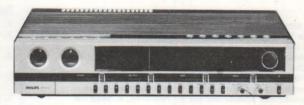
# **Service** manual

# Hi-Fi Tuner-amplifier 22RH720

00/16/22/30/33



1726A

## **PHILIPS**



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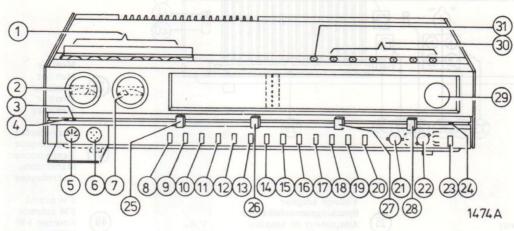


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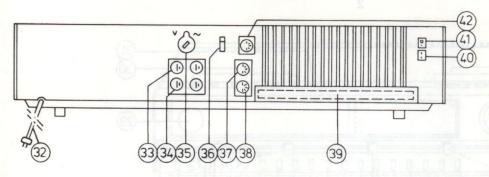


		(23)
1	FM-preselection 6x FM-voorkeuze-instelling 6x Présélection 6x Vorwah-Einstellung FM 6x Prestabilita FM 6x	R431÷436
2	AM/FM-tuning indicator AM/FM-afstemindikator Indicateur d'accord AM/FM AM/FM-Abstimmindikator Indicatore sintonia AM/FM	IND 405
3	FM-stereo indicator FM stereo-indikator Indicateur stéréo FM FM-Stereoindikator Indicatore stereo FM	LA418
4	AF stereo indicator LF stereo-indikator Indicateur stéréo BF NF-Stereoindikator Indice stereofonico BF	LA422
5	Microphone socket Microfoonaansluiting Prise microphonique Mikrofonanschluss Presa microfono	
6	Headphone socket Hoofdtelefoonaansluiting Prise pour casque Kopfhöreranschluss Presa auricolare	
7	Frequency indicator for preset tuning FM Frekwentie-indikatie voor voorkeuze-instelling FM Indication de fréquence pour présélection FM Frequenz-Anzeige für Vorwahl-Einstellung FM Indicazione di frequenza per prestabilita FM	IND 404
8	Silent tuning Stille afstemming Syntonisation silencieux Stummabstimmung Regolazione silenziosa	SK-A
9	AFC/Bandwidth-switch AFR/Bandbreedte schakelaar Commutateur largeur de bande/ CAF AFR-Bandbreiteschalter Commutatore larghezza di banda/CAF	SK-B
10	FM-switch FM-schakelaar Commutateur FM FM-Schalter Commutatore FM	SK-D

Commutatore FM

			3
0 0	220000000	010	
1	FFFFF		=
1	44444	771	
X10 X11	(12)(13)(14)(15)(16)(17)(18)(1	19)(20)(2	1)
	26)	(27)	(2
	daggateor de tension	(35)	
	SW-switch		
(1)	KG-schakelaar		
(11)	Commutateur OC KW-Schalter	SK-E	
	Commutatore OC		
	MW-switch		
(12)	MG-schakelaar		
(12)	Commutateur PO MW-Schalter	SK-F	
	Commutatore PO		
	LW-switch		
(12)	LG-schakelaar		
(13)	Commutateur GO LW-Schalter	SK-G	
	Commutatore GO		
	Aerial switch		
(11)	Antenne-schakelaar		
(14)	Commutateur d'antenne Antennenschalter	SK-H	
	Commutatore antenna		
	P.U. switch		
(IF)	P.U. schakelaar		
(15)	Commutateur P.U. TA-Schalter	SK-K	
	Commutatore giradischi		
	Microphone switch		
(10)	Microfoon-schakelaar		
(16)	Commutateur micro Mikrofonschalter	SK-L	
	Commutatore microfono		
	Recorder switch		
(17)	Magnetofoon-schakelaar	gelargov	
	Commutateur magnétophone TB-Schalter	SK-M	
	Commutatore registratore		
	Monitor switch		
(18)	Monitorschakelaar	I SHM E	
(10)	Commutateur moniteur Monitor-Schalter	SK-N	
	Commutatore monitore		
	Mono/stereo switch		
(19)	Mono/stereo-schakelaar		
(13)	Commutateur mono/stéréo Mono/Stereo-Schalter	SK-P	
	Commutatore mono/stereo		
	Noise switch		
(20)	Ruisschakelaar	Autoria (San	
(20)	Commutateur de bruit Rauschschalter	SK-Q	
	Commutatore "rumore"		
	Physiology switch		
(21)	Fysiologie-schakelaar	1	-
	Commutateur physiologique Physiologie-Schalter	SK-R	
	Commutatore fisiologicó		

= 03		
一片	=======================================	
100	200	
1)(24)	23(24)	
(28)	1474A	
	Cervina sectors	
	LS system switch	
(22)	LS systeem schakelaar	
(22)	Système LS haut-parleur LS-Systemschalter	SKS-Z
	Commutatore sistema	
	altoparlante	
	On/off switch	
	Aan/uit-schakelaar	
(23)	Interrupteur marche/arrêt	SK-U
_	Ein/Aus-Schalter	
	Interuttore marcia/fermo	,
	On/off indicator	
(0)	Aan/uit-indikator	
(24)	Indicateur marche/arrêt	
	Ein/Aus-Indikator Indicatore di rete	
	marcatore ar rete	
	Volume control	
(25)	Volumeregelaar	D440 1
(23)	Commande de volume Lautstärkeregler	R440a, b
	Controllo del volume	
	(0st 001) Vrn 00 Inst	
niki_	Balance control	
(26)	Balansregelaar Equilibreur	R443a, b
0	Symmetrieregler	Ititioa, D
	Equilibrio	
	Bass control	
(3)	Lagetonenregelaar	
(21)	Commande des graves	R441a, b
riest.	Bassregler	
	Bassi	
	Treble control	
(20)	Hogetonenregelaar	
(28)	Commande des aiguës	R442a, b
	Hochtonregler Acuti	
	Acuti	
	Tuning	
(29)	Afstemming Syntonisation	C410a,b,
(23)	Abstimmung	R410
	Sintonizzazione	
	"Touch control" preset 1-6" "Touch control" Voorkeuze	3
	instelling 1-6	=
(20)	Présélection 1-6 "Touch	
(30)	control"	SKZ2-7
	"Touch control" Vorwahl- Einstellung 1-6	
	"Tasto di controllo"	
	sintonia prestabilita	
	IIT cuch control!!	
大学	"Touch control" manual "Touch control" hand-	
(31)	afstemming	CV71
	Touch control" manuel	SKZ1
	"Touch control" manual "Tasto di controllo"manua	1
	rasio di controllo manua	ATPAGA



Mains lead Netsnoer Cordon secteur Netzschnur Cordone rete

L.S. system I L.S.-systeem I Système I H.P. LS-System I Sistema I altoparlante

L.S. system II L.S.-systeem II Système II H.P. L.S. system II Sistema II altoparlante

50-60 Hz

60-160 W

452 kHz

460 kHz

 $2x \ge 4 \Omega$ 

≤1

1 < 1 %

2x (8-600 Ω)

% (2x30 W)

: 520

Wave ranges - Golfgebieden - Gammes d'ondes - Wellenbereiche - Gamme d'onda

- 350

: 87.5 - 104 MHz

 $\leq 0.1 \% (2x20 W)$ 

10.7 MHz

540x117x280

Voltage adaptor Spanningsomschakelaar Adaptateur de tension Spannungsumschalter Adattore tensione

P.U. switch dyn./cristal P.U.-schakelaar, dyn/kristal Comm. P.U. dyn/cristal

Comm. giradischi, din/cristallo

TA-Schalter, Dyn/Quarz

Recorder Magnetofoon Magnétophone Tonbandgerät Registratore

F

(GB)

Voltages Mains frequencies Dimensions Consumption IF-AM /00/33 IF-AM /16/22/30 IF-FM Sensitivity for 2x30 W (4 Ω) PU-crystal PU-dyn. Microphone Tape recorder Output power  $(4 \Omega) d \le 1 \%$ Output-impedance loudspeaker Output-impedance headphone Ambiophony Harmonic distortion

Intermodulation

(250-8000 Hz 4:1)

LW - LG - GO - LW - OL

SW - KG - OC- KW - OC

MW - MG - PO - MW - OM

distorsion

FM - UKW

NL 110,127,220,240 V 60 mV (100 kΩ) 2 mV ( 50 kΩ) 1 mV ( 2 kΩ) 250 mV (100 kΩ) 250 mV (100 kΩ) 2x30 W sine wave

Spanningen Netfrequenties Afmetingen Verbruik MF-AM /00/33 MF-AM /16/22/30 MF-FM Gevoeligheid voor 2x30 W (4 Ω) PU kristal PU dyn. Microfoon Magnetofoon Monitor Uitgangsvermogen  $(4 \Omega) d \le 1 \%$ Uitgangsimpedantie luidspreker Uitgangsimpedantie hoofdtelefoon Ambiophony Harmonische vervorming Intermodulatie vervorming (250-8000 Hz 4:1) (250-8000 Hz 4:1)

kHz (2000 - 857 m)

- 1605 kHz (577 - 187 m)

: 5.95 - 17.9 MHz ( 50.4 - 16.7 m)

Tensions Fréquences secteur Dimensions Consommation FI-AM /00/33 FI-AM /16/22/30 FI-FM Sensibilité à 2x30 W (4 Ω) Cristal du PU Dvn. du PU Microphone Magnétophone Moniteur Puissance de sortie (4 Ω) d≤1 %

Impédance de sortie du haut-parleur Impédance de sortie du casque Ambiophonie Distorsion harmonique Distorsion d'intermodulation

Fig. 2

Konfhörer Ambiophonie Klirrfaktor Intermodulations verzerrung

D

V.A

Spannungen Netzspannungen Abmessungen Verbrauch ZF-AM /00/33 ZF-AM /16/22/30 ZF-FM Empfindlichkeit 2x30 W (4 Ω) TA-Kristall TA-dyn. Mikrofon Tonbandgerät Monitor Ausgangsleistung (4 Ω) d≤1 % Ausgangsimpedanz Lautsprecher Ausgangsimpedanz

 $\leq 0.1 \% (2x20 \text{ W})$ (250-8000 Hz 4:1)

Monitor Monitor Moniteur Monitor Monitore

Ferroceptor Ferroceptor Ferrocapteur S407a,b,c,d Stabantenne Ferroceptor

FM aerial FM antenne Antenne FM UKW-Antenne Antenna FM

AM aerial AM antenne Antenne AM AM-Antenne Antenna AM

110,127,220,240 V

50-60 Hz

60-160 W

452 kHz

460 kHz

10.7 MHz

60 mV (100 kΩ)

2 mV ( 50 kΩ)

1 mV ( 2 kΩ)

250 mV (100 kΩ)

250 mV (100 kΩ)

2x30 W sine way

% (2x30 W)

1300 B

 $2x \ge 4 \Omega$ 

YES

2x (8-600 Ω)

540x117x280

P.U. dyn./cristal P.U. dyn./kristal P.U. dyn./cristal TA Dvn./Quarz Giradischi din/cristallo



Tensioni Frequenze rete Dimensioni Assorbimento FI-AM /00/33 FM-AM /16/22/30 ZF-FM Sensibilità per 2x30 W (4 Ω) Crist. della testina Din. della testina Microfono Magnetofono Monitore Potenza d'uscita (4 Ω) d≤1 % Impedanza d'uscita dell'altoparlante Impedanza d'uscita dell'auricolare Ambiofonia Distorsione armonica

Distorzione d'intermodulazione (250-8000 Hz 4:1)



## IMPORTANT

#### Set-up of the Service Manual

In addition to the split-up of the AM-FM/HF section + supply and the LF section, the FM tuner, the stereo decoder and the FM preselection unit have been removed from the circuit diagram. They are printed completely with appertaining p.c. boards on the pages stated in the table of contents.

The print sides of the p.c. boards are so drawn that (a) they are situated beside the circuit diagram and (b) after the set has been placed on its right-hand side (stable position). See Fig. 1.

1. The output amplifier p.c. board has a Service position (Fig. 1). 2. The service lid below the loudspeaker connections can be

removed if two screws are loosened.

3. When the tuning capacitor/potentiometer must be replaced, the routing of the cords may be left intact as follows: a. remove the front panel, b. through the recesses in the frame the two screws which secure the pullye on the bush of the tuning capacitor are accessible can be removed, c. push the pulley in the frame.
4. When a switch or the slide of a switch must be replaced, proceed

as follows: a. remove the front panel,

b. disassemble and assemble according to Fig. 2.



#### IMPORTANT

#### Composition de la documentation service

Outre la division du circuit AM-FM/HF et FI+alimentation et du circuit BF, le tuner FM, le décodeur stéréophonique et l'unité de présélection FM ont été enlevés du schéma de principe. Avec leurs platines imprimées correspondantes ils se présentent aux pages indiquées dans la table des matières.

Les côtés liaisons imprimées des platines ont été dessinés de façon que (a) ils se trouvent à côté du schéma de principe et (b) dans la position où l'appareil est mis sur le côté droit (position stable), fig. 1.

#### Instructions pour la réparation

1. La platine imprimée pour amplificateur de sortie a une position service (fig. 1).

2. Sous les connexions haut-parleur se trouve un couvercle service que l'on retire en desserrant deux vis.

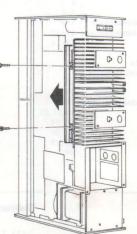
- 3. En cas de remplacement du condensateur de syntonisation potentiomètre le trajet des cordes peut être maintenu en: a. retirant le panneau avant, b. en desserrant deux vis fixant la poulie sur le manchon du condensateur de syntonisation, à travers les entailles dans le châssis, et c. en pressant la poulie dans le châssis.
- 4. Pour remplacer un commutateur ou le tiroir d'un commutateur, procéder comme suit: a. retirer le panneau avant, b. démonter et monter le commutateur selon fig. 2.



#### IMPORTANTE

#### Composizione della documentazione di servizio

Oltre la parte del circuito AM-FM/HF e FI l'alimentazione ed il circuito BF, il tuner FM decodeficatore stereofonico e l'unità di preselezione FM sono state tolte dallo schema di principio. Con le loro piastrine stampate corrispondenti, essi sono rappresentati nelle pagine indicate secondo la tabella degli argomenti trattati. I lati dei collegamenti dei circuiti stampati sono stati designati in modo che (a) essi si trovano sui lati dello schema di principio e (b) nella posizione che occupa l'apparecchio sul lato destro (posizione stabile), fig. 1.



## (NL

#### BELANGRIJK

#### Obouw van de dokumentatie

Buiten de splitsing van het AM-FM/HF-MF deel + voeding en het LF-deel, zijn de FM tuner, de stereo decoder en het FM-preselectiegedeelte uit het principeschema gelicht. Ze komen kompleet met bijgehorende printen voor op de bladzijden die in de inhoudsopgave vermeld ziin.

De spoorzijdes van de printen zijn zo getekend dat ze a. naast het principeschema liggen en b. in die stand, terwijl het apparaat op zijn rechter zijwand staat (stabiele stand fig. 1).

#### Reparatiewenken

- 1. De eindversterkerprint heeft een servicestand (zie fig. 1).
- 2. Onder luidsprekeraansluitingen is service luik aangebracht welk door eerst twee schroeven los te draaien verwijderd kan worden.
- Bij het vervangen van de afstemcondensator pot. meter kan de snarenloop in takt blijven door: a. front te verwijderen, b. door uitsparingen in frame 2 schroeven losdraaien, welke snaarwiel op bus van afstemcondensator klemmen, c. snaarwiel in frame drukken.

4. Om een schakelaar of de schuif van een schakelaar te vervangen, moet men: a. het front verwijderen, b. schakelaar demonteren en monteren volgens fig. 2.



#### WICHTIG

### Anordnung der Dokumentation

Ausser der Trennung des AM-FM/HF-ZF-Teils+Speisung und dem NF-Teil, sind der FM-Tuner, der Stereodecoder und der FM-Vorwahlteil aus demPrinzipschaltbild genommen worden. Sie sind komplett mit den zugehörigen Printplatten auf den im Inhalt angegebenen Seiten zurückzufinden.

