

# BOSS DS-1 Distortion

## SERVICE NOTES Second Edition

This notes includes the contents of the DS-1 First Edition and makes it obsolete.

DS-1のサービスノート第一版は廃版とし本サービスノートに併合します。

### NOTES

Having undergone minor modifications, the new DS-1 is different from the old one in shape. The new DS-1 will be hereinafter referred to as the "DS-1A" and the old DS-1 as the "DS-1". It should be noted that some parts are not compatible between the "DS-1A" and "DS-1". (For more information, see "The difference of DS-1A to DS-1" (P.1)).

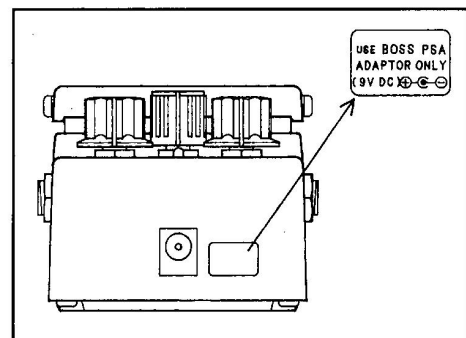
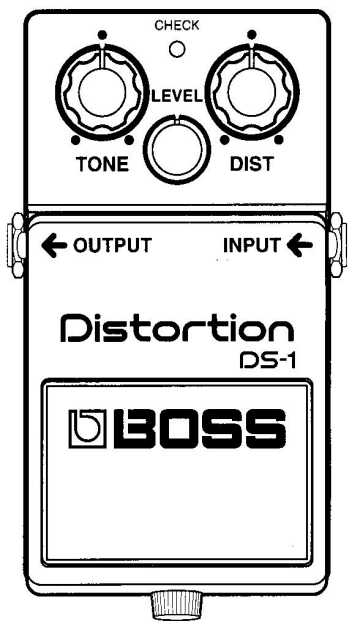
Both the old and new products are marked "DS-1" on their pedals.

### 注意

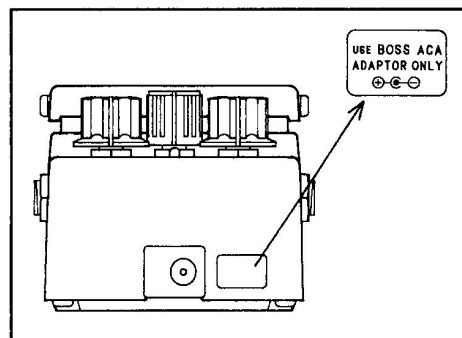
DS-1がマイナー・チェンジされて、従来のDS-1とは形状が異なるものになりました。

以後の文章において、新タイプのDS-1を"DS-1A"という名称で説明していきます。旧タイプのDS-1は、従来通り"DS-1"という名称で説明します。

"DS-1A"と"DS-1"とは、一部の部品が互換性がありません。(詳細は、"DS-1AとDS-1との違い" (P.1)を参照して下さい。)製品のパネルには、旧タイプも新タイプも"DS-1"と明記されています。



DS-1A (PSA ADAPTOR TYPE)



DS-1 (ACA ADAPTOR TYPE)

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## THE DIFFERENCE BETWEEN DS-1A AND DS-1

Because of IC modifications, the part name will be changed from DS-1 (ACA ADAPTOR TYPE) to DS-1A (PSA ADAPTOR TYPE), beginning from SNo.JG83100 of 1031 Lot (production in November, 1994)

Although the part name is changed, the marking "DS-1" will remain indicated on the pedal of the products. Therefore, the following notes should be referred to for distinguishing the DS-1A from the DS-1.

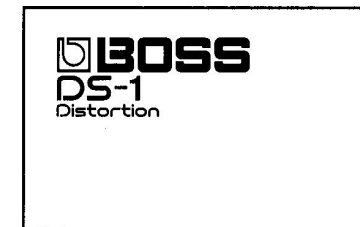
The DS-1A will have eight modified parts or items: the veneered box, owner's manual, case, PCB (including components mounted on the PCB), insulation spacer, bottom cover, bottom caution and adaptor caution.

