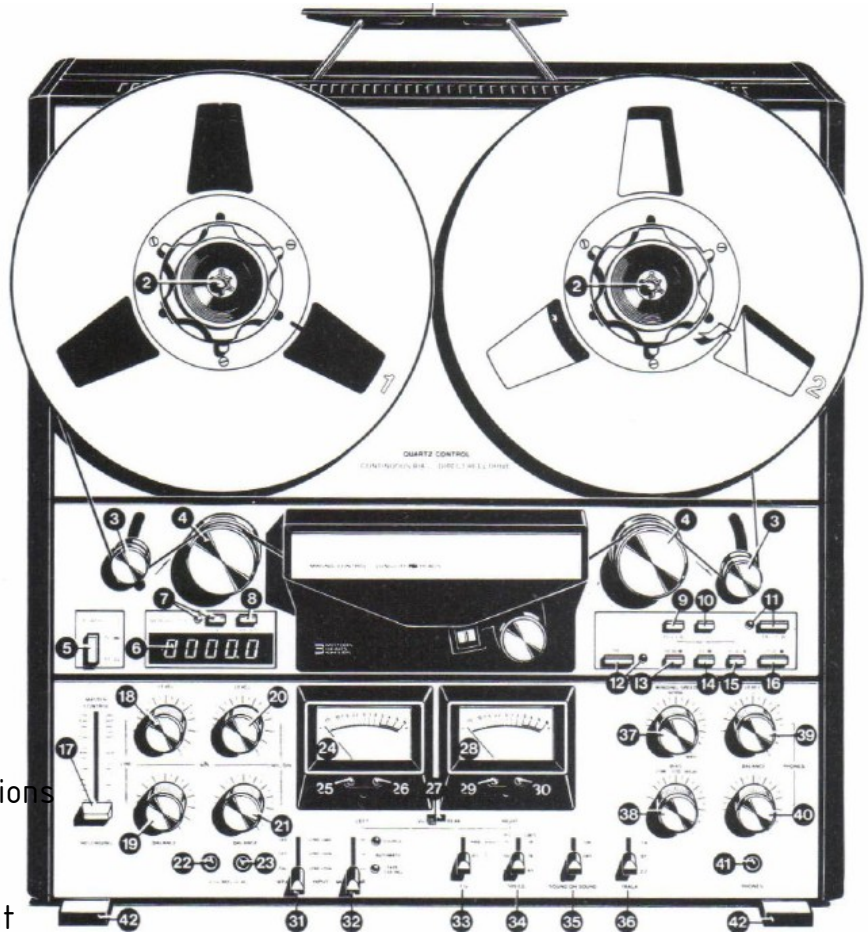
PVDM
PRO & consumer audio

THIS DOCUMENT IS UNDER CONSTRUCTION!!

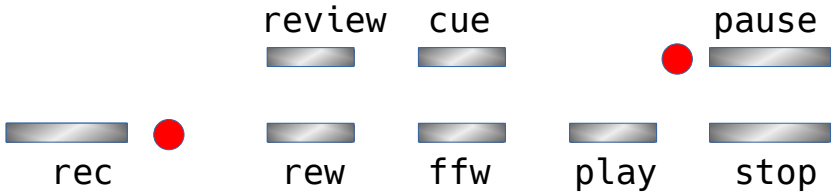
Quick Reference Guide of Philips N4520 & N4522:

