



Guitar Multiple Effects

ME-20

SERVICE NOTES

Issued by RJA

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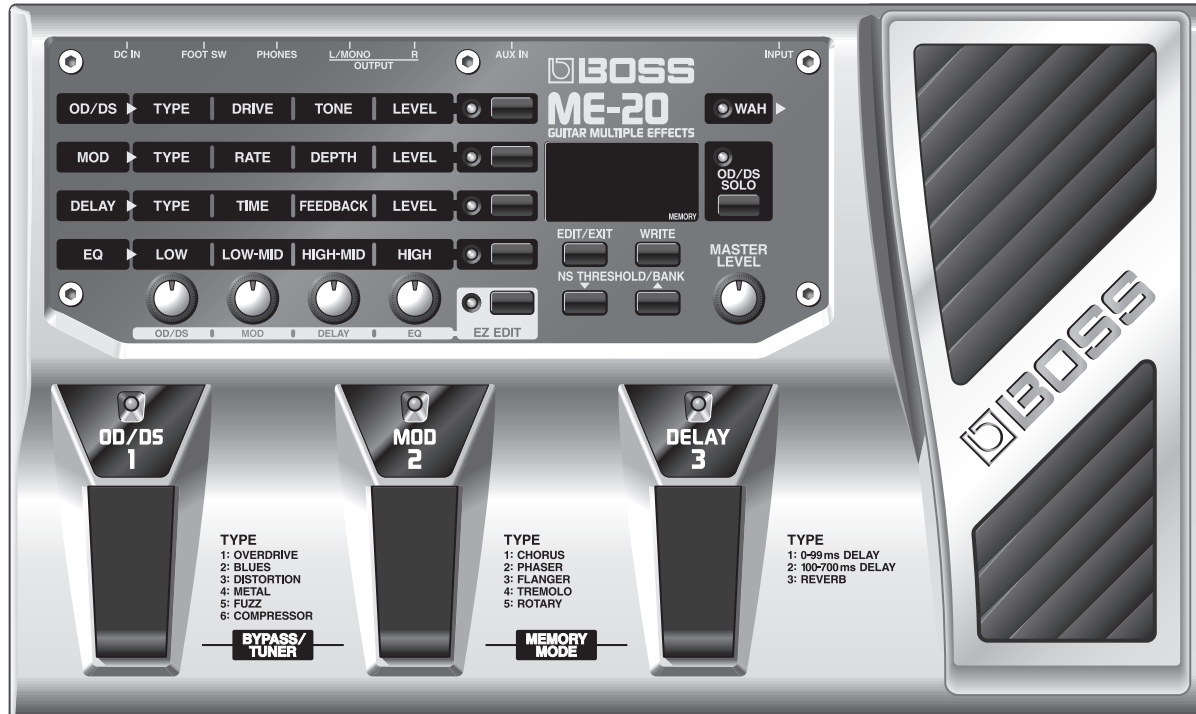
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Revise Information

Sep. 25, 2007

P.14 - The whole contents of this segment were revised.

"10. Expression-pedal Adjustment"



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Roland

17058487E0

Printed in Japan (0370) (SC-KW)

Cautionary Notes

Before beginning the procedure, please read through this document.

The matters described may differ according to the model.

No power switch exists.

The ME-20 is powered up by inserting a shielded cord into the INPUT jack. Before making the connection, be sure to turn down the master volume.

User data cannot be backed up.

Internal patch and setting data cannot be backed up externally.

* *Note: The user memory is stored in an EEPROM (IC8).*

* *Moving the user memory to another circuit board by changing IC8 is possible, but not recommended.*

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 ***** cannot 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).

Circuit Diagram

In the circuit diagram, "NIU" is an abbreviation for "NOT IN USE." The circuit board and circuit-board diagram show silkscreened indications, but no components are mounted.

Specifications

ME-20(40318): Guitar Multiple Effects

AD Conversion

24-bit + AF method (*)

DA Conversion

24-bit

Sampling Frequency

44.1 kHz

Patches

30 (user)

Nominal Input Level

INPUT: -10 dBu
AUX IN: -18 dBu

Input Impedance

INPUT: 1 M ohm
AUX IN: 22 k ohm

Nominal Output Level

-10 dBu

Output Impedance

2 k ohm

Display

7 segments, 2 characters LED

Control

OD/DS/1 Pedal
MOD/2 Pedal
DELAY/3 Pedal
Expression Pedal

Jacks

INPUT jack (1/4" phone type)
AUX IN jack (Stereo miniature phone type)
OUTPUT jacks L/MONO, R (1/4" phone type)
PHONES jack (Stereo 1/4" phone type)
FOOT SW jack (1/4" TRS phone type)
AC Adaptor jack

Power Supply

DC 9 V: Dry batteries (R6/LR6 (AA) type) x 6,
AC Adaptor (PSA series: Optional)

Current Draw

90 mA

* Expected battery life under continuous use:

Alkaline: 13 hours, Carbon: 3.5 hours

These figures will vary depending on the actual conditions of use.

Dimensions

294 (W) x 179 (D) x 54 (H) mm
11-5/8 (W) x 7-1/16 (D) x 2-1/8 (H) inches
Maximum height:
294 (W) x 179 (D) x 74 (H) mm
11-5/8 (W) x 7-1/16 (D) x 2-15/16 (H) inches

Weight

1.6 kg / 3 lbs 9 oz (including batteries)

Accessories

- Owner's Manual English (#G6027123R0)
- Patch List (#*****)
Note: The Patch list is included only in the initial production lot (for English text as well).
Note: Starting with the subsequent production lot, the Patch list is included in the owner's manual.
- Dry Batteries (Alkaline: LR6 (AA) type) x 6 (#*****)
- Roland Service (Information Sheet)

Options

- AC Adaptor: BOSS PSA series
- Footswitch: BOSS FS-6, FS-5U
- Owner's Manual Japanese (#G6017469R0)
- Connection Cable: PCS-31 (Roland)
(Stereo 1/4" phone plug-1/4" phone plug x 2)

* 0 dBu = 0.775 Vrms

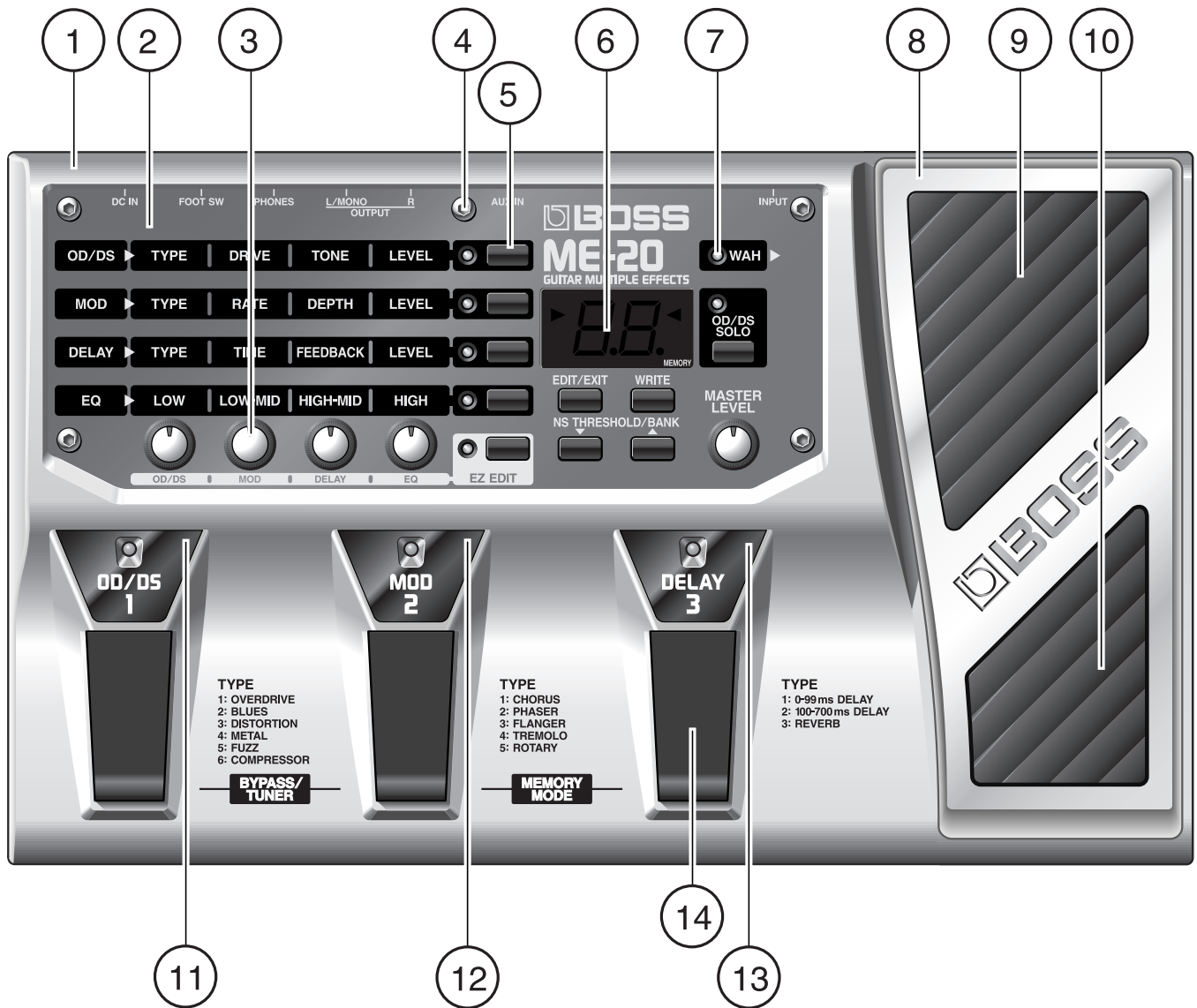
* In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

