

FRV-1

Fender® Reverb

SERVICE NOTES

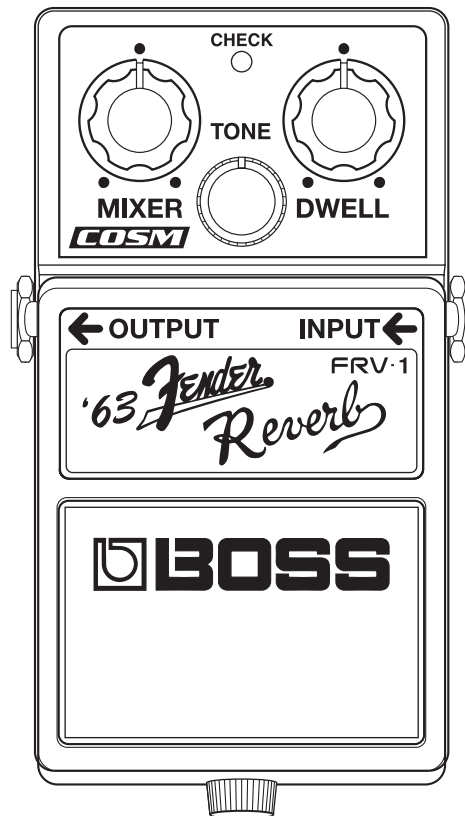
Issued by RJA

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Revise Information

Sep 20, 2011	p. 8	Corrected an error.
Oct 4, 2011	p. 4	Corrected an error.
Apr 26, 2012	p. 7	Added cautions.



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Roland

17058626E0

Printed in Japan (0075) (CC-KWS)

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

FRV-1: Fender Reverb

Nominal Input Level

-20 dBu

Input Impedance

1 M Ω

Nominal Output Level

-20 dBu

Output Impedance

1 k Ω

Recommended Load Impedance

10 k Ω or greater

Power Supply

DC 9 V: Dry battery 6F22 (9 V) type (carbon) /
Dry battery 6LR61 (9 V) type (alkaline),
AC Adaptor (PSA series: optional)

Current Draw

37 mA (DC 9 V)

* *Duration of continuous use with battery operation: Alkaline: 10.5 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

420 g / 15 oz (including battery)

Accessories

Owner's Manual (#5100007385)
Leaflet ("USING THE UNIT SAFELY," "IMPORTANT NOTES," and
"Information") (*****)
Dry Battery / 9 V type (6LR61) (*****)

Option

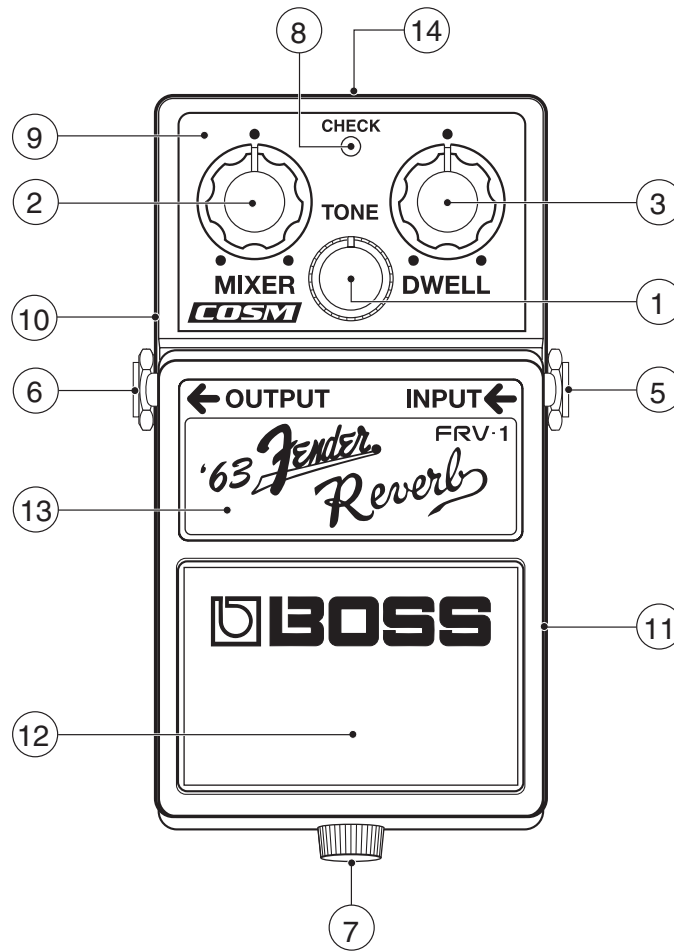
AC adaptor (PSA series)

