

Introduction.

This manual was pieced together from rough scans from the synth-diy mailing list back in the eighties.

It's a bit rough and ready, but it's all I have. Feel free to share it. If there's any copyright left, it's probably owned by the Roland Corporation.

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Title

FEB. 21, 1980

DR-55

DR-55 SERVICE NOTES

SPECIFICATIONS

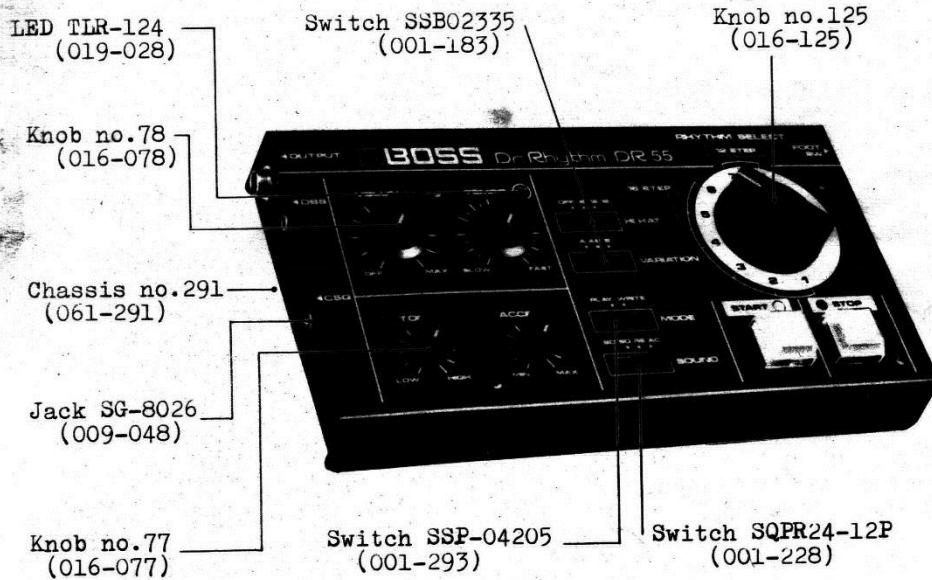
OUTPUT DBS : +5 V (8 ms) CSQ : +4 V (10 ms)
 VOICE : (at OUTPUT Jack, Power source 6 V)
 VOLUME, TONE : at max. ACCENT : at min.

	Amplitude (V _{pp})			Frequency (Hz)			Decay (ms)		
	min.	avr.	max.	min.	avr.	max.	min.	avr.	max.
BD	1.0	1.3	1.6	14	62 (16 ms)	18			
RS	0.7	0.9	1.2	0.65	0.75 (1330 ms)	0.85	5	7	10
SD (noise)	0.3	0.4 1.2	0.6	2.7	3.1 (320 ms)	3.5	55	75	100
HH		1.2					35	50	70

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



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

Roland

Printed in Japan AC2 1

Description 1

FEB. 21, 19801 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 \bar{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 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/ \bar{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.

Description 2

DR-55

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)

