

Service
Service
Service



44 327 A11

Service Manual

TABLE OF CONTENTS

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

Documentation Technique Service Dokumentation Documentazione di Servizio Huolto-Ohje Manual de Servicio Manual de Servicio



*Pour votre sécurité, ces documents
doivent être utilisés par des spécia-
listes agréés, seuls habilités à réparer
votre appareil en panne.*

Subject to modification
4822 727 16383
Printed in The Netherlands

PHILIPS

Published by
Service Consumer Electron
CS 18 321

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 -39dB

Connections:

3.5mm mini-jack stereo output socket,
100mW RMS into 32Ω;
3.5mm mini-jack stereo microphone socket,
sensitivity 60dB, impedance 600Ω,
bandwidth 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

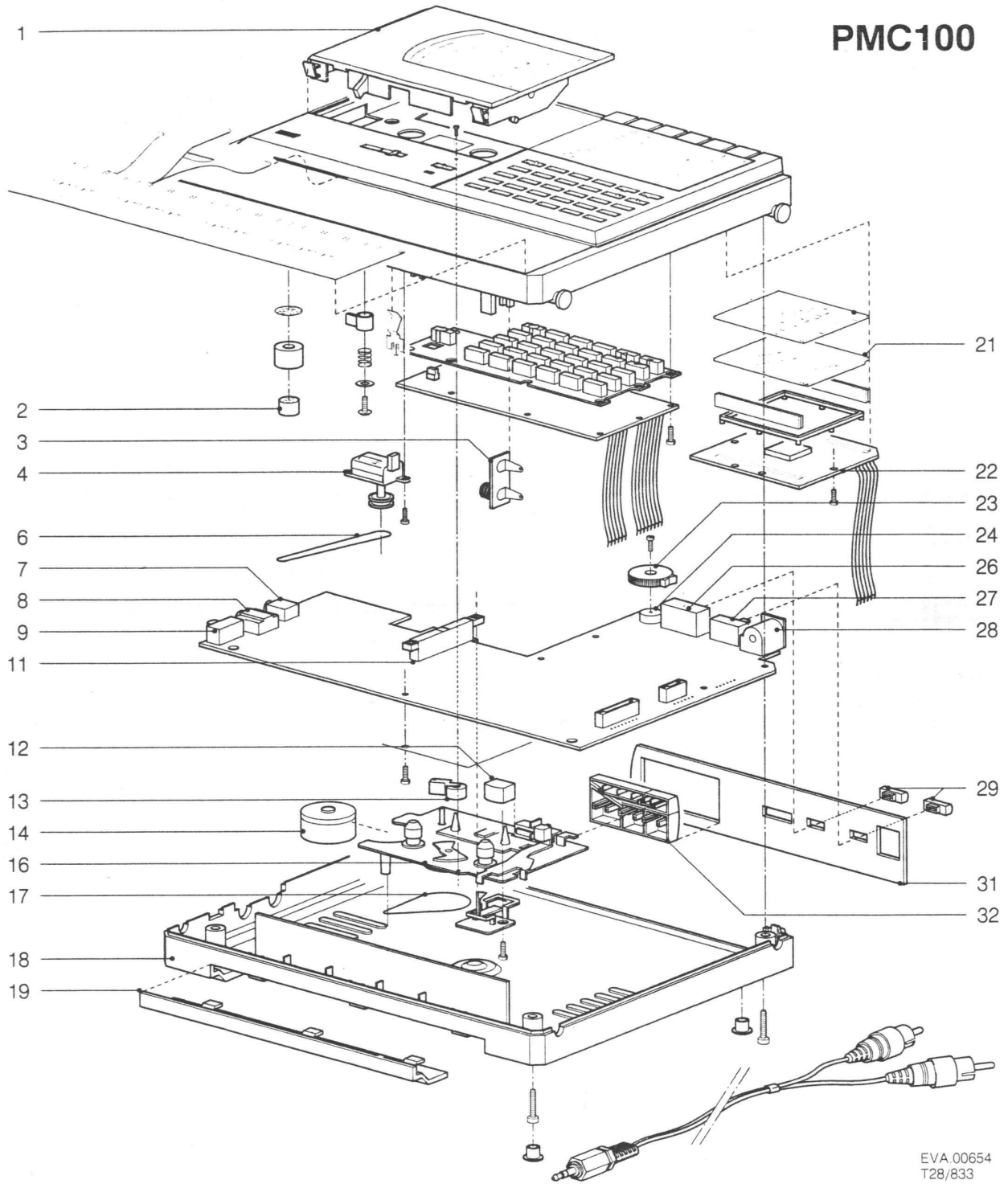
Weight:

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 30996	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



EVA.00654
T28/833

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. 8 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.