* $0 \text{ dBu} = 0.775 \text{ Vrms}$

* *Printed matters will not be supplied after the end of the production. Then, download the electronic file from the Roland web site.*

* *In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.*

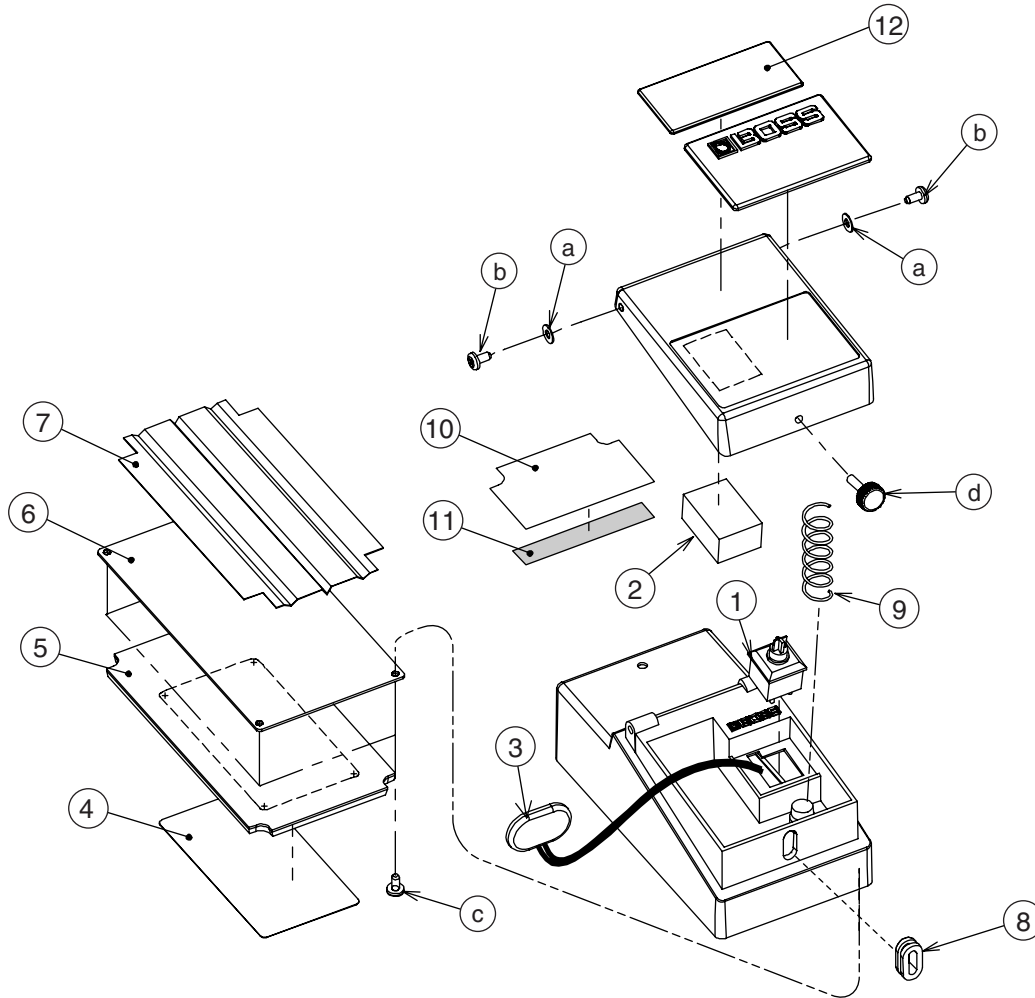
Location of Controls



Location of Controls

No.	Part Code	Part Name	Description	Q'ty
1	5100006344	R-KNOB SF	BLK/SIL (752122N1R1)	1
	5100006351	ROT. POTENTIOMETER #F3229202R0	RD901F-40-15FW-B50K-00DQ7	1
	H5039521R0	NUT M7		1
2	5100006343	R-KNOB LF	BLK/SIL (752122N0RA)	1
	5100006350	ROT. POTENTIOMETER #F3229188R1	RD901F-40-15F-B50K-00DQ7	1
	H5039521R0	NUT M7		1
3	5100006343	R-KNOB LF	BLK/SIL (752122N0RA)	1
	5100006350	ROT. POTENTIOMETER #F3229188R1	RD901F-40-15F-B50K-00DQ7	1
	H5039521R0	NUT M7		1
5	01903234	6.5MM JACK	HTJ-064-13D	1
	5100003918	JACK NUT M9X12X2	NI RTC (H5039510R0)	1
	5100003926	WASHER 9X13.5X0.5T	NI RTC (H5039158R0)	1
6	5100006457	6.5MM JACK	HTJ-064-14D (13449140R0)	1
	5100003918	JACK NUT M9X12X2	NI RTC (H5039510R0)	1
	5100003926	WASHER 9X13.5X0.5T	NI RTC (H5039158R0)	1
7	40125101	THUMB SCREW	M3X10 FE ZC	1
8	15029281	LED (RED)	GL-3PR8	1
9	5100006621	PANEL	(G2217806R0)	1
10	5100006620	CASE	(77D973C0R0)	1
11	5100006622	PEDAL	(77D972T0R0)	1
12	5100007502	PEDAL PLATE	BROWN (G2357306R0)	1
13	5100006623	PANEL	(G2217805R0)	1
14	F3439875R0	ADAPTOR JACK	KM02018ABM1P	1
	5100007511	LABEL	PSA FOR LEGEND (G2547130R0)	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	5100007511	LABEL	PSA FOR LEGEND (G2547130R0)	1
	5100006631	CAUTION SEAL	PSA (FCC/EMI)(G2537516R2)	
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	5100007645	INSULATING SHEET	(G2257326R0)	1
11	5100007508	INSULATING ADHESIVE TAPE	(G2547129R0)	1
12	5100006623	PANEL	(G2217805R0)	1
a	5100008092	PLAIN WASHER 3X6X0.5	RESIN RTC (H5039708R0)	2