### ● To distinguish between the DS-1 and DS-1A

1. Individual box : Check the printed pattern on the upper surface of the individual box.

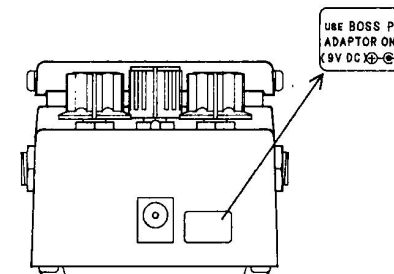


DS-1A (PSA ADAPTOR TYPE)

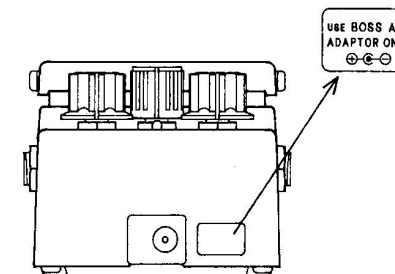


DS-1 (ACA ADAPTOR TYPE)

2. Case: Check the shape of the adaptor jack.



DS-1A (PSA ADAPTOR TYPE)



DS-1 (ACA ADAPTOR TYPE)

When you require servicing parts for the DS-1 or DS-1A, be sure to check the applicable part No. by the above two methods.

DS-1及びDS-1Aのサービス部品を要求するときは、上記1,2の方法により型名を確認して下さい。

●When you change the PWB Assy from the DS-1 to the DS-1A, the following parts or items are required. Make an order for replacement parts, referring to the tables below.

●PWB AssyをDS-1からDS-1Aに変更するとき、下記表の部品が必要です。下記表を参照して部品交換(部品発注)をして下さい。

Items which must be replaced due to product mechanism

・機構上必ず変更しなければならない部品

Changes in parts	DS-1	DS-1A
PWB Assy	UNo.7520551007	UNo.70562634
CASE	PNo.22017109	PNo.00780678
INSULATION SPACER	PNo.2216750201	PNo.2216756000
BOTTOM COVER	PNo.2202711601	PNo.2202785100

Items which must be replaced for safety standards

・安全規格上変更しなければならない部品

Changes in parts	DS-1	DS-1A
ADAPTOR CAUTION	PNo.2253753700	PNo.2253753801
BOTTOM CAUTION	PNo.2253750302	PNo.2253740400

Additional items required for servicing the new product

・新品整備する時、上記部品に加えて必要な部品

Changes in parts	DS-1	DS-1A
Owner's Manual	PNo.G6017204	PNo.00780690
INDIVIDUAL BOX	PNo.G2627187	PNo.00780689

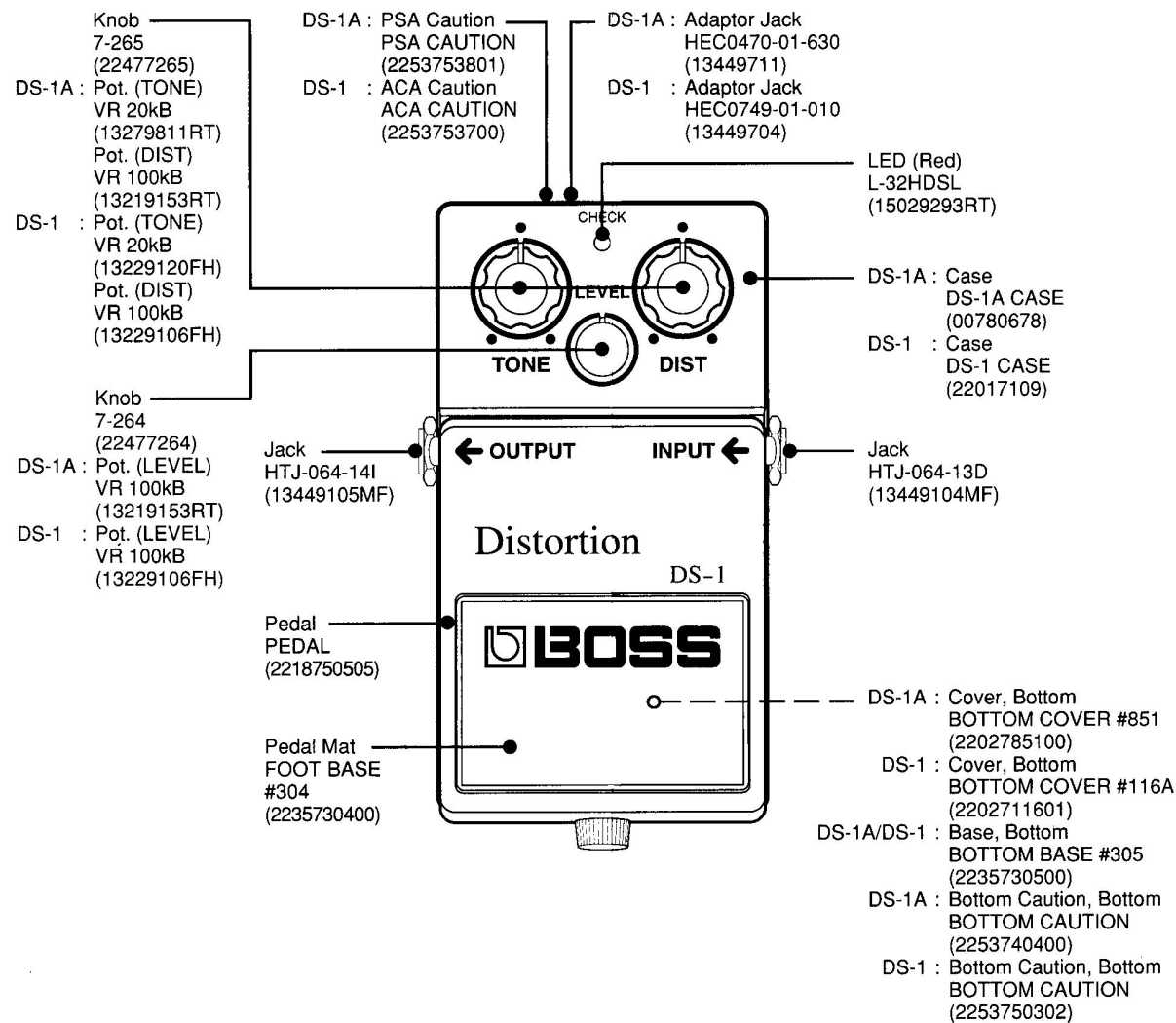
\* Modification from the DS-1 PWB Assy to the DS-1A is not possible by replacing the components mounted on the PCB.

