DR-3
Dr. Rhythm

SERVICE NOTES
Issued by RJA

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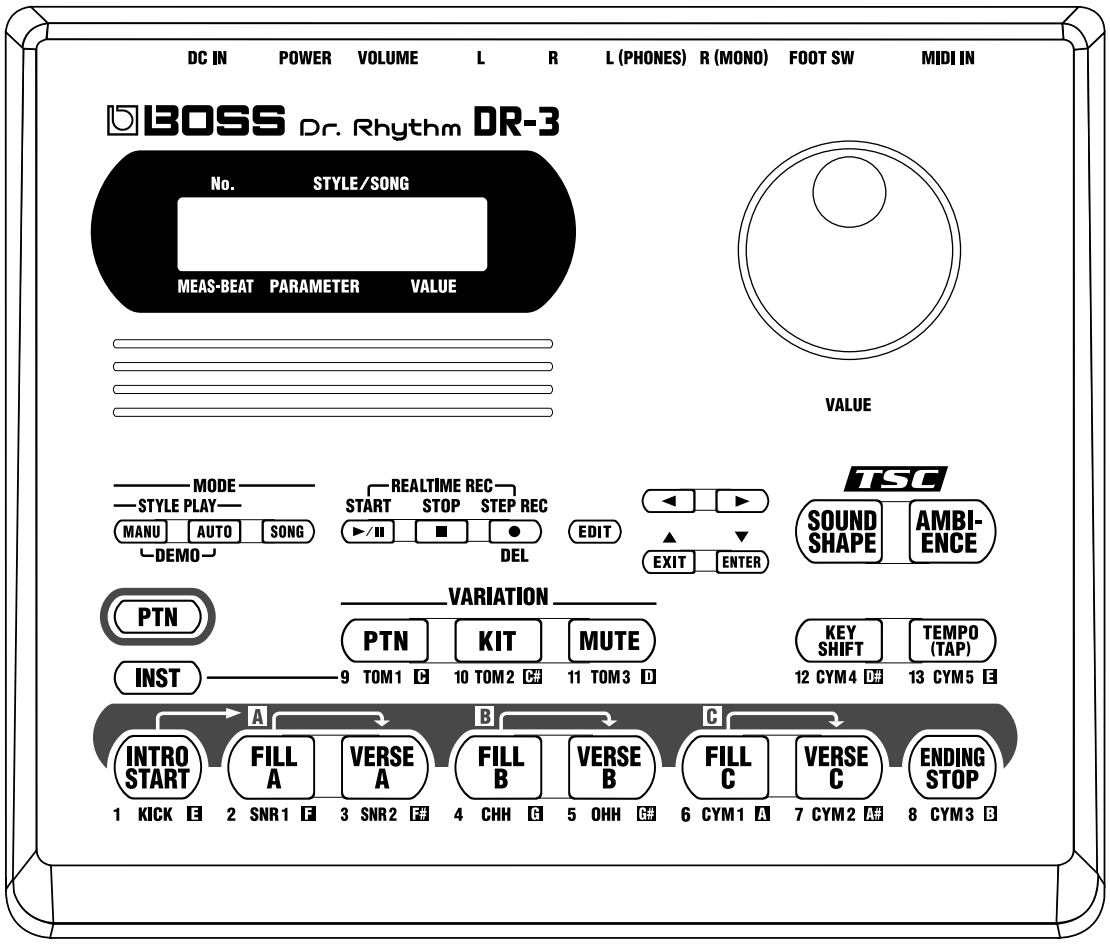


SPECICATIONS

DR-3: Dr.Rhythm

- Styles
  User Style: 100 styles
  Preset Style: 100 styles

* *11 patterns for a style*

- Songs
  User Song: 100
  Song Length: Maximum 250 patterns for a song

- TSC (Total Sound Control)
  Sound Shape
  Preset Patch: 8 patches
  User Patch: 8 patches
  Ambience
  Preset Patch: 8 patches
  User Patch: 8 patches

- Max Polyphony
  12 voices

- Instrument
  Drum and Perc: 120
  Bass: 12

- Resolution
  96 per quarter note

- Tempo
  20-260 bpm

- Recording Method
  Realtime / Step

- Pads
  13 (Velocity-sensitive)

- Display
  Backlit LCD (16 Characters x 2 Lines)

- Connectors
  Output Jack: L, R (RCA phono type),
  L (PHONES), R (MONO) (1/4 inch phone type)
  Foot Switch Jack (Stereo 1/4 inch phone type)
  MIDI IN Connector
  DC IN (AC Adaptor Jack)

- Power Supply
  DC 9V: Dry Battery x 6, AC Adapter (PSA series)

- Power Consumption
  200 mA

* *Expected battery life under continuous use:*
Alkaline: approx. 5 hours
This figures will vary depending on the actual conditions of use.

