
 Lever det brugte batteri tilbage til leverandøren.

**VARNING!**

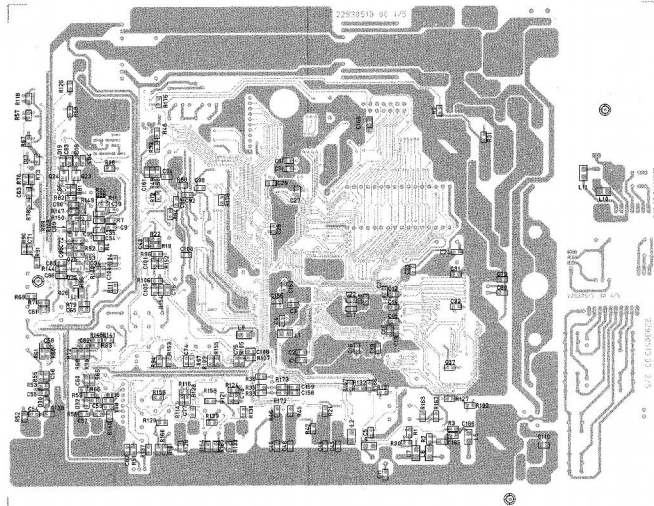
Explosionsfara vid felaktigt batteribyte.  
 Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.  
 Kassera använt batteri enligt fabrikkens instruktion.

**ADVARSEL!**

Lithiumbatteri – Eksplosionsfare.  
 Ved utskiftning beryttes kun batteri som anbefalt av apparatfabrikanten.  
 Brukt batteri returneres apparatleverandøren.

**VAROITUS!**

Paristo voi räjähdä, jos se on virheellisesti asennettu.  
 Vaihda paristo ainoastaan laitetoimittajan suosittelemaan tyyppiä. Käytetty paristo valmistajan ohjeiden mukaisesti.



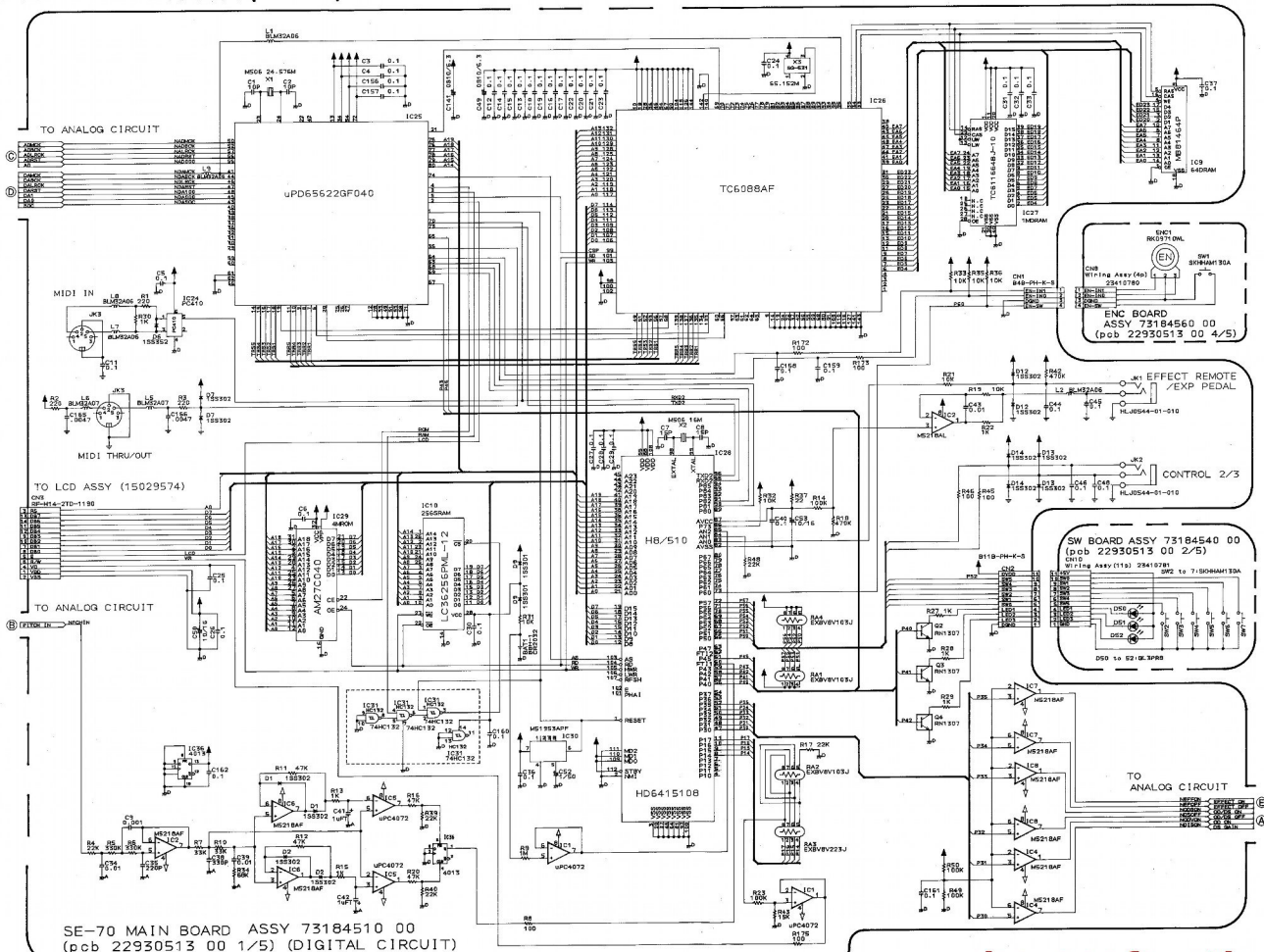
View from foil side.