\* 基板上の部品を交換して、DS-1 PWB AssyからDS-1A PWB Assyへの変更はできません。

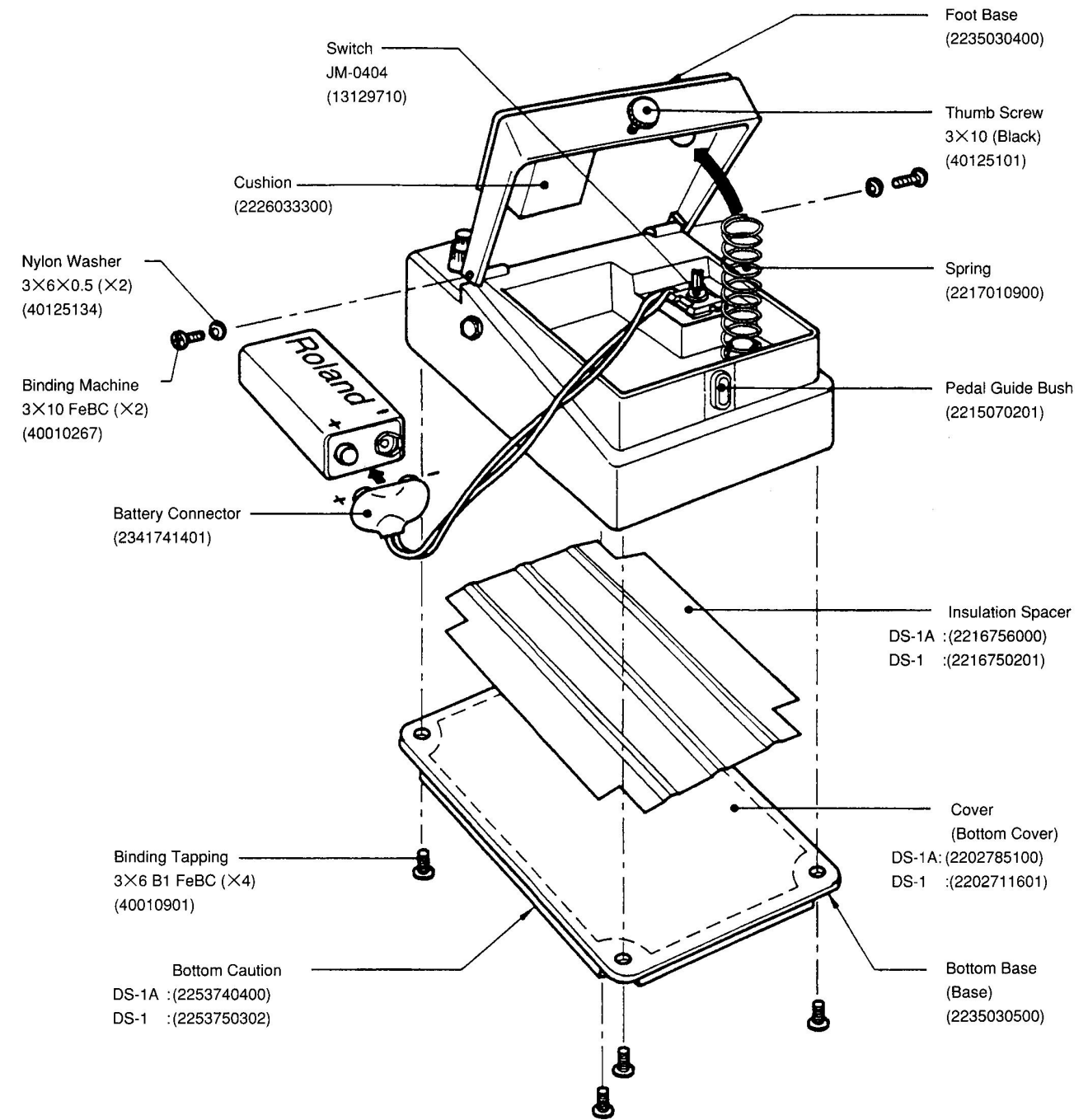
# SPECIFICATIONS / 仕様

- Nominal Input Level : -20dBm
- Input Impedance : 470kΩ
- Nominal Output Level : -20dBm
- Output Impedance : 1kΩ
- Equivalent Input Noise Level : -122dBm (IHF-A,Typ)  
\*0dBm=0.775Vrms
  
- Controls : Pedal Switch, TONE Knob, DISTORTION Knob, LEVEL Knob
- Indicator : CHECK Indicator (serves also as battery check indicator)
- Connectors : INPUT Jack, OUTPUT Jack, AC Adaptor Jack (9V DC)
- Power Supply : 9V DC:Dry Battery 9V type (6F22/9V), AC Adaptor
- Current Draw : 4mA (9V DC)  
\*Expected battery life under continuous use:  
Carbon:90 hours  
These figures will vary depending on the actual conditions of use.
  
- Dimensions : 70(W)×125(D)×55(H)mm  
2-3/4(W)×4-15/16(D)×2-3/16(H)inches
  
- Weight : 400g/15oz (including battery)
- Accessories : Owner's Manual (Japanese) :PNo.G6017203 (DS-1)  
Owner's Manual(English) :PNo.G6017204 (DS-1)  
 :PNo.00780690 (DS-1A)  
Dry Battery S-006P 9V :PNo.12569103RT
- Options : AC Adaptor :ACA-100, ACA-120, ACA-230, ACA-240 (DS-1)  
 :PSA-120, PSA-230, PSA-240 (DS-1A)

## LOCATION OF CONTROLS / パネル配置図



## EXPLODED VIEW / 分解図



## PARTS LIST / パーツリスト

## SAFETY PRECAUTION:

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

## 安全上の注意:

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

