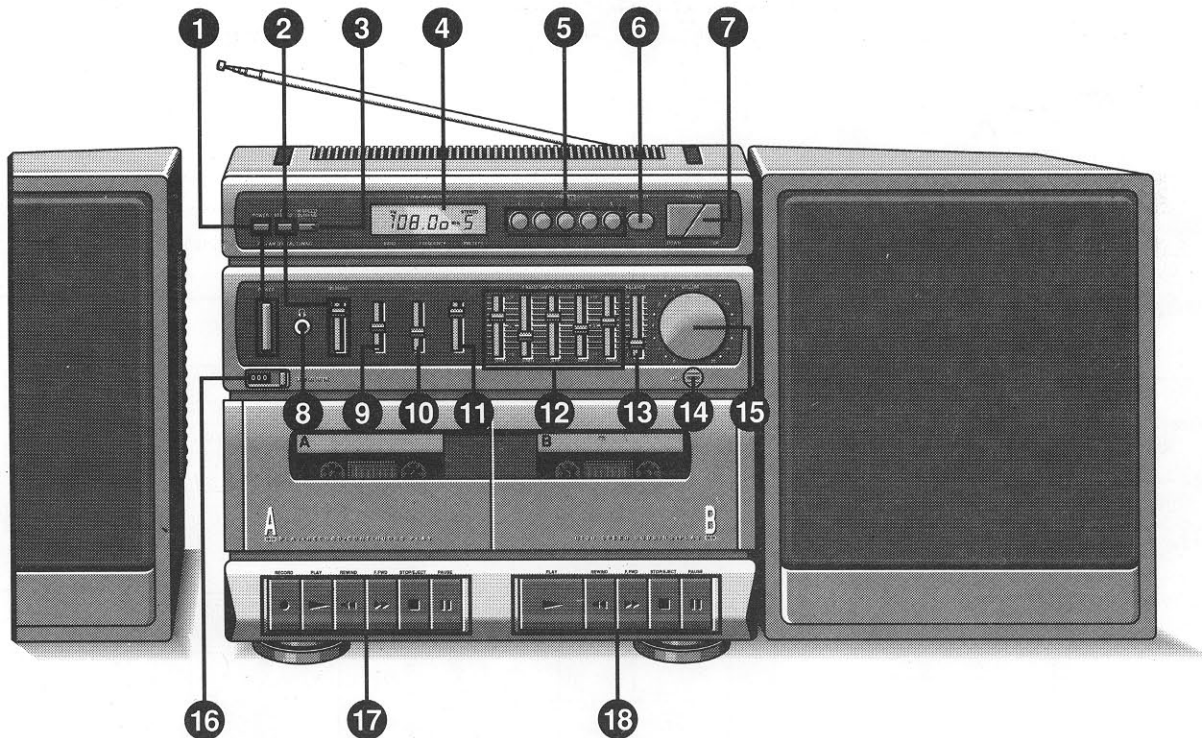


Service Service Service

For repair information of the cassette mechanism see
Service Manual TN-521ZSW-506

Service Manual



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

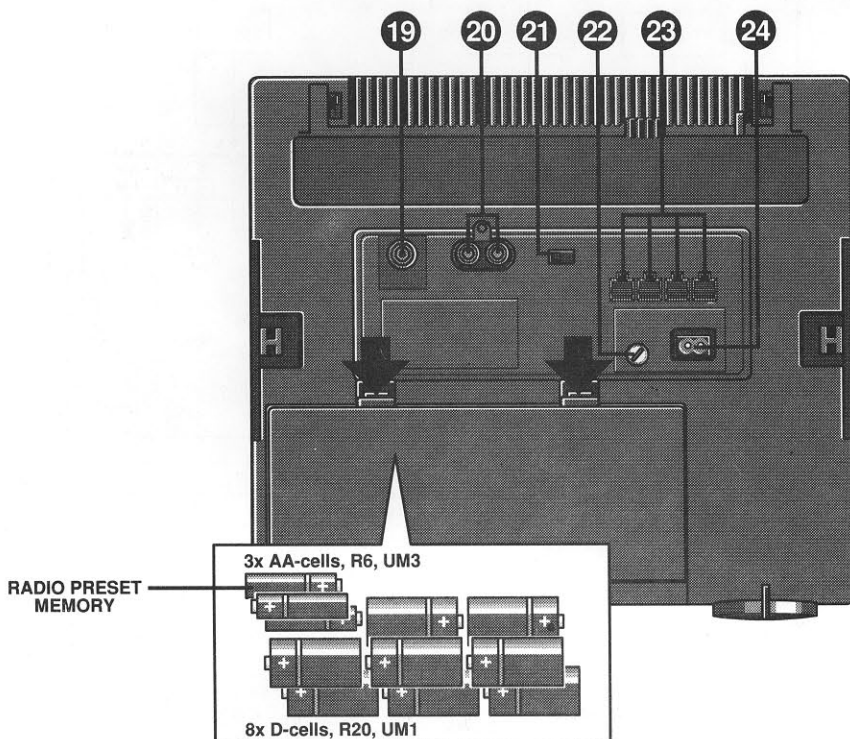


Subject to modification
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Consumer Electronics

see



Function

- | | |
|---------------------------------|------------------------------|
| 1 Power on/off | 13 VR 306 |
| 2 Dubbing speed | 14 VR 307 |
| 3 Stereo indicator | 15 VR 307 |
| 4 Display | 16 Counter |
| 5 Preset buttons | 17 Deck functions A |
| 6 Memory store | 18 Deck functions B |
| 7 ▼/▲ | 19 Ext. Aerial (not for /02) |
| 8 Ω | 20 CD/AUX input |
| 9 Function select | 21 R/F Switch |
| 10 Mono/Stereo | 22 not present |
| 11 Bandswitch | 23 R/L |
| 12 Graphic Equalizer VR 301-305 | 24 V ~ J406 |

Speci



AM IF
FM IF
MW
LW
FM

CASS

HI-S

NOR.

REMA

CASS

HEAD

Specifications:

⚡	/00 220V/50Hz /05 240V/50Hz
⊕	3V (2 × R6) Back-up 12V (8×R20) power
🔊	mains operation: 2×2 W (D=10%)
AM IF	468 kHz
FM IF	10.7 MHz
MW	526.5-1606,5 kHz
LW	150-255 kHz
FM	87.5-108 MHz


Tape speed	4.76 cm/sec. ± 2%
Wow and flutter	< 0.35 %
Signal to noise ratio	≤ 40 dB
	≤ 37 dB dubbing
	≤ 37 dB H.S. dubbing
	≤ 22 dB AM recording
Frequency response: (within ± 8 dB)	250-6300 Hz 250-6300 Hz dubbing 250-5000 Hz H.S. dubbing 250-2000 Hz AM recording
Equalizer control:	100Hz/500Hz/3000Hz /5000Hz/12000Hz -6 dB to +6 dB

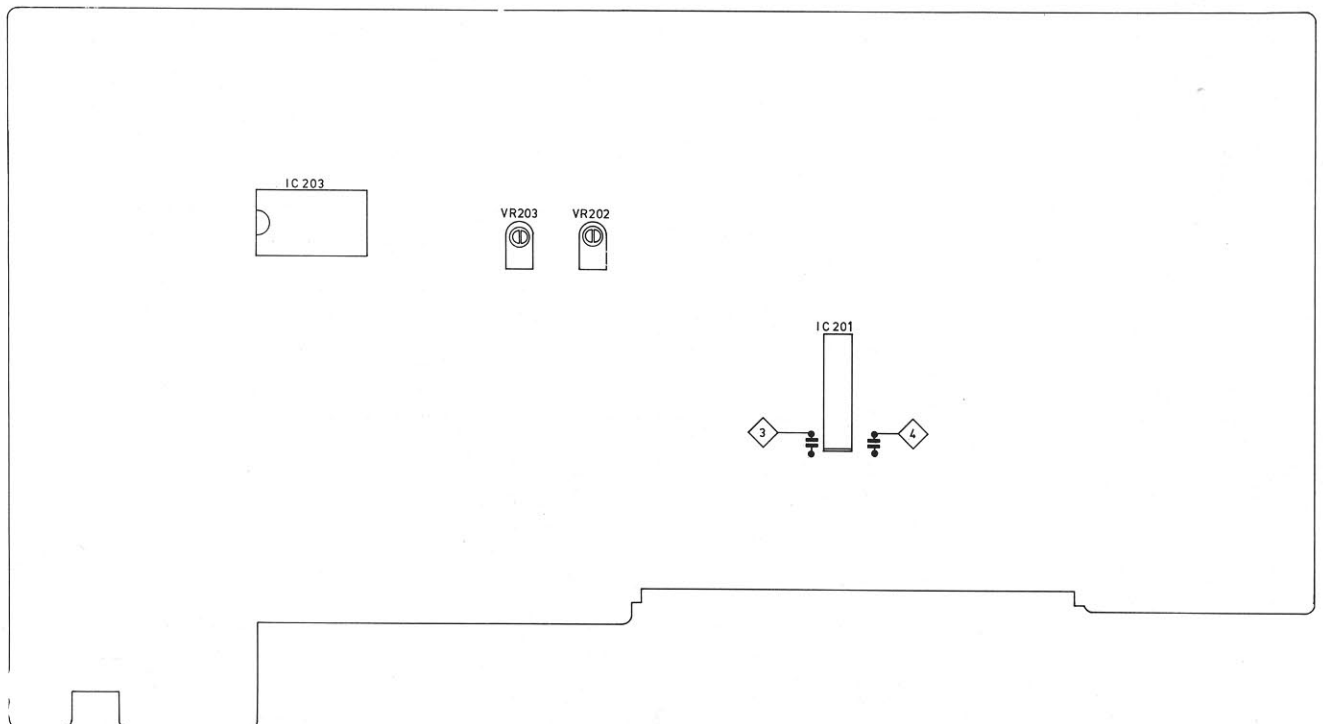
CASSETTE SPEED ALIGNMENT

POSITION	SIGNAL	TO		ADJUST	
HI-SPEED DUB	TEST TAPE 3KHz	DECK B	PLAYBACK	VR202	COUNTER 6KHz
	C60 BLANK TAPE	DECK A	PAUSE/REC.		
NOR. SPEED DUB	TEST TAPE 3KHz	DECK B	PLAYBACK	VR203	COUNTER 3KHz

REMARK : ALIG. HI-SPEED FIRST, BECAUSE VALUE OF VR202 WILL AFFECT NOR. SPEED

CASSETTE ALIGNMENT & SPEC.

HEAD ANGLE	TEST TAPE 10K		PLAYBACK	HEAD ADJ. SCREW	MAX 
------------	---------------	--	----------	-----------------	---



ALIGNMENT PROCEDURE

RF CIRCUIT

GENERAL :

1. SIGNAL INPUT MUST BE AS LOW AS POSSIBLE TO AVOID OVERLOAD AND ALIPPING. (USE HIGHEST SENSITIVITY OF OUTPUT INDICATOR).
 2. VOLUME CONTROL AT MAXIMUM, BALANCE AND TONE CONTROLS AT MECHANICA CENTER.
 3. STANDARD MODULATION IS 400Hz AT 30% AMPLITUDE FOR AM 1000Hz AT 22.5KHz DEVIATION FOR FM.
 4. CONNECT 8 OHM LOAD ACROSS SPEAKER JACK.
1. AM SIGNAL GENERATOR
 2. FM SIGNAL GENERATOR
 3. V.T.V.M
 4. FREQUENCY COUNTER

RADIO ALIGNMENT

SK.....A POSITION	SIGNAL	TO	TUNE IN	ADJUST	
AM	450 KHz	⬡ B		T103 T104	
LW	281 KHz	⬡ C		T106	7.6V DC
	164 KHz 272 KHz	⬡ D	164 KHz 272 KHz	L108 CT103	MAX ⬡ 1
MW	1620 KHz	⬡ C	1620 KHz	T102	7.18V DC
	603 KHz 1404 KHz	⬡ B	603 KHz 1404 KHz	L102 CT102	MAX ⬡ 1
FM	10.7 MHz	⬡ A		CHECK IF CURVE	MAX ⬡ 1
FM	108 MHz	⬡ C	108 MHz	L106	6.6V DC
	88 MHz 106 MHz	⬡ A	88 MHz 106 MHz	L101 CT101	MAX ⬡ 1