b	40010267	SCREW M3X10	BINDING MACHINE FE BZC	2
c	5100007965	SCREW 3X6	PAN TAPPING B1 BZC #H5029325R0	4
d	40125101	THUMB SCREW	M3X10 FE ZC	1

Parts List

SAFETY PRECAUTIONS:
The parts marked Δ 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				
#	5100006620	CASE	(77D973C0R0)	1
#	5100006621	PANEL	(G2217806R0)	1
#	5100006623	PANEL	(G2217805R0)	1
#	5100006622	PEDAL	(77D972T0R0)	1
#	5100007502	PEDAL PLATE	BROWN (G2357306R0)	1
#	5100006632	BOTTOM COVER		1
KNOB, BUTTON				
#	5100006343	R-KNOB LF	BLK/SIL (752122N0RA)	1
#	5100006344	R-KNOB SF	BLK/SIL (752122N1R1)	2
SWITCH				
	13129710R0	SWITCH(PUSH)	JM-0404	1
JACK, EXT TERMINAL				
#	01903234	6.5MM JACK	HTJ-064-13D	1
#	5100006457	6.5MM JACK	HTJ-064-14D (13449140R0)	1
	F3439875R0	ADAPTOR JACK	KM02018ABM1P	1
PWB ASSY				
#	5100005960	MAIN SHEET ASSY		1
DIODE				
	15029281	LED (RED)	GL-3PR8	1
POTENTIOMETER				
#	5100006350	ROT. POTENTIOMETER #F3229188R	RD901F-40-15F-B50K-00DQ7	2
#	5100006351	ROT. POTENTIOMETER #F3229202R	RD901F-40-15FW-B50K-00DQ7	1
SCREWS				
	40010267	SCREW M3X10	BINDING MACHINE FE BZC	2
	40125101	THUMB SCREW	M3X10 FE ZC	1
#	5100007965	SCREW 3X6	PAN TAPPING B1 BZC	4
	H5039521R0	NUT M7		3
#	5100003918	JACK NUT M9X12X2	NI RTC (H5039510R0)	2
#	5100008092	PLAIN WASHER 3X6X0.5	RESIN RTC	2
	5100003926	WASHER 9X13.5X0.5T	NI RTC (H5039158R0)	2
#	5100008086	INT TOOTH WASHER 9.5X12.5X0.5	NI RTC	2
MISCELLANEOUS				
#	5100007872	BATTERY CONNECTOR	006P BATTERY SNAP (F3419102R0)	1
#	5100006633	BOTTOM FOOT		1
#	5100007503	BATTERY CUSHION		1
#	5100007504	COIL SPRING		1
#	5100007505	PEDAL GUIDE BUSH		1
#	5100007645	INSULATING SHEET		1
#	5100007509	INSULATING SHEET		1
#	5100007508	INSULATING ADHESIVE TAPE		1
#	5100006631	CAUTION SEAL	PSA (FCC/EMI)	1
#	5100007511	LABEL	PSA FOR LEGEND (G2547130R0)	1
ACCESSORIES (Standard)				
#	5100007385	OWNER'S MANUAL	MULTILANGUAGE	1