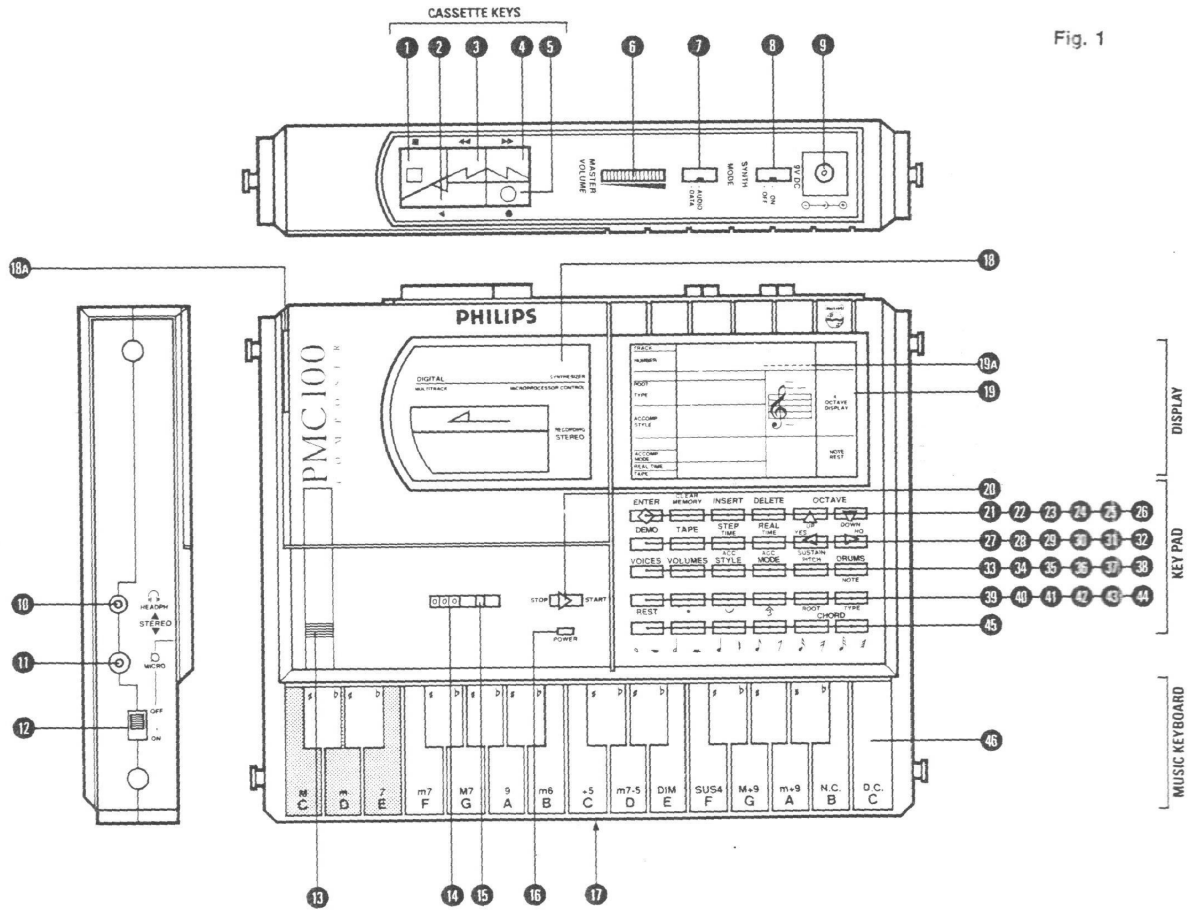


Fig. 1

- | | | | |
|--|--|---|--|
| <ul style="list-style-type: none"> 1 STOP 2 PLAY 3 FAST FORWARD 4 REWIND 5 RECORD 6 MASTER VOLUME CONTROL 7 AUDIO/DATA SWITCH 8 SYNTH ON/OFF SWITCH 9 DC SOCKET 10 STEREO OUTPUT SOCKET 11 STEREO MICROPHONE SOCKET 12 MICROPHONE ON/OFF SWITCH 13 MICROPHONE 14 TAPE COUNTER 15 COUNTER RESET BUTTON 16 POWER - POWER LOW INDICATOR 17 BATTERY COMPARTMENT | <p>CASSETTE KEYS</p> <ul style="list-style-type: none"> 18 CASSETTE DOOR 19A CASSETTE DOOR SIDE LIP 19 LCD DISPLAY 19A DIGITAL DISPLAY SECTION 20 STOP/START KEY 21 ENTER 22 CLEAR MEMORY 23 INSERT 24 DELETE 25 UP SCROLLING / OCTAVE SHIFT UP 26 DOWN SCROLLING / OCTAVE SHIFT DOWN 27 LEFT SCROLLING / YES (CONFIRM) 28 RIGHT SCROLLING / NO (CONFIRM) 29 DEMO 30 TAPE 31 STEPTIME 32 REALTIME | <p>PERFORMANCE KEYS</p> <ul style="list-style-type: none"> 33 VOICES 34 VOLUMES 35 ACCOMPANIMENT STYLE 36 ACCOMPANIMENT MODE 37 SUSTAIN/PITCH 38 DRUMS <p>COMMAND KEYS</p> <ul style="list-style-type: none"> 39 ENTER 40 CLEAR MEMORY 41 INSERT 42 DELETE <p>CONTROL KEYS</p> <ul style="list-style-type: none"> 43 UP SCROLLING / OCTAVE SHIFT UP 44 DOWN SCROLLING / OCTAVE SHIFT DOWN 45 LEFT SCROLLING / YES (CONFIRM) 46 RIGHT SCROLLING / NO (CONFIRM) <p>MODE KEYS</p> <ul style="list-style-type: none"> 47 DEMO 48 TAPE 49 STEPTIME 50 REALTIME | <p>DISPLAY</p> <ul style="list-style-type: none"> 19A 19 <p>KEYPAD</p> <ul style="list-style-type: none"> 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 <p>MUSIC KEYBOARD</p> <ul style="list-style-type: none"> 45 46 <p>CHORD KEYS</p> <ul style="list-style-type: none"> 39 40 41 42 43 <p>NOTE/REST KEYS</p> <ul style="list-style-type: none"> 44 45 |