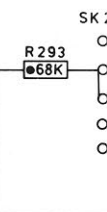
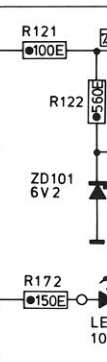
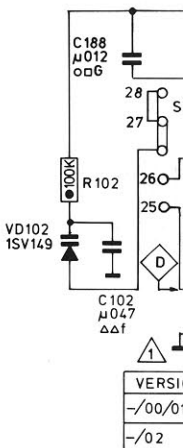
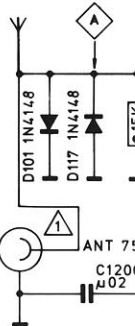
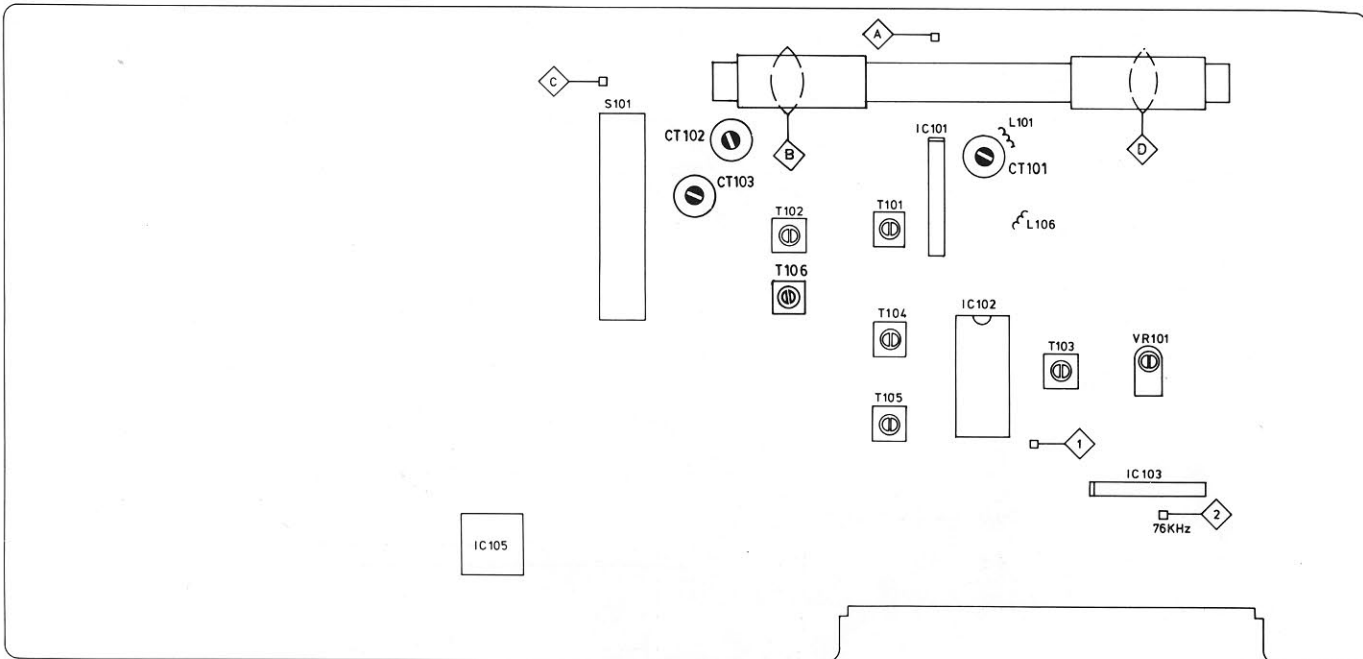
STEREO DECODER

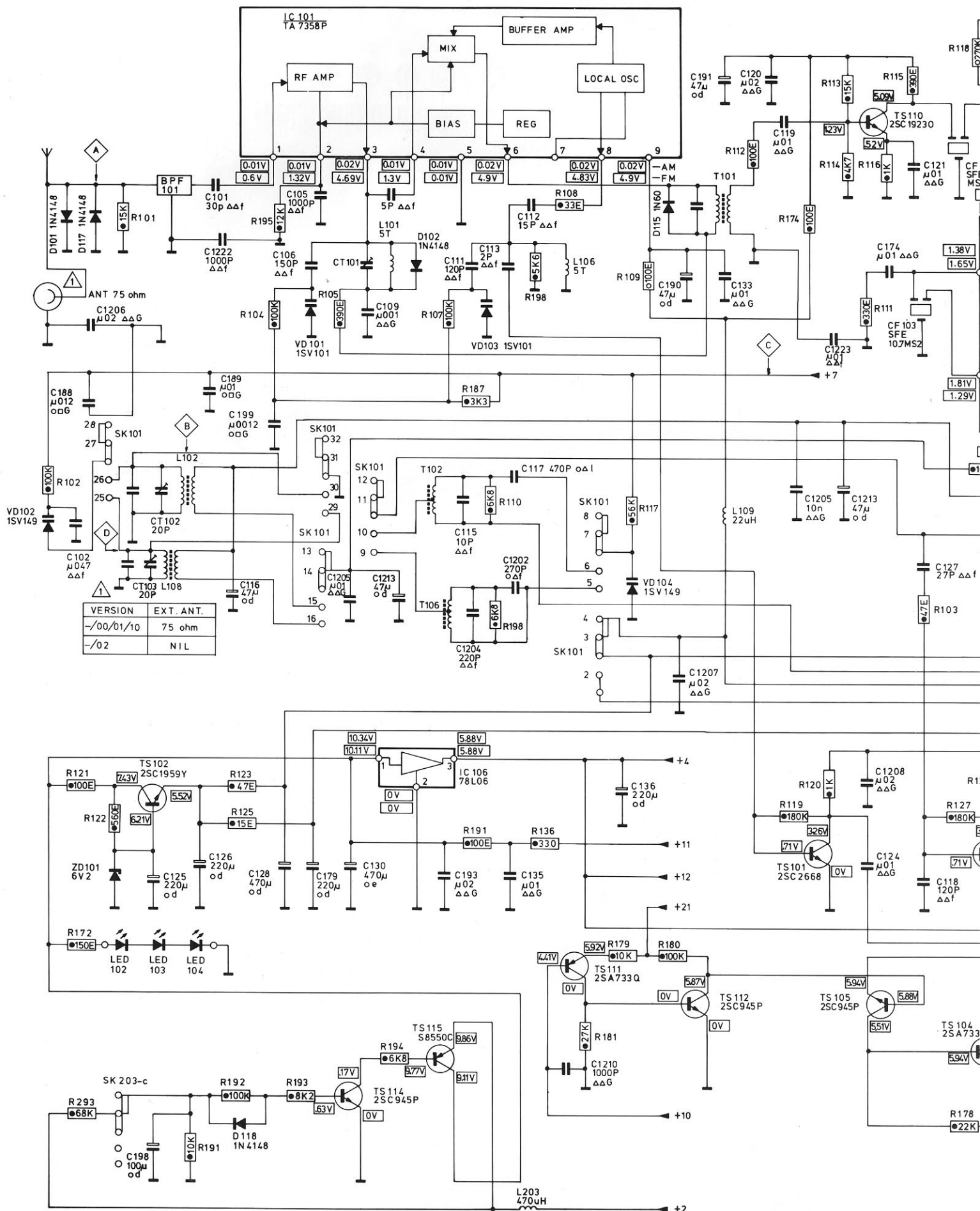
FM	NO SIGNAL	⬡ A		VR101	COUNTER 76 KHz ⬡ 2
----	-----------	-----	--	-------	-----------------------

CASSETTE ALIGNMENT & SPEC.

HEAD ANGLE	TEST TAPE 10K		PLAYBACK	HEAD ADJ. SCREW	MAX ⬡ 3 ⬡ 4
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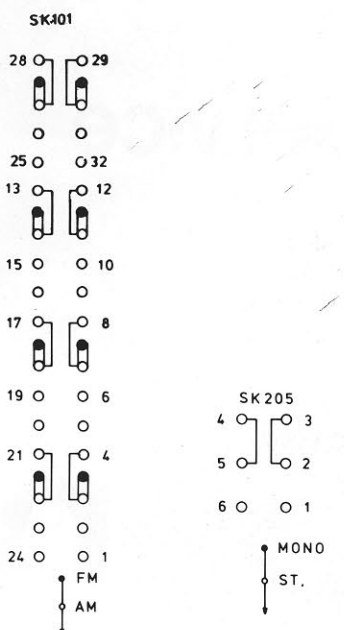
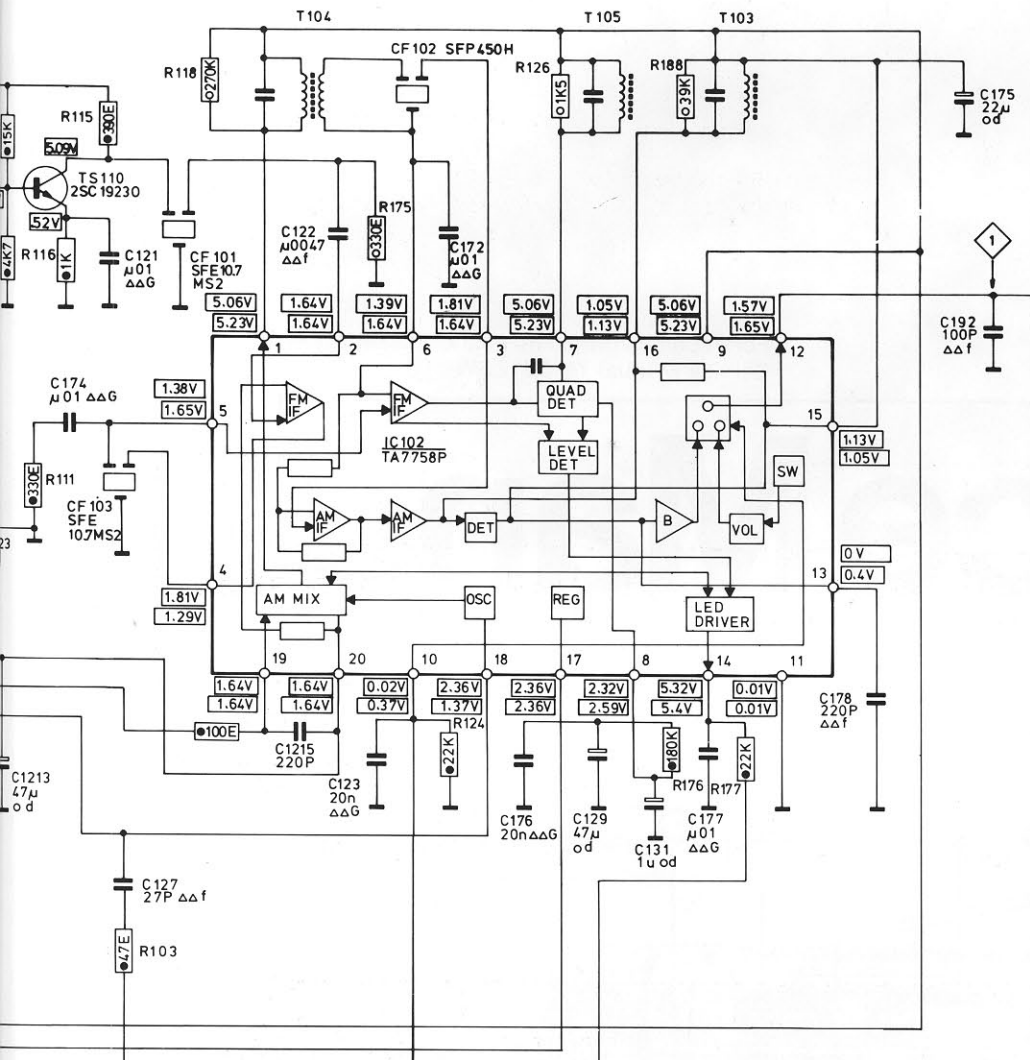
TUNER PCB



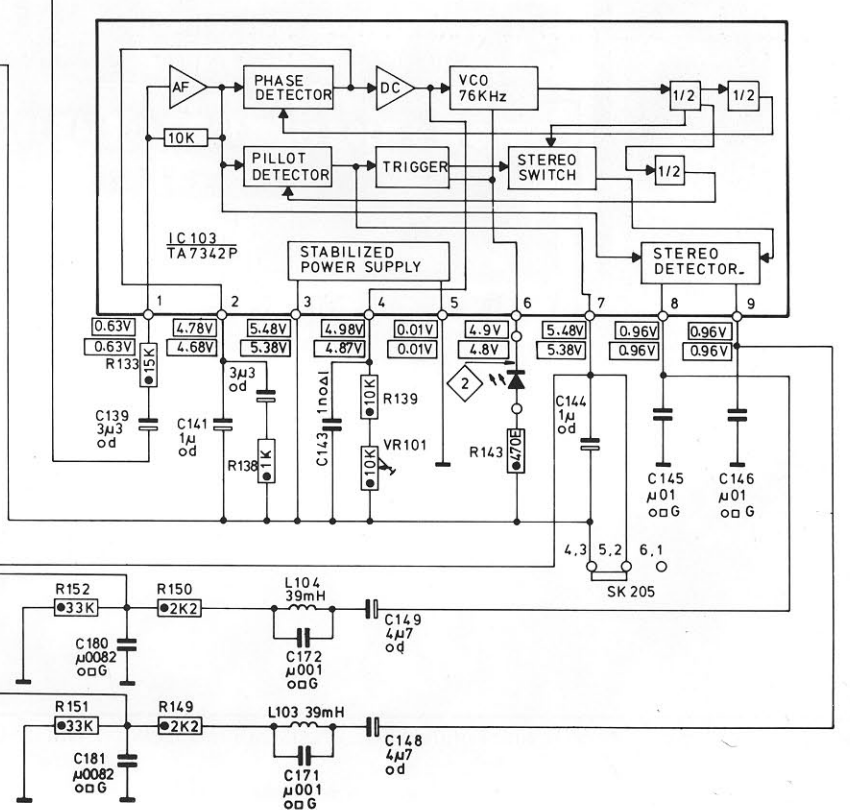
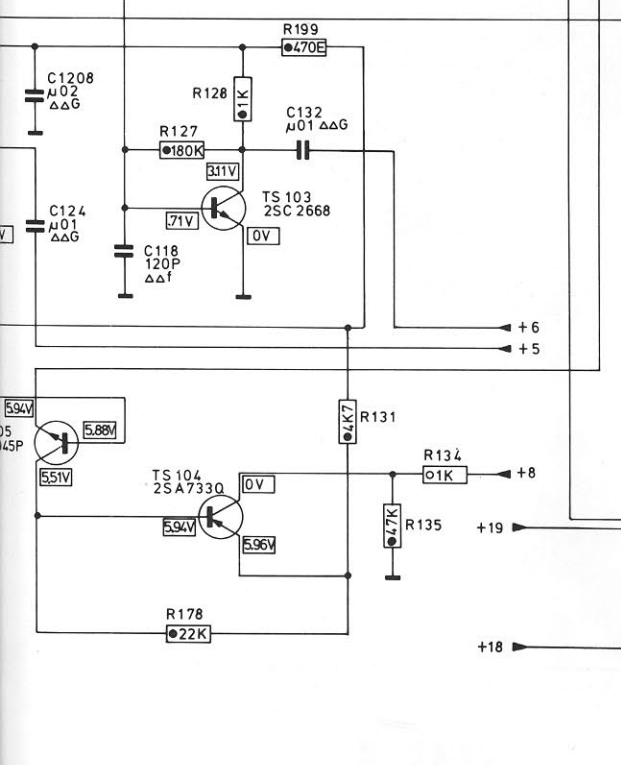


