16

Hi-Fi amplifier F 4235

00/01/05/10

Service
Service
Service

32 889A12

Service Manual

TECHNISCHE GEGEVENS

Voeding	: 220 V/50 Hz met service oplossing voor 110 - 127 - 240 V
Uitgangsvermogen	: FTC, 20-20.000 Hz, D ⩽ 0,02% 2x45 W over 8 Ω IEC, 63-12.500 Hz, D ⩽ 0,7% 2x50 W over 8 Ω DIN45500, 1 kHz, D ⩽ 0,7% 2x52 W over 8 Ω
Harmonische vervorming	: ⩽ 0,01% bij 45 W over 8 Ω (1 kHz)
Intermodulatie vervorming 60/7000 Hz 4:1	: ⩽ 0,02% bij 45 W
Balans regeling	: 0 - 50 dB
Bas regeling	: +12 tot —12 dB bij 40 Hz
Treble regeling	: +12 tot —11 dB bij 20 kHz
Loudness regeling (Vol ⩽ —30 dB)	: +10 dB bij 40 Hz; +4 dB bij 30 kHz
Ingangsgevoeligheid	: Phono 2,5 mV/47 kΩ Tape 150 mV/47 kΩ C-Disc 150 mV/47 kΩ Aux 150 mV/47 kΩ Tuner 150 mV/47 kΩ
Uitgangen	: Tape 150 mV/2,5 kΩ 2x2 luidsprekers 8 Ω koptelefoon 8 - 1000 Ω
Afmetingen (bxhxd)	: 420x73x300 mm

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

PHILIPS

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Subject to modification
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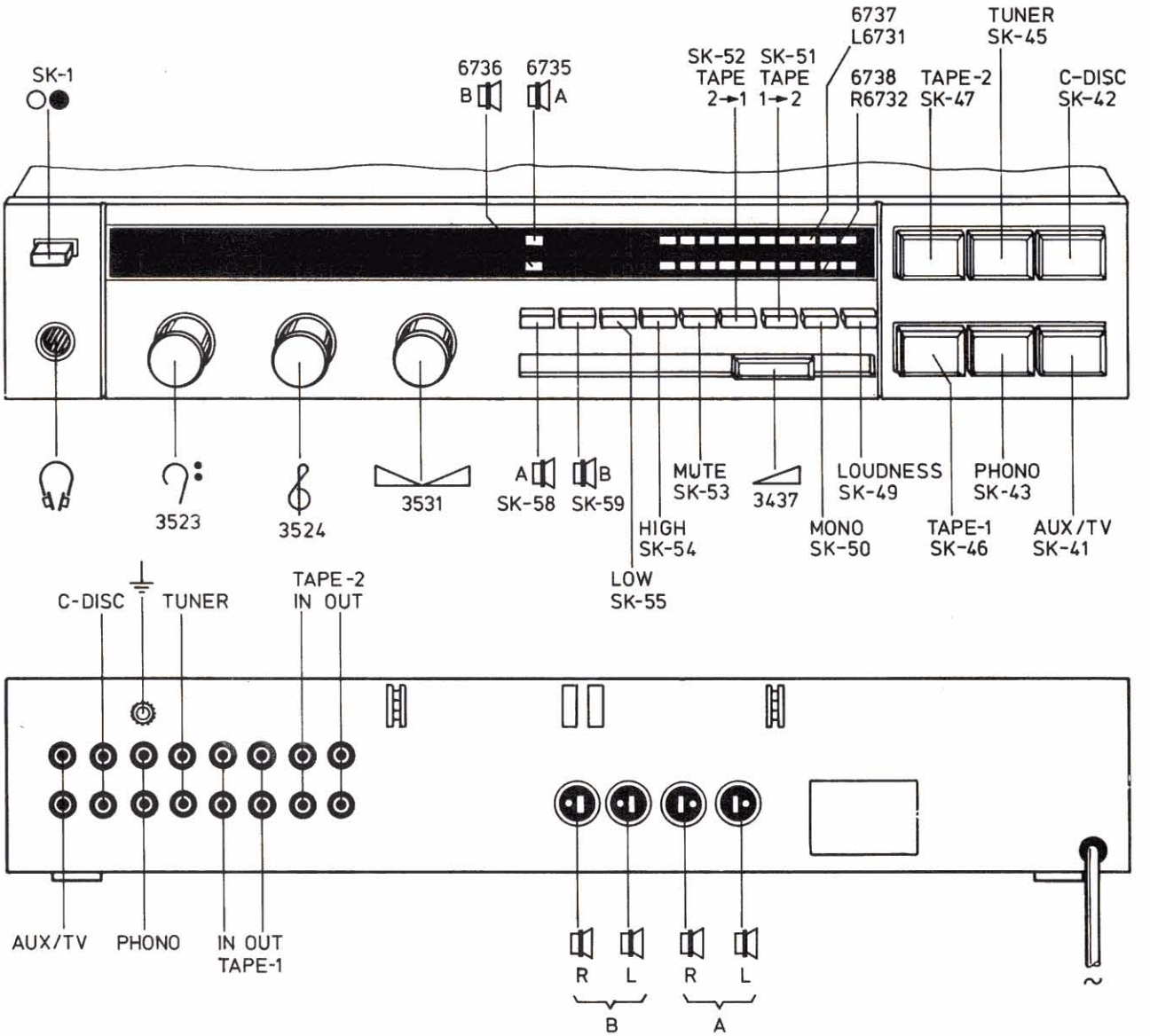


Ruststroom instelling

Geen signaal toevoeren.
Voor het linker kanaal 3513 afregelen voor 45 mV over 3543.
Voor het rechter kanaal 3514 afregelen voor 45 mV over 3544.

Instellen led power display

De input instellen voor 25 W over RL = 8 Ω links en rechts.
Potentiometer 3578 zodanig instellen dat de laatste led van het linker- en rechter kanaal met eenzelfde lichtintensiteit brandt.

CONTROLES LF CIRCUIT

— Alle metingen gebeuren met een testfrequentie van 1 kHz, op speakersysteem A, tenzij anders vermeld.
— Belastingsweerstanden van 8 Ω-80 W-1% over de uitgangen L en R systeem A.
— Stand stereo (SK50).
— Contour schakelaar uit (SK49).
— Tone en balansregelaars in de mechanische middenstand.
— Volume max.
— Stand tape.

Voeding

SK	◿	+1	ripple	−1	ripple
C-disc SK-42	min.	45 V ±1,5 V	⩽ 150 mV rms	−45 V ±1,5 V	⩽ 100 mV rms
	Ⓛ max.	⩾ 35 V± 1,5 V	⩽ 1,3 V rms	⩽ −35 V±1,5 V	⩽ 1,3 V rms

Ⓛ Signaal toevoeren tot uitgangsvermogen van 2x45 W (18,97 V) over belastingsweerstanden R_L en R_R

Uitgangsvermogen en vervorming*

SK	⊛→	F.T.C. 2x 45 W (18,97 V)	IEC 2x 50 W (20 V)	DIN45500 2x 52 W (20,4 V)
C-disc SK-42	20 Hz	D ⩽ 0,02%		
	63 Hz		D ⩽ 0,7%	
	1000 Hz	D ⩽ 0,01%	D ⩽ 0,3%	D ⩽ 0,7%
	12500 Hz		D ⩽ 0,7%	
	20000 Hz	D ⩽ 0,02%		

*Apparaat moet ingekast zijn.