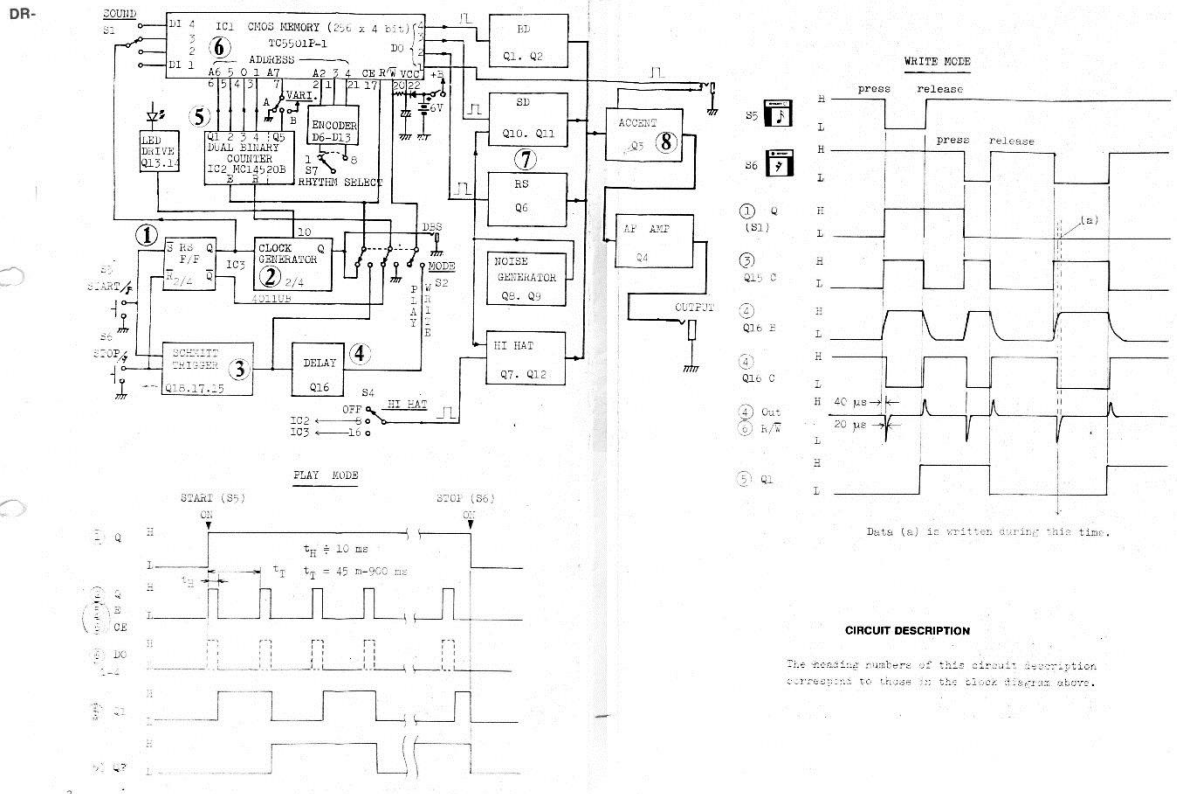
BD, SD and RS are triggered by pulses from the respective DO's. HAT is triggered by pulses from the counter IC2 or the Clock generator IC3 by every step or every other step.

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 pin. When this pin is engaged, however, the ACCENT function of the IC is invalid.

3

Block Diagram



PCB Layout

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 TUNE, ACCENT
- 016-078 Knob no.78 VOLUME, TEMPO
- 016-125 Knob no.125 RHYTHM SELECT
- 009-026 Jack HLW-0235-01-050 1" DBS, CSQ
- 009-048 Jack SQ-8026 mini. DBS, CSQ

PCB

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

SWITCH

- 001-183 S8802335 slide HI HAT, VARIATION
- 001-228 S4FR24-12F slide SOUND
- 001-233 S8F-0425 Pottery RHYTHM SELECT
- 001-299-1 KED-10903-1 SPART
- 001-299-2 KED-10903-2 STOP assy w/key top, cap and mark are available separately.

POTENTIOMETER

- 028-755 WM10C38C 1MA VR1 TUNE
- 028-772 WM11R5M1411 10KA w/sw VR2 VOLUME
- 028-776 WM10C38C 500KC VR4 ACCENT
- VR3 TEMPO--S/N up to 923500
- 028-777 WM10C38C 1MC VR3 with S/N 923600
- 070-519 EVNR44A00E13 1K trimmer
- 070-522 EVNR44A00E54 50K S/N up to 912800
- 070-521 EVNR44A00E14 10K