- Dimensions
  213 (W) x 185 (D) x 53 (H) mm
  8-7/16 (W) x 7-5/16 (D) x 2-1/8 (H) inches

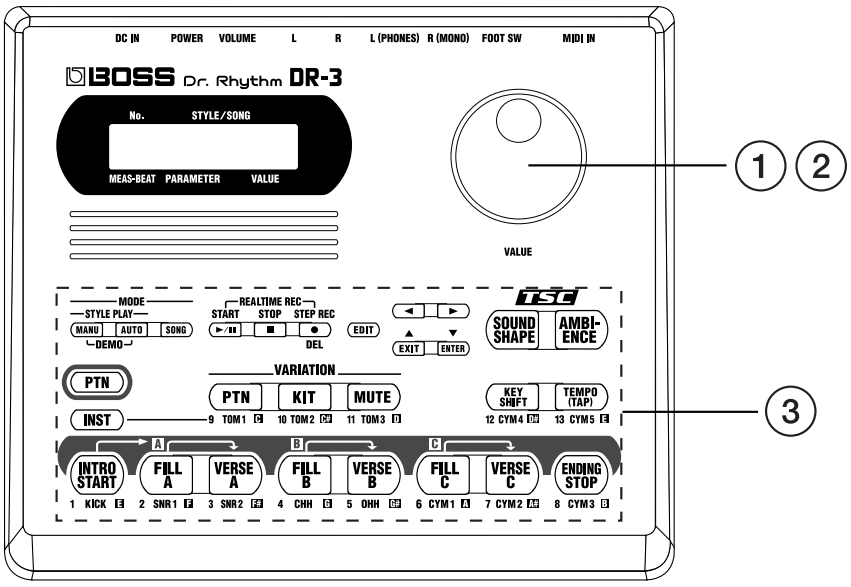
- Weight
  710 g / 1 lb 10 oz (excluding dry batteries)

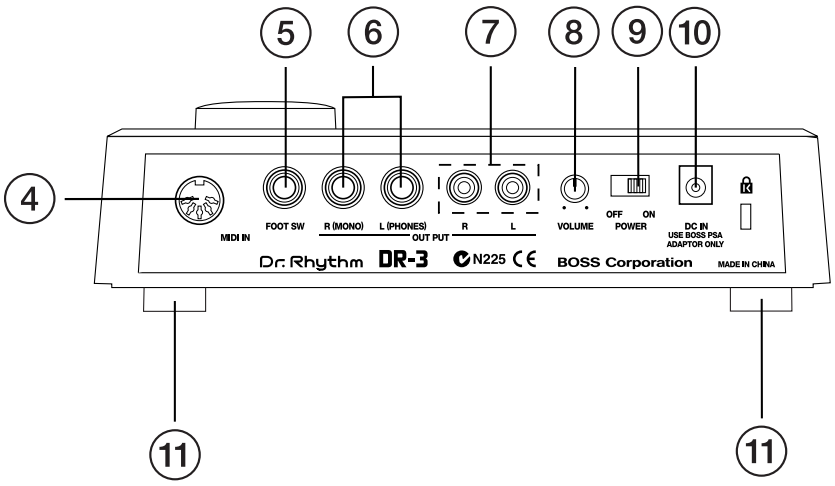
- Accessories
  Owner's Manual English (#03236845)
  Alkaline Dry Battery (LR6 (AA) type) x 6 (#********)

- Options
  AC Adaptor: PSA Series
  Foot Switch: FS-5U
  Foot Switch Cable: PCS-31 (Roland)
  (1/4inch Phone Plug (stereo)-1/4inch Phone Plug (mono) x 2)