Die Spurseiten der Printplatten sind so gezeichnet,

a. dass diese sich neben dem Prinzipschaltbild befinden, b. nachdem das Gerät auf die rechte Seite gelegt wurde (stabile

Stellung).

## Reparaturhinweise

- 1. Die Endverstärker-Printplatte hat eine Service-Stellung (siehe
- 2. Unter den Lautsprecheranschlüssen befindet sich eine Service-Luke. die nach Lösen von zwei Schrauben entfernt werden kann.
- 3. Bei Ersatz des Abstimmkondensator/Potentiometers kann der Seillauf intakt bleiben, indem man:

a. die Front entfernt

- b. durch die Aussparungen im Gestell die zwei Schrauben löst, die das Seilrad auf die Buchse des Abstimmkondensators klemmen. c. das Seilrad in den Rahmen drückt.
- 4. Zum Ersetzen eines Schalters oder des Schalterschiebers muss man: a. die Front entfernen, b. den Schalter gemäss Abb. 2 demontieren und montieren.

## Istruzioni per la riparazione

- 1. La piastra del circuito stampato per l'amplificatore d'uscita in posizione di servizio (fig. 1).
- 2. Sotto le connessioni dell'altoparlante si trova un coperchietto di servizio che si toglie svitando due viti.
- 3. In caso di sostituzione del condensatore variabile/potenziometro, la traiettoria della cordina può essere mantenuta con: a. togliendo il pannello davanti, b. svitando due viti che fissono la puleggia sul perno del condensatore, attraverso le fessure dello chassis, e c. premendo la puleggia nello chassis.
- 4. Per sostituire un commutatore o una slitta di esso, procedere come segue: a. togliere il pannello davanti, b. smontare e montare il commutatore secondo la fig. 2.

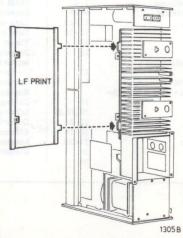
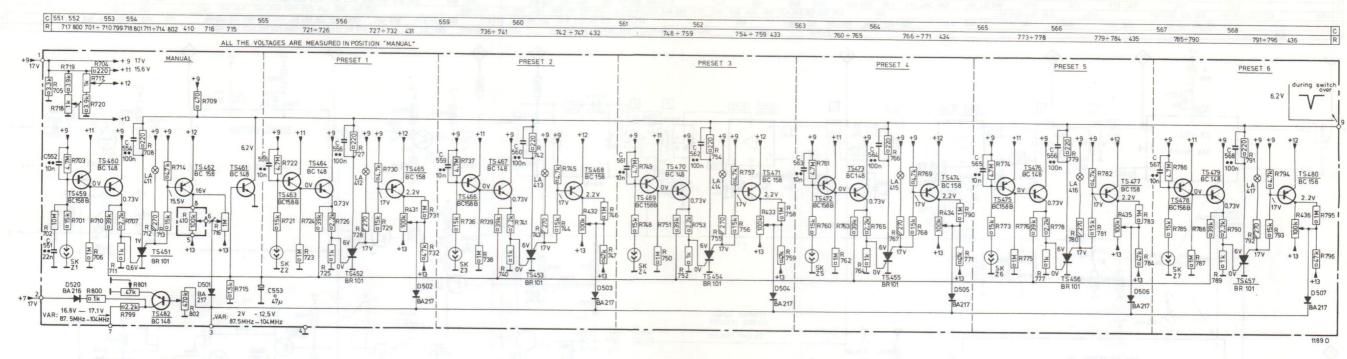
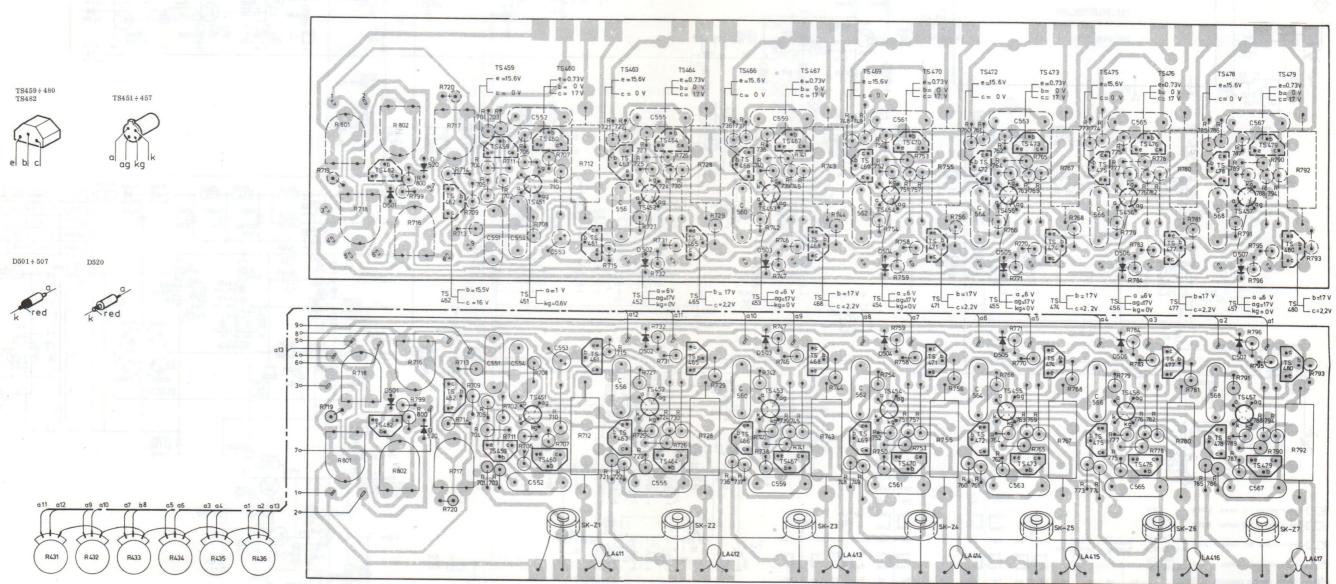


Fig. 1

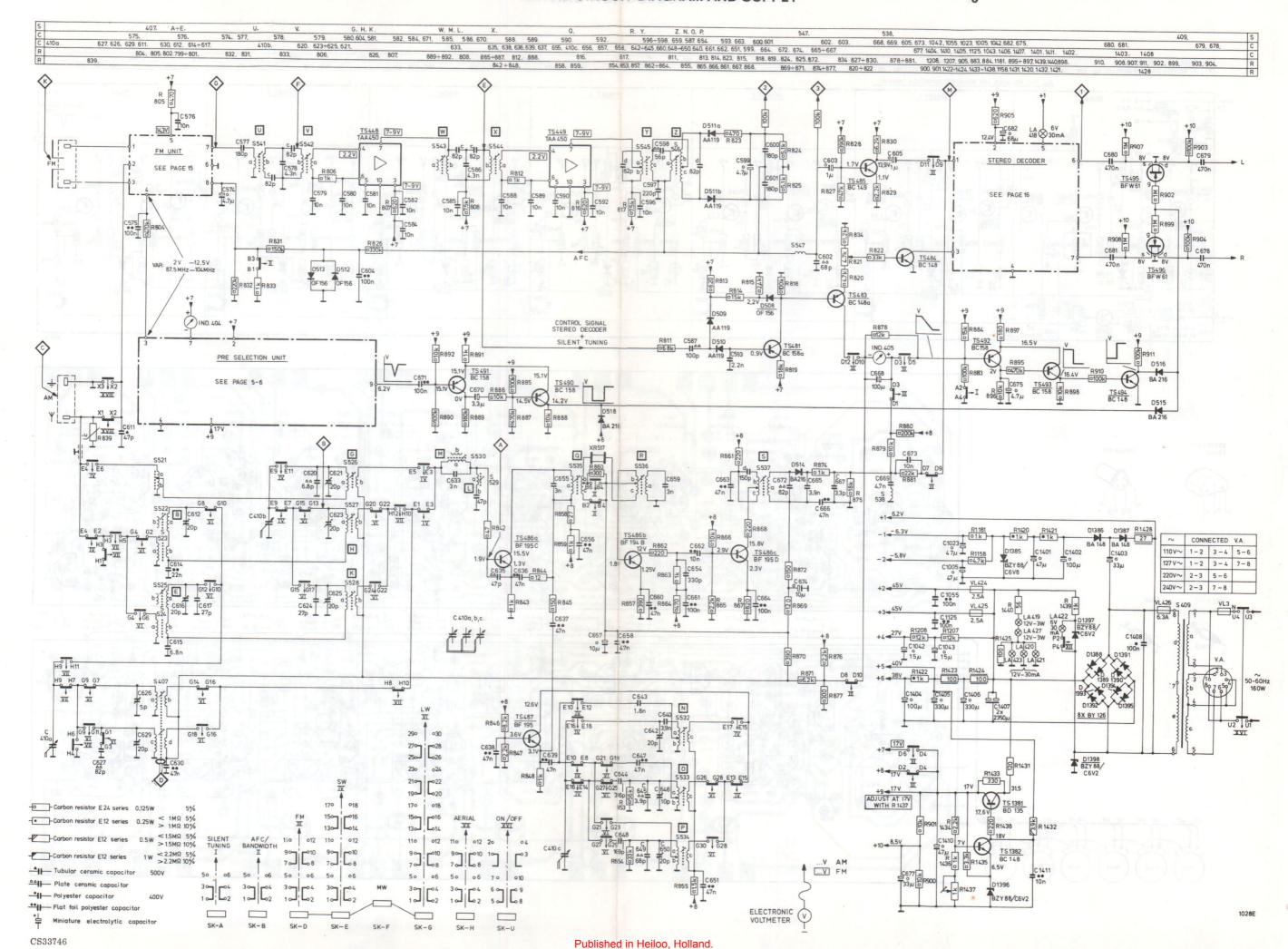






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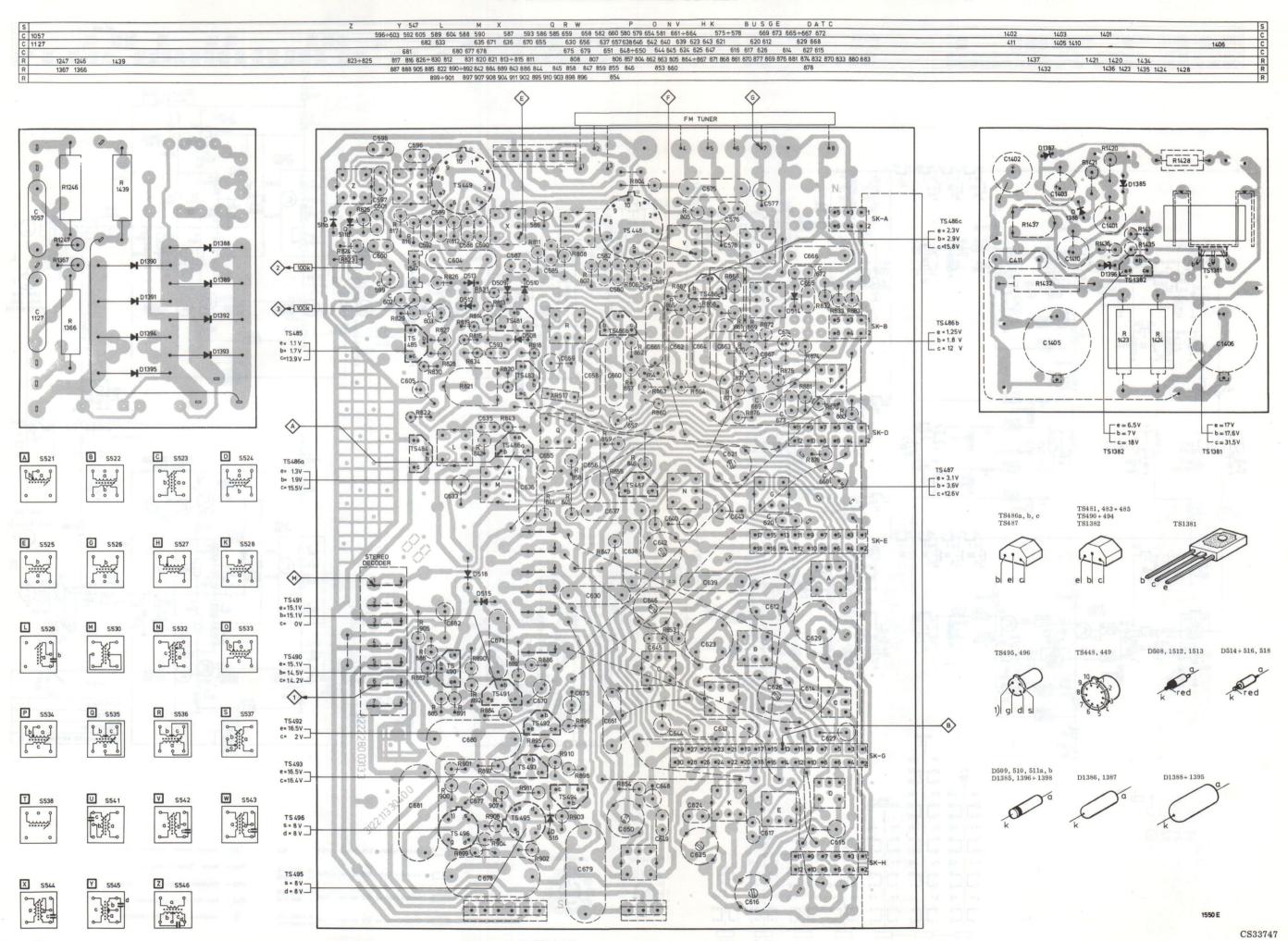


