SYSTEM 100M SERVICE NOTES

First Edition

Parts are designated in new numbering (8-10 digites) and/or Old (6 digits).
"R" meaning abbreviate new number stands for RSW.
When ordering replacement, use "No." for only old one.
Each figure, 0-11 at lower line in ① - ⑪ indicates part per module.

![Diagram of SYSTEM 100M](image)

Cover No.122 (2201012200) Binding head 3 x 6mm Fe

Holder No.189 (2216018900)
Self tapping screw 3 x 6mm Ht, Fe, On

Knob No.127 (2247012700)
M-131
M-102 only

Nail head binding 5 x 35mm Hr
E 1 Binding 3 x 6mm Hr

Side panel

Left Right

No.55 (085-255)

DIN socket 6F

Panel No.190 (072-235)
M-190J only

Jack MN-190J-1-2 (13449002)

Panel No.190s No.231 (072-235)
M-190J No.234 (072-234)

Twin pin jack P-25(2-4)
(005-218)

Chassis
M-190: No.222 (061-222)
M-191: No.221 (061-221)

Jack EH-102-114 (13449114)

Jack EH-102-114 (13449114)

LED
LB-0601R (019-020)

Switch SL-822-12P(A) (13139130)
Panel No.223 (072-225)

Bus No.4 (029-022)

Power switch
B50P-P-001-1 (13129102) 100V
B50P-P-001-2 (13129102) 110V
B50P-P-002 (13129103) 220/240V

Top cover No.205 (069-205)
Cabinet No.122 (061-122)
Bezel No.244 (072-244)
Key assembly SR-132E (004005)

Cabinet No.135 (051-155)
Panel No.241 (072-241)

Top cover No.206 (065-206)

CHASSIS SPEC (061-065)

Contact Leaf (061-065)
Spacer (061-065)
P03 SP03 065-066

Contact Leaf Holder (061-065)
Contact Holder (061-065)

Bus Bar (062-132) (071803)
Bus Bar (062-133) (071804)

Printed in Japan AE-2

Roland
ADJUSTMENT

For M-120 and M-121, see pps. 16-17.

The following precautions should be kept in mind before starting adjustment on M-120 and M-121.

1. Leave the test and testing equipments turned on for 20-30 minutes as a warmup period.
2. Keep room at a normal and constant operating temperature.
3. Check keyboard ECV or reference voltage for 1V/6t (glab).

Trimpot designations are independent of those on circuit diagrams.

Connect digital voltmeter to E9 or E16 lead.
1. Set VR1 around its midpoint.
2. Adjust VR2 for 10V reading.

[Diagram showing connections and adjustments]

(2) - WIDTH, FREQUENCY -
Set VR6 and VR4 around the midpoint.
1. While pressing LV key (M-120 G2 key with TRANSPOSE set in L2, M-121 G1 key), adjust VR4 for 111 linear (WIDTH).
2. With 2V key holding down, adjust VR5 for motionless waveform.
3. Repeat steps 1 and 2 until waveforms are still.
   Tolerance at 2V key: cycle/5s (0.2Hz).
4. Pressing 5V key, look linear with VR3, L(10Hz) (LINEMATY) (M-120: G4, TRANSPOSE H)
   Turning VR3 will affect previous adjustments in this section. Repeat from step 1.
   Tolerance: 1Hz at 47 key.

(3) - RANGE - fine
Keep LV key pressed down.
While continuously rotating RANGE knob across full travel range, adjust VR1 for the least detune at every RANGE setting.

(4) - TRIANGULAR -
VOO OUT switch: √
With 2V key holding down, adjust VR5 for straightness.

(5) - RECTANGULAR -
Set MANUAL to 50% (O).
While pressing 2V key, adjust VRF for 50% duty ratio.
Set MANUAL to MIN (10).
While pressing 2V key, adjust VRF for 10% duty ratio.

[Diagram showing connections and adjustments]

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   Turning VR3 will affect previous adjustments in this section. Repeat from step 1.
   Tolerance: 1Hz at 47 key.

(1) - WIDTH -
Make sure that VCF oscillates when R88 knob is set around 7-8th line.
While quickly playing 2V and 3V keys alternately, adjust VR1 for waveforms 1½ in frequency.

Adjust VR2 for 20kHz (50ms).
**SYSTEM 100M**

**M-110**

- M-110B, M-111B, M-111, M-111B, M-111B

**M-130**

- M-130B, M-130B, M-130B, M-130B, M-130B

**VCA**

1. Adjust VR2 for 0dBm reading
2. Check signal for leakage with INITIAL GAIN set at POW (0).

**PEAK INDICATOR**

- With MASTER VOL set C2W, advance MIXING LEVEL to
- 8. LEDs will come on -
- MONO, then R or L (depends on PANPOT position).

**M-131**

- OUTPUT LEVEL

**STANDARD OSC**

1. Set PFRQ in 440Hz.
2. Set MASTER VOL and MIX
3. LEVEL for proper level.
4. Turn 11 with nonferrous metal tool for 111 Lissajous.