Toonregeling

SK	⊛→	◇	◿	𝄢	𝄞	⌀	AC
C-disc SK-42	40 Hz	C-disc input	max.	mid position	mid position	⊛ Ⓗ	
				max.			+12 dB R_L (R_R)
				min.			−11 dB R_L (R_R)
	10 kHz			mid position	mid position	⊛ Ⓗ	
					max.		+10 dB R_L (R_R)
					min.		−10 dB R_L (R_R)

Ⓗ Signaal toevoeren tot een uitgangsspanning van 7,75 V (= 0 dB) over belastingsweerstanden R_L en (R_R).

Loudness

SK			Loudn. SK42		AC
C-Disc SK-42	40 Hz	max.	off	(L)	0 dB R_L (R_R)
				3437 (M)	—40 dB R_L (R_R)
			on		+10 dB ± 2 dB R_L (R_R)
	1000 Hz	max.	off	(L)	0 dB R_L (R_R)
				3437 (M)	—40 dB R_L (R_R)
			on		+1 dB ± 1 dB R_L (R_R)
	10000 Hz	max.	off	(L)	0 dB R_L (R_R)
				3437 (M)	—40 dB R_L (R_R)
			on		+3,5 dB ± 1 dB R_L (R_R)

(M) Volumeregelaar zodanig instellen dat er over de belastingsweerstanden R_R en (R_L) —40 dB staat.

(L) Signaal toevoeren tot uitgangsvermogen van 2x 45 W (18,97 V) over belastingsweerstanden R_L en R_R).