VERSION	EXT. ANT.
-/00/01/10	75 ohm
-/02	NIL

Schematic Diagram



- CARBON RESISTOR, 1/4W, 5%
 - CARBON RESISTOR, 1/8W, 5%
 - △△ PLATE CERAMIC CAPACITOR
 - ELECTROLYTIC CAPACITOR
 - MYLAR CAPACITOR
 - POLYESTERENE FILM CAPACITOR
- × d=10V
e=16V
f=25V
G=50V
I=125V
- V E.V.M



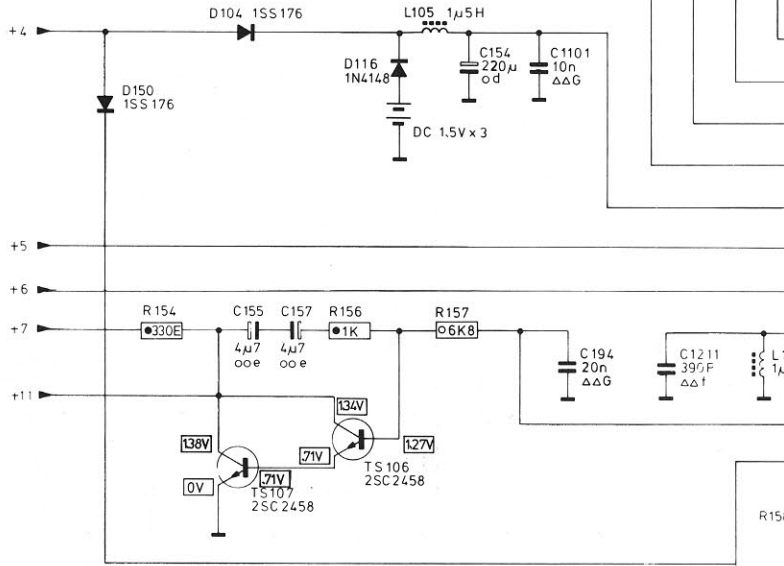
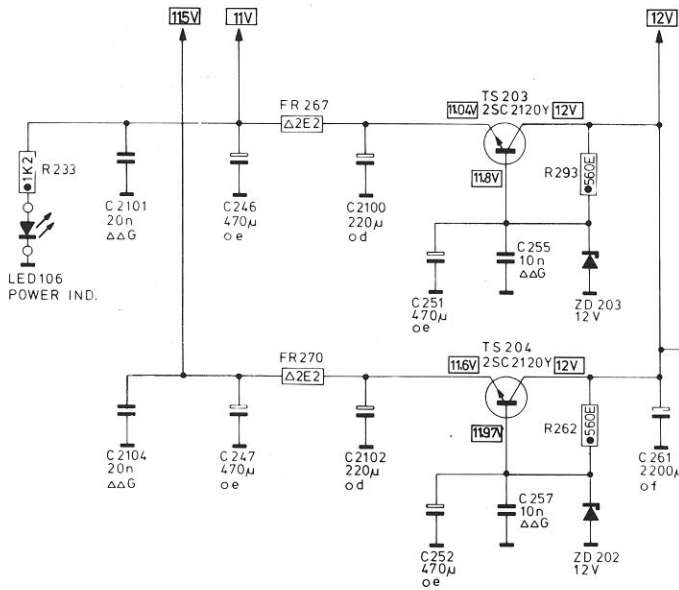
SK 204



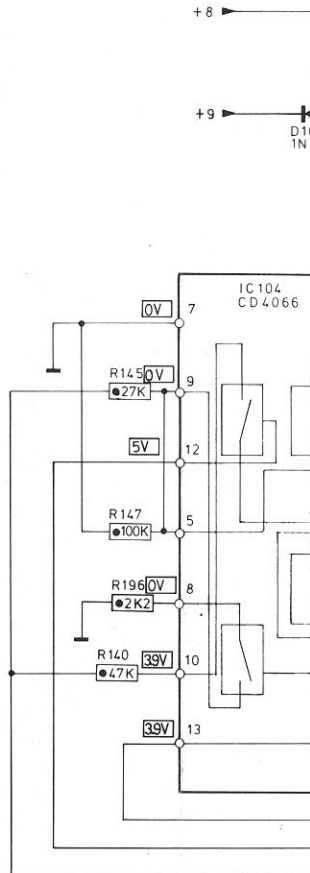
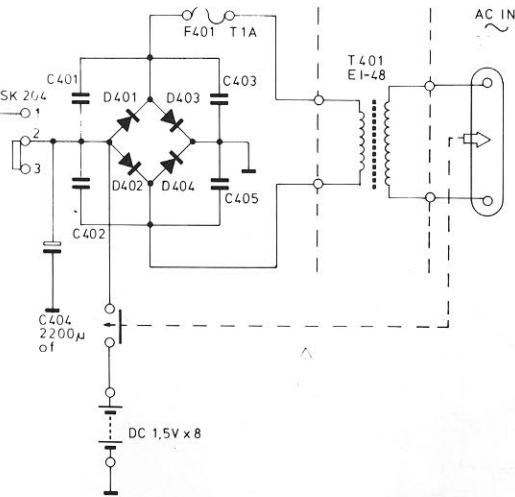
POWER OFF
POWER ON

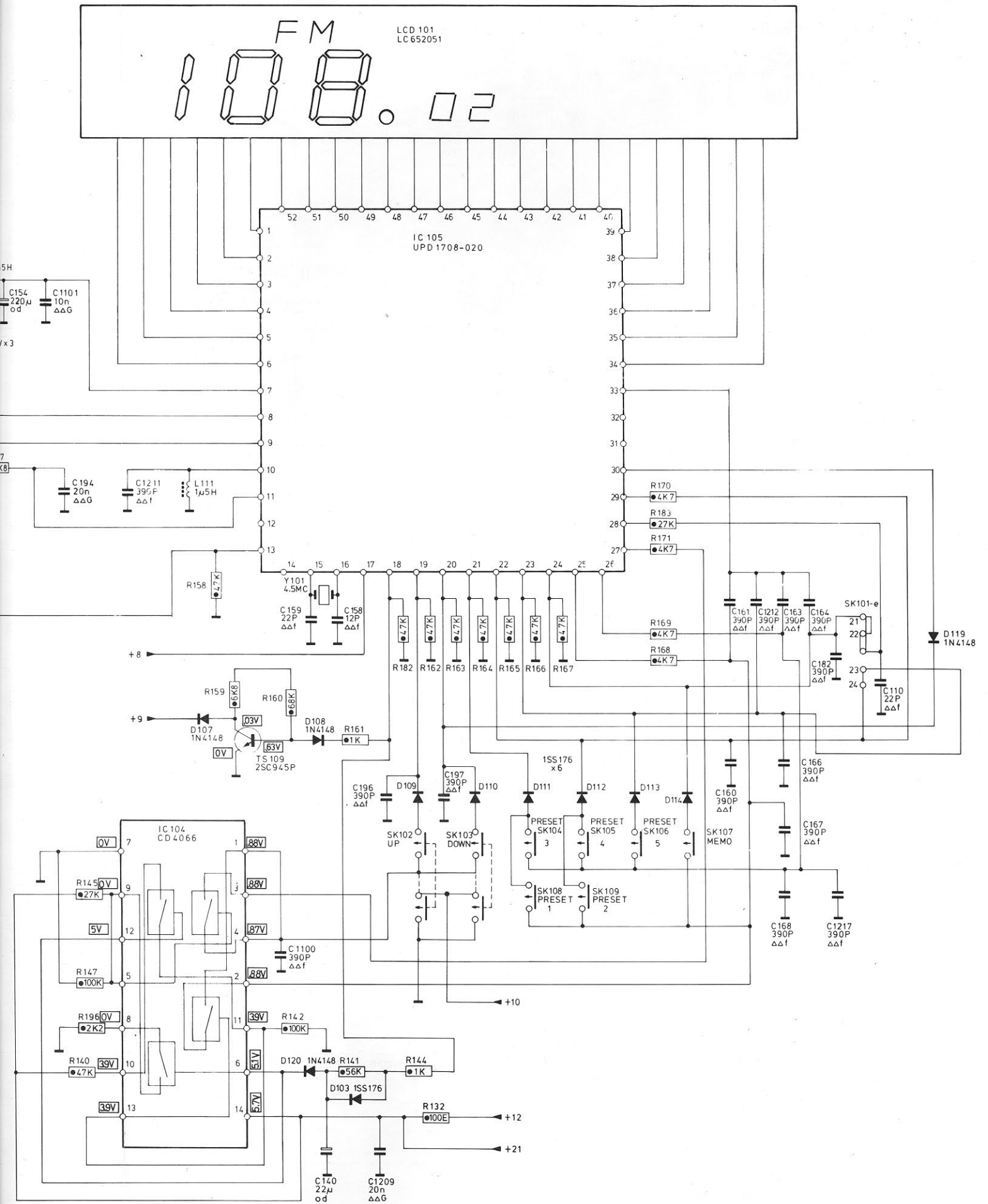
- CARBON RESISTOR, 1/4W, 5%
- CARBON RESISTOR, 1/8W, 5%
- FUSE RESISTOR, 1/4W, 5%
- PLATE CERAMIC CAPACITOR
- ELECTROLYTIC CAPACITOR
- TANTALUM CAPACITOR

- * d = 10V
- e = 16V
- f = 25V
- G = 50V



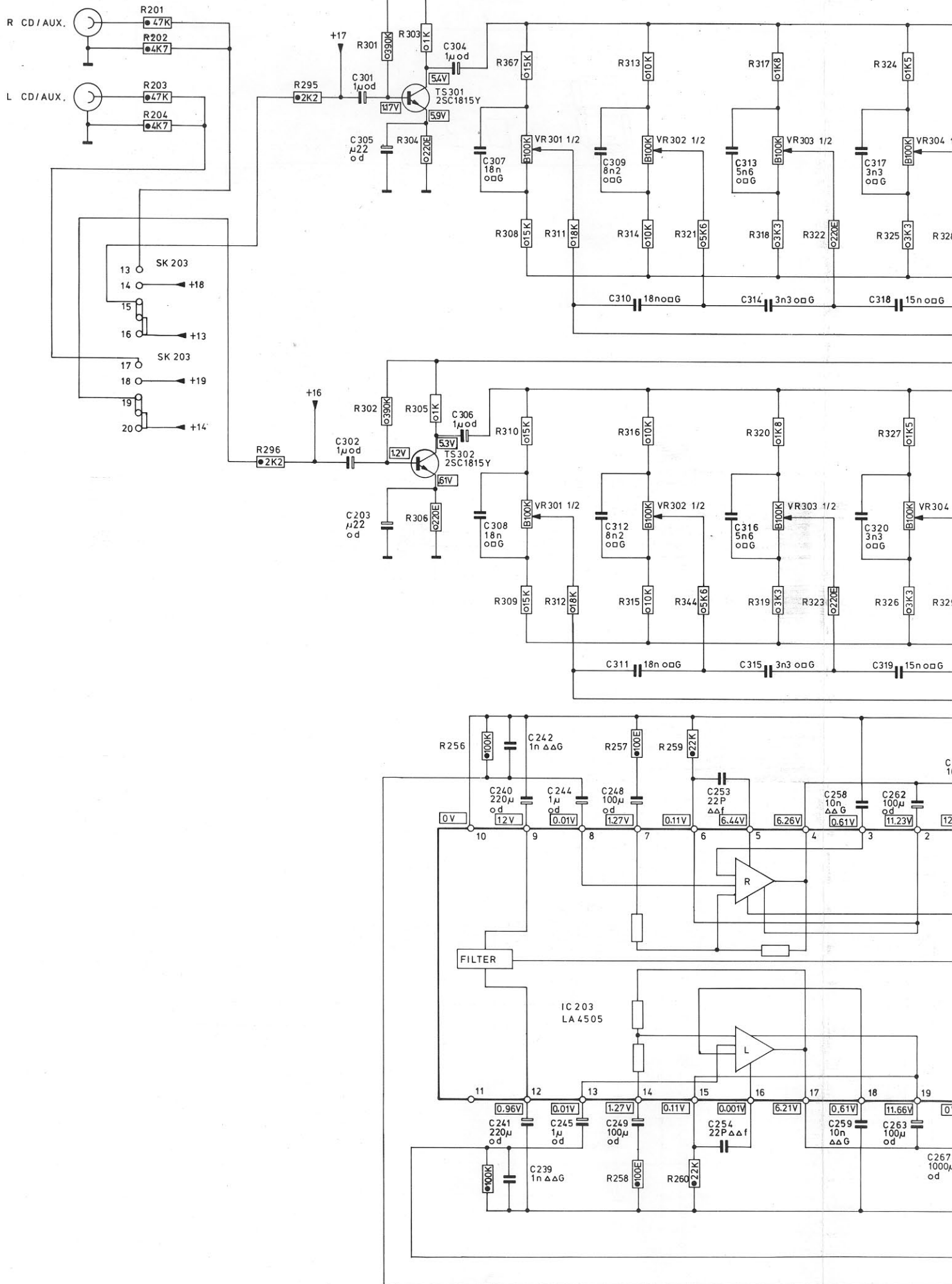
D401-D404
1N4001
C401-C403 AND C405
20n ΔΔG



