Service Manual

TABLE OF CONTENTS

Specifications ........................................... 1
Exploded view ........................................... 2
Selftest procedure ....................................... 3
Cassette adjustments .................................... 5
Electrical diagrams ...................................... 6
Print layout ............................................. 8
Oscillograms ........................................... 9
Electrical parts list ..................................... 9
SPECIFICATIONS

Synthesizer:
Synthesizer chip: 6 melody and 5 rhythm tracks
Microprocessor/controller: type 6803
ROM: 32 Kbytes
RAM: 8 Kbytes
Upper frequency: 16KHz +/−3dB
S/N ratio: 50dB

Tape section:
PLAY: bandwidth 60Hz–10KHz +/−3dB
distortion 2%
S/N ratio 50dB
RECORD: bandwidth 60Hz–8KHz +3dB −8dB
distortion 5%
S/N ratio −3dB

Connections:
3.5mm mini–jack stereo output socket,
100mW RMS into 32Ω,
3.5mm mini–jack stereo microphone socket,
sensitivity 60dB, impedance 600Ω,
bandswidth 20Hz–10KHz;
9V DC input for centre negative plug.

Rated
Voltage:
9V DC nominal, 6 * 1.5V R6 batteries (penlight); AC Adaptor ACC01/02/03 9V 500mA regulated
− nominal continuous rating.

Power Consumption:
Synthesizer: 2.25W
Tape section: 0.63W
Peak load: 7.20W

Battery life (with LR6, size AA):
Synthesizer: 4.5 hours
Tape record: 18.0 hours
Tape play: 25.0 hours

Dimensions (W/D/H):
220mm x 190mm x 40mm

Weight:
715g excluding batteries

PARTS LIST EXPLODED VIEW

1 4822 443 62633  Cassette door
2 4822 242 30166  Microphone
3 4822 290 30298  Battery contact
4 4822 349 50328  Tape counter
6 4822 358 30887  Counter drive belt
7 4822 267 30997  Headphones socket
8 4822 267 30998  Microphone socket
9 4822 277 21272  Microphone on/off switch
11 4822 277 30896  Record/Playback switch
12 4822 249 10375  Record/Playback head
13 4822 528 70553  Pinch roller with holder
14 4822 361 21175  Motor
16 4822 691 20488  Cassette mechanism
17 4822 358 30888  Cassette drive belt
18 4822 443 51145  Bottom housing
19 4822 443 62632  Battery door
21 4822 130 90608  LCD display
22 4822 218 30456  LCD driver panel
23 4822 413 41482  Volume knob
24 4822 101 20995  Volume potentiometer
26 4822 277 21271  Audio/Data switch
27 4822 277 21269  On/Off switch
28 4822 267 30998  Power supply socket
29 4822 410 26812  Actuator for pos. 26 and 27
31 4822 454 20886  Ornamental plate
32 4822 410 26813  Cassette keys
PMC100 SELFTEST PROCEDURE

The PMC100 has a built-in selftest program, to check memory, keyboard, switches, display, synthesizer and cassette recorder.

The test procedure is started by keeping both the bottom left and bottom right keys on the control keypad pressed (pos. 45 in Fig 1: NOTE/REST VALUE KEYS) and then switching on the synthesizer (pos. 6 in Fig 1: SYNTH ON/OFF).

Any running test is stopped when the START/STOP key (pos. 20 in Fig 1) is pressed, and the next test is started immediately.

The test procedure consists of the following steps:

RAM test:
1. First, a RAM test is performed. This takes about 1s. If the RAM test is unsuccessful, the message "Err" is displayed in the numeric segment area (pos. 19A in Fig 1).

LCD test:
2. If the RAM test is successful, all the LCD segments are switched on, see Fig 2. Then any key should be pressed.
Fig. 2

1. All the LCD segments start blinking. Any key should be pressed.

2. All the LCD segments stop blinking, but remain on. Any key should be pressed.

3. All the LCD segments are switched off, and then each segment is sequentially switched on and off, one at a time. The time for this test is approx. 41s. If the START/STOP key (pos. 20 Fig 1) is pressed this test sequence is stopped.

Keyboard test:

4. The number "56" is displayed on the LCD (pos 19A in Fig 1). This indicates the number of keys that remain to be pressed to complete the keyboard test. Each time a key is pressed, the number is decremented by 1. The keys do not have to be pressed in a specific order. The only rule is that the START/STOP key is pressed last. Pressing the START/STOP key at any time during the keyboard test terminates the keyboard test, and continues with the sound test.

