

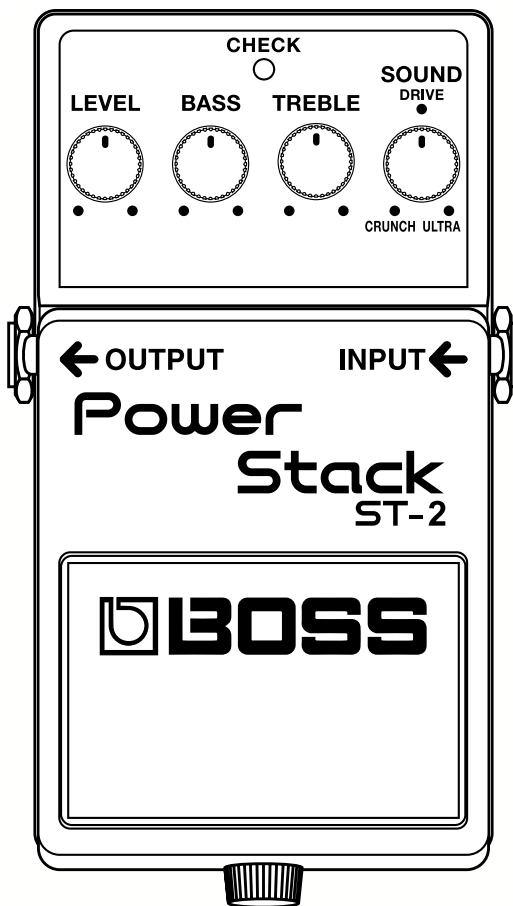
# Power Stack ST-2

## SERVICE NOTES Issued by RJA

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**Revice Information**  
 Oct. 18, 2011    P.3    Added an accessory



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## Cautionary Notes

Before beginning the procedure, please read through this document. The matters described may differ according to the model.

## No User Data

This product cannot save user data. Backing up user data during servicing is not required.

## Part Replacement

When replacing components near the power-supply circuit or a heat-generating circuit (such as a circuit provided with a heat sink or including a cement resistor), carry out the procedure according to the instructions with respect to the part number, direction, and attachment position (mounting so as to leave an air gap between the component and the circuit board, etc.).

## Parts List

A component whose part code is \*\*\*\*\* will not be supplied as a service part because one of the following reasons applies.

- Because it is supplied as an assembled part (under a different part code).
- Because a number of circuit boards are grouped together and supplied as a single circuit board (under a different part code).
- Because supply is prohibited due to copyright restrictions.
- Because reissuance is restricted.
- Because the part is made to order (at current market price).
- Because it is carried in electronic data on the Roland web site.
- Because it is a package or an accessory irrelevant to the function maintenance of the main body.
- Because it can be replaced with an article on the market. (battery or etc.)

## Circuit Diagram

In the circuit diagram, NIU is an abbreviation for Not in Use, and UnPop is an abbreviation for Unpopulated. They both mean non-mounted components. The circuit board and circuit board diagram show silk-screened indications, but no components are mounted.

## Specifications

### ST-2: Power Stack

#### Nominal Input Level

-20 dBu

#### Input Impedance

1 MW

#### Nominal Output Level

-20 dBu

#### Output Impedance

1 kW

#### Recommended Load Impedance

10 kW or greater

#### Power Supply

DC 9 V: Carbon-zinc battery (9 V, 6F22)/ Alkaline battery (9 V, 6LR61),  
AC Adaptor (PSA series: optional)

#### Current Draw

41 mA (DC 9 V)

- \* Expected battery life under continuous use:  
Carbon: 3 hours  
Alkaline: 9 hours
- \* These figures will vary depending on the actual conditions of use.