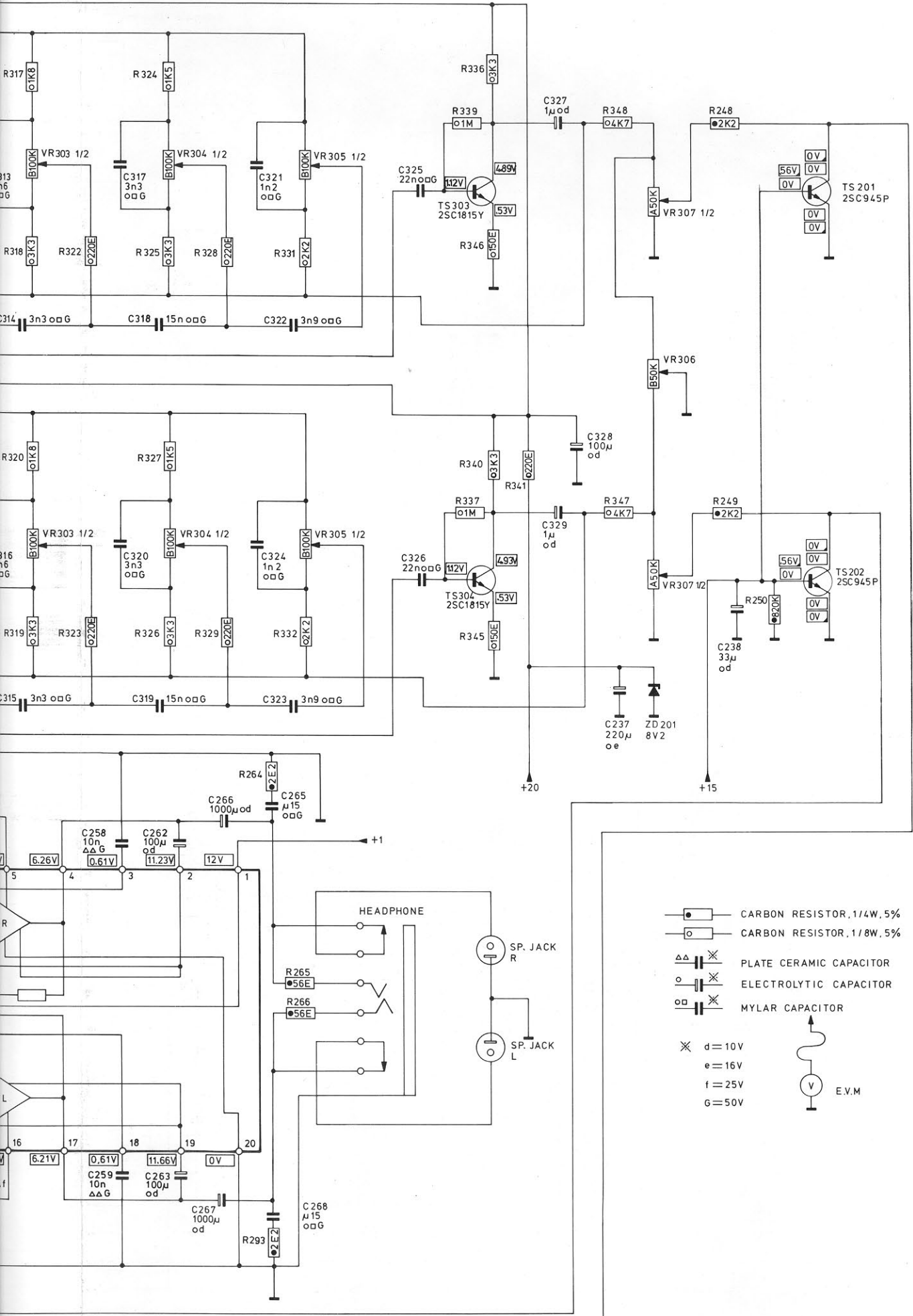


EQ & AF CIRCUIT

Schematic Diagram

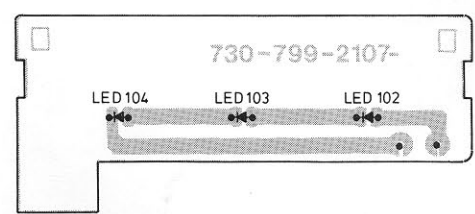
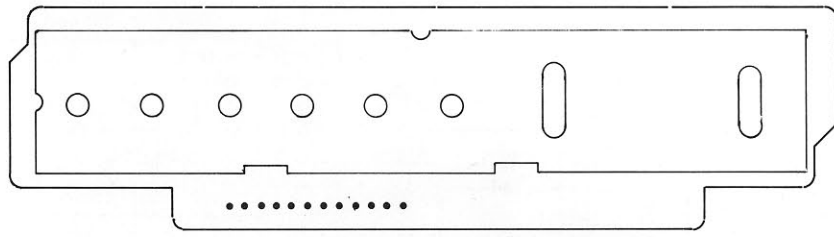
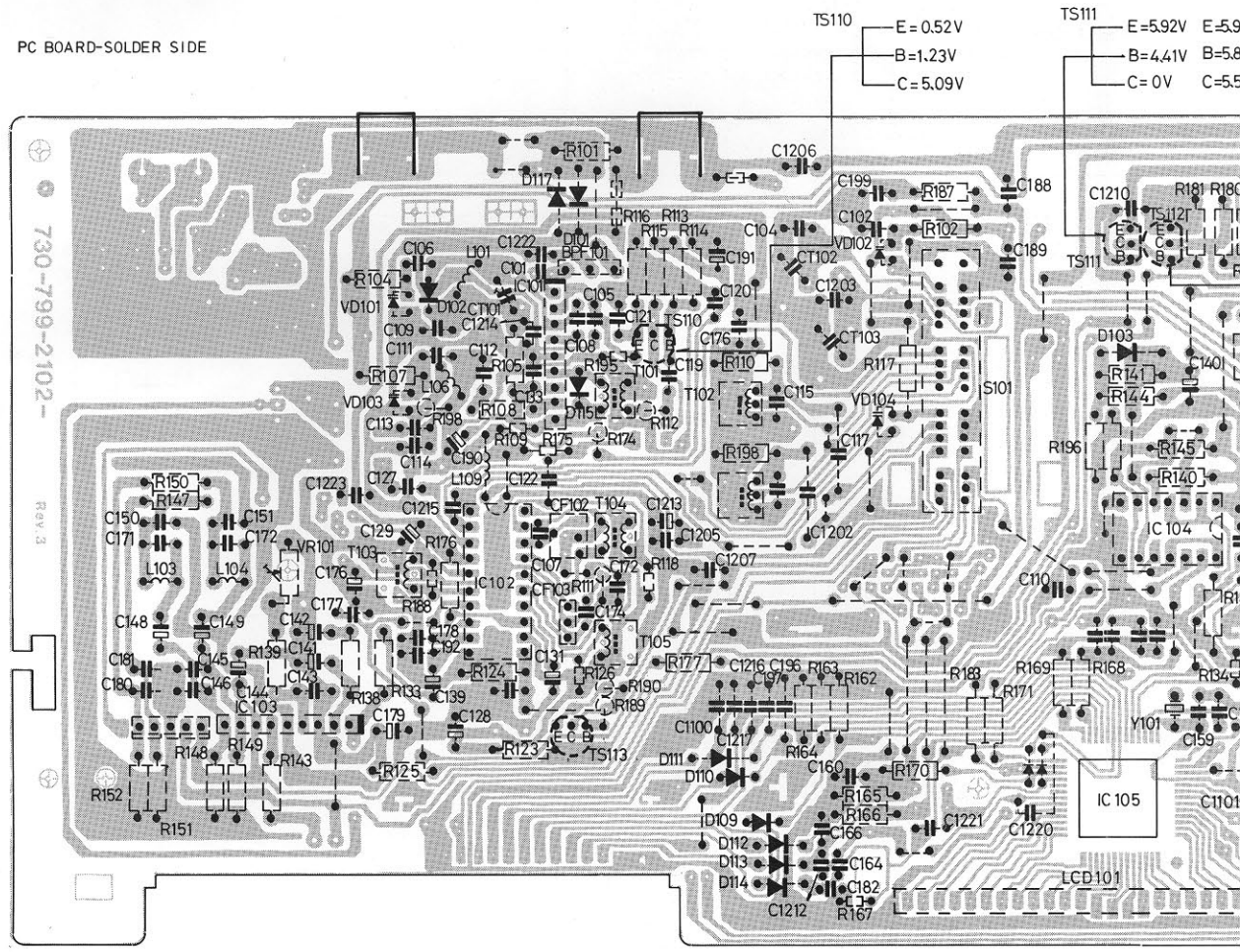


Diagram



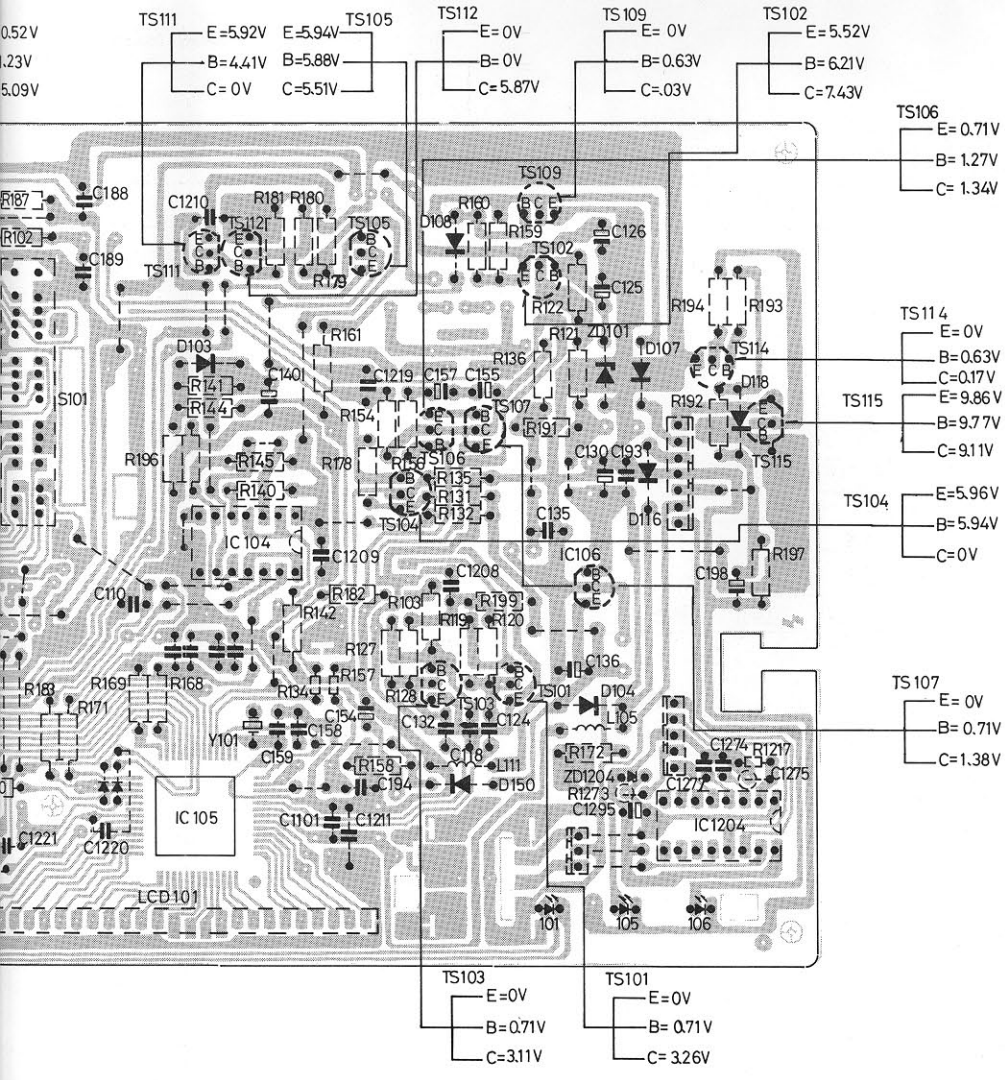
- CARBON RESISTOR, 1/4W, 5%
 - CARBON RESISTOR, 1/8W, 5%
 - PLATE CERAMIC CAPACITOR
 - ELECTROLYTIC CAPACITOR
 - MYLAR CAPACITOR
- × d = 10V
 e = 16V
 f = 25V
 G = 50V
- E.V.M.