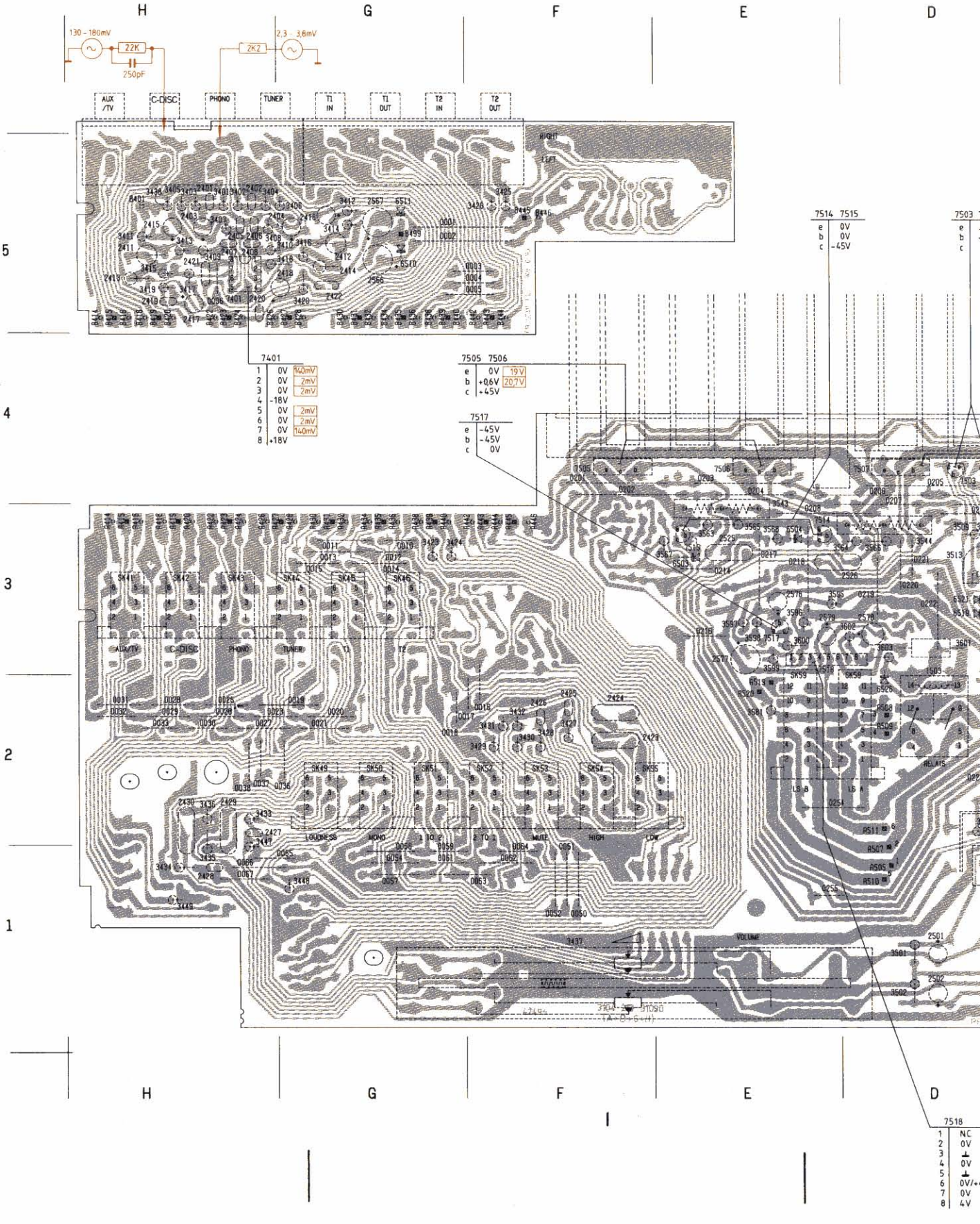
Gevoeligheid

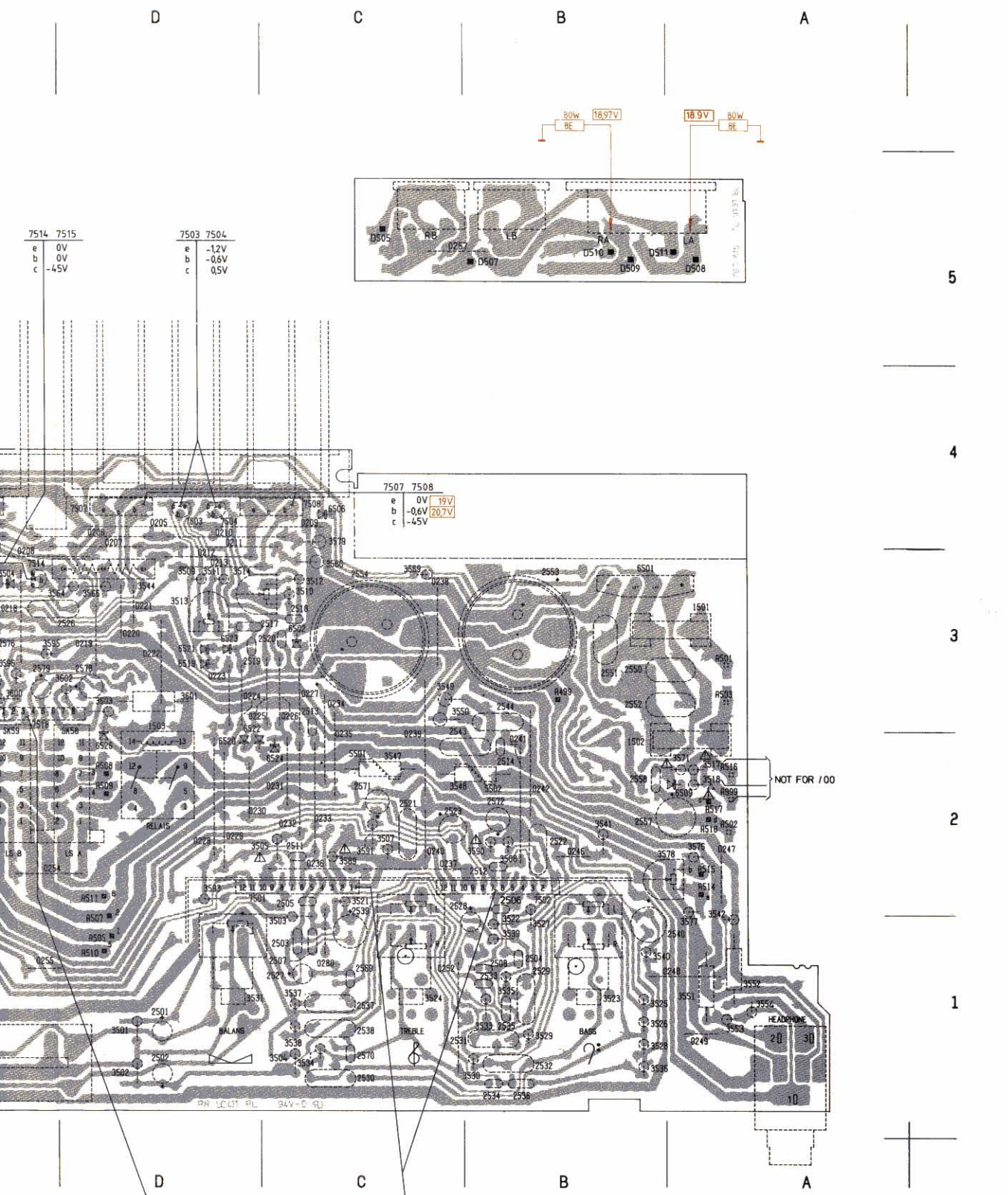
SK			AC
Tape 2 SK46	130-180 mV via 22 kΩ/250 pF	cinch input	18,97 V (2x 45 W)
Tape 1 SK45	130-180 mV via 22 kΩ/250 pF		
Phono SK43	2,3-2,8 mV via 2k2 Ω		
Aux/TV SK-41	130-180 mV via 22 kΩ/250 pF		R_L (R_R)
Tuner SK-44	130-180 mV via 22 kΩ/250 pF		
C-disc SK-42	130-180 mV via 22 kΩ/250 pF		

PU (MD) Voorversterker

SK				AC
Phono SK43	1000 Hz	Phono input via 2k2	(N)	R_L (R_R)
	20 Hz			16,3 dB ± 0,7 dB
	40 Hz			16,8 dB ± 0,6 dB
	250 Hz			6,8 dB ± 0,6 dB
	1 kHz			0 dB
	10 kHz			—13,7 dB ± 0,6 dB
	20 kHz			—19,6 dB ± 0,6 dB

(N) Signaal toevoeren tot een uitgangsspanning van 7,75 V (= 0 dB) over belastingsweerstanden R_L (R_R).
Meet en V gen. en houdt deze constant.


H
G
F
E
D
130 - 180mV
22K
250pF
2,3 - 3,6mV
2K2
AUX /TV
C-DISC
PHONO
TUNER
T1 IN
T1 OUT
T2 IN
T2 OUT
RIGHT
LEFT
7401
1 0V 140mV
2 0V 2mV
3 0V 2mV
4 -18V
5 0V 2mV
6 0V 2mV
7 0V 140mV
8 +18V
7505 7506
e 0V 19V
b +0,6V 20,7V
c +45V
7517
e -45V
b -45V
c 0V
7514 7515
e 0V
b 0V
c -45V
7518
1 NC
2 0V
3 ⊥
4 0V
5 ⊥
6 0V/+
7 0V
8 4V
LOUDNESS
MONO
MUTE
HIGH
LOW
VOLUME
RELAIS
5
4
3
2
1


D
C
B
A
5
4
3
2
1
80W
8E
18,97V
18,9V
80W
8E
D505
R8
L8
D507
D510
RA
D509
D511
LA
D508
7514 7515
e 0V
b 0V
c -45V
7503 7504
e -1,2V
b -0,6V
c 0,5V
7507 7508
e 0V 19V
b -0,6V 20,7V
c -45V
NOT FOR /00
RELAIS
BALANS
TREBLE
BASS
HEADPHONE
7518
1 N.C.
2 0V
3 ⏚
4 0V
5 ⏚
6 0V/+45V
7 0V
8 4V
7501 7502
1 +45V
2 +45V
3 +38V
4 0V 125mV
5 0V 125mV
6 -42V
7 -1,2V
8 +0,5V
9 -44V
10 -44V
11 -0,6V 20,7V
12 +0,6V 20,7V