(*) AF method (Adaptive Focus method)

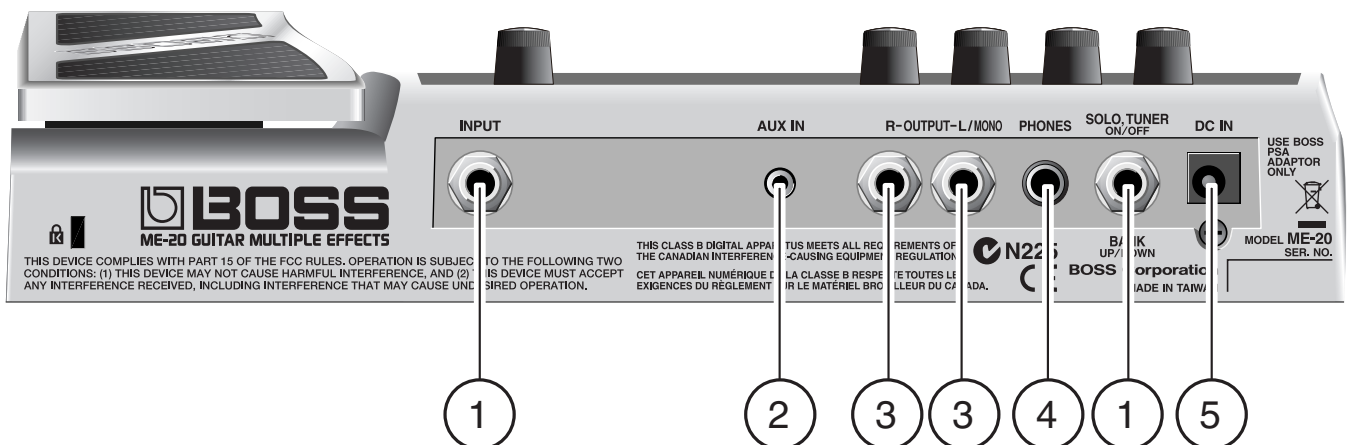
This is a proprietary method from Roland/BOSS that vastly improves the signal-to-noise (S/N) ratio of the A/D and D/A converters.

Location of Controls

[Panel]



[Rear]



Location of Controls Parts List

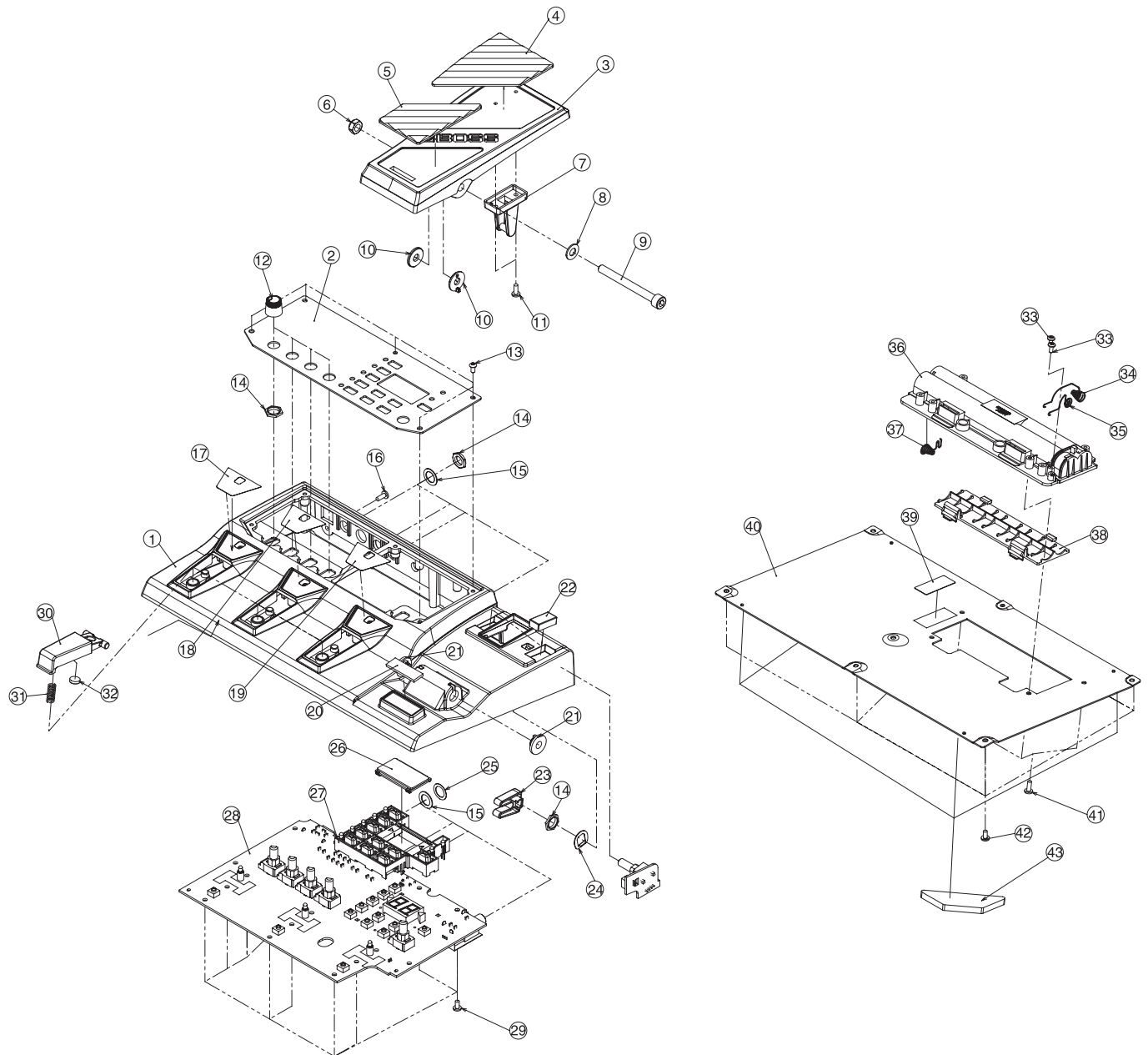
[Panel]

No	Part Code	Part Name	Description	Q'ty
1	G2017646R0	TOP CASE	CASE	1
2	G2217782R0	PANEL PLATE	PANEL	1
3	G2477520R0	R-KNOB INDEX	KNOB	5
4	H5049002R0	HEX SOCKET BUTTON SCREW M3x6 NI	SCREW	5
5	G2497013R0	KEYUNIT	KEYTOP	1
6	G2567170R0	7-SEG COVER	7-SEG COVER	1
	F5029412R0	A-552SR BW	7SEG	1
	F5229810R0	L-323SRDT	LED	2
7	15029281R0	L-34HDLS	LED	10
8	G2187914R0	VR PEDAL	VR PEDAL	1
9	G2357304R0	VR PEDAL PLATE TOE	VR PEDAL PLATE	1
10	G2357303R0	VR PEDAL PLATE HEEL	VR PEDAL PLATE	1
11	G2217777R0	SW PEDAL LABEL 1	SW PEDAL LABEL	1
12	G2217776R0	SW PEDAL LABEL 2	SW PEDAL LABEL	1
13	G2217775R0	SW PEDAL LABEL 3	SW PEDAL LABEL	1
14	G2187915R0	SW PEDAL	SW PEDAL	3