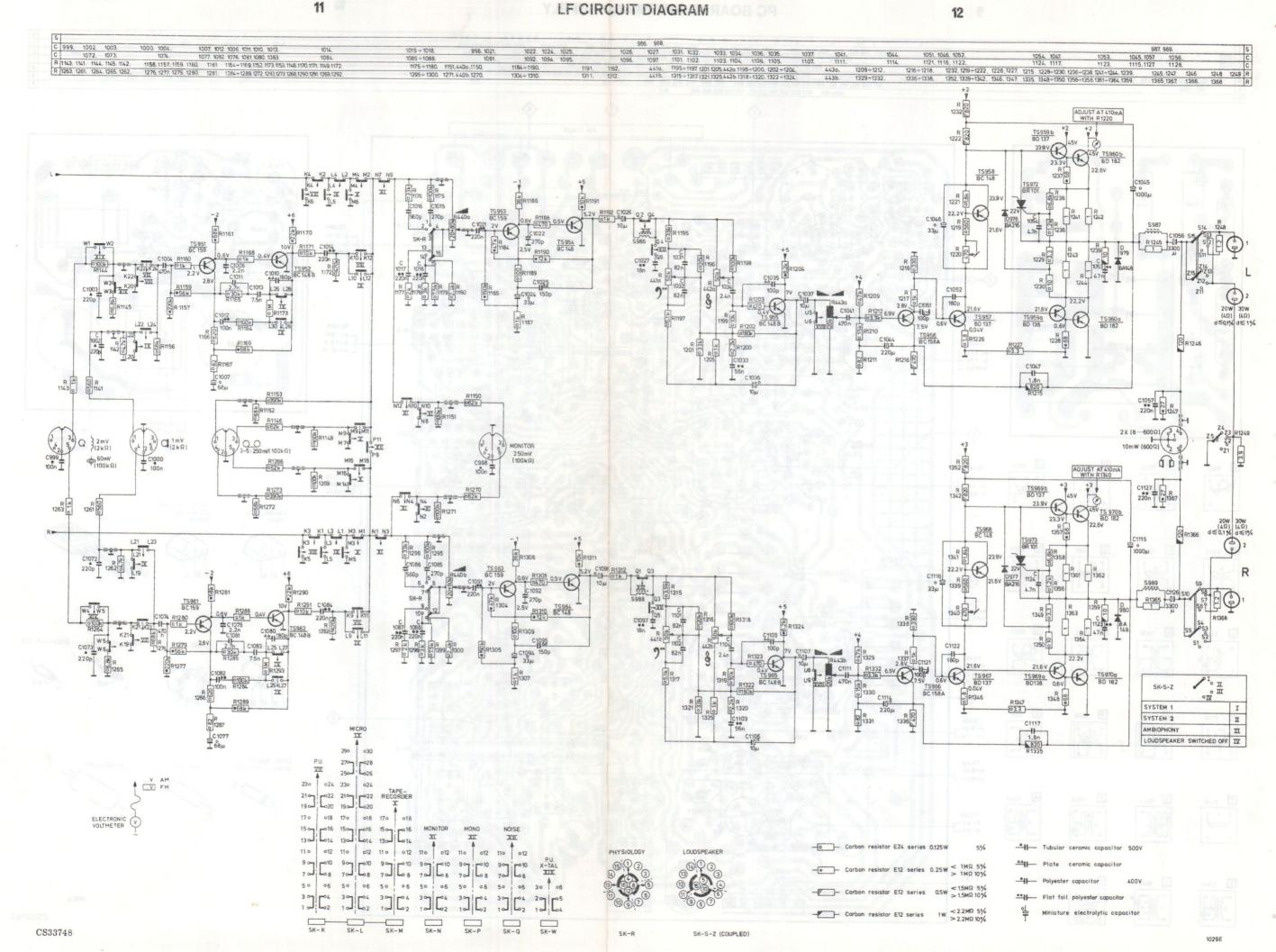
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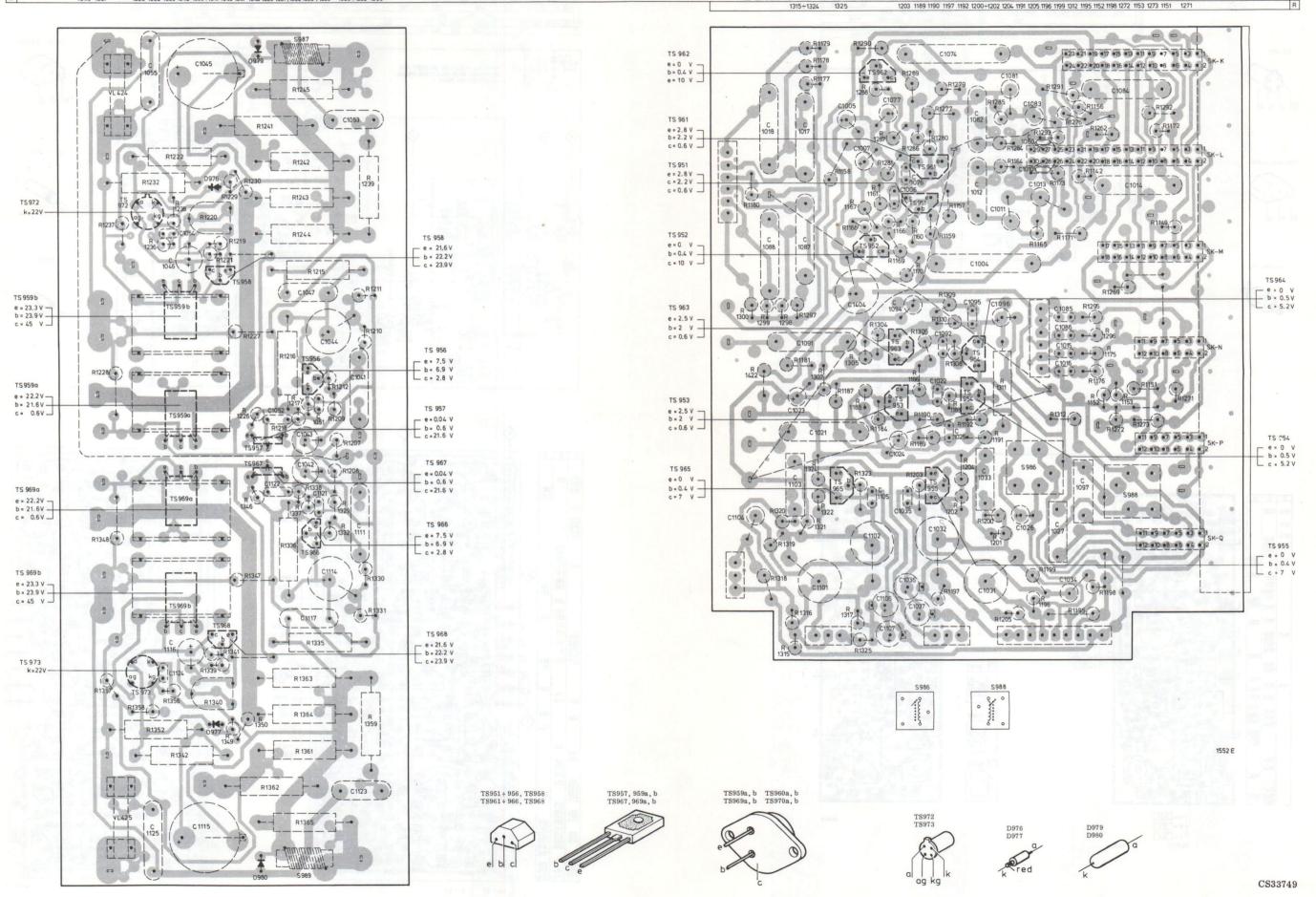
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PC BOARDS AM/FM AND SUPPLY





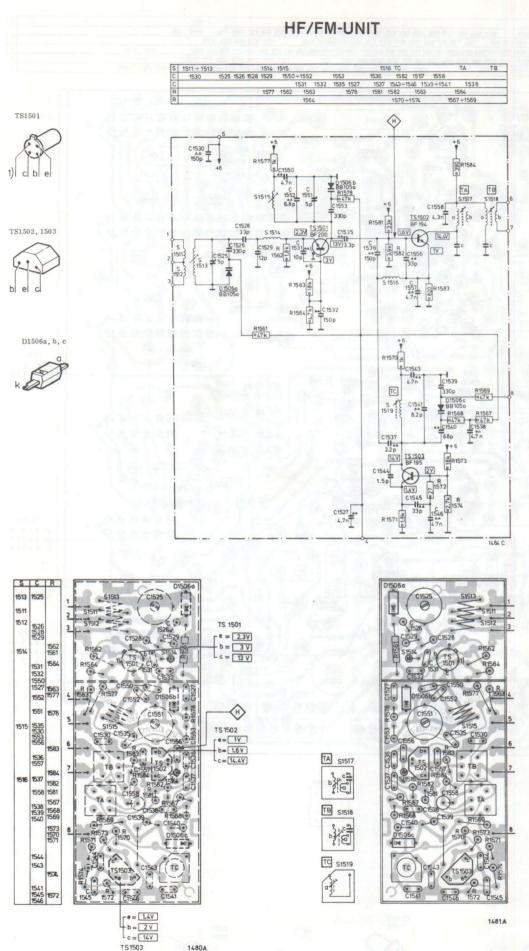
S 987 989	986 988
C 1055 1046 1054 1045 1052 1047 1043 1051 1044 1053 1041	1018 1087 1017 1005 1/2/4 1007 1077 1094 1006 1076 1074 1095 1082 1004 1096 1010÷1013 1080 1081 1083 1085 1086 1084 1014
C 1125 1124 1116 1115 1122 1117 1042 1121 1114 1123 1111	1104 1103 1023 1091 1021 1101 1102 1106 1107 1024 1035÷1037 1022 1092 1025 1031÷1033 1026 1027 1015 1016 1034 1097
R 1228 1237 1232 1236 1222 1238 1219÷1221 1229 1230 1226 1227 1241÷1245 1215÷1218 1207÷1212 1239	1180 1177÷1179 1158 1167 1168 1287÷1290 1161 1281 1166 1286 1160 1280 1277 1159 1157 1279 1285 1284 1164 1173 1293 1291 1276 1156 1142 1262 1292 1172
R 1348 1357 1358 1352 1356 1342 1339÷1341 1349 1347 1346 1350 1361÷1365 1335÷1338 1329÷1332 1359	1422 12974/300 1181 1307 1187 1305 1185 1304 1184 1169 1186 1170 1306 1308÷1310 1188 1311 1165 1171 1296 1175 1295 1176 1269 1149

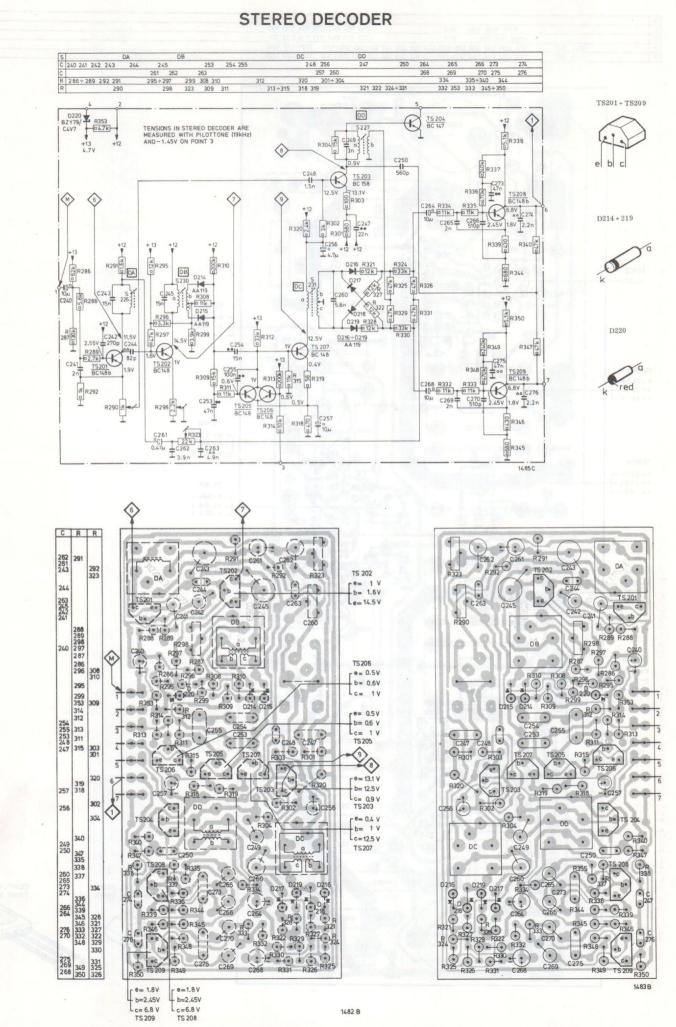


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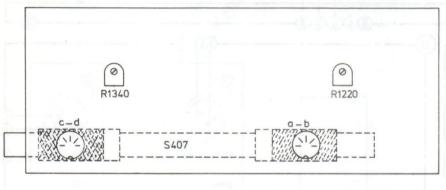


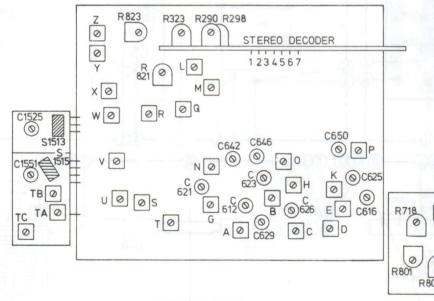


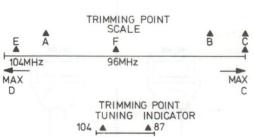
## TRIMMING TABLE DECODER

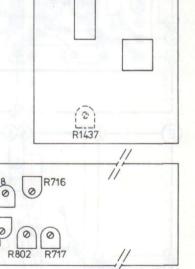
	STEREO	DECODER
ī		

SK Wave range	Signal to	$\Diamond$	Var. res.	Adjust	Indication
	No.		<pre></pre>	DA	
				DB	√ √ √ √ √ √ √ √ √ √ √ √ √ √ √ √ √ √ √
	100 MHz			R298	⟨⑦ 1,8 V~
FM 10 87.5-104 MHz	+ pilot 19 kHz			DC	
	100 MHz + multiplay			DD	
				DB	♦ V~ max.
	right only 1 kHz			R290	1 1
	100 MHz + multiplex right only 5 kHz		R323	√ V~ min.	
	Pilot 19 kHz (50 mV)	₩		R298	11









1472 C

## **AM/FM TRIMMING TABLE**

Wave range SK	Signal to	$\Diamond$	<b>*</b>	<b>⊢</b>	18 kΩ	Z	
	COLUMN THE THE RES	2000000	Trimming point	Detune	Attenuate	Adjust	Indication
and applied facewheel	452, 460, 468 kHz +30 % AM via 33 nF	Surgeon S		LM 3		S	♠ max.
MW (520-1605 kHz)	4	<b>A</b>	C	all the section of the		S	1 max.+
1	$+ \Delta f = 20 \text{ kHz}$ $(50 \text{ Hz})$	il vivitav	T.	entropy of to admi		RQ	sym.
lunagië , bes n	via 33 nF	(8)	[1]	ergan s vicente 🕠	or noticests	LM	(1) min.
LW I	157 kHz	A SERVICE	В	Feet Line and Street Line	delegate to the same	P	bielass Short
(150-350 kHz)	341 kHz	2 23200	A	ne di la cheste		C650	
MW 1	550 kHz	5	В	The charge of		0	A
(520-1605 kHz)	1500 kHz	<b>©</b>	A	FEAT of THESE ME		C646	⟨1⟩ max.
SW 1	6.3 MHz	separi	В	Zan undhu wir e		N	
(5.95-17.9 MHz)	16.85 MHz	3 37807	A	Later Convenient Des		C642	
LW 1	Control of the contro	5		185 000	E a	K	executive field
(150-350 kHz)	157 kHz	<b>©</b>	В	to retire a view	K a	E	
LW (150-350 kHz) 2		•		t's rant que	1 mile 31582 7.8	S407c,d	
LW I	and the continue of	5		sele to be dead and	E a	C625	
(150-350 kHz)	341 kHz	<b>©</b>	A	a series a distinguish and	K a	C616	
LW (150-350 kHz 2		<b>\$</b>				C629	
MW I	Až ozias a	5			Ва	H	
MW (520-1605 kHz)	550 kHz	<b>©</b>	В	of to estatud who	H a	B	
MW (520-1605 kHz) 2	512 kHz	•	C	unami di	E	S407a,b	
MW 1	OLD MILE	5			Ва	C623	1 max.
MW (520-1605 kHz)	1500 kHz	<b>©</b>	A		H a	C612	
MW (520-1605 kHz) 2	The Was and Indian as	<b>\$</b>		200 (XD o 1)	ша	C626	
	6 20 MHz	5	В	ner'h ma nel-si			
SW 1 (5.95-17.9 MHz)	6.30 MHz 16.85 MHz	©		Triol Lang too , D		G C621	
	10,85 WHZ	1	A	TIME (TA (TA)		Y Y	
distributed the med	skushi kacamata da sheki Mari wa 1990 kata kata kata	<b>\$</b>		UWZTATB * *		St. Matter Line and Artis	A
FM	10.7 MHz $\Delta f = 200 \text{ kHz}$ (50 Hz via 33 nF)	<b>(</b>		SOUTH THE PERSON		WX	②via 100 l
(87.5 - 104 MHz) 6		©				Ū V	max. + sym.
	LIBERT TO WINE	H)W		Etc. Sciarraupāri	al HA	TA TB *	^
ARTONICE IN OR NO	Ti Ties alor inite	<b>©</b>	il	age app 2545 MG		Z	③ via 100 k
att , f. P. L. assists	86.5 MHz	de ordi	С	Modern I see compain		R718 xx	1 max.
H . min of drawdos squ	and olb and on or or	Justine		stantasi ni ografia	a septical of a	R717 **	8
FM (87.5-104 MHz)	104 MHZ	6 P	eRes) réguer c'esta natique caquel (:		TC C1551 * C1525	DOSAUTOO MANAGEMAN	
	96 MHz	-	F	5 Kirses 210 (00)		R716 **	max.
	86,5 MHz		С	1		R718 **	Thum.
	group in edecames at eve	elogast []		it sanda e si		S1513,1515 *	
serves offer topically	88 MHz	dogon [	tune in	. Abrest II		R802 xx	vanios [E]
support on or 'H' a	104 MHz	per a		🗓 o 🔯 sarkel of		R801 **	9

FM-tuner, see page 15 Preselection unit, see page 5-6

	WIRING DIAGRAM
	S 987 C 1055 1045 1053 1054 1046 1047 1044 1041 1052 1051 1043 1042 1122 1121 1111 1114 1117 1124 1116 1123 1125 1115 (
	C 1057 1127 1002 1072 1000 1407 1407 1407 1416 1133 1145 1115 1115 1115 1115 1115 1115
	R 1245 1241 1239 1242+1244 1219+1221 1215 1211 1210 1212 1218 1209 1217 1207 1208 1338 1229 1332 1330 1331 1335 1363 1364 1359 1361 1350 1362 1365 18 1247 1367 1246 1366 1439 1141 1261
n. op	A \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
igt. n	
al voor Ω	R1348 • VL424 • TS972 og R1237
e te	C1055  R C 1/25  C1725
gang	
r af-	C 1045 R1220
K	0979 R1230 R1227 R125 TS957 R1345 R1347 S960 OROSO 0980
	b   b   c   c   c   c   c   c   c   c
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en. er-	1 9 0000
aal	R1239 R1210 R1330 R1359 R1359
	B—-\$
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Kunst-	R1227 0 1 101388
tenne	D1389
as viel	TS960a TS970a
nnungs-	C1407
R717	(p e) ( p e)
ur die	
Löse er 100 kΩ	
ntferne er-	
in	
	C 1002 C1072
''K''	R   R   LA 420 LA 423
nza	1397 C1000
	CA10b
r licare	LA422   LA418 // /
tenza	IND. 405 IND. 404
gamento	(1/24 T 05) (0 1/30) (200) (200) (200) (3/4) (3/4) (3/4) (3/4) (4/
d'ingresso	
Published in	Heiloo Helland

## see page 18

1 Depress the band width switch and the aerial switch,

Depress the band width switch.