#### Dimensions

73 (W) x 129 (D) x 59 (H) mm  
2-7/ 8 (W) x 5-1/ 8 (D) x 2-3/ 8 (H) inches

#### Weight

440 g/ 1 lb (including battery)

#### Accessories

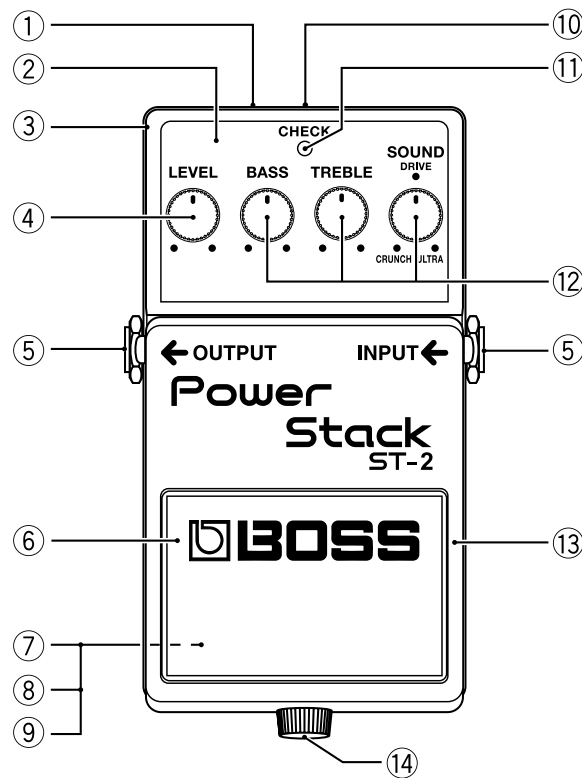
Owner's Manual (#5100015902)  
Leaflet ( USING THE UNIT SAFELY, IMPORTANT NOTES, and  
Information ) (\*\*\*\*\*)  
Alkaline battery (9 V, 6LR61) (\*\*\*\*\*)

#### Option

AC adaptor (PSA series)

- \* 0 dBu = 0.775 Vrms
- \* The battery that was supplied with the unit is for temporary use, intended primarily for testing the unit's operation. We suggest replacing this with an alkaline dry cell.
- \* In the interest of product improvement, the specifications and/ or appearance of this unit are subject to change without prior notice.

