Service
Service
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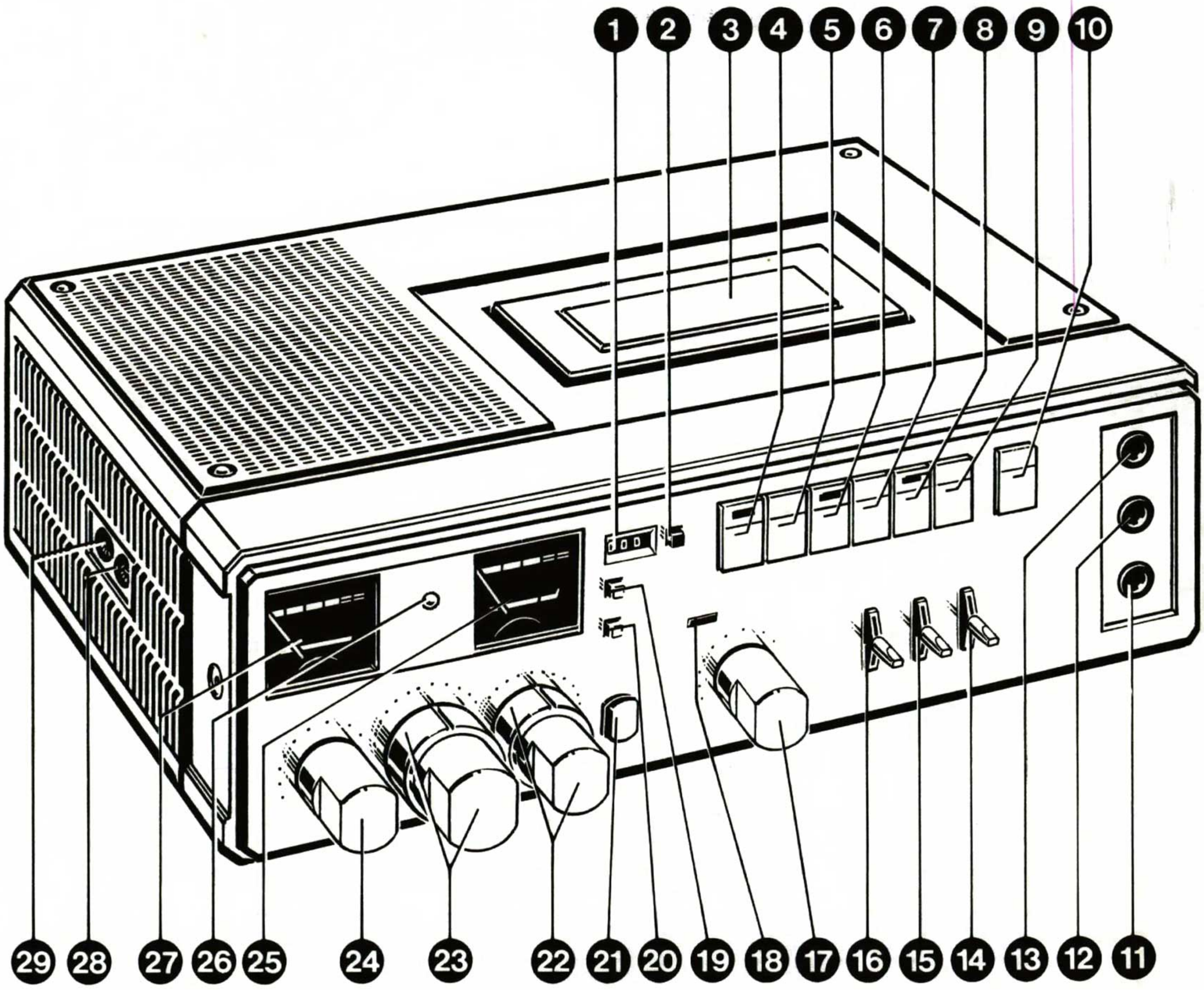
Service Manual



33 970 A12

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

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PHILIPS

"Pour votre sécurité, ces documents doivent être utilises par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

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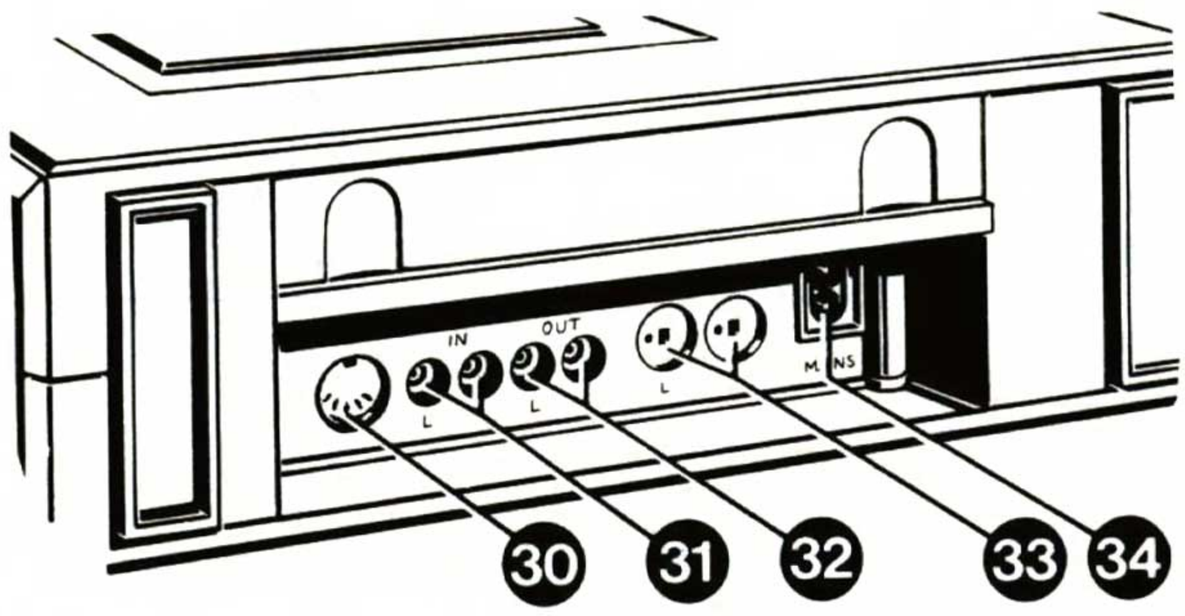
CONNECTIONS AND CONTROLS

1		„Tape counter"	
2		„Reset counter"	
3		„Cassette lid"	
4		„Record"	SK301-SK2.D306
5		„Rewind"	SK302
6		„Play"	SK303,D307
7		„Wind"	SK304
8		„Pause"	SK305,D308
9		„Stop"	SK306
10		„Eject"	
11		„Headphones"	BU10.SK-10
12		„Ext mic R/mono"	BU5.SK-9
13		„Ext mic L"	BU6.SK13
14	MIC/MIXING	„Mode switch"	SK-3
15	RECORDING AUTO/MAN	„Mode switch"	SK-4
16	Cr02/NORMAL	„Sound selector"	SK-5
17	SOUND ON SOUND/POST FADING	„Tape mixing-/" „Sound fading adjustment"	R34/R134.SK-8
18		„Post fading-/ Sound on sound indicator"	D309

19	Battery	„Battery condition" check	SK-7
20	Light	„indicator illumination"	SK-6
21		„Power ON/OFF"	SK-1
22		„Volume"	R29/R129
23		„Record-Manual"	R16/R116
24		„Pitch-control"	R95
25		„Indicator right"	I101
26		„Power indicator"	D150
27		„Indicator left"	I1
28		„Audio-visual socket	BU201/SK201
29		„Remote control"	BU202
30		„Input/output-DIN"	BU9
31		„Input - CINCH"	BU1 (L) BU2 (R)
32		„Output - CINCH"	BU3 (L) BU4 (R)
33		„Ext looudspeakers"	BU7/SK-11 (L) BU8/SK-12 (R)
34		„Mains inlet"	BU11/SK-0



33 971 A12

CS 92 698

SPECIFICATIONS

⊣⊢ 9 V (6 x R14)

127 V-220 V-240 V 50/60 Hz
(for adaption; see wiring diagram)

Tape speed 4.76 cm/sec ±2%
Wow and flutter ⩽ 0,3%

Frequence response (overall within 8 dB)

Normal	(I)	60 Hz - 12 kHz
Cr02	(II)	60 Hz - 13 kHz

S/N Ratio ⩾ 45 dB

Input values

ext mic	0.3 mV/ 2 kΩ	BU5,BU6
	50 mV/220 kΩ	BU1,BU2
tape in	200 mV/ 1 MΩ	3-5/2 BU9
	2 mV/ 10 kΩ	1-4/2 BU9

Output values

tape out	0.5-1 V/10 kΩ	3-5/2 BU9 BU3,BU4
ext loudsp.	⩾ 4 Ω	BU7,BU8
head phone	8 Ω - 600 Ω	BU10

CONNECTIONS FOR AUDIO VISUAL PURPOSES (BU201)

Audio-Visual socket

Type of socket	:	6-pole 240° acc to DIN 45322
Synchronisation track	:	pin 6 and 3 (2)
Remote control (power interrupt)	:	pin 1 and 5
External speed control	:	pin 4 and 3 (2)
Mass connection	:	pin 3 (2)
9 Volt DC (±10%)	:	pin 5 (I max = 300 mA)
Stop time remote control	:	< 300 msec.
Start time remote control	:	< 150 msec.