3 Turn the cores of coils Q and R fully inwards.

Turn the cores of coils  $\overline{\mathbb{Q}}$  and  $\overline{\mathbb{R}}$  fully outwards. Determine with the generator the frequency at which the

Determine with the generator the trequency at which the top of the response curve is in the middle of the picture. Apply a signal for MW and LW either via an artificial aerial or via a 120 pF capacitor to Apply a signal for SW either via an artificial aerial or via a 400-\Omega-resistor to Short-circuit R832. Select the right value of the signal to be applied because the integrated circuits amplify much

and limit properly. Adjust the S curve for maximum and symmetry. Check the zero passage with a DC voltmeter.

Adjust the voltage on point 4 of the FM tuner to 12.5 V 0.03 V by means of R717.

Set the frequency indicator IND 404 to the indication K for frequency 88, and to indication H for frequency 104 MHz.

#### Stereo decoder, see page 17

10 Connect a stereo generator (for example, PM 6455). Detach the connection from point 3: apply a voltage of -1.4 d.c. to point 3 via 100 kΩ.

Adjust R298 in such a way that the lamp just starts burning. Then remove the voltage of -1.4 Vd.c. and restore the interrupted connection. With R821, the level of the stereo input signal at which the decoder becomes operative,

## voir page 18

Enfoncer le commutateur de largeur de bande et le commutateur d'antenne,

Enfoncer le commutateur de largeur de bande.

Enfoncer à fond les noyaux des bobines Q et R

Enfoncer à fond les noyaux des bobines Q et R . Au moyen du générateur déterminer la fréquence à laquelle le top de la courbe de réponse se trouve au centre de l'image.

Appliquer à le signal pour P.O. et G.O. par l'intermédiaire d'une antenne artificielle ou d'un

Condensateur de 120 pF.

Appliquer à un signal pour O.C. soit par l'intermédiaire d'une antenne artificielle soit d'une résistance de 400 Ω. Court-circuiter R832. Choisir une valeur correct du

signal à appliquer parce que les circuits intégrés

amplifient fortement et limitent bien. Régler la courbe "S" sur max. et symétrie. Vérifier le passage par zéro au moyen d'un voltmètre pour tension continue.

Régler la tension en 4 du tuner FM à 12,5 V ±0,03 V au moyen de R717 Régler l'indicateur de fréquence "IND 404" à l'indication K

## Décodeur stéréophonique, voir page 17

10 Relier un générateur stéréophonique (PM 6455 par exemple). Défaire la connexion du point 3 et appliquer une tension

pour la fréquence 88 et à H pour la fréquence de 104 MHz.

de -1,4 V... au point 3 par l'intermédiaire de 100 kΩ. Régler R298 de façon que la lampe s'allume de justesse. Puis, supprimer la tension de -1.4 V ... et refaire la connexion interrompue. Au moyen de R821 régler ensuite le niveau du signal d'entrée stéréophonique auquel le décodeur entre en fonctionnement.

## vedi pagina 18

Spingere il commutatore larghezza di banda e il commutatore di antenna.

Spingere il commutatore larghezza di banda,

Spingere completamento i nuclei delle bobine  $\mathbb{Q}$  e  $\mathbb{R}$ 

Sfilare completamento i nuclei delle bobine  $\mathbb Q$  e  $\mathbb R$  . Per mezzo del generatore, determinare la frequenza alla la quale il picco della curva di risposta si trovi al centro dell'immagine

Applicare a un segnale per O.M. e O.L. tramite un antenna fittizia o un condensatore di 120 pF.

Applicare a un segnale per O.C. sia tramite un antenna fittizia sia tramite una resistenza di 400 Ω.

Cortocircuitare R832. Scegliere il valore esatto del segnale da applicare dato che i circuiti integrati amplificano molto e limitano bene.

Regolare la curva ad S per ampiezza e simmetria massima. Verificare il passaggio per lo zero per mezzo di un voltmetro per tensione continua.

zie pagina 18

1 Bandbreedte- en antenneschakelaar indrukken.

Bandbreedte schakelaar indrukken

Kernen van spoelen Q en R helemaal indraaien.

Kernen van spoelen Q en R helemaal uitdraaien. Met de generator de frequentie opzoeken waarbij de top van de doorlaatkromme in het midden van het beeld ligt. Signaal voor MG en LG, of via kunstantenne of via een condensator van 120 pF toevoeren aan . Signaal voor KG, of via kunstantenne of via een weerstand van 400 Ω

Afregelen van 'S" kromme op max. en sym. Nuldoorgang

m.b.v. gelijkspanningsmeter controleren. Met R717 moet de spanning op punt 4 van de FM-tuner af-

gesteld worden op 12,5 ± 0,03 Volt ... .
Frequentie indicator IND 404 instellen op de indicatie K resp. H voor de frequentie 88 resp. 104 MHz.

#### Stereo-dekoder, zie bladz. 17

10 Stereo generator (bijv. PM 6455) aansluiten. Aansluiting op punt 3 losmaken en -1,4 V.... via 100 k $\Omega$  op punt 3 aansluiten.

R298 zodanig instellen dat het lampje juist gaat branden. Hierna de spanning van -1,4 V... verwijderen en onder-broken verbinding herstellen. Met R821 kan nu het niveau van het stereoingangssignaal

worden ingesteld waarbij de dekoder gaat werken.

sehe seite 18

Drücke den Bandbreiten- und Antennenschalter.

Drücke den Bandbreitenschalter.

Drehe die Kerne der Spulen Q und R ganz hinein.

Drehe die Kerne der Spulen Q und R ganz heraus. Suche mit dem Generator die Frequenz, wobei die Spitze der Durchlasskurve in Bildmitte liegt.

Fuhre ein Signal für MW und LW entweder über eine Kunstantenne oder über einen 120-pF-Kondensator an  $\square$ . Führe ein Signal für KW entweder über eine Kunstantenne oder über einen  $400-\Omega$ -Widerstand an  $\square$ .

Schliesse R832 kurz. Wähle den richtigen Wert für das zuzuführende Signal, da die integrierte Schaltungen viel verstärken und gut begrenzen.

Justiere die S-Kurve auf Maximum und Symmetrie. Kontrolliere den Nulldurchgang mit einem Gleichspannungs-

Justiere die Spannung an Punkt 4 des FM-Tuners mit R717

auf 12,5  $\pm$  0,03 V  $\overline{}$  . Stelle den Frequenz-Indikator IND 404 auf K bzw. H für die Frequenz 88 bzw. 104 MHz.

### Stereo-Decoder, sehe seite 17

10 Schliesse einen Stereo-Generator an (z.B. PM 6455). Löse den Anschluss an Punkt 3 und schliesse - 1,4 V... über 100 kΩ an Punkt 3 an.

Justiere R298 so, dass die Lampe schwach brennt. Entferne hiernach die Spannung von 1,4 V... und stelle die unterbrochene Verbindung wieder her. Stelle jetzt mit R821 das Niveau des Stereo-Signals ein (Decoder in Betrieb).

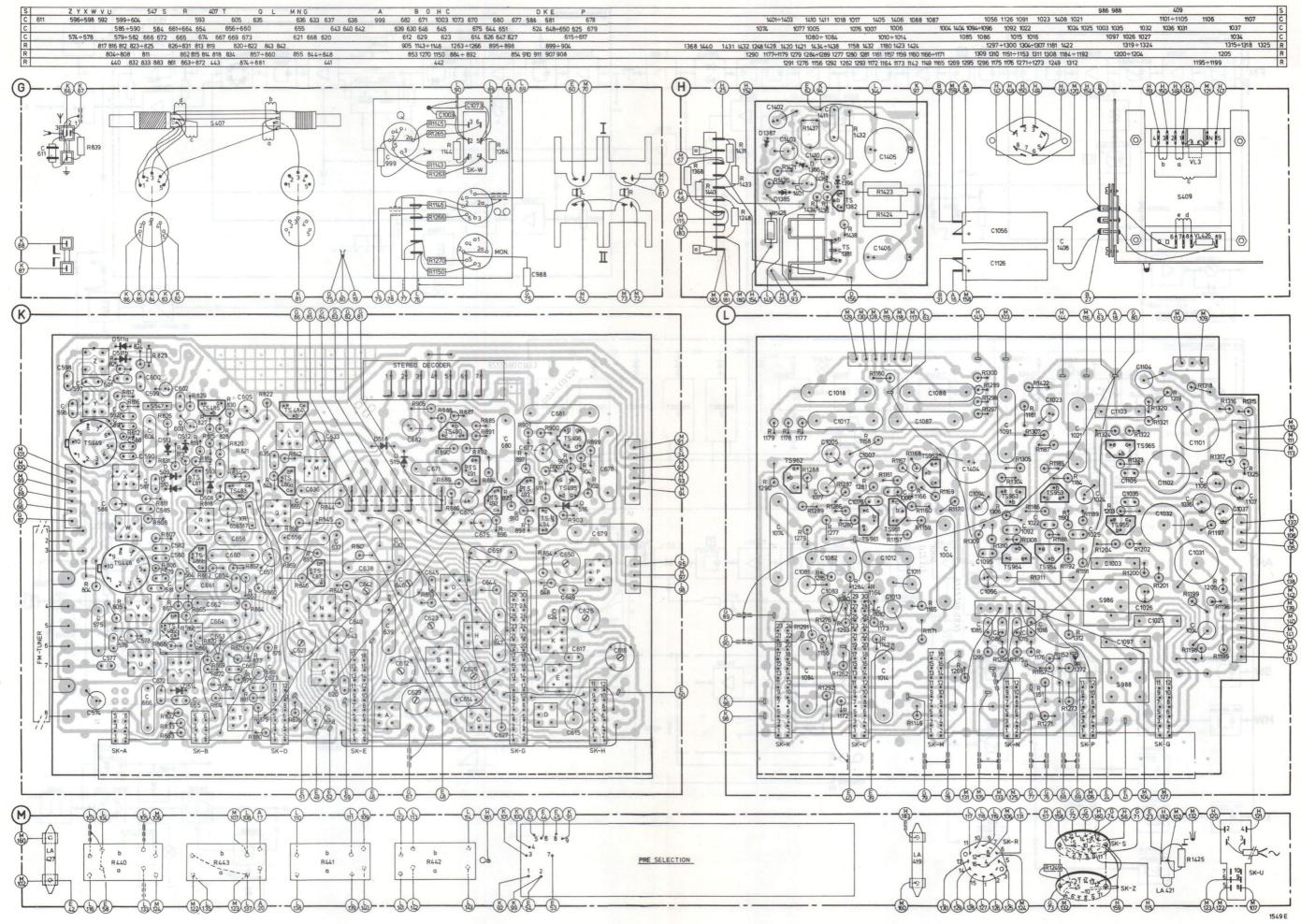
Regolare la tensione al punto 4 del tuner FM su 12,5 V 0,03 V, per mezzo di R717.

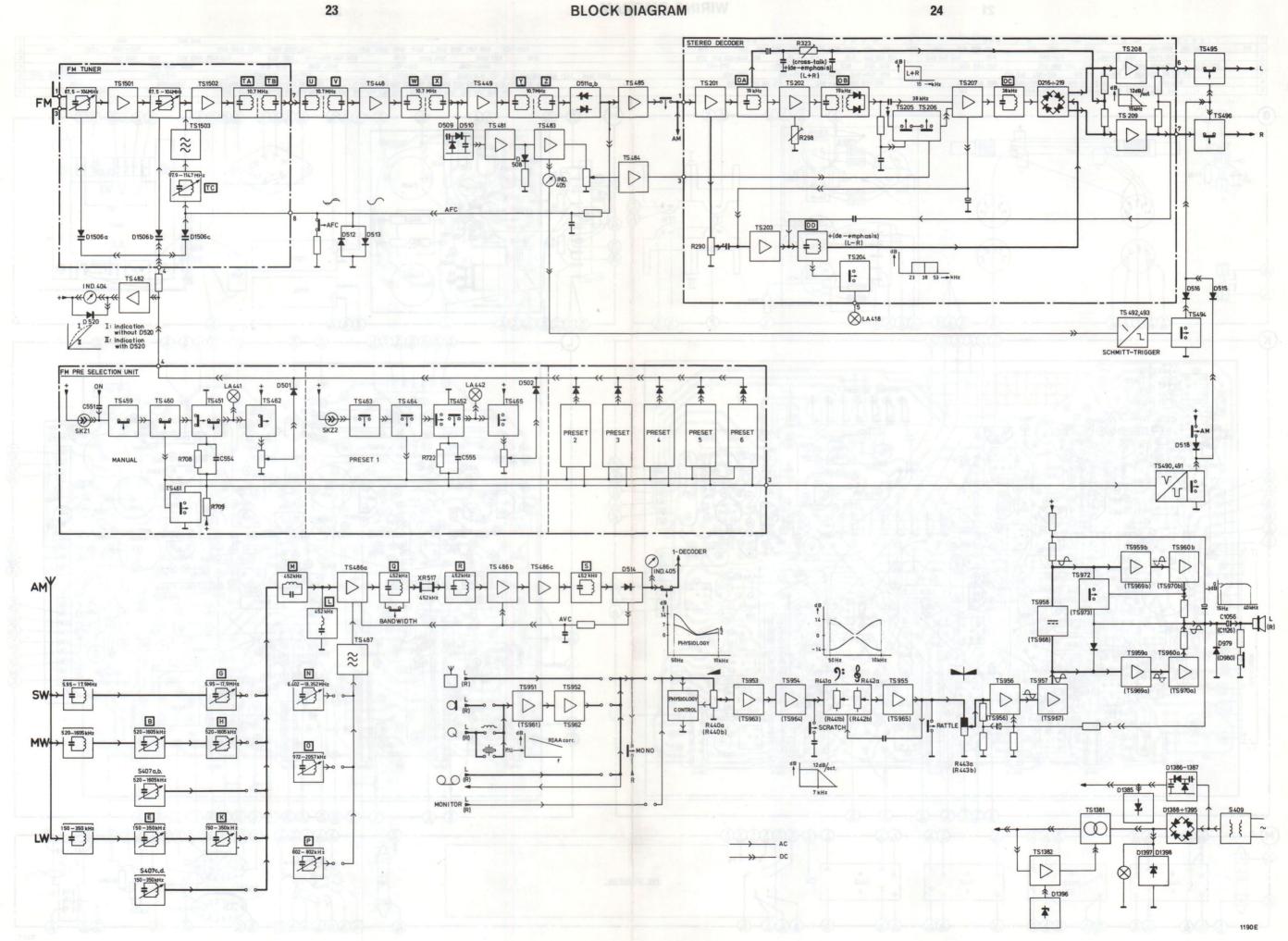
Regolare l'indice di frequenza "IND 404" alla marca "K" per una frequenza di 88 MHz e a "H" per una frequenza di 104 MHz.