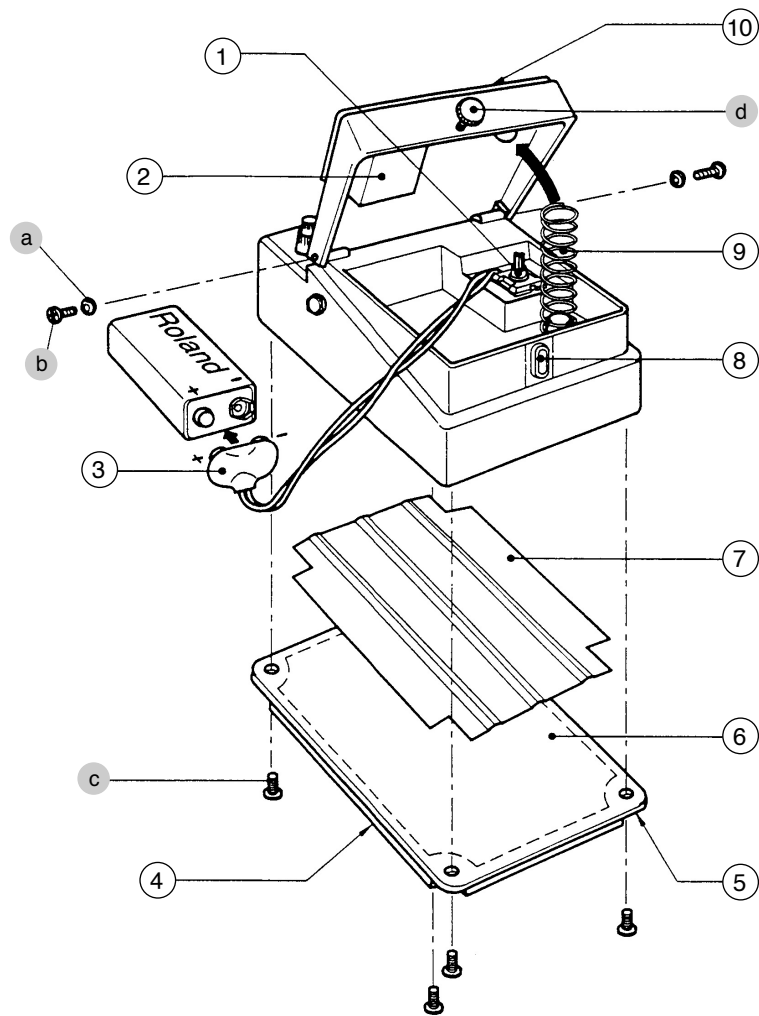
# Location of Controls



# Location of Controls Parts List

No.	Part Code	Part Name	Description	Q'ty
1	5100014487	COMPACT PSA LABEL	(22537538R0)	1
2	5100015359	PANEL	(G2217815R0)	1
3	5100015357	CASE	(75D173C0R0)	1
4	04567601	P R-KNOB	MF BLK/ LCG(RTC) (22480260)	1
	5100017231	ROTARY POTENTIOMETER	RD901F-20-15FW-A10K-006	1
	40128923	HEX NUT M7		1
5	01903234	6.5MM JACK	HTJ-064-13D	2
	5100003926	PLAIN WASHER 9X13.5X0.5T	NI(H5039158R0)	2
	5100008086	INT TOOTH WASHER 9.5X12.5X0.5	NI RTC(H5039205R0)	2
	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)	2
6	5100008294	PEDAL PLATE	(22357304R0)	1
7	5100006632	BOTTOM COVER	(22027851R0)	1
8	5100006633	BOTTOM FOOT	(22357305R0)	1
9	5100006631	CAUTION SEAL	PSA (FCC/ EMI)(G2537516R2)	1
10	F3439875R0	ADAPTOR JACK	KM02018ABM1P	1
11	03349978	LED(REDF)	L-34HDSL-FPB	1
12	04567601	P R-KNOB	MF BLK/ LCG(RTC) (22480260)	3
	F3279852R0	POTENTIOMETER	RD901-20-15FW-B54-006	3
	40128923	HEX NUT M7		1
13	5100015358	PEDAL	(75D172T0R0)	1
14	5100007512	THUMB SCREW	(H5029820R0)	1

# Exploded View



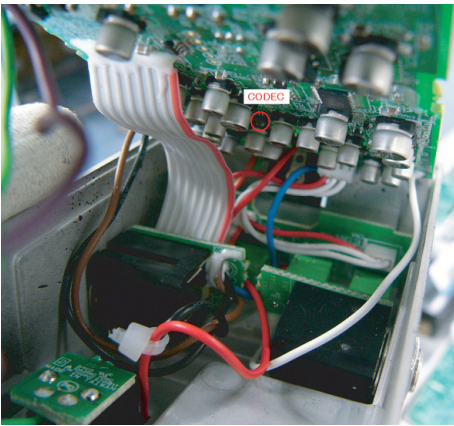
## Exploded View Parts List

No.	Part Code	Part Name	Description	Q'ty
1	13129710R0	SWITCH(PUSH)	JM-0404	1
2	5100007503	BATTERY CUSHION	(22267333R0)	1
3	5100007872	BATTERY CONNECTOR	006P BATTERY SNAP (F3419102R0)	1
4	5100006631	CAUTION SEAL	PSA (FCC/ EMI)(G2537516R2)	1
5	5100006633	BOTTOM FOOT	(22357305R0)	1
6	5100006632	BOTTOM COVER	(22027851R0)	1
7	5100007509	INSULATING SHEET	(75D273W0R0)	1
8	5100007505	PEDAL GUIDE BUSH	(22157702R0)	1
9	5100007504	COIL SPRING	(22177109R0)	1
10	5100008294	PEDAL PLATE	(22357304R0)	1
a	5100008092	PLAIN WASHER 3X6X0.5	RESIN RTC(H5039708R0)	2
b	40010267	SCREW M3X10	BINDING MACHINE FE BZC	2
c	5100007965	SCREW 3X6(H5029325R0)	PAN TAPPING B1 BZC	4
d	5100007512	THUMB SCREW	(H5029820R0)	1

# Important Notes on Assembly

## Input-board Wiring

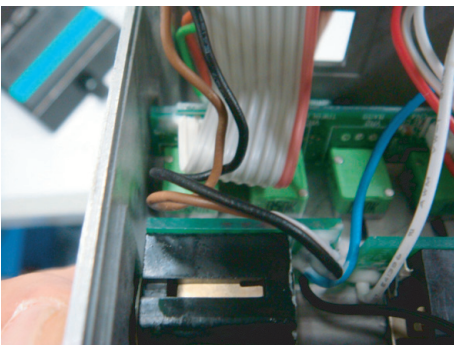
Oscillation noise is produced if the Input-board wires (brown and black) come near the CODEC, as shown in the figure.