[Rear]

No	Part Code	Part Name	Description	Q'ty
1	03344701	HTJ-064-12DS	6.5MM JACK	2
	H5039158R0	JACK WASHER M9 NI	WASHER	2
	H5039510R0	JACK NUT M9 NI	NUT	2
2	F3439868R0	HTJ-035-23DBS	3.5MM JACK	1
3	03239801	HTJ-064-12I	6.5MM JACK	2
	H5039158R0	JACK WASHER M9 NI	WASHER	2
	H5039510R0	JACK NUT M9 NI	NUT	2
4	F3449714R0	HTJ-064-05A	6.5MM JACK	1
5	13449717R0	HEC2392-01-150	ADAPTOR JACK	1
	G2147127R0	DC JACK HOLDER		1
	H5029331R0	BINDING TAPTITE S 3x8 BZC	SCREW	1

Exploded View



Exploded View Parts List

No	Part Code	Part Name	Description	Q'ty
1	G2017646R0	TOP CASE		1
2	G2217782R0	PANEL PLATE		1
3	G2187914R0	VR PEDAL		1
4	G2357304R0	VR PEDAL PLATE TOE		1
5	G2357303R0	VR PEDAL PLATE HEEL		1
6	H5039515R0	U NUT M6 BZC	NUT	1
7	G2147897R0	PIN STAY		1
8	H5039122R0	PLANE WASHER M6 BZC		1
9	H5049001R0	HEX SOCKET CAP SCREW M6x60 BZC		1
10	G2147898R0	BOLT HODLER		2
11	H5019115R0	PAN TAPPING B1 3X8 BZC	Screw	2
12	G2477520R0	R-KNOB INDEX		5
13	H5049002R0	HEX SOCKET BUTTON SCREW M3x6 NI		5
14	H5039510R0	JACK NUT M9 NI	NUT	10
15	H5039158R0	JACK WASHER M9 NI		8
16	H5029331R0	BINDING TAPTITE S 3X8 BZC	SCREW	1
17	G2217777R0	SW PEDAL LABEL 1	SW PEDAL LABEL	1
18	G2217776R0	SW PEDAL LABEL 2	SW PEDAL LABEL	1
19	G2217775R0	SW PEDAL LABEL 3	SW PEDAL LABEL	1
20	G2357111R0	CUSHION R	CUSHION	1
21	G2147874R0	BOLT HODLER		2
22	G2357305R0	VR PEDAL FOOT		2
23	G2147806R0	STAY		1
24	G2637117R0	VR SPACER SUS		1
25	G2137402R0	PC JACK WASHER	WASHER	1
	Note: used in PWB Rev 00 only.			
26	G2567170R0	7-SEG COVER	7-SEG COVER	1
27	G2497013R0	KEY UNIT	KEY UNIT	1
28	75E243P0R0	MAIN SHEET ASSY	PWB ASSY	1
29	H5019110R0	PAN TAPPING B1 3x6 ZC		14
30	G2187915R0	SW PEDAL		3
31	G2177103R0	SUPPORT SPRING		3
32	G2357109R0	PEDAL FOOT		3
33	H5019430	M2.6X5 BINDING HEAD TAPTITE P FEZC		2
34	G2177309R0	BATTERY TERMINAL(-)	BATTERY BOX	1
35	G2177308R0	BATTERY TERMINAL(+)	BATTERY BOX	1
36	G2017620R0	BATTERY CASE	BATTERY BOX	1
37	G2177307R0	BATTERY TERMINAL(+/-)	BATTERY BOX	1
38	G2017621R0	BATTERY COVER	BATTERY BOX	1
39	G2257130R0	BATTERY INSULATING SHEET	BATTERY BOX	1
40	G2027945R0	BOTTOM COVER	BOTTOM COVER	1
41	H5029330R0	BINDING TAPTITE P 3X8 BZC		4
42	H5029325R0	PAN TAPPING B1 3X6 BZC		7
43	G2357120R0	FOOT		4

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.

CHASSIS				
G2357304R0	VR PEDAL PLATE	TOE		1
G2357303R0	VR PEDAL PLATE	HEEL		1
G2027945R0	BOTTOM COVER			1
G2217782R0	PANEL PLATE			1
G2017646R0	TOP CASE			1
G2187914R0	VR PEDAL			1
KNOB,BUTTON				
G2477520R0	R-KNOB			5
G2497013R0	KEY UNIT			1
SWITCH				
01780101	TACT SWITCH	SKQKABD010	SW1,SW2,SW3,SW4,SW5,SW6,SW7,SW8,S W9,SW10,SW11,SW12,SW13	13
G2187915R0	SW PEDAL			3
JACK,EXT TERMINAL				
03239801	6.5MM JACK	HTJ-064-12I	JK1,JK3	2
03344701	6.5MM JACK	HTJ-064-12DS	JK4,JK6	2
F3449714R0	6.5MM JACK	HTJ-064-05A	JK5	1
F3439868R0	MINI JACK	HTJ-035-23DBS(STEREO)	JK2	1
13449717R0	ADAPTOR JACK	HEC2392-01-150	JK7	1
PWB ASSY				
75E243P0R0	MAIN SHEET ASSY			1
IC				
01125012	IC (BIPOLAR OP AMP)	NJM4556AM	IC1	1
00346445	IC (BIPOLAR OP AMP)	NJM2100M(TE3)	IC3	1
04345889	IC(OP AMP)	NJM14558M	IC2	1
DIODE				
15029281R0	LED	L-34HDSL	LED3,LED4,LED5,LED6,LED7,LED8,LED9, LED10,LED11,LED12,	10
F5229810R0	LED	L-323SRDT	LED1,LED2	2
F5029412R0	7SEG LED	A-552SR BW	LED13	1
POTENTIOMETER				
F3229201R0	POTENTIOMETER	RV110F-40E1-15A-B50K-005	VR1,VR2,VR3,VR4,VR5	5
01016167	11M/M ROTARY POTENTI- OMETER	RK11K1140AFG 10KX1	VR6	1
CRYSTAL,RESONATOR				
F5299525R0	CRYSTAL	HC49SMA@16.9344MHZ	X1	1
WIRING, CABLE				
F3467052R0	WIRING	BATTERY 2P 100MM		1
F3467051R0	WIRING	3P 130MM	CN4	1
SCREWS				
H5039515R0	NUT	U NUT M6 BZC		1
H5019110R0	SCREW 3X6	PAN TAPPING B1 ZC		14
H5019115R0	SCREW 3X8	PAN TAPPING B1 BZC		2
H5039520R0	NUT	M9		1
H5039520R0	NUT	M9		5
H5049001R0	SCREW M6X60	HEX SOCKET CAP BZC		1
H5049002R0	SCREW M3X6	HEX SOCKET BUTTON NI		5
H5029331R0	SCREW 3X8	BINDING TAPTITE S BZC		1

SCREWS			
H5029330R0	SCREW 3X8	BINDING TAPTITE P BZC	4
H5029325R0	SCREW 3X6	B1FEBC	7
H5039205R0	TOOTH WASHER	9.1X13	4
H5039122R0	PLAIN WASHER	6X13X1 BZC	1
G2147898R0	BOLT HOLDER		2
G2147874R0	BOLT HOLDER		2
H5039510R0	NUT M9X12X2T NI		4
H5039158R0	WASHER M9X14X0.5T NI		4
PACKING			
G2627789R0	PACKING CASE		1
G2267632R0	PAD L		1
G2267633R0	PAD R		1
MISCELLANEOUS			
G2357305R0	FOOT	VR PEDAL	2
G2217775R0	LABEL	SW PEDAL 3	1
G2217776R0	LABEL	SW PEDAL 2	1
G2217777R0	LABEL	SW PEDAL 1	1
G2637117R0	VR SPACER	SUS	1
G2357120R0	FOOT	H=5	4
G2199514R0	LED SPACER	7MM	3
G2567170R0	7-SEG COVER		1
G2017620R0	BATTERY CASE		1
G2017621R0	BATTERY COVER		1
G2257130R0	BATTERY INSULATING SHEET		1
G2177307R0	BATTERY TERMINAL(+/-)		1
G2177308R0	BATTERY TERMINAL(+)		1
G2177309R0	BATTERY TERMINAL(-)		1
G2357111R0	CUSHION R		1
G2147127R0	DC JACK HOLDER		1
G2257203R0	JACK COVER		1
G2357109R0	PEDAL FOOT		3
G2147897R0	PIN STAY		1
G2147806R0	STAY (POM)		1
G2177103R0	SUPPORT SPRING		3
ACCESSORIES (Standard)			
G6027123R0	OWNER'S MANUAL	ENGLISH	1
G6017469R0	OWNER'S MANUAL	JAPANESE	1