PC BOARD-SOLDER SIDE



IC		1	2	
102	AM	5.23V	1.64V	1.
	FM	5.06V	1.64V	1.
101	AM	.01V	.01V	0.
	FM	0.6V	1.32V	4.
106	AM	10.34V	0V	5.
	FM	10.11V	0V	5.
103	AM	0.63V	4.78V	5.
	FM	0.63V	4.68V	5.
104		0.88V	0.88V	0.
601		2.14V	2.16V	1.

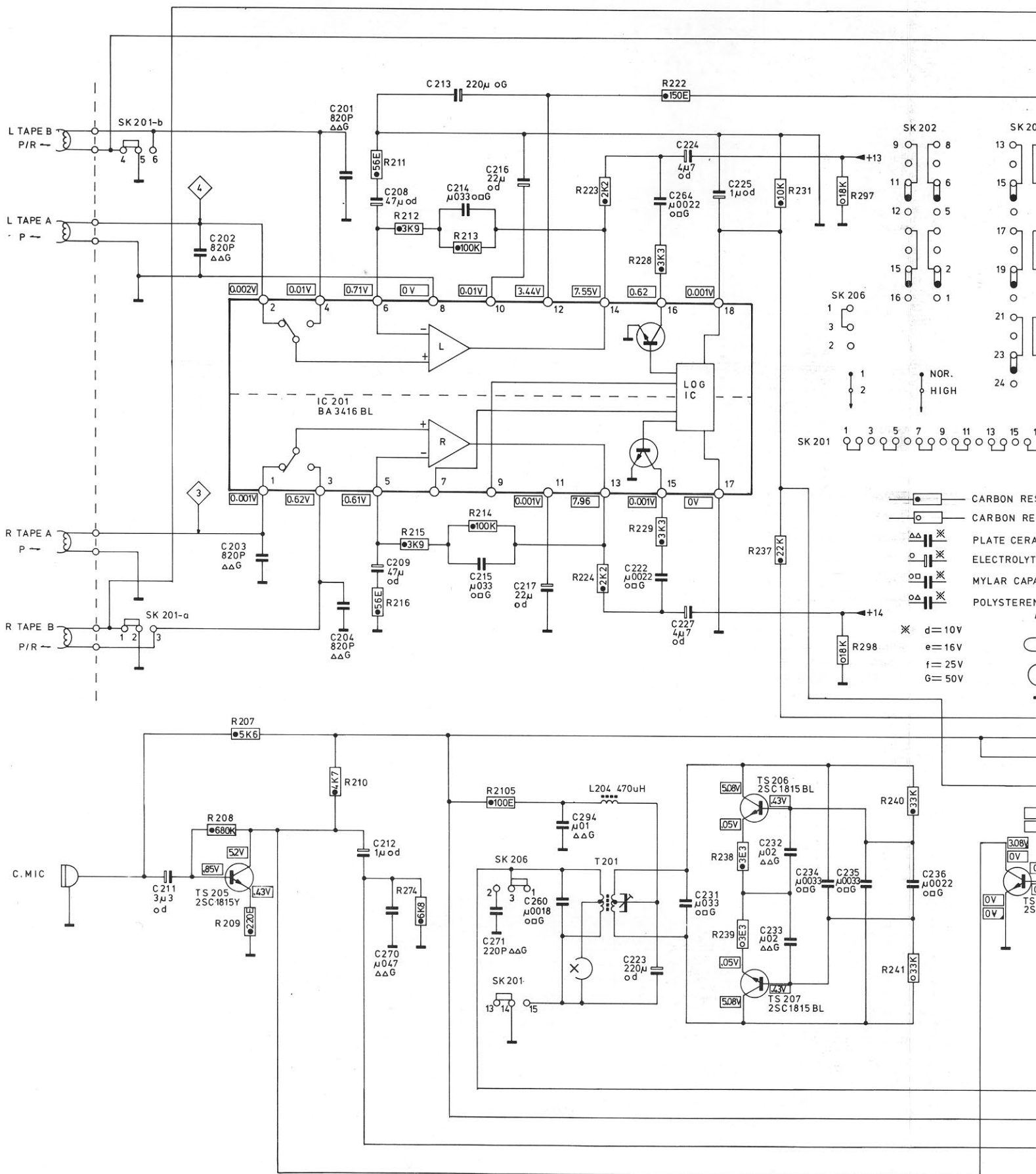
NOTE: VALUES INDICATED



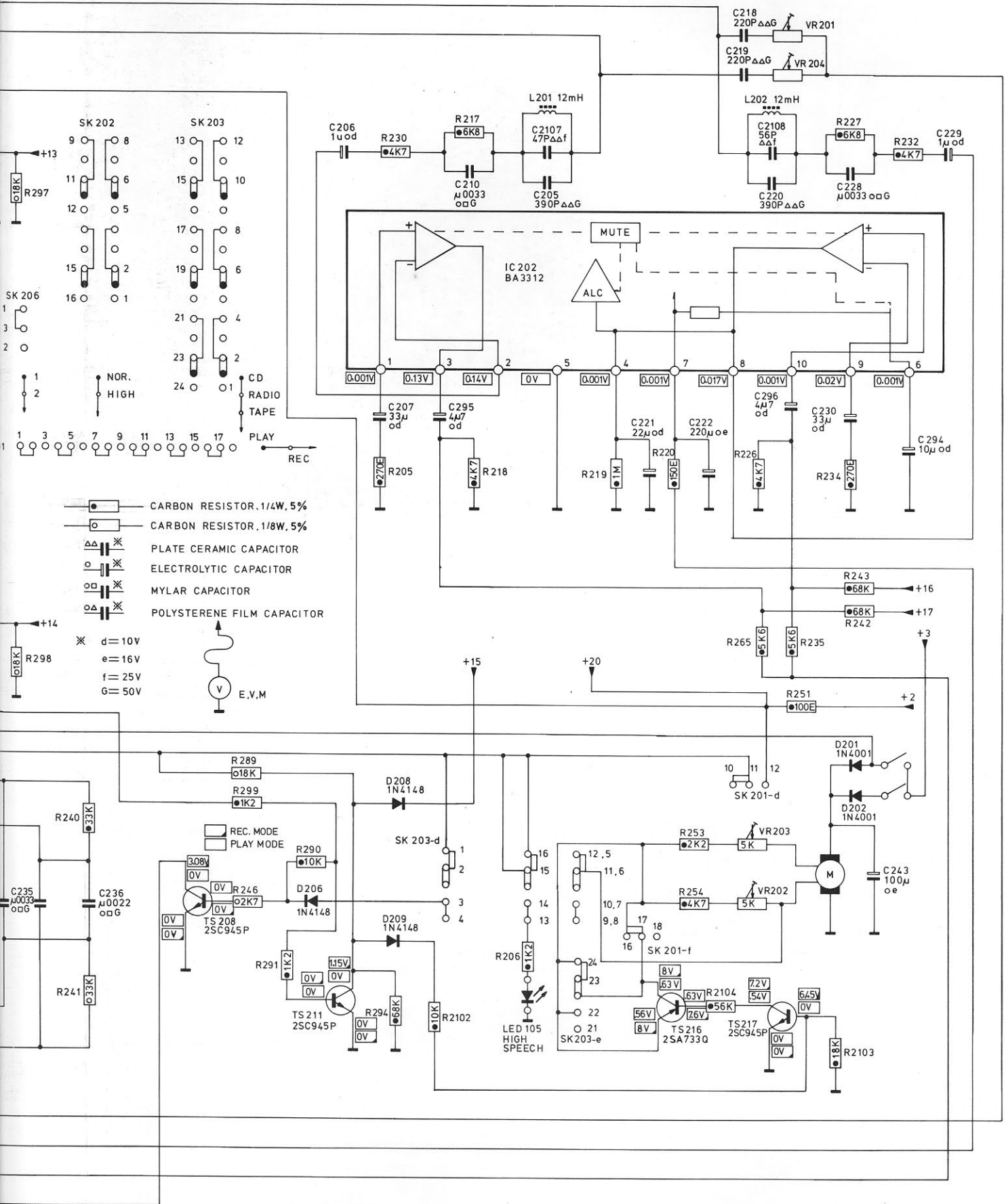
IC		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
102	AM	5.23V	1.64V	1.64V	1.81V	1.65V	1.64V	5.23V	2.32V	5.23V	.02V	.01V	1.65V	0.4V	5.32V	1.13V	1.13V	2.36V	2.36V	1.64V	1.64V
	FM	5.06V	1.64V	1.81V	1.29V	1.38V	1.39V	5.06V	2.59V	5.06V	0.37V	.01V	1.57V	0V	5.4V	1.05V	1.05V	2.36V	1.37V	1.64V	1.64V
101	AM	.01V	.01V	.02V	.01V	.01V	.02V	—	.02V	.02V											
	FM	0.6V	1.32V	4.69V	1.3V	0.1V	4.9V	—	4.83V	4.9V											
106	AM	10.34V	0V	5.88V																	
	FM	10.11V	0V	5.88V																	
103	AM	0.63V	4.78V	5.48V	4.98V	.01V	4.9V	5.48V	.96V	.96V											
	FM	0.63V	4.68V	5.38V	4.87V	.01V	4.8V	5.38V	.96V	.96V											
104		0.88V	0.88V	0.88V	0.87V	0V	5.1V	0V	0V	0V	3.9V	3.9V	5V	3.9V							
601		2.14V	2.16V	1.52V	0V	1.43V	0.96V	3.99V	4.73V												

NOTE: VALUES INDICATED IN ARE DC VOLTAGES BETWEEN THE CHASSIS GROUND AND THE ELECTRICAL PARTS.

CASSETTE CIRCUIT



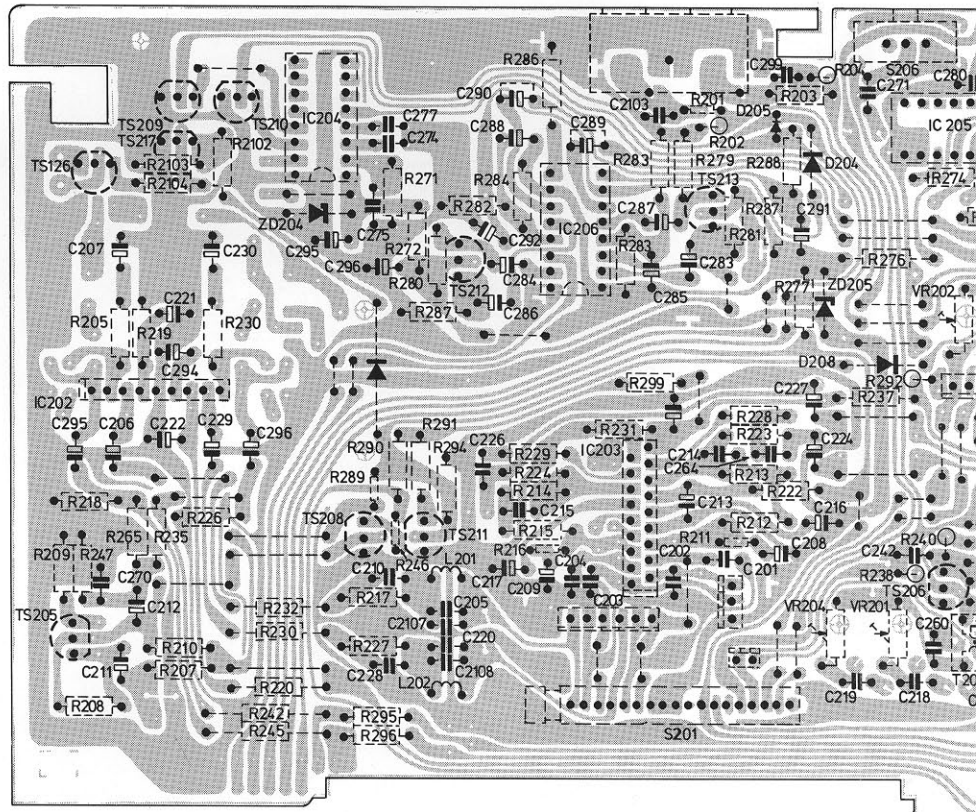
Schematic Diagram



- CARBON RESISTOR, 1/4W, 5%
- CARBON RESISTOR, 1/8W, 5%
- PLATE CERAMIC CAPACITOR
- ELECTROLYTIC CAPACITOR
- MYLAR CAPACITOR
- POLYESTERENE FILM CAPACITOR

- * d = 10V
- e = 16V
- f = 25V
- G = 50V





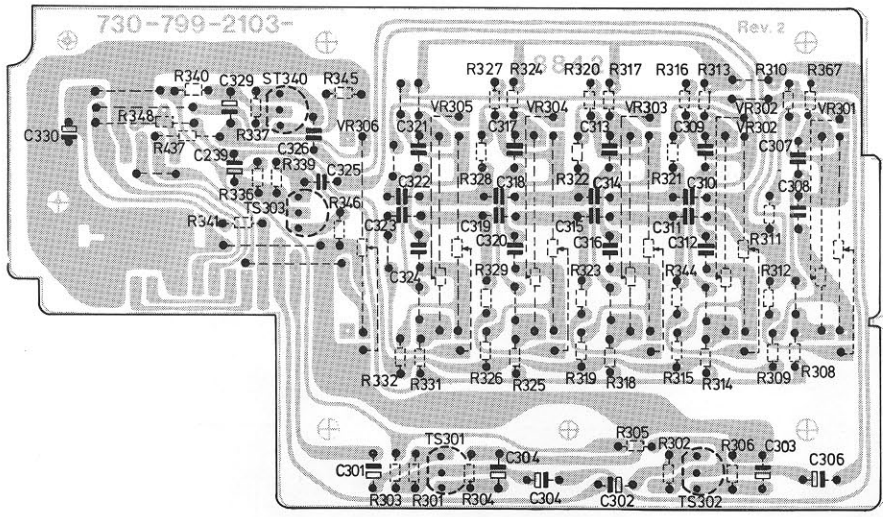
IC VOLTAGE.