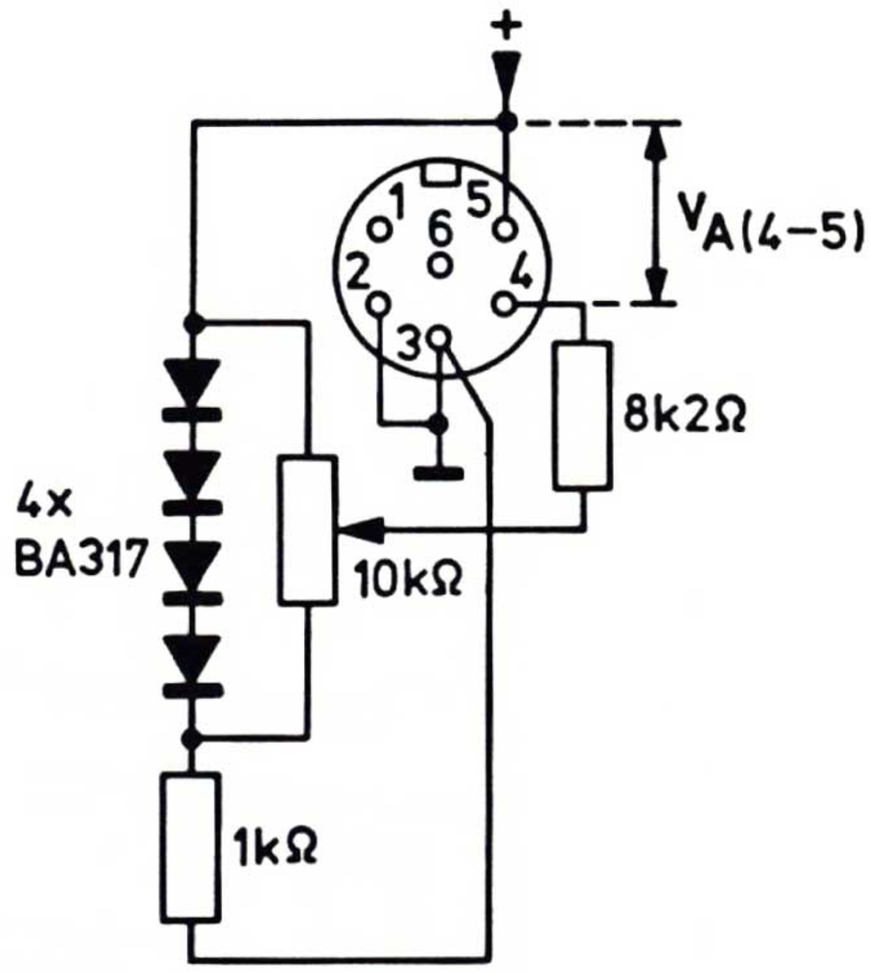
Synchronisation track (K1d)

Advised pulse synchro signal	:	1 kHz/500 mV over 250 ohm
Advised dissolver unit signals	:	200 Hz÷3 kHz/500 mV over 250 ohm
Erasing of the synchronisation track	:	DC current 6 mA
Playback of synchronisation track	:	Veff. ⩾ 300 μV (1 kHz RL ⩾ 2 k ohm)
Overall frequency response	:	200 Hz÷3 kHz (output ⩾ 150 μV)
Track separation synchro track versus audio track	:	⩾ 50 dB/1 kHz
DC resistance of synchronisation track	:	300 ohm ± 30%
Impedance of synchronisation track	:	1100 ohm ± 30%

External speed control (pin 4 and 3 (2))

Speed approx. +15% to nominal : VA(4-5) 2.3 V on pin 4
Speed nominal 4.76 cm/sec: VA(4-5) 1.4 V on pin 4
Speed approx. −15% to nominal : VA(4-5) 0.9 V on pin 4

Advised circuitry:



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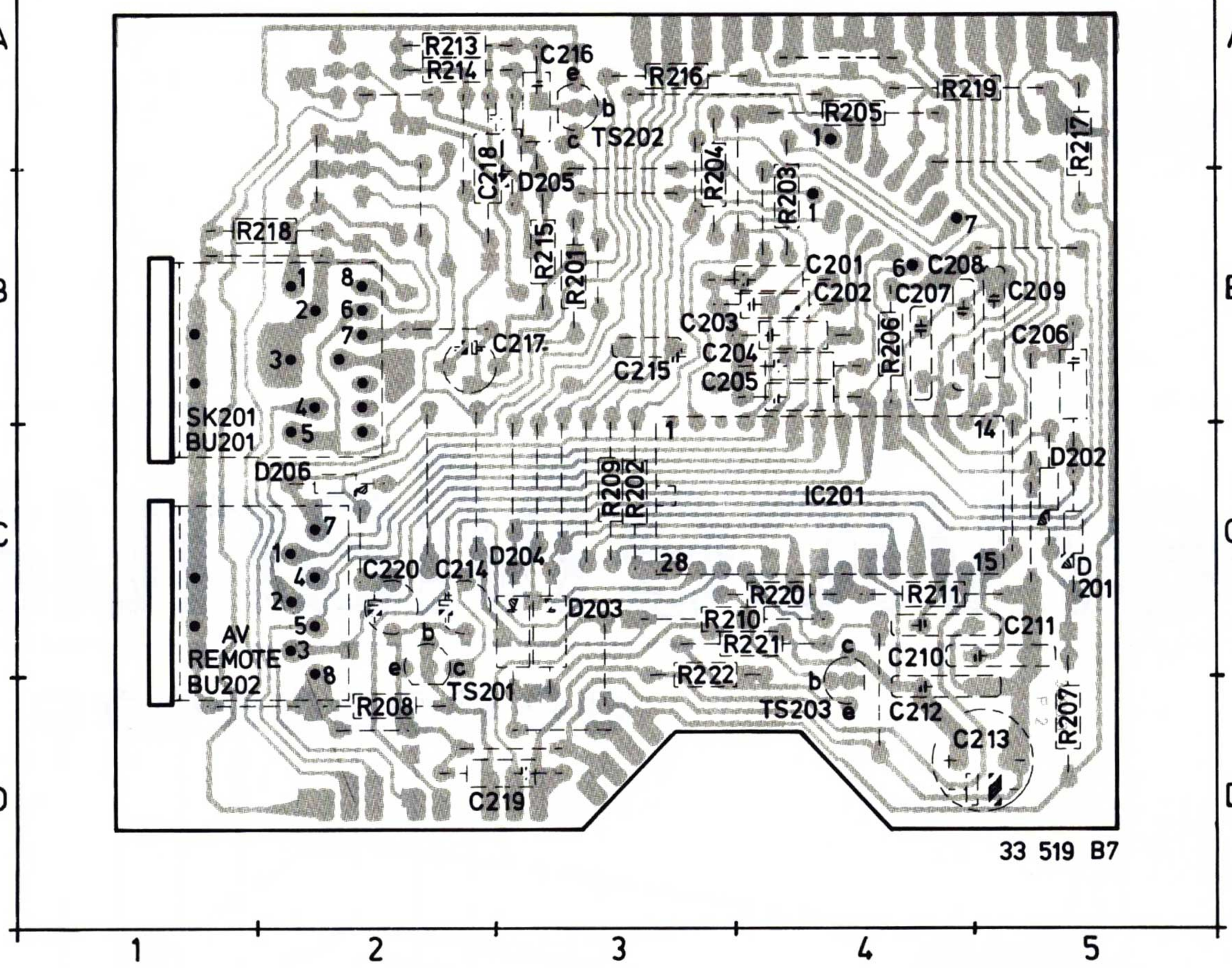

Fig. 1

33519B

ITEM	PCB																				
C201	B04	C206	B05	C211	C05	C217	B03	D202	C05	R201	B03	R206	B04	R213	A02	R218	B01	BU201	C01	TS202	A03
C202	B04	C207	B04	C212	D04	C218	A02	D203	C03	R202	C03	R208	D02	R214	A02	R219	A04	BU202	D01	TS203	D04
C203	B03	C208	B04	C214	C02	C219	D03	D204	C03	R203	B04	R209	C03	R215	B03	R220	C04	IC201	C04		
C204	B03	C209	B05	C215	B03	C220	C02	D205	B03	R204	B03	R210	C03	R216	A03	R221	C04	SK201	B01		
C205	B03	C210	C04	C216	A03	D201	C05	D206	C02	R205	A04	R211	C04	R217	A05	R222	D03	TS201	D02		