Verifying the Version Numbers

1. Connect an AC adaptor (PSA series) to the unit.
2. Turn down all controls all the way counterclockwise.
3. Hold down the foot pedal and insert a 1/4-inch mono phone plug into the **INPUT** jack.
The power comes on and the **CHECK** LED (red) lights up.
After approximately 2 seconds, the **CHECK** LED (red) flashes, and the number of flashes indicates the version number.
Examples: 1 flash: Version 1.00
2 flashes: Version 1.01
3 flashes: Version 1.02
4. Release the foot pedal.
** After the version number is displayed, operation automatically enters the Test Mode.*

Performing a Factory Reset

This product has no factory-reset feature.

Updating the System

No system update can be performed for this product.
If an update is required, replace with an updated circuit board. (Updating is possible only at the plant.)

Test Mode

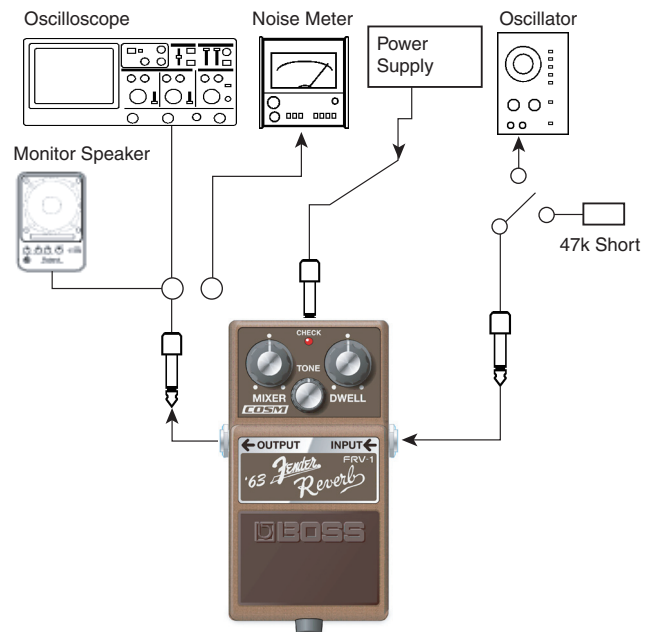
Items Required

- 47-k Ω dummy plug (1/4-inch mono phone plug) x 1
- Amp-equipped monitor speaker x 1
- Signal generator x 1
- Noise meter x 1
- Oscilloscope x 1

** Never use a stereo phone plug. Doing so may cause malfunction.*

Entering the Test Mode

1. Referring to the figure below, connect all measuring equipment except at the **INPUT** jack.



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

Quitting the Test Mode

After the version has been displayed, you can exit the Test Mode by depressing the foot pedal.