## CONSIDERATIONS ON PARTS ORDERING

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

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

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

パーツ発注に関するお願い  
オーダーシートには、必ず下記の4項目は正確に記入して下さい。(例外は除く)

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

もし記入忘れ、誤記等有る場合、必要部品が発送できなかったり、大幅な遅れの原因になります。御協力をお願いします。

■ DS-1A ONLY

● DS-1 ONLY

## CASING / ケース

■ 00780678	DS-1A CASE
● 22017109	DS-1 CASE
2218750505	DS-1 PEDAL
2235730400	FOOT BASE #304
■ 2202785100	BOTTOM COVER #851
● 2202711601	BOTTOM COVER #116A
2235730500	BOTTOM BASE #305

## KNOB, BUTTON / ツマミ、ボタン

22477264	Knob 7-264	LEVEL
22477265	Knob 7-265	TONE, DIST

## SWITCH / スイッチ

13129710	JM-0404
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## JACK, SOCKET / ジャック、ソケット

13449104MF	HTJ-064-13D	INPUT
or 13449104	SG-7713	
13449105MF	HTJ-064-14I	OUTPUT
or 13449105	SG-7615	
■ 13449711	HEC-0470-01-630	Adaptor Jack
● 13449704	HEC-0749-01-010	Adaptor Jack

## PCB ASSY / 基板完成品

■ 70562634	DS-1A BOARD Assy (PWB 2291732601)
NOTE : Replacement MAIN Board Assy includes VR Board 1, 2, 3 Assy.	
注意 : 補修用DS-1A Boardは、VR Board 1, 2, 3を含みます。	

■ 70564112	LED BOARD Assy (PWB 2291749600)
NOTE : LED BOARD Assy (#70564112) for DS-1A is compatible with the following LED Board for DS-1.	
注意 : DS-1A用LED Boardは、DS-1用LED Boardと互換性があります。	

● 7520551007	DS-1 BOARD Assy (PWB 2291032607)
● 7520552001	LED BOARD (PWB 2291749600)

