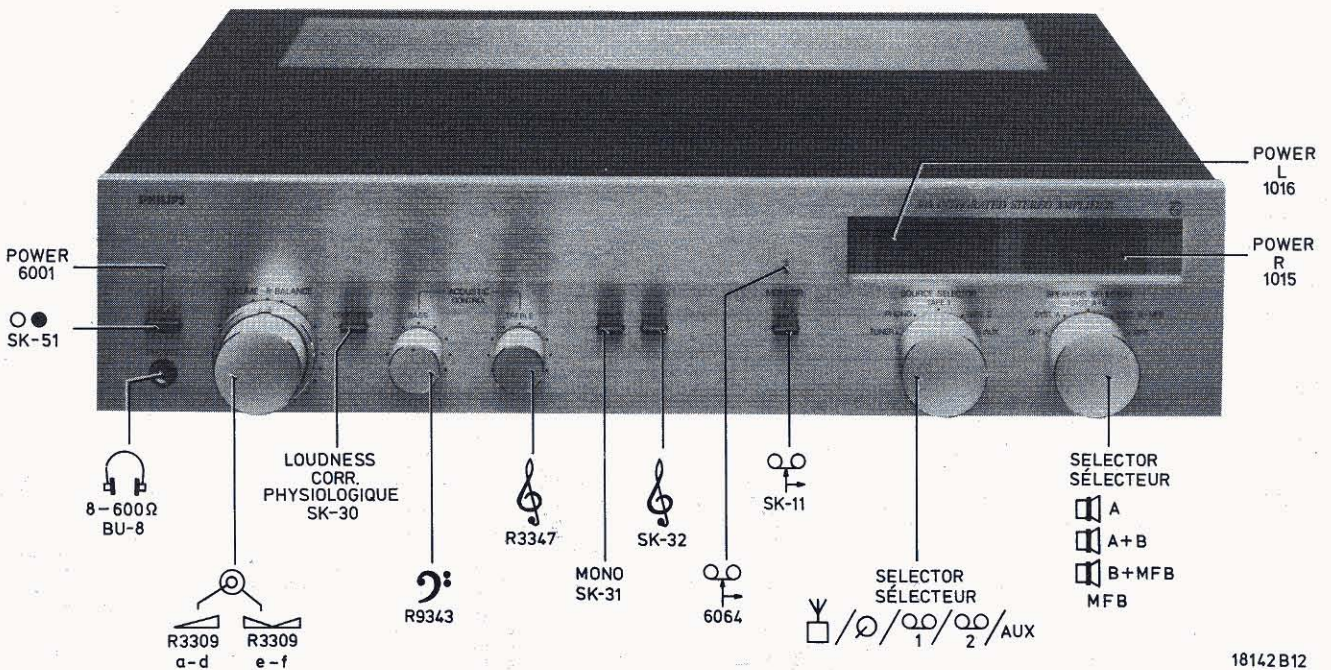


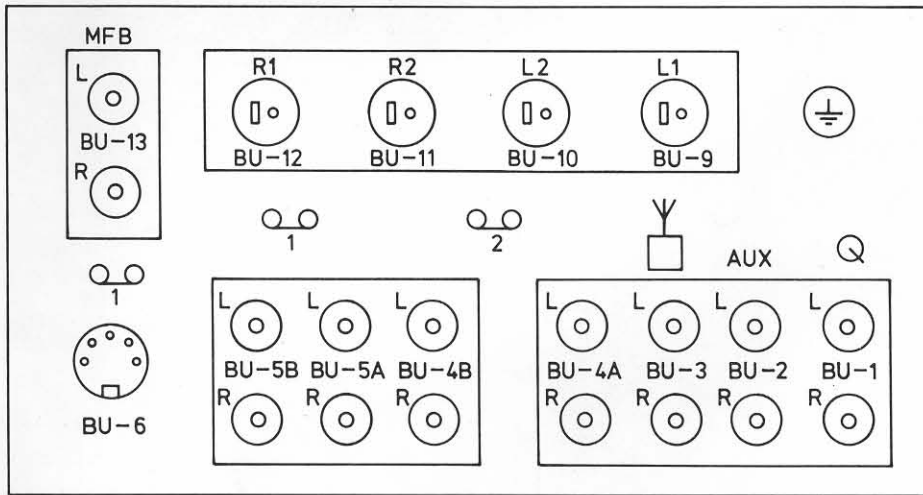
Service
Service
Service

Service Manual



18142B12





17976A12

BU-1			2,5 mV	(47 kΩ)	BU-6		1,4		0,25 mV/kΩ	(220 kΩ)
BU-2	AUX		150 mV	(500 kΩ)			3,5		150 mV	(100 kΩ)
BU-3			150 mV	(500 kΩ)	BU-8				350 mV	(8 Ω)
BU-4A			150 mV	(100 kΩ)					2,5 V	(1 kΩ)
BU-4B			150 mV	(2,5 kΩ)	BU-9		L1		45 W	(8 Ω)
BU-5A			150 mV	(2,5 kΩ)	BU-10		L2			
BU-5B			150 mV	(100 kΩ)	BU-11		R2			
					BU-12		R1		45 W	(8 Ω)
					BU-13				2,5 V	(1 kΩ)

(GB)
For more detailed technical specifications please consult commercial documentation.

(F)
Pour l'obtention de données techniques plus détaillées veuillez consulter la documentation commerciale.

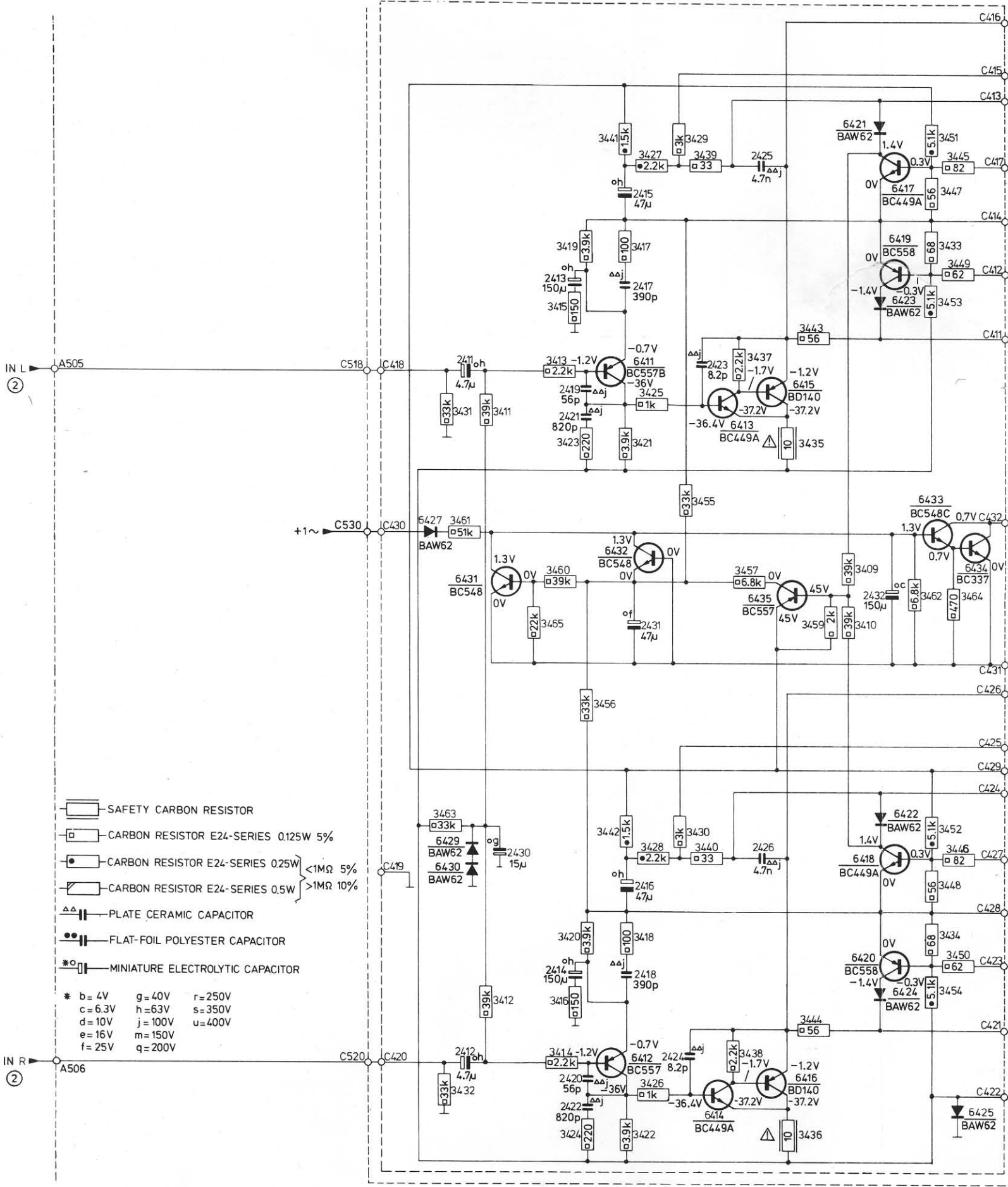
(I)
In modo da ottenere dati tecnici piu particolareggiati, vi preghiamo di riferirvi alla documentazione commerciale.