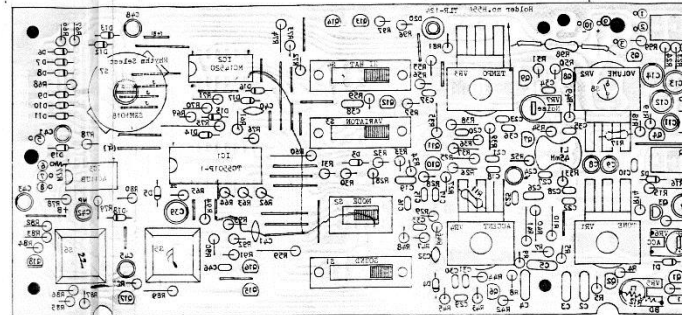
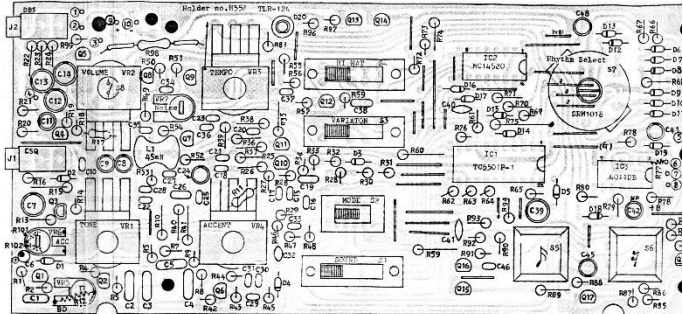
SEMICONDUCTOR

- 017-023 28C940-P transistor
- 017-091 28K30A -0 or -Y see circuit dia.FET
- 017-024 28A735-P transistor
- 018-014 18N475 or equiv. diode
- 019-028 TRN-104 red LED
- 020-050 TD-5501E-1 1024-bit CMOS RAM
- 020-081 CD-4011UEE or TC4011UEP refer to circuit diagram
- 020-166 NC-14920F dual binary up counter

OTHERS

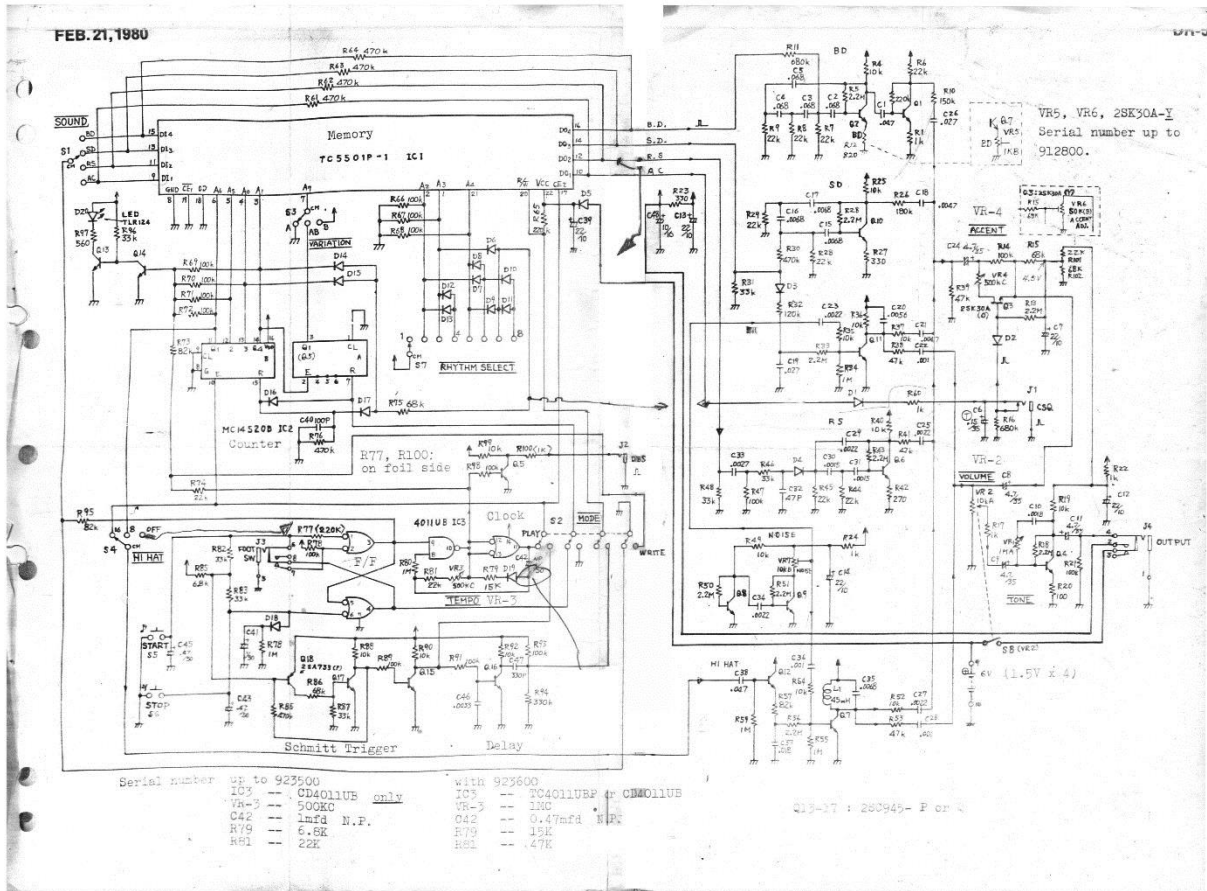
- 022-030 Shoke coil no.30 45mH
- 120-002 Sleeve nut no.2 3 x 16.4 mm
- 044R55A Holder H55A potentiometer
- 012-050 Battery case TH-1303/4B
- 010-001 Battery connector w/strap
- 113-014 Sorex 3x5mm battery compartment lid
- 107-059 Cushion no.09 battery
- Cover (felt strip) slide switch