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

LOCATION OF CONTROLS



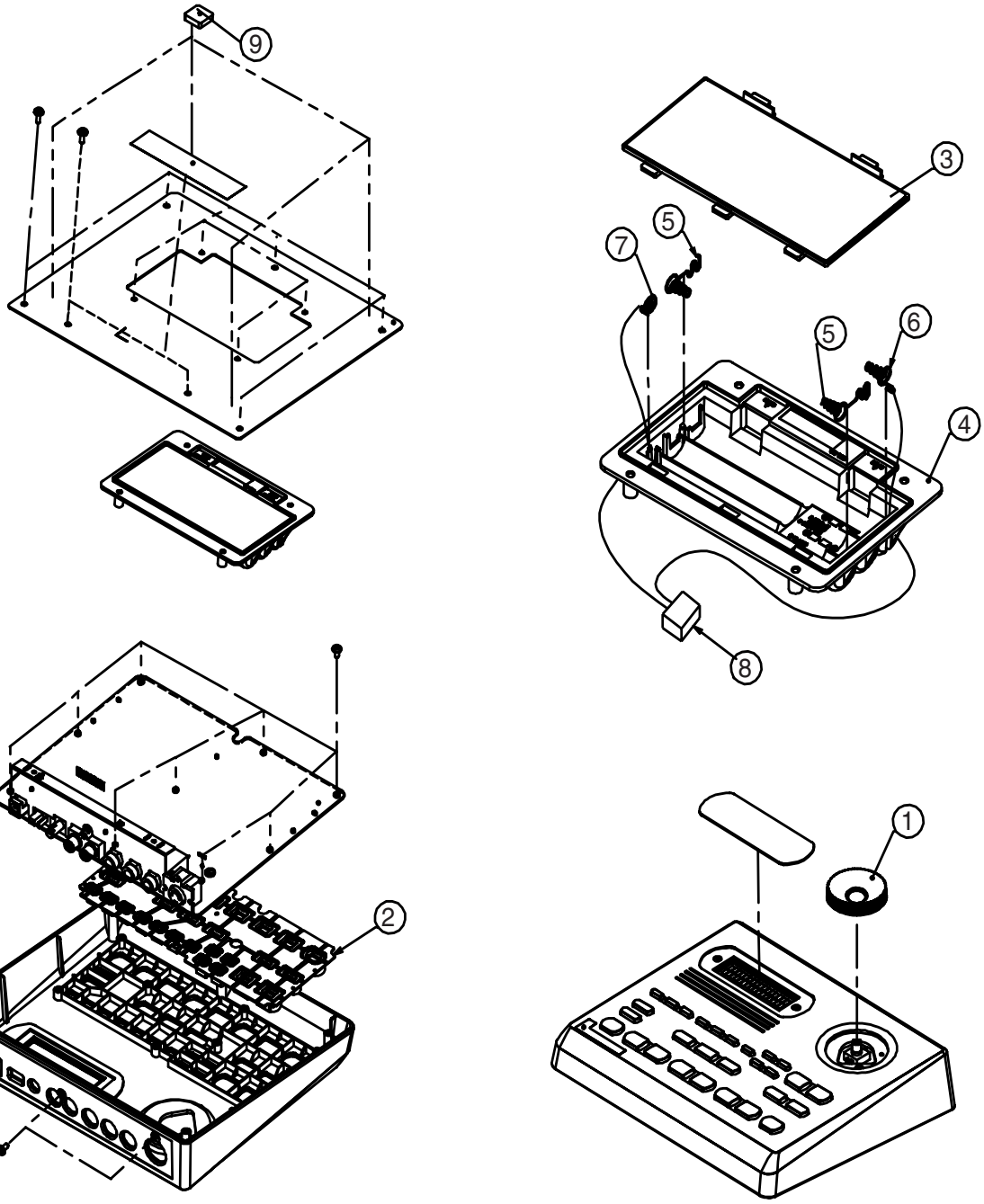


LOCATION OF CONTROLS PART LIST

[Parts]

No	Part Code	Part Name	Q'ty
1	F2477101	DR-KNOB	1
2	02671212	ROTARY ENCODER EVE GB1F15 24B	1
3	03237812	RUBBER SW FOR DR-3	1
4	01566445	DIN CONNECTER YKF51-5067 (take off the shield plate)	1
5	02897334	6.5M JACK HTJ-064-10D	1
6	00569278	6.5M JACK LGR4609-7100	2
7	00451434	RCA(PIN) JACK YKC21-3120	2
8	03237823	ROTARY POTENTIOMETER RK09K12A0	1
9	03237834	SLIDE SWITCH SK1209RG9	1
10	13449711	DC JACK HEC0470-01-630	1
11	03237845	BOTTOM FOOT	4

EXPLODED VIEW



EXPLODED VIEW PART LIST

No	Part Code	Part Name	Q'ty
1	F2477101	DR-KNOB	1
2	03237812	RUBBER SW	1
3	G2027602	BATTERY COVER	1
4	G2017617	BATTERY CASE	1
5	G2177304	BATTERY TERMINAL(+/-)	2
6	G2177306	BATTERY TERMINAL(-)	1
7	G2177305	BATTERY TERMINAL(+)	1
8	03237856	BATTERY WIRING	1
9	03237845	BOTTOM FOOT	4

PART LIST

SAFETY PRECAUTIONS:
The parts marked ⚠ have safety-related characteristics. Use only listed parts for replacement.