** The Test Mode cannot be exited until the version is displayed.*

** Exiting the Test Mode during **1. Digital VR Check** (p. 7) or **2. AD/DA Check** (p. 8) is not possible.*

Skipping

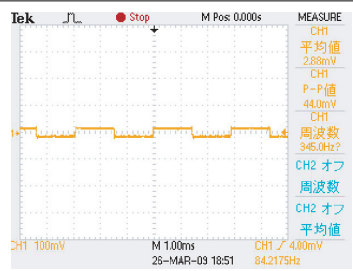
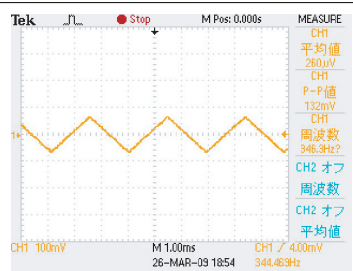
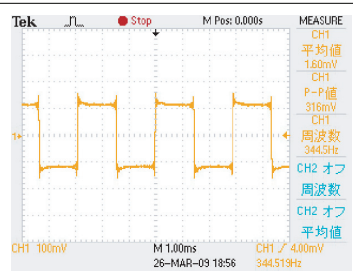
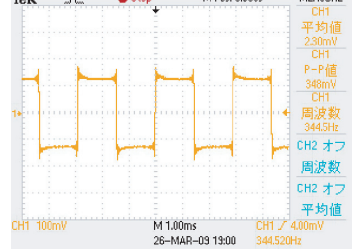
Test items cannot be skipped.

Test Items

1. **Digital VR Check** (p. 7)
2. **AD/DA Check** (p. 8)
3. **Noise Check** (p. 8)
4. **Audible Noise Check** (p. 8)
5. **Battery Operation Check** (p. 8)

1. Digital VR Check

1. Insert a 1/4-inch mono phone plug into the **INPUT** jack.
2. Connect **OUTPUT** to the oscilloscope.
3. Verify that the **CHECK** LED has gone dark.
4. Turn the **MIXER** knob clockwise, then refer to the chart below and verify the position of the control, the lighted state of the **CHECK** LED, and the output waveform.

Control position	CHECK LED	Output waveform (frequency: approx. 345 Hz)	Oscilloscope
7 o'clock (MIN)	Dark	None	-
Near 9 o'clock	Lighted	Approx. 50 mVp-p rectangular wave	
Near 11 o'clock	Lighted	Approx. 100 mVp-p rectangular wave	-
Near 12 o'clock	Dark	Approx. 130 mVp-p delta wave	
Near 1 o'clock	Lighted	Approx. 200 mVp-p rectangular wave	-
Near 3 o'clock	Lighted	Approx. 280 mVp-p rectangular wave	
5 o'clock (MAX)	Dark	Approx. 330 mVp-p rectangular wave	

Turning the **MIXER** knob all the way clockwise makes execution advance automatically to the test of the **TONE** knob.

5. In the same way, refer to the chart above and verify the position of the control, the lighted state of the **CHECK** LED, and the output waveform.

Turning the **TONE** knob all the way clockwise makes execution advance automatically to the test of the **DWELL** knob.

6. In the same way, refer to the chart above and verify the position of the control, the lighted state of the **CHECK** LED, and the output waveform.

* When the **DWELL** knob is turned all the way clockwise, FRV-1 oscillates in sine wave and the **CHECK** LED flashes. If there is no problem before oscillation, the test is passed.

7. Disconnect the plug inserted in the **INPUT** jack to switch off the power.

2. AD/DA Check

1. Turn the **MIXER**, **TONE**, and **DWELL** knobs all the way clockwise.
2. Hold down the foot pedal and connect the signal generator to the **INPUT** jack.
When the jack is inserted, the **CHECK** LED lights up, then after approximately 2 seconds, it flashes once, then goes dark.
3. Connect the oscilloscope and noise meter (DIN audio) to the **OUTPUT** jack.
4. Input a **50-Hz** sine wave at **-3 dBu** to the **INPUT** jack.
5. Verify that a **50-Hz** signal is output from the **OUTPUT** jack, and also that the noise value is **-3 dBu±1 dB**.
6. Input an **800-Hz** sine wave at **-15 dBu** to the **INPUT** jack.
7. Verify that an **800-Hz** signal is output from the **OUTPUT** jack and that the noise value is **-15 dBu±1 dB**.
8. Input a **1.6-kHz** sine wave at **-15 dBu** to the **INPUT** jack.
9. Verify that a **1.6-kHz** signal is output from the **OUTPUT** jack and that the noise value is **-15 dBu±1 dB**.
10. Input an **8-kHz** sine wave at **-15 dBu** to the **INPUT** jack.
11. Verify that an **8-kHz** signal is output from the **OUTPUT** jack and that the noise value is **-15 dBu±1 dB**.