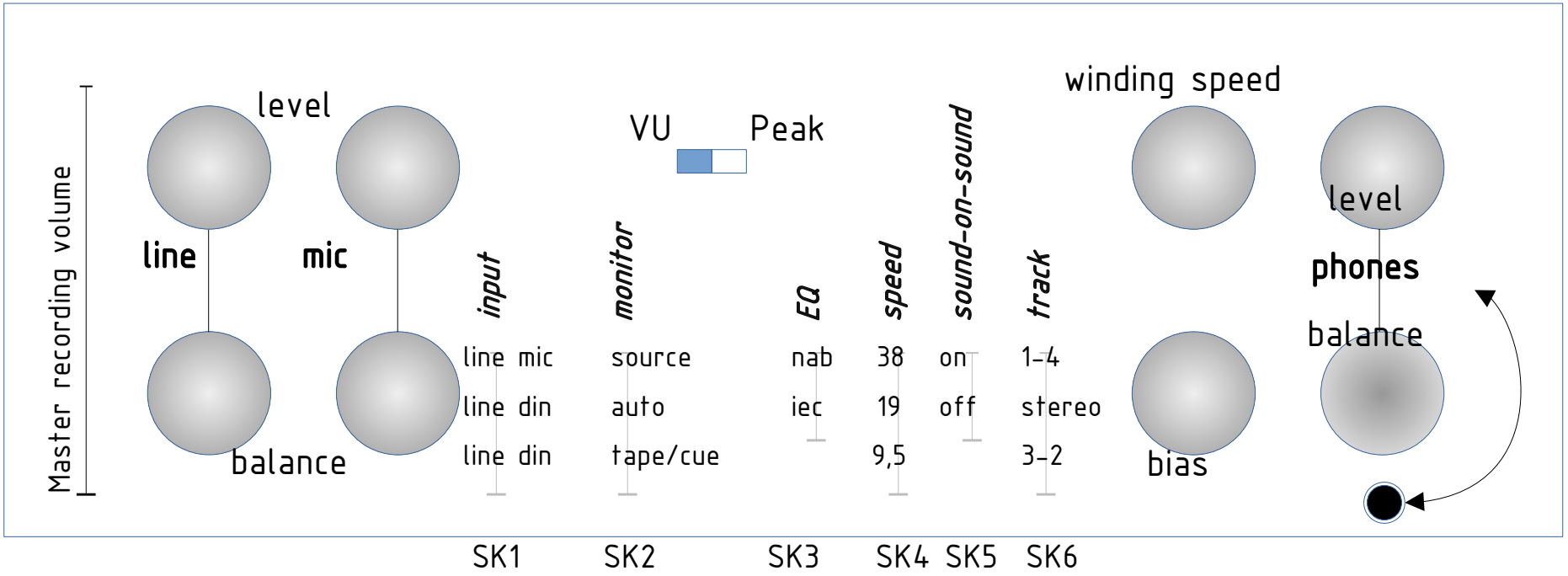


Page:

Layout of front panel N452X:

