

BOSS

DR-220A/E

Dr. Rhythm

— **DIGITAL** —

Owner's Manual

 **BOSS**
Products of Roland

'87-4-A3-10S

The Doctor Rhythm DR-220
is a fully programmable
rhythm machine.



• Please read this owner's manual carefully.

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DR-220A/E

Bescheinigung des Herstellers / Importeurs

Hiermit wird bescheinigt, daß der/die/das

BOSS Dr.Rhythm DR-220A/E

Modell, Typ, Bezeichnung

in Übereinstimmung mit den Bestimmungen der

Amtsbl. Vfg 1046 / 1984

Computerverordnung

funk-entstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Roland Corporation Osaka / Japan

Name des Herstellers/Importeurs

Radio and television interference

Warning - This equipment has been verified to comply with the limits for a Class B computing device, pursuant to Subpart J, of Part 15, of FCC rules. Operation with non-certified or non-verified equipment is likely to result in interference to radio and TV reception.

The equipment described in the manual generates and uses radio-frequency energy. If it is not installed and used properly, that is, in strict accordance with our instructions, it may cause interference with radio and television reception.

The equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J, of Part 15, of FCC Rules. These limits are designed to provide reasonable protection against such an interference in a residential installation.

However, there is no guarantee that the interference will not occur in a particular installation. If the equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by the following measures:

• Disconnect other devices and their manufacturers cables one at a time. If the interference stops, it is caused by either the other device or its I/O cable.

These items usually require Roland designed shielded I/O cables. For Roland devices, you can obtain the shielded cables from your dealer. For non-Roland devices, contact the manufacturer of cable for assistance.

If your equipment does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:

• Turn the TV or radio antenna until the interference stops.

• Move the equipment to one side of the screen of the TV or radio.

• Move the equipment farther away from the TV or radio.

• Plug the equipment into an outlet that is on a different circuit than the TV or radio. (This is, make certain the equipment and the radio or television set are on circuits controlled by different circuit breakers or fuses.)

• Consider installing a reception antenna system with coaxial cable lead-in between the antenna and TV.

If necessary, you should contact your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commission:

"How to Identify and Resolve Radio-TV Interference Problems"

This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. GPO-000-023454.

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OUTLINE OF THE DR-220

- The Boss Doctor Rhythm DR-220 is a compact yet fully programmable rhythm machine with the following features.
- The DR-220's clear and realistic digital drum voices are supported by the 12 bit D/A converter.
- Up to 32 rhythm patterns on you own can be programmed in the DR-220, and as well, 32 different rhythm patterns are preprogrammed ready to be used. Using these 64 rhythm patterns, up to 8 songs each consisting up to 128 bars can be programmed.
- The drum voices can be played with the rhythm data you have programmed or by tapping the Instrument Keys.
- The LCD (Liquid Crystal Display) serves to make the operation quicker and easier.
- A song can be played as many times as you like. (Song Repeat Function)
- Any of two adjacent songs (up to 256 bars) can be played sequentially. (Song Chain Function)
- Song Edit functions (Delete and Insert) can be effectively used in writing a song.
- Pattern Edit function (Copy) can be effectively used for copying a rhythm pattern and modify it, instead of making a pattern from scratch.
- The Trigger In and Out Jacks are provided to sync the DR-220 with other device (e.g. DR-220A sync's with DR-220E) or to use it as a digital drum module of a drum pad.
- The DR-220 can operate on both AC and battery power.

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1 IMPORTANT NOTES

Power

- The DR-220 can be powered by battery or AC Adaptor. If you are running it on battery power, battery replacement will be occasional necessary.

Location

- Operating the DR-220 near a neon or fluorescent lamp may cause noise interference. If so, change the angle or position of the DR-220.
- Avoid using the DR-220 in extreme heat cold, humidity or where it may be affected by sunlight or dust.

Cleaning

- Use a soft cloth and clean only with mild detergent. Do not use solvents such as a paint thinner.

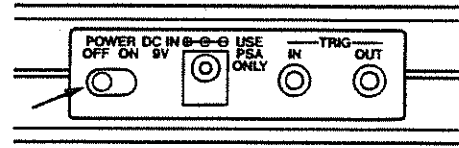
LCD

- View the Display Window from the proper angle.
- Please be careful not to damage the window.

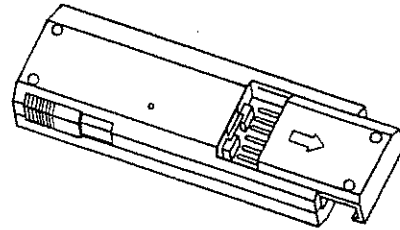
POWER

How to place the batteries

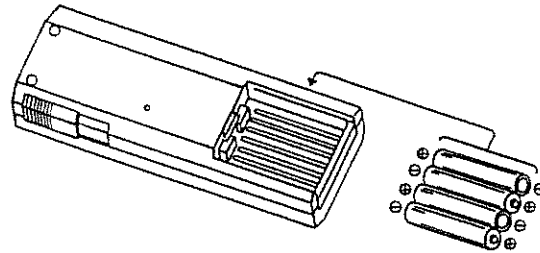
- ① Make sure that the unit is switched off.



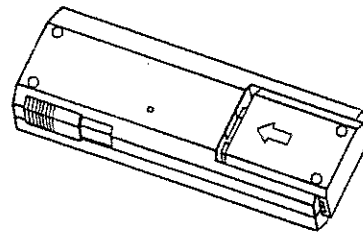
- ② Remove the cover from the battery housing by sliding it away.



- ③ Place the supplied dry cell batteries in the battery housing in correct polarity as marked inside housing.

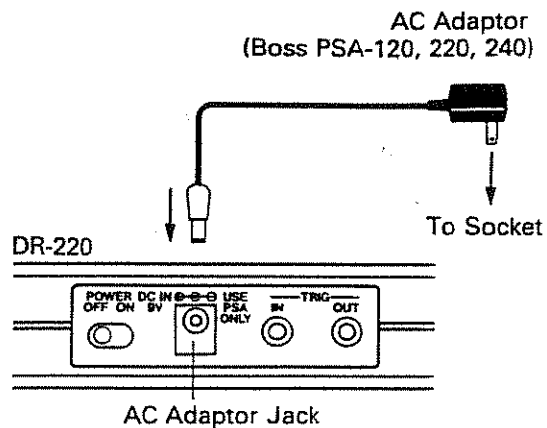


- ④ Replace the cover.



AC Adaptor

Connection



To avoid accidental loss of your indispensable data

- Please be sure to use the BOSS AC adaptor PSA-120, 220 or 240 depending on the voltage system in your country. (Using any other adaptor may cause trouble.)
- Please be sure to turn the unit off before plugging the AC adaptor. Connecting the AC adaptor with the unit on may cause improper operation or even breakdown.
- The DR-220 features a Memory back up system that retains the data you have written even when switched off, and this is fully supported by battery power. So, to avoid losing the data in memory, make sure to keep the batteries securely connected in the battery housing even while using the AC Adaptor.
- Please replace the whole set of the batteries with a new set once a year, whatever the battery consumption may be like.

Battery Replacement

- Please use 4 AA dry cells (UM-3).
- Please be sure to turn the DR-220 off and unplug the AC Adaptor if using one, before battery replacement.
- * Switching the unit on without the battery connected will erase the rhythm data written in memory.
- * If you have made battery replacement within five minutes, data written in memory will be all safely retained.