33460E

ITEM	CD																				
D4	J01	M2	C04	C51	G09	C56	G10	D10	G09	D16	G07	IC2	C09	R65	G07	R71	G05	R82	A09		
D8	G09	M3	F04	C52	G08	C57	G10	D11	G09	D19	D08	K1D	D05	R66	H07	R72	H06	R83	C10		
D9	G09	T1	G10	C53	G05	C61	B08	D12	G07	D20	D07	LA1	G06	R67	G07	R73	G07	R84	A09		
F1	G10	C33	G06	C54	G05	C62	C06	D14	F06	D21	B08	R33	G06	R68	G07	R80	E04	R85	B08		
M1	C06	C38	J01	C55	G08	C63	B06	D15	G06	D23	G06	R64	G08	R70	H07	R81	C10	R86	C07		
R87	C07	R92	C08	R97	C08	C202	F02	C207	H03	C212	D01	C217	I03	D202	H03	D306	B03	R163	D08		
R88	B08	R93	D08	R98	D08	C203	G02	C208	G03	C213	D01	C218	I02	D203	E03	D307	A03	R192	J02		
R89	C08	R94	D08	R99	C09	C204	G02	C209	G03	C214	D03	C219	E03	D204	F03	D308	A02	R193	I03		
R90	C08	R95	C08	BU11	F10	C205	G02	C210	G03	C215	B03	C220	F02	D205	I03	D309	I03	R194	J01		
R91	C08	R96	B09	C201	F02	C206	H02	C211	E02	C216	I02	D201	H02	D206	F02	R100	C09	R195	J01		
R201	I03	R206	H02	R211	D03	R218	C06	TS14	G07	TS22	J01	BU201	C06	SK302	G01	SK701	H04				
R202	B03	R207	H02	R213	I02	R219	G06	TS15	H07	TS23	C07	BU202	I01	SK303	G01	TS201	C04				
R203	B03	R208	D04	R214	I03	R220	D04	TS16	H07	TS24	C07	IC201	B02	SK304	F01	TS202	I02				
R204	B02	R209	C03	R215	I03	R221	D04	TS17	H06	TS25	C09	LA101	G06	SK305	F01	TS203	D04				
R205	B03	R210	E04	R216	I03	R222	D04	TS21	I03	TS26	A09	SK301	G01	SK306	F01						

