CR-68 SERVICE NOTES

SPECIFICATIONS

OUTPUT LEVEL  -------------------  OdBm max @ Vol. max  Accent min
OUTPUT IMPEDANCE  -------------------  Hi: 220k-ohm  Lo: 10k-ohm
TRIGGER PULSE OUTPUT  -------------------  On: +15V  Off: 0V
POWER CONSUMPTION  -------------------  8 watts
DIMENSIONS  -------------------  260(W) x 275(D) x 180(H)mm
WEIGHT  -------------------  4.5kg

** Note that there are two versions of SLR322: upward throw and downward throw

- Pot. EVHCOAP25B54 (026-023)
- Knob no.44 (016-044)
- Panel no.240 (072-240)
- Switch SDG5p (001-217)
- Knob no.81 (016-081)
- Switch no.273
- LED SLP-1318 (019-013)
- Switch SUP-6-2 (001-236)
- Switch SUP-B-2 (001-240)
- Switch SRA101B (001-229)
- Switch SRA101B (001-229)
- Base no.20(foot) (111-020)
- Nameplate (076-356)
- Cabinet Removal Screws 4x20mm oval
- Switch HSW-0372-01-030 (001-206)
- Jacks 307622 (009-012)

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When a negative-going pulse is sent out from the output of an IC while reading switch positions, the pulse is inverted by an IC and this inverted positive pulse is fed to Pin 10 of IC4. Since pin 9 of IC4 is held high, a negative-going pulse is sent out from pin 8 of IC4 and fed into Port 1 through D09. Thus, the computer detects that a manual button has been pressed. Immediately after reading, the computer sends out a negative-going pulse from pin 8 of IC4 to reset RS flip-flop. To prevent malfunction, this pulse (after inversion by IC2a) and a pulse from AL2 of IC10 are used to produce a reset pulse. See Fig. 2.

4. CLOCK GENERATOR IC3A, IC3B

This circuit, a clock generator from which pulses are emitted to synchronize the operations carried out by the computer, is a CMOS oscillator consisting of IC5A, IC5B, and other components. The oscillator generates clock signals of about 1MHz which are fed to X11 pin of IC10.

5. MASTER OSCILLATOR IC1Q, IC1Q2

This oscillator determines the tempo of the rhythm and is a multivibrator consisting of IC1Q, IC1Q2, and other components. The oscillation period is variable from 100ms - 200ms with TEMPO control TR6B.

6. START CIRCUIT IC8B, IC1A - IC1D, IC2B

This circuit consists of IC8B (3 flip-flop) and other components. The output "W" on pin 1 of IC8B is connected to T1 of IC1D.

Immediately after power switch is turned on OR a short positive-going pulse with the time constant of RC2 and IC8B is fed to pin 11 of IC1D and resets IC8B. Since pin 11 goes low and pin 2 goes high, consequently, when power switch is set to ON, IC8B is always a pulse with a duration of about 20ms which resets the master oscillator when the rhythm starts. See Fig. 3.

7. PORT SWITCH CIRCUIT IC10 - IC13

The foot switch circuit for START/STOP consisting of IC10A, IC11A, IC12A, and other components, is almost the same circuit. A time constant circuit combined with a schmitt trigger circuit is used to prevent malfunction caused by foot switch chattering.
Fig. 3

RHYTHM START TIMING DIAGRAM

Fig. 4

START/STOP ON

MASTER OSC

FREQUENCY DIVIDING
TIMING DIAGRAM

Fig. 2

VARIFICATION ON

START/STOP ON

RHYTHM STARTS

Fig. 5

RHYTHM PATTERN LATCH

Refer to the function table on page 1
Portions of pattern not shown remain unchanged.

Both GL-10A and GL-10B correspond to the same circuit diagram, since some components are attached on the foil side or connected in series in the form of pyramid on GL-10A and accommodated on GL-10B in place.

**CAUTION:** Always handle MOS ICs while wearing an earth grounded wristband to prevent failure of ICs due to electrostatic discharge. All test equipment must also be earth grounded.

**RHYTHM TEMPO ADJUSTMENT**

1. Connect scope to Q102 collector (Master Oscillator).
2. Turn TEMPO knob full clockwise (QUICK).
3. Adjust VR1 for 10ms between fall or rise of squares.
4. Turn TEMPO knob full counterclockwise (SLOW).
5. Turn VR3 in the direction in which the period becomes shorter than 200ms. Stop, then rotate VR3 slowly in the reverse direction until the period is 200ms.
6. Repeat steps 3 and 4.

10msec (QUICK)
200msec (SLOW)

If bottom portion is insufficiently saturated, replace Q101 and Q102 with a new pair of the same rank.
CHECK & ADJUSTMENT

The switch MS (keyboard switch is preferable) serves as a gate to supply negative going pulse for triggering individual voice circuit since individual pulses are not available from the computer respectively.

SCOPE CONNECTION

1 through 11: as illustrated
Q13, Q14 : V IN -- to collector. H -- Internal TRIG with proper time base.

<table>
<thead>
<tr>
<th>VOICE to be adjusted</th>
<th>Connect scope to</th>
<th>FREQUENCY</th>
<th>DECRY TIME</th>
<th>AMPLITUDE</th>
<th>BALANCE set at</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASS DRUM 1</td>
<td>VR7</td>
<td>16</td>
<td>62.5</td>
<td>VR8</td>
<td>100</td>
</tr>
<tr>
<td>LOW CONGA 2</td>
<td>VR5</td>
<td>4.8</td>
<td>208</td>
<td>VR6</td>
<td>100</td>
</tr>
<tr>
<td>LOW BONGO 3</td>
<td>VR3</td>
<td>2.5</td>
<td>400</td>
<td>VR4</td>
<td>40</td>
</tr>
<tr>
<td>HIG H BONGO 4</td>
<td>VR1</td>
<td>1.66</td>
<td>600</td>
<td>VR2</td>
<td>40</td>
</tr>
<tr>
<td>COW BELL H Q13 C</td>
<td>VR9</td>
<td>1.25</td>
<td>800</td>
<td>V IN from</td>
<td>shift scope V IN from</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>VOLUME, H IN to Internal</td>
<td></td>
</tr>
<tr>
<td>COW BELL L Q14 C</td>
<td>VR10</td>
<td>1.8</td>
<td>555</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COW BELL 5</td>
<td>restore scope connection to previous</td>
<td>*</td>
<td>60</td>
<td>*</td>
<td>0.5</td>
</tr>
<tr>
<td>RIM SHOT 6</td>
<td>C9</td>
<td>0.676</td>
<td>1,480</td>
<td>*</td>
<td>5</td>
</tr>
<tr>
<td>CLAVES 7</td>
<td>C4</td>
<td>0.36</td>
<td>2,630</td>
<td>*</td>
<td>18</td>
</tr>
<tr>
<td>MARACAS 8</td>
<td>adjusting VR12 on any one voice makes all</td>
<td>*</td>
<td>18</td>
<td>VR12</td>
<td>1.5</td>
</tr>
<tr>
<td>HI-HAT 9</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td>50</td>
</tr>
<tr>
<td>CYMBAL 10</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td>250</td>
</tr>
<tr>
<td>SNARE DRUM 11</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td>60</td>
</tr>
</tbody>
</table>

Figures in the table show factory standard and may be slightly deviated for personal taste or to meet frequency response of an amplifier being used.