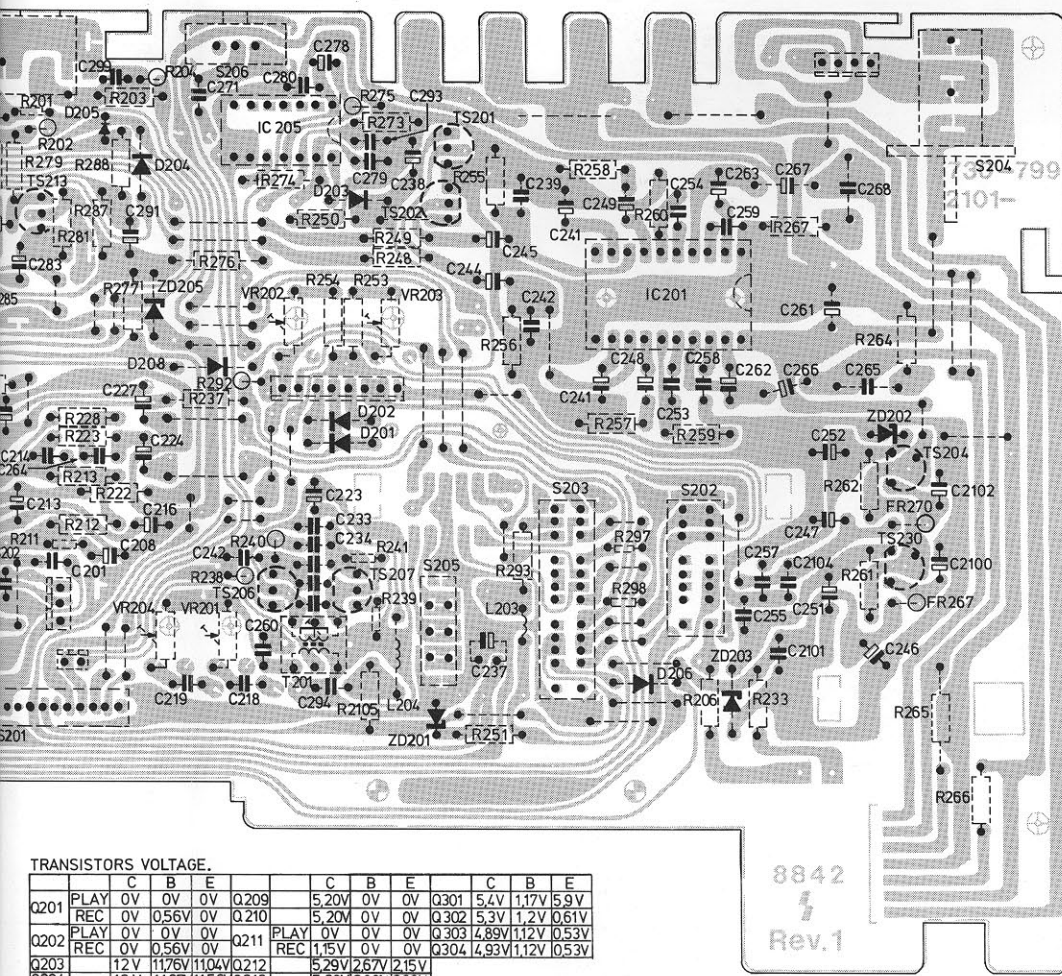
PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC203	0V	0V	0.62V	0.01V	0.06V	0.07V	-	0V	-	0.01V	0V	3.44V	7.96V	7.55V	0V	0.62V	0V	0V		
IC202	0V	0.14V	0.13V	0V	0V	0V	0V	0.02V	0.02V	0V	-	0.96V	0.01V	1.27V	0.11V	0V	6.12V	0.61V	1.17V	0V
IC204	0V	0.12V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	5V	5V	2.57V	5V				
IC205	0V	5.37V	0V	0V	5.37V	0V	0V	-	-	-	-	-	-	5.37V	-	-	-	-	-	-
IC206	0V	0V	0V	0V	0V	0V	5.37V	0.1V	5.31V	5.35V	0V	0V	0V	0V	0V	5.36V				
IC501	-	2.94V	2.95V	0V	0V	-	-	-	-	2.95V	2.95V	2.95V	2.93V	2.93V	2.95V	2.95V				
IC601	2.14V	2.16V	1.52V	0V	1.43V	0.96V	3.99V	4.73V												

TRANSISTORS VOLTAGE.

		C	B	E	
Q201	PLAY	0V	0V	0V	Q209
	REC	0V	0.56V	0V	Q210
Q202	PLAY	0V	0V	0V	Q211
	REC	0V	0.56V	0V	Q212
Q203		12V	11.76V	11.04V	Q213
Q204		12V	11.97V	11.56V	Q214
Q205		5.2V	0.85V	0.43V	Q215
Q206		5.08V	0.43V	0.05V	Q216
Q207		5.08V	0.43V	0.05V	Q217
Q208	PLAY	0V	0V	0V	
	REC	3.08V	0V	0V	

NOTE: Values indicated in □ are D

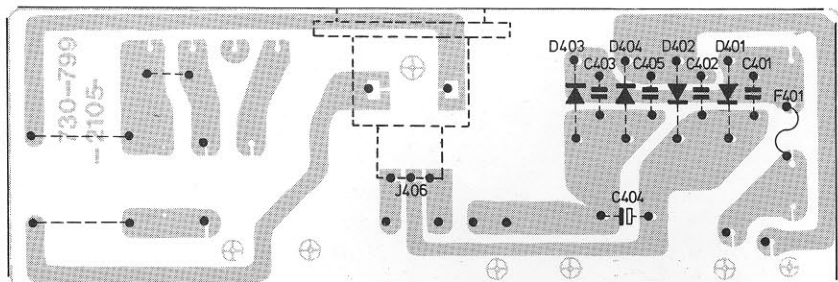




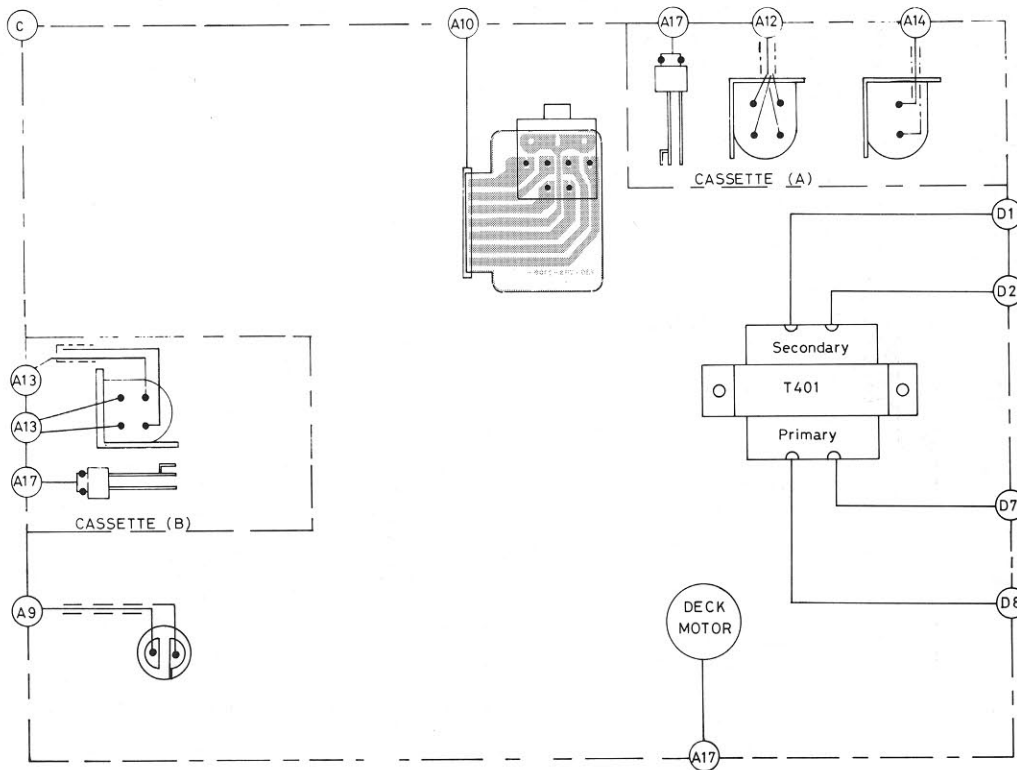
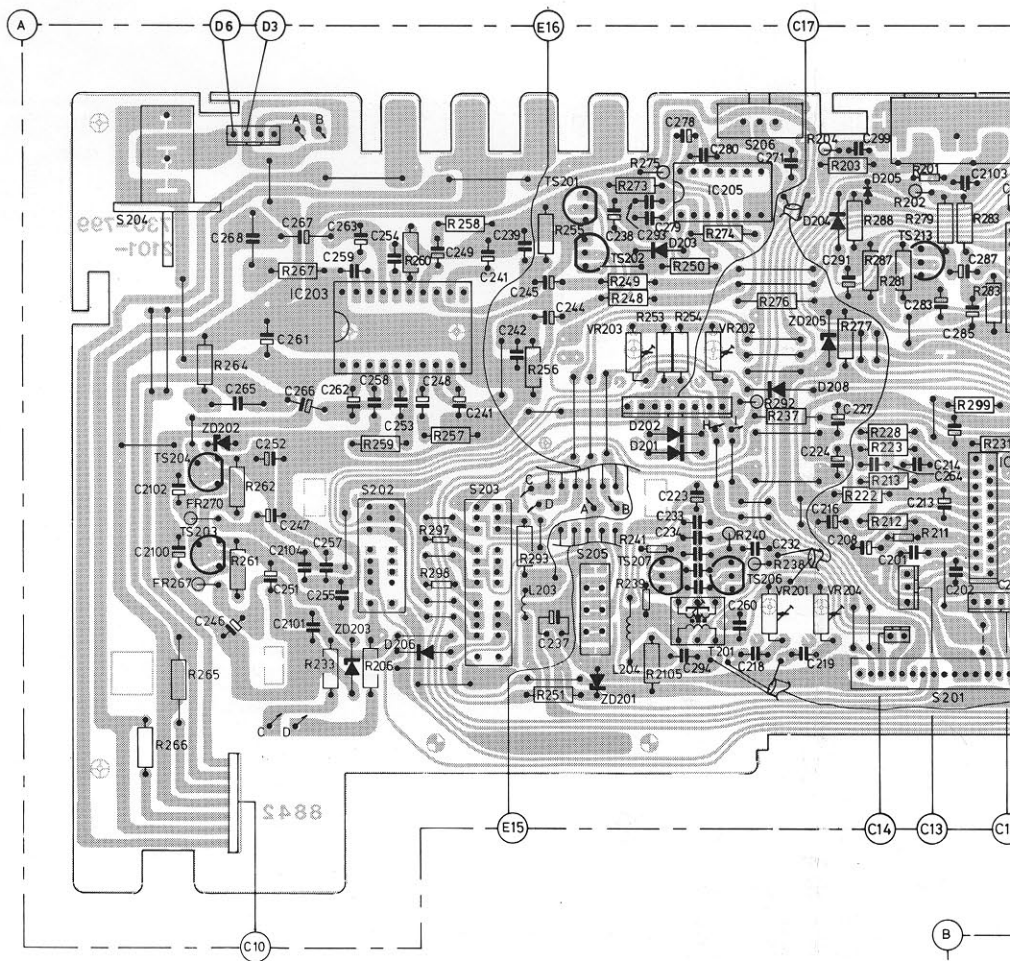
TRANSISTORS VOLTAGE.