(NL)
Voor meer uitgebreide technische specificaties gelieve de commerciële documentatie te raadplegen.

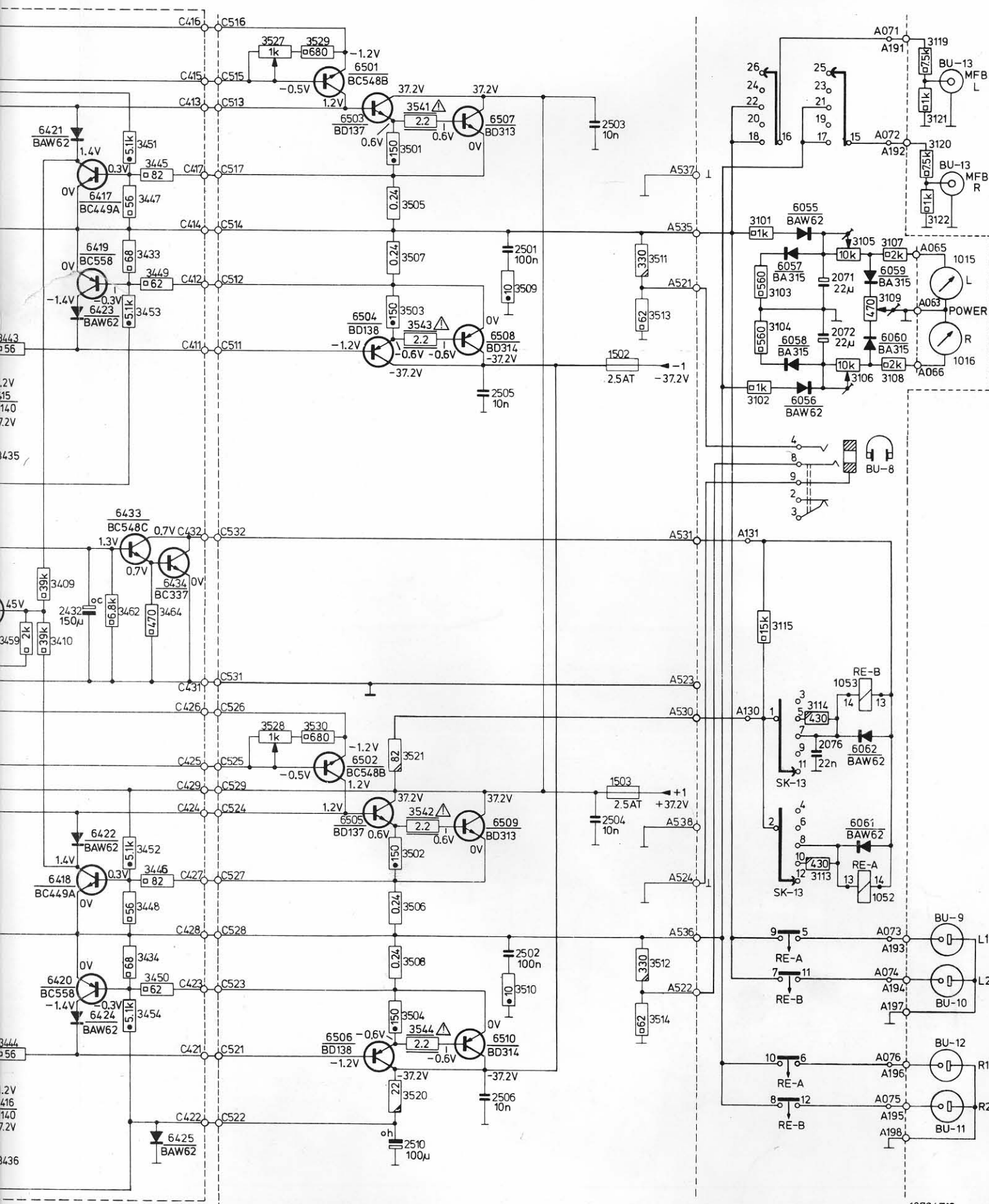
(D)
Für eine mehr detaillierte technische Spezifikation verweisen wir auf die kommerzielle Dokumentation.

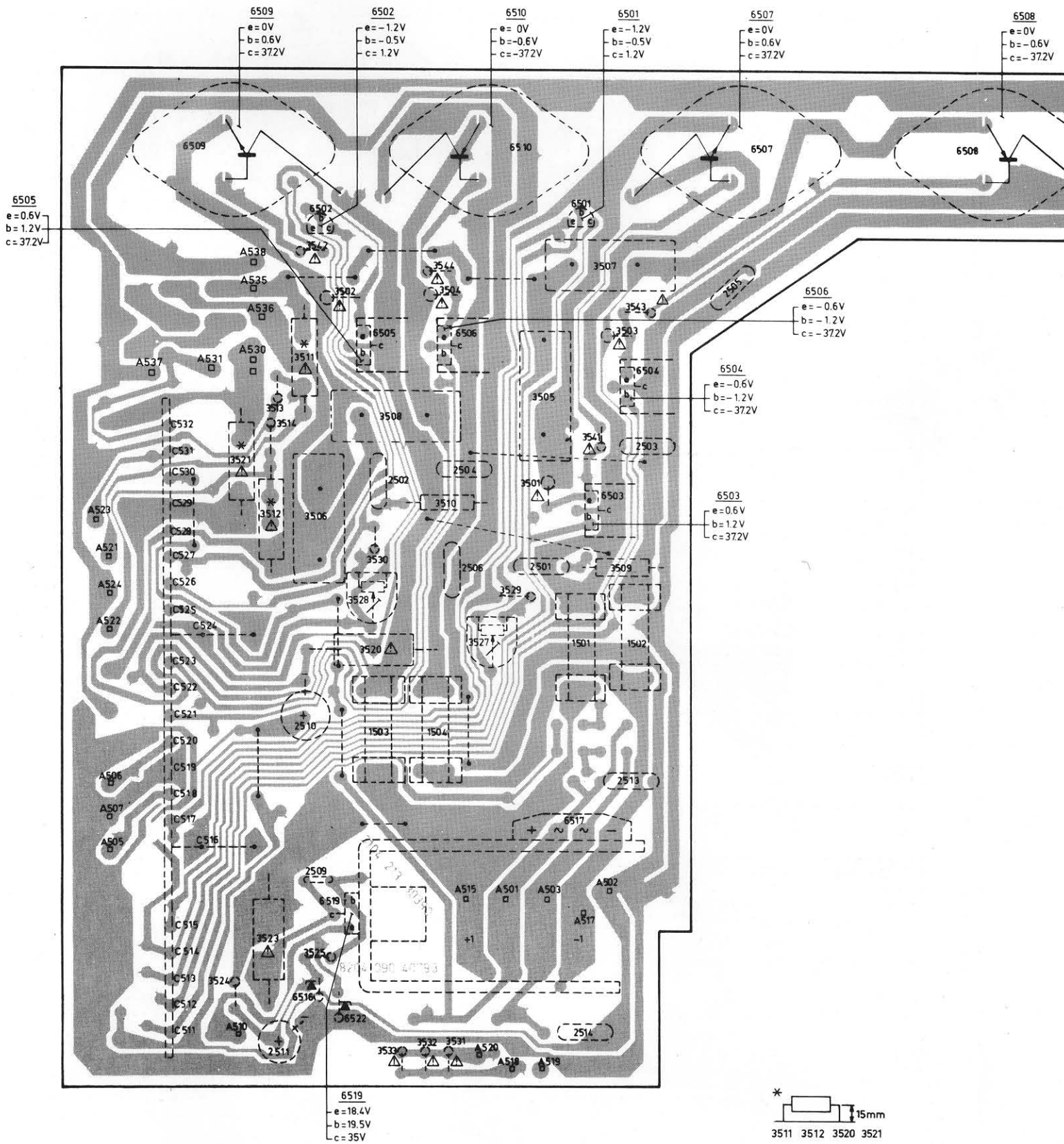
(S)
För mera detaljerade tekniska data se kommersiell dokumentation.