Checking the Version Number

1. Turn down the master volume completely.
2. Connect an AC adapter.
3. While holding down [EDIT/EXIT] and [WRITE], insert a plug into the INPUT jack to power up the unit.
Note: Continue to hold down [EDIT/EXIT] and [WRITE] until the version is displayed.
4. The version of the software appears on the 7-segment display.
5. Switch off the power either by detaching the plug from the INPUT jack or by disconnecting the AC adapter.

Saving and Loading Users Data

Internal patch and setting data cannot be backed up externally.

Note: User memory is stored in the EEPROM (IC8).

Moving User memory to another circuit board by changing IC8 is possible, but not recommended.

Factory Reset Instructions

Caution about Users Data

Executing a factory reset returns patch and setting data to their factory defaults.

Exercise care when performing this operation.

1. Turn down the master volume completely.
2. While holding down [DELAY] and [EQ], insert a plug into the INPUT jack to power up the unit.
Note: Continue holding down [DELAY] and [EQ] until [FA] appears on the 7-segment display.
3. [FA] appears on the 7-segment display.
4. Press [WRITE].
[FA.] (with a flashing dot) appears on the 7-segment display, and the unit goes into standby for the factory reset.
5. Press [WRITE] a second time.
All segments on the 7-segment display begin to flash, and the factory reset is executed.
6. After the factory reset ends, [Pd] appears on the 7-segment display for approximately 2 seconds, and then operation is transferred to adjustment of the EXP (expression) pedal. ([Pd] is an abbreviation of "pedal.")
7. Verify that after [Pd] previews on the 7-segment display, [UP] is then displayed.
8. Make sure the expression pedal is undepressed, then press [WRITE].
9. [dn] appears on the 7-segment display.
10. Depress the expression pedal, then press [WRITE].
11. [5] appears on the 7-segment display.
Note: This "5" is the sensitivity of the expression pedal switch. It is set to "5" by default.
12. Forcefully depress the expression pedal, and make sure the WAH LED lights up.
13. Forcefully depress the expression pedal again, and make sure the WAH LED goes dark.
14. Press [WRITE] to advance the display on the 7-segment display.
Make sure that [Gt] is shown on the 7-segment display.
Note: This [Gt] signifies that the unit is the ME-20.
15. Switch off the power by detaching the plug from the INPUT jack.
16. This completes the factory reset.

System Software Updating Instructions

Updates to the software cannot be executed.

To accomplish this, replace the circuit board.

Note: The program memory is stored in an EEPROM (IC6).

Updating the program by replacing IC6 is possible, but not recommended.

Test Mode

Caution about Users Data

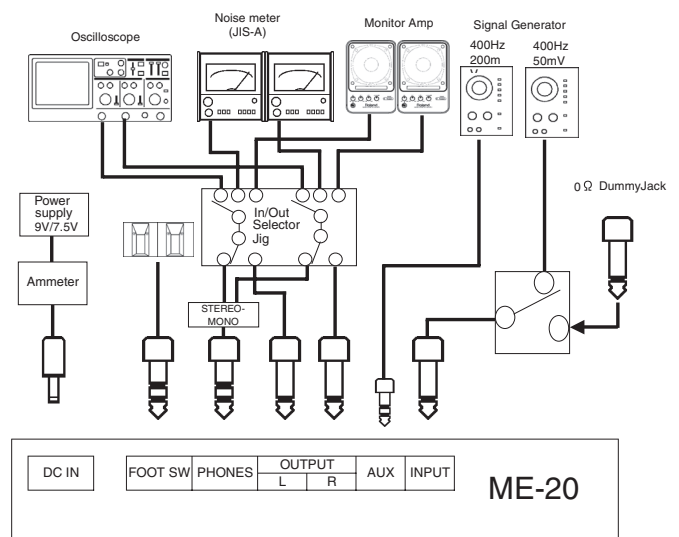
Executing a factory reset returns patch and setting data to their factory defaults.

Exercise care when performing this operation.

Required Items

- Oscillator
- Noise meter
- Oscilloscope
- Monitor amp
- 0 ohm load plug (standard monaural)
- Tester
- FS-5U
- Battery-box inspection jig (useful if available)
- Cables for connecting the items just described

Connection Diagram



Entering Test Mode

The starting location of the Test mode can be varied by modifying how the switches are pressed when the unit is powered up (by insertion of a plug into the INPUT jack).

Switch	Test-mode item
Powerup while holding down [OD/DS] + [MOD]	Startup from version check
Powerup while holding down [MOD] + [DELAY]	Startup from D/A check
Powerup while holding down [DELAY] + [EQ]	Startup from factory reset
Powerup while holding down [EQ] + [EZ EDIT]	Startup from expression-pedal adjustment

Exiting Test Mode

Switch off the power.

Skipping Test Items

Execution of items in the Test mode cannot be skipped.

Test Items

1. Version Check
2. SW/LED Check
3. VR Check
4. Voltage Check
5. Foot SW check
6. D/A Check
7. A/D Check
8. Noise Check

Note: Checking is normally performed up to this point.

Note: Never execute further checking unless necessary.

9. Factory Reset
10. Expression-pedal Adjustment
11. Model Identification Check (for verification when shipped from the factory)

Details of the Test Items



Because detaching the plug connected to the INPUT jack while in the Test mode switches off the power, interposing a switch unit or the like can facilitate operations. (For details, refer to the Connection Diagram on the previous page.)

1. Version Check

1. Power up the unit by inserting a plug into the INPUT jack while holding down [OD/DS] + [MOD].
After powerup, the version is displayed.
2. Version Check
The version of the software appears on the 7-segment display.
Make sure the software is at the latest version.



Make sure the LOW (left) side of the TUNER LED is lighted at this time. If HIGH (right) is lighted, the software may be for the ME-20B.

3. Press [Δ].
Checksum values (upper and lower) are displayed in time with the illumination cycle of the TUNER LED.
If the checksum is correct, you can advance to the next section using [Δ].
4. Press [Δ].
Execution is transferred to the SW (switch) and LED check.

2. SW/LED Check

1. Make sure that all LEDs light up.
Measure current consumption and verify that it is 83 mA or less.
** Note: To skip measurement, advance to [2].*
2. Press the switches in the order shown in the following list.
Verify that the LED shown in the list goes dark when the switch is pressed.
Verify that a click is felt when the switch is pressed.
When all switches have been pressed and all LEDs have gone dark, operation automatically advances to the VR check.