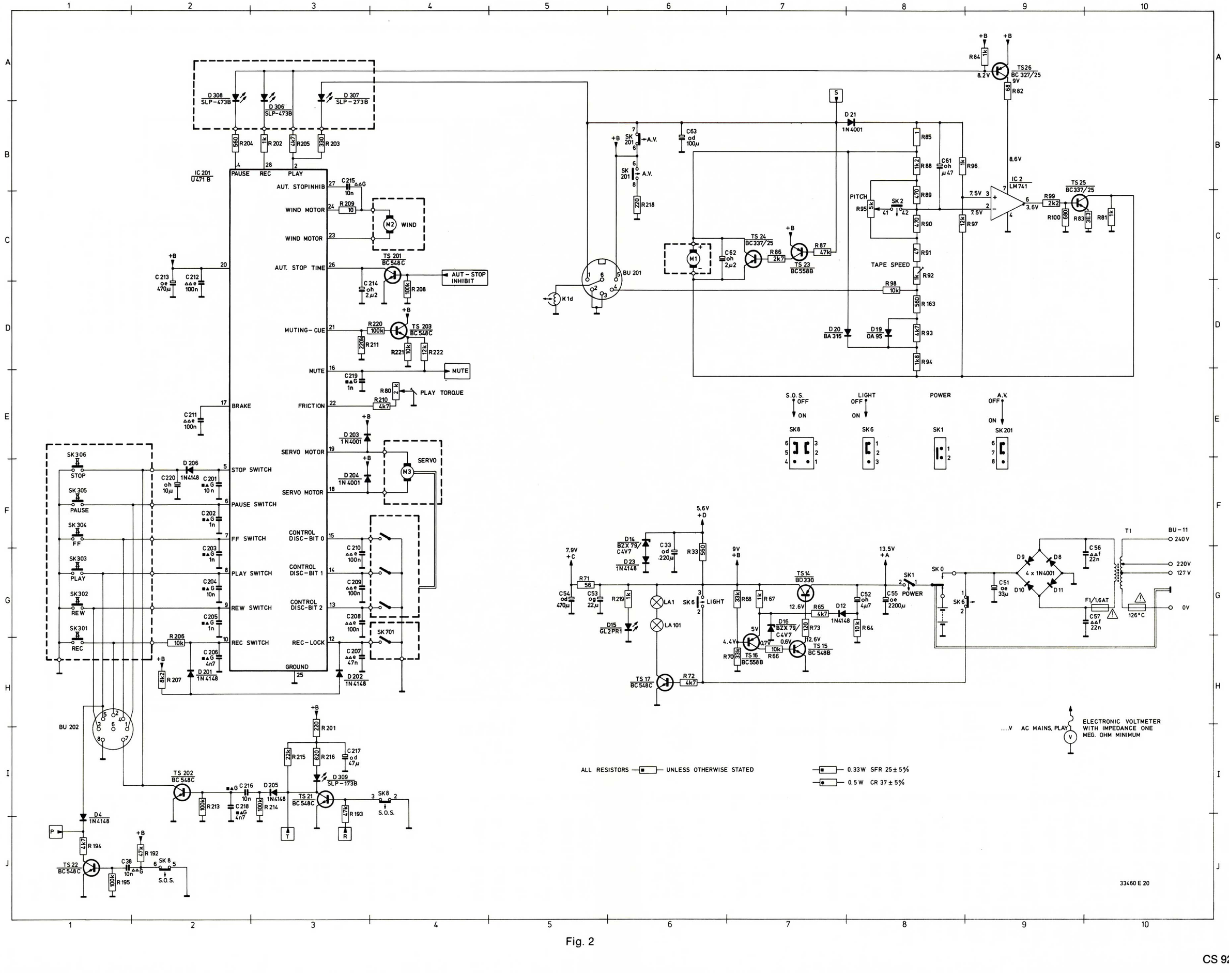

Fig. 2

CS 92 700

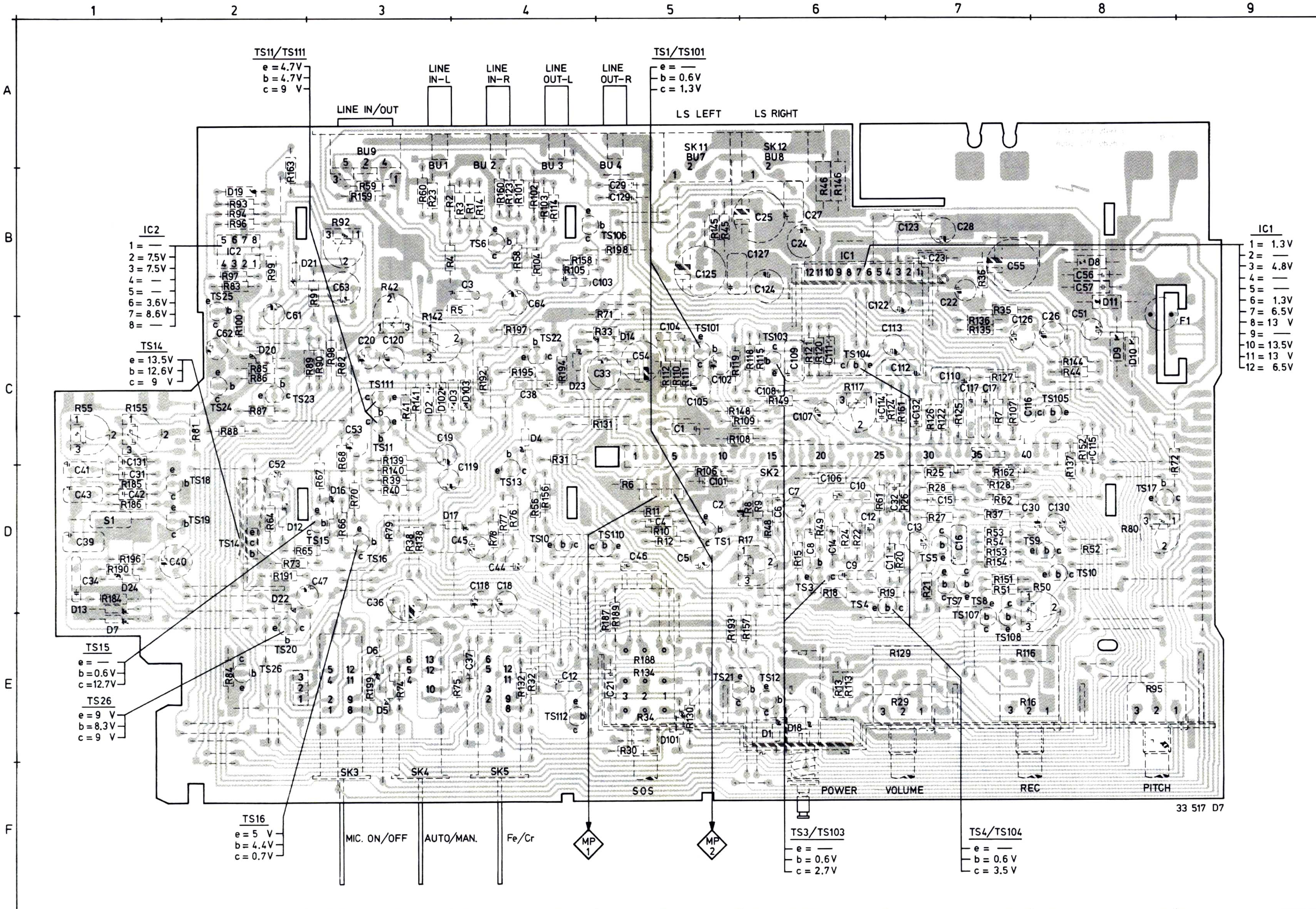

Fig. 3

C1	C05	C6	D06	D2	C03	D7	E01	R2	B03	R7	C07	BU2	A04	BU9	A03	C14	D06	C19	C03	C24	B06	C29	B05	C34	D01	C40	D02	C45	D04	C53	C03	C61	C02	D11	B08	D17	D03	D22	D02	R10	D05	R15	D06	R20	D07	R25	D07	R30	E05	R35	B07	R40	D03	R46	B06	R52	D08
C2	D05	C7	D06	D3	C03	D8	B08	R3	B04	R8	D06	BU3	A04	C10	D06	C15	D07	C20	C03	C25	B06	C30	D08	C36	D03	C41	D01	C46	D05	C54	C05	C62	C02	D12	D02	D18	E06	D23	C04	R11	D05	R16	E07	R21	D07	R26	D07	R31	C04	R36	B07	R41	C03	R48	D06	R53	D07
C3	B04	C8	D06	D4	C04	D9	C08	R4	B03	R9	D06	BU4	A05	C11	D07	C16	D07	C21	E05	C26	C08	C31	D01	C37	E04	C42	D01	C47	D03	C55	B07	C63	B03	D13	D01	D19	B02	D24	D01	R12	D05	R17	D06	R22	D06	R27	D07	R32	E04	R37	D07	R42	B03	R49	D06	R54	D07
C4	D05	C9	D06	D5	E03	F1	C09	R5	B04	S1	D01	BU7	A05	C12	D06	C17	C07	C22	B07	C27	B06	C32	D07	C38	C04	C43	D01	C51	C08	C56	B08	C64	B04	D14	C05	D20	C02	IC1	B06	R13	E06	R18	D06	R23	B03	R28	D07	R33	C05	R38	D03	R44	C08	R50	D08	R55	C01
C5	D05	D1	E06	D6	E03	R1	B04	R6	D05	BU1	A03	BU8	A06	C13	D07	C18	D04	C23	B07	C28	B07	C33	C05	C39	D01	C44	D04	C52	D02	C57	B08	D10	C08	D16	D03	D21	B02	IC2	B02	R14	B04	R19	D06	R24	D06	R29	E07	R34	E05	R39	D03	R45	B05	R51	D07	R56	D04

R58	B04	R64	D02	R70	D03	R75	E04	R80	D08	R85	C02	R90	C03	R95	E08	SK2	D06	TS3	D06	TS8	D07	C104	C05	C110	C07	C115	C08	C120	C03	C126	C07	C132	C07	R101	B04	R106	D05	R111	C05	R116	E07	R121	C06	R126	C07	R131	C05	R137	D08	R142	C03	R149	C06	R155	C01	R160	B04
R59	B03	R65	D02	R71	C05	R76	D04	R81	C02	R86	C02	R91	B03	R96	B02	SK3	F03	TS4	D06	TS9	D08	C105	C05	C111	C06	C116	C07	C122	B06	C127	B06	D101	E05	R102	B04	R107	C07	R112	C05	R117	C06	R122	C07	R127	C07	R132	E04	R138	D03	R144	C08	R151	D07	R156	D04	R161	C07
R60	B03	R66	D03	R72	D08	R77	D04	R82	C03	R87	C02	R92	B03	R97	B02	SK4	F03	TS5	D07	C101	D05	C106	D06	C112	C07	C117	C07	C123	B07	C129	B05	D102	C03	R103	B04	R108	C05	R113	E06	R118	C06	R123	B04	R128	D07	R134	E05	R139	C03	R145	B05	R152	C08	R157	E06	R162	D07
R61	D06	R67	D03	R73	D02	R78	D04	R83	B02	R88	C02	R93	B02	R98	C03	SK5	F04	TS6	B04	C102	C05	C107	C06	C113	C07	C118	D04	C124	B06	C130	D08	D103	C04	R104	B04	R109	C05	R114	B04	R119	C05	R124	C07	R129	E07	R135	C07	R140	D03	R146	B06	R153	D07	R158	B04	R163	B02
R62	D07	R68	C03	R74	E03	R79	D03	R84	E02	R89	C02	R94	B02	R99	B02	TS1	D05	TS7	D07	C103	B04	C108	C06	C114	C06	C119	D04	C125	B05	C131	D01	R100	C02	R105	B04	R110	C05	R115	C06	R120	C06	R125	C07	R130	E05	R136	C07	R141	C03	R148	C05	R154	D07	R159	B03	R184	D01

R185	D01	R190	D01	R195	C04	SK11	A05	TS13	D04	TS18	D02	TS23	C02	TS103	C06	TS108	E07		
R186	D01	R191	D02	R196	D01	SK12	A06	TS14	D02	TS19	D02	TS24	C02	TS104	C06	TS110	D05		
R187	D05	R192	C04	R197	C04	TS10	D08	TS15	D03	TS20	E02	TS25	B02	TS105	C08	TS111	C03		
R188	E05	R193	E05	R198	B05	TS11	C03	TS16	D03	TS21	E05	TS26	E02	TS106	B05	TS112	E04		
R189	D05	R194	C04	R199	E03	TS12	E06	TS17	D08	TS22	C04	TS101	C05	TS107	E07				

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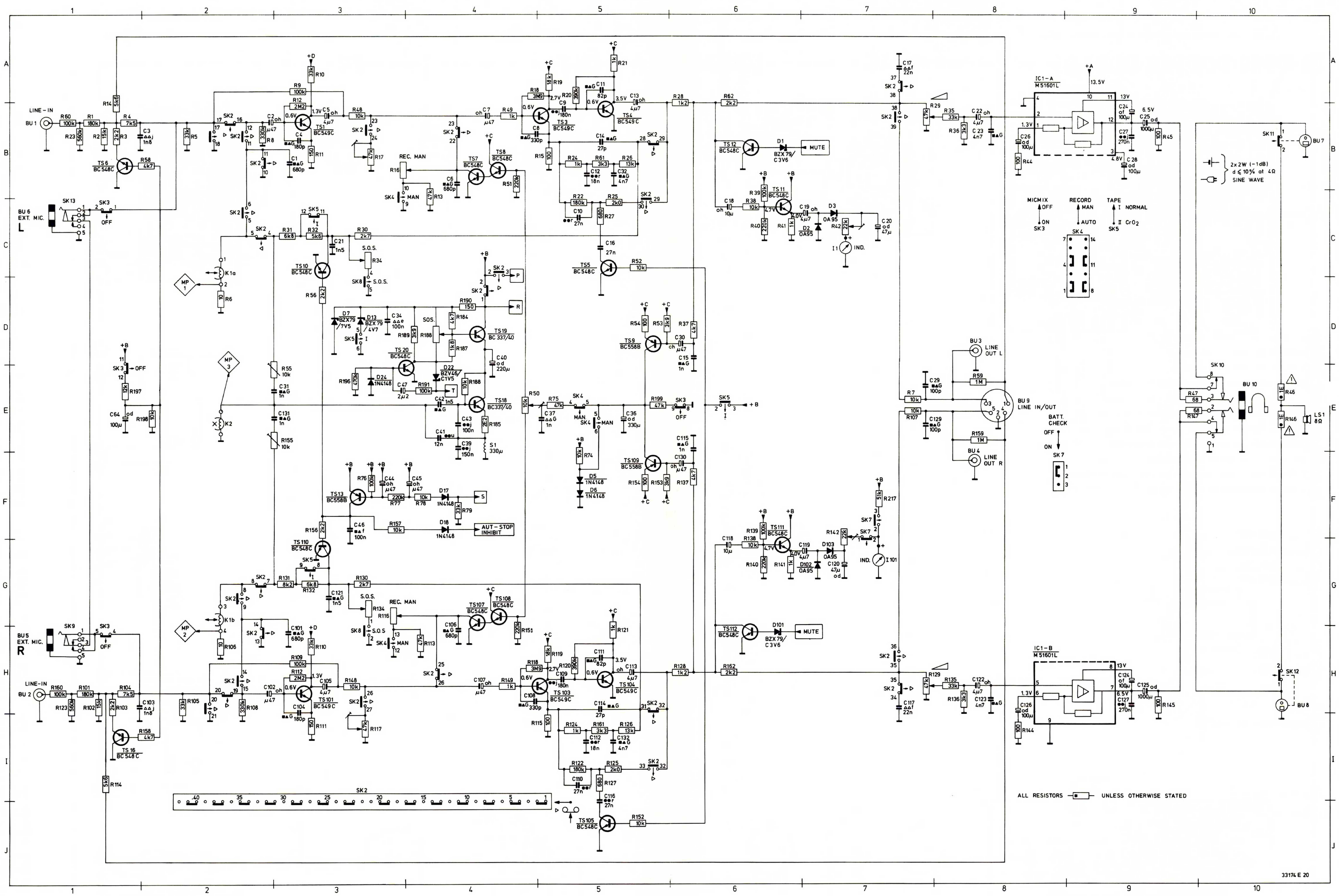