## IC / 集積回路

■ 15189232	BA728N	OP Amp
● 15189504	TA7136P	OP Amp

## DIODE / ダイオード

15029293RT	L-32HDSL	LED (Red)
or 15029198	LN-28RP	
15039118	S5688G	
15019523	RD5.1EB3	Zener
15019102	1S1588	

## TRANSISTOR / トランジスタ

15129120	2SC2240GR	
15129185	2SC2458GR	
15139101	2SK30Y	FET
15139103	2SK30GR	FET

## POTENTIOMETER / ボリューム

■ 13219153RT	RK163111R94A	100k $\Omega$	DIST, LEVEL
■ 13279811RT	EVJ-KAAP15B24	20k $\Omega$	TONE
● 13229106FH	EVH-8MA360B15	100k $\Omega$	DIST, LEVEL
● 13229120FH	EVH-8MA360B24	20k $\Omega$	TONE

## BATTERY / 電池

12569103RT	Dry Battery S-006P 9V	6F22
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## SCREW / ネジ類

40016512	INSULOK TIE T-18S	
40125134	NYLON WASHER 3 $\times$ 6 $\times$ 0.5	
40125101	THUMB SCREW (Fe BLACK)	
40010901	BINDING TAPPING 3 $\times$ 6 B1 FeBC	COVER
40010834	BINDING TAPPING 3 $\times$ 6 B1 FeCm	LED
40010267	BINDING MACHINE 3 $\times$ 10 FeBC	PEDAL
40123545	JACK NUT 9 $\times$ 12 $\times$ 2 FeNi	
40011923	INTERNAL TOOTH WASHER 9.1 $\times$ 13	
40016467	JACK WASHER 9.2 $\times$ 14 $\times$ 0.5 FeNi	

## MISCELLANEOUS / その他

2215070201	PEDAL GUIDE BUSH #702
2341741401	BATTERY CONNECTOR
2226033300	CUSHION #333
2217010900	COIL SPRING #109
■ 2253740400	NS-2 BOTTOM CAUTION
● 2253750302	BOTTOM CAUTION
■ 2216756000	INSULATION SPACER
● 2216750201	INSULATION SPACER #502A
40013245	POLYCA PIPE 3 $\times$ 6 $\times$ 6
■ 2253753801	PSA CAUTION
● 2253753700	ACA CAUTION
■ 00780689	DS-1A INDIVIDUAL BOX
● G2627187	DS-1 INDIVIDUAL BOX

## ACCESSORIES (Standard) / 標準付属品

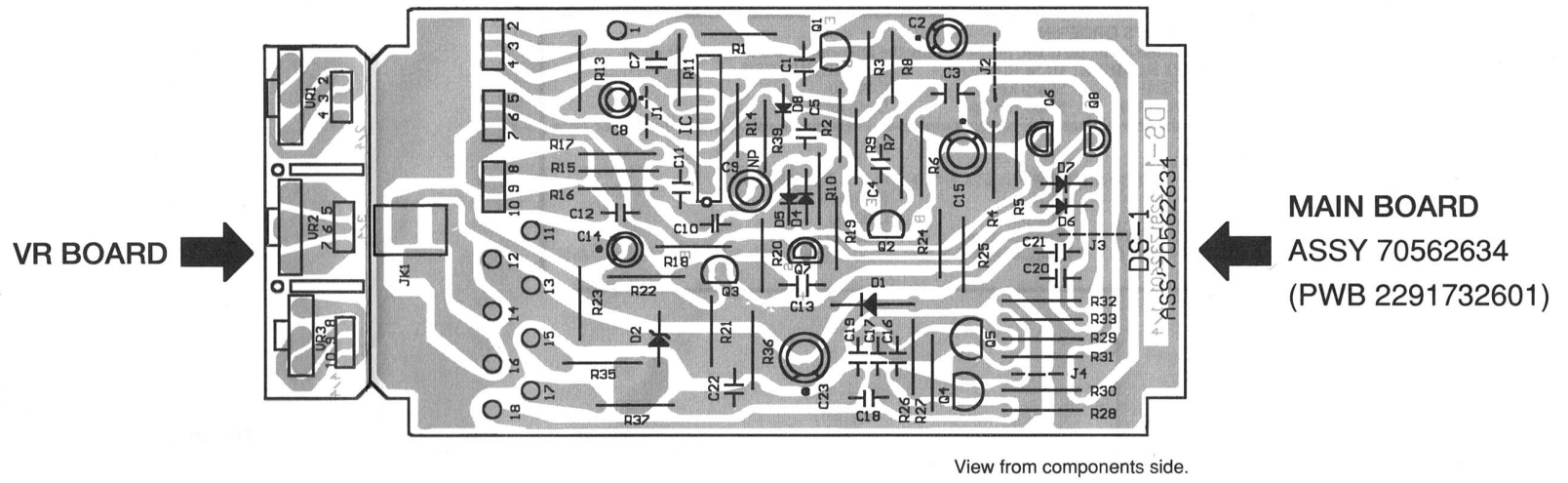
■ 00780690	DS-1A Owner's Manual (English)	
● G6017203	Owner's Manual (Japanese)	
● G6017204	Owner's Manual (English)	
12569103RT	Dry Battery S-006P 9V	6F22