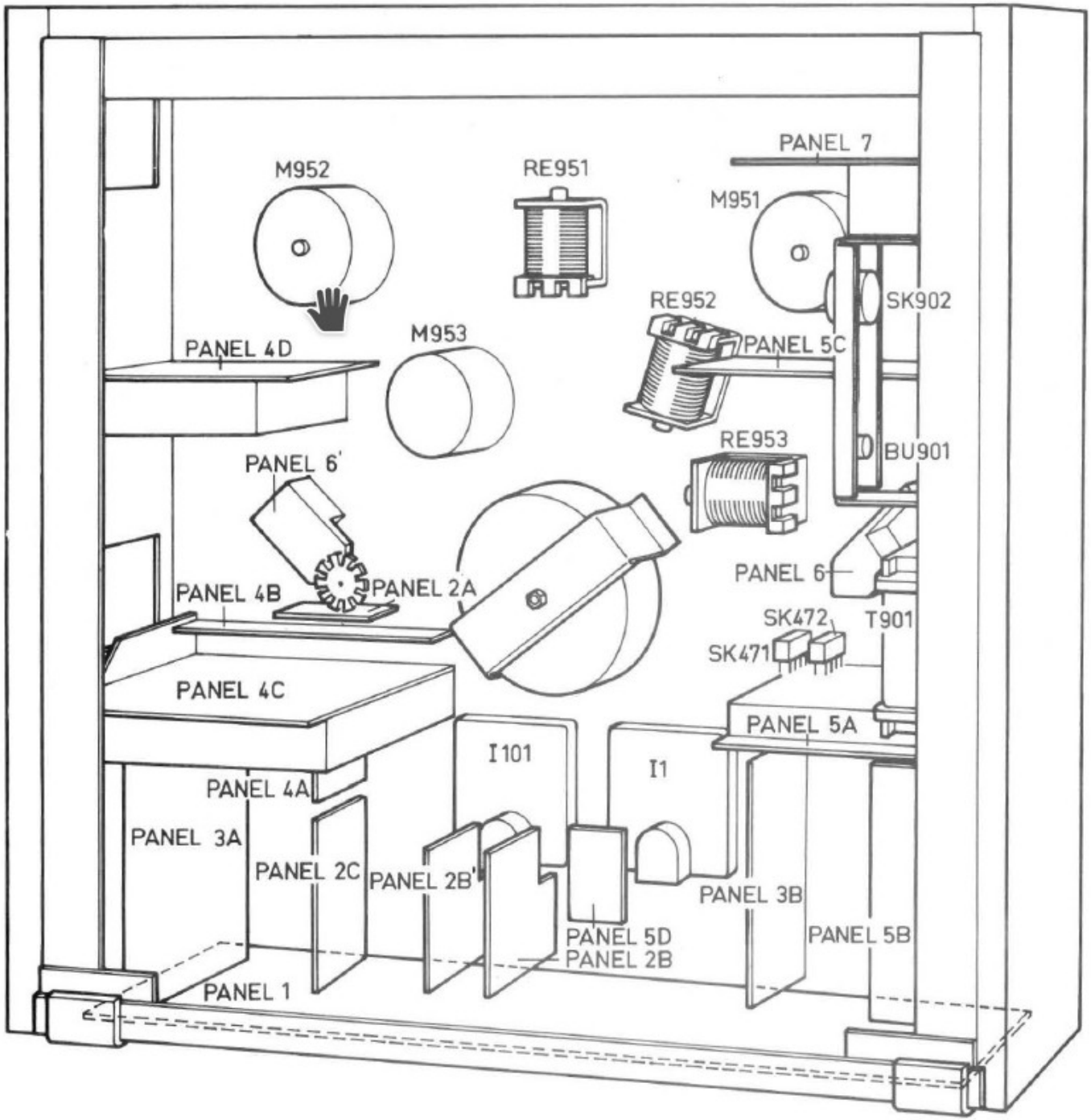
For reference, when you have the knobs and front plate removed and you wish to operate the machine ;-)





Position of boards N452X:

#	*description*
1	audio main board
2A	opto-print
2B	rec/pb amp L/R
2C	oscillator
3A	headphone amp
3B	pre amp
4A	winding speed pot
4B	cue buttons
4C	control
4D	motor control
5A	counter
5B	power supply
5C	capstan motor
5D	indicator
6	tension control L/R
7	power supply