Fig. 4

C1 B03	C6 B04	D3 C07	K2 E02	R5 B02	S1 E04	BU5 H01	C09 A05	C14 B05	C19 C07	C24 B09	C29 E07	C36 E05	C42 E04	C47 E03	D22 E04	R10 A03	R16 B03	R21 A05	R26 B05	R31 C03	R37 D06	R42 C07	R48 B03	R53 D05	R59 E08	R75 E05	TS1 B03	TS7 B04
C2 B02	C7 B04	D5 F05	R1 B01	R6 D02	BU1 B01	BU6 C01	C10 C05	C15 D06	C20 C07	C25 B09	C30 D06	C37 E05	C43 E04	C64 E01	D24 E03	R12 A03	R17 B03	R22 C05	R27 C05	R32 C03	R38 C06	R44 B08	R49 B04	R54 D05	R60 B01	R76 F03	TS3 B05	TS8 B04
C3 B01	C8 B04	D6 F05	R2 B01	R7 E07	BU2 H01	BU7 B10	C11 A05	C16 C05	C21 C03	C26 B08	C31 E02	C39 E04	C44 F03	D13 D03	K1A C02	R13 B04	R18 A04	R23 B01	R28 A06	R34 C03	R39 B06	R45 B09	R50 E04	R55 E02	R61 B05	R77 F03	TS4 B05	TS9 D05
C4 B03	D1 B06	D7 D03	R3 B01	R8 B02	BU3 D08	BU8 H10	C12 B05	C17 A07	C22 B08	C27 B09	C32 B05	C40 D04	C45 F04	D17 F04	K1B G02	R14 A01	R19 A05	R24 B05	R29 B07	R35 B08	R40 C06	R46 E10	R51 B04	R56 D03	R62 A06	R78 F04	TS5 C05	BU10 E10
C5 B03	D2 C07	I1 C07	R4 B01	R9 A03	BU4 E08	BU9 E08	C13 A05	C18 C06	C23 B08	C28 B09	C34 D03	C41 E04	C46 F03	D18 F04	LS1 E10	R15 B05	R20 A05	R25 C05	R30 C03	R36 B08	R41 C06	R47 E09	R52 C05	R58 B02	R74 F05	R79 F04	TS6 B01	C101 H03

C102 H02	C107 H04	C112 I05	C117 H07	C122 H08	C127 H09	D101 H06	IC1-B H08	R105 H02	R110 H03	R115 I05	R120 H05	R125 I05	R130 G03	R136 H08	R141 G06	R147 E09	R153 F05	R158 I01	R184 D04	R190 D04	R199 E05	TS13 F03	TS101 H03	TS108 G04
C103 H01	C108 H04	C113 H05	C118 G06	C123 H08	C129 E07	D102 G07	R101 H01	R106 H02	R111 I03	R116 G03	R121 H05	R126 I05	R131 G03	R137 F06	R142 F07	R148 H03	R154 F05	R159 E08	R185 E04	R191 E04	R217 F07	TS16 I01	TS103 H05	TS109 F05
C104 H03	C109 H05	C114 H05	C119 G07	C124 H09	C130 F06	D103 G07	R102 H01	R107 E07	R112 H03	R117 I03	R122 I05	R127 I05	R132 G03	R138 G06	R144 I08	R149 H04	R155 E02	R160 H01	R187 D04	R196 E03	TS10 C03	TS18 E04	TS104 H05	TS110 G03
C105 H03	C110 I05	C115 E06	C120 G07	C125 H09	C131 E02	I101 G07	R103 H01	R108 H02	R113 H04	R118 H04	R123 H01	R128 H06	R134 G03	R139 F06	R145 H09	R151 H04	R156 F03	R161 I05	R188 E04	R197 E01	TS11 C06	TS19 D04	TS105 J05	TS111 G06
C106 H04	C111 H05	C116 J05	C121 G03	C126 H08	C132 I05	IC1-A A08	R104 H01	R109 H03	R114 I01	R119 H05	R124 I05	R129 H07	R135 H08	R140 G06	R146 E10	R152 J05	R157 F03	R162 H06	R189 D04	R198 E02	TS12 B06	TS20 E03	TS107 G04	TS112 H06

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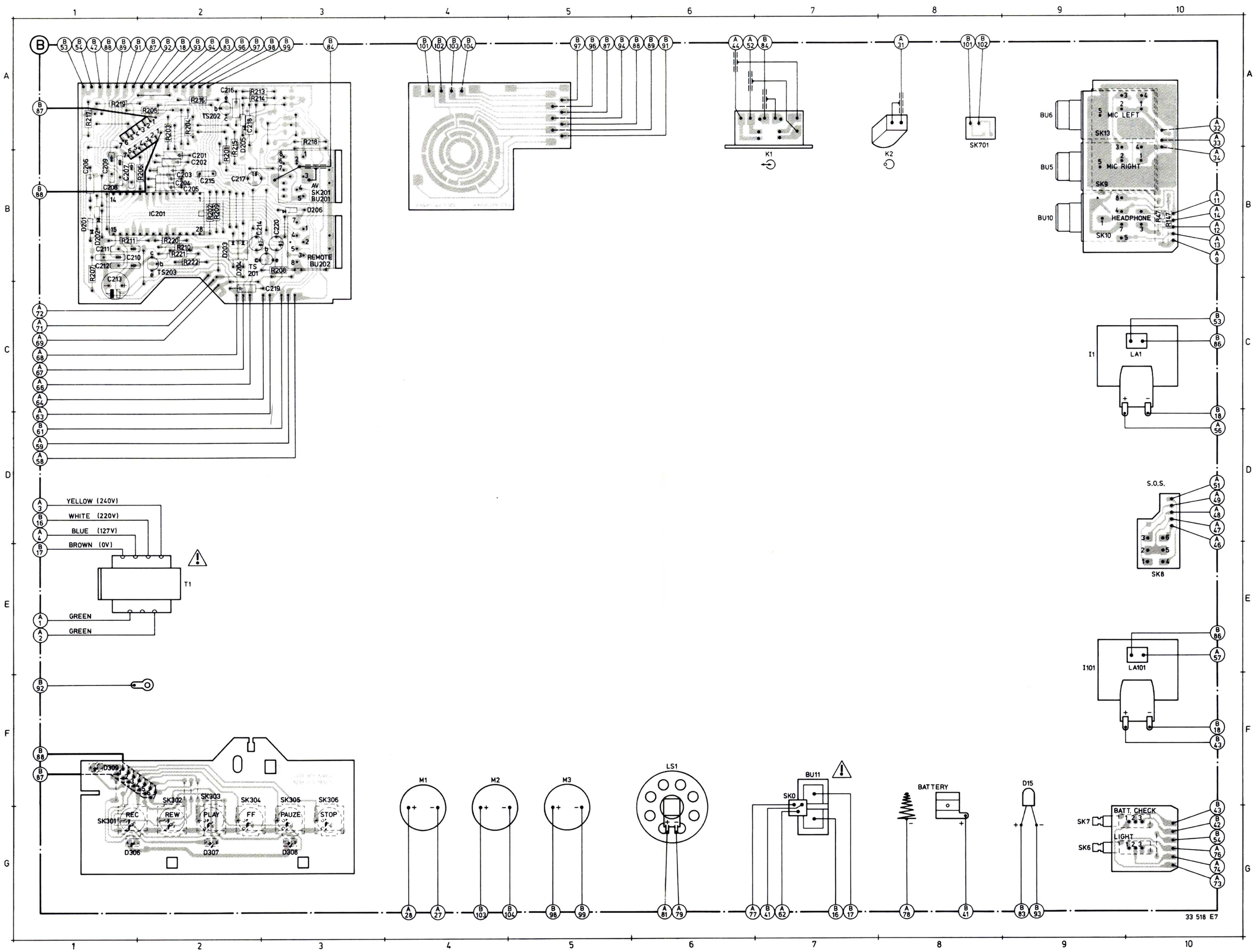