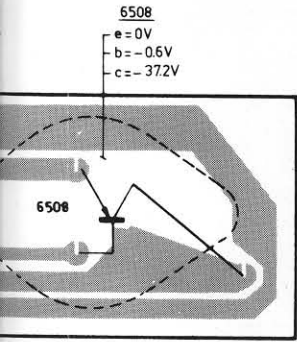
M	6427,6429,6430	6431	6411,6412,6432	6413+6416	6435	6421-6425,6417-6420,6433	6434
C	2411,2412	2430	2413+2422,2431	2423+2426	2432		
R	3463,3432,3431,3461,3465,3411+3424,3460,3456	3455,3425+3430,3436+3444,3457,3459,3410,3409,3462	3445+3454,3433,3434,3435				



6421+6425.6417-6420.6433	6434	6501+6506	6507+6510	1502.1503	6055+6058.1053.1052.6059-6062
2432		2510	2505.2506.2501.2502	2503.2504	2076.2071.2072
9.3410.3409.3462	3445+3454.3433.3434.3464	3527+3530	3520.3521.3501+3508.3541+3544.3509.3510	3511+3514	3101+3104.3113+3115.3105+3109
					3119+3122

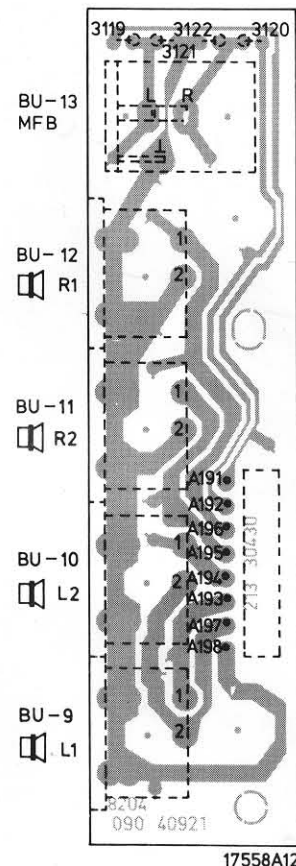
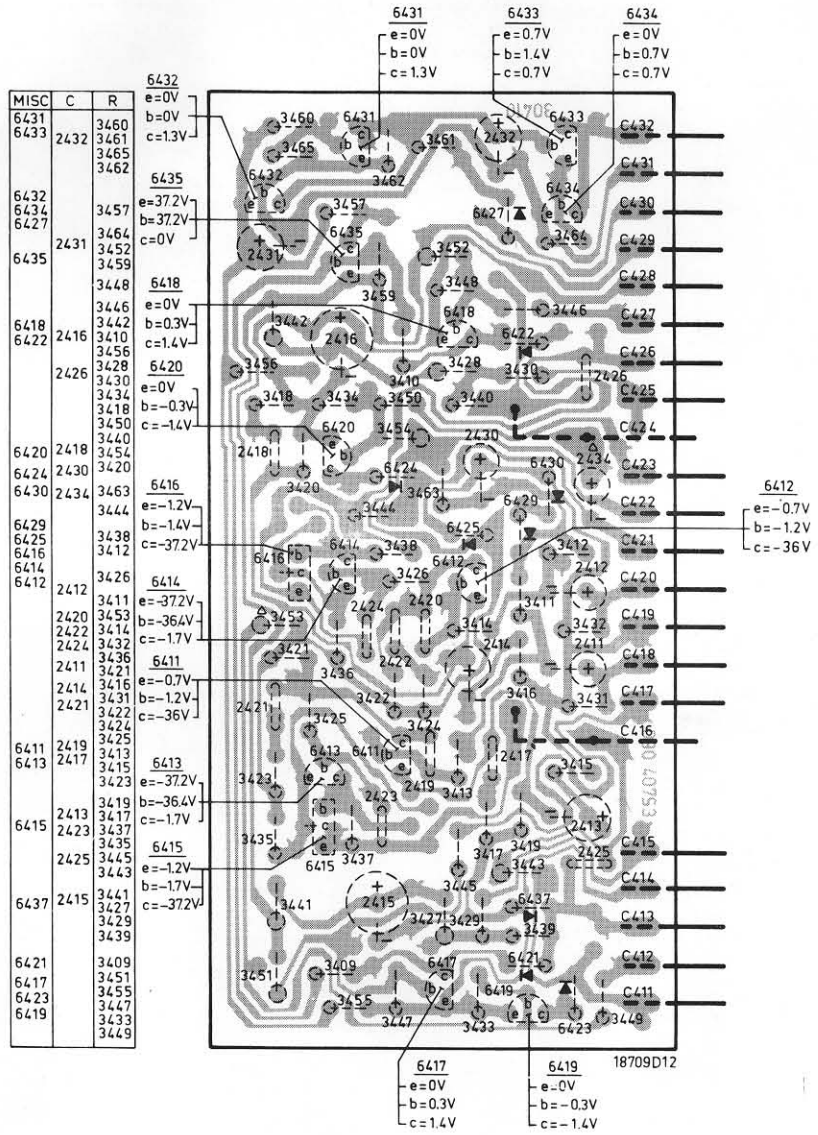






25	35	65
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25	35	65

18708D12



17558A12

1 kHz (< 250 mV)	BU-3	BU-9 (L) (BU-12) (R) 2,31 V	3105 (3106)
1 kHz (< 250 mV)	BU-3	BU-9 (L) BU-12 (R) 22 V	3109

GB

Adjustment output amplifier

Direct current adjustment – Left (Right).
With the aid of R3527 (3523) adjust the quiescent current through the output transistors to $50 \text{ mA} \pm 5 \%$.
To be measured with a non-earthed mV-meter connected across the resistors 3505, 3507 (3506, 3508).
The deflection shall then be $24 \text{ mV} \pm 5 \%$.

Inspection DC protection

- Connect a resistor of $220 \text{ k}\Omega$ between the negative pole of C2411 and point +1 of the power supply.
The relay shall then be released.
- Connect a resistor of $180 \text{ k}\Omega$ between the negative pole of C2414 and point -1 of the power supply.
The relay shall then be released.

F

Réglage de l'amplificateur de sortie

Ajustage courant continu – gauche (droit).
Par action sur R3527 (3523) régler le courant de repos à travers les transistors de sortie pour avoir $50 \text{ mA} \pm 5 \%$.
A mesurer à l'aide d'un mV-mètre isolé de la terre, connecté aux bornes des résistances 3505, 3507 (3506, 3508).
La déviation doit être alors de $24 \text{ mV} \pm 5 \%$.

Contrôle de la protection contre le courant continu

- Connecter une résistance de $220 \text{ k}\Omega$ entre le pôle négatif de C2411 et le point +1 de l'alimentation.
Ceci fait, le relais doit se décoller.
- Connecter une résistance de $180 \text{ k}\Omega$ entre le pôle négatif de C2412 et le point -1 de l'alimentation.
Ceci fait, le relais doit se décoller.

I

Regolazione dell'amplificatore d'uscita

Regolazione della corrente di riposo canali sinistro (destro).
Per mezzo di R3527 (3523) regolare la corrente di riposo attraverso i transistor d'uscita a $50 \text{ mA} \pm 5 \%$.
Questa misura deve essere fatta con il mVoltmetro, senza il collegamento alla presa di terra, ai capi delle resistenze 3505, 3507 (3507, 3508).
La variazione può quindi essere di $24 \text{ mV} \pm 5 \%$.

Controllo del circuito di protezione in DC

- Collegare una resistenza di $220 \text{ k}\Omega$ tra il polo negativo di C2411 e il punto +1 dell'alimentazione.
il relè sarà quindi sganciato.
- Collegare una resistenza di $180 \text{ k}\Omega$ tra il polo negativo di C2412 e il punto -1 dell'alimentazione.
Il relè sarà quindi sganciato.