MAIN BOARD (DS-1A)

ASSY 70562634  
(PWB 2291732601)

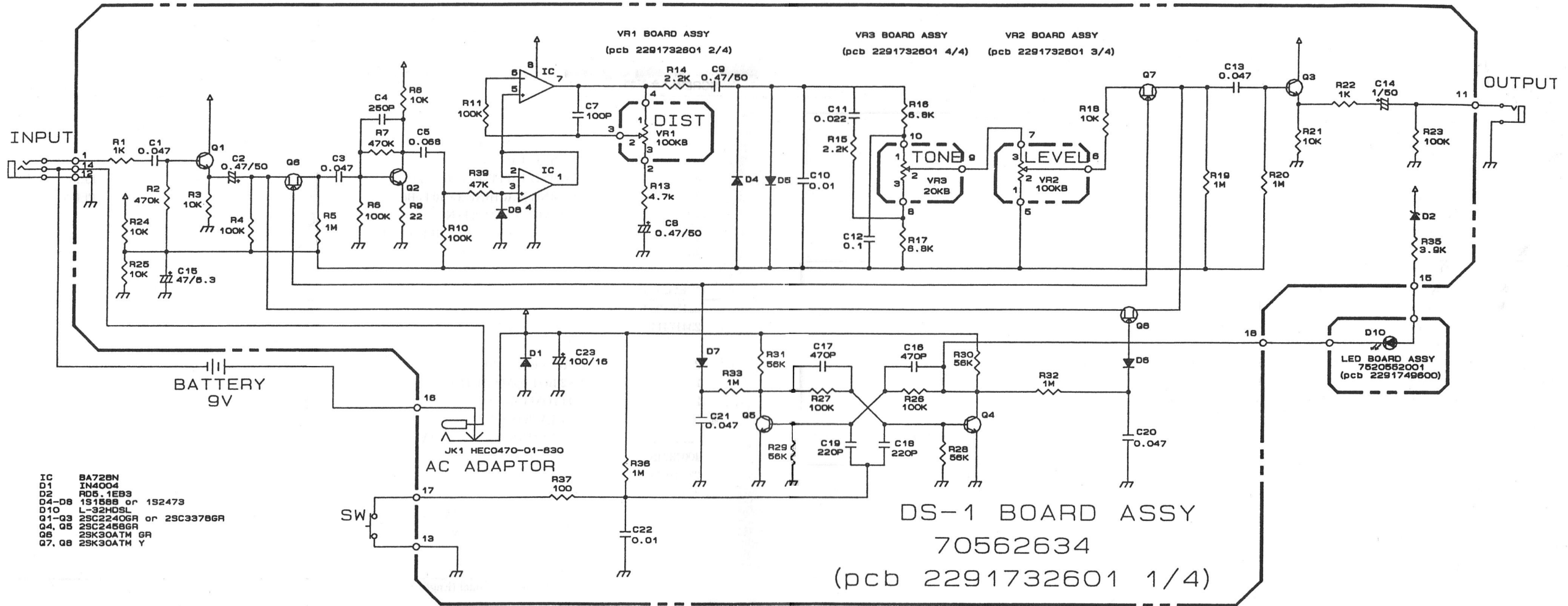
NOTE

Replacement MAIN Board Assy includes VR Board 1, 2, 3 Assy.  
補修用DS-1A Boardは、VR Board 1, 2, 3を含みます。



View from components side.

