SPECIFICATIONS

OUTPUT

DBS : +5 V (8 ms)  
CSQ : +4 V (10 ms)

VOICE : (at OUTPUT Jack, Power source 6 V)

VOLUME, TONE : at max.  
ACCENT : at min.

<table>
<thead>
<tr>
<th>Amplitude (Vpp)</th>
<th>Frequency (Hz)</th>
<th>Decay (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>min.</td>
<td>avr.</td>
<td>max.</td>
</tr>
<tr>
<td>BD</td>
<td>1.0</td>
<td>1.3</td>
</tr>
<tr>
<td>(16 ms)</td>
<td>(1330 ms)</td>
<td></td>
</tr>
<tr>
<td>RS</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>(noise)</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>(320 ms)</td>
<td>(100</td>
<td>100</td>
</tr>
<tr>
<td>SD</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>HH</td>
<td>1.2</td>
<td></td>
</tr>
</tbody>
</table>

POWER REQUIREMENTS -- 4.5 V-6.5 V. (Current draw 5.5 mA @6 V)

DIMENSIONS --------- 211 (W) x 116 (D) x 53 (H) mm

WEIGHT -------------- 850 g

LED TLR-124  
(019-028)

Knob no. 78  
(016-078)

Chassis no. 291  
(061-291)

Jack 30-8026  
(009-048)

Knob no. 77  
(016-077)

Switch SSB02335  
(001-183)

Knob no. 125  
(016-125)

Switch SSP-04205  
(001-293)

Switch SQPR24-12P  
(001-228)

* For the START and STOP switches, refer to the Parts List
Sleeve Nut No.2 3 x 16.4 mm (120-002)

Chassis No.290 (061-290)
Chassis No.291 removable screws (two at rear) 3 x 8 mm

Battery Connector w/strap (010-001)
Take caution against pinching leads between pc board and the nut.

Holder H55A (064H055)

Covers No.65 (065-065)

PCB RH-2 (150-002)

PCB removal screws 3 x 6 mm

Battery Case No.5C TH-1303/4B (012-050)

Rubber Foot Bush No.19 (068-019)

Jack (OUTPUT) HLJ-0235-01-030 (009-026)

Coin Screw 3 x 8 mm (123-014)

* See caution below when covering the PCB.

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* CAUTION: Do not lay jack leads over the PCB as shown in dotted line. Since high gain stage is located on that area, the leads will provide feedback loop.
WRITE MODE

Data (a) is written during this time.

CIRCUIT DESCRIPTION

The heading numbers of this circuit description correspond to those in the block diagram above.
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1 RS FLIP FLOP (2/4 IC3)

(a) PLAY Mode
When the START switch S5 is turned ON, the Q output goes to H and trig-
gers the Clock Generator (2). When the STOP switch S6 is turned ON, the
Q output goes to L and the Clock Generator stops oscillation. At this
time, the Q output goes to H and resets the Binary Counter (5)

(b) WRITE Mode
The Q output goes to H when S5 is turned ON, and goes to L when S6 is
turned ON. This condition is written in the Memory IC1 as a data.

2 CLOCK GENERATOR (2/4 IC3)
The frequency of this oscillator is controlled with TEMPO VR-5. This
oscillator functions in PLAY mode only, and feeds clock pulses to the
Counter (5)

3 SCHMITT TRIGGER (Q15, 17, 18)
This circuit functions in WRITE mode only. The collector of Q15 goes
H when either the START switch S5 or the STOP switch S6 is turned ON,
and goes to L when the switch set to ON is turned OFF.

4 DELAY CIRCUIT (Q16)
The output from the Schmitt circuit (3) is intergrated, and fed to the
base of Q16. Then the signal is trimmed to square wave at collector of
Q16. This output signal is differentiated and becomes pulses, and then
is applied to the R/W terminal of IC1.
The two pulses lag a little behind edges of Scmitt (3) output pulse.

5 DUAL BINARY COUNTER (IC2)
This circuit counts pulses from the clock generator (2) in PLAY mode,
and counts pulses from the Schmitt trigger (3) in WRITE mode, and then
outputs binary-coded signals from the terminals Q1-Q5; Q1-Q4 denote 16
steps composing each rhythm. Signal from Q5 is applied to A7 only when
the VARIATION switch is set to AB.
To the terminal A7, the L level voltage is given when the switch is set
to A and H when switch is set to B.
6  256 x 4 BIT CMOS MEMORY (IC1)

Reading/writing from/to this memory is as described below. The upper 3 bits designate rhythms 1-8, the next one bit designates VARIATION A and B, and the lower 4 bits 16 steps in one rhythm. In PLAY mode, the terminal CE2 is connected to the Clock generator output. The memory functions only when the clock is H, and outputs H's or L's from DO 1-4. (When the clock is L, DO 1-4 becomes high impedance.)

In WRITE mode, when the terminal R/~W becomes L, a data from the flip flop is written in one of DI 1-4 via S1. A previously stored data is rewritten from DO via R61-R64 to the remaining three DI's.