3. Noise Check

1. Turn the **MIXER**, **TONE**, and **DWELL** knobs counterclockwise all the way.
2. Connect the 47-k Ω dummy plug to the **INPUT** jack and verify that the **CHECK** LED lights up.
3. Connect the noise meter to the **OUTPUT** jack.
4. Verify that the noise level is **-92.0 dBu** or less (DIN audio).
5. Depress the foot pedal and verify that the **CHECK** LED (red) goes dark.
6. Verify that the noise level is **-105.0 dBu** or less (DIN audio).
7. Depress the foot pedal.

4. Audible Noise Check

1. Connect the 47-k Ω dummy plug to the **INPUT** jack.
2. Connect the monitor speaker to the **OUTPUT** jack.
3. Depress the foot pedal several times and verify that no switching noise is heard from the monitor speaker.
4. Add a shock to the product and verify that no abnormal noise is produced.

5. Battery Operation Check

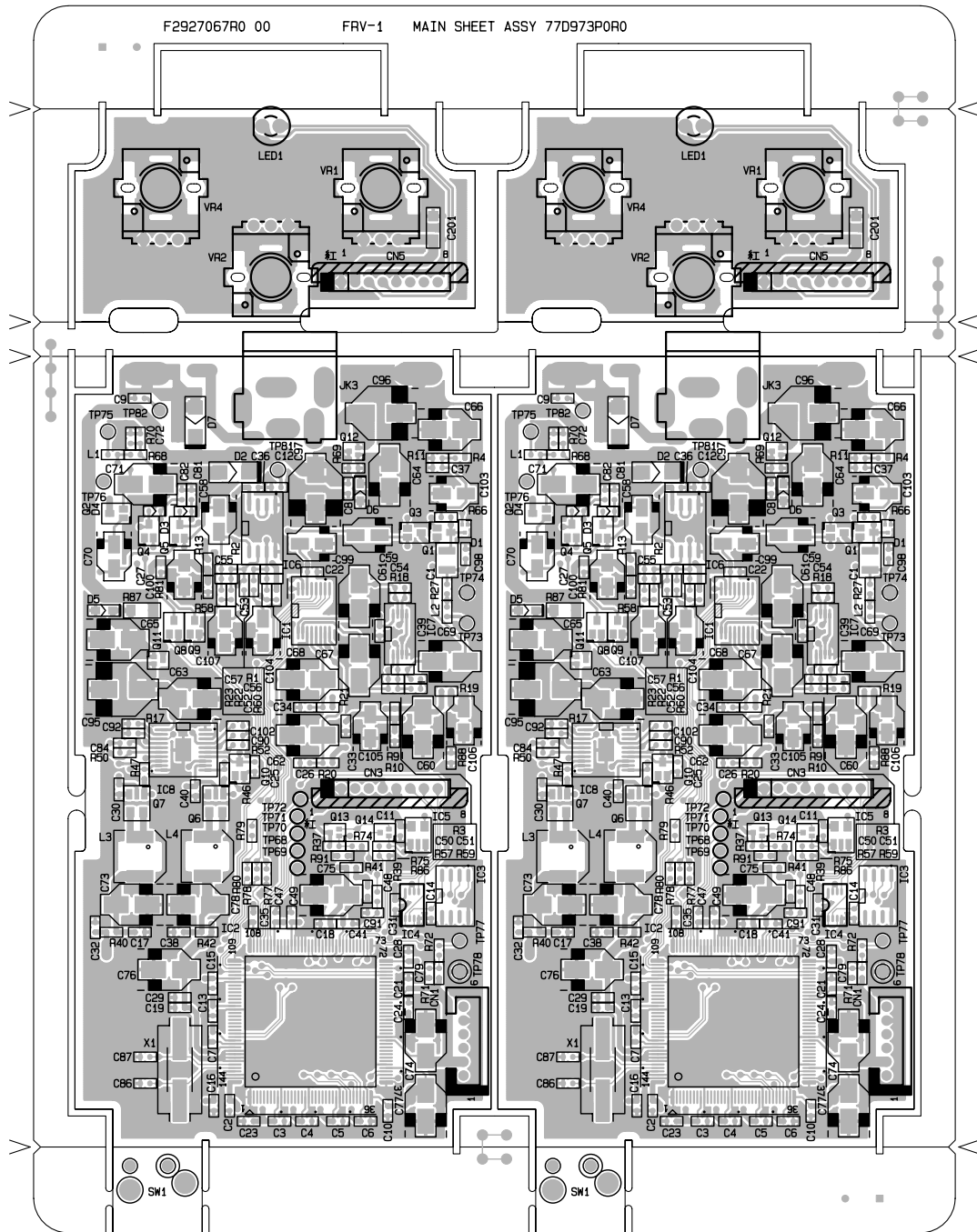
1. Disconnect the AC adaptor.
2. Insert a battery into the battery compartment, then insert a plug into the **INPUT** jack.
3. Verify that the **CHECK** LED lights up.