32621 E13

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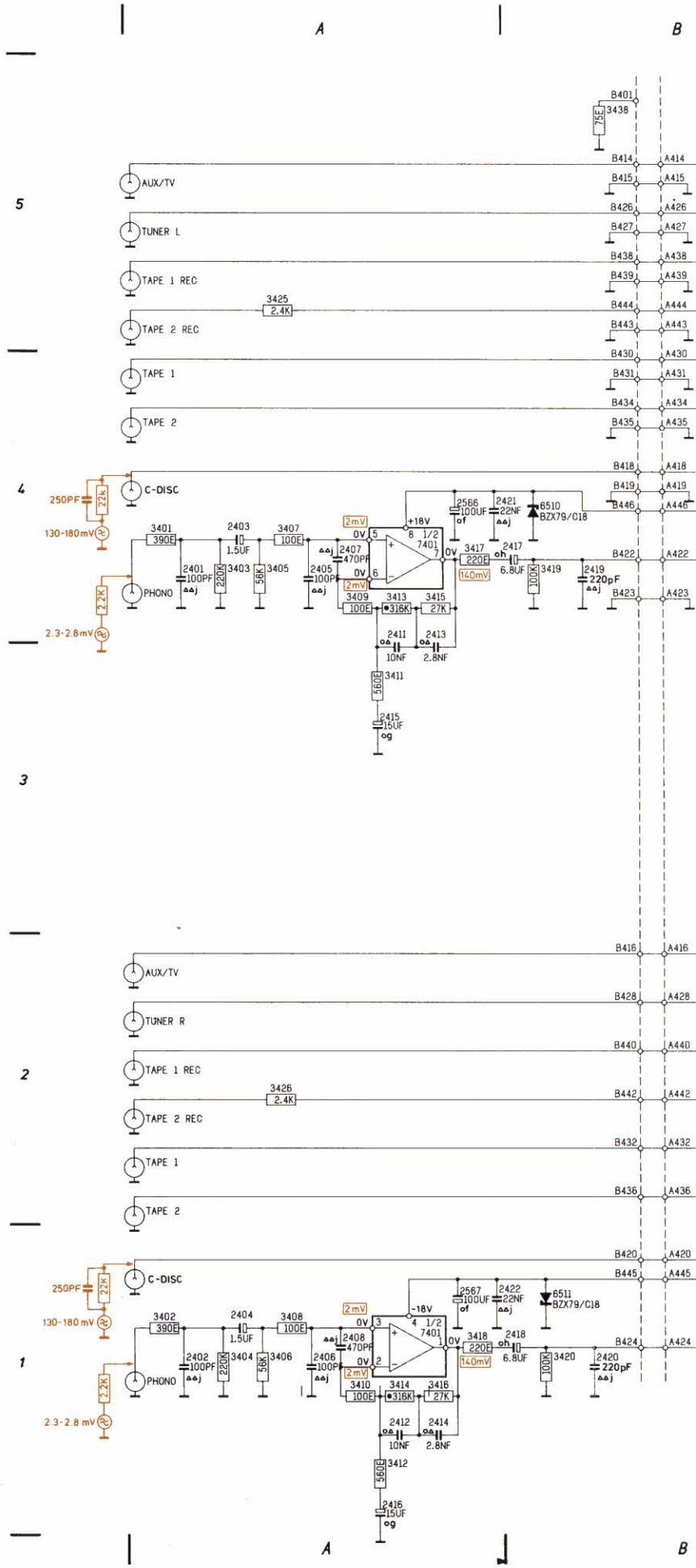
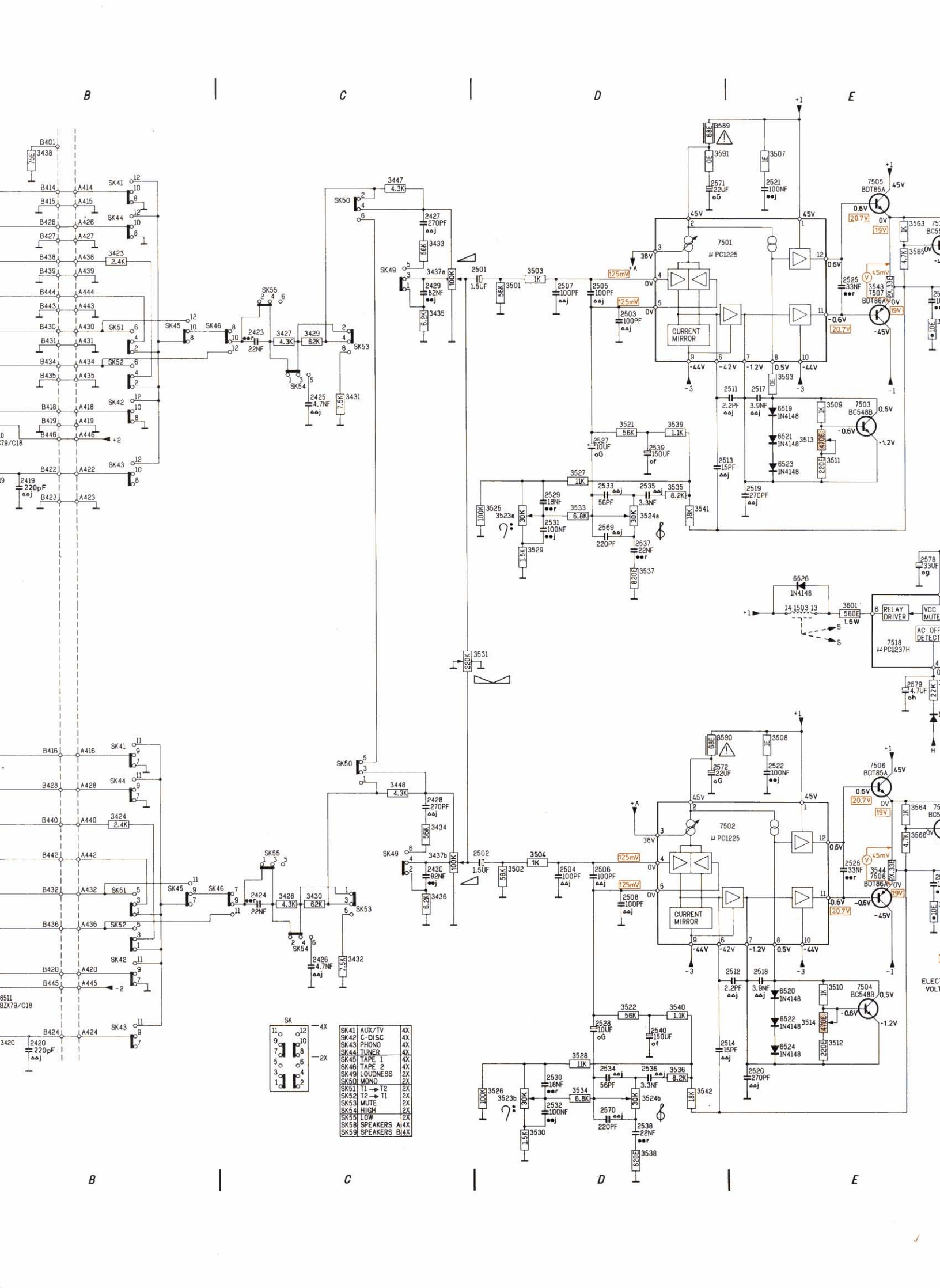
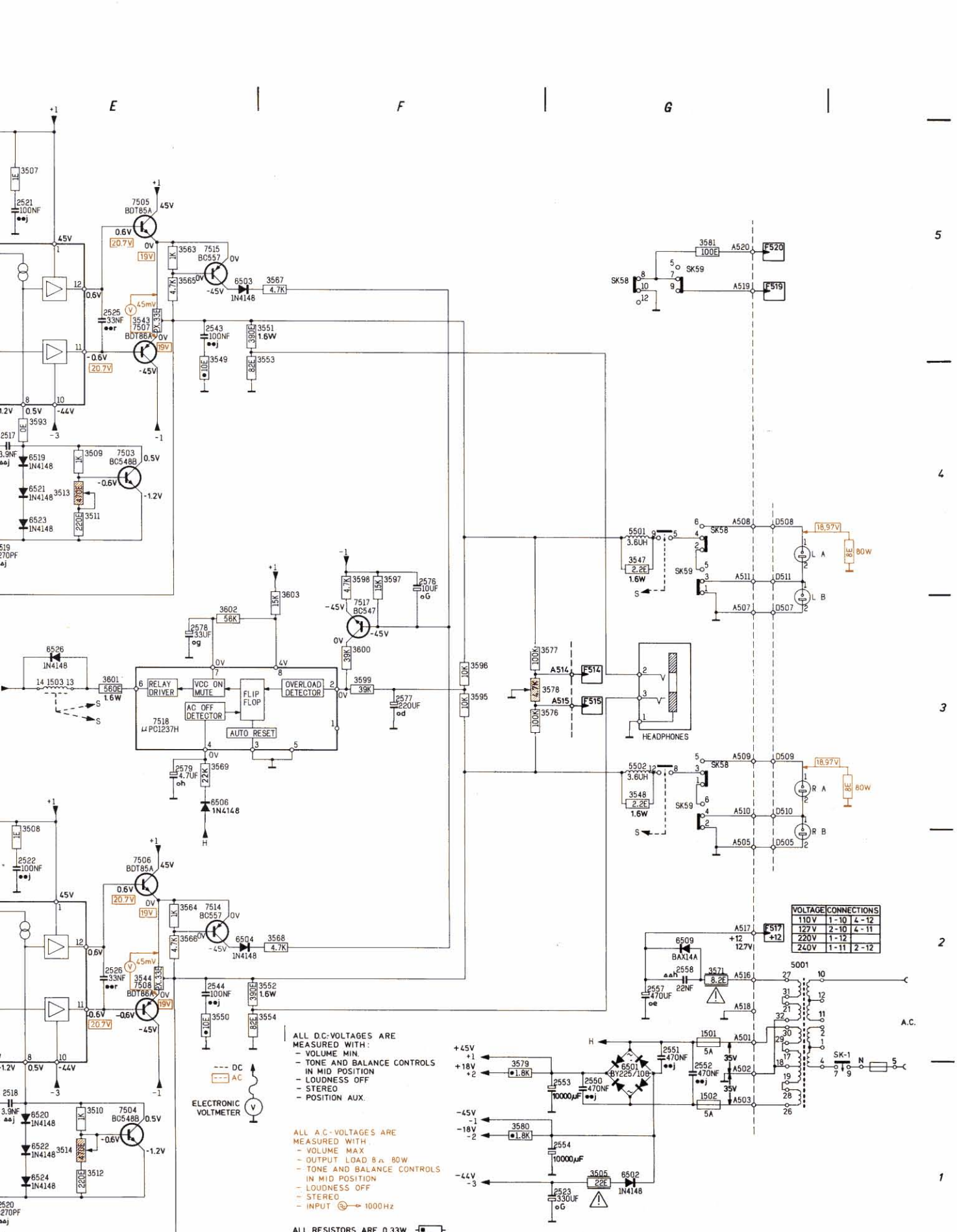
ITEM	CD	PCB
1501	G02	B03
1502	G01	A02
1503	E03	D02
2401	A04	H05
2402	A01	H05
2403	A04	H05
2404	A01	G05
2405	A04	H05
2406	A01	H05
2407	A04	H05
2408	A01	H05
2411	A04	H05
2412	A01	G05
2413	A04	H05
2414	A01	G05
2415	A03	H05
2416	A01	G05
2417	B04	H05
2418	B01	G05
2419	B04	H05
2420	B01	H05
2421	A04	H05
2422	A01	G05
2423	C04	F02
2424	C02	F02
2425	C04	F02
2426	C01	F02
2427	C05	H02
2428	C02	H01
2429	C05	H02
2430	C02	H02
2501	D05	D01
2502	D02	D01
2503	D05	C01
2504	D02	B01
2505	D05	C02
2506	D02	B02
2507	D05	C01
2508	D02	B01
2511	E04	C02
2512	E01	B02
2513	D04	C03
2514	D01	B02
2517	E04	C03
2518	E01	C03
2519	E04	D03
2520	E01	C03
2521	E05	C02
2522	E02	B02
2523	G01	C02
2525	E05	E03
2526	E02	E03
2527	D04	C01
2528	D01	B01
2529	D04	B01
2530	D01	C01
2531	D04	B01
2532	D01	B01
2533	D04	B01
2534	D01	B01
2535	D04	B01
2536	D01	B01
2537	D03	C01
2538	D01	C01
2539	D04	C01
2540	D01	B01
2543	E05	C02
2544	E02	B03
2550	G01	B03
2551	G02	B03
2552	G01	B03
2553	G01	B03
2554	G01	C03
2557	G02	B02
2558	G02	B02
2566	A04	G05
2567	A01	G05
2569	D04	C01
2570	D01	C01
2571	D05	C02
2572	D02	B02
2576	F04	E03
2577	F03	E03
2578	E03	D03
2579	E03	E03
3401	A04	H05
3402	A01	H05
3403	A04	H05
3404	A01	H05
3405	A04	H05
3406	A01	G05
3407	A04	H05
3408	A01	H05
3409	A04	H05
3410	A01	H05
3411	A03	H05
3412	A01	G05
3413	A04	H05
3414	A01	G05
3415	A04	H05
3416	A01	G05
3417	A04	H05
3418	A01	H05
3419	B04	H05
3420	B01	G05
3423	B05	G03