CONSIDERATION ON PARTS ORDRING
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	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.

NOTE: The parts marked # are new. (initial parts)

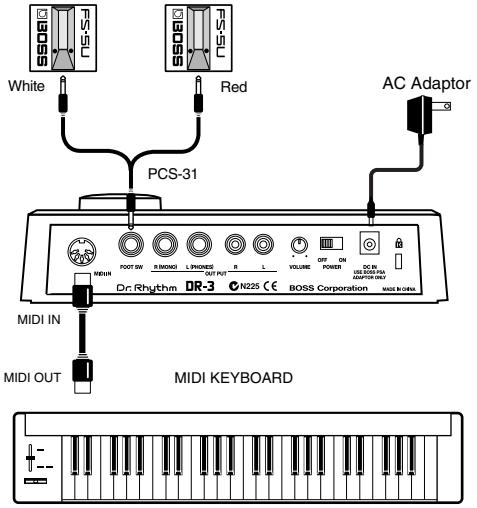
					Q'ty
KNOB, BUTTON					
	F2477101	DR-KNOB			1
SWITCH					
#	03237834	SK1209RG9	SLIDE SWITCH	SW29	1
#	03237812	RUBBER SW			1
JACK, EXT TERMINAL					
	02897334	HTJ-064-10D	6.5M JACK	JK2	1
	00569278	LGR4609-7100	6.5M JACK	JK4,JK5	2
	00451434	YKC21-3120	RCA(PIN) JACK	JK3	2
	13449711	HEC0470-01-630	DC JACK	JK6	1
	01566445	YKF51-5067	DIN CONNECTER (take off the shield plate)	JK1	1
FINISHED GOODS					
#	SK000135	DR-3 FINISHED GOODS 100V	for SERVICE ONLY		1
POTENTIOMETER					
#	03237823	RK09K12A0	ROTARY POT.	VR1	1
ENCORDER					
	02671212	EVE GB1F15 24B	ROTARY ENCODER	EN1	1
WIRINGÅCCABLE					
#	03237856	BATTERY WIRING			1
PICK UP, SENSOR					
#	03239323	64PE200430Z-X521	PIEZO PICK UP		1
PACKING					
#	03237878	PACKING CASE			1
#	03237867	PACKING PAD L/R			1
MISCELLANEOUS					
	G2017617	BATTERY CASE			1
	G2027602	BATTERY COVER			1
	G2177306	BATTERY TERMINAL(-)			1
	G2177305	BATTERY TERMINAL(+)			1
	G2177304	BATTERY TERMINAL(+/-)			2
#	03237845	BOTTOM FOOT			4
ACCESSORIES (STANDARD)					
#	03236834	OWNER'S MANUAL	JAPANESE		1
#	03236845	OWNER'S MANUAL	ENGLISH		1
	*******	ALKALINE DRY BATTERY	LR6 (AA) TYPE		6

TEST MODE

Required equipment

1. AC Adaptor PSA Series
2. Foot Switch x2 (such as an FS-5U)
3. Foot Switch Cable (Roland PCS-31)
   (1/4inch Phone Plug (stereo)-1/4inch Phone Plug (mono) x 2)
4. MIDI keyboard (such as an PC-300)
5. MIDI Cable
6. Oscilloscope
7. Noise Meter (WEIHGT JIS-A or IHF-A)
8. Headphone
9. AA-size dry-cell Battery x6

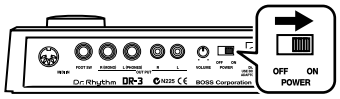
Prior Preparations for Test Mode

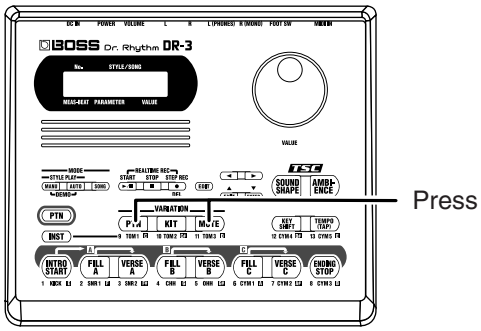


1. Connect the AC adapter to DC IN on the DR-3.
2. Use a MIDI cable to connection MIDI OUT on a MIDI device capable of NOTE ON output to MIDI IN on the DR-3.
3. Using connector cords (PCS-31), connect foot switches (FS-5U x 2) to the FOOT SW jacks on the DR-3.
   Set the [POLARITY SW] on each FS-5U to JACK.
4. Make the following settings on the connected device.
   - Oscilloscope settings: VOLTS 1 V/DIV, TIMES 0.2 S/DIV
   - Noise meter setting: WEIGHT JIS-A or IHF-A
   - DR-3 VOLUME setting: MAX