A  
B  
C  
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V

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

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

CIRCUIT DIAGRAM/回路図 (DIGITAL)

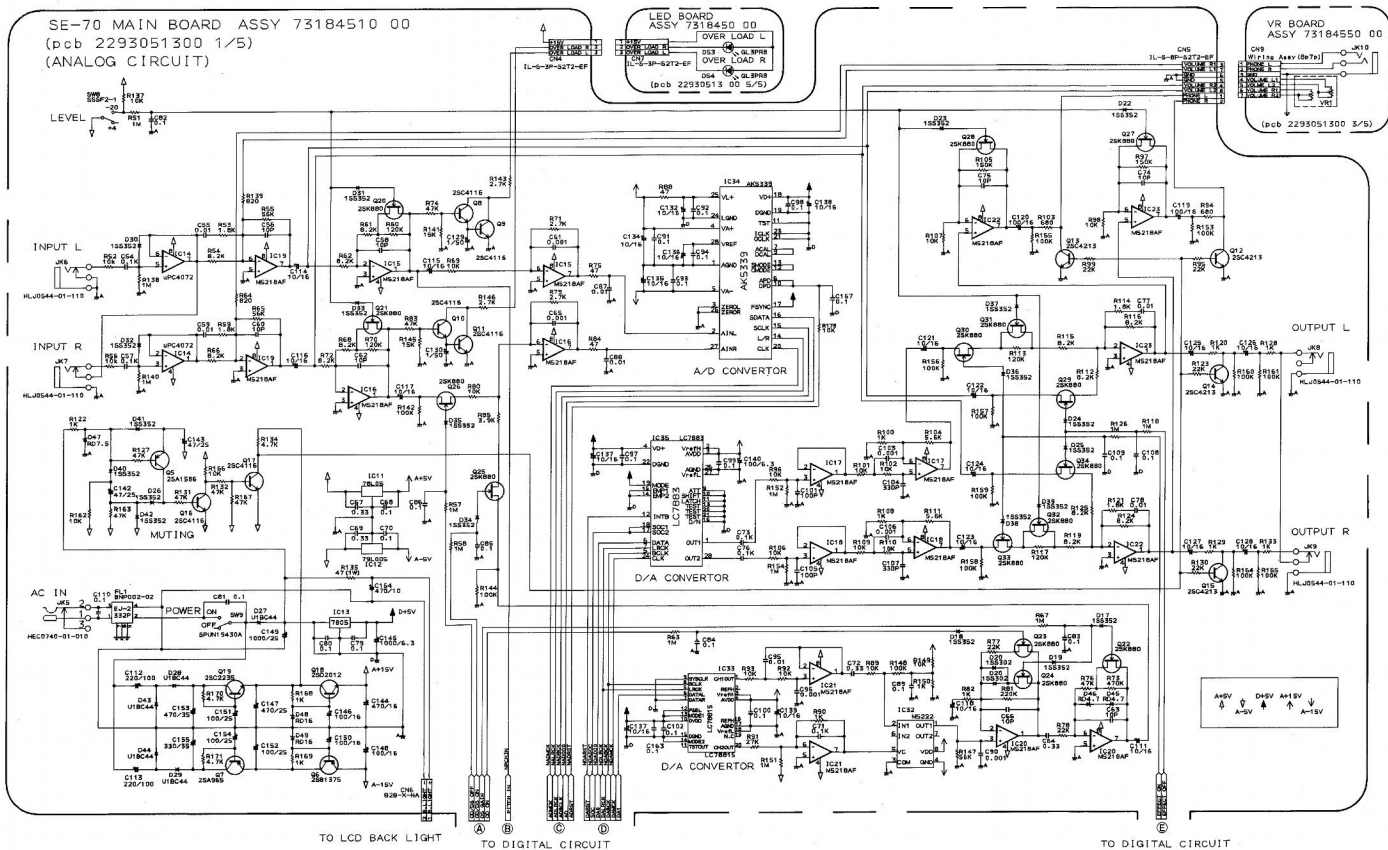


SE-70 MAIN BOARD ASSY 73184510 00 (pcb 22930513 00 1/5) (DIGITAL CIRCUIT)

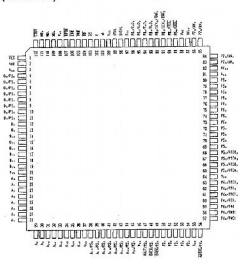
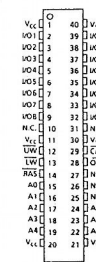
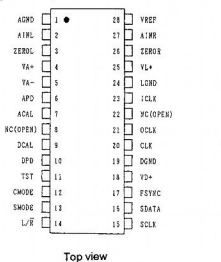
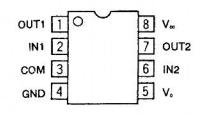
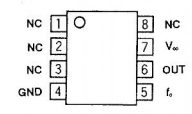
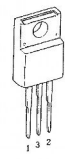