The Vcc of this memory chip is directly connected to the dry cells regardless of power switch positions, since the chip draws only a very slight idling current during stand-by. As a result, the data is guaranteed to be stored as long as the dry cells maintain voltage value higher than a specified level. The capacitor C39 (22 mfd.) connected to the terminal Vcc can substitute for the dry cells by its charge for several minutes when the cells are absent during replacement.

7  VOICE GENERATOR (Q1, 2, 3, 7, 8, 9, 10, 11)

BD, SD and RS are triggered by pulses from the respective DO's. HI HAT is triggered by pulses from the counter IC2 or the Clock generator IC3 by every step or every other step.

8  ACCENT (Q3)

Each sound source output is mixed and outputted through the resistor network in which Q3 is connected in parallel. When ACCENT pulse is outputted from DO 1, Q3 turned ON, and in this ON period the signal amplitude increases. The DO 1 pulse can be externally outputted through the CSQ jack. When this jack is engaged,
however, the ACCENT function of the DR-55 proper becomes invalid.
PARTS LIST
061-290 Chassis no.290 (panel)
061-291 Chassis no.291
061-292 Chassis no.292 (battery compartment lid)
111-019 Bush no.19 (rubber foot)
016-077 Knob no.77 TONE, ACCENT
016-078 Knob no.78 VOLUME, TEMPO
016-125 Knob no.125 RHYTHM SELECT

009-026 Jack HIw-0235-01-030 4"
009-048 Jack SG-8026 mini. DBS, CSQ

PCB
150-002 RH-2 (PCB 052-537)

SWITCH
001-183 SSB02335 slide HI HAT, VARIATION
001-228 SQR024-12F slide SOUND
001-293 SSF-02405 rotary RHYTHM SELECT
001-299-1 KED-10903-1 START
001-299-2 KED-10903-2 STOP cap and mark
*Cap and mark are available separately.

POTENTIOMETER
028-755 VML063C6C 1MA VR1 TONE
028-372 VML1R5M1411 10KA w/sw VR2 VOLUME
028-776 VML063C8C 500KC VR4 ACCENT
VR3 TEMPO-5/N up to 923500
028-777 VML063C8C 1MC VR3 with 5/N 923600
050-519 BVK44A00613 1K trimmer
050-522 BVK44A00684 50K 5/N up to 912800
050-521 BVK44A00684 10K

SEMICONDUCTOR
017-023 2SC945-F transistor
017-091 2SK30A -0 or -Y see circuit dia.FET
017-024 2SA733-F transistor
018-014 1S2473 or equiv. diode
019-028 TLR-124 red LED
020-030 TC-5501P-1 1024-bit CMOS RAM
020-081 CD-4011UB or TO4011UBP refer to circuit diagram
020-166 MX-14520P dual binary up counter

OTHERS
022-030 Choke coil no.30 45mH
120-002 Sleeve nut no.2 3 x 16.4 mm
064H55A Holder H55A potentiometer
012-050 Battery case TH-1303/4B
010-001 Battery connector w/strap
123-014 Screw 3x8mm battery compartment lid
107-04a Cushion no.59 battery
Cover (felt strip) slide switch
ADJUSTMENT & CHECKING

(For writing rhythm patterns, refer to page 4 of the DR-55 OWNER’s Manual.)

The waveforms in this page will be observed when DR-55 operates from 6 V dc and will vary with different supply voltages.

RS (Rim Shot) Check only

With panel controls set as below, write and reproduce RS sound.

- **RHYTHM SELECT:** 1
- **VOLUME:** MAX
- **TONEB:** MAX
- **ACCENT:** MIN
- **SOUND:** RS

AC (Accent)

(No need for the units with serial numbers 912900 and subsequent.)

While sounding RS in the same manner as above, set controls:

- **ACCENT:** MAX
- **VARIATION:** A
- **TEMPO:** MAX
- **SCOPE’s Time Base:** 0.5 ms
- **HI HAT:** OFF

Set MODE to PLAY.

Press START.

Set TEMPO for 100 ms DBS pulse interval.

Adjust VR-5 for 55 ms decay time.

HI HAT

Clear all the memories in BD, SD, and RS channels.

Set panel controls:

- **RHYTHM SELECT:** 1
- **VARIATION:** A
- **HI HAT:** 12-16
- **VOLUME:** MAX
- **ACCENT:** MIN

Press START.

Adjust VR-7 for 1.2 Vpp.

CSQ and DBS (observed at jacks)

SD (Snare Drum) check only

With the following settings, write into SD channel.

- **RHYTHM SELECT:** 1
- **VARIATION:** A
- **HI HAT:** OFF
- **VOLUME:** MAX
- **ACCENT:** MIN

Set MODE to PLAY.

Press START.

Minimize NOISE by turning VR-7.

Adjust TEMPO for 100 ms DBS pulse interval.

Check displayed waveform for the figure above.

BD (Bass Drum)

No adjustment is needed for the units with serial numbers 912900 and subsequent, just check.

With following settings, write pattern into DB channel.

- **RHYTHM SELECT:** 1
- **VOLUME:** MAX
- **MODE:** WRITE
- **SOUND:** BD

Set MODE to PLAY.

Press START.

Set TEMPO for 100 ms DBS pulse interval.

Adjust VR-6 for 55 ms decay time.

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