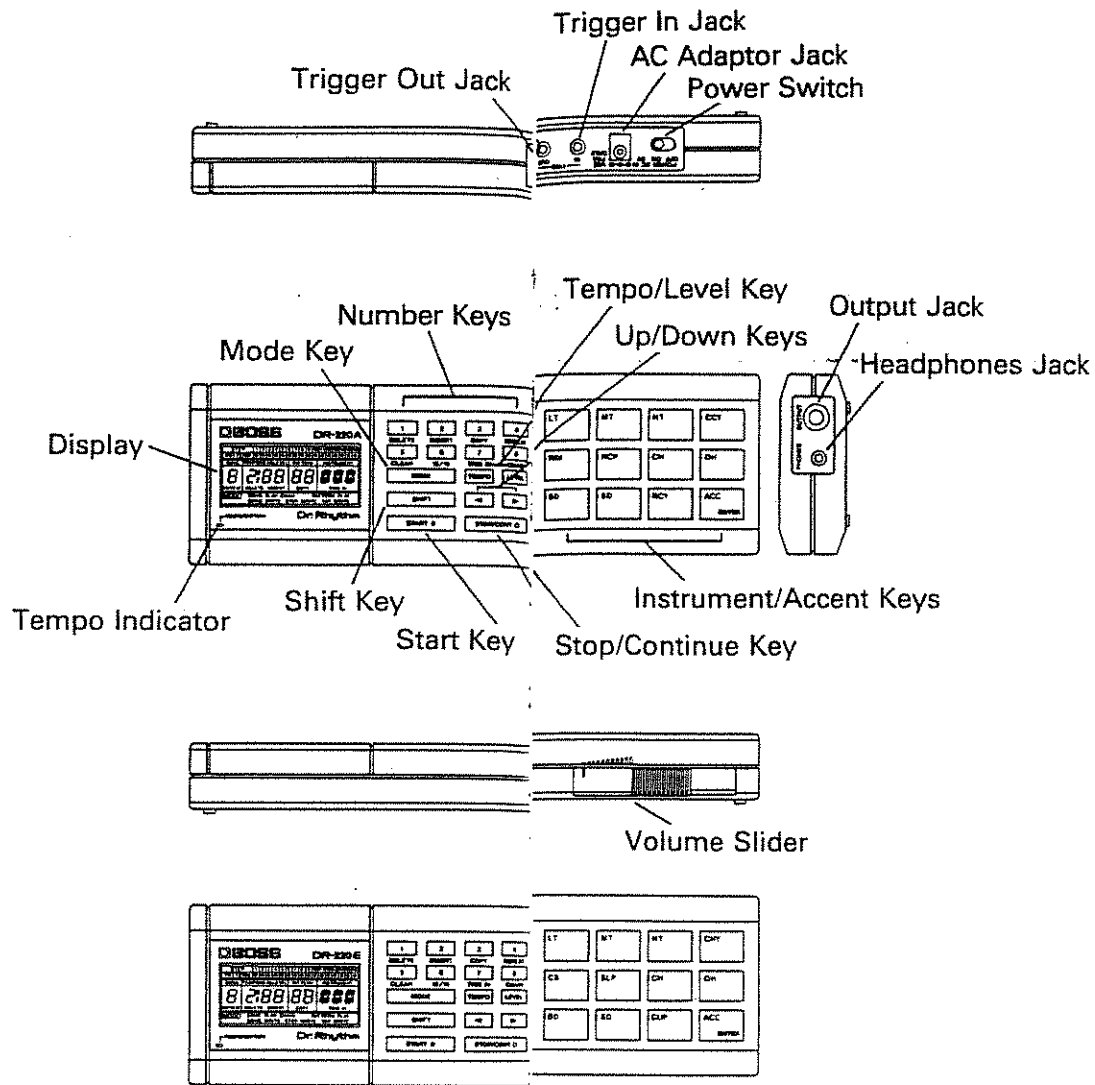
Battery replacement is required in the following cases

- In about 30 hours, if ordinary dry cell type batteries are being used. (It varies depending on the type of the cells and how much the DR-220 has been used.)
- If the DR-220's LCD (Liquid Crystal Display) becomes dimmer or flares, or the sound or action of the unit becomes unstable.

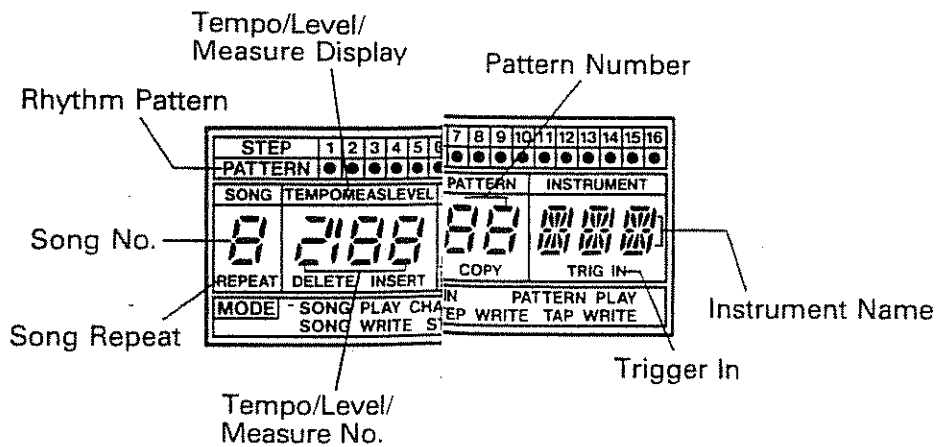
Other Notes

- Please avoid leaving exhausted batteries connected, or trouble may be caused by battery leakage.
- When using battery power, please be sure to turn off the Power Switch.

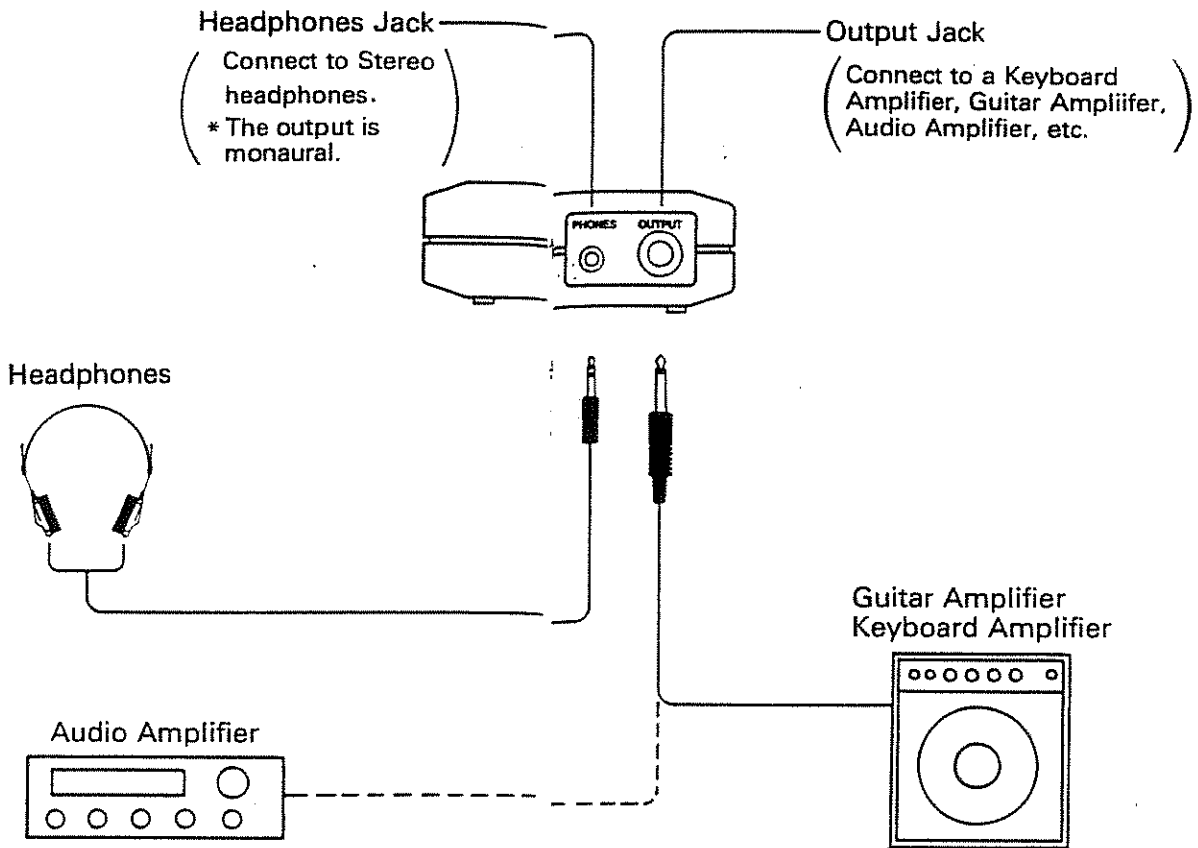
2 PANEL DESCRIPTION



[Display]



3 BASIC CONNECTIONS



4 OPERATION

The DR-220E are exactly the same as the DR-220A except that it has electronic drum sounds while the DR-220A has acoustic drums.