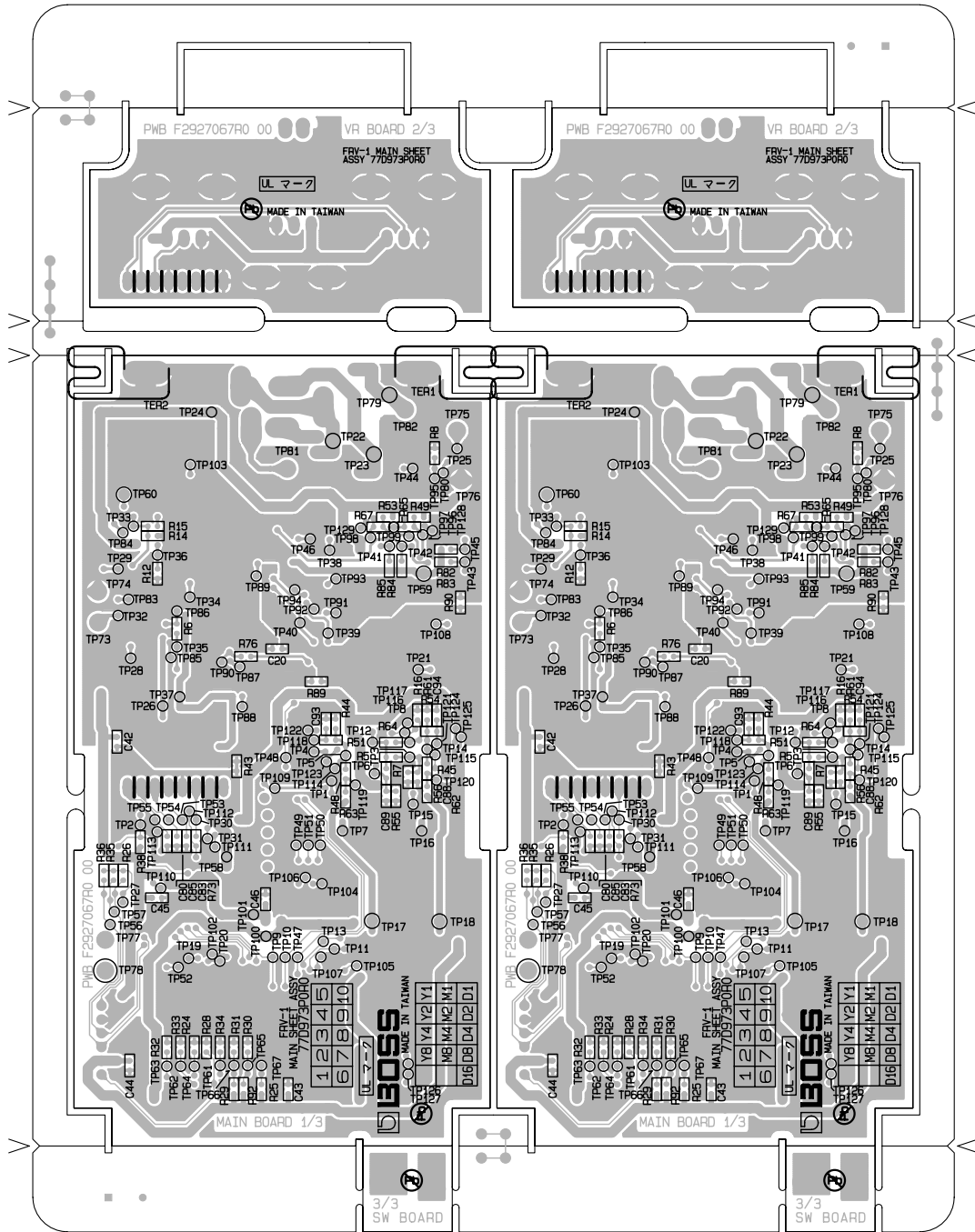
* If the lighted **CHECK** LED is not bright, try using a fresh battery.