List of order to press

Order	SW	LED(COLOR)
1	PEDAL1(OD/DS)	PEDAL1(RED)
2	PEDAL2(MOD)	PEDAL2(RED)
3	PEDAL3(DELAY)	PEDAL3(RED)
4	OD/DS	OD/DS(RED)
5	MOD	MOD(RED)
6	DELAY	DELAY(RED)
7	EQ	EQ(RED)
8	EZ_EDIT	EZ_EDIT(RED)
9	EDIT/EXIT	7SEG_H-A(RED)
	EDIT/EXIT	7SEG_H-B(RED)
	EDIT/EXIT	7SEG_H-C(RED)
	EDIT/EXIT	7SEG_H-D(RED)
	EDIT/EXIT	7SEG_H-E(RED)
	EDIT/EXIT	7SEG_H-F(RED)
	EDIT/EXIT	7SEG_H-G(RED)
	EDIT/EXIT	7SEG_H-H(RED)
10	WRITE	7SEG_L-A(RED)
	WRITE	7SEG_L-B(RED)
	WRITE	7SEG_L-C(RED)
	WRITE	7SEG_L-D(RED)
	WRITE	7SEG_L-E(RED)
	WRITE	7SEG_L-F(RED)
	WRITE	7SEG_L-G(RED)
	WRITE	7SEG_L-H(RED)
11	BANK A'	TUNER_L
12	BANK A™	TUNER_H
13	OD/DS SOLO	SOLO(RED)
14	OD/DS SOLO	WAH(RED)

3. VR Check

1. Make sure that [1.] is displayed on the 7-segment display.
Note: If the dot is not displayed, it is possible that the VR is not detected as being at its MIN (minimum) position.
Adjust all VR controls to the MIN position and make sure that the dot lights up.
Check the VR controls in this sequence, from left to right: VR1, VR2, VR3, VR4, VR5 (MASTER), and EXP_VR.
2. Turn the VR control to the 9 o'clock, then 12 o'clock, then 3 o'clock positions and verify that bars are displayed on the 7-segment display.
Adjusting a VR control to its MAX position causes operation to transfer to the check of the next VR.
To transfer execution to the next VR, return the first VR to its MIN position, then go to the next VR.
3. When checking of VR1 through EXP_VR is finished, operation is then transferred to the voltage check.

4. Voltage Check

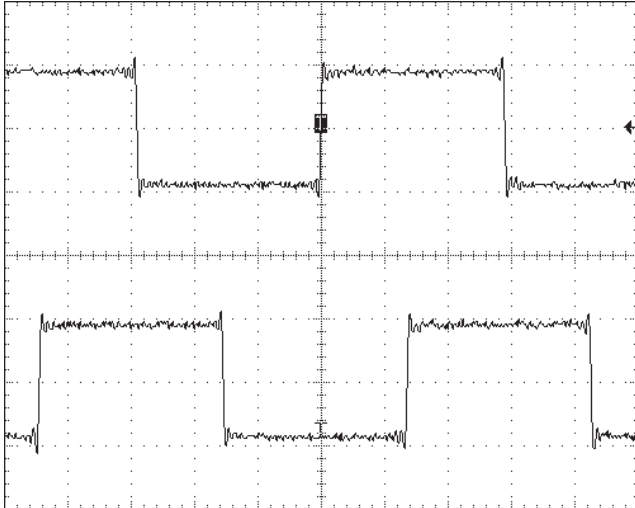
1. Changing the power-source voltage to 9 V
Verify that the voltage value is within the range of 8.5 to 8.9 V.
2. Changing the power-source voltage to 7.5 V
Verify that the voltage value is within the range of 7.1 to 7.4 V.
Note: To skip measurement, press [Δ] to advance to the check of the foot switch.
3. After verification, pressing [Δ] transfers execution to the foot-switch check.

5. Foot SW check

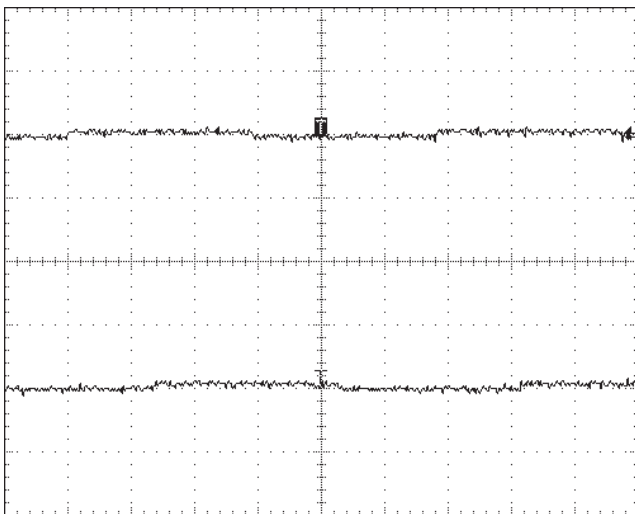
1. Verify that [F1] is displayed on the 7-segment display.
Note: When no CTL (control) pedal is inserted, [Ft] is displayed.
2. Depress the CTL1 (Tip) side and verify that the display changes to [F2].
3. Depress the CTL2 (Ring) side.
4. When operation is correct, execution is automatically transferred to the D/A check.

6. D/A Check

1. Insert plugs into the OUTPUT L & R and PHONES jacks.
2. Set the oscilloscope to Ch1: 0.2 V/div, Ch2: 0.2 V/div, and time: 500 us/div, and adjust the settings to monitor (verify) the output from the PHONES jack on the oscilloscope.
3. Make sure that [dA] is displayed on the 7-segment display.
4. Verify that both TUNER LEDs are illuminated.
5. Verify that the peak value of the PHONES waveform is 370 to 440 mVp-p.

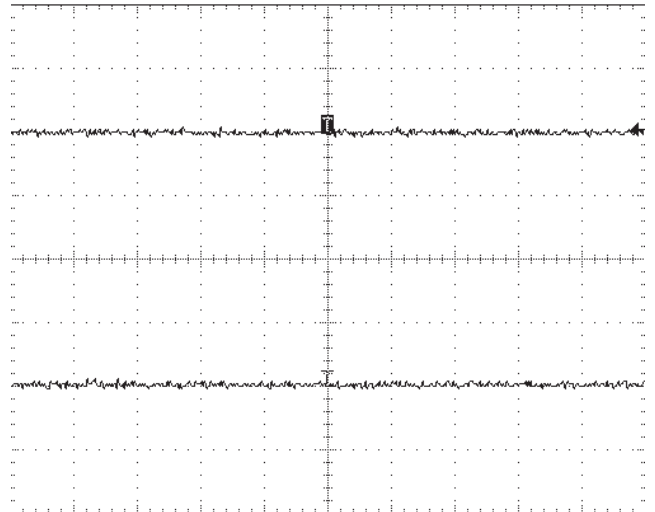


6. Press the [Δ] switch.
7. Make sure the TUNER LEDs go dark.
8. Verify that the waveform output from the PHONES jack is muted.

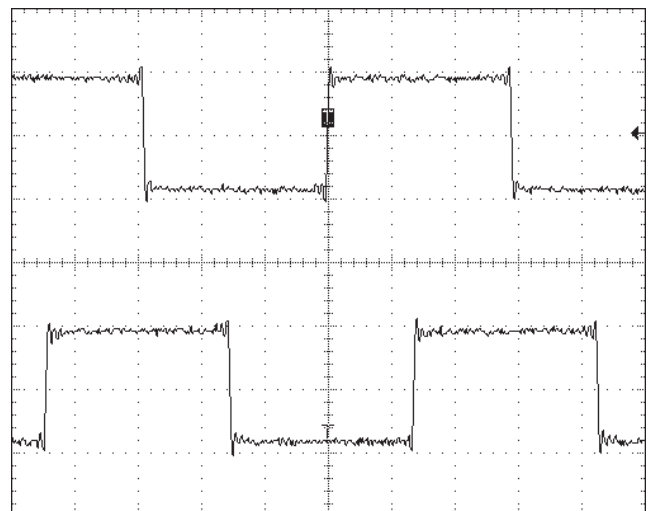


9. Change the input to the oscilloscope from PHONES to OUTPUT L/R and make the settings to enable monitoring (verification) of the waveform on the oscilloscope.
Note: Because the waveform may not be displayed correctly when nothing is connected to the PHONES jack, insert a shielded cord or jack adapter plug into the jack.

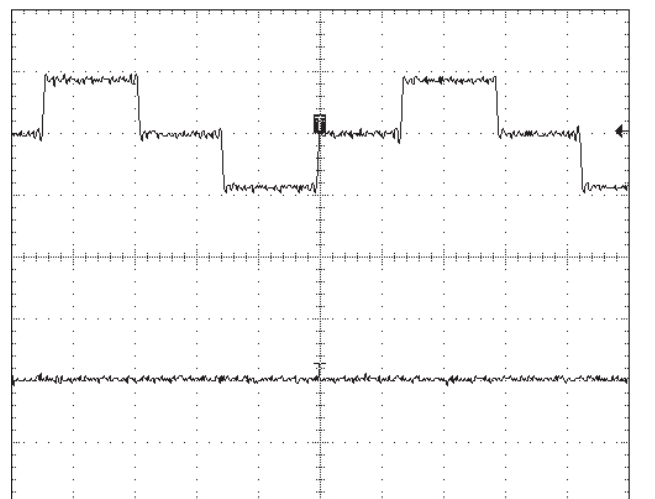
10. Verify that the waveform from the OUTPUT L/R jacks is muted.