|--|--|---|--|

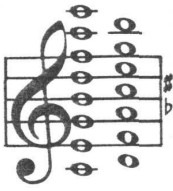

TRACK NUMBER	MEL ACC1 ACC2 ACC3 ACC4 BASS STEP VOLUME VOICE TEMPO DEMO TRANPOSE TUNE + -	1288	
ROOT TYPE	SUSTAIN C D E F G A B # b M m 7 m7 M7 6 m6 +5 m7-5 DIM SUS4 M+9 m+9 N.C.		4 OCTAVE DISPLAY
ACCOMP STYLE	SLOW ROCK BALLAD SWING MARCH COUNTRY WALTZ DISCO FUNK ROCK 'N' ROLL POP REGGAE LATIN USER		NOTE REST
ACCOMP MODE	STEPTIME INSERT ARRANGED VARISTRUM SUSTAINED OFF		
REAL TIME TAPE	GLING SUPERGLING PROMODE LOAD SAVE VERIFY CONFIRM		

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:

3. 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:

7. 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.
8. 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.
9. 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 = YM1823B) is defective. Any key should be pressed.

Cassette recorder test:

10. 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.
11. 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.

PMC100 CASSETTE ADJUSTMENTS

Adjustment	Cassette	Recorder position	Measure on	Read on	Adjust with	Adjust to
Tape speed	3150 Hz of SBC420**	PLAY	Headph. output socket	Wow and flutter meter	VR1 on main panel	*
Azimuth R/PB head	8 KHz of SBC420**	PLAY	Headph. output socket	mV-meter	R. screw P/PB head eras. side***	Maximum output
Bias frequency	-	RECORD	R/PB head	osc.-scope	L4	85 KHz +/-5%
Bias amplitude	-	RECORD	C53/C54	osc.-scope	L4	68V _{pp}

* 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.