Insert this wiring between the INPUT jack and the switch.



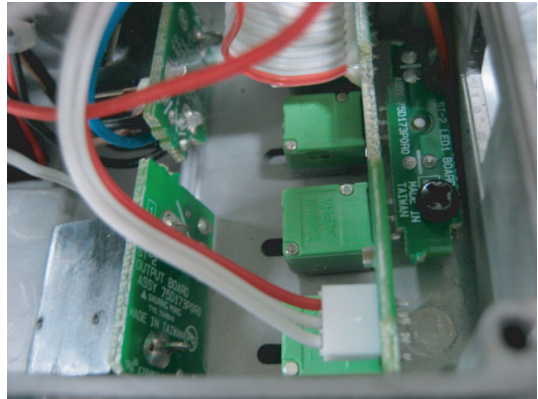
OK



Not OK

## Orientation of the VR Board

When installing the VR Board, be careful not to orient it incorrectly, either vertically or laterally. Be sure to install it so that the circuit board faces up (the LED board side), as shown in the photo.



## Installing the Jacks

Never install the INPUT jack and OUTPUT jack so that they are reversed. Be sure to check the text on the circuit board and on the panel, and install the Input Board at the INPUT jack and the Output Board at the OUTPUT jack.

# Parts List

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

Due to one or more of the following reasons, parts with parts code \*\*\*\*\* cannot be supplied as service parts.

Part supplied only as a component in a complete assembly  
Copyright does not permit the part to be supplied  
Part is sold commercially

Note: The parts marked # are new. (initial parts) The description Q'ty means a necessary number of the parts per one product.

CASING				
#	5100015359	PANEL	(G2217815R0)	1
#	5100015357	CASE	(75D173C0R0)	1
#	5100015358	PEDAL	(75D172T0R0)	1
	5100006632	BOTTOM COVER	(22027851R0)	1
CHASSIS				
	5100008294	PEDAL PLATE	(22357304R0)	1
KNOB, BUTTON				
	04567601	P R-KNOB	MF BLK/ LCG(RTC) (22480260)	4
SWITCH				
	13129710R0	SWITCH(PUSH)	JM-0404	1
JACK, EXT TERMINAL				
	F3439875R0	ADAPTOR JACK	KM02018ABMIP	1
	01903234	6.5MM JACK	HTJ-064-13D	2
PWB ASSY				
#	5100014579	MAIN SHEET ASSY	(75D173P0RA)	1
		* This unit includes the following parts.		
#	*****	MAIN BOARD		1
#	*****	VR BOARD		1
#	*****	SW BOARD		1
#	*****	LED BOARD		1
#	*****	INPUT BOARD		1
#	*****	OUTPUT BOARD		1
DIODE				
	03349978	LED(RED)	L-34HDSL-FPB	1
POTENTIOMETER				
#	5100017231	ROTARY POTENTIOMETER	RD901F-20-15FW-A10K-006	1
	F3279852R0	POTENTIOMETER	RD901-20-15FW-B54-006	3
WIRING, CABLE				
	5100007872	BATTERY CONNECTOR	006P BATTERY SNAP (F3419102R0)	1
#	5100017308	WIRING W1(MAIN-VR 3P)	(F3467054R0)	1
#	5100010402	WIRING (H4009810R0)	UL1007 OS-1 AWG24 BLU 85X6EX6	1
	5100014617	WIRING UL1007 OS-1 AWG24	ORG 80X6EX6E (H4019509R0)	1
	5100014618	WIRING UL1007 OS-1 AWG24	GRN 80X6EX6E (H4019510R0)	1
	5100010401	WIRING UL1007 OS-1 AWG24	WHT 100X6EX6E (H4009809R0)	1
	5100014620	WIRING UL1007 OS-1 AWG24	BLK 115X6EX6E (F3487020R0)	1
	5100014623	WIRING UL1007 OS-1 AWG24	BRN 115X6EX6E (H4019507R0)	1
	5100008079	WIRING UL1007 OS-1 AWG24	PUR 160X6EX6E (H4009498R1)	1
	5100008080	WIRING UL1007 OS-1 AWG24	GRN 160X6EX6E (H4009499R1)	1
#	5100016941	RIBBON CABLE	8X85MM (F3477096R0)	1
SCREWS				
	40010267	SCREW M3X10	BINDING MACHINE FE BZC	2
	5100007965	SCREW 3X6(H5029325R0)	PAN TAPPING B1 BZC	5
	5100007512	THUMB SCREW	(H5029820R0)	1
	40128923	HEX NUT M7		4
	5100003918	JACK NUT M9X12X2	NI RTC(H5039510R0)	2
	5100008092	PLAIN WASHER 3X6X0.5	RESIN RTC(H5039708R0)	2
	5100003926	PLAIN WASHER 9X13.5X0.5T	NI(H5039158R0)	2
	5100008086	INT TOOTH WASHER 9.5X12.5X0.5	NI RTC(H5039205R0)	2