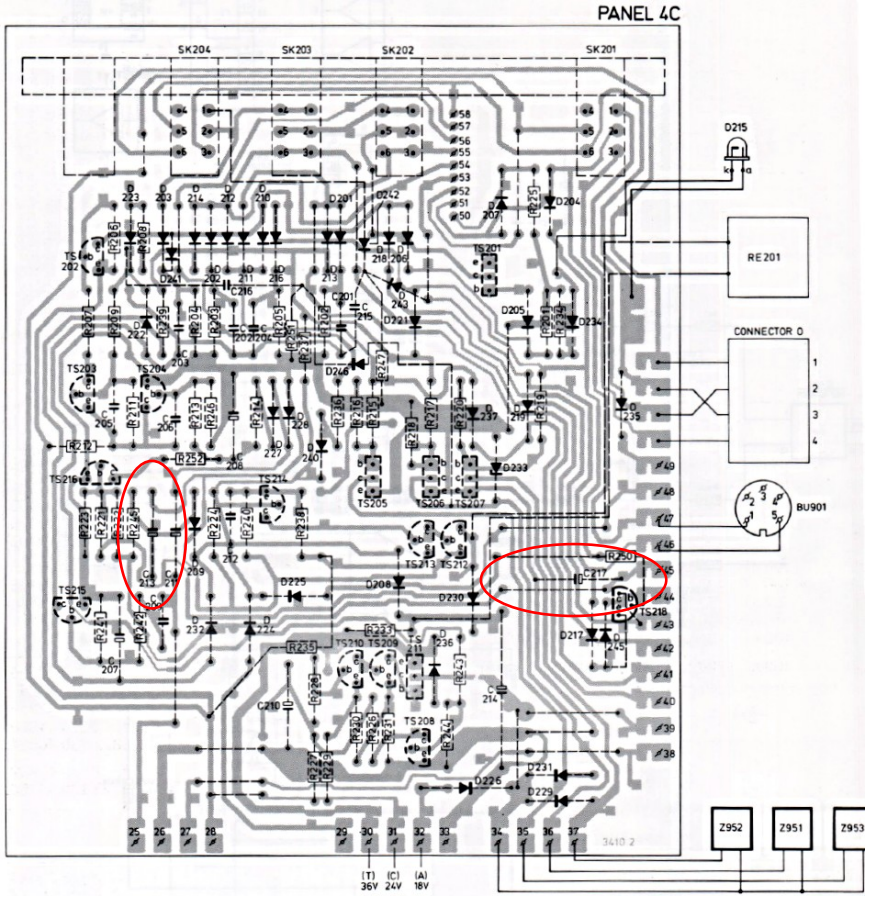


Modification to fix the auto-shutoff at the end of the tape:

When the Philips N452X reaches the end of the tape after fast winding, and the tape comes off the reels, the deck will continue spinning the reels for quite some time before shutting off. This can be perceived as annoying.

To fix that, remove 2 capacitors from the Control board 4C. Remove C213 and C217.

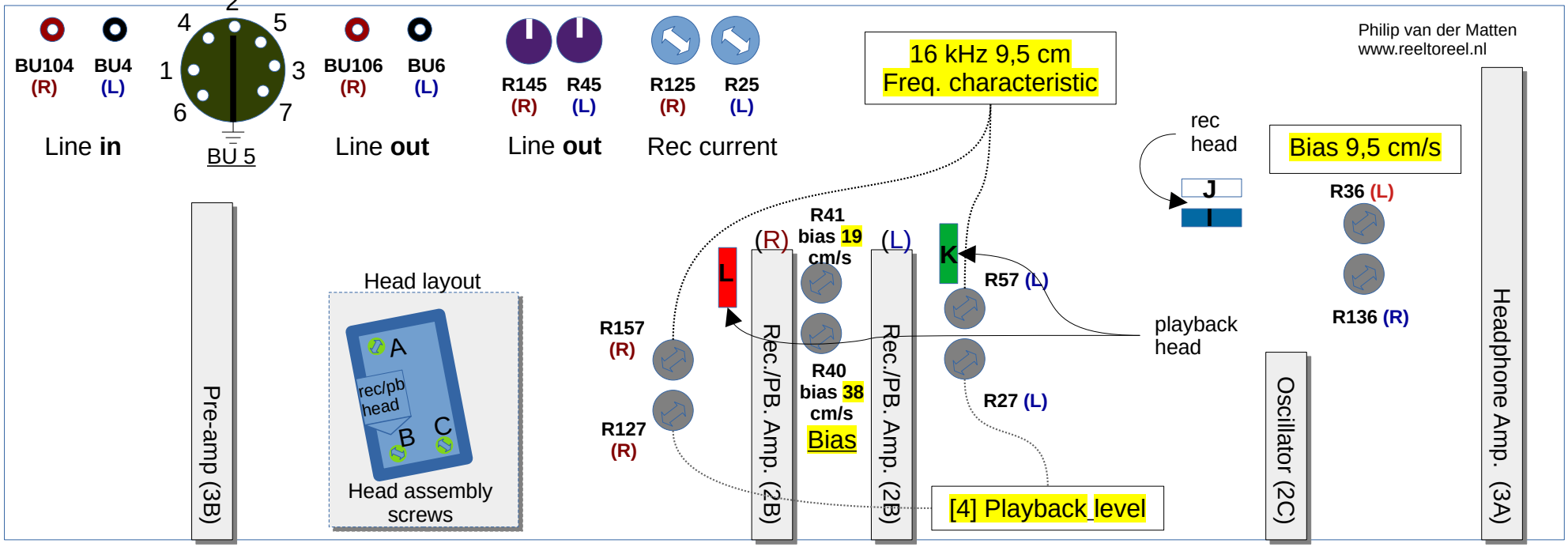
They may or may not be present on all boards.