## Decodatore stereofonico, vedi pagina 17

10 Collegare un generatore stereofonico (un PM 6455, per esempio). Staccare il collegamento sul punto 3 ed applicare una tensione di -1,4 V... al punto 3 tramite una resistenza

Regolare R298 in modo che la lampadina si accende. Togliere la tensione -1,4 V... e ripristinare il collegamento Per mezzo di R821 regolare poi il livello del segnale d'ingresso stereofonico al quale il decodatore si mette in moto.







DESCRIPTION OF ELECTRICAL PRE-SELECTION UNIT (see page 5-6, 23-24)

When SKZ1 is closed, TS459 becomes conductive. Owing to this, the collector of this transistor becomes positive and TS460 is driven into conduction. Then the voltage across R711, TS451 is driven into conduction and the anode gate or junction R712, R713 is short-circuited to earth. LA411 starts burning and TS462 becomes conductive. An adjustable voltage can now be applied to the vari-cap FM-tuner via D501. When SKZ1 is opened again, TS459 and TS460 are no longer conductive.

The characteristic of TS451 is that it continues to conduct unless the anode becomes negative in regard to the cathode. Thus the FM tuner remains adjusted to the voltage which is applied via D501. When TS451 conducts, the anode will be about 1 V in regard to earth, and C554 is charged to about 5 V. The voltage on junction R708, R709 is about 6 V. When SKZ2 is operated, TS463, TS464, TS452 and TS465 start

When SKZ2 is operated, TS463, TS464, TS452 and TS465 start conducting.

As soon as TS452 is conductive, a very short current of TS451

and TS452 will cause such a voltage drop across R709 that the voltage on the anode of TS451 becomes negative because C554 was charged. Consequently, TS451 is no longer conductive, and TS452 continues to conduct so that the voltage applied to the FM tuner via D502, determines the tuning. In the "Manual" part R702 and C551 have been fitted in order that the "Manual" part is switched on when the set is switched on.

TS461 prevents two or more presettings from being switched on at the same time. When TS461 is driven into conduction, the supply voltage of TS451, 452, 453, 454, 455, 456 and 457 is short-circuited to earth.

#### Silent tuning (see page 7-8, 23-24)

Part of the FM-IF signal is applied to the Schmitt trigger TS492,493 via a voltage doubler and an amplifier. If the IF-signal is strong enough, the Schmitt trigger will change over. Owing to this, TS494 will be cut off so that the cathode of D516 is connected to +8.

The gates of TS495 and TS496 then become positive; as a result, these transistors will become conductive. With a weak IF signal (among other things, noise) the cathode of D516 is connected to earth because TS494 then conducts. The gates are then negative in regard to the sources. TS495, 496 do not conduct and no signal can be applied to the input of the amplifier.

## "Pop"-suppression (see pages 7-8, 23-24)

When one switches over from one presetting to another, a negative pulse is applied to the base of TS491, which forms, together with TS490, a monostable multivibrator, consequently, TS491 becomes conductive and TS490 is cut off. The cathode of D515 is connected to earth via R888 so that the gate of TS495, 496 becomes negative in regard to the source, and conduction from source to drain is no longer possible.

The monostable multivibrator is restored until the starting position has been reached if C670 has discharged itself to a certain value. When AM is used, the preselection for FM continues to operate. As this preselection is not coupled to AM, the suppression should not be active here. Hence in the case of AM reception, a supply voltage is connected direct to the cathode of D515; owing to this, the FET transistors do not switch if one operates the preselection unit.



BESCHRIJVING ELEKTRONISCHE PRESELECTIE (zie bladzijde 5-6, 23-24)

Indien SKZ1 gesloten wordt, gaat TS459 geleiden. Tengevolge hiervan wordt de collector van deze transistor positief, waardoor TS460 wordt opengestuurd. Nu zal de spanning over R711, TS451 opensturen en wordt de anodegate ofwel knooppunt R712, R713 kortgesloten naar massa. LA411 gaat branden en TS462 gaat geleiden. Een regelbare spanning kan nu via D501 aan de FM-tuner worden toegevoerd. Indien SKZ1 weer geopend wordt, stoppen TS459 en TS460 met geleiden. De eigenschap van TS451 is nu, dat hij blijft geleiden, tenzij de anode negatief t.o.v. de kathode wordt. De FM-tuner blijft dus ingesteld op de spanning die via D501 wordt toegevoerd. Indien TS451 geleidt zal de anode ca. 1 volt t.o.v. massa zijn en is C554 opgeladen tot ca. 5 volt. De spanning op knooppunt R708, R709 is ca. 6 Volt. Door nu SKZ2 te bedienen zullen TS463, TS464, TS452 en TS465 gaan geleiden. Zodra TS452 geleidt zal zeer kortstondig de stroom van TS451 en TS452 een dusdanige spanningsval over R709 veroorzaken, dat de spanning op de anode van TS451 negatief wordt omdat C554 was opgeladen. TS451 stopt daardoor met geleiden en TS452 blijft geleiden, waardoor de spanning die via D502 aan de FM-tuner wordt toegevoerd bepalend is voor de afstemming. In het "Manual" gedeelte zijn R702 en C551 aangebracht opdat bij inschakeling van het apparaat het "Manual" gedeelte ingeschakeld wordt. TS461 is aangebracht om te voorkomen dat 2 of meer presetinstellingen tegelijk ingeschakeld kunnen worden. Indien hij opengestuurd wordt, wordt de voedingsspanning van TS451, 452,

## Stille afstemming (zie bladzijde 7-8, 23-24)

453,454,455,456 en 457 met massa kortgesloten.

Een gedeelte van het FM-MF signaal wordt via een spanningsverdubbelaar en een versterker toegevoegd aan de Schmitttrigger TS492, 493. Indien het MF signaal groot genoeg is zal de Schmitt-trigger omklappen. Tengevolge hiervan gaat TS494 sperren, waardoor de kathode van D516 aan +8 komt. De gates van TS495 en TS496 worden nu positief, waardoor deze transistoren gaan geleiden. Bij een klein MF-signaal (o.a. ruis) ligt de kathode van D516 aan massa omdat TS494 dan geleidt. De gates zijn dan negatief t.o.v. de sources. TS495,496 geleiden niet en er kan geen signaal op de ingang van de versterker komen.

#### "Plop" onderdrukking (zie bladzijde 7-8, 23-24)

Indien men overschakelt van de ene preset naar de andere komt op de basis van TS491, die samen met TS490 een monostabiele multivibrator vormt, een negatieve puls te staan waardoor TS491 gaat geleiden en TS490 spert. De kathode van D515 komt via R888 aan massa te liggen, waardoor de gate van TS495,496 negatief wordt t.o.v. source en geen geleiding van source naar drain mogelijk is. De monostabiele multivibrator herstelt zich weer tot de uitgangstoestand indien C670 zich tot een bepaalde waarde heeft ontladen.

Bij gebruik van AM blijft de preselectie voor FM werken, Aangezien deze preselectie niet met AM gekoppeld is, mag hier de 'plop' onderdrukking niet werken. Vandaar dat bij AMontvangst een voedingsspanning direct op de kathode van D515 is aangesloten zodat de FET-transistoren niet schakelen, indien men het preselectie gedeelte bedient.



DESCRIPTION DE L'UNITE DE PRESELECTION ELECTRIQUE (voir pages 5-6, 23-24)

Lorsque SKZ1 est fermé, TS459 devient conducteur. Il en résulte que le collecteur de ce transistor devient positif et que TS460 est saturé.

La tension sur R711 portera TS451 à saturation et la porte d'anode ou le noeud R712/R713 est court-circuité par rapport à la masse.

LA411 s'allume et TS462 devient conducteur. Une tension réglable peut alors être appliquée au tuner FM par l'intermédiaire de D501. Lorsque SKZ1 est ouvert, TS459 et TS460 ne serong plus conducteurs. Cependant TS451 reste conducteur, à moins que l'anode devienne négative par rapport à la cathode. Le tuner FM reste réglé à la tension appliquée par l'intermédiaire de D501. Lorsque TS451 est conducteur, l'anode sera à environ 1 V par rapport à la masse et C554 est chargé jusqu'à environ 5 V. La tension sur le noeud R708/R709 ést d'environ 6 V.

En commandant SKZ2, TS463, TS464, TS452 et TS465 deviendront conducteurs. Dès que TS452 conduit, le courant de TS451 et TS452 provoquera une telle chute de tension sur R709 que la tension sur l'anode de TS451 en deviendra négative ceci du fait que C554 était rechargé. De ce fait, TS451 ne conduit plus et TS452 reste conducteur, de sorte que la tension appliquée au tuner FM par l'intermédiaire de D502 détermine la syntonisation.

Dans la partie "Manuel", R702 et C551 servent à mettre en service la partie "Manuel" lorsque l'appareil est mis en circuit. TS461 sert à éviter que 2 ou plusieurs préréglages ne soient en même temps enclenchés. Lorsque TS461 est porté à saturation, la tension d'alimentation de TS451, 452, 453, 454, 455, 456 et 457 est court-circuitée par rapport à la masse.

#### Syntonisation silencieuse (voir pages 7-8, 23-24)

Une portion du signal FM-FI est appliquée à la bascule de Schmitt TS492,493 par l'intermédiaire d'un doubleur de tension et d'un amplificateur. Si l'intensité du signal FI est suffisante, la bascule de Schmitt culbutera. De ce fait, TS494 se bloque, de sorte que la cathode de D516 est à +8. Les portes de TS495 et TS496 deviennent alors positives, de sorte que ces transistors deviennent conducteurs.

Si l'intensité du signal FI est faible (entre autres, bruit), la cathode de D516 est à la masse, parce que TS494 est conducteur. Les portes sont alors négatives par rapport aux sources. TS495, TS496 ne sont pas conducteurs et aucun signal ne peut parvenir à l'entrée de l'amplificateur.

#### Suppression "éclatement" (voir pages 7-8, 23-24)

En commutant d'une commande de préréglage à l'autre, une impulsion négative parvient à la base de TS491 constituant avec TS490 un monostable, de sorte que TS491 va conduire et que TS490 se bloque.

La cathode D515 est mise à la masse par l'intermédiaire de R888, de sorte que la porte de TS495,496 devient négative par rapport à la source et qu'une conduction entre la source et le drain n'est pas possible.

Le monostable revient à l'état initial si C670 s'est déchargé à une valeur déterminée. Dans le cas d'utilisation d'une AM, l'unité de présélection FM reste fonctionner. Cependant, comme cette unité de présélection n'est pas couplée avec AM, le circuit de suppression d'éclatement ne doit alors pas fonctionner. A la réception AM, une tension d'alimentation est directement appliquée à la cathode de D515, de sorte que les FET ne commutent pas, dans le cas de commande de l'unité de présélection.



BESCHREIBUNG DER ELEKTRONISCHEN VORWAHL (siehe Seite 5-6, 23-24)

Wenn SKZ1 geschlossen wird, leitet TS459. Demzufolge wird

der Kollektor dieses Transistors positiv und TS460 gerät in

6/14/15

die Sättigung. Die Spannung an R711, TS451 wird jetzt aufgesteuert und ist der Anodeneingang oder Knotenpunkt R712, R713 gegen Masse kurzgeschlossen. LA411 leuchtet auf und TS462 leitet. Eine regelbare Spannung kann jetzt über D501 d dem FM-Tuner zugeführt werden. Wenn SKZ1 wieder geöffnet wird, leiten TS459 und TS460 nicht mehr. TS451 leitet weiterhin. es sei denn, dass die Anode hinsichtlich der Katode negativ wird. Der FM-Tuner liegt also an der Spannung, die über D501 zugeführt wird. Wenn TS451 leitet, beträgt die Anode ca. 1 V gegen Masse und ist C554 bis ca. 5 V aufgeladen. Die Spannung am Knotenpunkt R708, R709 beträgt ca. 6 Volt. Durch betätigen von SKZ2 leiten TS463, TS464, TS452 und TS465. Sobald TS452 leitet, verursacht der Strom ganz kurz einen derartigen Spannungsfall an R709, dass die Spannung an der Anode von TS451 negativ wird, da C554 geladen war. TS451 stoppt mit Leiten und TS452 leitet weiterhin, wodurch die Spannung, die über D502 an den FM-Tuner geführt wird, für die Abstimmung massgeblich ist. Im Manual-Teil sind R702 und C551 angeordnet, weil beim Einschalten des Geräts auch der Manual-Teil eingeschaltet wird, TS461 verhindert, dass zwei oder mehrere Vorwahl-

#### Stummabstimmung (siehe Seite 7-8, 23-24)

Ein Teil des FM-ZF-Signals wird über einen Spannungsverdoppler und einen Verstärker an den Schmitt-Trigger TS492,493 geführt. Wenn das ZF-Signal gross genug ist, kippt der Schmitt-Trigger um. Demzufolge sperrt TS494 und die Katode von D516 gelangt an +8. Die Eingänge von TS495 und TS496 werden positiv, wodurch diese Transistoren leiten. Bei einem kleinen ZF-Signal (u.a. Rauschen) liegt die Katode von D516 an Masse weil TS494 leitet. Die "Gates" sind dann hinsichtlich den "Sources" negativ. TS495,496 leiten nicht; es gelangt kein Signal an den Eingang des Verstärkers.

Einstellungen gleichzeitig eingeschaltet werden. Beim Auf-

steuern dieses Transistors wird die Speisespannung von TS451,452,453,454,455,456 und 457 mit Masse kurzgeschlossen.

### 'Knall"-Unterdruckung (siehe Seite 7-8, 23-24)

Wenn man von einer Vorwahl auf die andere umschaltet, gelangt ein negativer Impuls an die Basis von TS491, der zusammen mit TS490 einen monostabilen Multivibrator bildet. TS491 gerät in die Sättigung und TS490 sperrt. Die Katode von D515 gelangt via R888 an Masse, wodurch der Eingang von TS495,496 hinsichtlich der "Source" negativ wird und eine Verbindung von "Source" nach "drain" ummöglich ist. Der monostabile Multivibrator kehrt in seine Ausgangsstellung zurück, wenn C670 sich bis auf einen bestimmten Wert entladen hat. Bei Benutzung der AM, bleibt die Vorwahl für FM in Betrieb. Da diese Vorwahl nicht mit AM gekoppelt ist, darf der "Knall"-Begrenzer jetzt nicht aktiv sein. Aus diesem Grunde ist die Speisespannung bei AM-Empfang direkt an die Katode von D515 angeschlossen, so dass die FET-Transistoren nicht schalten wenn der Vorwahl-Teil betätigt wird.



DESCRIZIONE DELL'UNITA DI PRESELEZIONE ELETTRONICA (pag. 5-6, 23-24)

Quando SKZ1 é chiuso, TS459 diventa conduttore. Si ha quindi che il collettore di questo transistors diventa positivo e che TS460 é saturato.

La tensione su R711 fa saturare TS451 e la porta di anodo o il nodo R712/R713 é cortocircuitato ripsetto a massa. LA411 s'illumina e TS462 diventa conduttore, In questo caso può ora essere applicata al tuner FM regolabile attraverso D501. Quando SKZ1 é aperto, TS459 e TS460 non saranno più conduttori. Ora TS451 resta conduttore, a meno che l'anodo diventi negativo in rapporto al catodo. Il tuner FM resta regolato sulla tensione applicata attraverso D501. Quando TS451 é conduttore, l'anodo sarã a circa 1 V in rapporto alla massa e C554 sarà caricato fino a circa 5 V. La tensione sul nodo R708/R709 é circa 6 V.