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MISCELLANEOUS				
	5100006330	EARTH TERMINAL	(22257257R0)	2
	5100006633	BOTTOM FOOT	(22357305R0)	1
	5100007503	BATTERY CUSHION	(22267333R0)	1
	5100007504	COIL SPRING	(22177109R0)	1
	5100007505	PEDAL GUIDE BUSH	(22157702R0)	1
	5100007509	INSULATING SHEET	(75D273W0R0)	1
	5100007870	INSULOCK TIE	YJ-80 V2 (H5319102R0)	1
	5100006631	CAUTION SEAL	PSA (FCC/ EMI)(G2537516R2)	1
	5100014487	COMPACT PSA LABEL	(22537538R0)	1
	H2369402R0	POLYCA PIPE	#306 3X6X6	1
<hr/>				
ACCESSORIES (Standard)				
#	5100015902	OWNER'S MANUAL	MULTILANGUAGE (G6017489R0)	1

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## Verifying the Version

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1. Turn all controls all the way counterclockwise.
2. Hold down the pedal and insert a 1/4-inch stereo phone plug into the INPUT jack.  
The power comes on and the CHECK LED lights up.  
After approximately 2 seconds, the CHECK LED flashes, and the number of flashes indicates the version.  
Examples: 1 flash: Version 1.00  
2 flashes: Version 1.01  
3 flashes: Version 1.02
3. Release the pedal.  
After the version display, the unit automatically changes to the Test Mode.

## Data Backup and Restore Operations

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This product cannot save user data. Backing up user data during servicing is not required.

## Performing a Factory Reset

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This product has no factory-reset feature.

## Updating the System

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A system update cannot be performed for this product. If an update is required, replace with an updated circuit board. Updates can be accomplished only at the factory.

## Operation Test

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### Items Required

AC adaptor (PSA-series device)  
Amp-equipped monitor speaker x 1  
Signal generator x 1  
Oscilloscope x 1  
Noise meter x 1  
Stabilized power supply x 1  
Ammeter x 1  
47-kW dummy plug (1/4-inch mono phone type) x 1

### Inspection Items

1. Measurement of Current Consumption (p. 9)
2. Volume and AD/DA Test (p. 9)
3. Analog Volume Test (p. 9)
4. Noise Test (p. 9)
5. BYPASS Test (p. 10)
6. LED and Battery Operation Test (p. 10)

The tests just described can safely be carried out in any sequence. Also, some items involve testing while in the Test Mode, and others involve testing in the normal usage state. For detailed information, refer to the procedures for the respective test items described later in this document.

### Entering the Test Mode and Verifying the Version

1. Turn all controls all the way counterclockwise.
2. Hold down the pedal and insert a 1/4-inch mono phone plug into the INPUT jack.  
The power comes on and the CHECK LED lights up.  
After approximately 2 seconds, the CHECK LED flashes, and the number of flashes indicates the version.  
Examples: 1 flash: Version 1.00  
2 flashes: Version 1.01  
3 flashes: Version 1.02
3. Release the pedal.  
After the version display, the unit automatically changes to the Test Mode.