3424	B02	G03
3425	A05	F05
3426	A02	F05
3427	C04	F02
3428	C02	F02
3429	C04	F02
3430	C02	F02
3431	C04	F02
3432	C01	F02
3433	C05	H02
3434	C02	H01
3435	C05	H01
3436	C02	H02
3437A	C05	F01
3437B	C02	F01
3438	B05	H05
3447	C05	H02
3448	C02	G01
3501	D05	D01
3502	D02	D01
3503	D05	C01
3504	D02	C01
3505	G01	C02
3507	E05	C02
3508	E02	B02
3509	E04	D03
3510	E01	C03
3511	E04	D03
3512	E01	C03
3513	E04	D03
3514	E01	D03
3521	D04	C02
3522	D01	B01
3523A	D04	B01
3523B	D01	B01
3524A	D04	C01
3524B	D01	C01
3525	D04	B01
3526	D01	B01
3527	D04	B01
3528	D01	B01
3529	D03	B01
3530	D01	B01
3531	C03	D01
3533	D04	B01
3534	D01	C01
3535	D04	B01
3536	D01	B01
3537	D03	C01
3538	D01	C01
3539	D04	B01
3540	D01	B01
3541	D04	B02
3542	D01	A02
3543	E05	E03
3544	E02	D03
3547	G04	C02
3548	G03	C02
3549	E05	C03
3550	E02	C03
3551	E05	A01
3552	E02	A01
3553	E05	A01
3554	E02	A01
3563	E05	E03
3564	E02	D03
3565	E05	E03
3566	E02	D03
3567	F05	E03
3568	F02	E03
3569	E03	C03
3571	G02	A02
3576	F03	A02
3577	F03	A01
3578	F03	B02
3579	F01	C04
3580	F01	C03
3581	G05	E02
3589	D05	C02
3590	D02	B02
3591	D05	C02
3593	E04	D02
3595	F03	E03
3596	F03	E03
3597	F04	E03
3598	F04	E03
3599	F03	E03
3600	F03	E03
3601	E03	D03
3602	E03	D03
3603	F03	D03
5501	G04	C02
5502	G03	B02
6501	G01	B03
6502	G01	C03
6503	E05	E03
6504	E02	E03
6506	E03	C04
6509	G02	A02
6510	B04	G05
6511	B01	G05
6519	E04	D03
6520	E01	D02
6521	E04	D03
6522	E01	D02
6523	E04	D03
6524	E01	C02
6526	E03	D02
7401	A04	H05
7501	D05	D02
7502	D02	B02
7503	E04	D04
7504	E01	D04
7505	E05	F04
7506	E02	E04
7507	E05	D04
7508	E02	C04
7514	E02	E03
7515	E05	E03
7517	F03	E03
7518	E03	E03