Fig. 5

ITEM	PCB
I1	C09
K1	B07
K2	B08
M1	F04
M2	F04
M3	F05
T1	E02
BU5	B09
BU6	A09
D15	F09
LA1	C10
LS1	F06
R47	B10
SK0	F07
SK6	G09
SK7	G09
SK8	E10
SK9	B09
BU10	B09
BU11	F07
C201	B02
C202	B02
C203	B02
C204	B02
C205	B02
C206	B01
C207	B01
C208	B01
C209	B01
C210	B01
C211	B01
C212	B01
C213	B01
C214	B02
C215	B02
C216	A02
C217	B02
C218	A02
C219	C03
C220	B03
D201	B01
D202	B01
D203	B02
D204	B02
D205	A02
D206	B03
D306	G01
D307	G02
D308	G03
D309	F01
I101	E09
R147	B10
R201	B02
R202	B02
R203	A02
R204	A02
R205	A02
R206	B01
R207	B01
R208	B03
R209	B02
R210	B02
R211	B01
R213	A02
R214	A02
R215	A02
R216	A02
R217	A01
R218	A03
R219	A01
R220	B02
R221	B02
R222	B02
SK10	B09
SK13	A09
BU201	B03
BU202	B03
IC201	B02
LA101	E10
SK201	B03
SK301	G01
SK302	F02
SK303	F02
SK304	F02
SK305	F03
SK306	F03
SK701	A08
TS201	B02
TS202	A02
TS203	B02

Adjustment	Cassette	Recorder in position	Apply signal to	Measure on	Read on	Adjust with	Adjust to
Play back speed	3150 Hz of SBC419	PLAY PITCH- Mid position	—	BU3 (BU4)	Wow- and flutter meter	R92	*a
Azimuth R/P head	10 kHz of SBC419	PLAY SK5 Cr02	—	BU3 (BU4)	mV-meter	Left screw R/PB head	Max. output Outp. L ≈ output R
BIAS	—	SK4 MAN REC SK5 Cr02 505 OFF	—	MP-1 MP-2	mV-meter	R55 R155	5 mV 1.5 dB
Play back sensitivity	315 Hz 0 dB of SBC419	TAPE PLAY	—	BU3 (BU4)	mV-meter	R17 R117	750 mV ±0.5 dB
Recording sensitivity	Side 2 SBC419	REC SK4 MAN SK5 Cr02 505 OFF	BU1 (BU2) 315 Hz 60 mV	MP-1 MP-2	mV-meter I1-I101 (indicators)	R42 R142	0.925 mV on MP1 b* (MP-2) with R16 (R116) = 0 dB on I1 (I101) with R42 (R142)
ALC	Side 2 SBC419	A.L.C. REC SK5-Cr02	BU1 (BU2) 315 Hz ≈ 500 mV	—	Indicators I1-I101	R50	signal strength I1 = signal strength I101

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

*b Disable the bias by disconnecting S1. (During this adjustment only).

IC201 Pin	Function →	Stop	Pause	Play	Rec+Pause	Rec+Play	FF	Cue	Rewind	Review
	Servo position →	Stop	Pause	Play	Rec+Pause	Rec+Play	Stop	Pause	Stop	Pause
13		L	L	L	L	H	L	L	L	L
14		H	H	L	L	L	H	L	H	H
15		H	L	H	H	H	H	H	H	H

TABLE: OUTPUT LEVELS U471B (IC201)

Function	Servo position	Outputs										
		Leds rec	Leds play	Leds pause	mute	servo- motor	motor	cue	Play tape-tension	winding-motor		
		28	2	4	16	18	19	21	22	23	24	pin #
Stop	Stop	H	H	H	H			L	L	L	L	
Pause	Pause	H	H	L	L			L	L	L	L	
Play	Play	H	L	H	L			L	H*	H**	L	
Rec+Pause	Rec+Pause	L	H	L	L			L	L	L	L	
Rec+Play	Rec+Play	L	L	H	L			L	H*	H**	L	
FF	Stop	H	H	H	H			L	L	H	L	
Cue	Pause	H	H	H	H			H	L	H	L	
Rewind	Stop	H	H	H	H			L	L	L	H	
Review	Pause	H	L	H	L			H	L	L	H	
Servo motor moves up					H	L	H					
Servo motor moves down					H	H	L					

*, ** adjustable with R80

H* nominal 1,7 V
H** nominal 2,5 V

Fig. 7

(GB) SERVICE HINTS

WARNING

When the apparatus is connected to the mains and the back cover has been removed, then there is risk of touching the mains voltage.
The mains voltage is then connected to the primary side of the transformer, via print tracks on the print.

Removal of cabinet parts (refer to Fig. 8)

a. The cassette-lid window may be removed by pushing it upwards from the rear of the opened cassette-lid.
b. To remove the cassette-lid, push the lugs on the inner side of the open lid slightly inwards. The cassette-lid may now be lifted out.
c. After removal of the cassette-lid, the cassette-lid damping (item 442 refer to Fig. 8) may now also be taken out.

Fast-wind friction

The friction force can be measured with the friction measurement cassette 4822 395 30054 (811/CTM) in position "start".
The measurement value must be:
— Fast-wind side 40-50 gcm.
— Rewind-side 2-5 gcm.
The play take-up torque is adjusted with R80.

(NL) REPARATIEWENKEN

WAARSCHUWING

Indien het apparaat is verbonden met netspanning en de achterwand is verwijderd bestaat er aanrakingsgevaar van de netspanning.
De netspanning is dan verbonden via printsporen op de print met de primaire zijde van de transformator.

Cabinet (Fig. 8)

a. Het venster van de kassetteklep kan verwijderd worden door deze, met geopende klep, aan de achterkant omhoog te drukken.
b. Voor het verwijderen van de kassetteklep de lippen aan de binnenzijde iets naar binnen buigen zodat de kassetteklep er uitgelicht kan worden.
c. Als de kassetteklep verwijderd is kan ook de kassetteklepdemping pos. 442, Fig. 8 verwijderd worden.

Opspoelfrictie

De frictiekracht kan worden gemeten met de frictiemeetcassette 4822 395 30054 (811/CTM) in positie "start".
De meetwaarde moet zijn:
— Opspoelzijde 40-50 gcm.
— Afspoelzijde 2-5 gcm.
De opspoelfrictie wordt met R80 afgeregeld.

(F) CONSEILS REPARATION

ATTENTION

Si l'appareil est branché à la tension secteur et que le panneau arrière est ôté, il y a danger de toucher la tension secteur.
La tension secteur est alors reliée au côté primaire du transformateur à travers les traces sur la platine.

Pièces du boîtier (Fig. 8)

a. On peut enlever la fenêtre du rabat de cassette en la pressant vers le haut alors que le rabat est ouvert.
b. Recourber quelque peu les languettes vers l'intérieur afin de pouvoir soulever et extraire le rabat de cassette.
c. Lorsque le rabat de cassette est enlevé, le dispositif d'amortissement du rabat, rep. 442 Fig. 8 pourra également être enlevé.

Friction d'embobinage

La force nécessaire à l'enroulement est mesurable par la cassette 4822 395 30054 (811/CTM) en position "start".
La valeur doit être de:
— Côté enroulement 40-50 gcm;
— Côté dévidé: 2-5 gcm.
La friction de bobinage est réglable par R80.

(D) REPARATURHINWEISE

ACHTUNG

Wenn das Gerät an das Netz angeschlossen ist und also Netzspannung führt und ausserdem die Rückwand abgenommen ist, besteht Netzspannungsberührungsgefahr.
Die Netzspannung liegt über Leiterbahnen auf der Druckschaltungsplatine an der primären Seite des Transformators.

Gehäuseteile (Bild 8)

a. Das Fenster der Cassettenfachklappe lässt sich abnehmen durch Hochdrücken in geöffneter Stellung auf der Rückseite.
b. Für den Ausbau der Cassettenfachklappe die Zungen auf der Innenseite ein wenig einwärts biegen, so dass sich die Cassettenfachklappe ausheben lässt.
c. Wenn die Cassettenfachklappe abgenommen worden ist. lässt sich auch die Cassettenfachklappen-Dämpfvorrichtung Pos. 442 (Bild 8) entfernen.

Aufwickelfriktion

Die Friktionskraft kann mit der Friktionsmesscassette 4822 395 30054 (811/CTM) in der Start-Stellung gemessen werden.
Der Messwert soll betragen:
— Aufwickelseite 40 ... 50 g.cm.
— Abwickelseite 2 ... 5 g.cm.
Die Wiedergabe-Aufwickelfriktion wird mit R80 eingestellt.