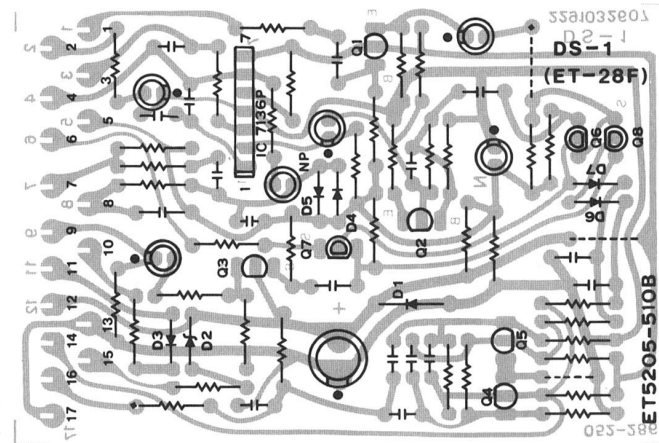
CIRCUIT DIAGRAM / 回路図 (DS-1A)



**MAIN BOARD (DS-1)**

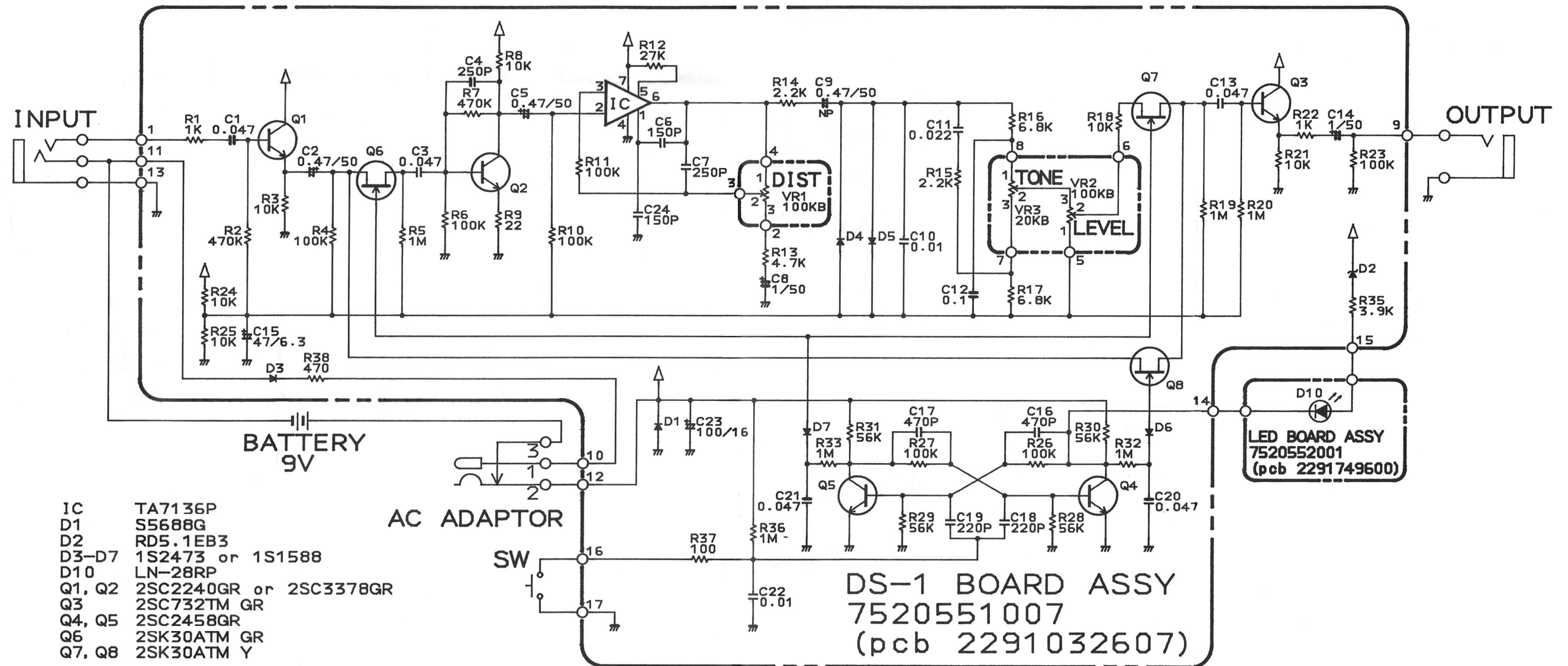
ASSY 7520551007

(PWB 2291032607)



View from components side.