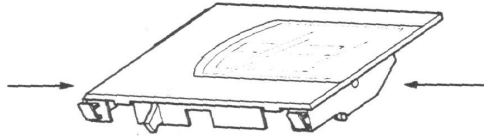
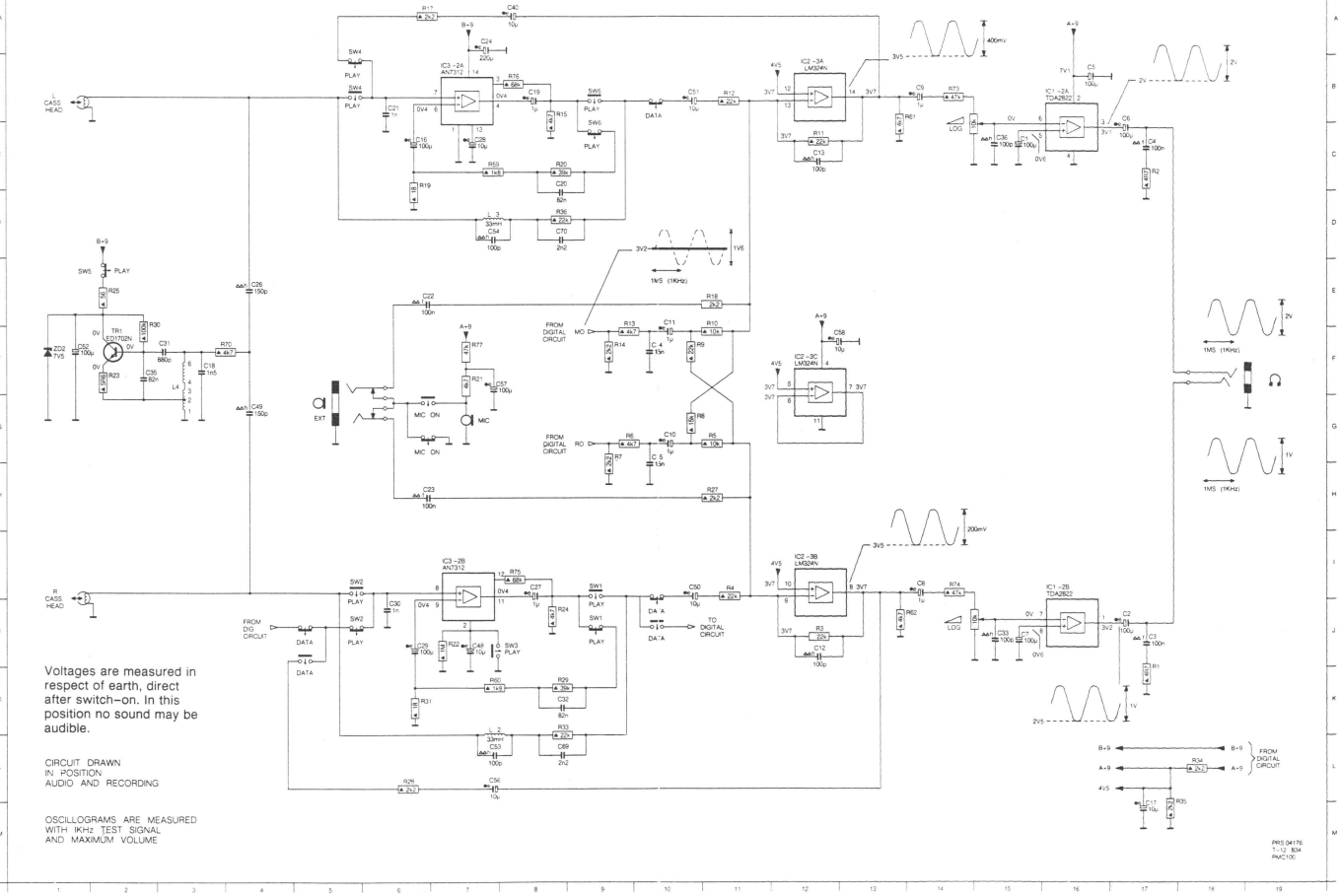


Fig. 3

C1 C10 C14 F10 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24 F25 F26 F27 F28 F29 F30 F31 F32 F33 F34 F35 F36 F37 F38 F39 F40 F41 F42 F43 F44 F45 F46 F47 F48 F49 F50 F51 F52 F53 F54 F55 F56 F57 F58 F59 F60 F61 F62 F63 F64 F65 F66 F67 F68 F69 F70 F71 F72 F73 F74 F75 F76 F77 F78 F79 F80 F81 F82 F83 F84 F85 F86 F87 F88 F89 F90 F91 F92 F93 F94 F95 F96 F97 F98 F99 F100