(I) METODO DI RIPARAZIONE

ATTENZIONE

Quando l'apparecchio è collegato alla tensione di rete e il coperchio posteriore è stato tolto, bisogna fare attenzione a non toccare la tensione di rete.
Questa è collegata al primario del trasformatore attraverso il circuit stampato.

Smontaggio delle parti del mobile (vedere Fig. 8)

a. La finestrella del copri-cassetta può essere tolta premendo verso l'altro dalla parte posteriore del copri-cassetta aperto.
b. Per togliere il copri-cassetta, spingere le linguette, sul lato del copri-cassetta, leggermente verso l'interno.
c. Dopo aver rimosso il copri-cassetta. può essere tolto anche il meccanismo di apertura cassetta (pos. 442 Fig. 8).

Frizione d'avvolgimento veloce

La forza della frizione deve essere regolata con la cassetta 4822 395 30054 (811/CTM) in posizione "reproduzione".
Il valore deve essere:
— Bobina di destra 40-50 grcm.
— Bobina di sinistra 2-5 grcm.
— La frizione di avvolgimento è regolabile con R80.

ITEM	PCB						
C1	D05	R10	D05	C105	C04	R195	C06
C2	D04	R11	D05	C106	D04	R196	E08
C3	C06	R12	D05	C107	D04	R197	C06
C4	D05	R13	E04	C108	C04	R198	B05
C5	E05	R14	B06	C109	C04	R199	E07
C6	D04	R15	E04	C110	C03	SK11	B05
C7	D04	R16	F03	C111	C04	SK12	B04
C8	D04	R17	D04	C112	C03	TS10	D05
C9	E04	R18	E04	C113	C03	TS11	D07
D1	F04	R19	E03	C114	D03	TS12	E04
D2	C06	R20	E03	C115	D02	TS13	D06
D3	C06	R21	E03	C116	D02	TS14	D08
D4	D06	R22	D04	C117	C03	TS15	D07
D5	E07	R23	B06	C118	E06	TS16	D07
D6	E07	R24	D04	C119	D06	TS17	D02
D7	E08	R25	D03	C120	C07	TS18	D08
D8	C02	R26	D03	C122	C03	TS19	D08
D9	C02	R27	D03	C123	B03	TS20	E07
F1	C01	R28	D03	C124	C04	TS21	E04
R1	B06	R29	F03	C125	C05	TS22	C06
R2	B06	R30	F05	C126	C03	TS23	C07
R3	B06	R31	D05	C127	C04	TS24	C08
R4	C06	R32	E06	C129	B05	TS25	C08
R5	C06	R33	C05	C130	D02	TS26	E08
R6	D05	R34	F05	C131	D08	TS101	C05
R7	D03	R35	C03	C132	D03	TS103	C04
R8	D04	R36	C03	D101	F05	TS104	C04
R9	D04	R37	D03	D102	C06	TS105	D02
S1	D08	R38	D06	D103	C06	TS106	B05
BU1	B06	R39	D07	R100	C08	TS107	E03
BU2	B06	R40	D07	R101	B06	TS108	E03
BU3	B05	R42	C07	R102	B06	TS109	E02
BU4	B05	R44	C02	R103	B06	TS110	D05
BU7	B05	R45	B04	R104	C06	TS111	C07
BU8	B04	R46	B04	R105	C05	TS112	F05
BU9	B07	R48	D04	R106	D05		
C10	D04	R49	D04	R107	D03		
C11	E03	R50	E02	R108	D04		
C12	E05	R51	E03	R109	D04		
C13	D03	R52	D02	R110	C05		
C14	D04	R53	D03	R111	C05		
C15	D03	R54	D03	R112	C05		
C16	D03	R55	D09	R113	E04		
C17	C03	R56	D06	R114	B06		
C18	E06	R58	C06	R115	C04		
C19	D06	R59	B07	R116	E02		
C20	C07	R60	B06	R117	C04		
C21	E05	R61	D03	R118	C04		
C22	C03	R62	D03	R119	C04		
C23	C03	R64	D07	R120	C04		
C24	B04	R65	D07	R121	C04		
C25	B04	R66	D07	R122	D03		
C26	C02	R67	D07	R123	B06		
C27	B04	R68	D07	R124	D03		
C28	B03	R70	D07	R125	D03		
C29	B05	R71	C05	R126	D03		
C30	D02	R72	D02	R127	C03		
C31	D08	R73	E07	R128	D03		
C32	D03	R74	E07	R129	E03		
C33	C05	R75	E06	R130	F05		
C34	E09	R76	D06	R131	D05		
C36	E07	R77	D06	R132	E06		
C37	E06	R78	D06	R134	E05		
C38	C06	R79	D07	R135	C03		
C39	D09	R80	D02	R136	C03		
C40	E08	R81	D08	R137	D02		
C41	D09	R82	C07	R138	D06		
C42	D08	R83	C08	R139	D07		
C43	D09	R84	E08	R140	D07		
C44	E06	R85	C07	R141	C06		
C45	D06	R86	C07	R142	C06		
C46	E05	R87	D07	R144	C02		
C47	E07	R88	D08	R145	B04		
C51	C02	R89	C07	R146	B04		
C52	D07	R90	C07	R148	D04		
C53	D07	R91	C07	R149	D04		
C54	C05	R92	B07	R151	E03		
C55	C03	R93	B08	R152	D02		
C56	C02	R94	B08	R153	D03		
C57	C02	R95	E02	R154	E03		
C61	C07	R96	B08	R155	D08		
C62	C08	R97	C08	R156	D06		
C63	C07	R98	C07	R157	E04		
C64	C06	R99	C07	R158	C05		
D10	C02	SK2	D04	R159	B07		
D11	C02	SK3	F07	R160	B06		
D12	D07	SK4	F06	R161	D03		
D13	E08	SK5	F06	R162	D03		
D14	C05	TS1	D04	R163	B07		
D16	D07	TS3	E04	R184	E08		
D17	D06	TS4	E04	R185	D08		
D18	F04	TS5	E03	R186	D08		
D19	B08	TS6	B06	R187	E05		
D20	C07	TS7	E03	R188	E05		
D21	C07	TS8	E03	R189	E05		
D22	E07	TS9	E02	R190	E08		
D23	C05	C101	D04	R191	E07		
D24	E08	C102	C04	R192	C06		
IC1	C04	C103	C05	R193	E04		
IC2	B08	C104	C05	R194	C05		