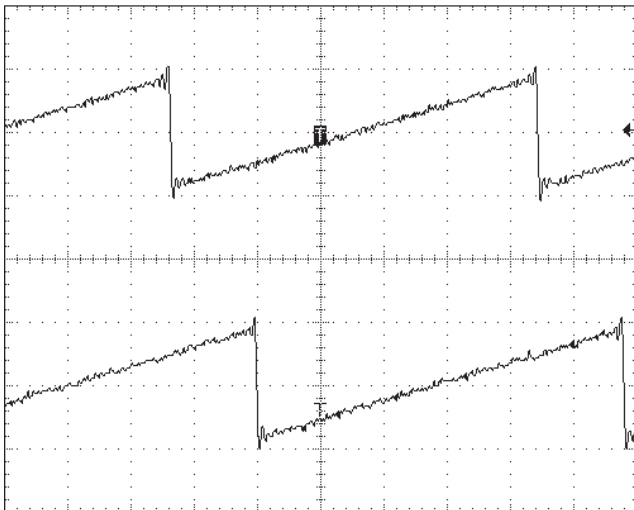
11. Press the [Δ] switch.
12. Verify that the TUNER LEDs light up.
13. Verify that the peak value of the OUTPUT L/R waveform is 370 to 440 mVp-p.
Note: Perform verification of the waveform with the plug remaining inserted into the PHONES jack.



14. Detach the plug connected to OUTPUT R.
15. Verify that the OUTPUT L waveform changes as shown below.



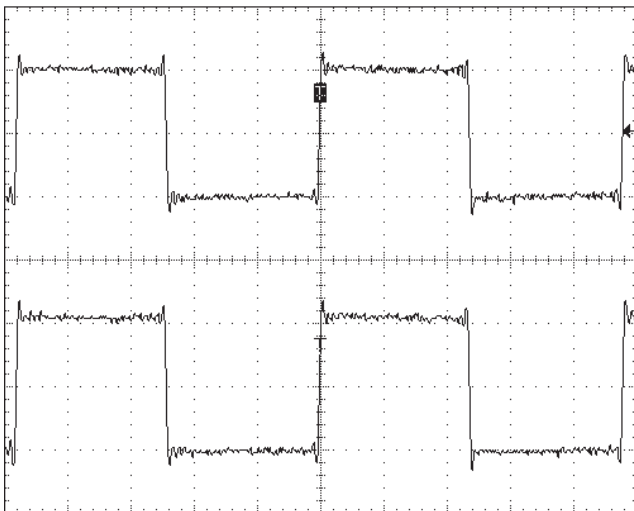
16. Insert a plug into OUTPUT R and detach the plug connected to the PHONES jack.
17. Verify that the OUTPUT L/R waveform changes as shown below.



18. Press [Δ].
19. Execution is transferred to the A/D check.

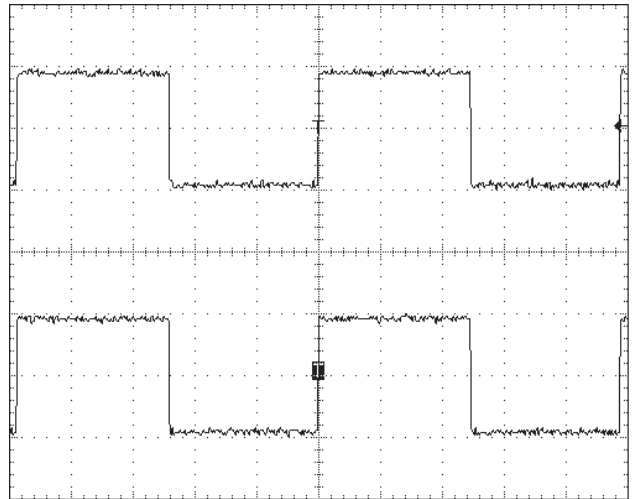
7. A/D Check

1. Make sure that [Ad] is displayed on the 7-segment display.
2. Set the oscilloscope to Ch1: 0.2 V/div, Ch2: 0.2 V/div, and time: 500 us/div.
3. Make the settings for the INPUT signal.
INPUT signal: 400 Hz, 50 mVp-p, square wave
After making the settings, apply input to INPUT.
4. Verify that the peak value of the OUTPUT L/R waveform is 390 to 490 mVp-p.



5. Replace the input to INPUT with a 0 ohm dummy resistor from a oscillator.
6. Make the settings for the AUX INPUT signal.
AUX INPUT signal: 400 Hz, 200 mVp-p, square wave
After making the settings, apply input to AUX IN.

7. Verify that the peak value of the OUTPUT L/R waveform is 370 to 440 mVp-p.



8. Disconnect the input to AUX IN and change the monitor device to a speaker.
Note: No sound is produced.
9. Verify that when impact shock is applied, no abnormal noise is produced (i.e., the unit remains silent).
10. Verify that the output sound is free of abnormal noise.
11. Press [Δ].
The reading on the 7-segment display changes to [AF].
12. Execution is transferred to the noise check.

8. Noise Check

1. Measure the noise levels at OUTPUT L and R and at PHONES L and R.
Note: Leave the 0 Ω dummy resistor connected to INPUT.
2. Verify that the noise level is not higher than -88 dBm [JIS-A].
3. Press [Δ].
4. Execution is transferred to the factory reset.
To skip execution of a factory reset, switch off the power without performing any other action, thereby ending the Test mode.



Note: Never execute the following operations unless necessary.

* Note: Never execute the following operations unless necessary.

9. Factory Reset



Executing a factory reset returns patch and setting data to their factory defaults. Exercise care when performing this operation.

Note: When you are continuing operations from the previous page, start execution at [3].

1. Turn down the master volume completely.
2. While holding down [DELAY] and [EQ], insert a plug into the INPUT jack to power up the unit.

Note: Continue to hold down [DELAY] and [EQ] until [FA] is displayed.

3. [FA] appears on the 7-segment display.
4. Press [WRITE].
[FA.] (with a flashing dot) appears on the 7-segment display, and the unit goes into standby for the factory reset.

5. Press [WRITE] again.

6. All segments on the 7-segment display begin to flash, and the factory reset is executed.

Note: Never switch off the power while the 7-segment display is flashing.

7. After the factory reset ends, [Pd] appears on the 7-segment display for approximately 2 seconds, and then operation is transferred to adjustment of the EXP (expression) pedal.

* Note: [Pd] is an abbreviation of "pedal."

10. Expression-pedal Adjustment

Note: When you are continuing operations from the Factory reset, start execution at [5].

1. Turn down the master volume completely.
2. While holding down [EQ] and [EZ EDIT], insert a plug into the INPUT jack to power up the unit.
Note: Continue to hold down [EQ] and [EZ EDIT] until one of the [1] to [9] is displayed.
3. One of the [1] to [9] appears on the 7-segment display.
4. Press [EDIT/EXIT].
5. The 7-segment display shows [Pd] for 2 to 3 seconds, after which [UP] is displayed.
6. Make sure the expression pedal is undepressed, then press [WRITE].
7. [dn] appears on the 7-segment display.
8. Depress the expression pedal and press [WRITE].
9. [5] appears on the 7-segment display.

Note: This "5" is the sensitivity of the expression pedal switch. It is set to "5" by default. But other than "5" can be shown under some circumstance.

10. Forcefully depress the expression pedal, and make sure the WAH LED lights up.
11. Forcefully depress the expression pedal, and make sure the WAH LED goes dark.
12. Press [WRITE]. Advance the readout on the 7-segment display. The readout on the 7-segment display changes to [Gt].
Note: This [Gt] signifies that the unit is the ME-20.
13. Execution is transferred to the model-identification check.