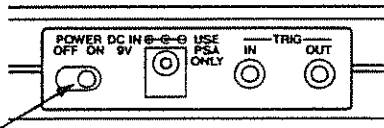
■ System Initialization

* When you use the DR-220 for the first time, or the data in memory is accidentally erased, please initialize the system of the DR-220 as follows.

- ① Make sure that the unit is turned off.
- ② While holding the Up and the Down Keys down, turn the unit on.

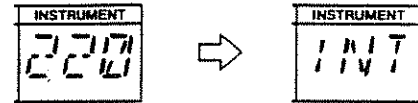


While holding both keys down



Power On

* The Display will show "220" then "INT".



* The initialization is completed in about four seconds, and the Display will return to the normal indication.

| STEP | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|------------|-----------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| PATTERN | ● | ● | | | ● | ● | | ● | ● | | ● | ● | | ● | ● | |
| SONG | 1 | | | | | | | | | | | | | | | |
| MEAS | | | | | | | | | | | | | | | | |
| PATTERN | | | | | | | | | | | | | | | | |
| INSTRUMENT | | | | | | | | | | | | | | | | |
| MODE | SONG PLAY | | | | | | | | | | | | | | | |

* Pattern Number 42 is shown on the DR-220E.

* Now, the DR-220 defaults as follows.

Tempo: 120

Voice Level: 3

Accent Level: 3

* The demonstration data is copied in memory (Song Number 1 and 2), and the preset patterns 11 to 48 are copied to the Pattern Numbers 51 to 88.

1. Song Playing

The DR-220 defaults to the Song Playing mode. A song is a complete tune in rhythm, made up of Patterns strung together, and there is a demonstration song written in the Song Number 1 and 2.

Before playing the demonstration song, let's try out a variety of sounds on the DR-220 by playing it manually.

a. Manual Performance

① Connect the DR-220 to the power source and to your amplifier or mixer as shown on page "Basic Connections".

② Switch it on.

* The DR-220 defaults to Song Playing mode.

* The Display will respond with as shown right.

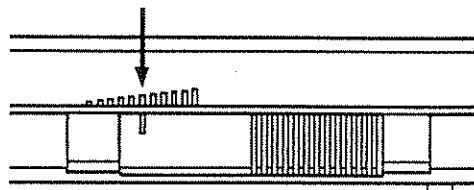


Rhythm Pattern

| | | | | | | | | | | | | | | | | |
|------------|-----------|---|---|---|---|---|----|---|---|----|----|----|----|----|----|----|
| STEP | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| PATTERN | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| SONG | 1 | | | 1 | | | 43 | | | 01 | | | 01 | | | |
| MEAS | | | | | | | | | | | | | | | | |
| PATTERN | | | | | | | | | | | | | | | | |
| INSTRUMENT | | | | | | | | | | | | | | | | |
| MODE | SONG PLAY | | | | | | | | | | | | | | | |

Bass Drum
Pattern Number 43
Song 1 Measure Number 1

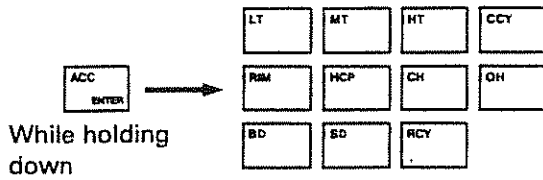
③ Set the Volume slider to the center position.



④ Simply tap each Instrument Key.

| | | | |
|-----|-----|-----|-----|
| LT | MT | HT | CCY |
| RIM | HCP | CH | OH |
| BD | SD | RCY | |

* If you tap the key with the Accent Key down, the created sound will take accent.



b. Demonstration Song

A sample songs stored in your DR-220's Song Number 1 and 2 are called by initialization.

PROCEDURE

- ① Make sure that the DR-220 is in the Song Playing mode and not running.



- ② Check that the Song Number 1 is shown in the Display.

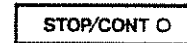
* If the song number other than 1 is shown, push the Number Key 1.



- ③ Push the Start Key to start the demonstration song.

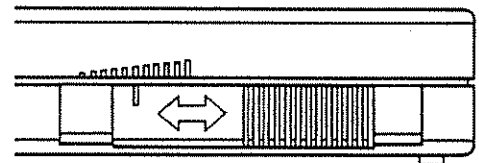


* Pushing the Stop/Continue Key will immediately stop the song, and pushing it again will continue to play the song.



• Overall Volume Control

To change the overall volume, move the Volume Slider.

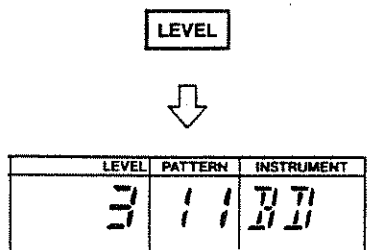


- Controlling the level of individual drum sound or the overall accent level.

PROCEDURE

- ① Push the Level Key.

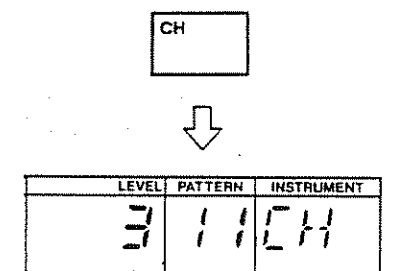
* The Display shows the volume of the drum voice currently selected.



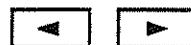
- ② Select the drum voice whose volume you wish to change by using an appropriate Instrument Key. If you wish to change the overall accent level, push the Accent Key.

* The Display shows the name of the drum voice you have selected. If you pushed the Accent Key in the step ②, "ACC" will appear in the Display.

(e.g.) Closed Hi-hat



- ③ To increase the level, push the Up Key, and to lower the level, push the Down Key.



* 0 to 5 levels are optional for both the level-of-the-drum-voice and the accent. At 0, no sound is heard.

- ④ Push the Level Key, and the Display will return to the bar indication.

- Changing the tempo of the song

- ① Push the Tempo Key.

* The Display shows the current tempo in use.



- ② To quicken the tempo, push the Up Key, and to slower the tempo, push the Down Key.

* For quick forward and reverse, keep pressing the relevant key.



* The tempo can be changed from 40 to 250 (beat per minute) in the following resolutions.

40 to 90: one step

90 to 130: two steps

130 to 190: four steps

190 to 250: six steps

③ Push the Tempo Key, and the Display will return to the MEASURE indication.

• How to start playing from the middle of the song

① Make sure that the Display is in the MEASURE indication.



* When you are adjusting the tempo or the level, or there is no song data written, the Display does not show the bar number.

② Using the Up or the Down Key, assign the beginning bar number from which the song is to be played.

(e.g.) Playing from the 25th Bar



Push as many times as necessary or quick forward.

* Please be sure to assign the bar number that is located before the end of the song.

③ Push the Stop/Continue Key to play the song.



► All the functions explained so far apply to the song you have programmed. Simply select the song to be played with the Number Key (1 to 8), then take the same procedures.

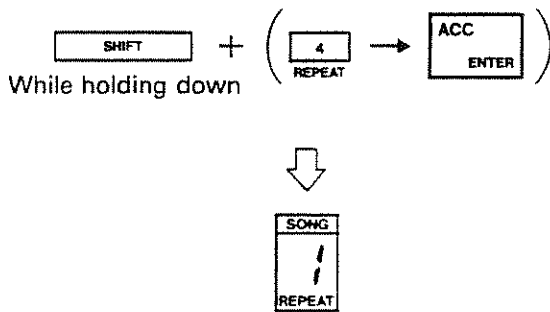
c. Song Repeat

A song can be played repeatedly.

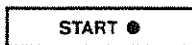
PROCEDURE

- ① Turn the DR-220 to the Song Play mode with the rhythm stopped.
- ② While holding the Shift Key down, push the Number Key 4 then the Enter Key.

* The Display responds with REPEAT, showing that the DR-220 is now in the Song Repeat mode.



- ③ Push the Start Key, and the selected song will be played repeatedly.



- ④ To stop playing, push the Stop/Continue Key.

* The Song Repeat mode remains even after selecting other song. This mode is cancelled by taking the step ② again, or by switching the unit off.

d. Song Chain

Any two adjacent songs can be played in sequence.

* The Song 1 and 8 cannot be chained.