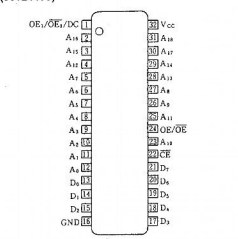
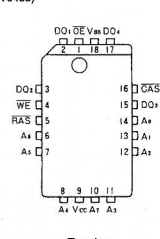
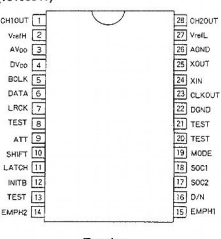
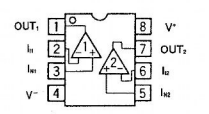
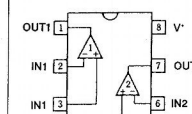
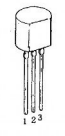
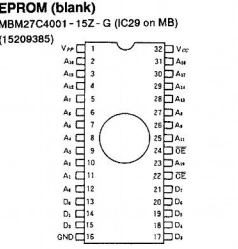
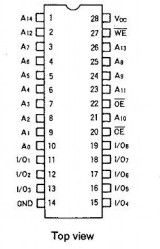
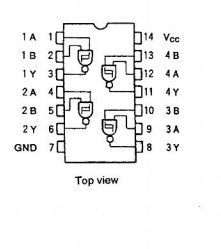
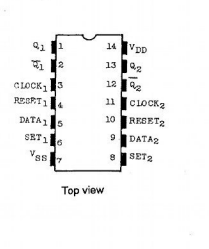
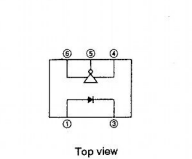
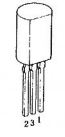
A B C D E F G H I J K L M N O P Q R S T U V

CIRCUIT DIAGRAM/回路図 (ANALOG)