NL

Afregelen eindversterker

Gelijkstroominstelling – L(R).
De ruststroom door de eindtransistoren moet ingesteld worden met R3527 (3523) op $50 \text{ mA} \pm 5 \%$ te meten met een niet geaarde mV-meter aangesloten over de weerstanden 3505, 3507 (3506, 3508).
De uitslag moet dan $24 \text{ mV} \pm 5 \%$ zijn.

Controle DC beveiliging

- Sluit een weerstand van $220 \text{ k}\Omega$ aan tussen de - (min pool) van C2411 en de +1 voeding.
Het relais moet dan afvallen.
- Sluit een weerstand van $180 \text{ k}\Omega$ aan tussen de - van C2412 en de -1 voeding.
Het relais moet dan afvallen.

D

Abgleich des Endverstärkers

Gleichstromeinstellung – L(R).
Der Ruhestrom durch die Endtransistoren soll mit R3527 (3523) auf $50 \text{ mA} \pm 5 \%$ eingestellt werden; zu messen mit einem nicht-geerdeten mV-Meter, über die Widerstände 3505 und 3507 (3506 und 3508) angeschlossen.
Der Ausschlag soll dann $24 \text{ mV} \pm 5 \%$ sein.

Kontrolle der Gleichspannungssicherung

- Einen Widerstand von $220 \text{ k}\Omega$ zwischen Minusleiter von C2411 und +1-Stromversorgung anschliessen.
Das Relais soll dann abfallen.
- Einen Widerstand von $180 \text{ k}\Omega$ zwischen Minusleiter von C2412 und -1 Stromversorgung anschliessen.
Das Relais soll dann abfallen.







S

Inställning av slutsteg

Ställ in vilostrommen för vänster (höger) kanal med hjälp av R3527 (3523) så att den blir $50 \text{ mA} \pm 5 \%$ genom sluttransistorerna. Mät med en ickejordad mV-meter över resistorerna 3505, 3507 (3506, 3508). Spänningen skall vara $24 \text{ mV} \pm 5 \%$.

Kontroll av DC-skydd

- Anslut en resistor på $220 \text{ k}\Omega$ mellan den negativa polen på C2411 och +1 på nätspänningsaggregatet.
Härvid skall reläet lösa ut.
- Anslut en resistor på $180 \text{ k}\Omega$ mellan den negativa polen på C2412 och -1 på nätspänningsaggregatet.
Härvid skall reläet lösa ut.

-TS-				
6051-6054	BC559B	4822 130 44358	3009	2x100+22K 4822 102 10145
6301,6302	BC559	4822 130 40963	3337,3338	Metal res. 330K-2% 4822 116 51207
6303,6304	BC548B	4822 130 40937	3339,3340	Metal res. 47K-2% 5322 116 54671
6305,6306	BC548	4822 130 40938	3343,3347	2x47K 4822 102 30313
6307,6308	BC558	4822 130 40941	3435,3436	Safety 10 Ω 4822 111 30405
6411,6412	BC557B	4822 130 44568	3443,3444	Safety 56 Ω 4822 111 30029
6413,14,17,18	BC546B	4822 130 41067	3501-3504	Safety 150 Ω 4822 111 30156
6415,6416	BD138	4822 130 40665	3505-3508	W.W.-3W-0,24 Ω 4822 115 40216
6419,6420	BC558	4822 130 40941	3511-3512	W.W.-4W-330 Ω 4822 110 43098
6431,6432	BC548	4822 130 40938	3521	Safety 130 Ω 4822 111 50405
6433	BC548C	4822 130 44196	3523	Safety 22E 4822 111 50346
6434	BC337	4822 130 40855	3527-3528	1K 4822 100 10037
6435	BC557	4822 130 44256	3532-3533	Safety 1 Ω 4822 111 30215
6501-6402	BC548B	4822 130 40937	3541-3544	Safety 5.6 Ω 4822 111 30435
6403-6506	BD137/138	4822 130 40704		
6507,6509	BD313	4822 130 41154	-C-	
6508,6510	BD314	4822 130 41155	2001-2002	6800 uF - 40 V 4822 124 70315
6519	BD677	5322 209 85451	2071,2072	22 uF - 40 V 4822 124 40223
			2076	22 nF 4822 122 30103
-D-			2321,2311	82 nF 4822 121 41158
6001		4822 130 31137	2335,2323	10 nF 4822 121 41134
6055,6056			2419-2420	56 pF - 2% 4822 122 31074
6061,6062	BAW62	4822 130 30613	2423-2424	8.2 pF - 2% 4822 122 31052
6057-6060	BA315	4822 130 30843	2501-2502	100 n - 100 V 4822 121 40334
6063-6068	GL-2AR-1	4822 130 31137	2503-2506	250 V - 47 n 4822 121 40239
6421-6430	BAW62	4822 130 30613	2512	100 n - 250 V 4822 121 40518
6515	BAW62	4822 130 30613	2513-2514	470 n - 100 V 4822 121 40438
6516	BZX79/C20	5322 130 34499		
6517,6518	BY225/100	4822 130 30917	-Miscellaneous-	
6522	BZX79/C22	4822 130 34441	1010-1011	6,3 V - 250 mA 4822 134 40007
			1015	4822 347 10244
			1016	4822 347 10245
5001		4822 146 80086	1051	4822 218 10124
			1054,1055	6,3 AT 4822 253 30031
-R-			1501-1504	2 AT 4822 253 30025
3105,3106	10K	4822 100 10035	1052-1053	Relay 4822 280 70166
3109	470 Ω	4822 100 10038		
3110	Safety 56 Ω	4822 111 30412		
3116,3117	Safety 1,6 Ω	4822 111 30471		
3301	Safety 56 Ω	4822 111 30412		

(GB)

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

(NL)

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(F)

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(D)