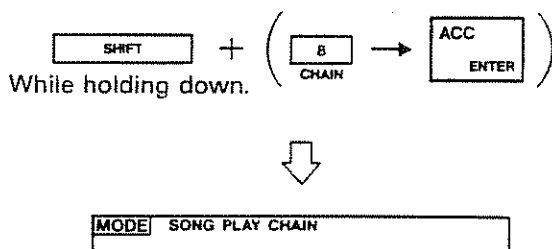
| Number to be set for Song Chain | Songs to be Chained |
|---------------------------------|---------------------|
| 2 | 1-2 |
| 3 | 2-3 |
| 4 | 3-4 |
| 5 | 4-5 |
| 6 | 5-6 |
| 7 | 6-7 |
| 8 | 7-8 |

* More than two songs cannot be chained.

PROCEDURE

- ① Turn the DR-220 to the Song Play mode with the rhythm stopped.
- ② By using the appropriate Number Key, select the bigger song number which is to be chained. (2, if Songs 1 and 2 are to be chained.)
- ③ While holding the Shift Key down, push the Number Key 8 then the Enter Key.

* The Display responds with SONG PLAY CHAIN, showing that the two songs are chained.



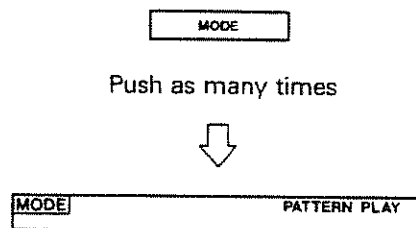
- * The Song Chain is retained until the unit is switched off.
- * To cancel the Chain, select the bigger number of the Chain, then take the step ③.

2. Pattern Playing

The DR-220 contains 32 different preset rhythm patterns (Pattern Numbers 11-48) which are ready to be used right away. Another 32 rhythm patterns (51-88) can be programmed in memory. Pattern Play mode plays any of these 64 rhythm patterns.

| Right Left Figure | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------------|---|---|---|---|---|---|---|---|
| 1 | Preset Patterns (4 × 8 = 32 patterns) No. 11 ~ No. 48 * The Preset patterns are non-volatile, therefore cannot be rewritten. | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | User's Programmable Patterns (4 × 8 = 32 patterns) No. 51 ~ No. 88 | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |

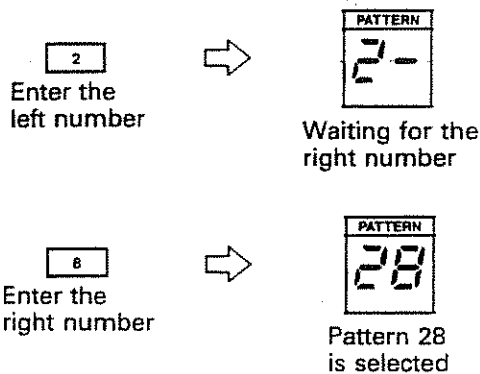
- ① By pushing the Mode Key, turn the unit to the Pattern Play mode.



② By using the relevant Number Key, select the Pattern number to be played.

* The Display changes to the selected pattern number.

(e.g.) Selecting No. 28

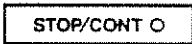


③ Push the Start Key to play the selected rhythm.



* To change the tempo or volume of the playing rhythm, follow the procedures shown on page 24 to 26.

* The rhythm pattern will be played again and again until the Stop Key is pushed.



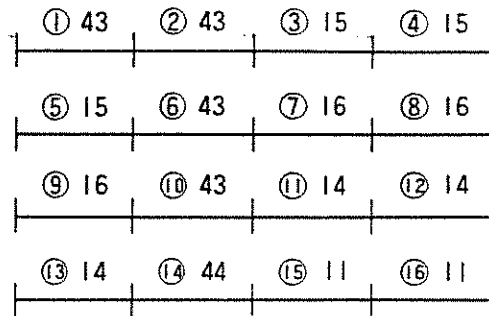
* Even while the rhythm is playing, you can select other rhythm pattern. The current rhythm will be played up to the end, then the new rhythm pattern will come on.

3. Song Writing

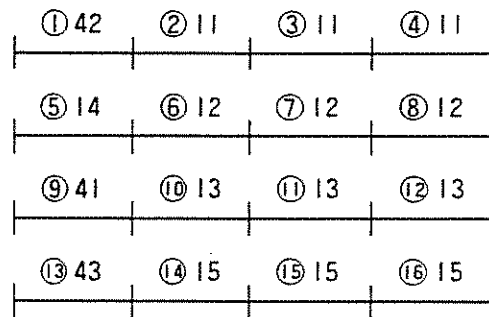
In the Song Write mode, you can make a complete sequence of rhythm patterns of bars arranged in any order to form a complete song.

► Example Writing

(DR-220A)



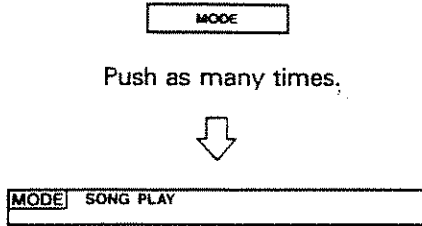
(DR-220E)



The number in the circle ○ represents a measure number

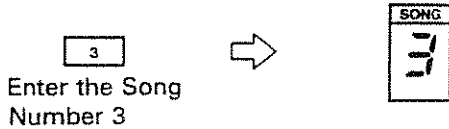
a. Basic Writing

- ① By using the Mode Key to turn to the Song Play mode.

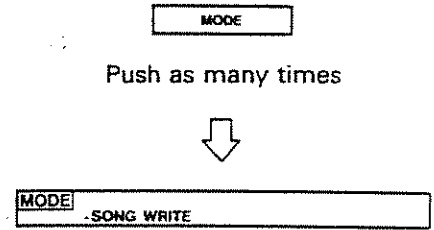


- ② By using the Number Key (1 to 8), select the Song Number (location) where you wish to write the song you are to make.

(e.g.) Selecting Song 3

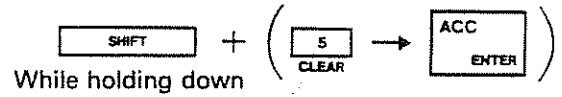


- ③ By using the Mode Key again, turn to the Song Write mode.



* If there is any data written in the selected Song number, erase it as follows.

- ④ While holding the Shift Key down, push the Number Key 5 then the Enter Key.



While holding down

⑤ Make sure that the Display shows Measure 1, then push the Start Key.

* The selected rhythm pattern will be played repeatedly.



* To change the tempo or level of the playing rhythm, follow the procedures shown on page 24 to 26.

* If you do not want to listen to the rhythm, do not need to push the Start Key.

⑥ By pushing the appropriate Number Key, select the Pattern number you need for the first bar.

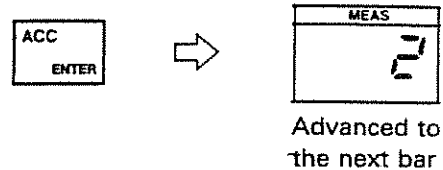
* When the selected rhythm pattern is written in the first bar, the second bar will follow.

(Assign the Pattern number (43) for the first bar of the example score.)



⑦ Push the Enter Key.

* The selected rhythm pattern is written, and it advances to the next bar.



⑧ Repeat the steps ⑥ and ⑦ as many times until you have written up to the last bar.

⑨ Push the Stop Key to stop the rhythm. (When you have not pushed the Start Key in the step ⑤, you do not need to do this.)

* Here, you can verify the rhythm patterns you have written by forwarding or reversing the bars with the Up and Down Keys.



► Up to 128 bars of rhythms can be written in each song.

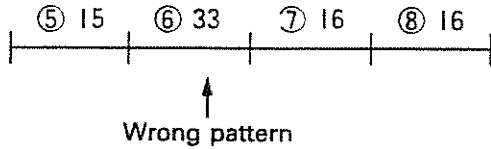
* When the Display shows 129, no further writing is possible.

b. Song Edit

1) Rewriting

When a wrong Pattern number is written, follow the procedure.

[DR-220A]



- ① Make sure that the rhythm is not running and the Display shows a bar number.
- ② By using the Up or the Down Key, go to the bar number to be corrected.



Push as many times



| MEAS | PATTERN |
|------|---------|
| 6 | 33 |

- ③ By using the Number Key, select the right Pattern number.

(Enter the correct Pattern number for the 6th bar.)



- ④ Push the Enter Key, and the right Pattern number will replace the old one.