**MIXER-1, 2**

- OVERLOAD INDICATOR -
- Check that LEDs light respectively under the following settings.

**VOLTAGE PROCESSOR**

1. Set +OUT slider at +10.
2. Adjust VR11 for 10.45g/10V.
3. Set -OUT slider at -10.
4. Adjust VR12 for -10g/10V.

**NOISE**

1. Set VR1 for 16V p-p.

**RING MODULATOR**

(1) - SIGNAL BALANCE -

Insert short circuit plug into KX1 SIG X jack to place a ground to the jack circuit.
Adapts VR2 for minimum RMS OUT.

(2) - MODULATION BALANCE -

Connect KX1 SIG X to LFO OUT.

Adjust VR3 for distortion free output.
Modulated waveform doubles the input in frequency.

**M-140**

- M-140A, M-140B, M-140B, M-140B, M-140B

**M-150**

- M-150A, M-150B, M-150B, M-150B, M-150B

**LFO**

(1) - FREQUENCY -
- Adjust VR1 for 50Hz (50ms).

(2) - AMPLITUDE -
- Adjust VR2 for 10V p-p.

Change WAVEFORM to SAWTOOTH.

(3) - SAWTOOTH -
- Adjust VR3 for straightness.

**DEB. 15, 1980**
PHASE SHIFTER
- **SHIFT FREQUENCY** -

3. Rotate VR1. POW to/from PCOW; level of PHASE SHIFTER output will decrease to minimum three times per full rotation.
2. Stop the rotation at the 2nd, and fine-tune VR1 for the minimum waveform level.

AUDIO DELAY

(1) - **CLOCK** -
Connect scope to TP-1. Adjust VR2 for 20mV/cycle.

(2) - **END OUTPUT BALANCE** -
Connect scope to TP-2. Adjust VR3 for smooth envelope.

(3) - **END DIAB** -
Connect scope to AUDIO DELAY SIG OUT. Advance audio generator level control until some distortion occurs.
Free waveform from distortion by turning VR4.

LFO
Check LFO OUTs (A,B) for the following:
Frequency shifts 0.04Hz-10Hz as FREQUENCY advances.
Amplitude varies with frequency.
10V p-p at 0.04Hz
400mV p-p at 10Hz
Waveforms from OUT A and B are 180° out of phase with each other.

GATE DELAY

(1) - **THRESHOLD** -
Check that GATE OUT provides +15V in the following input levels and settings:
input +50mV to +10V . . . THRESHOLD PCOW
input +2V to +6V . . . THRESHOLD POW

(2) - **DELAY TIME & GATE TIMES** -
Lengths of DELAY TIME and GATE TIMES are as follows:
<table>
<thead>
<tr>
<th>DELAY TIME</th>
<th>GATE TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>POW (10)</td>
<td>6s</td>
</tr>
<tr>
<td>POW (10)</td>
<td>6s</td>
</tr>
</tbody>
</table>

GATE

(1) - **TEMPO** -
Set controls as illustrated at left.

(2) - **LED ON/OFF TIMING** -
With TEMPO at "0", a LED stays on for 7 seconds before the next LED lights.
With TEMPO at "5", LED lighting duration is approximately 0.5 seconds.

(3) - **DUTY CYCLE** -
Keep initial settings shown above.
Turn GATE TIME POW.
Adjust VR3 for 90±2% duty ratio.
Reverse GATE TIME (POW).
1. Adjust TEMPO to display one cycle of waveform across ten divisions on graticule.
2. Check that duty ratio is 8-12%.
Set GATE TIME at "4".
Check that duty ratio is 50%.
ADJUSTMENT

TUNING
Connect voltmeter into CV OUT.

1. WIDTH
   a. While pressing C2 (M-180), note the reading. Call this Vx.
   b. While pressing C3 (N-181), adjust VR-3 for Vx + 1V.
   c. Check that adjacent keys are in 1V/1st relation.

2. SHIFT
   While pressing C2 (M-180) key, set VR-4 for 3V reading.
   3V
   Check:
   F2 = 4416V (M-180)
   C2 = 22V
   C3 = 5V
   C4 = 47V
   C5 = 5V (N-181)

3. TUNABLE RANGE
   CV should lower by 0.5V when TUNABLE VR-2 is turned from 0 to POw, and
   should rise by 0.5V when VR-2 turned from POw to 0.

4. TRANSPOSE
   CV should vary by 1V when TRANSPOSE is set from M position to L or R.

5. PORTAMENTO
   (M-181 - N-181 on - )
   Turn PORTAMENTO fully clockwise.
   a. Press the lowest key, then the uppermost key. The time required for
      CV to reach the voltage specified
      by the key is 256.
   b. Reverse the above key pressing order.
      The time is also 256.

FOR KEY DESIGNATIONS, SEE P. 12.