From here on:

Philips N4520 *(not N4522)*

4 track stereo

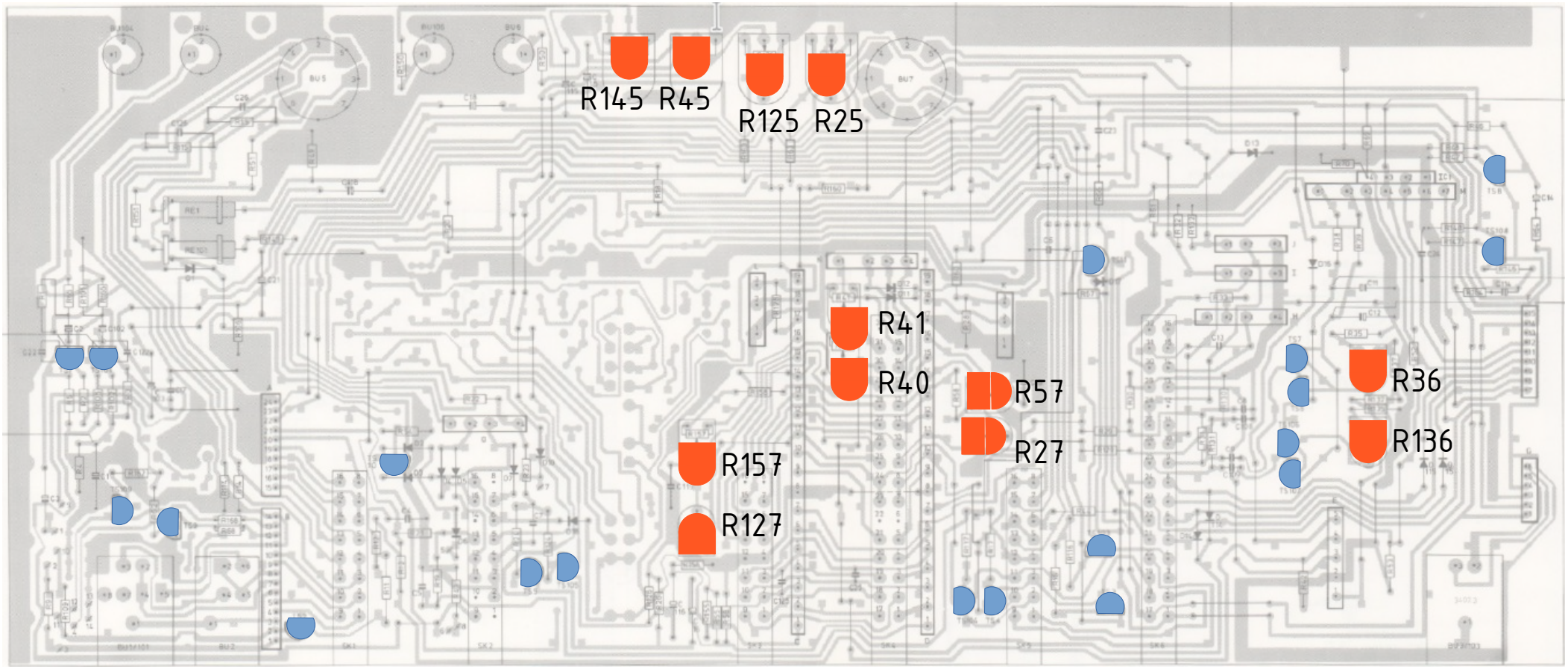


Calibrating N4520, short summary (but always have the Service Manual at hand for the full instructions!)