B
C
D
E
7501
μPC1225
7502
μPC1225
CURRENT MIRROR
7505 BDT85A
7506 BDT85A
7507 BDT86A
7508 BDT86A
7503 BC548B
7504 BC548B
7518 μPC1237H
RELAY DRIVER
VCC MUTE
AC OFF DETECT
SK
SK41 AUX/TV 4X
SK42 C-DISC 4X
SK43 PHONO 4X
SK44 TUNER 4X
SK45 TAPE 1 4X
SK46 TAPE 2 4X
SK49 LOUDNESS 2X
SK50 MONO 2X
SK51 T1 → T2 2X
SK52 T2 → T1 2X
SK53 MUTE 2X
SK54 HIGH 2X
SK55 LOW 2X
SK58 SPEAKERS A 4X
SK59 SPEAKERS B 4X



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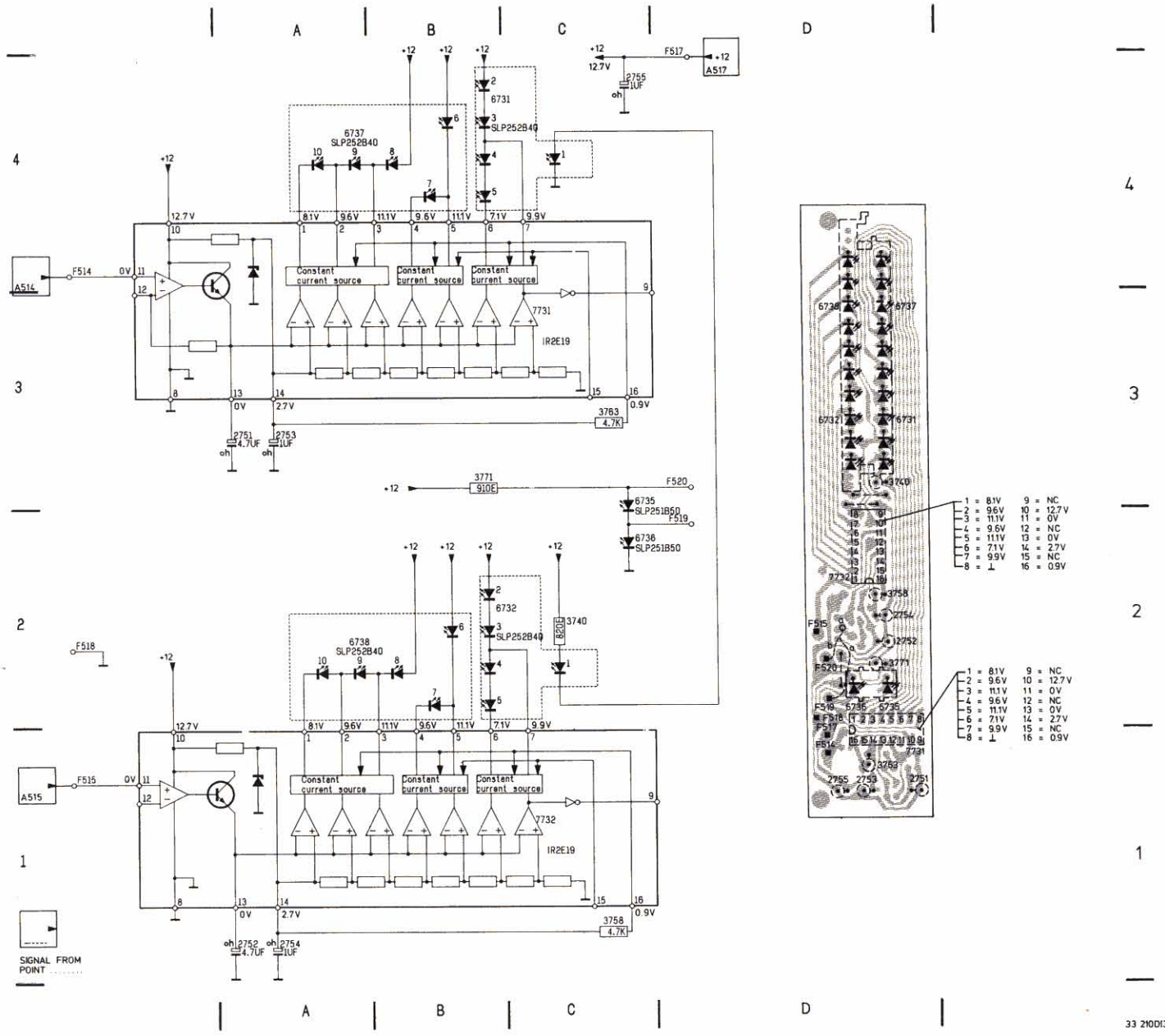
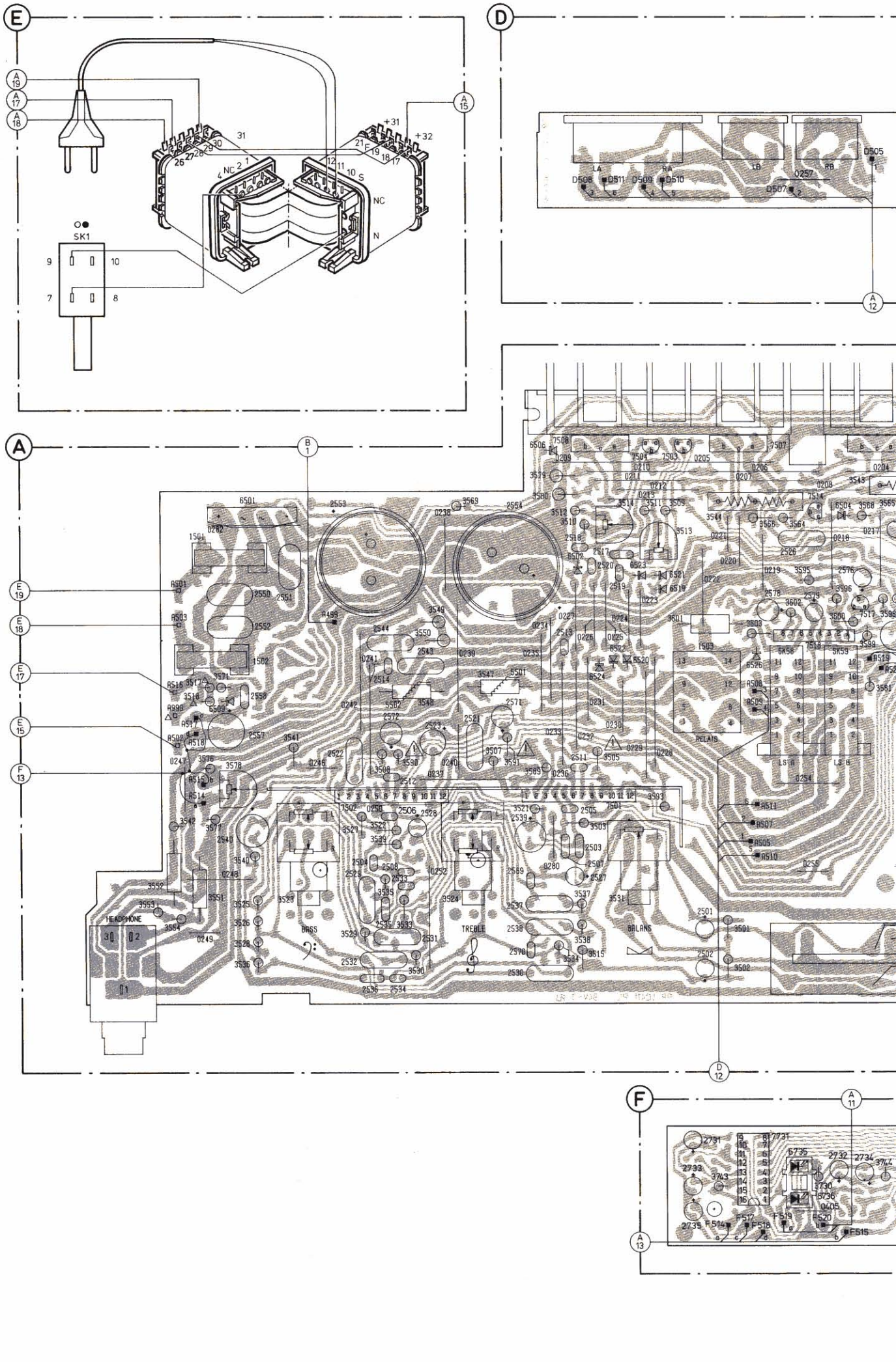
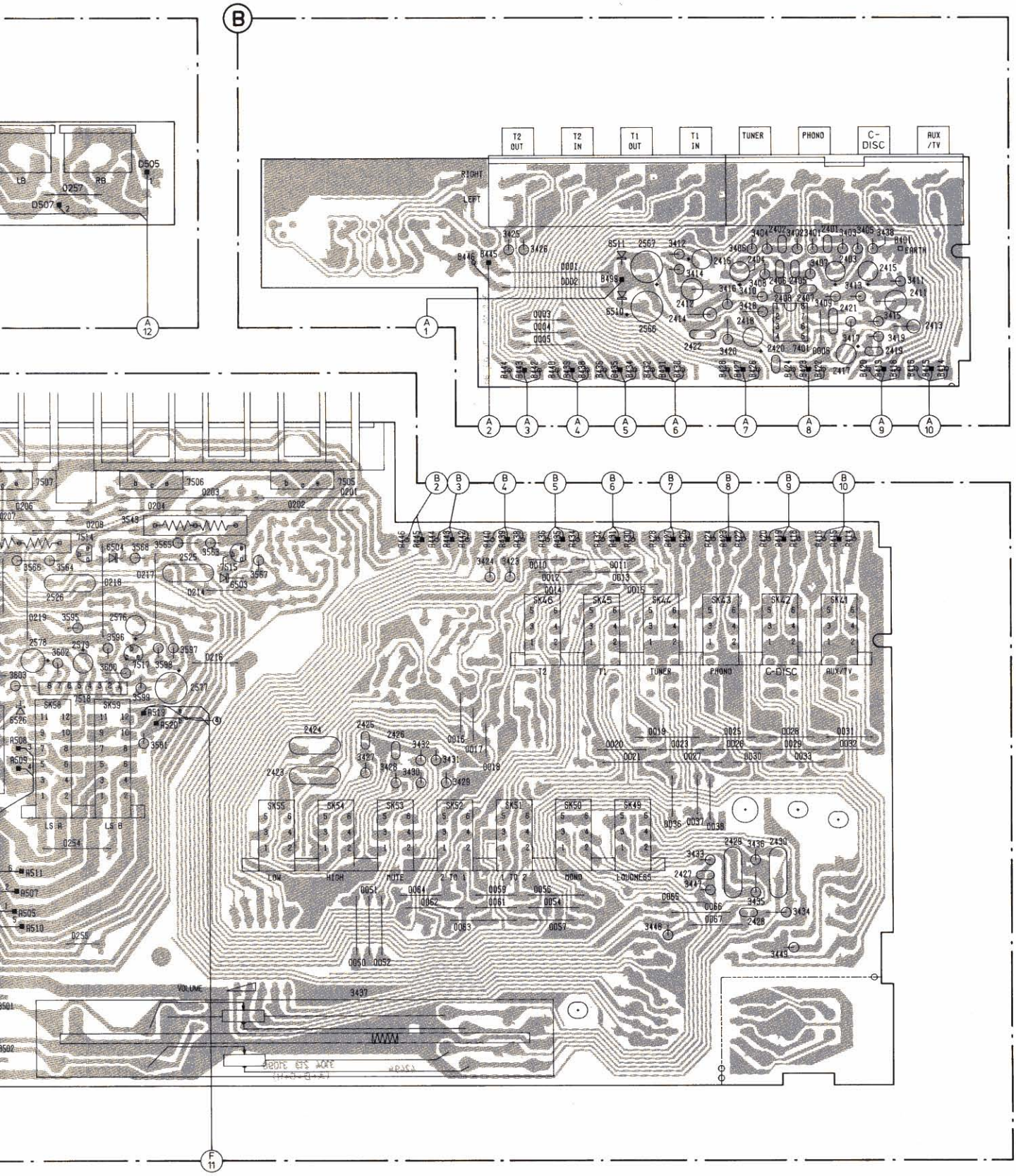
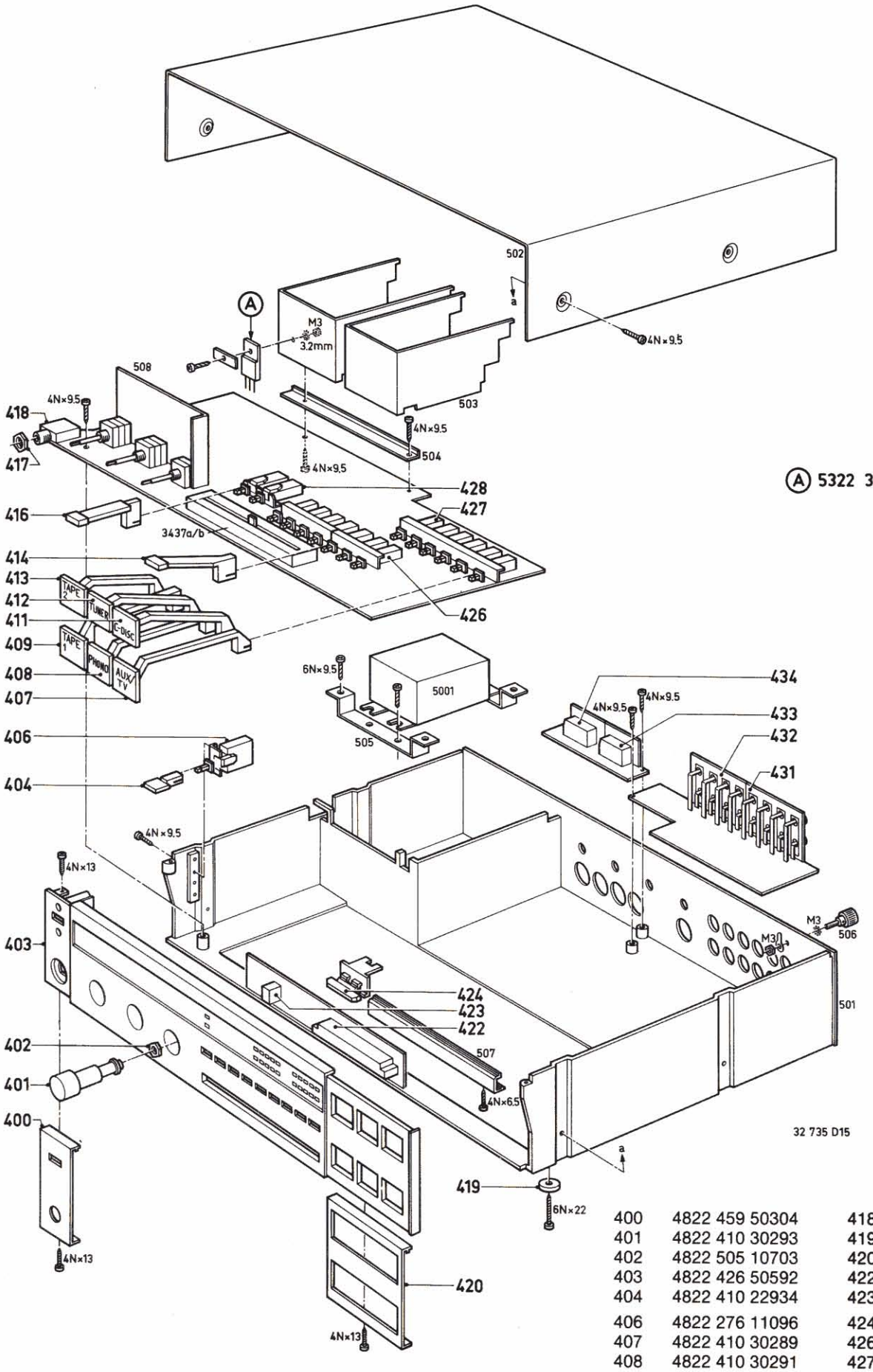