CASSETTE CIRCUIT

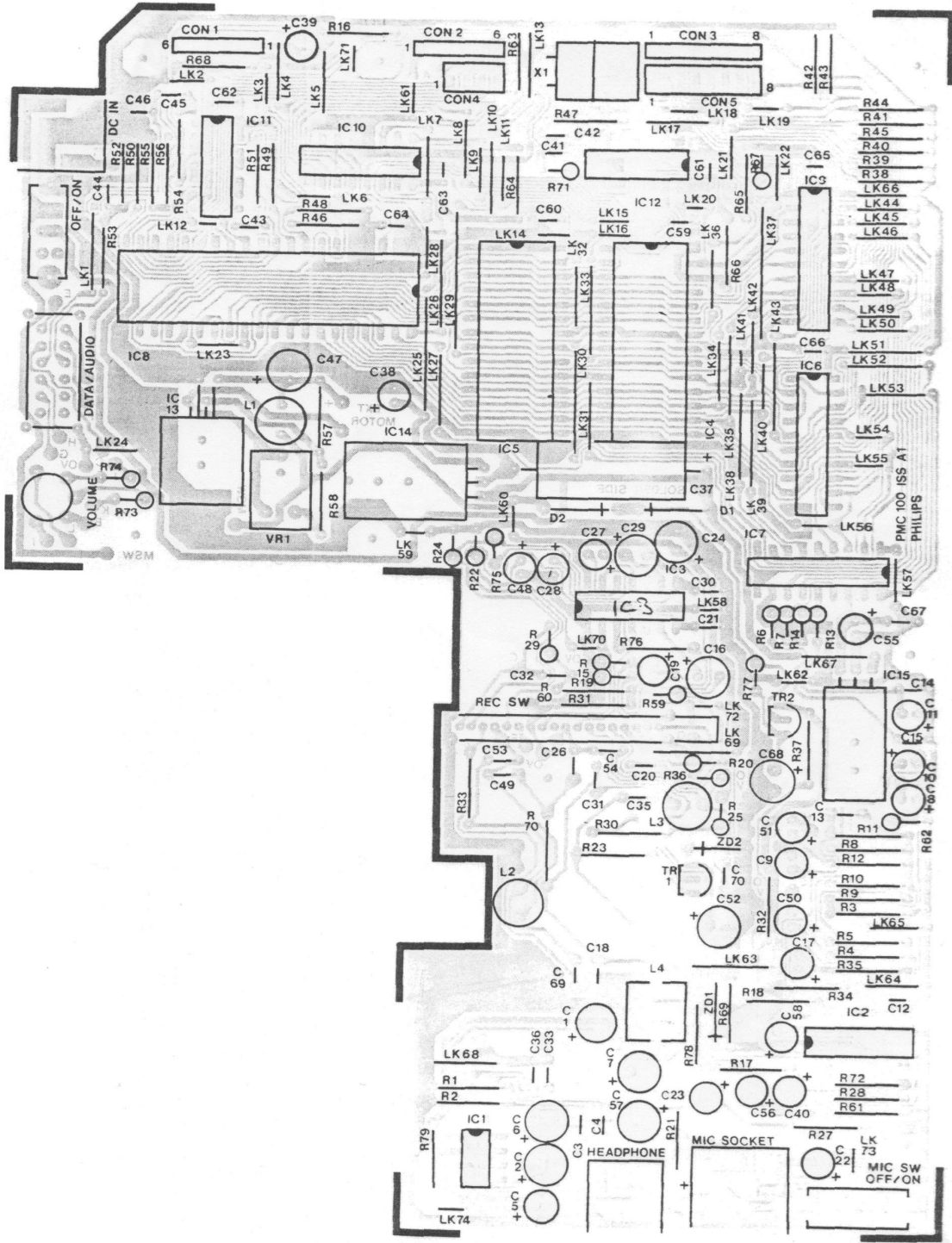


Voltages are measured in respect of earth, direct after switch-on. In this position no sound may be audible.