==========

1 - section 3.2 impossible to perform (zero-setting peaklevel and VU meters).
2 - azimuth playback head. screw **C**.
3 - azimuth **record** head, insert conn. J into L, and conn. I into K. Adjust screw **C** rec head. reseat conn. (section 7)
4 - play ref tape 250 nWb/m - 0 dB section, line out: 780 mV. adjust R(1)27.
5 - play freq char. section, line output: make 1 kHz equivalent to 16 kHz ±1,5 dB. 1 kHz=ref.point. adjust R(1)57.
6 - record 9,5 cm/s BU5 (3,5) 330 Hz 1 V in. line out: 1 V ±0,25 dB. adjust LINE LEVEL position - LEAVE IT!
7 - record BU5 (3,5) 1 kHz 80 mV, 16 kHz 80 mV in. line out: 1 kHz=16 kHz ±2 dB. adjust R(1)36 bias.
8 - record freq sweep 31 Hz-**16 kHz**. line out: ±2 dB. 1 kHz=ref.point 0 dB
9 - record 330 Hz, adjust input signal so line out=1.41 V (meters +3 dB). distortion <3%. adjust R(1)36. repeat sweep.
10 - record BU5 (3,5) 330 Hz 1,41 V. line out: 1,41 V ±0,25 dB. adjust R(1)25 rec current.
11 - record 19 cm/s(!) BU5 (3,5) 1 kHz 80 mV, 20 kHz 80 mV in. line out: 1 kHz=20 kHz ±2 dB. R41 bias 19cm.
12 - record freq sweep 31 Hz-**20 kHz**(!). line out: ±2 dB. 1 kHz=ref.point 0 dB
13 - record 330 Hz, adjust input signal so line out=1.41V (meters +3dB). distortion <3%. adjust R41. repeat sweep.
14 - record 38 cm/s(!) BU5 (3,5) 1 kHz 80 mV, 26 kHz(!) 80 mV in. line out: 1 kHz=26 kHz ±2 dB. R40 bias 38 cm.
15 - record freq sweep 31 Hz-**26 kHz**(!). line out: ± 2dB. 1 kHz=ref.point 0 dB
16 - record 330 Hz, adjust input signal so line out=1.41 V (meters +3 dB). distortion <3%. adjust R40. repeat sweep.

Layout of transistors & potentiometers on Panel 1 N4520:



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Transistors: N4520 ≠ N4522!
trimmers values: N4520 ≠ N4522!

Transistors:

Pots:	
R(1)25	22 kΩ v
R(1)27	22 kΩ
R(1)36	100 kΩ
R(1)45	10 kΩ v
R(1)57	470 Ω
R40	47 kΩ
R41	100 kΩ

