**DR-55 SERVICE NOTES**

**SPECIFICATIONS**

- **OUTPUT**
  - DBS: +5 V (8 ms)
  - CSQ: +1 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>RS</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>SD</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>HH</td>
<td>1.2</td>
<td>1.2</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

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*Sleeve Nut No.2 3 x 16.4 mm (120-002)*

*Battery Connector w/strap (010-001)*

*Take caution against pinching leads between PCB board and the nut.*

*Battery Case No.30 TH-183/4 (012-050)*

*Covers No.65 (065-065)*

*LED TLR-124 (013-028)*

*Knob no.125 (016-125)*

*Switch SDB02335 (001-183)*

*Chassis No.291 (061-291)*

*Jack S8-8026 (009-048)*

*Knob no.78 (016-078)*

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

*Coin Screw 3 x 8 mm (123-014)*

*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.*

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*For the START and STOP switches, refer to the Parts List*
**CIRCUIT DESCRIPTION**

The heading numbers of this circuit description correspond to those in the block diagram above.

Data (a) is written during this time.
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 triggers 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-3. 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 to 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 integrated, 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 Schmitt (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 C82 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 SLA 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. H1 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.294 (Battery compartment lid)
111-029 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 HLJ-0235-01-07C 1/4"
009-048 Jack SG-8026 mini. DSS, QSQ

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

SWITCH
001-183 SG2023F slide HI HAT, VARIATION
001-229 SG2024-12P slide SOUND
001-293 SP-0406F room? RHYTHM SELECT
001-299-1 K2D-10903 1 START assy w/ key top, 10903
001-299-2 K2D-10903 2 STOP cap and mark 10903 10902
*Cap and mark are available separately. 10903 10902
001-202 524 MU 1/4"

POTENTIOMETER
028-755 VM10RC39C 1NA VR1 TONE
028-772 VM11RSK141L 10KA w/ sw VR2 VOLUME 11410000
028-776 VM10RC39C 1NA VR4 ACCEnt
VR3 TEMPO 3/8/N up to 928500
028-777 VM10RC39C LM3 VR3 with 8/N 928600
030-519 BNN4AA000P 1K trimmer
030-522 BNN4AA0005 50K 8/N up to 912000
030-521 BNN4AA0004 10K

SEMI Conductor
017-023 2SD545-P transistor
017-091 2SK30A -0 or -I see circuit dia.FET
017-024 2SA733-P transistor
018-014 LS2475 or equiv. diode
019-028 TL1-124 red LED
020-034 VM5004 1024-bit CMOS RAM 4PS070C3:94
020-081 OB-201L14B or OB401L1UP
referred to circuit diagram
020-166 MC-14520P dual binary up counter

OTHERS
022-030 Choke coil no.30 45mH
120-002 Sleeve nut no.2 1 x 16.4 mm
064H55A Holder H55A potentiometer
012-050 Battery case TH-130/48
010-001 Battery connector w/ strap
125-014 Screw 3/8" battery compartment lid
Cushion no.38 battery
Cover (felt strap) slide switch
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  
**MODE:** WRITE  
**HI HAT:** OFF  
**TONB:** 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:

**RHYTHM SELECT:** 1  
**VOLUME:** MAX  
**MODE:** WRITE  
**HI HAT:** OFF  
**TONB:** MAX  
**SCOPE's Time Base:** 0.5 ms  
**ACCENT:** MAX  
**VARIATION:** A  
**TEMPO:** MAX

Turn VR-6 slowly -- in the direction AC increases-- until accentuated RS becomes double normal RS amplitude.

Note: Turning effect of VR-6 is delayed because of time constant in that circuit.

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**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.

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**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.

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CSQ and DBS (observed at jacks)

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**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  
**VARIATION:** A  
**HI HAT:** OFF  
**SOUND:** BD

Set **MODE** to **PLAY**.

Press **START**.

Set TEMPO for 100 ms DBS pulse interval.

Adjust VR-5 for 55 ms decay time.
<table>
<thead>
<tr>
<th>Page</th>
<th>WRONG 誤</th>
<th>CORRECT 正</th>
</tr>
</thead>
<tbody>
<tr>
<td>p.4</td>
<td>Please correct the parts number as following.</td>
<td>PARTS LIST SEMICONDUCTOR 020-030 TC-5501P-1 1024-bit CMOS RAM → 15179304</td>
</tr>
<tr>
<td></td>
<td>パーツナンバーを以下のように訂正して下さい。</td>
<td></td>
</tr>
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