(Advanced to the next bar)

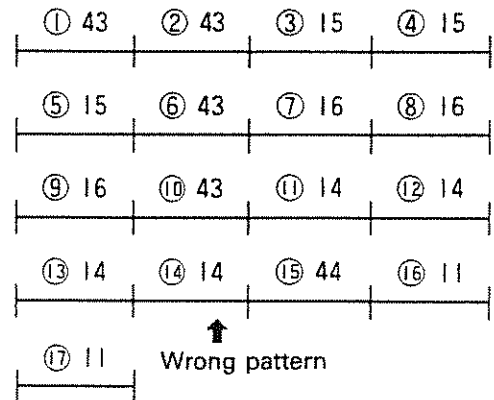


| MEAS | PATTERN |
|------|---------|
| 7 | 16 |

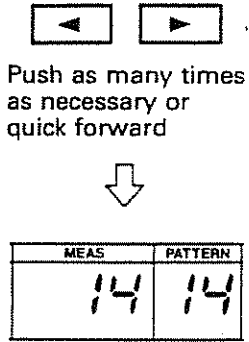
2) Deleting

You can delete any Pattern from a song.

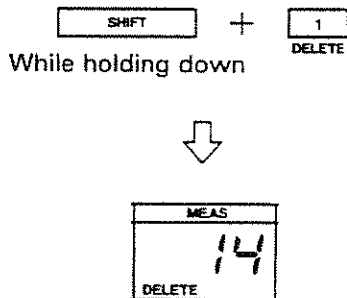
[DR-220A]



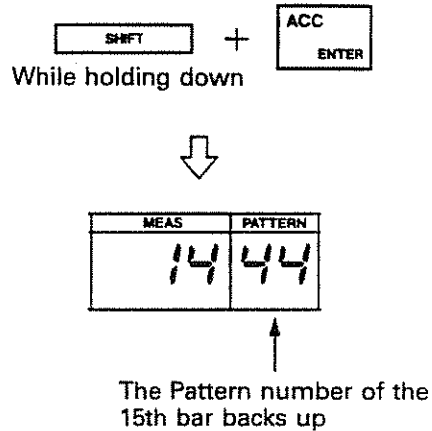
- ① Make sure the rhythm is stopped and the Display shows a bar number.
- ② Using the Up or the Down Key, go to the bar number which you wish to delete.



- ③ While holding the Shift Key down, push the Number Key 1.
- * The Display shows DELETE.



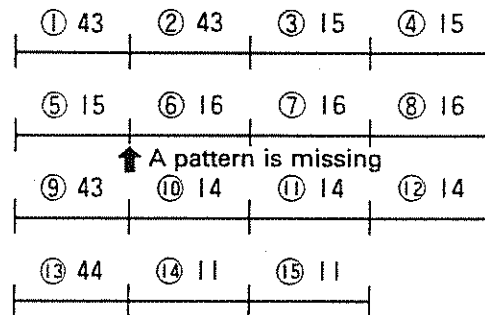
- ④ While still holding the Shift Key down, push the Enter Key.
- * The bar you have called is deleted and DELETE in the Display goes out.



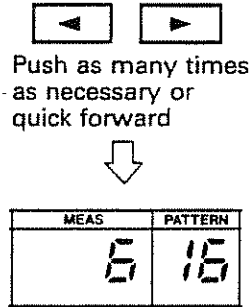
3) Inserting

You can insert any Pattern into a song.

[DR-220A]

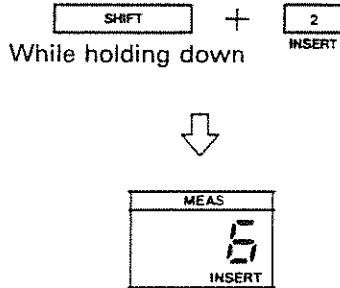


- ① Make sure that the rhythm is stopped and the Display shows a bar number.
- ② Using the Up or the Down Key, go to the bar after which you wish to insert a rhythm pattern.



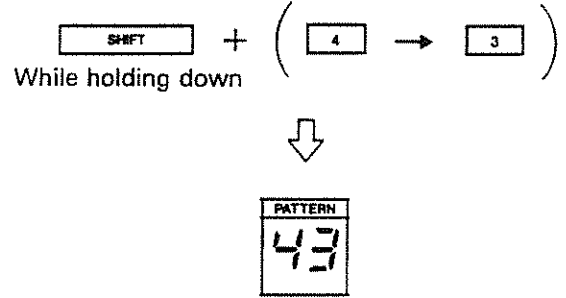
- ③ While holding the Shift Key down, push the Number Key 2.

* The Display shows INSERT.



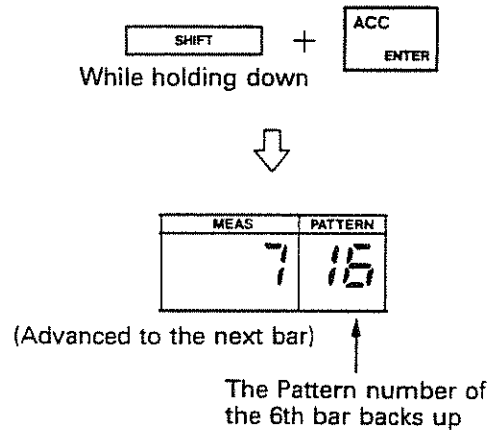
- ④ While still holding the Shift Key down, push the appropriate Number Key to select the Pattern number to be inserted.

(Assign the Pattern number (43) which is missing in the example score.)



- ⑤ While still holding the Shift Key down, push the Enter Key.

* The selected rhythm pattern is inserted and INSERT in the Display goes out.



4. Pattern Writing

Here, we will learn how to write a rhythm pattern. A pattern is a one bar phase, and we can write into memory a large number of patterns (up to 32). There are two ways of writing patterns; a. Step Writing, in which we enter one step at a time without worrying about tempo, and b. Tap Writing, in which we use a key to tap in the rhythm in time to the flashing of the Tempo Indicator every quarter-beat.

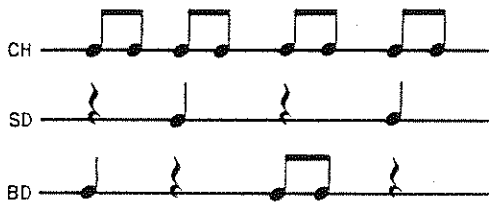
a. Step Writing

1) Basic Writing

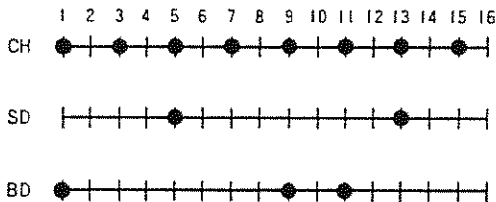
▶ Example Step Writing

[DR-220A/E]

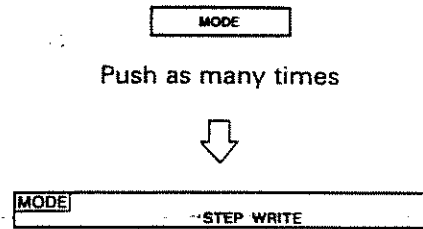
(Example Score)



(Rhythm Chart)



- ① By using the Mode Key, turn to the Step Writing mode.



- ② By pushing the appropriate Number Keys, select the Pattern number (location) where you wish to write the rhythm pattern.

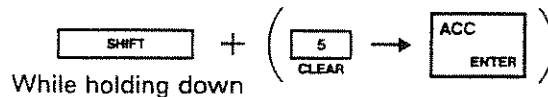
* Pattern numbers 11 to 48 are preset and non-volatile data, therefore, cannot be selected.

(Select 51 here, as an example.)



* If there is any data written in the selected Pattern number, erase it by taking the following step ③.

- ③ While holding the Shift Key down, push the Number Key 5 and the Enter Key.



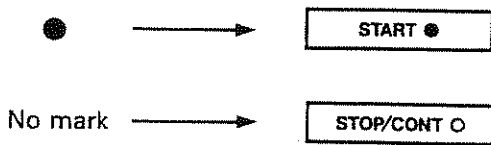
- ④ By pushing the appropriate Instrument (or Accent) Key, select the drum voice (or accent) to be written.

* The Display shows the selected drum Voice (or accent).

(e.g.) Closed Hi-hat



- ⑤ With the help of the Score Table shown on page 44, push the Start Key for the ● step and push the Stop key for the empty step.