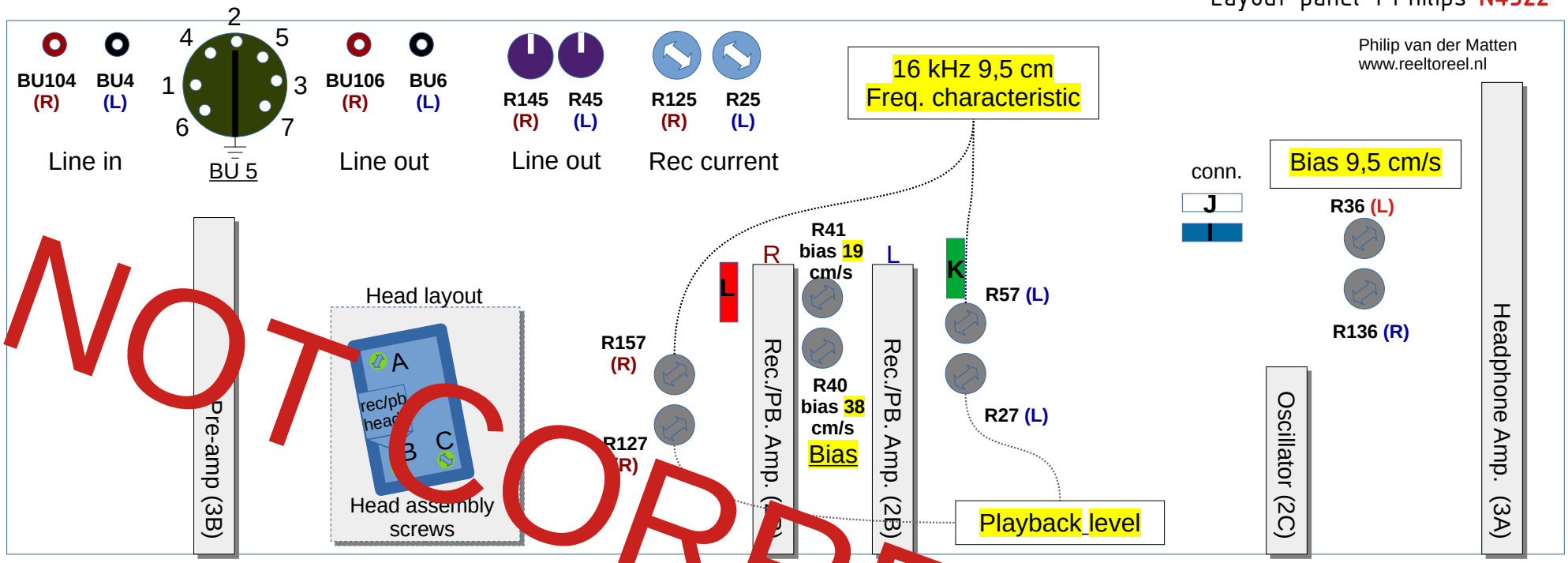
Philips N4520 components list		total:	audio panel 1	record/playback PCBs 2B| left	| right	headphone 3A	panel 3B
caps							
capacity in µF:	V						
0,47	63	9				2	7
1	63	4	2	1	1		
1,5	63	2	2				
3,3	63	2				2	
4,7	63	21	6	5	5		5
6,8	40	2				2	
15	40	8	2	2	2	2	
22	25	13	2	2	2		7
47	10	4	2	1	1		
100	25	1	1				
150	16	2				2	
220	25	2		1	1		
total caps:		70	17	12	12	10	19
transistors							
BC327/25		2				2	
BC337/25		2				2	
BC546A		2	2				
BC547		1	1				
BC547C		2				2	
BC548		8	4			4	
BC548C		10		3	3	4	
BC549		2	2				
BC549B		6					6
BC550B		2		1	1		
BC556A		2	2				
BC557		1	1				
BC558		4		2	2		
BC558B		4					4
BD135							?
BF245A		7	7				
total transistors		55	19	6	6	14	10

var. resistors/pots:			
R(1)36	100kΩ	R(1)25	22k
R(1)57	470kΩ	R(1)45	10k
R(1)27	22kΩ		checken
R40	47kΩ		
R41	100kΩ		

From here on:

Philips N4522 *(not N4520)*

2 track stereo Fulltrack



Calibrating N4520, short summary (always have the Service Manual at hand for the full instructions)