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

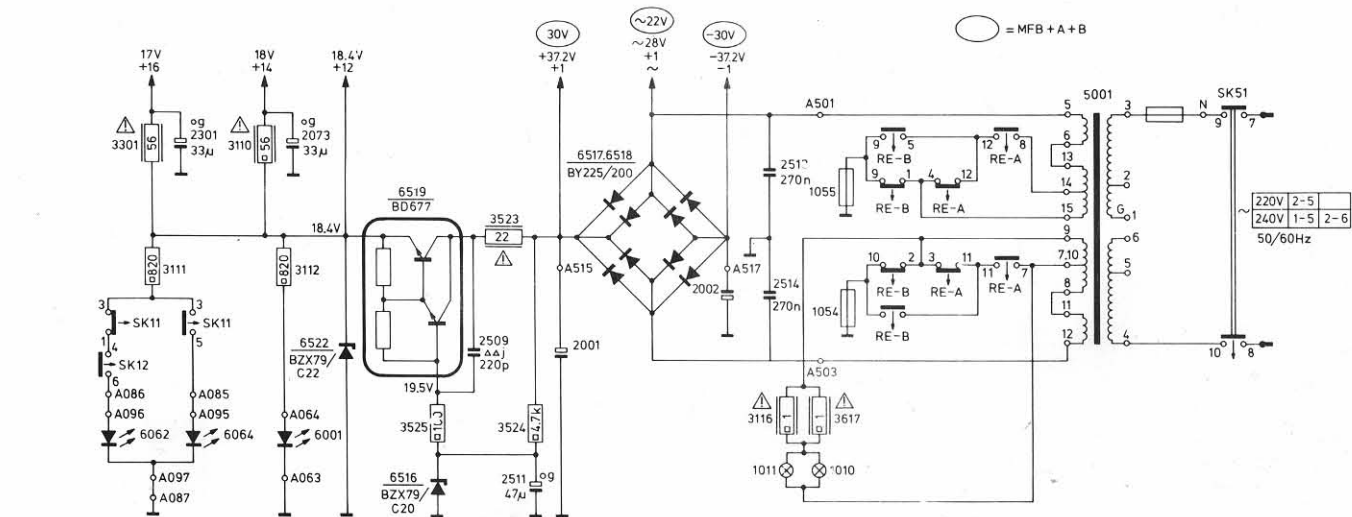
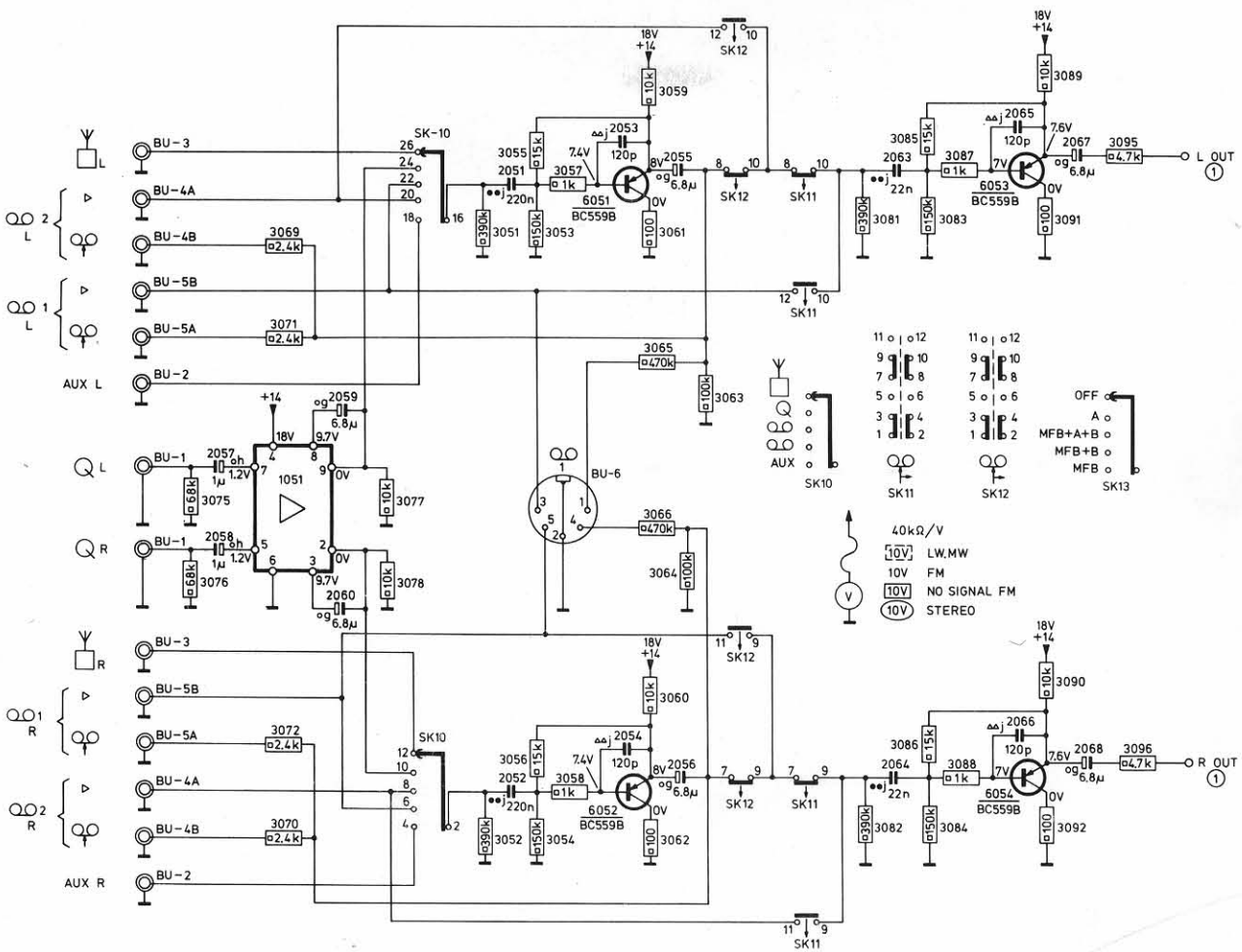
(I)

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

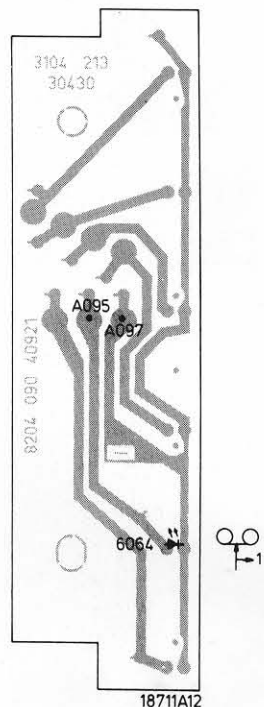
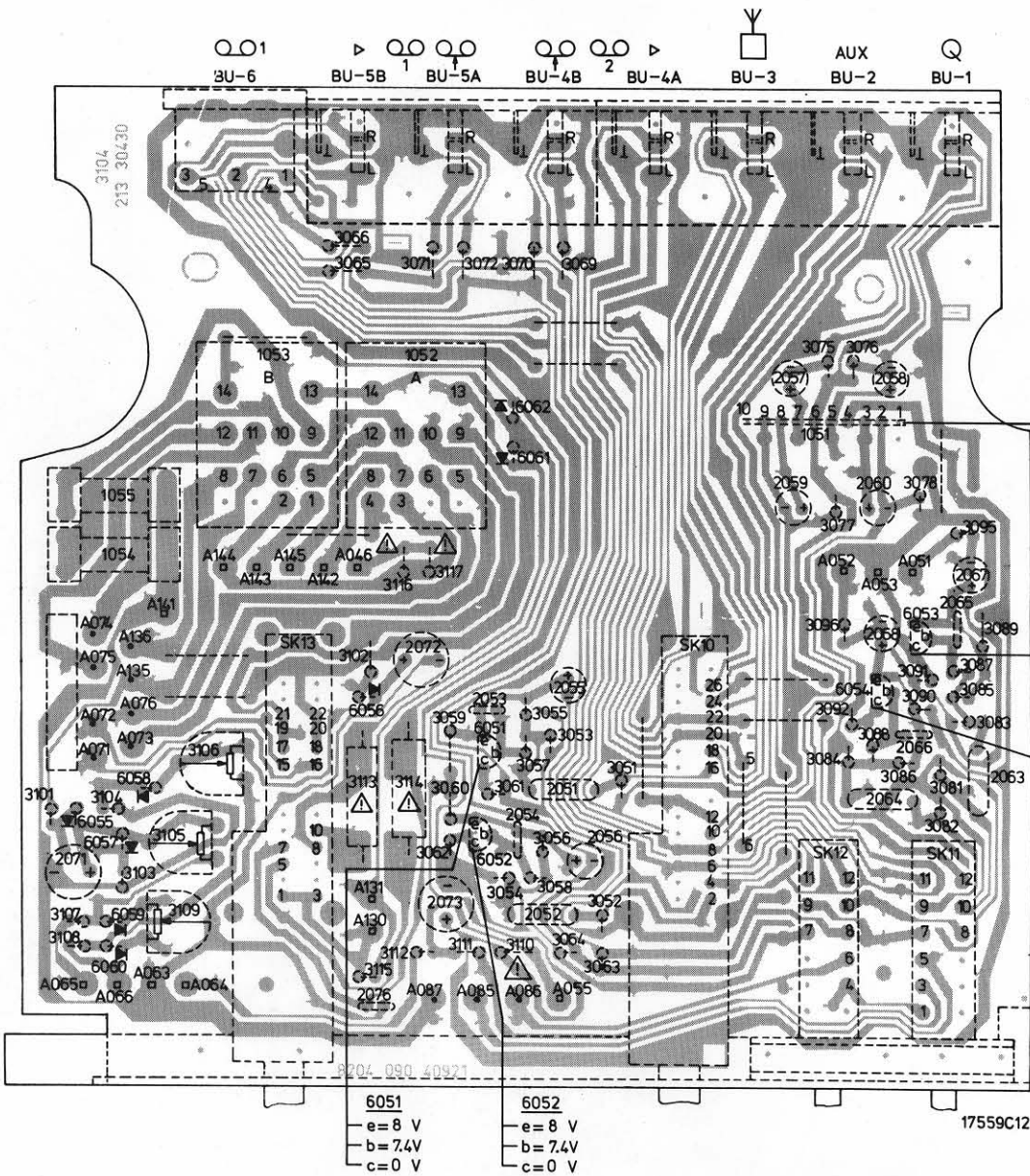
(S)

Säkerhetsbestämmelserna kräver att varje reparation skall utföras korrekt med hänsyn till ursprunglig placering av komponenter, ledningar etc. och med användning av föreskrivna reservdelar.