(e.g.) Writing the entire data of the Closed Hi-hat

| STEP | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| PATTERN | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

↑
Goes back to the first step and the dot flashes

* When you make a mistake, go back to the step to be corrected by using the Down Key, then correct it.

- ⑥ Repeat the steps ④ and ⑤ as many times for writing all the drum sounds or accent (in this example CH, SD, and BD).

* Each time a step is forwarded, the Tempo Indicator blinks and the sound of the previous step is heard. (If accent is written, the sound takes on the accent.) In other words, by pushing the Up Key, you can monitor the rhythm pattern you have written. (To adjust the level of the rhythm, follow the procedure shown on page 24.)

2) Writing a Triplet

(DR-220A/E)

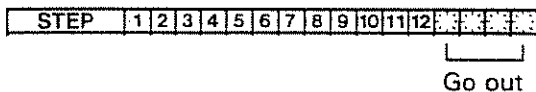
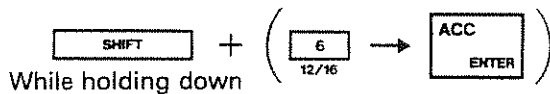
(Example Score)

(Rhythm Chart)

① Take the steps ① to ③ of the previous section "1) Basic Writing".

② While holding the Shift Key down, push the Number Key 6, then the Enter Key.

* The Step indication of the Display changes to twelve steps. (1-12).



* Repeating the step ② will return to 16 step indication.

③ Take the steps ④ to ⑥ of the previous section "1) Basic Writing".

[Drum Voices]

The Drum Voices of the DR-220A and DR-220E

DR-220A

[1] Bass Drum (BD)

[2] Snare Drum (SD)

[3] Closed Hi-hat (CH)
Open Hi-hat (OH)

[4] Rim Shot (RIM)
Hand Clap (HCP)

[5] Hi Tom (HT)
Mid Tom (MT)
Low Tom (LT)

[6] Crash Cymbal (CCY)
Ride Cymbal (RCY)

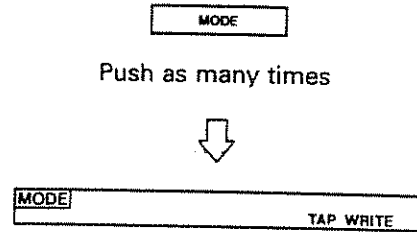
DR-220E

- [1] Electronic Bass Drum (BD)
- [2] Electronic Snare Drum (SD)
- [3] Closed Hi-hat (CH)
Open Hi-hat (OH)
- [4] Cowbell (CB)
Slap (SLP)
- [5] Electronic Hi Tom (HT)
Electronic Mid Tom (MT)
Electronic Low Tom (LT)
- [6] China Cymbal (CHY)
Cup (CUP)

* The voices in the same number group cannot sound at the same time.

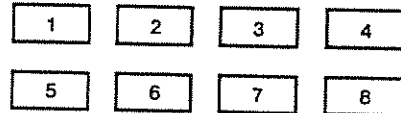
b. Tap Writing

- ① By using the Mode Key, turn to the Tap Writing mode.



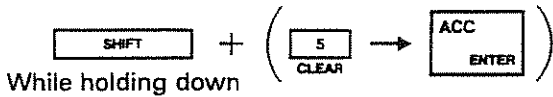
- ② By pushing the appropriate Number Keys, select the Pattern number where you wish to write the rhythm pattern.

* Just like in the Step Writing mode, Pattern numbers from 11 to 48 cannot be used.



* If there is any data written in the selected Pattern number, erase it by following the step ③.

③ While holding the Shift Key down, push the Number Key 5, then the Enter Key.



④ Push the Tempo Key.

TEMPO

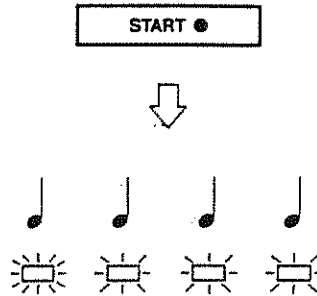
⑤ By using the Up or the Down Keys, set the tempo you like.



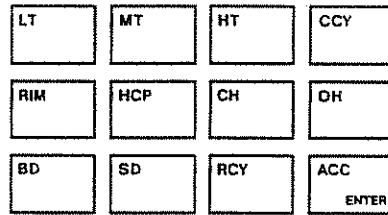
⑥ Push the Tempo Key again to return to the Tap Writing mode.

⑦ Push the Start Key.

* The Tempo Indicator now blinks every quarter-beat. (The first beat of the bar will flash brighter than other beats.)



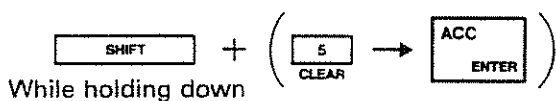
⑧ Tap the Instrument (Accent) Key to the flashing of the Tempo Indicator.



* The drum voices belonging to the same group (see page 49, 50 "Drum Voices") cannot be written in the same step at a time. In other words, the one previously written will be erased, the new one taking place. For instance, writing the closed hi-hat over the open hi-hat will automatically erase the open hi-hat, the closed hi-hat replacing it.

* If you make an error in tap writing, with the rhythm running, hold the Shift Key and the Number Key 5 down, and without releasing them, keep pressing the Enter key until the entire voice (or accent) you have written is erased. If you do not wish to erase the entire voice (or accent), push and release the Enter Key in the timing so that as many steps are erased. You can erase just one step of data. (The Display shows the drum voice or accent of the last tapping.)

(Playing Mode)



| STEP | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| PATTERN | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |



| STEP | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| PATTERN | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

While the Enter Key is being pressed, the data in each step is deleted one by one.

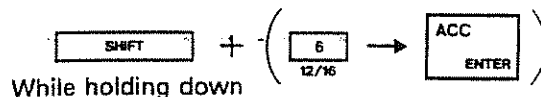
* Taking the above procedure with the rhythm stopped will erase the entire rhythm pattern (= usual Pattern Clear effect).

⑨ When you have written all the necessary data, push the Stop Key to stop the rhythm.

STOP/CONT O

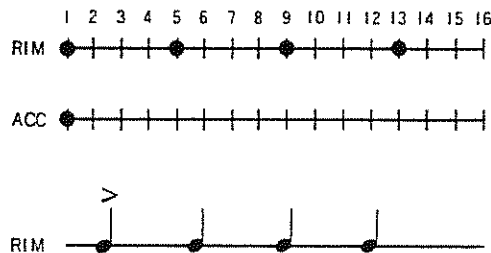
* To continue to tap-write other patterns, select a new Pattern number instead of pressing the Stop key.

* To write a triplet, after the step ③, hold the Shift Key down and push the Number Key 6 then the Enter Key. (Just like in the Step Writing mode.)



* To change the volume of the rhythm, take the procedure shown on page 24.

► If you find it difficult to tap to the Tempo Indicator, before start tap-writing, you may write the following pattern in the Step Writing mode. It will serve as a metronome.




* (Select CB on the DR-220E)


c. Copying a Rhythm Pattern


A rhythm pattern can be copied from one memory location to another. After copying, the pattern will remain in its original location as well as appearing in the new location.

This copy function is useful when the rhythm pattern you want is similar to the existing one. Instead of making the pattern from scratch, you can copy the existing pattern and edit it. This way, you can save considerable amount of work.


(e.g.)


CH 


SD 

BD 


Basic Pattern


CH 


SD 

BD 

Variation 1

CH 

SD 

BD 

Variation 2

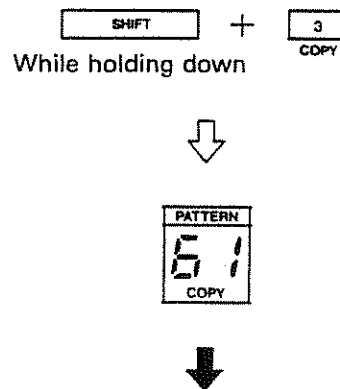
- ① Using the Mode Key, turn to the Step or Tap Writing mode.
- ② Using the Number Keys, assign the Pattern number (new location) where the existing rhythm pattern to be copied:

* (Select 61 here as an example)



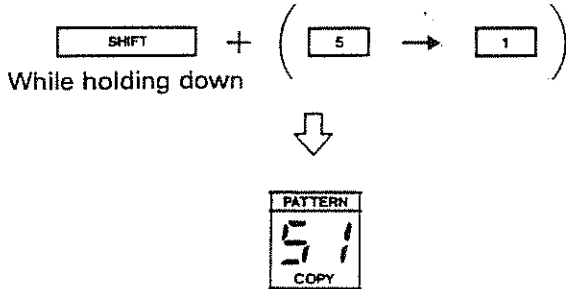
- ③ While holding the Shift Key down, push the Number Key 3.