Sound test:

5. When all the keys have been pressed or START/STOP has been used to terminate the keyboard test, the sound test is performed. All five drum sounds are played in order (Bass Drum, Snare Drum, Tom Drum, Ride Cymbal, Closed Hi-hat). The drums continue to play in this order until any key is pressed.

6. A 1KHz sinewave is played. The amplitude is about 2V_{pp} at the headphones output (ref. left channel; the right channel has lower volume for synthesizer voices, but higher volume for drums). This signal is also used as reference signal for the measuring of oscillograms. Any key should be pressed.

7. Six tones of ascending frequency are played. Each tone uses a different sound channel on the music IC. Only one tone is played at one time. If six tones do not sound, the sound chip (IC7 = YM1923B) is defective. Any key should be pressed.

8. A tape out signal is generated. This is a 2KHz square wave. The AUDIO/DATA switch (pos. 7 in Fig 1) must be in the DATA position. The signal is not sent to the headphones output. Any key should be pressed.

9. The normal PMC100 software is executed allowing the digital (DATA) tape functions to be tested. The bypacked data cassette (or any other cassette containing digital data for the PMC100) should be inserted and rewound. The AUDIO/DATA switch should be in the DATA position.
   - Press the "TAPE" key (pos. 28). The "LOAD" segment starts blinking, and the "SAVE" and "VERIFY" segments are switched on.
   - Press the "ENTER" key (pos. 21). The "LOAD" segment stops blinking, but remains on, and the "SAVE" and "VERIFY" segments are switched off. The "CONFIRM" segment starts blinking.
   - Press the "YES/CURSOR LEFT" key (pos. 31).
   - Press the "PLAY" key (pos. 2) on the cassette unit. After a few seconds, a number is displayed on the LCD. The first one or two digit positions are blinking. The last two digits (the number of data blocks on tape) count down to 0. If the message "Err" is displayed on the LCD, the load was not successful.

CS 18 325
# PMC100 CASSETTE ADJUSTMENTS

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Cassette</th>
<th>Measure position</th>
<th>Read on</th>
<th>Adjust with</th>
<th>Adjust to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tape speed</td>
<td>3150 Hz of SBC420**</td>
<td>PLAY</td>
<td>Headph. output socket</td>
<td>VR1 on main panel</td>
<td>*</td>
</tr>
<tr>
<td>Azimuth R/PB head</td>
<td>8 KHz of SBC420**</td>
<td>PLAY</td>
<td>Headph. output socket</td>
<td>R. screw P/PB head eras. side***</td>
<td>Maximum output</td>
</tr>
<tr>
<td>Bias frequency</td>
<td>-</td>
<td>RECORD</td>
<td>R/PB head</td>
<td>osc.-scope</td>
<td>L4 85 KHz +/-5%</td>
</tr>
<tr>
<td>Bias amplitude</td>
<td>-</td>
<td>RECORD</td>
<td>C53/C54</td>
<td>osc.-scope</td>
<td>L4 68V&lt;sub&gt;op&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

* The maximum permissible speed deviation is 2%. Moreover the wow and flutter can be read, this value should not exceed 0.3%.

** SBC420: 4822 397 30071

*** Azimuth to be adjusted with cassette door removed. Open door, press left and right sides to unlock and pull out door. see Fig 3.

![Fig. 3](image-url)
CASSette Circuit

Voltages are measured in respect of earth, direct after switch-on. In this position no sound may be audible.

Circuit drawn
in position
Audio and Recording

Oscillograms are measured
with input test signal
and maximum volume.
For measuring oscillograms, reference is made to the SELFTEST PROCEDURE text, point 8 (1KHz sinewave).

ELECTRICAL PARTS LIST

<table>
<thead>
<tr>
<th>Part</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D 1</td>
<td>4822 130 80847</td>
<td>1N4001</td>
</tr>
<tr>
<td>D 2</td>
<td>4822 130 80847</td>
<td>1N4001</td>
</tr>
<tr>
<td>IC 1</td>
<td>5322 209 83002</td>
<td>TDA2822M</td>
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<tr>
<td>IC 2</td>
<td>4822 209 80587</td>
<td>LM324N</td>
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<td>IC 3</td>
<td>4822 209 70997</td>
<td>AN7312</td>
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<tr>
<td>IC 7</td>
<td>4822 209 73759</td>
<td>MS1823</td>
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<tr>
<td>IC13</td>
<td>4822 209 73723</td>
<td>AN6651</td>
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<td>TR 1</td>
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<td>ED1702N</td>
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<td>TR 2</td>
<td>5322 130 40418</td>
<td>2N3704</td>
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<tr>
<td>ZD 1</td>
<td>4822 130 81107</td>
<td>ZENER DIODE 7V5</td>
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</tbody>
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