Test items

1. SRAM Check
2. FLASH Check
3. GA Check
4. MR3 Check
5. BATTERY Check
6. MIDI Check
7. LED Check
8. LCD Check
9. Encorder Check
10. FOOT SW Check
11. PIEZO Check
12. SQUAEW Check
13. SINE Check
14. MUTE Check
15. Ending the Test Mode
16. Checks for Normal Operation
17. Residual-noise Check
18. Battery-operation Check



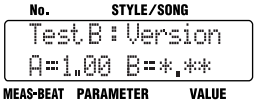


Starting the Test Program

Hold down the [VARIATION PTN] and [VARIATION MUTE] buttons and switch on the power on the DR-3.

NOTE

Continue to hold down the buttons until the following display appears on the LCD screen.



A = Version number of the mask CPU (IC7)
B = Version number of the firmware written to the flash memory (IC8)

Check the following:

- The LCD backlight must light up (upper row; four locations).
- LED brightness must be without fluctuation.

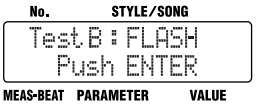
Turning the encoder to select the test item.

1.RAM Check

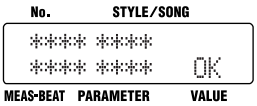
1. Press the [ENTER] button.
   If there is no problem, the display will indicate “OK.”

2. Press the [EXIT] button to end the SRAM Check.

2.FLASH Check



1. Press the [ENTER] button.
If there is no problem, the display will indicate "OK."



2. Press the [EXIT] button to end the FLASH Check.

3.GA Check

1. Press the [ENTER] button.
If there is no problem, the display will indicate "OK."

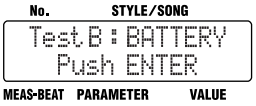
2. Press the [EXIT] button to end the GA Check.

4.MR3 Check

1. Press the [ENTER] button.
If there is no problem, the display will indicate "OK."

2. Press the [EXIT] button to end the MR3 Check.

5.BATTERY Check



1. Press the [ENTER] button.
If there is no problem, the display will indicate "OK."

2. Press the [EXIT] button to end the BATTERY Check.

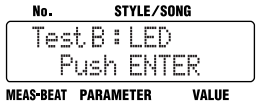
6.MIDI CHECK

1. Press the [ENTER] button.

2. Send NOTE ON information from the connected MIDI keyboard.
(Any settings may be used for the MIDI channel and note number.)

3. Press the [EXIT] button to end the MIDI Check.

7.LED Check



1. Press the [ENTER] button.

2. Check the following:

- The LEDs for all buttons must light up (22 locations).
- The brightness of the button LEDs must be without fluctuation.

MEMO

Names of Buttons with Lighting LEDs

[MANU], [AUTO], [SONG], [START], [STEP REC], [SOUND SHAPE], [AMBIENCE], [PTN], [INST], [VARIATION PTN], [VARIATION KIT], [VARIATION MUTE], [KEY SHIFT], [TEMP], [INTRO START], [FILL A], [VERSE A], [FILL B], [VERSE B], [FILL C], [VERSE C], and ENDING STOP]

3. Press the button displayed on the LCD.
The button to press next is then displayed. Continue with pressing the buttons in the sequence shown.
Also make sure that when a button having a lighted LED is pressed, the LED simultaneously goes dark.

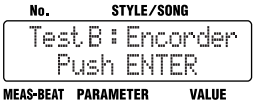
4. If after being pressed the button catches on the case and does not return or rubs against the case and returns slowly, the test is considered to have been failed.
If the test fails "NG", check for a problem in the installation of the rubber switch or for burring on the case.

5. Press the last [ENDING STOP] button to end the LED Check.

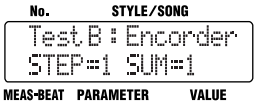
8.LCD Check

1. Press the [ENTER] button.
   Make sure that all dots on the LCD screen are black and that there are not missing dots.
2. Press the [ENTER] button.
   Make sure all dots on the LCD screen turn white.
3. Press the [ENTER] button to end the LCD Check.