* The Display shows COPY.



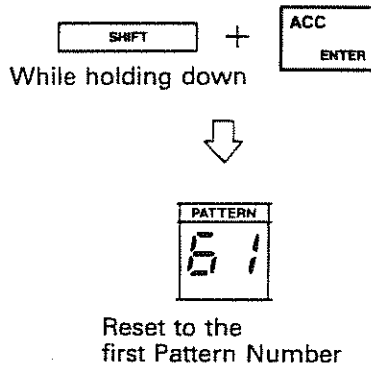
- ④ While still holding the Shift Key down, select the existing Pattern number (Source Pattern) which you wish to copy. (You can select a Preset pattern, too.)

* (Select 51 here as an example)



- ⑤ While still holding the Shift key down, push the Enter key.

* The selected pattern is copied to the Pattern number. COPY in the Display goes out and the Pattern number of the new location is shown.



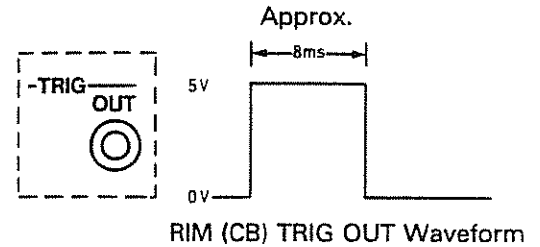
- ⑥ Edit the copied pattern to the desired form in either the Step Writing or Tap Writing.

5. Trigger In/Out

The DR-220 features the Trigger In and Out functions that extend the variation of the performance.

a. Trigger Out

The DR-220A can send the trigger signal in the timing of the Rim Shot, and the DR-220E in the timing of the Cowbell.

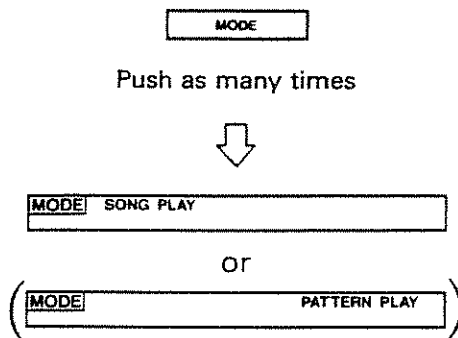


* The DR-220 always sends the trigger signal when it is in the playing mode. (The trigger signal is not sent by playing the Rim Shot or Cowbell manually.)

b. Trigger In

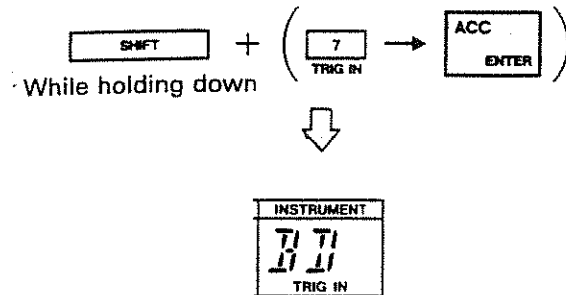
The DR-220 can be set to the Trigger In mode. In the Trigger In mode, the external trigger signal controls the steps. (Each time the trigger in signal is fed in, a step of the rhythm pattern is played.)

- ① By using the Mode Key, turn to the Song Play (or Pattern Play) mode.



- ② While holding the Shift Key down, push the number Key 7 then the Enter Key.

* The Display shows TRIG IN.



- * When no data is written in the selected Song number, the Trigger In function cannot be used. (In the Song Play mode.)
- * To cancel the Trigger In mode, repeat the step ②.
- * While in the Song Play mode, the selected song will be played repeatedly by the trigger signal fed in, whether the Song Repeat is on or off.
- * To go back to the beginning of the song (or pattern) in the middle of playing, simply push the Start Key. Pushing the Continue Key will reset to the first step of the bar (or pattern) currently played.
- * In the Song playing mode, you cannot move the bars or change the Song numbers. In the Pattern playing mode, however, you can reset and play from the first step of the selected pattern. Simply push the relevant Number Keys to select a pattern, then push the Start Key.

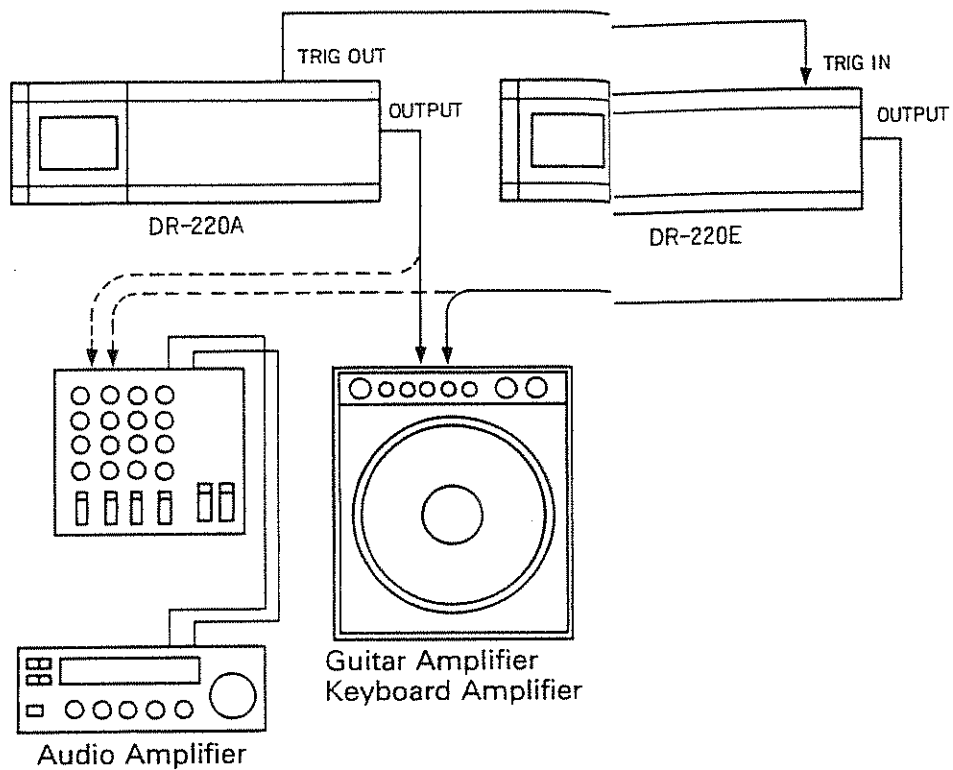
c. Examples

1) Sync

The DR-220 can sync with the rhythm machine that features the Trigger In or Trigger Out. (e.g. two sets of the DR-220's, DR-220 to DR-110.)

► Example Sync: DR-220E sync's to DR-220A

① Set up the units as shown below.



- ② Set the DR-220A to the Step or the Tap Writing mode, and select the rhythm pattern to be sync'ed to.
- ③ Write the following Rim shot pattern on the rhythm pattern you have selected.



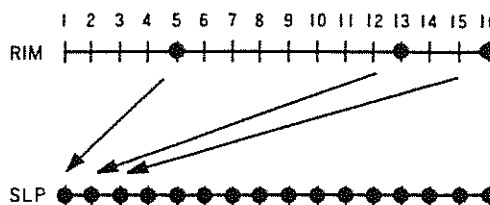
- ④ Set the level of the Rim shot to zero.
- ⑤ Set the DR-220A to the Pattern Playing mode.
- ⑥ Set the DR-220E to the Pattern Playing mode, and select the pattern to sync to the DR-220A's.
- ⑦ Set the DR-220E to the Trigger In mode.
- ⑧ Push the Start Key on the DR-220A, and the two units start playing.

* Adjust the tempo of the rhythm on the DR-220A.

2) Extending Drum Voices

Write such rhythm patterns as follows on the DR-220A and DR-220E, and play them as explained in the previous section 1). In this way, the drum voices on the DR-220E will be played in the timing of the Rim shot.