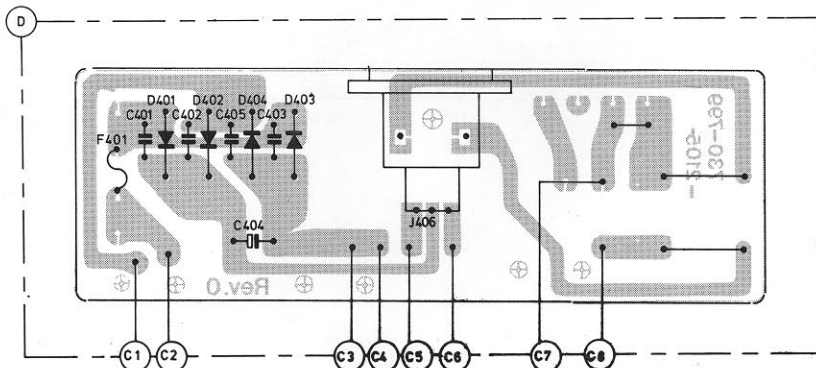
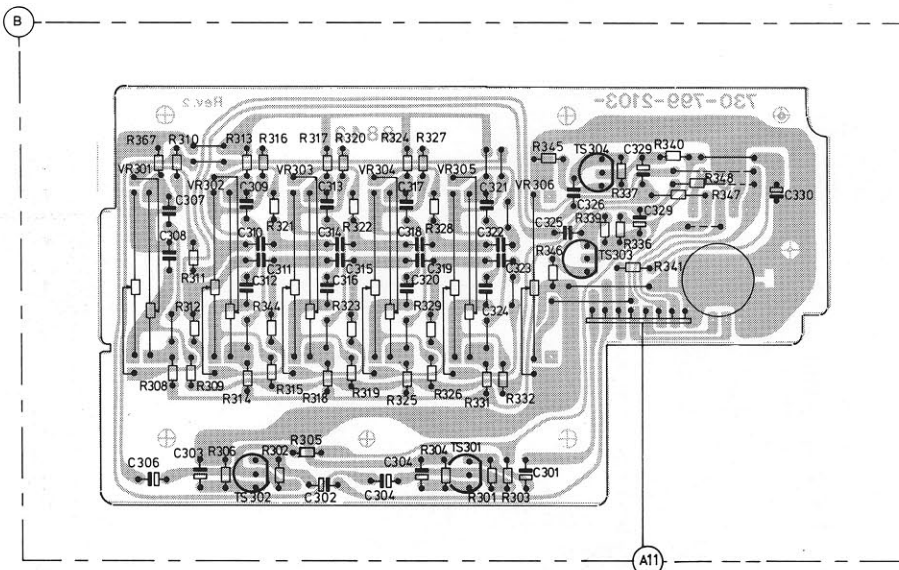
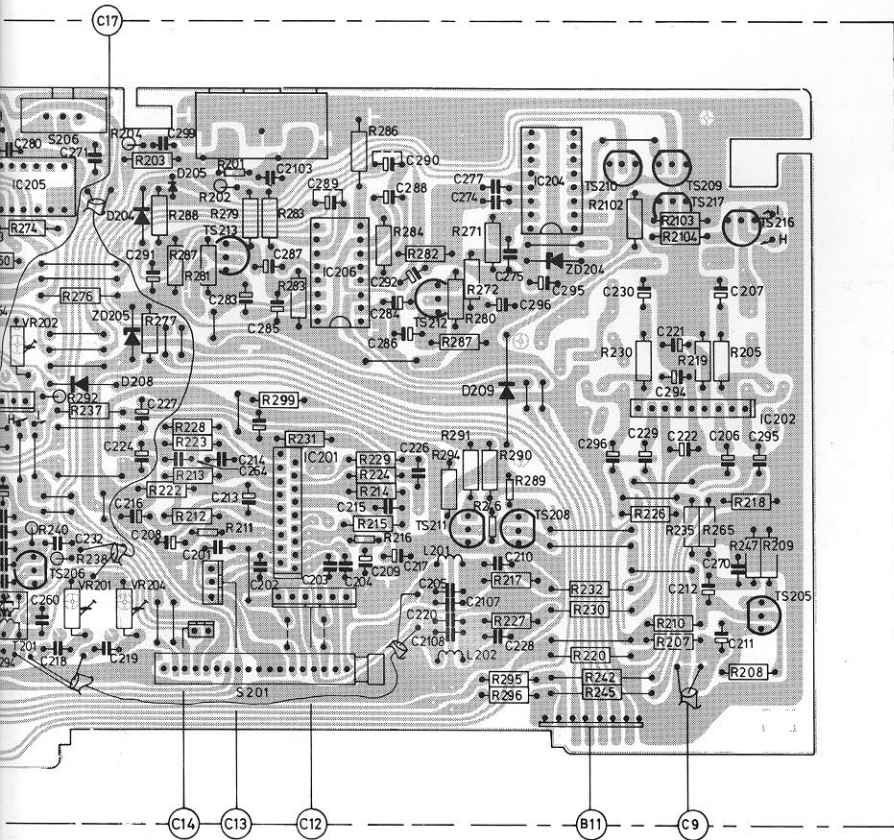
	C	B	E		C	B	E		C	B	E
Q201	PLAY 0V	0V	0V	Q209	5.20V	0V	0V	Q301	5.4V	1.17V	5.9V
	REC 0V	0.56V	0V	Q210	5.20V	0V	0V	Q302	5.3V	1.2V	0.61V
Q202	PLAY 0V	0V	0V	Q211	PLAY 0V	0V	0V	Q303	4.89V	1.12V	0.53V
	REC 0V	0.56V	0V	Q212	5.29V	2.57V	2.15V	Q304	4.93V	1.12V	0.53V
Q203	12V	11.76V	11.04V	Q213	5.29V	2.80V	2.30V				
Q204	12V	11.97V	11.56V	Q216	PLAY 0.63V	0.63V	0.56V				
Q205	5.2V	0.85V	0.43V		REC 8V	7.6V	8V				
Q206	5.08V	0.43V	0.05V	Q217	PLAY 0.54V	0V	0V				
Q207	5.08V	0.43V	0.05V		REC 7.2V	6.45V	0V				
Q208	PLAY 0V	0V	0V								
	REC 3.08V	0V	0V								

NOTE: Values indicated in □ are DC Voltage between the chassis ground and the electrical parts.

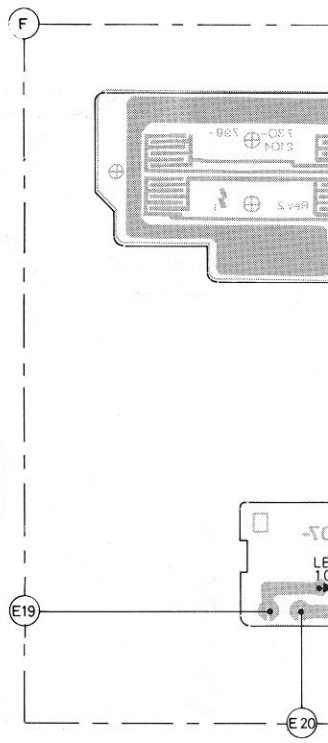
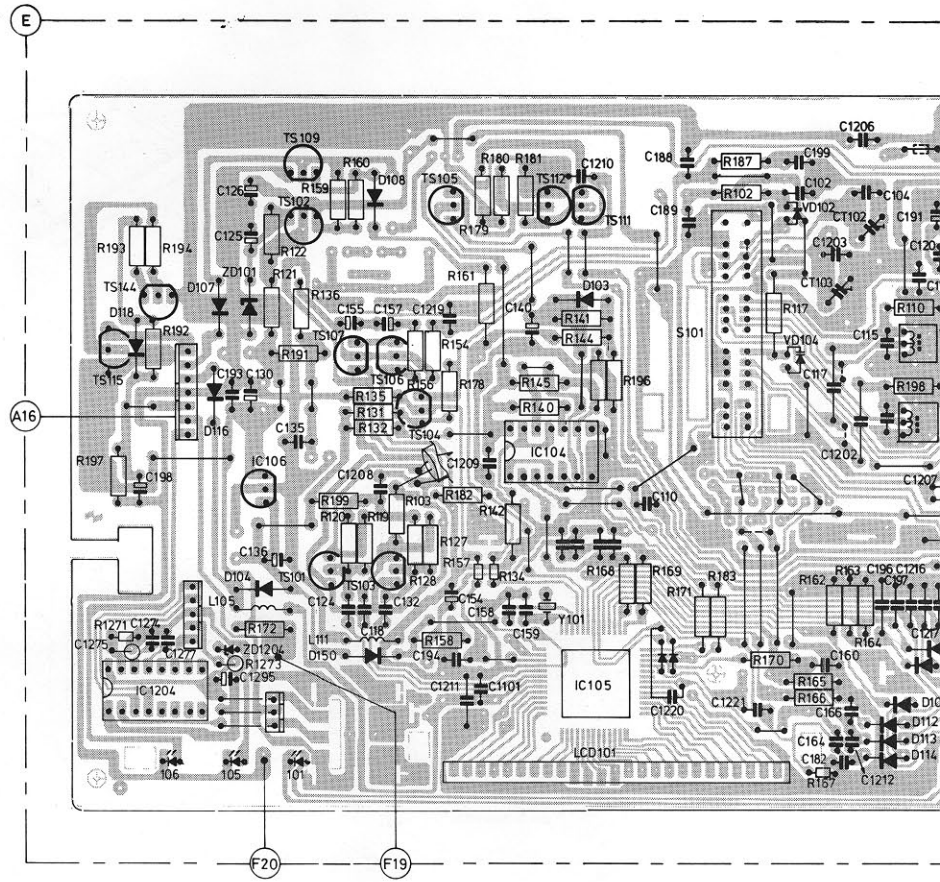


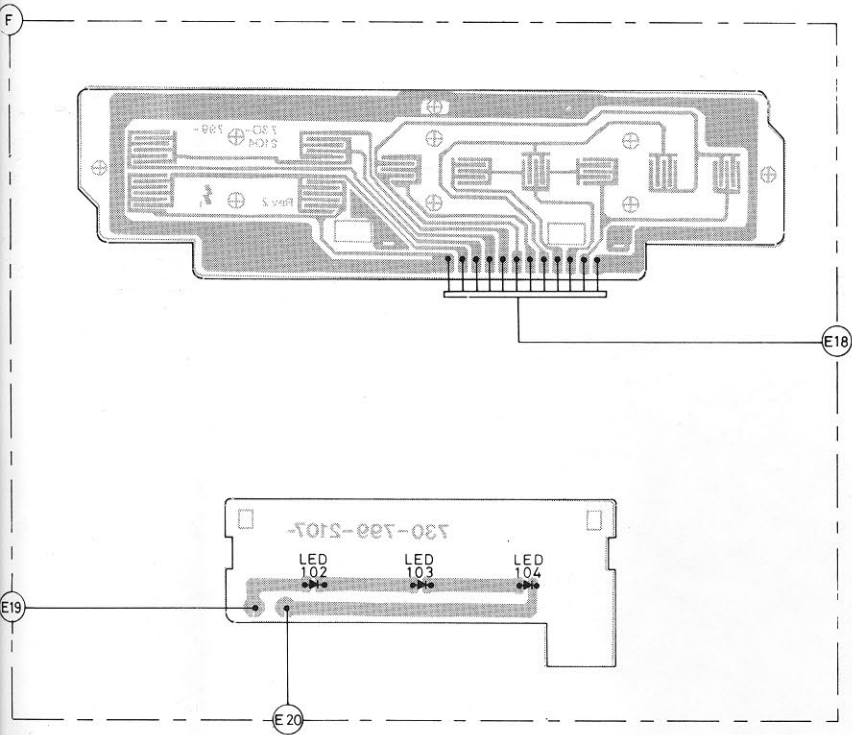
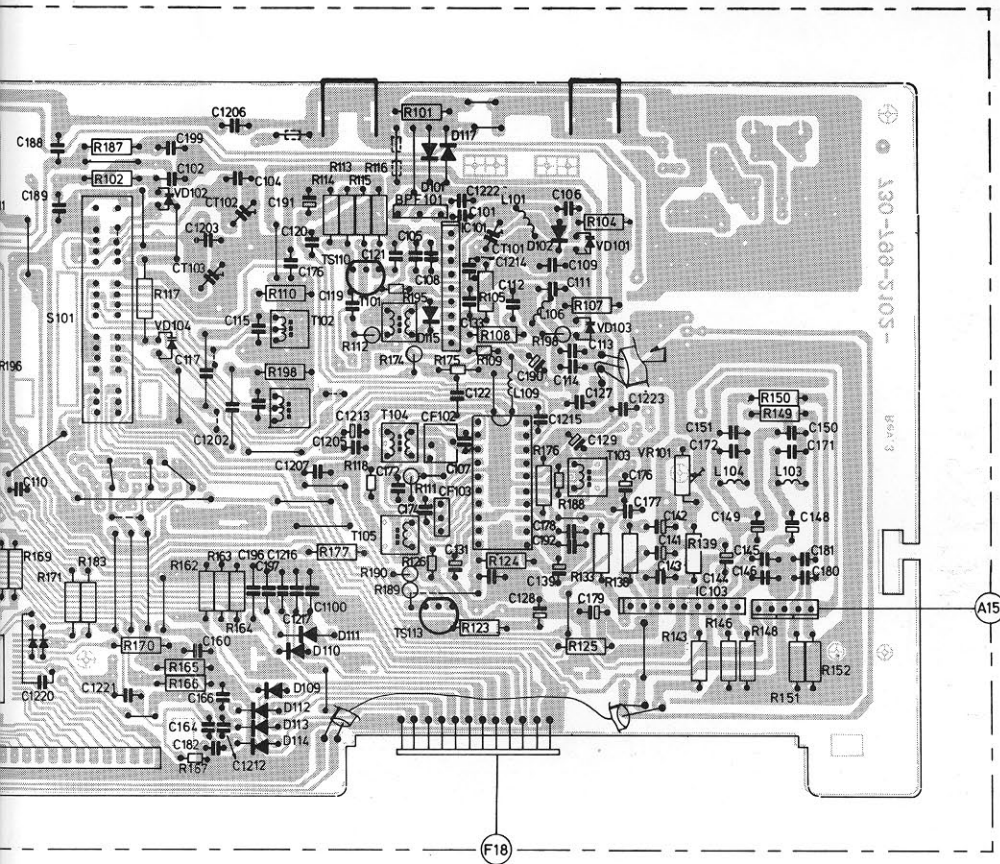
Wiring Diagram