A  
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T  
U  
V



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<p><b>GPU (IC28 on MB)</b> HDB415108F10 (15190778)</p>  <p>Top view</p>	<p><b>DRAM (IC27 on MB)</b> TC511684BJ-10 (IC27 on MB) (15275551)</p>  <p>Top view</p>	<p><b>AD Converter (IC34 on MB)</b> AK6339-VS or CS5339-KS (15289718)</p>  <p>Top view</p>	<p><b>VCA (IC32 on MB)</b> M5222FP (15289157)</p>  <p>Top view</p>	<p><b>Reset IC (IC30 on MB)</b> M51953APF (15289705)</p>  <p>Top view</p>	<p><b>+5V Voltage Regulator (IC13 on MB)</b> TA7805S (15199212)</p>  <p>Front view</p> <p>1. IN 2. OUT 3. GND</p>
<p><b>MASK ROM (Ver1.02)</b> LH534R29 (IC29 on MB) (00124458)</p>  <p>Top view</p>	<p><b>DRAM (IC9 on MB)</b> MB81464P-10 (15179488)</p>  <p>Top view</p>	<p><b>DA Converter (IC35 on MB)</b> LC7863KM (15199941)</p>  <p>Top view</p>	<p><b>OP Amp (IC2, 4, 6, 7, 8, 15 to 23 on MB)</b> M5218AFP (15289138)</p>  <p>Top view</p>	<p><b>OP Amp (IC1, 5, 14 on MB)</b> μ PC4072G2 (15289155)</p>  <p>Top view</p>	<p><b>+5V Voltage Regulator (IC11 on MB)</b> TA78L05S (15199240)</p>  <p>Front view</p> <p>1. OUT 2. GND 3. IN</p>
<p><b>EPROM (programed)</b> MBM27C4001-15Z-G (IC29 on MB) (00121790)</p> <p><b>EPROM (blank)</b> MBM27C4001-15Z-G (IC29 on MB) (15209385)</p>  <p>Top view</p>	<p><b>SRAM (IC10 on MB)</b> LC3825PML-12 (15279532)</p>  <p>Top view</p>	<p><b>Quad 2 Input NAND (IC31 on MB)</b> TC74HC132AF (15249108)</p>  <p>Top view</p>	<p><b>Flip-flop (IC36 on MB)</b> TC4013BF (15259105)</p>  <p>Top view</p>	<p><b>Photo Coupler (IC24 on MB)</b> PC-410 (15229744)</p>  <p>Top view</p> <p>①Anode ②Cathode ③GND ④V<sub>a</sub> ⑤V<sub>cc</sub></p>	<p><b>-5V Voltage Regulator (IC12 on MB)</b> TA78L005P (15199241)</p>  <p>Front view</p> <p>1. IN 2. GND 3. OUT</p>

## CHANGE INFORMATION

## &lt;MAIN BOARD&gt;

## ●ADDITION OF RESISTORS

Two resistor(2.2K Ω) are added: between the pin-1 and the pin-5 of IC18, and between the pin-7 and the pin-5 of IC19.

C148 = 470/16  
C153 = 220/35  
C155 = 470/35

**EFFECTIVE**

ZE90100 to ZF03399

**REASON**

Muting countermeasure when turning off.

**IN FIELD SERVICE**

No need to modify.

## 変更案内

## &lt;メイン・ボード&gt;

## ●抵抗追加

抵抗(2.2k Ω)を2箇所を追加:  
IC19の1ピン-5ピン間及び  
IC18の7ピン-5ピン間

C148 = 470/16  
C153 = 220/35  
C155 = 470/35

**実施時期**

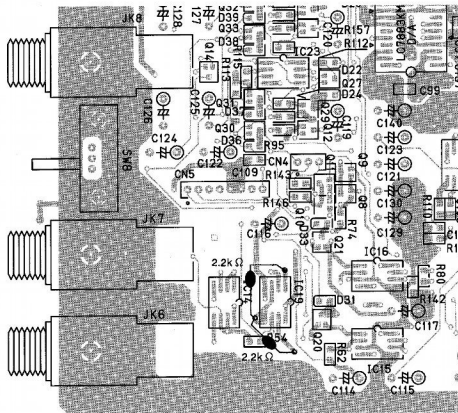
ZE90100-ZF03399

**変更理由**

電源オフ時のミュート対策

**対応**

必要なし



View from component side.

## ●CHANGE OF CONSTANT OF THE ELECTRO CAPACITORS

Old	New
C148 470/16	→ 100/16
C153 220/35	→ 470/35
C155 470/35	→ 330/35

**EFFECTIVE**

ZF13400 or later

**REASON**

Muting countermeasure when turning off.

**IN FIELD SERVICE**

No need to modify.

## ●電界コンデンサの定数変更

Old	New
C148 470/16	→ 100/16
C153 220/35	→ 470/35
C155 470/35	→ 330/35

**実施時期**

ZF13400以降

**変更理由**

電源オフ時のミュート対策

**対応**

必要なし

## ●VERSION NUMBER OF ROM

Ver. 1.01:

EPROM MBM27C4001 - 15Z - G (No.00121790)

**EFFECTIVE**

ZE90100 to ZF15599

Ver. 1.02:

MASK ROM LH534R29 (No.00124456)

**EFFECTIVE**

ZF25600 to later

**REASON OF CHANGE**

Improvement of frequency detection

## ●ROMバージョン案内

Ver. 1.01:

EPROM MBM27C4001 - 15Z - G (No.00121790)