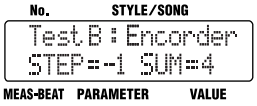
9.Encorder Check



1. Press the [ENTER] button.
2. Slowly turn the encoder clockwise.



3. Make sure that STEP is set to "1," and that SUM is incremented one unit at a time.
4. Slowly turn the encoder counterclockwise.

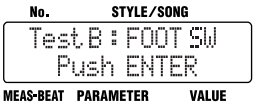


5. Make sure that STEP is set to "-1," and that SUM is decremented one unit at a time.
6. Press the [EXIT] button to end the ENCORDER Check.

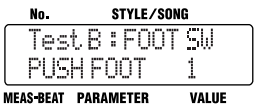
10.FOOT SW Check

NOTE

Before entering the Test mode, connect the foot switches.



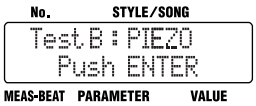
1. Press the [ENTER] button.



2. Press and release the FS-5U (to which the white line of the PCS-31 is connected).

3. Press and release the FS-5U (to which the red line of the PCS-31 is connected).
4. Press the [EXIT] button to end the FOOT SW Check.

11.PIEZO Check

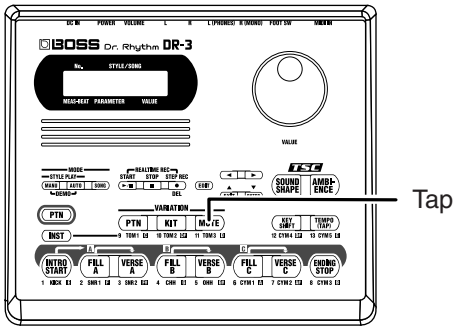


1. Press the [ENTER] button.

MEMO

The "*" displayed indicates a change in the display in response to vibration applied to the DR-3.

2. With the finger, strike the [VARIATION MUTE] button on the product.



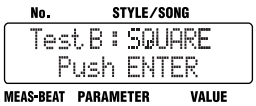
3. The LCD screen must display "100 OK."

MEMO

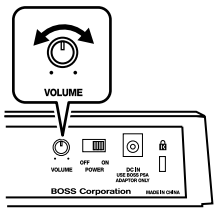
The level meter is displayed on the LCD screen every time the unit is tapped. After that the LCD screen displays the "MAX" value, which stays on screen.

4. Press the [EXIT] button to end the PIEZO Check.

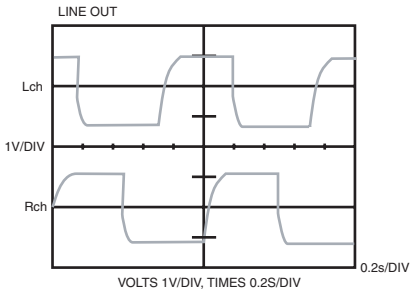
12.SQUAEW Check



1. Press the [ENTER] button.
2. On the DR-3, set [VOLUME] to "MAX."



3. Use an oscilloscope to observe the waveforms from OUTPUT L/R (PIN jack) on the DR-3.

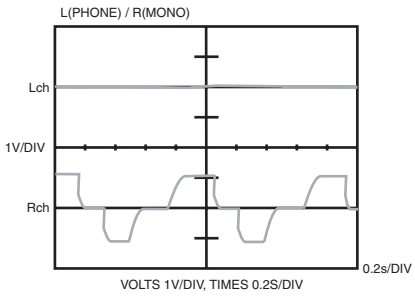


- Waveforms like those shown above must be output from LINE OUT L/R.
- They must be rectangular waves phase-shifted by 90 degrees.
- The waveform height must be from 1.8 V to 2.4 V.

4. Observe the waveform from the tip of R (MONO) on the DR-3.

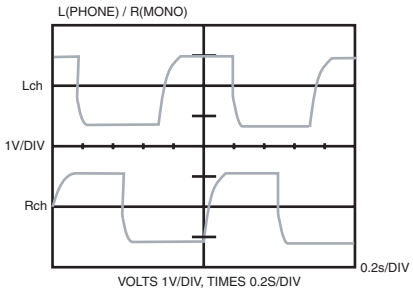
NOTE

Nothing must be plugged into L (PHONE) at this time.



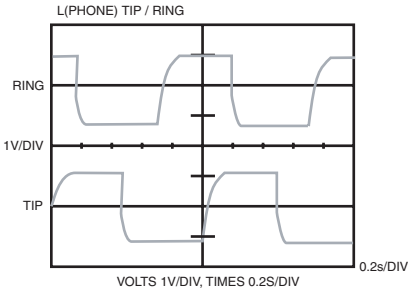
- A stepped waveform like the one shown above must be output from R (MONO).