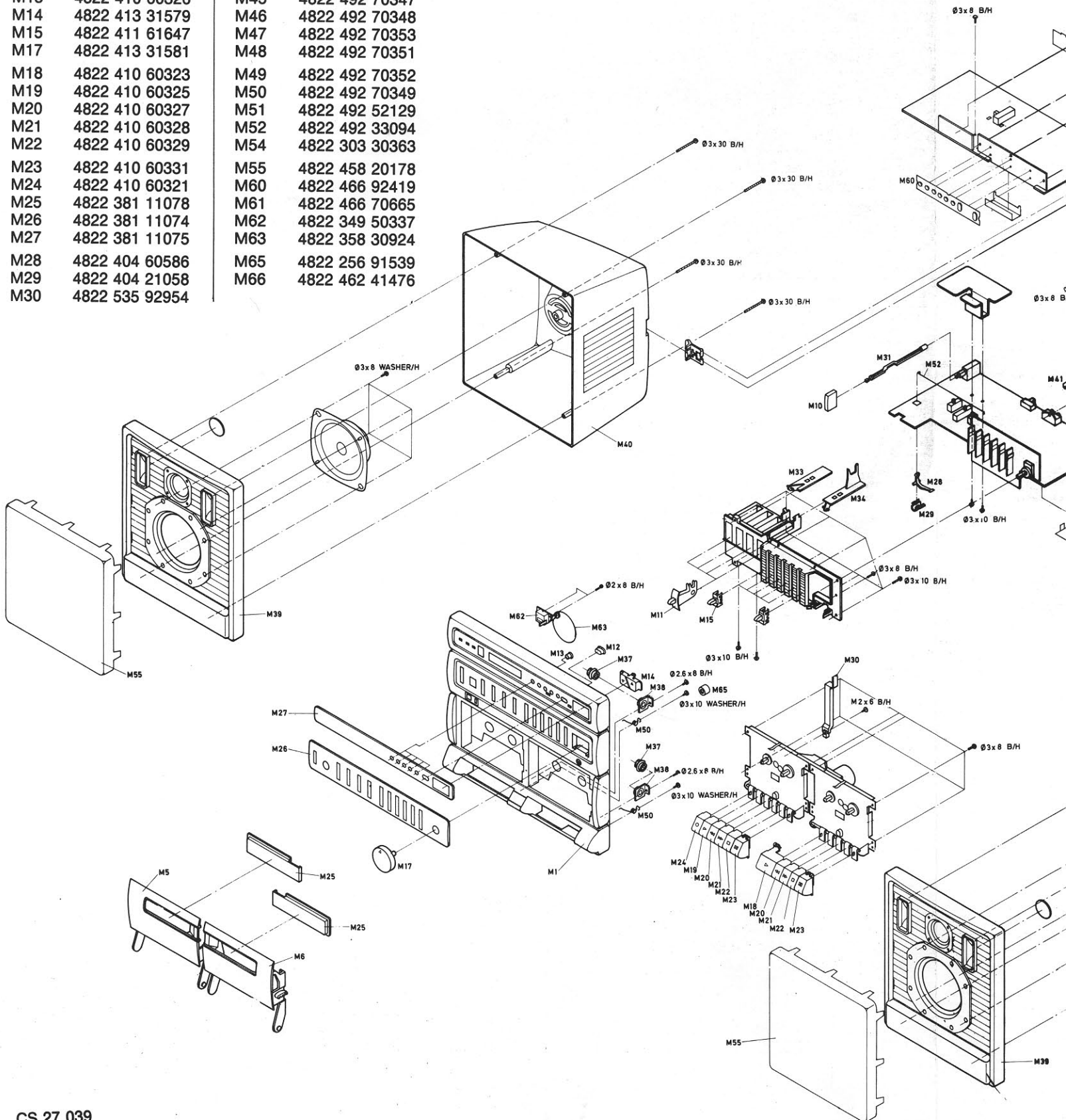
Wiring Diagram

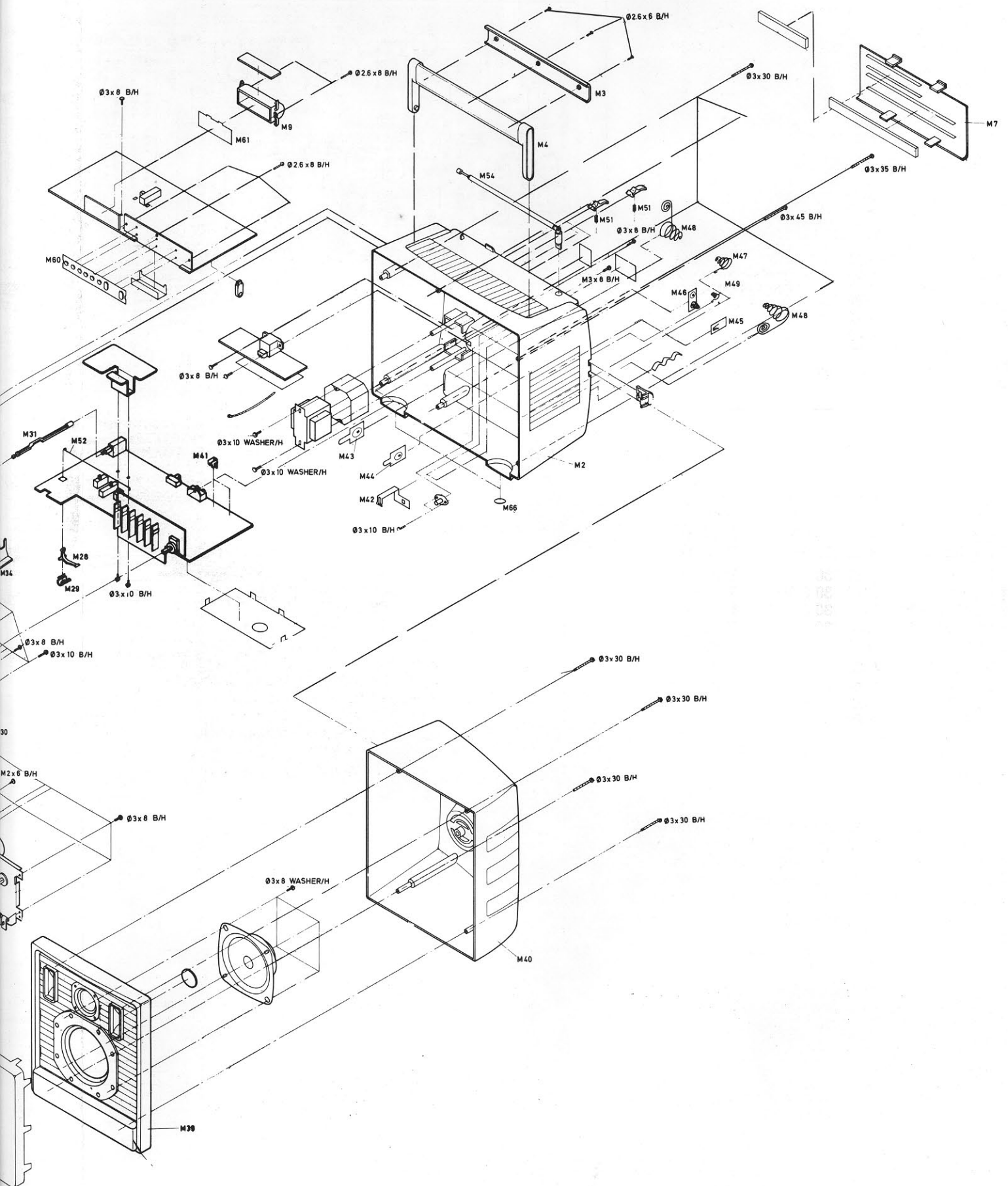










Mechanical Parts

M1	4822 426 51381	M31	4822 535 92953
M2	4822 426 10035	M33	4822 404 21056
M3	4822 426 60572	M34	4822 404 21057
M4	4822 498 40567	M37	4822 522 32793
M5	4822 443 62853	M38	4822 256 91538
M6	4822 443 62852	M39	4822 426 51379
M7	4822 443 62851	M40	4822 426 60571
M9	4822 404 21055	M41	4822 303 70086
M10	4822 410 60322	M42	4822 290 80894
M11	4822 411 50578	M43	4822 290 80893
M12	4822 410 60324	M44	4822 290 80892
M13	4822 410 60326	M45	4822 492 70347
M14	4822 413 31579	M46	4822 492 70348
M15	4822 411 61647	M47	4822 492 70353
M17	4822 413 31581	M48	4822 492 70351
M18	4822 410 60323	M49	4822 492 70352
M19	4822 410 60325	M50	4822 492 70349
M20	4822 410 60327	M51	4822 492 52129
M21	4822 410 60328	M52	4822 492 33094
M22	4822 410 60329	M54	4822 303 30363
M23	4822 410 60331	M55	4822 458 20178
M24	4822 410 60321	M60	4822 466 92419
M25	4822 381 11078	M61	4822 466 70665
M26	4822 381 11074	M62	4822 349 50337
M27	4822 381 11075	M63	4822 358 30924
M28	4822 404 60586	M65	4822 256 91539
M29	4822 404 21058	M66	4822 462 41476
M30	4822 535 92954		





 U201 4822 209 71951 BA3416BL U202 4822 209 61512 BA3312 U203 4822 209 61513 LA4505 U101 4822 209 72753 TA7358P U102 4822 209 61514 TA7758P U103 4822 209 81659 TA7342P U104 4822 209 61515 CD4066 U105 4822 209 61511 UPD1708-020 U106 4822 209 60528 78L06	 L102 4822 156 11133 MW-ANT coil L103,104 4822 157 60358 choke 39mH L105,111 4822 157 60356 choke 1.5μH L108 4822 158 60599 LW-ANT coil L109 4822 157 60361 choke 22μH L110 4822 157 60357 choke 470μH L201,202 4822 157 60359 choke 12μH L203-205 4822 157 60357 choke 470μH T101 4822 157 60355 FM-OSC coil T102 4822 157 60349 MW-OSC coil T103 4822 157 60352 AM-IF T104 4822 157 60351 AM-IF T105 4822 157 60354 FM-IF T106 4822 156 11132 LW OSC coil T201 4822 157 60353 IF-coil T401 4822 146 21451 Mainstransformer 220V T401/05 4822 146 21484 Mainstransformer 240V
 Q101,103 4822 130 61748 2SC2668 Q102 4822 130 42286 2SC1959Y Q104,111,216 4822 130 41732 2SA7339 Q105 etc. 4822 130 41198 2SC945P Q106,107 4822 130 62837 2SC245B Q110 4822 130 60166 2SC19230 Q115 4822 130 61838 JE8550D Q203,204 4822 130 61836 2SC120Y Q205,301-304 4822 130 41947 2SC1815Y Q206,207 4822 130 41319 2SC1815BL	 S101 4822 277 21342 slide switch S201 4822 276 12645 push switch S202 4822 277 21347 slide switch S203 4822 277 21349 slide switch S204 4822 276 12646 push switch S205 4822 277 21346 slide switch S206 4822 277 21345 slide switch
 D101 etc. 4822 130 30621 IN4148 D101 etc. 4822 130 81524 ISS176 D115 4822 130 80562 IN60 D201,202 4822 130 31438 IN4001 D401-404 5322 130 81527 IN4004 LCD101 4822 130 90726 LC65205 LED101 4822 130 32915 TLG208 LED102-104 4822 130 81652 LTR234 LED105,106 4822 130 31911 TLR208 VD101,103 4822 130 81656 V101 VD102,104 4822 130 81657 V149 ZD101 4822 130 81653 ZENER 6,2V ZD201 4822 130 81654 ZENER 8,2V ZD202,203 4822 130 81655 ZENER 12V	<p>Miscellaneous</p> BPF101 4822 242 72889 cer.filter BPMM6A CF101,103 4822 242 72887 cer.filter 10.7MHz CF102 4822 242 72888 cer.filter 450kHz Y101 4822 242 72891 crystal 4.5MHz J406 4822 267 31116 AC socket 4822 267 31115 antenna socket 75Ω 4822 267 10234 headphone socket 4822 267 10233 line socket 4822 242 30198 microphone 4822 240 90093 loudsp. piezo 4822 240 40178 loudsp. 5W, 5" 4822 526 10463 antenna bar
 VR101 4822 100 11551 trim. potm. 10K VR201,204 4822 100 11553 trim. potm. 50K VR202,203 4822 100 11552 trim. potm. 5K VR301-305 4822 105 11037 potm. slide 100K VR306 4822 105 11041 potm. slide 50K VR307 4822 102 10411 potm. vol. 50K	

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 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 pezzi di ricambio identici a quelli specificati.

GB WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).

Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

ESD



D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).

Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern. Sorgen sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.

Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.