Inserendo SKZ2, TS463, TS464, TS452 e TS465, diventeranno conduttori.

Se TS452 conduce, la corrente di TS451 e TS452 provocherà una caduta di tensione tale su R709 che la tensione sull'anodo di TS451 diventerà negativa, per il fatto che C554 sarà ricaricato. Perciò TS451 non conduce più e TS452 resta conduttore, in modo che la tensione applicata al tuner FM attraverso D502 possa determinare la sintonia.

Nella parte "Manuale" R702 e C551, servono ad inserire questa parte, quando l'apparecchio é acceso.
TS461 serve ad impedire che due o più preregolazioni non sono

inserite nello stesso tempo. Quando TS461 é portato alla saturazione, la tensione di alimentazione di TS451,452,453 454,455,456,457 é cortocircuitata verso massa.

### Sintonia silenziosa (vedere pagine 7-8, 23-24)

Una parte del segnale FM-FI é applicata al trigger di Schmitt TS492, 493 attraverso un raddoppiatore di tensione e di un amplificatore. Se l'intensità del segnale FI é sufficiente, il trigger di Schmitt oscillerà. Perciò TS494 si blocca, portando il catodo di D516 a +8 V. Le porte di TS495 e TS496 diventono allora positive, portandoli alla conduzione.

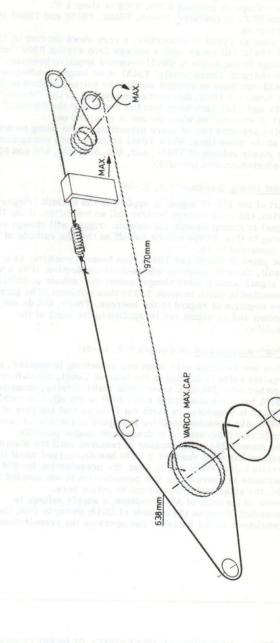
Quando l'intensità del segnale FI é debole (anche il soffio) il catodo di D516 é a massa, perché TS494 é conduttore. Le porte sono allore negative in rapporto alle seguenti. TS495, TS496 non sono conduttori e nessun segnale può pervenire all'entrata dell'amplificatore.

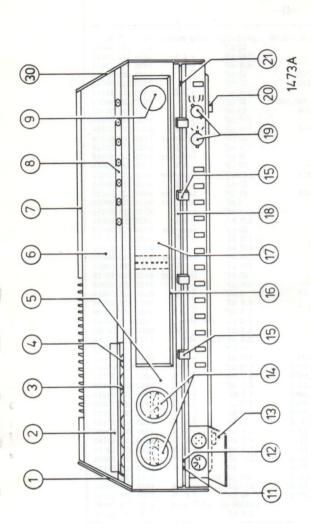
### Soppressione delle scariche (vedere pagine 7-8, 23-24)

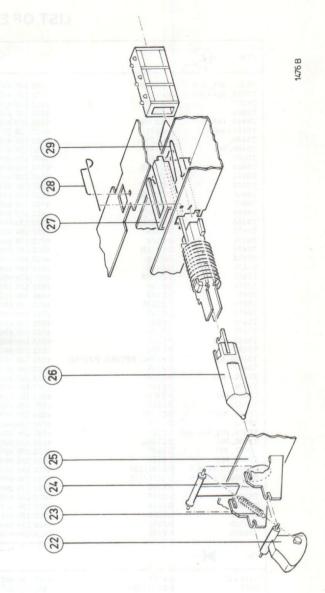
Commutando da una preregolazione all'altra, un impulso negativo perviene alla base di TS491 che costituisce con TS490 un monostabile, in modo che TS491 conduce mentre TS490 si blocca. Il catodo di D515 é portato a massa attraverso R888, in modo che la porta di TS495, 496 diventa negativa in rapporto alla sorgente evitando una conduzione tra la sorgente e l'uscita. Il monostabile ritorna al suo stato iniziale se C670 si scarica ad un valore determinato. Utilizzando una in AM, l'unità di preselezione FM resta funzionante. Ora, siccome questa unità di preselezione non é inclusa in AM, il circuito di soppressione delle scariche non deve in questo caso funzionare. Alla ricezione in AM, é applicata direttamente sul catodo di D515 una tensione di alimentazione, in modo che i FET non commutano nel caso del comando di preselezione.

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( <u>-</u> )	Scala /00/33 Scale /16/22/30 Indice sintonia (IND 405)	Indice frequenza (IND 404) Agnia AM/FM	Barretta con morsetti	Spina (altoparlante) Barretta con morsetti	(magnetofono-giradischi) Presa (monitore) Spina (magnet,-giradischi- micro monitore)	Presa (microfono) Presa (cuffia) Spina (cuffia) Presa (antenna AM) Spina (antenna AM)	Presa (antenna FM) Spina (antenna FM) Presa (triplice trasformatore)	Spina (triplice trasformatore)	Presa (ferroceptor)	Collegamento su piastra	stampata Spina triplice per piastra stampata	spina a sei poli per piastra stampata.	Interruttore di rete Commutatore fisiologico	Commutatore altoparlante Commutatore a slitta completo (FM-ant,-monitore-mono-	Commutatore a slitta completo (magnetofono-OC)	Commutatore a slitta completo	(microfono OL) Commutatore a slitta completo (CAF sintonia silenziosa)	Commutatore a slitta completo P.U.	Sitta senza cassa Om Guida per slitta OM Pezzo di serraggio sulla slitta	del commutatore (rete) 35 mm Tubo isolante (transistori di potenza)
	4822 333 50445 4822 333 50444 4822 347 10094	4822 450 80391	4822 267 50194	4822 264 30041 4822 267 20118	4822 267 40201 4822 264 40023	4822 267 40162 4822 267 40198 4822 264 40092 4822 267 20072 4822 264 30042	4822 267 30208 4822 264 30043 4822 267 40211	4822 265 30116	4822 267 40163	267	4822 466 10238	4822 466 10239 4822 277 20091	4822 276 10481 4822 273 80163	4822 273 80162 4822 277 30536	4822 277 30537	4822 277 30538	4822 277 30539	4822 277 30535	4822 466 90684 4822 535 90931	4822 325 80112
	Skala /16/22/30 Skala /16/22/30 Abstimmindikator (IND 405)	Frequenzindikator (IND 404) Zeiger AM/FM	Anschlussblock (Lautsprecher)	Stecker (Lautsprecher) Anschlussblock (TB-TA)	Anschluss (Monitor) Stecker (TB-TA-Monitor- Mikrofon)	Anschluss (Mikrofon) Stecker (Kopfhörer) Stecker (Kopfhörer) Anschluss (Antenne AM) Stecker (Antenne AM)	Anschluss (Antenne FM) Stecker (Antenne FM) Anschluss (3-polige-	Transformator) Stecker (3-poliger Transformator)	Anschluss (Stabantenne)	Anschluss an Printplatte	3-Poliger Stecker für Anschluss an Printplatte	Anschluss an Printplatte Schalter (Dyn /Quarz)	Netzschalter Drehschalter (Physiologie)	Drehschalter (Lautsprecher) Schiebeschalter komplett (FM-AntMonitor-Mono-	Schiebeschalter komplett (KW-Tonband)	Schiebeschalter komplett	(LW-Mikroion) Schiebeschalter, komplett (AFR-Stummabstimmung)	A		Schiebeschafter (Netzschafter) 35 mm Isolierbuchse (Endtransistoren)  4822 325 80112
	Cadran /00/33 Cadran /16/22/30 Indicateur de syntonisation	(IND 409) Indicateur de frêquence (IND 404) Aiguille AM/FM	Barrette à bornes (haut-	parieur) Fiche (haut-parleur) Barrette à bornes	(magnet. p.u.) Prise (moniteur) Fiche (magnétophone- p.umicro moniteur)	Prise (microphone) Prise (casque) Fiche (casque) Prise (antenne AM) Fiche (antenne AM)	Prise (antenne FM) Fiche (antenne FM) Prise (tripolaire transfor-		Prise (ferrocapteur)		Imprimee Fiche tripolarie pour douille sur platine imprimée	sur platine imprimée Commutateur (dvn/cristal)	Interrupteur secteur Commutateur rotatif	(physiologie) Commutateur rotatif (H.P.) Commutateur å tiroir complet (FM-ant, -moniteur-mono-	Commutateur à tiroir complet (magnétophone O.C.)	ir complet	a tiroir complet	suenciense) Commutateur à tiroir complet P.U.	Guide pour tiroir P.O. Pièce de serrage sur tiroir	du commutateur a tiroir (interrupteur secteur) 35 mm Douille d'isolation (transistor de puissance)
	Schaal /00/33 Schaal /16/22/30 Afstemindikator (IND 405)	Frequentie-indikator (IND 404) Wijzer AM/FM	Aansluitblok (luidspreker)	Steker (luidspreker) Aansluitblok (bandopn.p.u.)	Aansluiting (monitor) Steker (bandopnp.u monitor-micro)	Aansluiting (microfoon) Aansluiting (hoofdtelefoon) Steker (hoofdtelefoon) Aansluiting (antenne AM) Steker (antenne AM)	Aansluiting (antenne FM) Steker (antenne FM) Aansluiting (3-polig transfor-	mator) Steker (3-polig transformator	Aansluiting (terroceptor) Steker (ferroceptor)	Aansluiting op print	Plug voor aansluiting op print 3-polig Dlug voor aansluiting on	print 6-polig Schakelaar (dyn/kristal)	Netschakelaar Draaischakelaar (fysiologie)	Draaischakelaar (luidspreker) Schuifschakelaar compleet (FM-ant,-monitor-mono	Schuifschakelaar compleet (KG-magnetofoon)	Schuifschakelaar compleet	Schuifschakelaar compleet (stille afstemming-AFR)	Schuifschakelaar compleet P.U.	Geleideplaat voor schuif MG Klemstruk op schuif van	Scuttischaretaar (netscuak.) 35 mm Isolatiebus (eindtransistoren)
	4822 333 50445 4822 333 50444 4822 347 10094	4822 347 10095 4822 450 80391	4822 267 50194	4822 264 30041 4822 267 20118	4822 267 40201 4822 264 40023	4822 267 40162 4822 267 40198 4822 264 40092 4822 267 20072 4822 264 30042	4822 267 30208 4822 264 30043 4822 267 40211	4822 265 30116	4822 267 40163	4822 267 50192	4822 466 10238	4822 277 20091	4822 276 10481 4822 273 80163	4822 273 80162 4822 277 30536	4822 277 30537	4822 277 30538	4822 277 30539	4822 277 30535 4822 278 30086	4822 466 90684 4822 535 90931	4822 325 80112
(GB)	Scale /00/33 Scale /16/22/30 Tuning indicator (IND 405)	Frequency indicator (IND 404) Pointer AM/FM	Connecting block (loudspeaker)	Plug (loudspeaker) Connecting block (tape - p.u.)	Socket (monitor) Plug (tape-p.umonitor-microphone)	Socket (microphone) Socket (headphone) Plug (headphone) Socket (aerial AM) Plug (aerial AM)	Socket (aerial FM) Plug (aerial FM) Socket (3-pole transformer)	rmer)	Plug (ferroceptor)	boards	Plug for socket on printed boards 3-pole Plug for socket on printed	1195	Mains switch Rotary switch (physiology)	Rotary switch (loudspeaker) Slide switch complete (FM-Ant,-monitor-mono-noise)	vitch complete	Slide switch complete	te ;)	Slide switch complete P.U. Slide without housing MW	₽ ¥	c (power
CS33	756																		Dublich	od in Hoi

Piastra isolante (transistori di potenza) Olia ai siliconi	Portafusibile Sostegno per due porta lampadina (indice stereofonico) Portalampada Pulleggia 50 mm Ø	Pulleggia Cordina di trasmissione Cordicella (metallica) Ruota dentata con indice di frequenza FM Ø 18 mm Pignone su potenziometro di tensione prestabilita Ø 26 mm	Gommino per lampadina della piastra "touch control" Portaferroceptor Capuccio sul portaferroceptor	Coperchio sul telaio dietro la front (lampadina a destra della scala) Coperchio sul telaio dietro la fronte (lampadina a sinistra della scala)	Quello di plastica per C.I. Tuner FM 104 MHz Decodatore stereo
4822 466 70156 4822 390 20023	4822 255 30052 4822 255 30052 4822 255 20068 4822 528 80552	4822 528 80155 4822 321 30131 4822 321 30042 4822 450 80389 4822 522 31159	4822 325 60178 4822 256 90128 4822 462 70865	4822 404 10205 4822 404 10204	4822 532 60586 4822 210 10144 4822 214 50103
Isolierplatte (Endtransistoren)   4822 466 70156   Silicon-Fett   4822 390 20023	Schmelzsicherungshalter Halterung für 2 Lampen- fassungen (Stereoindikator) Lampenfassung Antrieb Seilrad 50 mm Ø	Seilrad Antriebspese (Metall) (JAntriebspese (Metall) (Zahnrad mit Frequenzanzeige FM 18 :m	Tulle fur Lampe von "touch control"Platte Halter fur Stabantenne Kappe über Halter für Stabantenne	Abdeckplatte auf Rahmen hinter Front (Skalen beleuchtungslampe rechts) Abdeckplatte auf Rahmen hinter Front (Skalen- beleuchtungslampe links)	Kunststoffring für IC FM-Tuner 104 MHz Stereo-Decoder
Plaque d'isolation (transistor de puissance) Huile au silicone	Porte-fusible Support pour 2 supports de lampe (indicateur stêréo) Support de lampe Entraînement poulie 50 mm Ø	Poulie Corde d'entraînement Antriebspese Courrole d'entraînement (metal) Antriebspese (Metall) Roue dentraînement (metal) Antriebspese (Metall) Roue dentre avec indication de Zahnrad mit Frequent Frequence FM Ø 18 mm Frequence FM Ø 18 mm Pignon sur potentiomètre de présélection Ø 26 mm der Vorwahleinstellu	Passe-fil pour lampe du panneau "touch control" Support de ferrocapteur Capuchon sur support de ferrocapteur	Couverture sur châssis derrière face avant (lampe droite du cadran Couverture sur châssis derrière face avant (lampe gauche du cadran	Bague plastique pour CI Tuner FM 104 MHz Décodeur stéréophonique
Isolatieplaat (eindtransistoren) Siliconvet	Smeltveiligheidshouder Houder voor 2 lamphouders (stereo-indikator) Lamphouder Aandrijfsnaarwiel 50 mm Ø	Snaarwiel Andrijfsnaar (metaal) Andrijfsnaar (metaal) Tandwiel met frequentie indicatie FM 18 mm Ø Tandwiel op potmeter van voorkeuzeinstelling 26 mm Ø	Tulle voor lamp van "touch control" paneel Ferroceptorhouder Deksel over ferroceptorhouder	Afdekplaat op frame achter front (schaal verlichtings- lamp rechts) Afdekplaat op frame achter front (schaalverlichtings- lamp links)	Plastic ring voor IC FM-tuner 104 MHz Stereo-dekoder
4822 466 70156 4822 390 20023	4822 492 60023 4822 255 30052 4822 255 20068 4822 528 80552	4822 528 80155 4822 321 30131 4822 450 80389 4822 450 31159	4822 325 60178 4822 256 90128 4822 462 70865	4822 404 10205 4822 404 10204	4822 532 60586 4822 210 10144 4822 214 50103
insulation plate (power- transistor) Silicone grease	Fuse holder Holder for 2 lampholders (stereo indicators) Lampholder Driving pulley 50 mm Ø dia.	Pulley Drive cord Drive string (metal) Gearwheel with frequency indication FM 18 mm dia Gearwheel on potm. for preselection 26 mm dia.	Grommet for lamp "touch control" panel Ferroceptor holder Cap ferroceptor holder	Cover plate on frame behind front (dial lamp right) Cover plate on frame behind front (dial lamp left)	Plastic ring for IC FM-tuner 104 MHz Stereo-decoder