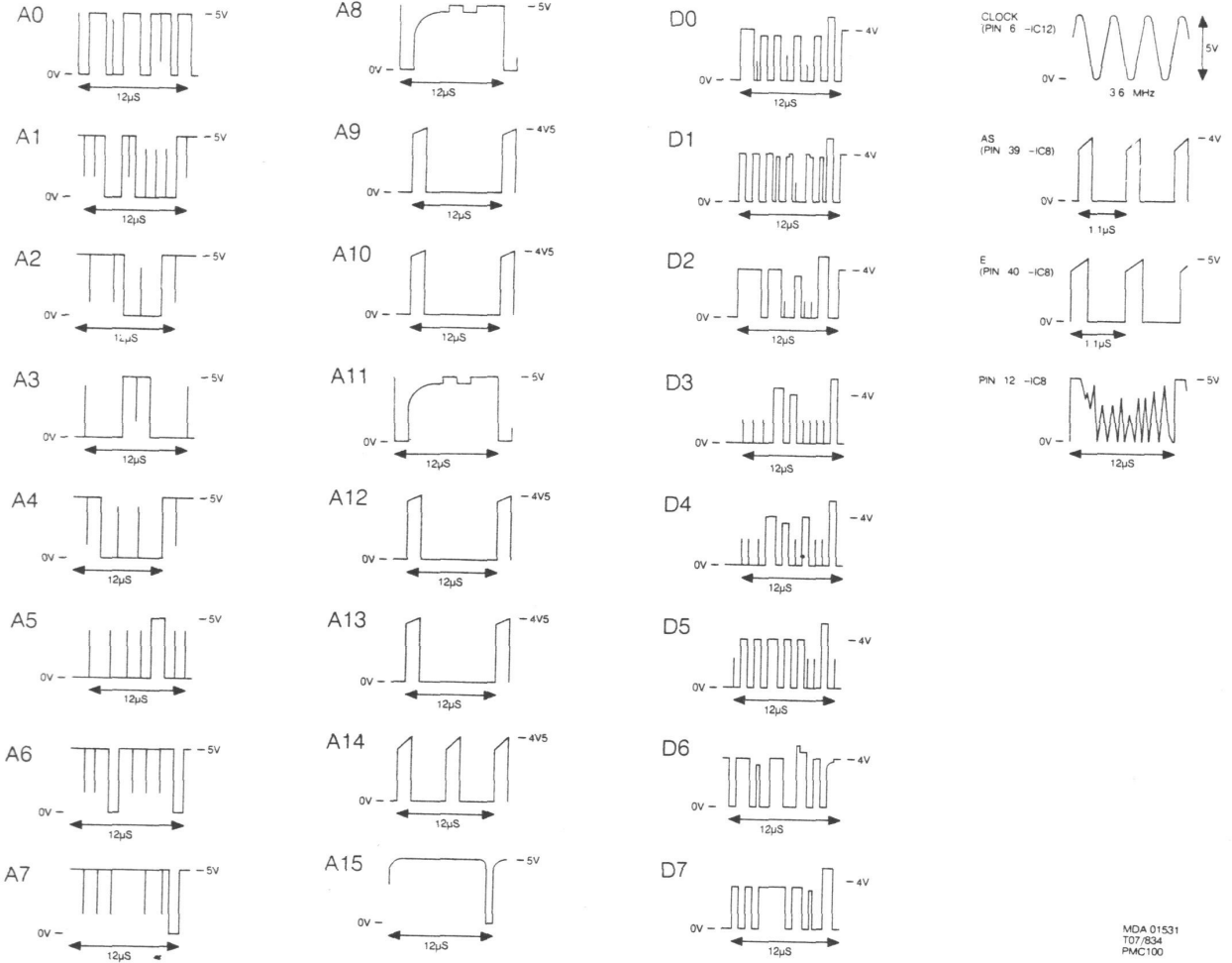
CIRCUIT DRAWN IN POSITION AUDIO AND RECORDING

OSCILLOGRAMS ARE MEASURED WITH 1KHz TEST SIGNAL AND MAXIMUM VOLUME

FIG 04176
T.S. B.S.
P.W.C.100



9



MDA 01531
T07/834
PMC100

For measuring oscillograms, reference is made to the SELFTEST PROCEDURE text, point 8 (1KHz sinewave).

ELECTRICAL PARTS LIST

D 1	4822 130 80847	1N4001
D 2	4822 130 80847	1N4001
IC 1	5322 209 83002	TDA2822M
IC 2	4822 209 80587	LM324N
IC 3	4822 209 70997	AN7312
IC 7	4822 209 73759	MS1823
IC13	4822 209 73723	AN6651
TR 1	4822 130 41729	ED1702N
TR 2	5322 130 40418	2N3704
ZD 1	4822 130 81107	ZENER DIODE 7V5