**CIRCUIT DIAGRAM / 回路図 (DS-1)**



- IC TA7136P
- D1 S5688G
- D2 RD5.1EB3
- D3-D7 1S2473 or 1S1588
- D10 LN-28RP
- Q1, Q2 2SC2240GR or 2SC3378GR
- Q3 2SC732TM GR
- Q4, Q5 2SC2458GR
- Q6 2SK30ATM GR
- Q7, Q8 2SK30ATM Y

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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

# APPENDIX


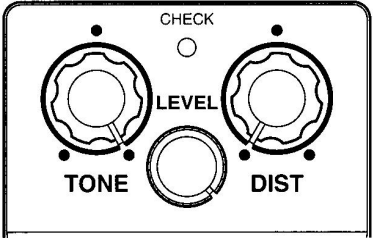
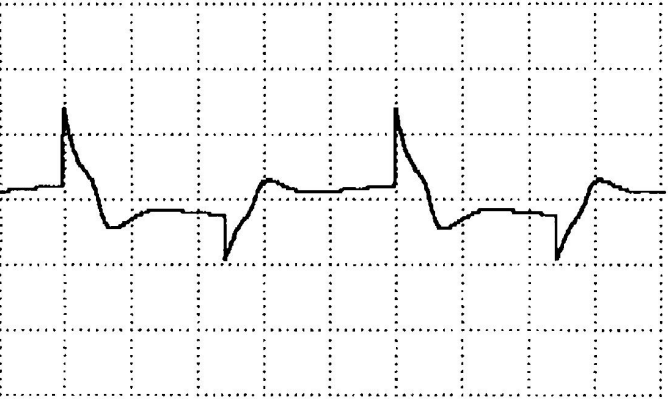
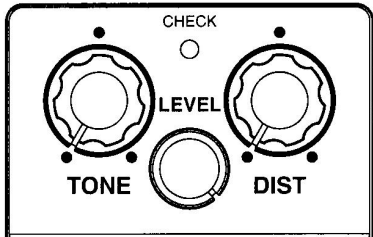
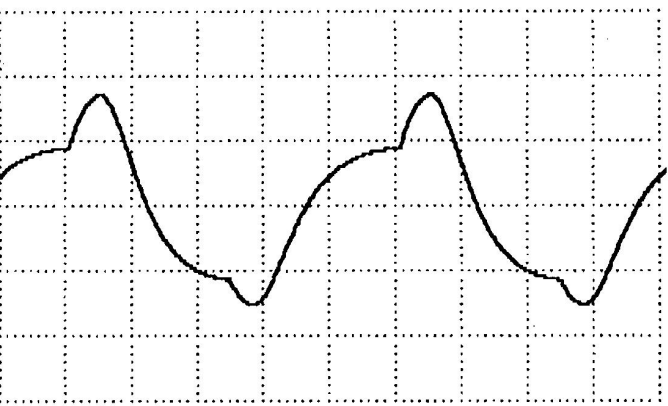
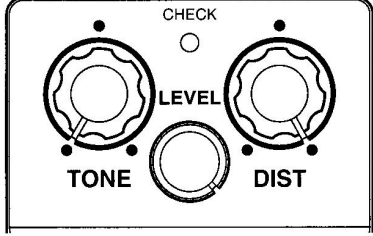
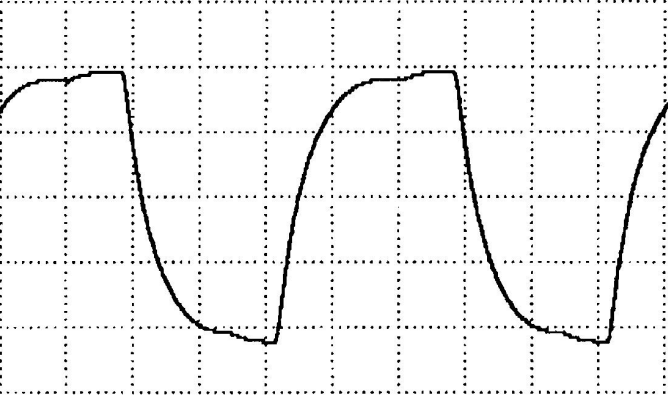
## Check OUTPUT Waveform

1. Connect an audio generator to INPUT jack and apply the test signal.
2. Connect an oscilloscope to OUTPUT jack.
3. If the LED is unlit (EFFECT OFF), depress the pedal for EFFECT ON.
4. Verify the waveform to each controls setting as illustrated below.

# 付録

## 出力波形のチェック

1. INPUTジャックに発振器を接続し、テスト信号を加える。
2. OUTPUTジャックにオシロスコープを接続する。
3. もし、LEDが点灯していない(EFFECT OFF)場合は、ペダルを踏みEFFECT ONにする。
4. 下記の各セッティングにおける波形を確認する。

INPUT	SET CONTROLS	WAVEFORM
 <p>200Hz 100Vp-p</p>		 <p>(RANGE:1mS/DIV,0.2V/DIV)</p>
		 <p>(RANGE:1mS/DIV,0.2V/DIV)</p>
		 <p>(RANGE:1mS/DIV,0.2V/DIV)</p>