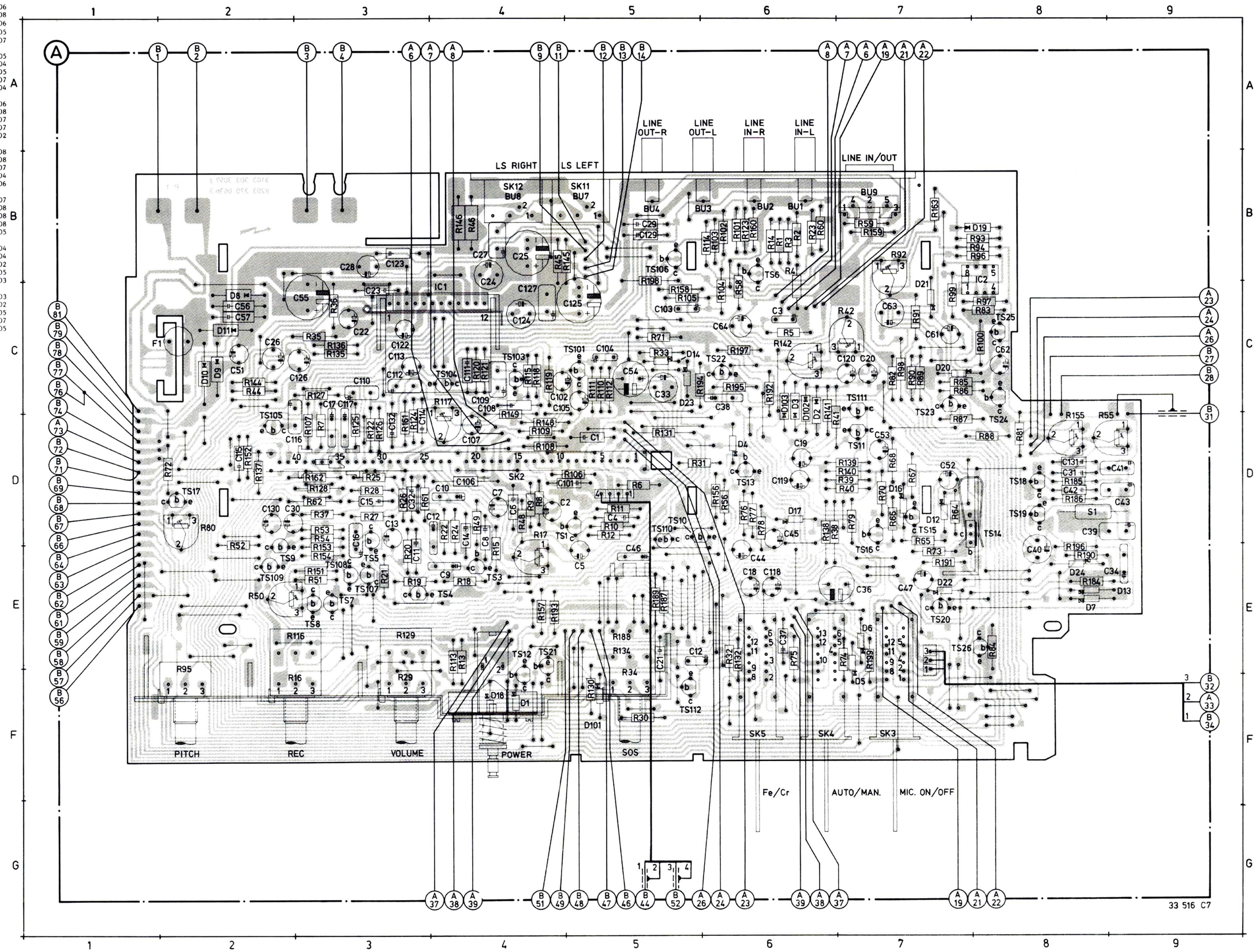

Fig. 6

401	4822 500 30009
402/30/35	4822 443 30506
402/48	4822 443 61188
403	4822 413 31202
404	4822 522 31316
405	4822 466 70454
406	4822 358 30293
407	4822 492 51374
408	4822 413 31203
409	4822 530 50688
411	4822 413 31204
412	4822 530 50687
413	4822 413 31205
416	4822 277 10709
417	4822 410 23205
418	4822 410 23206
419	4822 443 60759
421/30/35	4822 443 50414
421/48	4822 443 61187
423	4822 492 31734
424	4822 403 30363
426	4822 492 61311
427	4822 290 80228
428	4822 349 50126
429	4822 492 51228
430	4822 505 10665
431	4822 358 30292
432	4822 410 40205
433	4822 460 20317
434	4822 410 23204
436	4822 462 40473
438	4822 381 10534
439	4822 443 61177
441	4822 290 80282
442	4822 535 70618
443	4822 443 60757
444/30/48	4822 321 10105
444/35	4822 321 10235

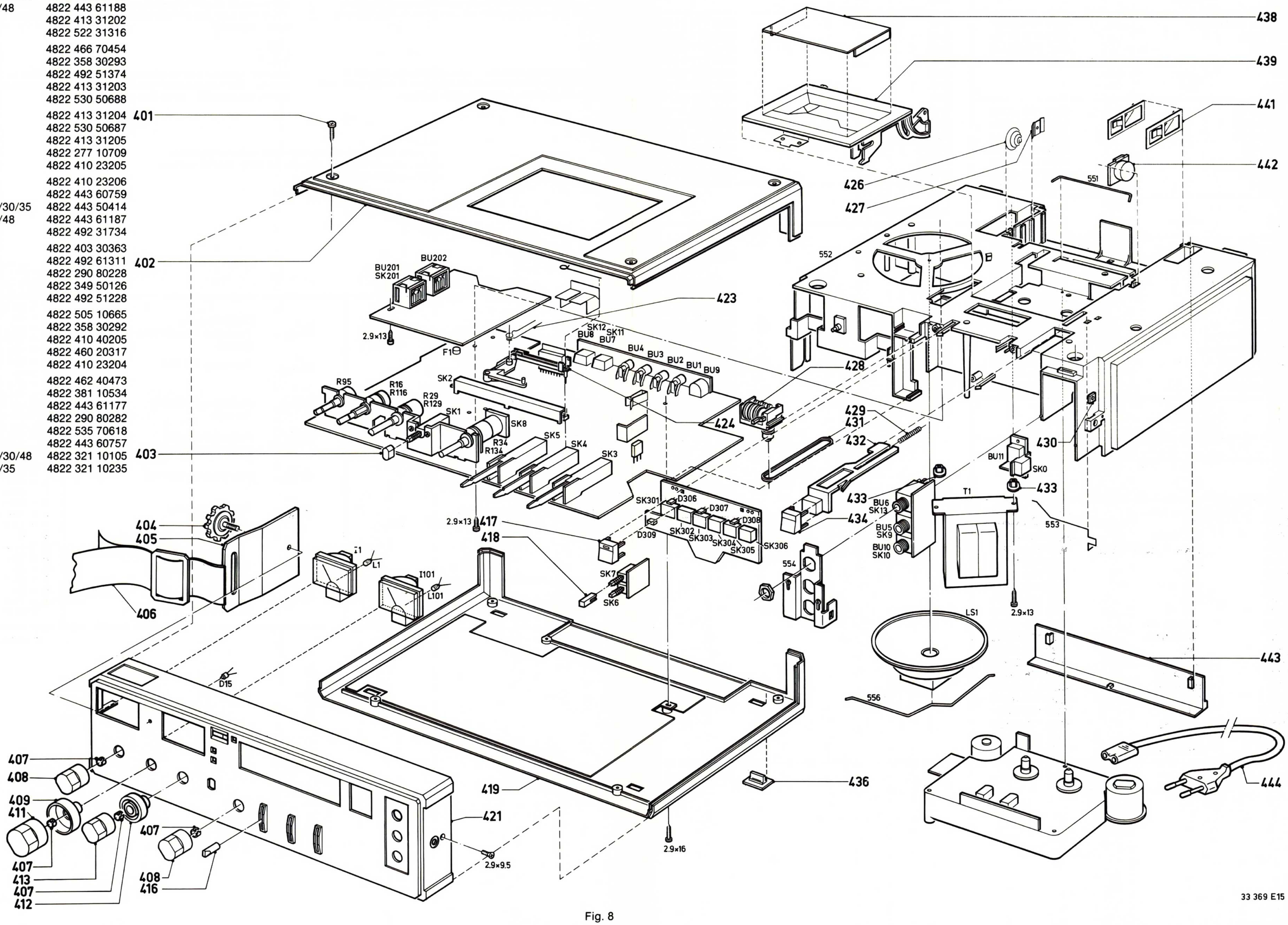

Fig. 8

33 369 E15

CS 92 706

-IC-

LM741 (AN1741)	5322 209 85957
M51601L	4822 209 81788
U471B	4822 209 81415

-TS-

BC327/25	4822 130 41246
BC337/25	4822 130 40981
BC337/40	4822 130 41344
BC548C	4822 130 44196
BC549C	4822 130 44246
BC558B	4822 130 42109
BD330	5322 130 44752

-D-

GL2PR1	4822 130 31399
LED green GL-9NG9	4822 130 31433
LED red GL-9PR9	4822 130 31432
LED yell. GL-9HY9	4822 130 31468
OA95	4822 130 30191
1N4001G	4822 130 31438
1N4148	4822 130 30621
BZX79-B4V7	4822 130 34174
BZX79-B5V1	4822 130 34233
BZX79-B6V8	4822 130 34278
BZX79-C3V6	5322 130 34834
BZX79-B7V5	4822 130 30861

-S-

S1	4822 158 10525

-R-

R16	50K + 50K	4822 102 10181
R17	47K	4822 100 10079
R29	50K + 50k	4822 102 10181
R34	20KA + 10KB + SK8	4822 102 30419
R42	22K	4822 100 10051
R50	4K7	4822 100 10036
R55	10K	4822 100 10035
R80	22K	4822 100 10051
R85	1E 1%	4822 116 51179
R89	2K21 0,5%	4822 116 51245
R90	2K21 0.5%	4822 116 51245
R92	2K2	4822 100 10029
R95	5KB 0,5%	4822 101 20742
R96	1K 0,5%	4822 116 51235
R97	12K 0,5%	4822 116 51254
R117	47K	4822 100 10079
R142	22K	4822 100 10051
R146	2E2 5%	4822 110 53036
R155	10K	4822 100 10035
R217	33K2 0.5%	4822 116 51259

-SK-

SK1	4822 276 11194
SK2	4822 277 30663
SK3	4822 277 10609
SK4	4822 277 10609
SK5	4822 277 10609
SK6	4822 277 20736
SK7	4822 277 20736
SK301	4822 276 10799
SK302	4822 276 10799
SK303	4822 276 10799
SK304	4822 276 10799
SK305	4822 276 10799
SK306	4822 276 10799

-Miscellaneous-

BU1. BU2			
BU3. BU4			4822 267 20231
BU7. BU8			
BU9			
BU5			4822 267 30378
BU6			4822 267 30378
BU10			4822 267 30378
BU11		⚠	4822 265 20207
BU201			4822 267 50432
BU202			4822 267 50431
F1	1.6 AT	⚠	4822 253 10046
I1			4822 347 10292
I101			4822 347 10291
LS1			4822 240 40084
T1		⚠	4822 146 20828

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.

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		2%
Others		—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

27 037A/C