5. Observe the waveforms from the tip of L (PHONE) and from the tip of R (MONO) on the DR-3.

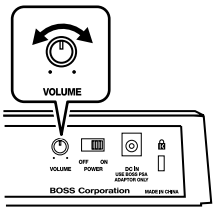


- They must be rectangular waves phase-shifted by 90 degrees, like those shown above.
- The waveform height must be from 1.8 V to 2.4 V.

6. Disconnect the plug from R (MONO).
Insert a stereo plug into L (PHONE) and waveforms of the tip and the ring.



7. Turn [VOLUME] on the DR-3 to "MAX," then to "MIN," then back to "MAX," and make sure the waveforms change smoothly.
Also, make sure that the waveforms disappear completely when [VOLUME] is set to "MIN."



8. Press the [EXIT] button to end the SQUARE Check.

13.SINE Check

This item is used only during the shipping test at the factory.
You need not use it when servicing in the field.

14.MUTE Check

This item is used only during the shipping test at the factory.
You need not use it when servicing in the field.

15.Ending the Test Mode

Switch off the DR-3.

16.Checks for Normal Operation

1. Switch on the DR-3 unit.

2. Connect headphones to L (PHONES) on the DR-3.

3. Press the [INTRO START] button and check the sound of pattern playback.
4. Turn the volume knob and make sure that the volume level changes smoothly.
5. Press the [STOP] button to stop playback.
6. Press the [INST] button.

7. Tap the [INTRO START] (KICK) and [ENDING STOP] (CYM 3) buttons forcefully and gently, and check the resulting sound.
   At this time, also make sure that the volume level changes in accordance with the force with which the buttons are tapped.
8. Switch off the DR-3.

17.Residual-noise Check

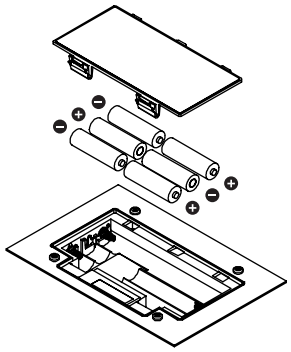
1. Switch on the DR-3 unit and start the normal mode.
2. Set [VOLUME] on the DR-3 to "MAX" and measure residual noise at L (PHONE) and R (MONO) using a noise meter.

NOTE

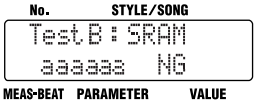
A dummy plug must be inserted into L (PHONE) when performing measurement at R (MONO).
The levels at both L (PHONE) and R (MONO) must be -88 dBm or less (WEIGHT JIS-A or IHF-A).

18.Battery-operation Check

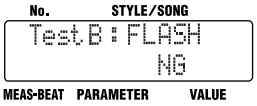
1. Detach the cord from DC IN on the DR-3.
2. Install six AA-size dry-cell batteries in the DR-3.



3. Switch on the DR-3 unit.
4. Make sure the product starts and the LEDs are as follows.
   - [MANU], [PTN], [SOUND SHAPE], and [AMBIENCE] LEDs lighted.
   - [INTRO START] LED flashing.
5. Switch off the DR-3.

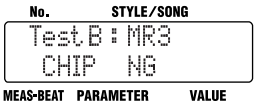


- aaaaaaaa ---> This indicates the address where the error occurred. This is a defect in the SRAM (IC9) or a solder defect between the CPU (IC7) and the SRAM (IC9).

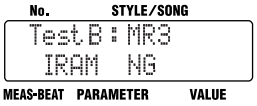


- This indicates a failure to read the flash memory. This is a defect in the flash memory (IC8) or a solder defect between the CPU (IC7) and the flash memory.

- This indicates a failure in reading or writing to the gate-array register. This is a defect in the gate array (IC6) or a solder defect between the CPU (IC7) and the gate array.



- This indicates that the chip ID could not be read. This is a defect in MR3 (IC10) or a solder defect between the CPU (IC7) and MR3.



- This indicates a failure to access the IRAM. This is a defect in MR3 (IC10) or a solder defect between the CPU (IC7) and MR3.

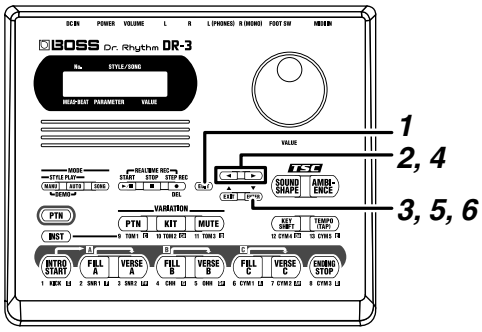
- This indicates a problem in the battery detection circuit. This is a defect in R131, R132 or a solder defect of the CPU (IC7).