11. Model Identification Check

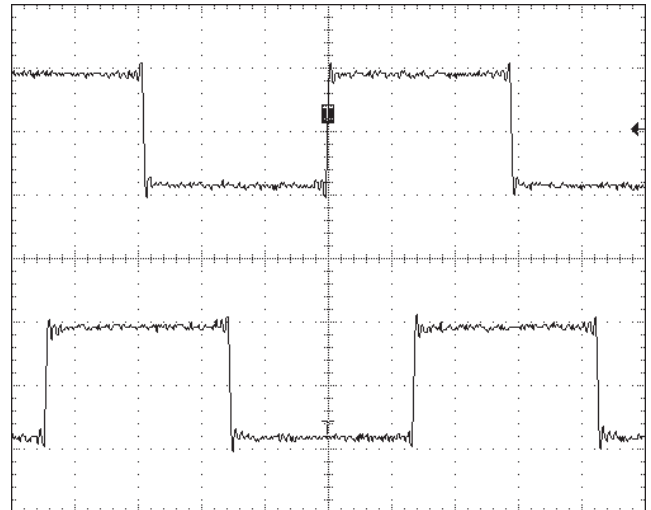
1. Verify that [Gt] is displayed on the 7-segment display.

Note: Make sure the LOW (left) side of the TUNER LED is lighted at this time.

2. Insert a plug into OUTPUT L/R.

Set the oscilloscope to Ch1: 0.2 V/div, Ch2: 0.2 V/div, and time: 500 us/div, and adjust the settings to monitor the PHONES jack.

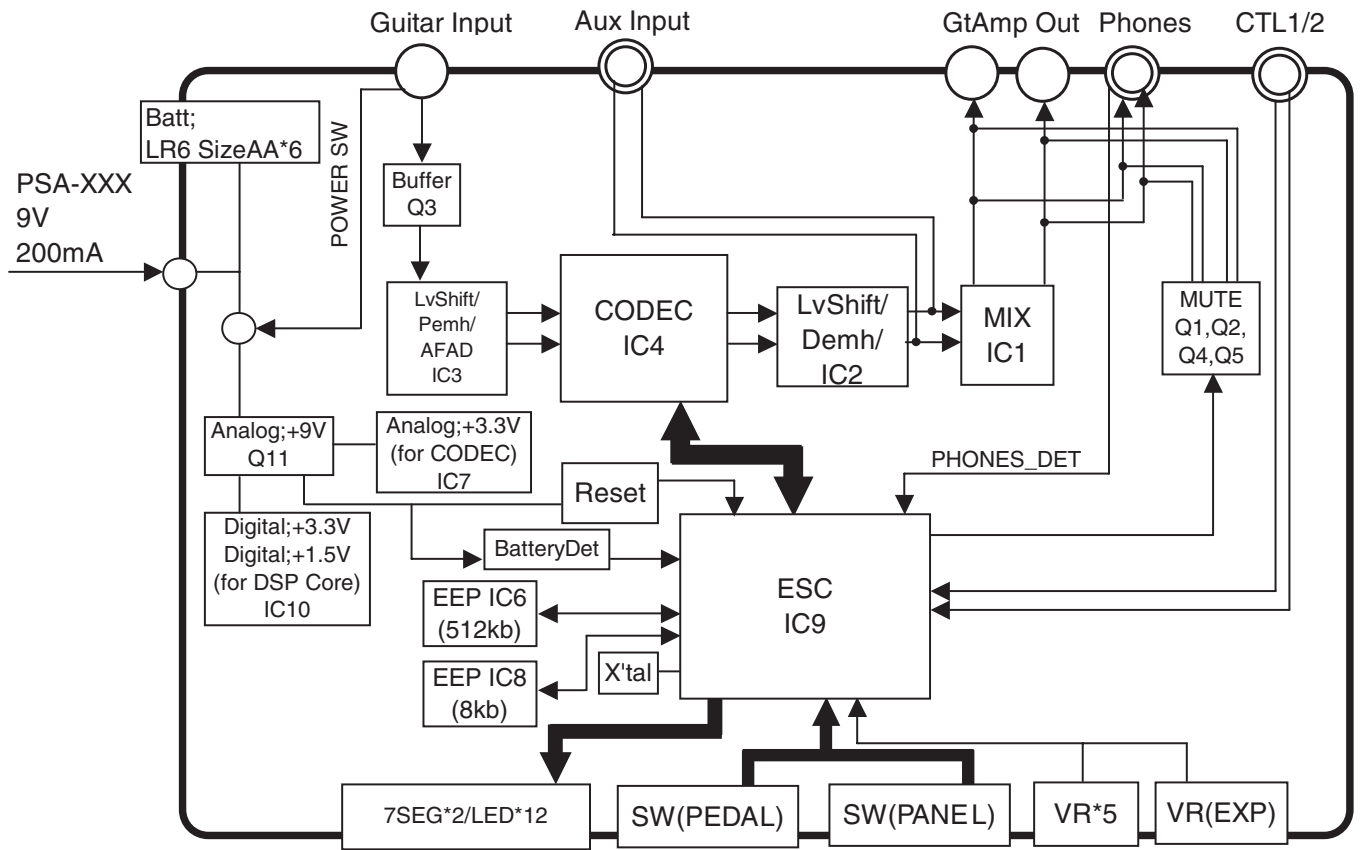
3. Verify that a rectangular wave is output to the oscilloscope while the [DELAY] switch is held down.



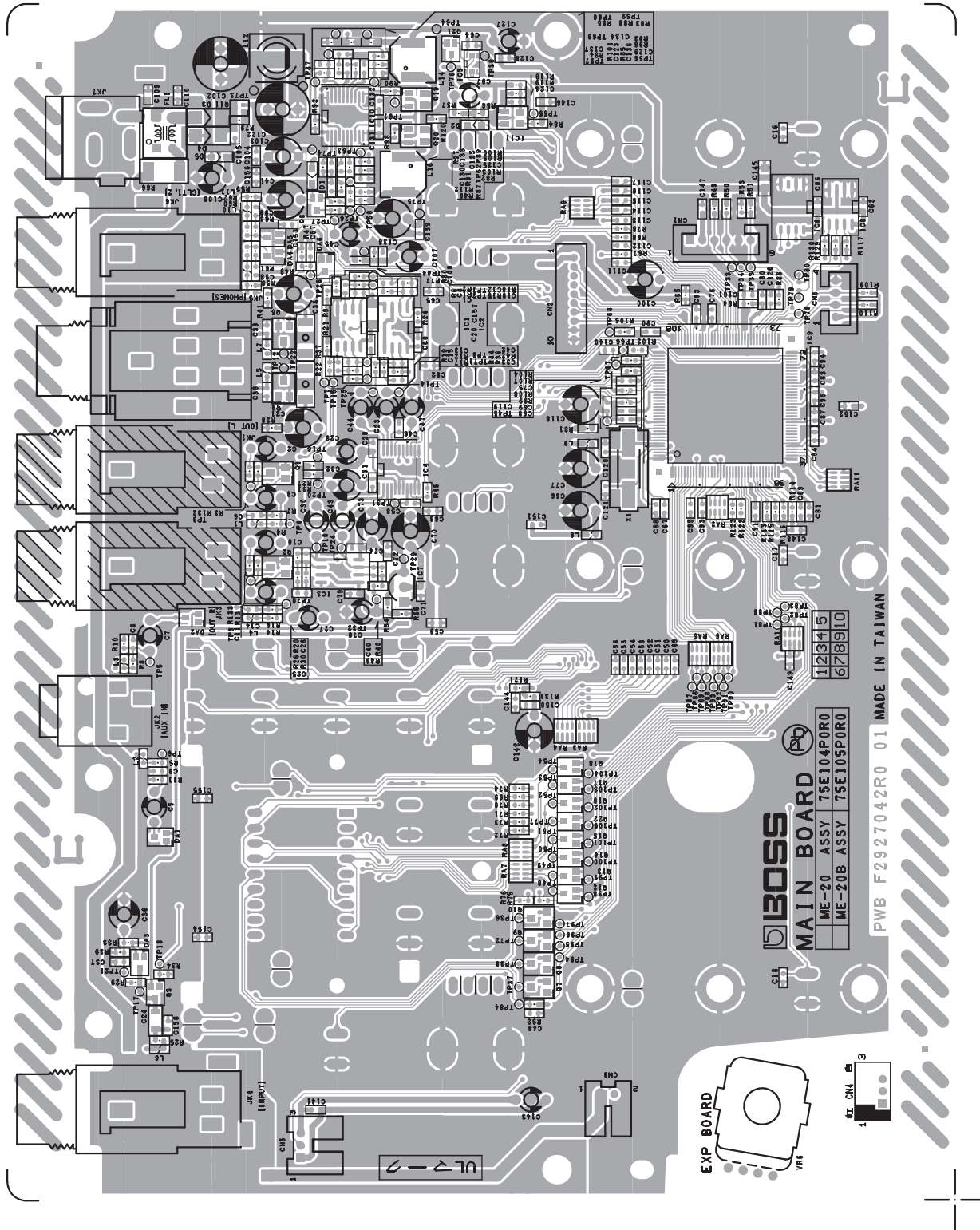
4. Press [Δ].
[Ed] is displayed on the 7-segment display.