MISC.	6062	6064,6522,1051,6001	6516,6519	6517,6051,6052,6518	1011	1055,1054,1010	6053,6054	5001	MISC.				
C		2301,2057,2058	2073	2509,2511,2051,2052,2001,2053,2054,2002,2055,2056,2513,2514			2063,2064	2065,2066,2067,2068	C				
R		3301,3111,3075,3076,3110,3069	3072,3112,3077,3078,3523	3524,3051	3059	3066	3116	3617	3081	3088	3089	3092,3095,3096	R

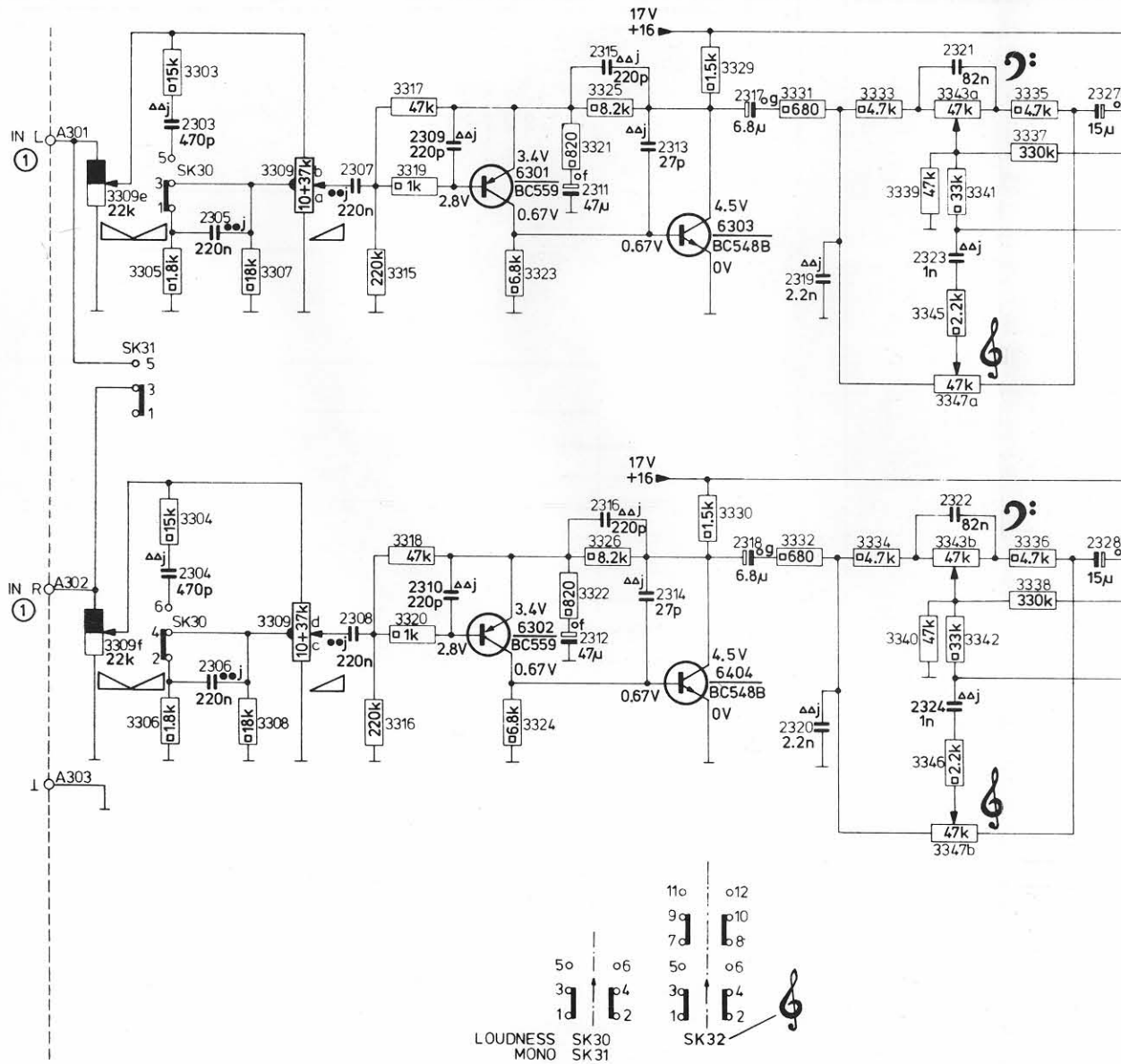


20..	30..	60..
	66	72
	71	69
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	3119	3120
	3121	3122
57	75	76
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59	77	78
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	95	
67	3116	3117
65		
68	96	89
72	87	3102
55	91	
	85	
53	90	55
66	92	83
	59	53
63	88	57
	84	86
	81	51
51	61	3106
64	3104	3101
	60	82
54	3113	3114
	56	52
56		3105
71	54	58
73	3103	
	3109	
52	3107	52
	3108	64
	3110	63
	3112	60
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		63

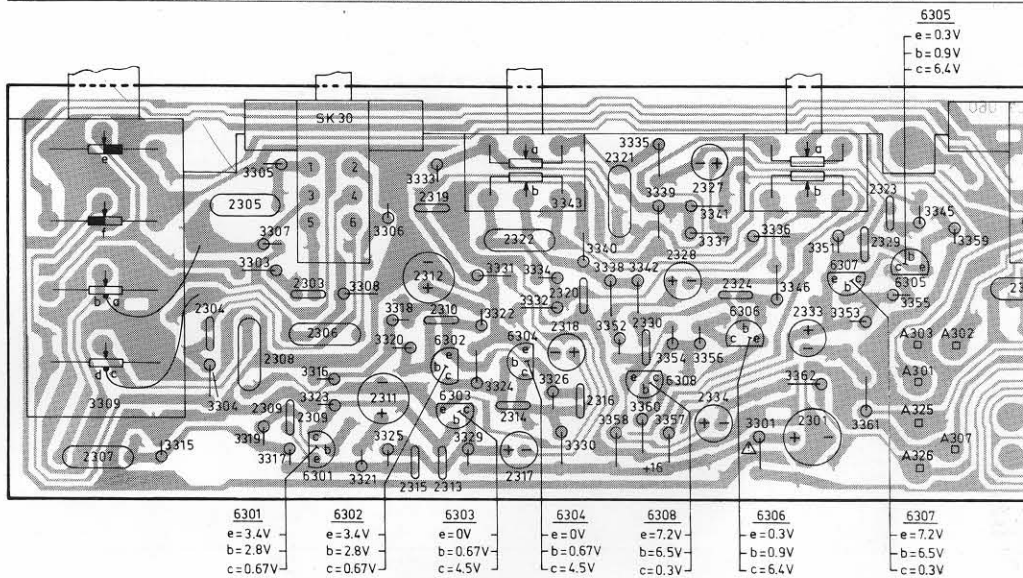


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		6301.6302		6305.6304			
2303÷2306	2307÷2310	2311÷2316	2317÷2320	2321÷2424	2327	2328	2329
3303÷3309	3315÷2320	3321÷3326	3329÷3332	3345÷3347.3333÷3340.3341÷3345	3335	3337	3338