**実施時期**

ZE90100-ZF15599

Ver. 1.02:

MASK ROM LH534R29 (No.00124456)




**実施時期**

ZF25600以降

**変更理由**

音程検出部の改良

[www.houseofsynth.com](http://www.houseofsynth.com)

Page	WRONG 誤 →	CORRECT 正
p. 9	<p>&lt; MAIN BOARD &gt;</p> <p>Assy 73184581000</p>	<p>Assy <u>7318451000</u></p>
<div style="text-align: center; color: red; font-weight: bold; font-size: 1.2em;"> <a href="http://www.houseofsynth.com">www.houseofsynth.com</a> </div> <hr/> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><b>Jun 1993</b></p> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 10px;"> <p>A →</p> <p>B</p> <p>C</p> <p>D</p> <p>E</p> <p>F</p> <p>G</p> <p>H</p> </div> <div> <p><b>E MAIN BOARD</b></p> <p>Assy <del>73184581000</del>            (pcb 22930513 1/5)</p> <p style="margin-left: 20px;">7318451000</p> </div> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>NOTE</b></p> <p>Replacement Main Board Assy does not include the Lithium            Because lithium battery does not use for the back-up of fact            Order proper the lithium battery separately if necessary.</p> <p>Main Board Assy 上に装着されているリチウム電池は、“工場            Main Board Assy を、オーダーしても、リチウム電池は装着さ            リチウム電池は、必要な方は別途オーダーして下さい。</p> <p>12569249S0      Lithium Battery CR2032 (leadless/+3</p> </div> </div> <div style="margin-top: 20px;"> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>LED Board Assy</b>            (pcb 2293051300 5/5)</p>  </div> <div style="text-align: center;"> <p><b>Volume Board Assy</b>            (pcb 2293051300 3/5)</p>  </div> <div style="text-align: center;"> <p><b>Main Board</b>            (pcb 229305)</p>  </div> </div> </div> </div>		

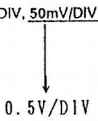
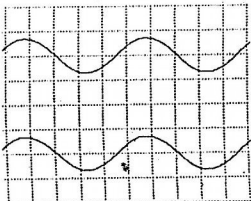
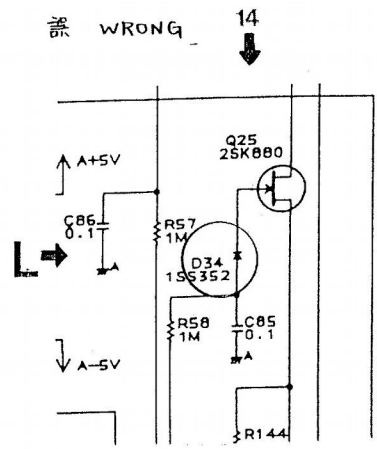
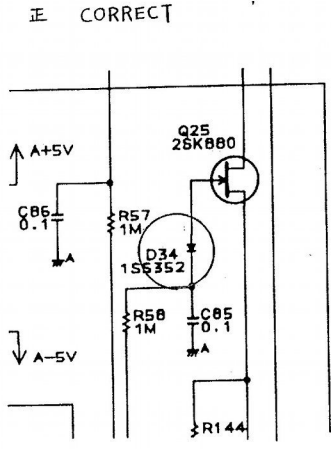
# SERVICE NOTES

## ERRATA & SUPPLEMENT 正誤表 & 追加情報

ER00143

SE-70

1995-1-26

Page	
<p>P. 6</p>	<p>TEST MODE</p> <p>"15.0D" "16.DS"</p> <p>Please correct the discription for the setting of range as follows . R a n g e の設定の部分を以下のように訂正して下さい。</p> <p>&lt;OUTPUT&gt; Input volume : MAX (L, R) Level SW : - 20dB Range : 0.1mS/DIV, <u>50mV/DIV</u></p> <div style="text-align: center;">  <p>0.5V/DIV</p> </div> <div style="text-align: right;">  <p>FIG-5</p> </div>
<p>P.11</p>	<p>CIRCUIT DIAGRAM / 回路図 (ANALOG)</p> <p>Please change the direction of a DIODE (D34) upside-down. (D34 is located in L-14 on this page.)</p> <p>ダイオード D34 の向きを逆に訂正して下さい。 (D34はこのページの番地L-14付近にあります。)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>誤 WRONG</p>  </div> <div style="text-align: center;"> <p>↓</p> <p>14</p> </div> <div style="text-align: center;"> <p>正 CORRECT</p>  </div> </div>