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14 - record 38 cm/s(!) BU5 (3,5) 1 kHz 80 mV, 26 kHz(!) 80 mV in. line out: 1 kHz=26 kHz ±2 dB. R40 bias 38 cm.
15 - record freq sweep 31 Hz-**26 kHz**(!). line out: ± 2dB. 1 kHz=ref.point 0 dB
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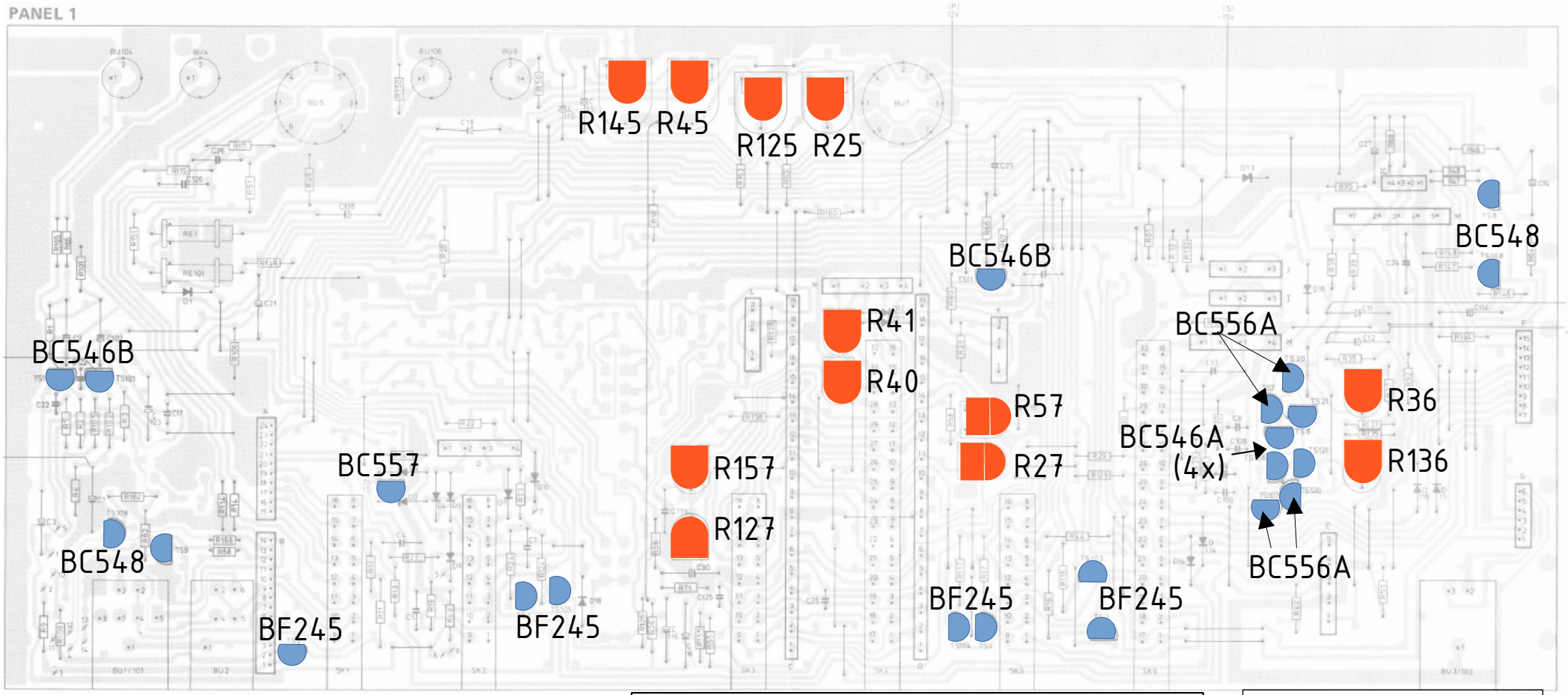
Layout of transistors & potentiometers on Panel 1 N4522:



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Transistors:

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R41	100 kΩ
R(1)25	22 kΩ

Philips N4522 components list		total:	audio panel 1	record/playback PCBs 2B| left	| right	headphone 3A	panel 3B
caps							
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3.3	63	2				2	
4.7	63	21	6	5	5		5
6.8	40	2				2	
15	40	8	2	2	2	2	
22	25	13	2	2	2		7
47	10	4	2	1	1		
100	25	1	1				
150	16	2				2	
220	25	2		1	1		
total caps:		70	17	12	12	10	19
transistors							
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BC337/25		2				2	
BC546A		2	2				
BC547		1	1				
BC547C		2				2	
BC548		8	4			4	
BC548C		10		3	3	4	
BC549		2	2				
BC549B		6					6
BC550B		2		1	1		
BC556A		2	2				
BC557		1	1				
BC558		4		2	2		
BC558B		4					4
BD135							?
BF245A		7	7				
total transistors		55	19	6	6	14	10

var. resistors/pots:			
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R(1)57	470 kΩ	R(1)45	10 kΩ
R(1)27	22 kΩ		
R40	47 kΩ	**this table is still to be checked**	
R41	100 kΩ		