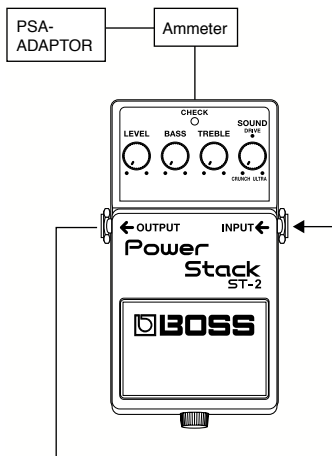
### Quitting the Test Mode

After entering the Test Mode and displaying the version, depress the pedal. Alternatively, disconnect the plug from the INPUT jack to switch off the power.



### 1. Measurement of Current Consumption

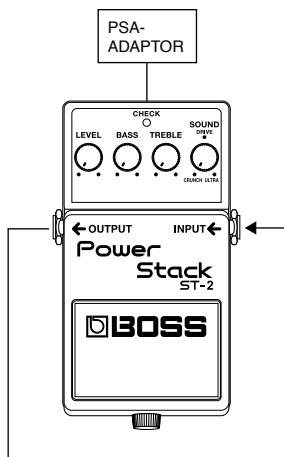
1. Make the connections as shown in the figure, then start the unit in the Test Mode.  
(Connect the OUTPUT and INPUT jacks using a 1/4-inch phone cable.)



2. Verify that current consumption is 35 mA or less.

### 2. Volume and AD/DA Test

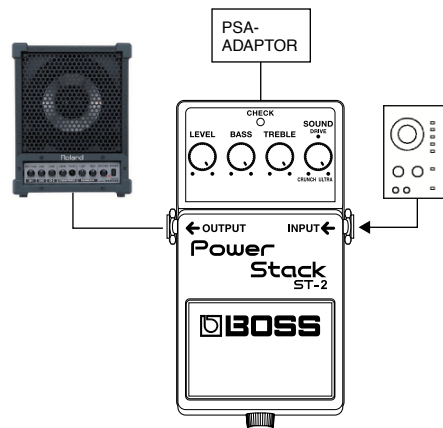
1. Make the connections as shown in the figure, then start the unit in the Test Mode.  
(Connect the OUTPUT and INPUT jacks using a 1/4-inch phone cable.)



2. Turn the LEVEL control all the way clockwise.
3. Turn the BASS control to near the nine o'clock position, and verify that the CHECK LED lights up.
4. Turn the BASS control to near the eleven o'clock position, and verify that the CHECK LED goes dark.
5. Turn the BASS control to near the one o'clock position, and verify that the CHECK LED lights up.
6. Turn the BASS control all the way clockwise, and verify that the CHECK LED goes dark.
7. Carry out steps 3 through 6 for the TREBLE and SOUND controls as well. Turning the SOUND control all the way clockwise causes the AD/DA test to be executed automatically. The CHECK LED lights up steadily if the test results are OK, or flashes if the results are not OK.
8. Turn the LEVEL control counterclockwise a short distance, and verify that the CHECK LED goes dark.
9. Turn the LEVEL control to near the twelve o'clock position, and verify that the CHECK LED lights up.
10. Turn the LEVEL control further counterclockwise from near the twelve o'clock position, and verify that the CHECK LED goes dark.
11. Turn the LEVEL control counterclockwise all the way, and verify that the CHECK LED lights up.
12. Depress the pedal, and verify that the CHECK LED goes dark.

### 3. Analog Volume Test

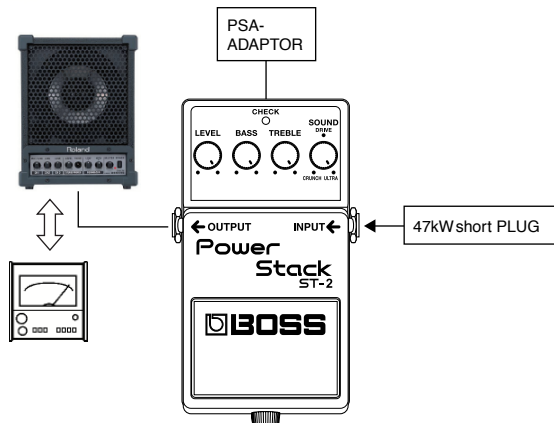
1. Make the connections as shown in the figure below, then start the unit in the normal usage state.