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1 4822 426 50038
2 4822 426 60052
3 4822 426 60052
3 4822 426 50138
4 4822 426 50138
5 4822 426 50138
6 /Z 4822 426 40027 (walnut)
7 4822 426 40026 (palis.)
7 4822 426 40026 (palis.)
7 4822 426 40026 (palis.)
7 4822 426 10313
8 4822 413 50807
11 4822 454 10317
14 4822 454 10317
14 4822 459 50139
18 4822 459 50139
18 4822 454 10318
19 4822 454 10318
20 4822 454 10318
21 4822 454 10388
24 4822 454 10368
25 4822 492 411 50277
23 4822 494 10206
25 4822 494 1052
26 4822 492 61741
28 4822 492 61741
29 4822 492 61741
29 4822 492 61797
28 4822 492 61797
29 4822 492 61797
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## LIST OF ELECTRICAL PARTS

TS-	Hand ?		-c		
S201, 208, 209	BC148B	4822 130 40318	C410a,b,c+R410	gang.cap.+tuning potm.	4822 125 3001
S202, 205 ÷ 207	BC148	4822 130 40318	C576	10 nF	4822 122 3004
S203	BC158 d	4822 130 40476	C577	180 pF + 2 %	4822 122 30093
S204	BC147	4822 130 40333	C578	4.3 nF + 2 %	4822 120 33124 4822 122 3004
S448, 449 S451 ÷ 457	TAA 450 BR101	4822 209 80253 4822 130 20036	C579 ÷ 582 C584,585	10 nF 10 nF	4822 122 3004 4822 122 3004
S451 ÷ 457	BC158B	4822 130 20036	C584,585 C586	4.3 nF + 2 %	4822 122 3004
\$460,461	BC148	4822 130 40318	C588 ÷ 590, 592	10 nF	4822 122 3004
5462	BC158	4822 130 40476	C593,596	10 nF	4822 122 3004
3463	BC158B	4822 130 40477	C597	220 pF + 2 %	4822 122 3010
5464	BC148	4822 130 40318	C600,601	180 pF + 2 %	4822 122 3009
S465	BC158 BC158B	4822 130 40476	C612		4822 125 5002
5466 5467	BC148	4822 130 40477 4822 130 40318	C615 C616		4822 120 3312 4822 125 5002
8468	BC158	4822 130 40476	C617	27 pF + 2 %	4822 122 3004
5469	BC158B	4822 130 40477	C621,623		4822 125 5002
3470	BC148	4822 130 40318	C624	27 pF ± 2 %	4822 122 3004
5471	BC158	4822 130 40476	C625,629		4822 125 5002
3472	BC158B	4822 130 40477	C626		4822 125 5000
3473	BC148	4822 130 40318	C633	3  nF + 2 %	4822 121 5041
5474 5475	BC158 BC158B	4822 130 40476 4822 130 40477	C640 C642	$3.9 \text{ nF}$ $\pm 2 \%$ $\pm 20 \text{ pF}$ $\pm \text{trimmer}$	4822 121 5009 4822 125 5002
5476	BC148	4822 130 40318	C642	1.8 nF + 1 %	4822 121 5007
5477	BC158	4822 130 40476	C644	316 pF + 1 %	4822 121 5053
5478	BC158B	4822 130 40477	C646		4822 125 5002
5479	BC148	4822 130 40318	C648	170 pF <u>+</u> 1 %	4822 121 5002
5480	BC158	4822 130 40476	C650		4822 125 5002
3481	BC158a	4822 130 40614	C654	330 pF + 2 %	4822 122 1000
5482 ÷ 484	BC148	4822 130 40318	C655,659	3 nF + 2 %	4822 121 5041
5485 5486a b c	BC149 BF195C,BF194B,BF195D	4822 130 40313	C665	3.9 nF + 10 % 3.3 nF + 10 %	4822 122 3009 4822 122 3009
5486a,b,c 5487	BF195C, BF194B, BF195D	4822 130 40421 4822 130 40304	C667 C668	3.3 nF $\pm 10 \%$ 100 $\mu$ F 4 V elco	4822 124 2056
5490 ÷ 493	BC158	4822 130 40476	C669	4.7 nF + 2 %	4822 121 5009
5494	BC148	4822 130 40318	C670	3.3 µF 63 V elco	4822 124 2059
3495,496	BFW 61	4822 130 40904	C673	10 nF	4822 122 3004
3951	BC159	4822 130 40508	C678 ÷ 681	470 nF ± 10 %	4822 121 4018
8952, 962	BC148B	4822 130 40318	C1004,1074	470 nF + 10 %	4822 121 4018
8953 8954 955 964 965	BC159	4822 130 40508	C1006,1076	2.2 nF + 10 %	4822 122 3012
S954,955,964,965 S956,966	BC148 BC158A	4822 130 40318 4822 130 40614	C1011, 1081 C1013, 1083	2.7 nF + 5 % 7.5 nF + 5 %	4822 121 5043 4822 121 5021
\$957, 967	BD137	4822 130 40614	C1015,1083	270 pF + 10 %	4822 121 5021
5958,968	BC148	4822 130 40318	C1016,1022	560 pF + 10 %	4822 122 3012
S959a,b,969a,b	BD137/138	4822 130 40704	C1031,1032	82 nF + 2 %	4822 121 5028
S960a, b 970a, b	BD182/182	4822 130 40905	C1034,1104	24 nF +2 %	4822 121 5008
5972,973	BR101	4822 130 20036	C1041,111	470 nF $\pm 2 \%$	4822 121 4018
S1381	BD135	4822 130 40645	C1047,1117	1.8 nF + 10 %	4822 120 3311
S1382 S1501	BC148 BF200	4822 130 40318	C1052,1122	180 pF + 2 %	4822 122 3009
			C10E4 1104	4 7 mE	1000 100 0010
		4822 130 40454 4822 130 40303	C1054,1124 C1056,1126	4.7 nF + 10 %	
S1502	BF194	4822 130 40303	C1056,1126	3300 μF 40 V elco	4822 124 7023
S1502					4822 124 7023 4822 122 3009
S1502 S1503	BF194	4822 130 40303	C1056,1126 C1085,1092	3300 μF 40 V elco 270 pF ± 10 %	4822 122 3012 4822 124 7023 4822 122 3009 4822 121 5028 4822 124 7019 4822 120 4016
S1502 S1503 D	BF194 BF195	4822 130 40303 4822 130 40304 4822 130 40229	C1056,1126 C1085,1092 C1101,1102 C1407 C1408	$3300 \ \mu F \ 40 \ V \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	4822 124 7023 4822 122 3009 4822 121 5028 4822 124 7019
S1502 S1503 D	BF194 BF195 AA119 BZX79/C4V7	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773	C1056,1126 C1085,1092 C1101,1102 C1407	$3300 \ \mu F \ 40 \ V \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	4822 124 7023 4822 122 3009 4822 121 5028 4822 124 7019
S1502 S1503 D- 214+219 220 501+507	BF194 BF195 AA119 BZX79/C4V7 BA217	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773 4822 130 30703	C1056,1126 C1085,1092 C1101,1102 C1407 C1408	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4822 124 7023 4822 122 3009 4822 121 5028 4822 124 7019 4822 120 4016
S1502 S1503 D- 214+219 220 501+507 508	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265	C1056,1126 C1085,1092 C1101,1102 C1407 C1408 -R- R431÷436	3300 μF 40 V elco 270 pF $\pm$ 10 % 82 nF $\pm$ 2 % 2x2350 μF 63 V elco 100 nF	4822 124 7023 4822 122 3009 4822 121 5028 4822 124 7019 4822 120 4016
S1502 S1503 D- 214+219 220 501+507 508 509,510	BF194 BF195 AA119 BZX79/C4V7 BA217	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773 4822 130 30703	C1056,1126 C1085,1092 C1101,1102 C1407 C1408 -R- R431 ÷ 436 R440	$3300 \ \mu F \ 40 \ V \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	4822 124 7023 4822 122 3005 4822 121 5028 4822 124 7019 4822 120 4016
S1502 S1503 D	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 40229	C1056,1126 C1085,1092 C1101,1102 C1407 C1408 -R- R431÷436	3300 μF 40 V elco 270 pF $\pm$ 10 % 82 nF $\pm$ 2 % 2x2350 μF 63 V elco 100 nF	4822 124 7025 4822 122 3005 4822 121 5026 4822 124 7016 4822 120 4016 4822 101 2044 4822 105 1004 4822 105 1004
S1502 S1503 D- 214+219 220 501+507 508 509,510 511a,b 512,513 514+516,518,520	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 2xAA119 OF156 BA216	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30312 4822 130 30312 4822 130 30265 4822 130 30702	C1056,1126 C1085,1092 C1101,1102 C1407 C1408 -R	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4822 124 7023 4822 122 3005 4822 121 5023 4822 124 7013 4822 120 4016 4822 101 2044 4822 105 1004 4822 105 1004 4822 105 1004 4822 105 1004
S1502 S1503 D	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30312 4822 130 30265 4822 130 30702 4822 130 30702	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4822 124 7023 4822 122 3005 4822 121 5028 4822 124 7015 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 111 3034 4822 111 3034
S1502 S1503 D	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216 BA148	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30312 4822 130 30312 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30702	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431÷436 R440 R441,442 R443 R702 R703 R716	3300 μF 40 V elco 270 pF $+10$ % 82 nF $+2$ % 2x2350 μF 63 V elco 100 nF $+10$ % elco 100 nF $+10$ % pot.meter 2x (20+80 kΩ) volume 2x50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 1 MΩ trimmer	4822 124 7023 4822 122 3003 4822 121 5028 4822 124 7019 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 111 3034 4822 110 5024 4822 110 5024
S1502 S1503 D- 214+219 220 220 501+507 508 509,510 511a,b 512,513 514+516,518,520 976,977 979,977 1385	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 2xAA119 OF156 BA216 BA216 BA216 BA216 BA216 BA216 BA216	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773 4822 130 30765 4822 130 30265 4822 130 30312 4822 130 30312 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30702	C1056,1126 C1085,1092 C1101,1102 C1407 C1408 -R-  R431÷436 R440 R441,442 R443 R702 R703 R716 R717,718	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4822 124 7023 4822 122 3005 4822 125 5024 4822 124 7013 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 111 3034 4822 111 3034 4822 110 502 4822 100 1006
S1502 S1503 D	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216 BA216 BA218 BZY88/C6V8 BA148	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30256 4822 130 30256	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4822 124 702: 4822 122 300: 4822 121 502: 4822 124 701: 4822 120 401: 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 502: 4822 100 100: 4822 100 100: 4822 110 502:
81502 81503 D- 214+219 220 220 501+507 508 509,510 511a,b 512,513 514+516,518,520 976,977 979,977 1385 1386,1387 1386,1387 1386,1387	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V8	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30312 4822 130 30312 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 3079 4822 130 30256 4822 130 30256 4822 130 30256	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431÷436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761	3300 μF 40 V elco 270 pF $+10$ % 82 nF $+2$ % 2x2350 μF 63 V elco 100 nF $+10$ % $+1$	4822 124 7023 4822 122 302 4822 121 5028 4822 124 7018 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 111 3034 4822 100 1008 4822 100 1008 4822 100 1008 4822 110 5020 4822 110 5020
81502 81503 D- 214+219 220 220 501+507 508 509,510 511a,b 512,513 514+516,518,520 976,977 979,977 1385 1386,1387 1388‡1395 1388;1395	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 2xAA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V8 BA148 BY126 BZY88/C6V2	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30256 4822 130 30256	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7019 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 111 3034 4822 110 5020 4822 100 1008 4822 100 1008 4822 110 5020 4822 110 5020 4822 110 5020 4822 110 5020
81502 \$1503 0	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V8	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30703 4822 130 30265 4822 130 30312 4822 130 30312 4822 130 30702 4822 130 30706	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431÷436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R801	3300 μF 40 V elco 270 pF $+10$ % 82 nF $+2$ % 2x2350 μF 63 V elco 100 nF $+10$ % 63 V elco 100 nF $+10$ % $+$	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7019 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 105 1004 4822 100 1003 4822 100 1003 4822 110 5026 4822 110 5026
81502 81503 D	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V2 BZY88/C6V2 BZY88/C6V2	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30256 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431÷436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R801 R802 R821	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4822 124 7023 4822 121 5028 4822 124 7019 4822 120 4016 4822 100 1004 4822 105 1004 4822 105 1004 4822 105 1004 4822 110 303 4822 110 303 4822 110 5020 4822 110 5020
81502 81503 0	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V2 BZY88/C6V2 BZY88/C6V2	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30256 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R801 R802 R821 R839	3300 μF 40 V elco 270 pF $+10$ % 82 nF $+2$ % 2x2350 μF 63 V elco 100 nF	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7018 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5020 4822 110 5020
81502 81503 0	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V2 BZY88/C6V2 BZY88/C6V2	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30256 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R801 R802 R839 R1186,1306	3300 μF 40 V elco 270 pF $+10$ % 82 nF $+2$ % 2x2350 μF 63 V elco 100 nF $+10$ % 63 V elco 100 nF $+10$ % $+$	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7019 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5020 4822 110 5020
81502 81503 D	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V2 BZY88/C6V2 BZY88/C6V2	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30256 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431÷436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R801 R802 R821 R839 R1186,1306 R1220,1340	3300 μF 40 V elco 270 pF $\pm 10$ % 82 nF $\pm 2$ % 2x2350 μF 63 V elco 100 nF $\pm 2$ % 2x2350 μF 63 V elco 100 nF $\pm 2$ % $\pm 2$ % elco 100 MΩ 1/8 W 4.7 MΩ 1/4 W 4.7 MΩ	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7019 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 103 4822 110 5020 4822 110 5020
81502 81503 D	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V8 BZY88/C6V2 BZY88/C6V2 12BB105A	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30256 4822 130 30256 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R821 R802 R821 R829 R1186,1306 R1220,1340 R12241 ÷ 1245	3300 μF 40 V elco 270 pF $+10\%$ 82 nF $+2\%$ 2x2350 μF 63 $\overline{V}$ elco 100 nF $+2\%$ 63 $\overline{V}$ elco 100 mF $+2\%$ 63 $\overline{V}$ elco 100 mF $+2\%$ 63 $\overline{V}$ elco 100 mF $+2\%$ 64 $+2\%$ 65 $\pm2\%$ 65 $\pm2\%$ 67 $\pm2\%$ 67 $\pm2\%$ 68 $\pm2\%$ 68 $\pm2\%$ 68 $\pm2\%$ 69 $\pm2\%$ 60	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7018 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5020 4822 110 5020
81502 81503 D	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 OF156 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V2 BZY88/C6V2 12BB105A	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773 4822 130 30763 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R801 R802 R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368	3300 μF 40 V elco 270 pF + 10 % 82 nF + 2 % 2x2350 μF 63 V elco 100 nF  100 kΩ pot.meter 2x (20+80 kΩ) volume 2x 50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 1 MΩ trimmer 1 kΩ trimmer 1 kΩ trimmer 4.7 MΩ 1/4 W 4.7 kΩ trimmer	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7019 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5026 4822 110 5036 4822 110 5036 4822 110 5036