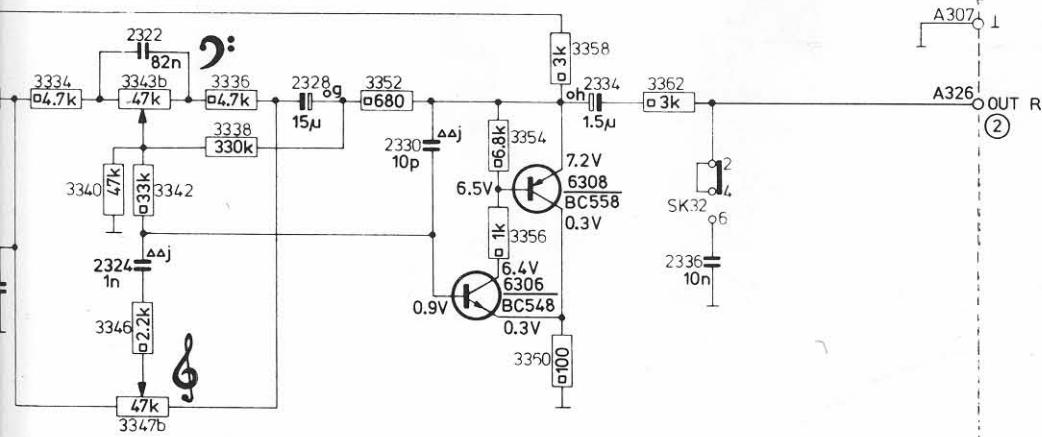
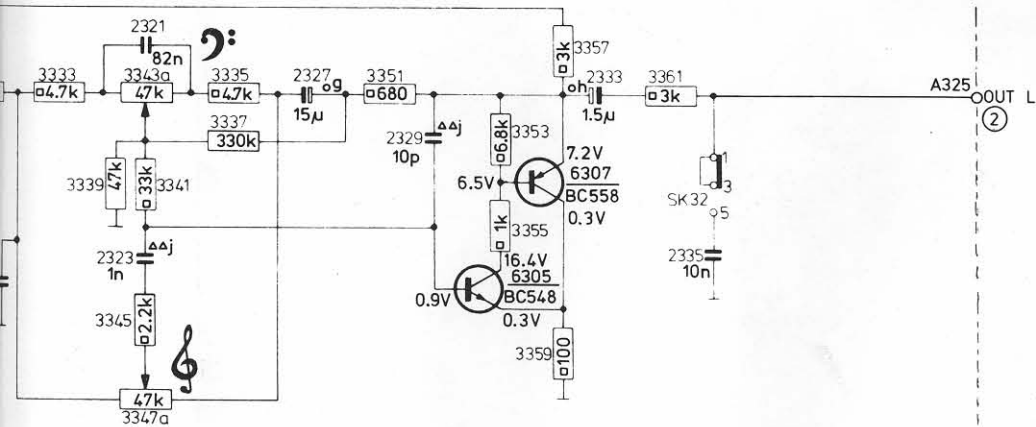


MISC	6301. SK 30	6302. 6303	6304	6308	6306	6307	6305	9
C	2305 2303	2312. 2319. 2310	2322	2320. 2321	2328. 2327. 2324	2329	2323	23
C	2307	2304. 2308. 2309. 2306. 2311	2315	2313	2314	2316	2318	2330
R	3309	3303. 3307. 3305	3308	3306	3331	3334. 3343. 3335	3337	3342
R		3315	3304	3323	3316	3321. 3325. 3329	3324. 3322. 3326	3330



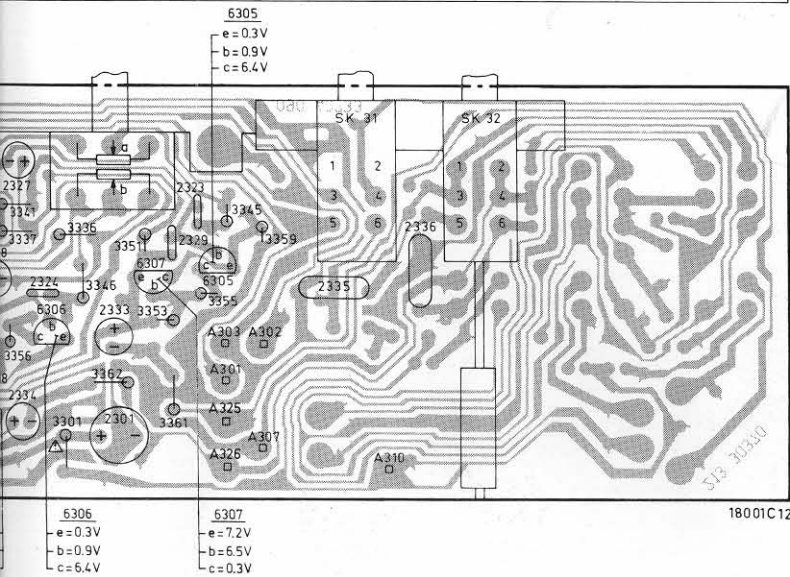
6305=6308

2321÷2424	2327÷2330	2333.2334	2335.2336
3345÷3347.3333÷3340.3341÷3345	3351÷3356	3357÷3362	

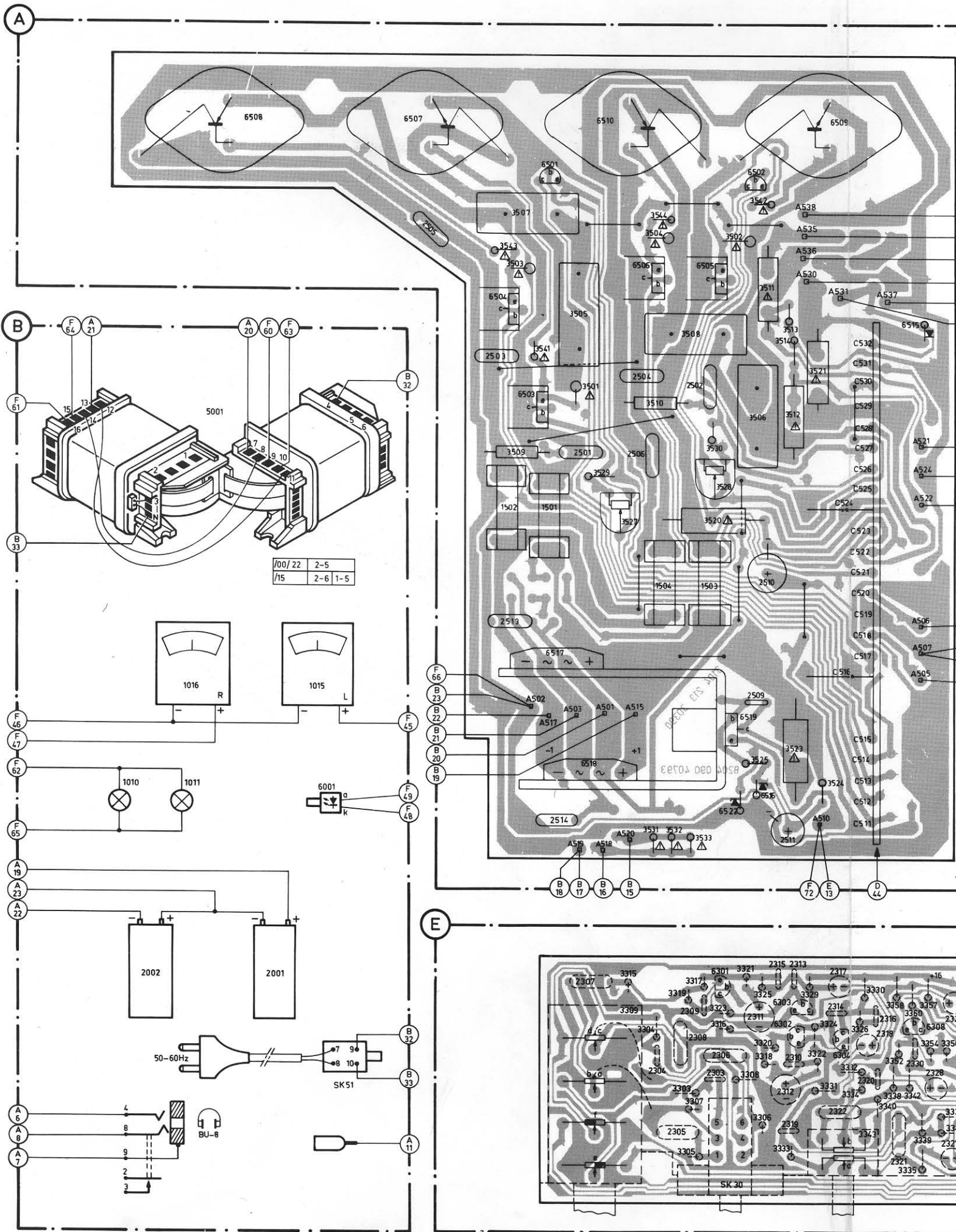


17454.D12

6306	6307	6305	SK 31	SK 32	SK 33	SK 34
2327.2324	2329.2323	2335	2336	2337	2338	
2334	2301.2333					
3336.3346.3347.3351.3355.3345.3359		3363	3364		3366	
3358.3354.3301.3362.3353.3361					3365	