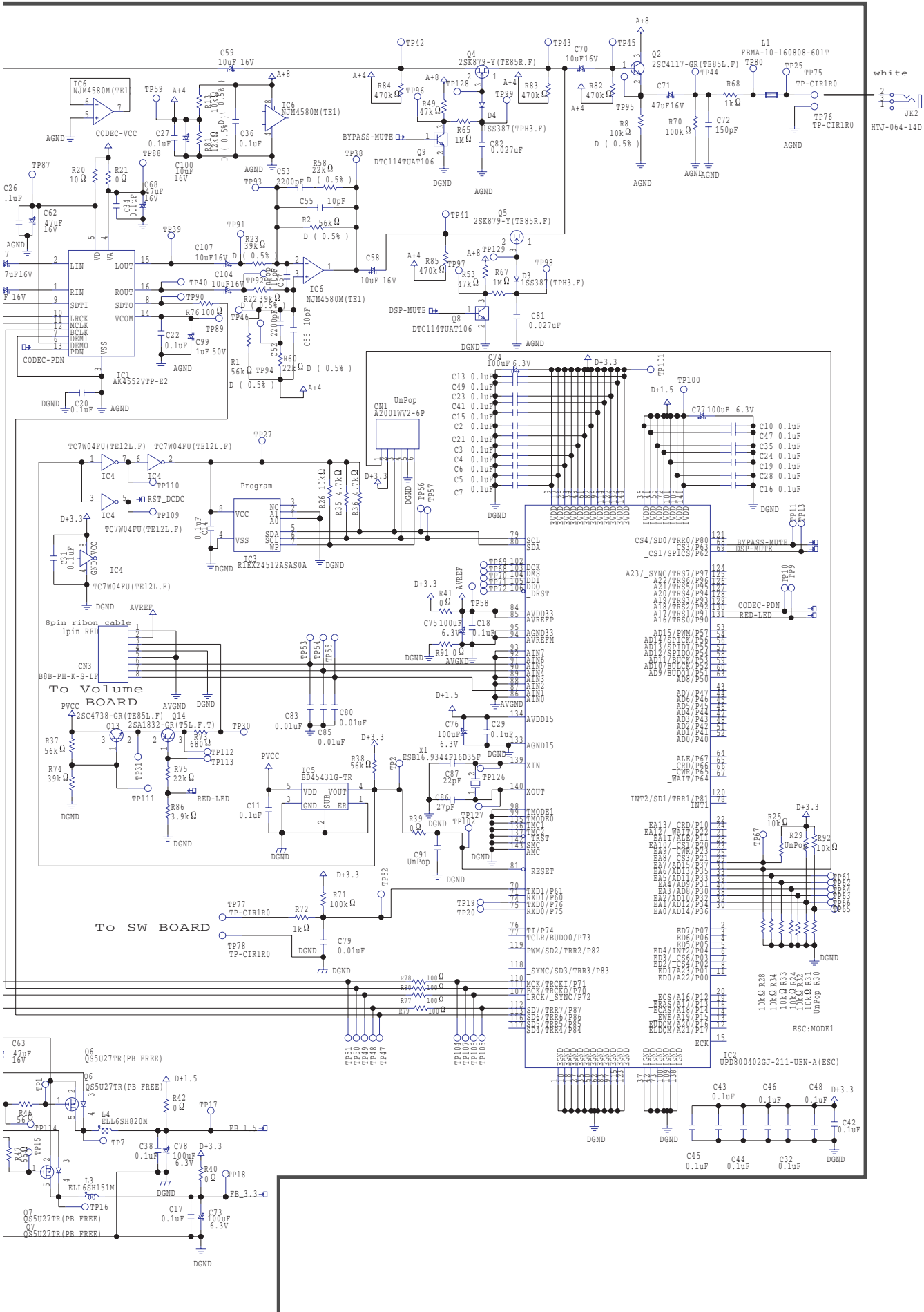
Verification of Current Consumption

1. Turn the **MIXER**, **TONE**, and **DWELL** knobs counterclockwise all the way.
2. Connect the 47-k Ω dummy plug to the **INPUT** jack.
3. Make sure the **CHECK** LED lights up.
4. Verify that current consumption at DC 9 V is **33 mA-37 mA** or less.

Circuit Board







MEMO