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



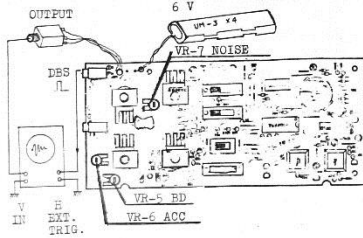
Boss DR-55 Schematics

Schematic



Adjustment & Checking

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

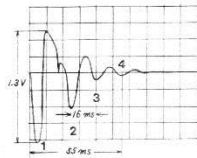


ED (Bass Drum)

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

With following settings, write pattern into DE channel.

RHYTHM SELECT: 1
 VARIATION: A
 HI HAT: OFF
 VOLUME: MAX
 MODE: WRITE
 SOUND: BD



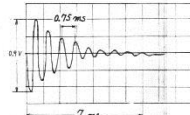
Set MODE to PLAY. Press START. Set TEMPO for 100 ms DBS pulse interval. Adjust VR-5 for 55 ms decay time.

The waveforms in this page will be observed when DR-55 operates from 6V 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
 HI HAT: OFF
 VOLUME: MAX
 TONE: MAX
 ACCENT: MIN
 SOUND: RS
 AC



AC (Accent)

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

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

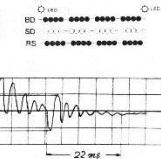
ACCENT: MAX VARIATION: A
 TEMPO: MAX SCOPE's Time Base: 0.5 ms
 HI HAT: OFF

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.

SD (VOLUME STUM) 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.

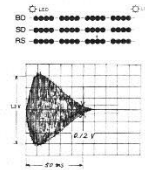
Adjust TEMPO for 100 ms DBS pulse interval. Check displayed waveform for the figure above.

HI HAT

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

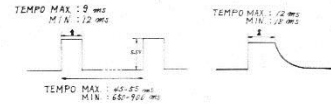
Set panel controls:

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)



Mechanical