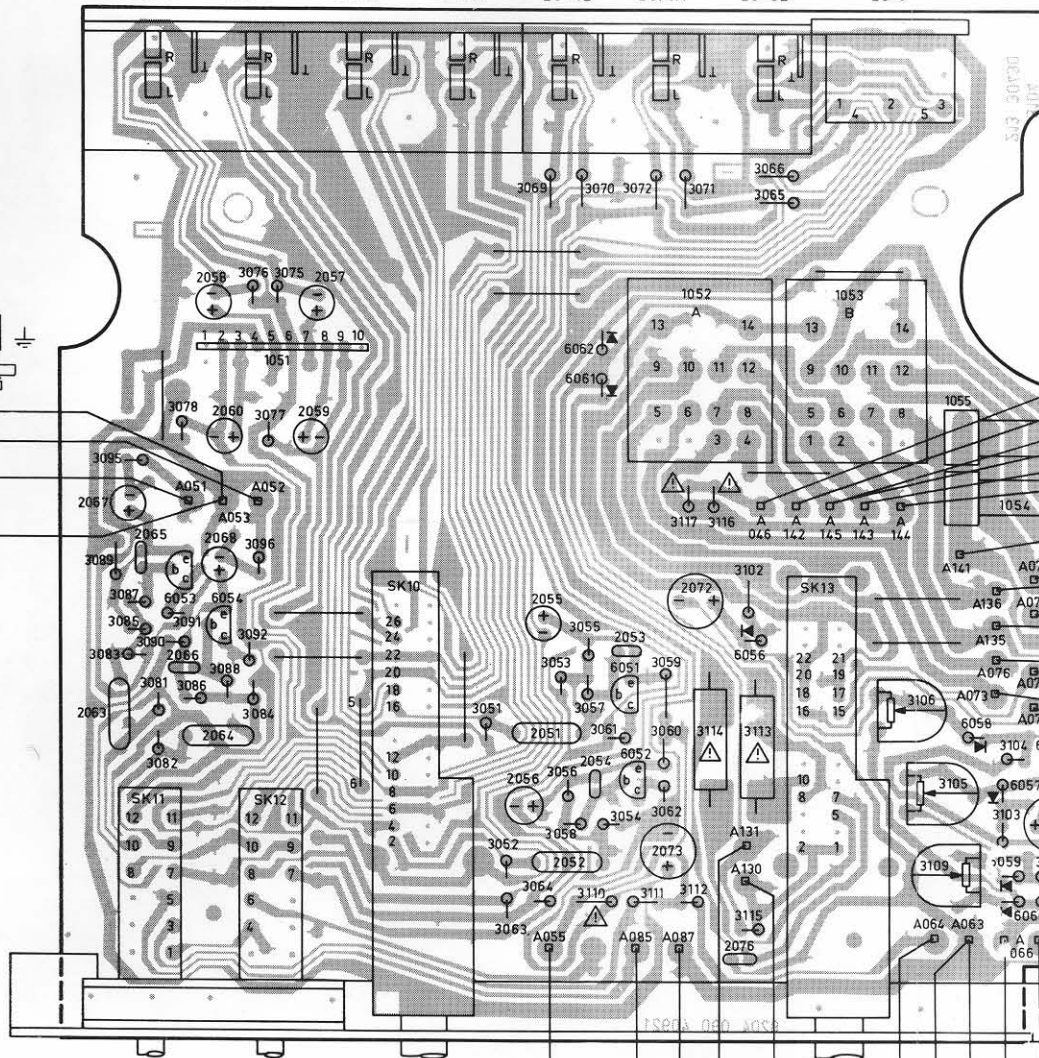
18001C12



F

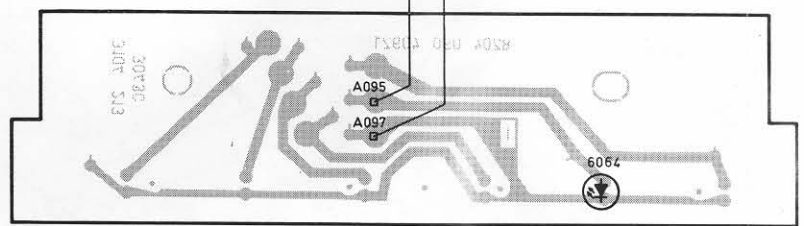
Q BU-1 AUX BU-2 BU-3 BU-4A BU-4B BU-5A BU-5B BU-6

E 36
E 35
E 34

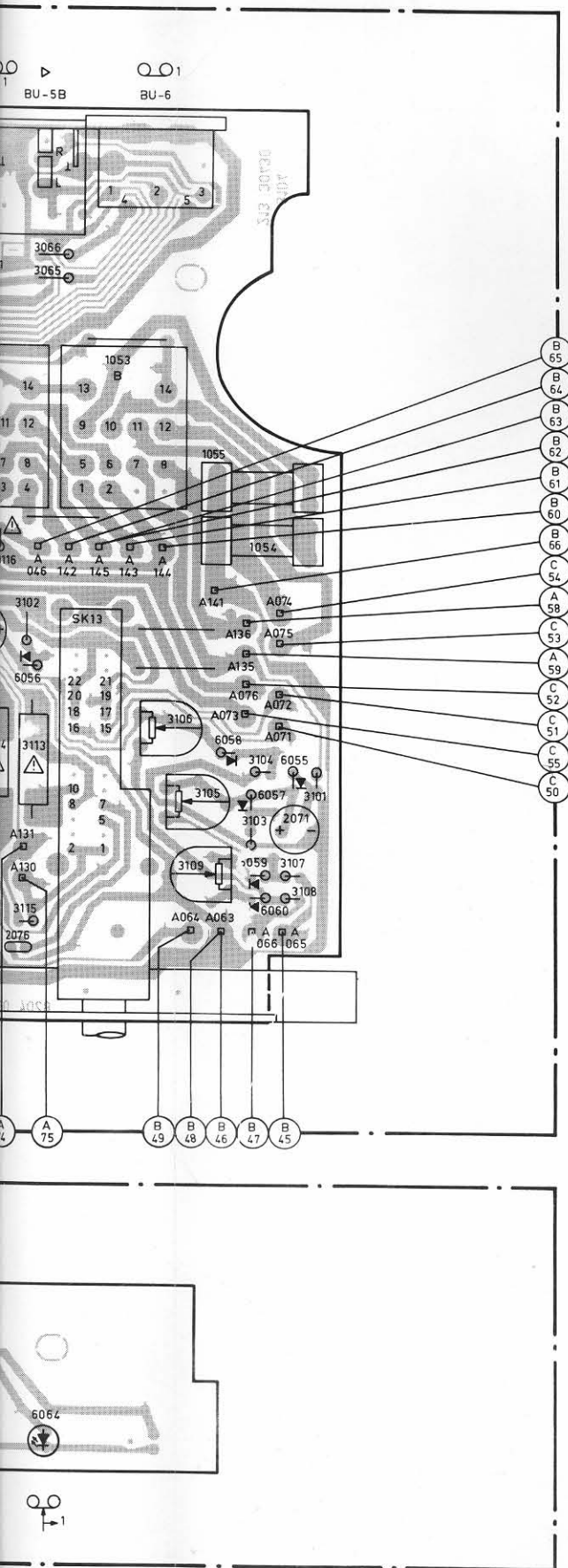


G

F 72 F 73



1-1



MISC	C	R
BU-1 BU-6		3069 3072 3070 3071 3065 3066
1052 1053	2058 2057	3075 3076
6062 1051 6061		
	2059 2060	3078 3077
1055		3095
1054	2067 2065	3117 3116
6053 SK10 SK13 6054	2068 2072 2055	3096 3102 3087 3091 3085 3055
6056 6051	2053 2066	3092 3083 3053 3053
6058 6055 6052	2063 2064 2051	3088 3081 3086 3084 3057 3106 3151 3061
6057 SK11 SK12	2056 2071	3104 3101 3056 3101 3105 3062 3054 3101 3103
6059	2073 2052	3109 3107
6060		3064 3110 3111 3112 3108 3115
2076		
6063 6068		

18707D12

401	4822 256 90294
402	4822 466 70371
403	4822 255 10151
406	4822 466 70374
407	4822 426 50371
407/28	4822 426 50382
408	4822 413 51047
409	4822 413 51046
411	4822 413 40857
412	4822 413 40857
413	4822 413 51045
414	4822 413 51045
416	4822 276 10579
417	4822 267 30319
419	4822 410 22231
421	4822 505 10571
423	4822 492 40658
424	4822 276 10692
425	4822 410 22232
434	4822 276 10734
436	4822 273 80231
437	4822 277 30386
438	4822 410 22232
442	4822 410 30203
445	4822 492 61976
446	4822 426 40162
447	4822 492 62176
448	4822 492 60063
452	4822 532 60653
453	5322 466 90433
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461	4822 462 71121
462	4822 267 30327
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