2. Turn all controls clockwise all the way.
3. Depress the pedal to make the CHECK LED light up. The effect is switched on.
4. From the signal generator, input a 100-Hz sine wave at -30 dBm.
5. Slowly turn the LEVEL control counterclockwise all the way, and verify that no static noise is produced.

### 4. Noise Test

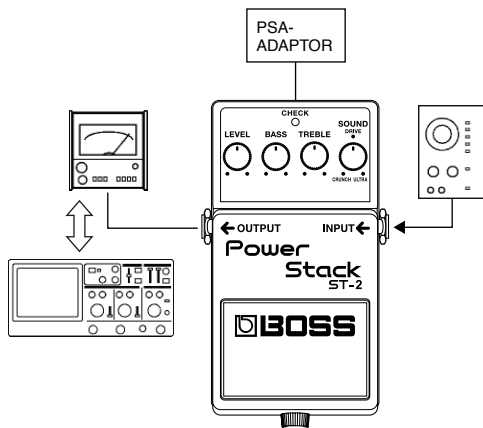
1. Make the connections as shown in the figure below, then start the unit in the normal usage state.



2. Turn all controls clockwise all the way.
3. Connect the amp-equipped monitor speaker to the OUTPUT jack.
4. Depress the pedal several times, and verify that no switching noise occurs and that no wires are pinched between the switch and the pedal.
5. Depress the pedal to make the CHECK LED light up. The effect is switched on.
6. Subject the unit to impact (by dropping it from a height of about 5 cm), and verify that no abnormal noise is heard from the speaker.
7. Connect the noise meter to the OUTPUT jack.
8. Verify that residual noise is -45 dBm or lower (DIN audio) or -45 dBm (JIS A).
9. Depress the pedal to make the CHECK LED go dark. The effect is switched off.
10. Verify that residual noise is -100 dBm or lower (DIN audio) or -102 dBm (JIS A).

## 5. BYPASS Test

1. Make the connections as shown in the figure below, then start the unit in the normal usage state.



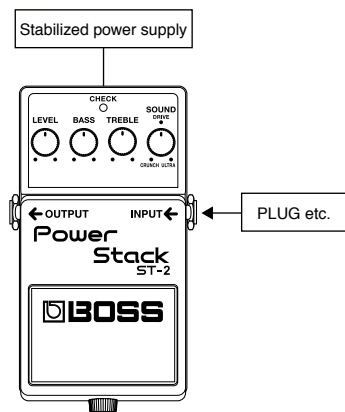
2. Depress the pedal to make the CHECK LED go dark.  
The effect is switched off.
3. Input signals like those shown below from the signal generator, and verify that the output signals are at the corresponding values.

\* Set the filter on the noise meter to Flat or DIN audio.

Input signal	Output signal
50-Hz sine wave at -3.0 dBm	50-Hz sine wave at -3.5 1.5 dBm
800-Hz sine wave at -15.0 dBm	800-Hz sine wave at -15.5 1.5 dBm
1,600-Hz sine wave at -15.0 dBm	1,600-Hz sine wave at -15.5 1.5 dBm
8,000-Hz sine wave at -15.0 dBm	8,000-Hz sine wave at -15.5 1.5 dBm

## 6. LED and Battery Operation Test

1. Insert a battery into the unit, make the connections as shown in the figure, then start the unit in the normal usage state.



2. Set the output voltage of the stabilized power supply to 9.0 V.
3. Depress the pedal to make the CHECK LED light up.
4. Set the output voltage of the stabilized power supply to 7.5 V.
5. Verify that the CHECK LED dims.
6. Disconnect the plug from the DC jack.
7. Verify that the CHECK LED lights up brightly.
8. Depress the pedal several times, and verify that the CHECK LED repeatedly lights up and goes dark.
9. With the CHECK LED illuminated, disconnect the plug from the INPUT jack.
10. Verify that the CHECK LED goes dark.