TEST MODE ERROR MESSAGE

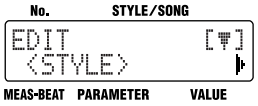
RESTORING THE FACTORY SETTINGS

This restores the settings of the DR-3 to their factory defaults.

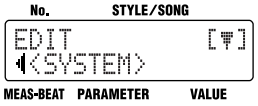
1. Power on the DR-3.



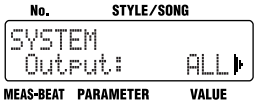
2. Press the [EDIT] button.



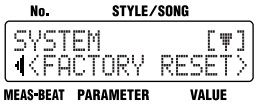
3. Press the [▶] button and choose "SYSTEM."



4. Press the [ENTER] button.



5. Press the [▶] button and choose "FACTORY RESET."



6. Press the [ENTER] button.

A message prompting you to confirm execution of the factory-reset operation is displayed.

To cancel, press the [EXIT] button.

7. To execute a factory reset, press the [ENTER] button.

The factory reset is executed.

When the factory reset ends, the original screen reappears.

All settings are returned to the default values in effect when the unit was shipped from the factory.

SYSTEM SOFTWARE UPDATE PROCEDURE

Required equipment

1. Update CD-ROM (P/No.17041302)

2. AC Adaptor PSA Series

3. Sequencer (Capable of playing back SMF)

4. MIDI cable

Update Method

NOTE

User-created data cannot be backed up.

When initializing the User memory, send all MIDI files from _00001.mid to _00071.mid.

When updating the system without initializing the User memory, send the following MIDI files.

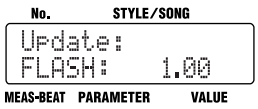
_00001.mid ... _00048.mid

_00063.mid ... _00071.mid

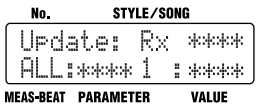
1. Connect the AC adapter to DC IN on the DR-3 unit.

2. Use a MIDI cable to connect MIDI OUT on a sequencer capable of importing Standard MIDI files to MIDI IN on the DR-3.

3. Hold down the [START] and [STEP REC] buttons on the DR-3 and switch on the unit.



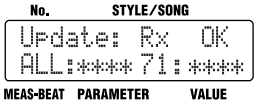
4. When the update operation starts, a display like the one shown below appears.



5. When the update operation ends, a display like the one shown below appears.

NOTE

The update operation takes about 40 minutes.



6. Switch off the DR-3 unit.

IMPORTANT CAUTIONS WHEN REPLACING THE PIEZO PICKUP OR BATTERY WIRING

How to Affix the Piezo Pickup

1. Swab the location on the circuit board for affixing the piezo element (the silkscreened region) with alcohol.

Make sure the area is free of flux, grime, or other soiling.

2. Make sure the applied alcohol has dried completely.

3. Peel off the backing of the double-faced adhesive tape on the back of the piezo element, and affix the piezo element to the circuit board so that the wiring position is aligned with the silkscreened guide on the circuit board.

Give attention to the following:

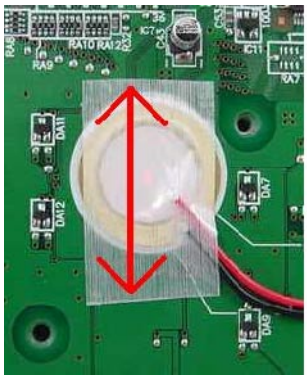
- Do not allow any grime or soiling to adhere to the double-faced adhesive tape.
- Press down on the outer periphery of the piezo element to affix it securely.
- After affixing the piezo element, make sure that it is not loose at any point.
- When pressing down on the piezo element, do not touch the metal portion of the piezo element with the bare hand. (Be sure to wear gloves or the like.)
- Do not press down on the solder area of the wiring or subject the area to stress.
- Do not touch the chip diodes (DA7, DA11, and DA12) or subject them to stress.

4. Apply filament tape (P/No.40122645) to the piezo element from above to secure the element to the circuit board.

NOTE

Use tweezers to avoid transferring oils from the hands.
Once the filament tape has been applied, do not attempt to peel it off and reapply it.

5. Press down on the entire surface of the filament tape and on the outer periphery of the piezo element to anchor them in place securely.



How to Affix the Battery Wiring

Use filament tape to affix the wiring from the battery to the bottom cover.