This completes the Test mode.

Block Diagram

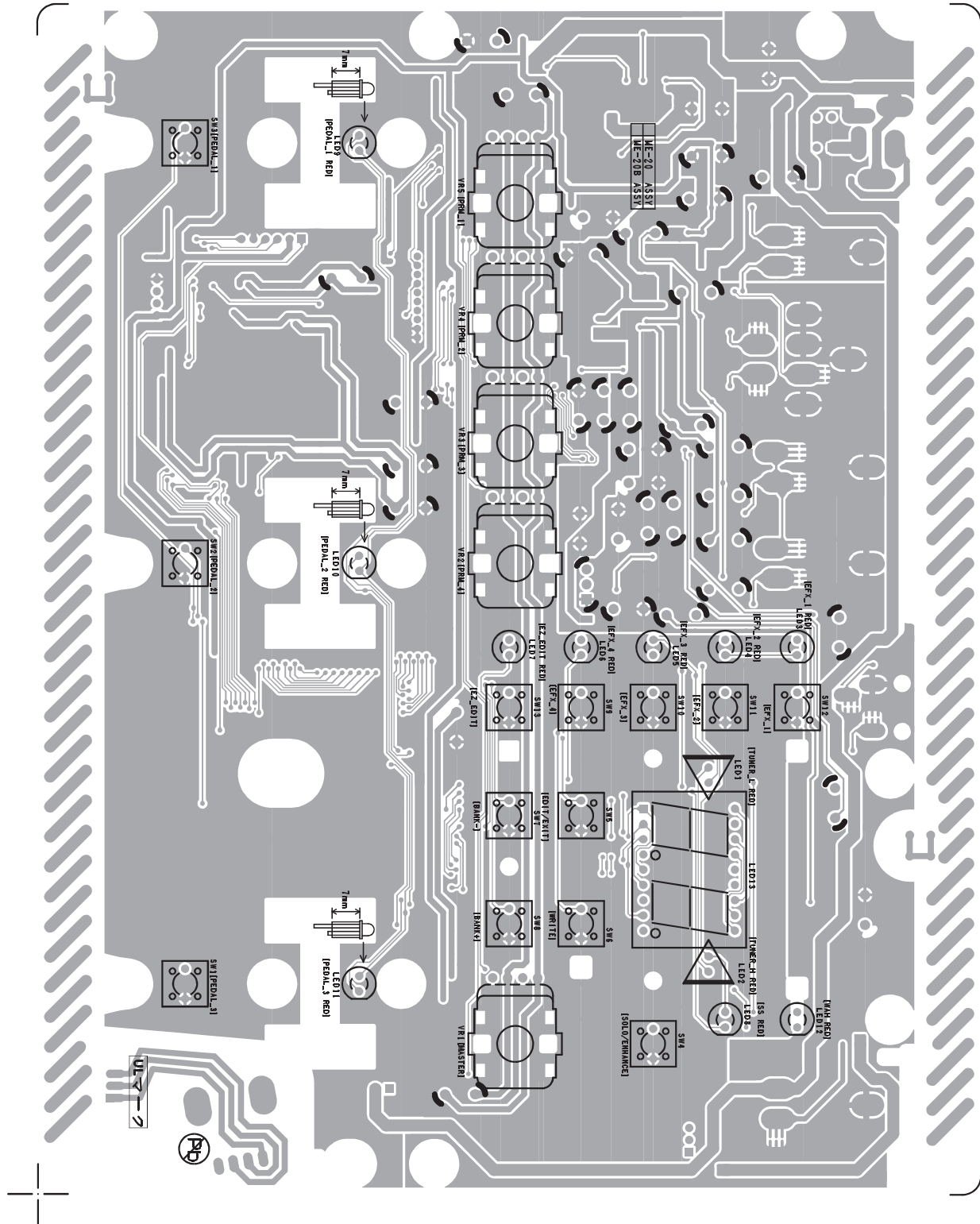


Circuit Board (Main 1/2)



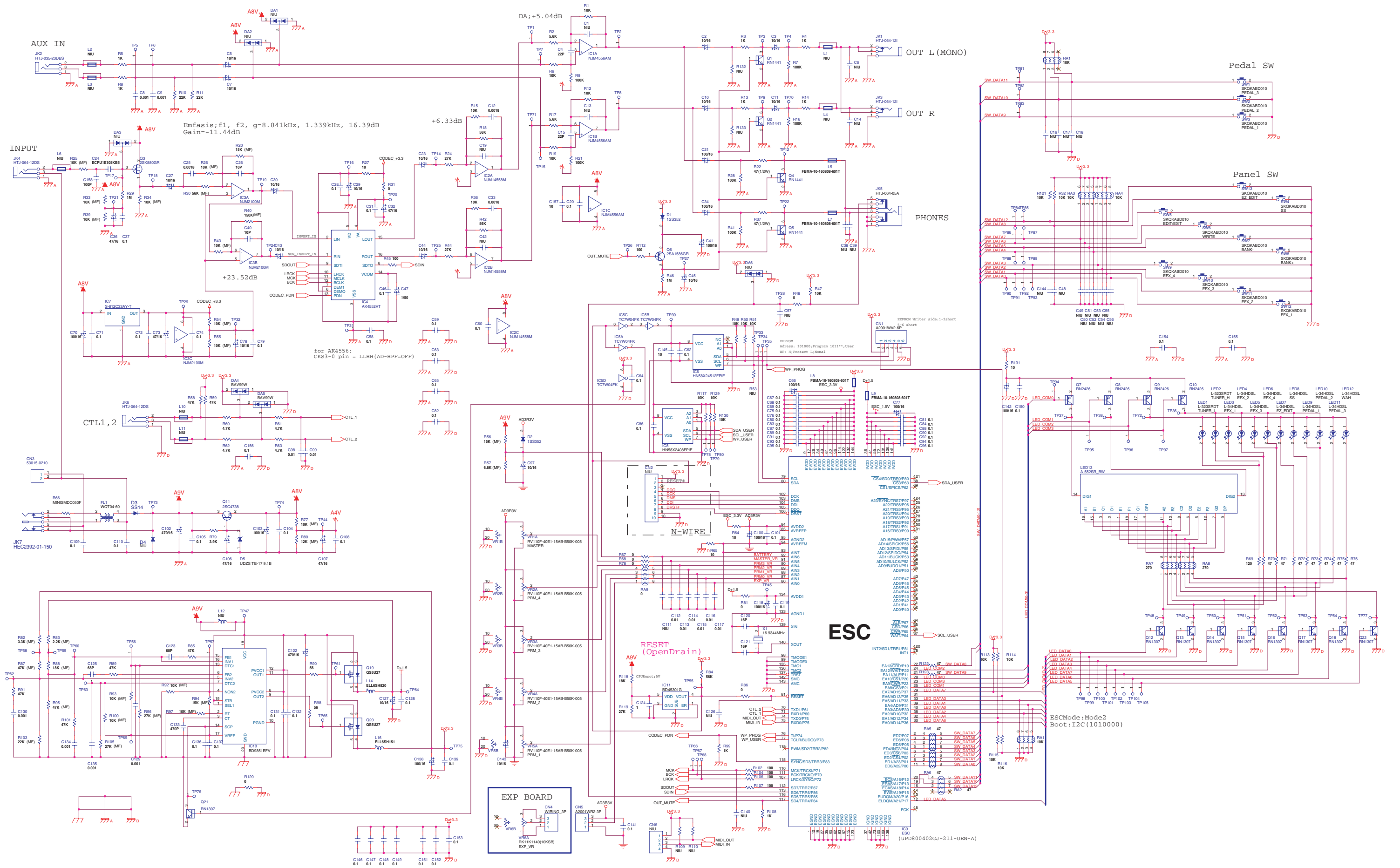
View from components side "scale=1.00"

Circuit Board (Main 2/2)



View from foil side "scale=1.00"

Circuit Diagram (Main Board)



Error Messages

- “bt” Appears in the Display
Batteries are run down. Replace with new batteries.