[DR-220A]



[DR-220E]

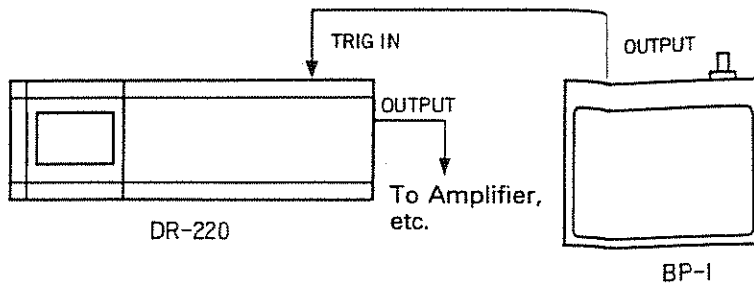
(Slap is played in the timing of Rim Shot)

For more extension of voices, connect the Dr. Pad Series such as DRP-I, II or III which includes six drum sounds.

3) Playing with the Drum Pad

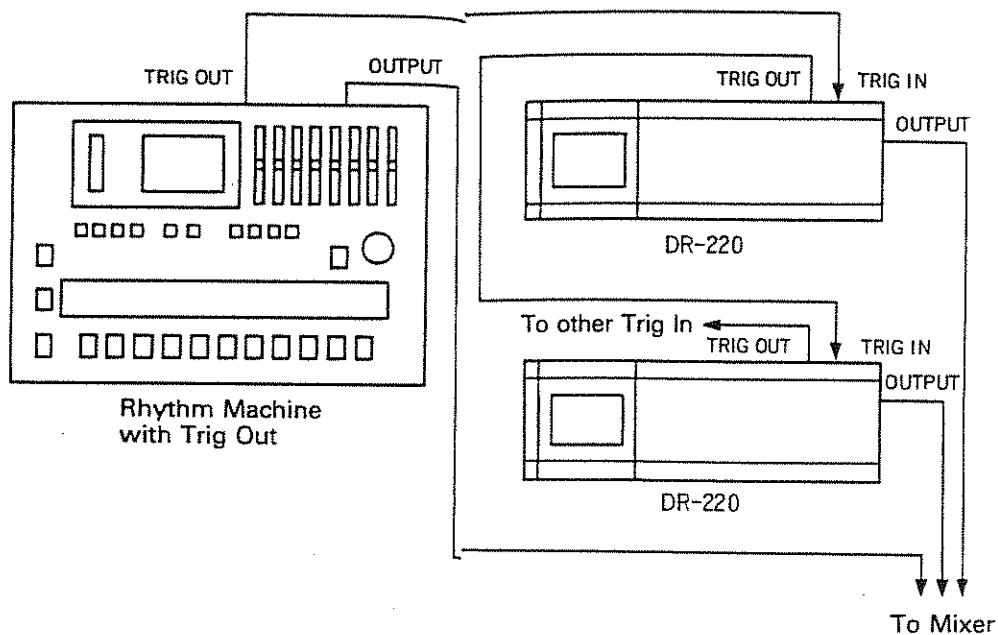
By connecting the Trigger Out jack on the Drum Pad such as BP-1 to the Trigger In on DR-220, the drum voices on the DR-220 can be played by hitting the pad.

* In above case, you need to write the voice you want to play in all the steps of the rhythm pattern.



4) Sync of more than three rhythm machines

Even in the Trigger In mode, the DR-220 can send the trigger signal of the Rim shot (Cowbell). This allows more than two sets of the DR-220's to sync to a rhythm machine that features the Trigger Output.



* Connecting many numbers of the DR-220's will cause a large sound delay at the last stage.

5 SPECIFICATIONS

- **Memory Capacity**
Preset Rhythms: 32
User's Programmable Rhythms: 32

- **Steps per Measure**
16 steps/12 steps

- **Songs**
Song of maximum 128 bars × 8
(With Song Chain: 256 bars)

- **Tempo**
♩ = 40 to 250

- **Level**
Voice Level: 0 to 5
Accent Level: 0 to 5

- **Drum Voices**

(DR-220A)

- [1] Bass Drum (BD)
- [2] Snare Drum (SD)
- [3] Closed Hi-hat (CH)
Open Hi-hat (OH)
- [4] Rim Shot (RIM)
Hand Clap (HCP)
- [5] Hi Tom (HT)
Mid Tom (MT)
Low Tom (LT)
- [6] Crash Cymbal (CCY)
Ride Cymbal (RCY)

(DR-220E)

- [1] Electronic Bass Drum (BD)
- [2] Electronic Snare Drum (SD)
- [3] Closed Hi-hat (CH)
Open Hi-hat (OH)
- [4] Cowbell (CB)
Slap (SLP)
- [5] Electronic Hi Tom (HT)
Electronic Mid Tom (MT)
Electronic Low Tom (LT)
- [6] China Cymbal (CHY)
Cup (CUP)

* The voices in the same number group cannot sound at the same time.

- **Display** × 1

- **Keys and Control**
Instrument Keys × 11
Accent/Enter Key
Number Keys (1 to 8)
Tempo Key
Level Key
Up Key
Down Key
Mode Key
Shift Key
Start Key
Stop/Continue Key
Total Volume Control

- **Power Switch** × 1

- **Jacks**

Output Jack (Standard phone)
Headphones Jack (Stereo, Mini)
Trigger Output Jack
(Mini/+5V, Max: 8ms)
Trigger Input Jack
(Mini/+5 to 15V pulse)
AC Adaptor Jack (PSA-120, 220 or 240)

- **Power Source**
6V (UM-3 × 4)/AC Adaptor PSA-120,
220 or 240 (9V)

- **Current Draw**
30mA

- **Dimensions**
239(W) × 75(D) × 31(H)mm
9-7/16 × 2-15/16 × 1-1/4

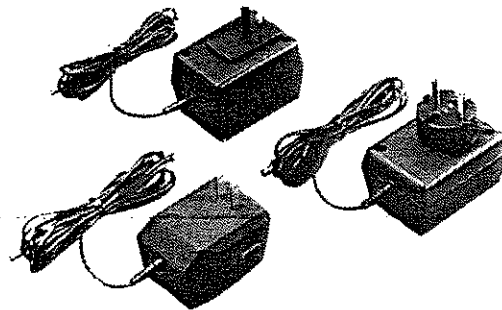
- **Weight**
350g/12 oz (with the batteries)

- **Accessories**
UM-3 dry cell batteries × 4
Original Case × 1

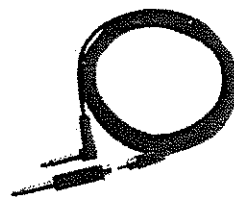
* Specifications are subject to change
without notice.

■ Options

- **AC Adaptor**
Boss PSA-120, 220 or 240



- **Connection Cord**
PJ-1



Pattern Memo

(DR-220A)

| | |
|-------------|--|
| PATTERN No. | |
|-------------|--|

| | |
|--------------|--|
| PATTERN NAME | |
|--------------|--|

| | |
|------|--|
| STEP | |
|------|--|

STEP 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

| | | | | | | | | | | | | | | | | |
|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| BD | | | | | | | | | | | | | | | | |
| SD | | | | | | | | | | | | | | | | |
| CH | | | | | | | | | | | | | | | | |
| OH | | | | | | | | | | | | | | | | |
| RIM | | | | | | | | | | | | | | | | |
| HCP | | | | | | | | | | | | | | | | |
| LT | | | | | | | | | | | | | | | | |
| MT | | | | | | | | | | | | | | | | |
| HT | | | | | | | | | | | | | | | | |
| RCY | | | | | | | | | | | | | | | | |
| CCY | | | | | | | | | | | | | | | | |
| ACC | | | | | | | | | | | | | | | | |

(DR-220E)

| | |
|-------------|--|
| PATTERN No. | |
|-------------|--|

| | |
|--------------|--|
| PATTERN NAME | |
|--------------|--|

| | |
|------|--|
| STEP | |
|------|--|

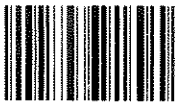
STEP 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

| | | | | | | | | | | | | | | | | |
|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| BD | | | | | | | | | | | | | | | | |
| SD | | | | | | | | | | | | | | | | |
| CH | | | | | | | | | | | | | | | | |
| OH | | | | | | | | | | | | | | | | |
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