DISPLAY

ITEM	CD	PCB									
2751	A03	D01	3740	C02	D03	6732	B02	D03	7731	C03	D02
2752	A01	D02	3758	C01	D02	6735	C03	D02	7732	C01	D03
2753	A03	D01	3763	C03	D02	6736	C02	D02			
2754	A01	D02	3771	B03	D02	6737	A04	D04			
2755	C04	D01	6731	B04	D03	6738	A02	D04			


E
A 19
A 17
A 18
A 15
31
+31
+32
NC
S
N
SK1
9
10
7
8
D
LA
RA
LB
RB
D505
D508
D511
D509
D510
D507
D504
A 12
A
B 1
E 19
E 18
E 17
E 15
F 13
HEADPHONE
BASS
TREBLE
BALANS
RELAIS
D 12
F
A 11
A 13


B
T2 OUT
T2 IN
T1 OUT
T1 IN
TUNER
PHONO
C-DISC
AUX /TV
RIGHT
LEFT
EARTH
VOLUME
LOW
HIGH
MUTE
T2
T1
TUNER
PHONO
C-DISC
AUX/TV
A 1
A 2
A 3
A 4
A 5
A 6
A 7
A 8
A 9
A 10
A 11
A 12
B 2
B 3
B 4
B 5
B 6
B 7
B 8
B 9
B 10
F 11



Ⓐ 5322 390 20019

400	4822 459 50304	418	4822 267 30324
401	4822 410 30293	419	4822 462 40409
402	4822 505 10703	420	4822 426 50653
403	4822 426 50592	422	4822 256 90495
404	4822 410 22934	423	4822 256 90496
406	4822 276 11096	424	4822 411 60937
407	4822 410 30289	426	4822 276 11099
408	4822 410 30291	427	4822 276 11102
409	4822 410 30286	428	4822 276 20291
411	4822 410 23048	431	4822 267 50284
412	4822 410 30288	432	4822 267 50284
413	4822 410 30287	433	4822 267 30377
414	4822 410 30284	434	4822 267 30377
416	4822 410 30285		
417	4822 505 10571		

2403 2404	Elco 1.5 µF 50 V	4822 124 21125
2501 2502	Elco 1.5 µF 50 V	4822 124 21125
2553 2554	Elco 10.000 µF 50 V	4822 124 21166

3413 3414	Met film res 3[illegible]k	[illegible] 116 55268
3437	Slide potm. 2x100[illegible]	[illegible] 105 10503
3505	SAF Res. 22E [illegible]	[illegible] 116 51789
3513 3514	Trimpot 470E	4822 100 10038
3523 3524	Potm. neg log 2x30k	4822 101 30502
3531	Potm. 1x(220k–220k)	4822 101 20709
3547 3548	Pow. met 2.2E	[illegible] 22 116 51499
3551 3552	Power met. 390E	[illegible] 822 116 51104
3571	NF Res. 8E2 [illegible]	[illegible] 822 111 30506
3578	Trimpot 4k7	4822 100 10036
3589 3590	Saf res. 68E	[illegible] 822 111 30007
3601	Power met. 560E	[illegible] 822 116 51106

BAX14A	4822 130 31719
Diode bridge BY225/100	4822 130 50312
BZX79/C18	[illegible] 22 130 31024
Led SLP251B	[illegible] 822 130 32057
5F Led SLP[illegible]B40	[illegible] 22 130 31704
1N4148	[illegible] 22 130 30621

BC547	4822 130 44257
BC548B	4822 130 40937
BC557	4822 130 44256
BDT85A	4822 130 42143
BDT86A	4822 130 42144

IR-2E19	4822 209 81718
NJM2041DD	4822 209 81565
µPC1237H	4822 209 81567
µPC1225H	4822 209 81561

Miscellaneous

1501 1502	fuse slow 5A	4822 253 30029
1503	Relay	4822 280 70165
5001	Mainstrafo	4822 146 30469
5501 5502	Coil 3.6 µH	4822 157 50718

Carbon film	0.2 W	70°C	5%
Carbon film	0.33 W	70°C	5%
Metal film	0.33 W	70°C	5%
Carbon film	0.5 W	70°C	5%
Carbon film	0.67 W	70°C	5%
Carbon film	1.15 W	70°C	5%

© Chip component

Ceramic plate Tuning ⩽ 120 pF NP.0 Others	2% —20/+80%
Polyester flat foil	10%
Metalized polyester flat film	10%
Polyester flat foil small size (Mylar)	10%
Polysterene film/foil	1%
Tubular ceramic	
Miniature single	
Subminiature tantalum	± 20%

*a	= 2,5 V
b	= 4 V
c	= 6,3 V
d	= 10 V
e	= 16 V
f	= 25 V
g	= 40 V
h	= 63 V
j	= 100 V
l	= 125 V
m	= 150 V
n	= 160 V
q	= 200 V
r	= 250 V
s	= 300 V
t	= 350 V
u	= 400 V
v	= 500 V
w	= 630 V
x	= 1000 V
A	= 1,6 V
B	= 6 V
C	= 12 V
D	= 15 V
E	= 20 V
F	= 35 V
G	= 50 V
H	= 75 V
I	= 80 V

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