S1502 S1503 D	BF194 BF195 AA119 BZX79/C4V7 BA217 OF156 AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V8 BZY88/C6V2 BZY88/C6V2 12BB105A	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30256 4822 130 30256 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R821 R802 R821 R829 R1186,1306 R1220,1340 R12241 ÷ 1245	3300 μF 40 V elco 270 pF $+10\%$ 82 nF $+2\%$ 2x2350 μF 63 $\overline{V}$ elco 100 nF $+2\%$ 63 $\overline{V}$ elco 100 mF $+2\%$ 63 $\overline{V}$ elco 100 mF $+2\%$ 63 $\overline{V}$ elco 100 mF $+2\%$ 64 $+2\%$ 65 $\pm2\%$ 65 $\pm2\%$ 67 $\pm2\%$ 67 $\pm2\%$ 68 $\pm2\%$ 68 $\pm2\%$ 68 $\pm2\%$ 69 $\pm2\%$ 60	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7018 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 003 4822 110 5020 4822 110 6014 4822 100 1003 4822 111 6014 4822 101 6014 4822 111 5038 4822 111 5038
81502 81503 D	BF194 BF195  AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V2 BZY88/C6V2 12BB105A  abcd Ferroceptor Mains transformer	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30256 4822 130 30256 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R793,749,761 R774,786 R801 R801 R802 R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368 R1249	3300 μF 40 V elco 270 pF ±10 % 82 nF ±2 % 2x2350 μF 63 V elco 100 nF  100 kΩ pot,meter 2x (20+80 kΩ) volume 2x 50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 4.7 MΩ trimmer 4.7 kΩ trimmer	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7018 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5020 4822 110 5030 4822 111 5036 4822 113 5030 4822 113 5030
81502 81503 D	BF194 BF195  AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216 BA148 BZY88/C6V8 BA148 BZY88/C6V2 BZY88/C6V2 12BB105A  abcd Ferroceptor Mains transformer Aerial coil SW Aerial coil MW 09-Aerial coil MW 412-	4822 130 40303 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30756 4822 130 30756 4822 130 30766 4822 156 10358 4822 156 10358 4822 156 10358 4822 156 40096 4822 156 40096	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368 R1249 R1361 ÷ 1365 R1423 R1424	3300 μF 40 V elco 270 pF + 10 % 82 nF + 2 % 2x2350 μF 63 V elco 100 nF  100 kΩ pot.meter 2x (20+80 kΩ) volume 2x 50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 4.7 MΩ trimmer 4.7 kΩ trimmer 4.8 trimmer 4.9 kΩ trimmer 4.0 kΩ trimme	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7019 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5026 4822 110 5026 4822 110 5026 4822 110 5020 4822 110 5030 4822 111 5036 4822 113 6002 4822 113 6002 4822 113 6002 4822 113 8012 4822 113 8012 4822 113 8012 4822 113 8012 4822 113 8012 4822 113 8012
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81502 81503 D	BF194 BF195  AA119 BZX79/C4V7 BA217 OF156 AA119 OF156 BA216 BA216 BA148 BZY88/C6V8 BA148 BY126 BZY88/C6V2 12BB105A  abcd Ferroceptor Mains transformer Aerial coil SW Aerial coil MW Aerial coil MW 412- Aerial coil LW 312- Aerial coil LW 98-	4822 130 40303 4822 130 40304 4822 130 40229 4822 130 30773 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 3075 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 150 30766 4822 150 30766 4822 150 30766 4822 150 30766 4822 150 30766 4822 156 404527 4822 156 40527 4822 156 40527 4822 156 40528 4822 156 40097	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 -R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368 R1249 R1361 ÷ 1365 R1423 R1424 R1425 R1428	3300 μF 40 V elco 270 pF $+ 10 \%$ 82 nF $+ 2 \%$ 2x2350 μF 63 V elco 100 nF $+ 2 \%$ 2x2350 μF 63 V elco 100 nF $+ 2 \%$ 2x20+80 kΩ) volume 2x 50 kΩ bass, treble 2x20 kΩ balance $+ 2 \%$ 1 MΩ trimmer $+ 2 \%$ 1 MΩ 1/4 W $+ 2 \%$ 1 MΩ 1 MΩ 1/4 W $+ 2 \%$ 1 MΩ 1/4 W $+ 2 \%$ 1 M 1/8 W safety 100 Ω 1/2 W safety 100 Ω 5 W Safety 100 Ω 5 W Safety 17 Ω 1/8 W safety	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7019 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5026 4822 110 5026 4822 110 5026 4822 110 5020 4822 110 5030 4822 111 5030 4822 113 6002 4822 113 8012 4822 113 8012 4822 111 5033 4822 111 5033 4822 111 5033 4822 111 5034 4822 111 5034 4822 111 5034
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81502 81503 D	BF194 BF195  AA119 BZX79/C4V7 BA217 OF156 AA119 OF156 BA216 BA216 BA148 BZY88/C6V8 BA148 BY126 BZY88/C6V2 BZY88/C6V2 12BB105A  abcd Ferroceptor Mains transformer Aerial coil SW Aerial coil MW 412-Aerial coil LW Aerial coil LW Aerial coil SW Aerial coil MW Aerial coil SW Aerial coil SW Aerial coil SW Aerial coil MW Aerial coil MW Aerial coil SW Aerial coil SW Aerial coil MW Aerial coil MW Aerial coil MW Aerial coil SW Aerial coil MW Aerial coil MW Aerial coil LW	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 3075 4822 130 3075 4822 130 3075 4822 130 3075 4822 130 3075 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 150 30537	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368 R1249 R1361 ÷ 1365 R1423 R1424 R1425 R1428 R1431 R1433 R1437	3300 μF 40 V elco 270 pF + 10 % 82 nF + 2 % 2x2350 μF 63 V elco 100 nF  100 kΩ pot.meter 2x (20+80 kΩ) volume 2x 50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 1 MΩ trimmer 1 kΩ trimmer 1 kΩ trimmer 4.7 MΩ 1/4 W 4.7 kΩ trimmer 470 kΩ trimmer 470 kΩ trimmer 470 kΩ trimmer 4.7 kΩ trimmer 4.8 trimmer 4.9 kΩ trimmer 4.1 kΩ trimmer 4.1 kΩ trimmer 4.2 kΩ trimmer 4.3 kΩ trimmer 4.3 kΩ trimmer 4.4 kΩ trimmer 4.5 kΩ trimmer 4.7 kΩ trimmer 4.7 kΩ trimmer 4.8 kΩ trimmer 4.9 kΩ trimmer 4.1 kΩ trimmer 4.1 kΩ trimmer 4.2 kΩ trimmer 4.3 kQ trimmer 4.4 kΩ trimmer 4.5 kQ trimmer 4.7 kΩ trimmer 4.7 kΩ trimmer 4.8 kQ trimmer 4.9 kQ trimmer 4.9 kQ trimmer 4.9 kQ trimmer 4.0 kQ trimmer 4	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7019 4822 100 1006 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5026 4822 110 5026 4822 110 5020 4822 110 5030 4822 110 5030 4822 111 5030 4822 113 5030 4822 113 5030 4822 111 5030 4822 112 2000 4822 112 2000
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81502 81503 0	### BF194 BF195  ### BF195  ### BF195  ### BF195  ### BF195  ### BF195  ### BF196  ### BF197  ### B	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30792 4822 130 30792 4822 130 30796 4822 130 30796 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 30309 4822 156 40548 4822 156 30426 4822 156 30426 4822 156 30426 4822 156 30427 4822 156 30424 4822 156 30424	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368 R1249 R1361 ÷ 1365 R1423 R1424 R1425 R1424 R1425 R1431 R1433 R1437 R1439	3300 μF 40 V elco 270 pF $+10\%$ 82 nF $+2\%$ 2x2350 μF 63 V elco 100 nF  100 kΩ pot.meter 2x (20+80 kΩ) volume 2x50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 1 MΩ trimmer 4.7 MΩ 1/4 W 4.9 C trimmer 4.0 kΩ trimmer 4.	4822 124 7022 4822 121 5028 4822 121 5028 4822 121 5028 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 110 5026 4822 110 5036 4822 111 5036 4822 111 5036 4822 113 5036 4822 111 5046 4822 112 2006 4822 112 2006 4822 112 2006 4822 112 2006 4822 112 2016
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81502 81503 D	AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216 BA148 BZY88/C6V8 BA148 BY126 BZY88/C6V2 12BB105A   abcd Ferroceptor Mains transformer Aerial coil SW Aerial coil MW 412-Aerial coil LW Aerial coil LW Aerial coil LW Aerial coil LW Aerial coil SW 212-Aerial coil SW 212-Aerial coil SW 213-Aerial coil SW 216-Aerial coil SW 217-Aerial coil SW 218-Aerial coil SW 219-Aerial coil SW 311-Aerial coil SW 312-Aerial coil SW 313-Aerial coil SW 314-Aerial coil SW 315-Aerial coil SW 315-Aerial coil SW 316-Aerial coil SW 317-AM-IF absortion coil 34-AB-IF coil AM 318-AB-IF coil AM 318-AB-IF coil AM 318-AB-IF coil AM 318-AB-IF coil AM 328-AB-IF coil AM 338-AB-IF coil AM 348-AB-IF coil AM 35-AB-IF coil AB-IF coil AB	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 30426 4822 156 30426 4822 156 30426 4822 156 30427 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244 4822 156 30244	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R801 R802 R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368 R1249 R1361 ÷ 1365 R1423 R1424 R1425 R1423 R1424 R1425 R1428 R1431 R1433 R1437 R1439 R1440  Miscellaneous  LA411 ÷ 417 Lam	3300 μF 40 V elco 270 pF + 10 % 82 nF + 2 % 2x2350 μF 63 V elco 100 nF  100 kΩ pot.meter 2x (20+80 kΩ) volume 2x 50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 1 MΩ trimmer 1 kΩ trimmer 4.7 MΩ 1/4 W 4.7 kΩ trimmer 4.7 kΩ trimmer 4.7 kΩ trimmer 4.0 kΩ trimmer 4.0 kΩ trimmer 4.1 kΩ trimmer 4.2 kΩ trimmer 4.3 kΩ trimmer 4.5 kΩ trimmer 4.6 kΩ 1/4 W 4.7 kΩ trimmer 4.7 kΩ trimmer 4.8 kΩ trimmer 4.9 kΩ trimmer 4.1 kΩ trimmer 4.1 kΩ trimmer 4.2 kΩ trimmer 4.3 kΩ trimmer 4.4 kΩ trimmer 4.5 kΩ trimmer 4.6 kΩ 1/4 W 4.7 kΩ trimmer 4.7 kΩ trimmer 4.8 kΩ 1/4 W 4.9 kΩ trimmer 4.9 kΩ trimmer 1 kΩ 1 kW safety 100 kΩ 1/2 kS safety 100 kΩ 5 kW safety 100 kW sa	4822 124 7023 4822 122 302 4822 121 5028 4822 124 7019 4822 105 1004 4822 105 1004 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5020 4822 110 5030 4822 111 5030 4822 113 5030 4822 113 5030 4822 113 5030 4822 111 5030 4822 111 5030 4822 111 2000 4822 111 2000 4822 112 2000
81502 81503 D	AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216 BA216 BA216 BA216 BA148 BY126 BZY88/C6V2 BZY88/C6V2 BZY88/C6V2 12BB105A   abcd Ferroceptor Mains transformer Aerial coil SW Aerial coil MW O9 Aerial coil LW AFI ABORTION ABI AFI ABORTION ABI	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30266 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40548 4822 156 30427 4822 156 30424 4822 156 30427 4822 156 30426 4822 156 30426 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30424 4822 156 30427 4822 156 30427 4822 156 30426 4822 156 30426 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30426 4822 156 30427 4822 156 30426 4822 156 30427 4822 156 30427 4822 156 30426 4822 156 30424	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368 R1249 R1361 ÷ 1365 R1423 R1424 R1425 R1424 R1425 R1424 R1425 R1428 R1431 R1433 R1437 R1439 R1440  Miscellaneous  LA411 ÷ 417 Lam LA418,422 Lam	3300 μF 40 V elco 270 pF + 10 % 82 nF + 2 % 2x2350 μF 63 V elco 100 nF  100 kΩ pot.meter 2x (20+80 kΩ) volume 2x 50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 1 MΩ trimmer 4.7 MΩ 1/4 W 4.80 trimmer 4.7 kΩ trimmer 4.0 kΩ trimmer 4.1 kΩ trimmer 1 Ω 1 W 1.2 Ω 2.6 W wire 3.9 Ω 5 W wire 1 Ω 1 W 100 Ω 1/8 W safety 100 Ω 1/8 W safety 100 Ω 5 W wire 330 Ω 5 W wire 330 Ω 5 W wire 1 kΩ trimmer 1 kΩ trimmer 1 kΩ trimmer 1 kΩ 5 W 56 Ω 5 W	4822 124 7023 4822 121 5028 4822 121 5028 4822 121 5028 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 110 5020 4822 111 5030 4822 112 2000 4822 112 2000
81502 81503 D	BF194 BF195  AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BY126 BZY88/C6V2 BZY88/C6V2 12BB105A   Ferroceptor Mains transformer Aerial coil SW Aerial coil MW Aerial coil LW Aerial coil W Aerial coil W Aerial coil W Aerial coil SW Aerial coil LW Aerial coil SW Aerial coil LW AFI absortion coil 24 AM-IF absortion coil 861 Oscillator coil SW Oscillator coil SW Oscillator coil MW S13 Oscillator coil MW F coil AM F coil AM F coil AM F detection coil AM Absortion coil F-coil FM Detection coil FM S5 S10 S	4822 130 40229 4822 130 40229 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30256 4822 130 30702 4822 130 30256 4822 130 30792 4822 130 30792 4822 130 30556 4822 130 30556 4822 130 30556 4822 130 30766 4822 156 40527 4822 156 40528 4822 156 40528 4822 156 40528 4822 156 30309 4822 156 30244 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30447 4822 156 30447 4822 156 30444 4822 156 30447 4822 156 30444 4822 156 30447 4822 156 30447 4822 156 30447 4822 156 30444 4822 156 30447 4822 156 30447 4822 156 30447 4822 156 30447 4822 156 30444 4822 156 30447 4822 156 30447 4822 156 30447 4822 156 30447 4822 156 30447 4822 156 30447 4822 156 30447	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R821 R802 R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368 R1249 R1361 ÷ 1365 R1423 R1424 R1425 R1423 R1424 R1425 R1428 R1431 R1433 R1437 R1439 R1440  Miscellaneous  LA411 ÷ 417 Lam LA418,422 Lam LA418,422 Lam	3300 μF 40 V elco 270 pF + 10 % 82 nF + 2 % 2x2350 μF 63 V elco 100 nF  100 kΩ pot.meter 2x (20+80 kΩ) volume 2x 50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 4.8 trimmer 4.7 kΩ trimmer 4.7 kΩ trimmer 4.0 kΩ trimmer 4.1 kΩ trimmer 4.1 kΩ trimmer 4.2 kΩ trimmer 4.3 kΩ trimmer 4.7 kΩ trimmer 4.8 trimmer 1 Ω 1 W 1.2 Ω 2.6 W wire 1 Ω 1 W 1.2 Ω 2.6 W wire 1 Ω 1 W 1.2 Ω 1/8 W safety 100 Ω 1/8 W safety 100 Ω 1/8 W safety 100 Ω 5 W 27 Ω 1/8 W safety 120 Ω 5 W wire 1 kΩ trimmer 1 kΩ 5 W wire 1 kΩ trimmer 1 kΩ trimmer 1 kΩ 5 W wire 1 kΩ trimmer 1 kΩ 5 W one	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7018 4822 120 4016 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5022 4822 110 5022 4822 110 5022 4822 110 5024 4822 111 5034 4822 113 6002 4822 113 5034 4822 113 5034 4822 113 5034 4822 111 5034 4822 111 5034 4822 111 5034 4822 112 2005 4822 112 2006 4822 112 2007 4822 112 2007
81502 81503 D	AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BY126 BZY88/C6V2 12BB105A   abcd Ferroceptor Mains transformer Aerial coil SW Aerial coil MW 412-Aerial coil LW Aerial coil SW 212-Aerial coil W 412-Aerial coil SW 292-Aerial coil MW 412-Ail Coil SW 412-Ail Coil SW 412-Ail Coil SW 412-Ail Coil SW 413-Ail Coil SW 414-Ail Coil SW 415-Ail Coil SW 416-Ail Coil SW 417-Ail Coil AII 417-Ail Feiction coil SW 418-Ail Coil AII 418-Ail Coil AII 419-Ail Coil A	4822 130 40229 4822 130 30773 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 156 3037  4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 30426 4822 156 30426 4822 156 30426 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30424 4822 156 30427	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368 R1249 R1361 ÷ 1365 R1423 R1424 R1425 R1423 R1424 R1425 R1428 R1431 R1433 R1437 R1439 R1440  Miscellaneous  LA411 ÷ 417 Lam LA418,422 Lam LA419,427 LA420,421,423	3300 μF 40 V elco 270 pF + 10 % 82 nF + 2 % 2x2350 μF 63 V elco 100 nF  100 kΩ pot.meter 2x (20+80 kΩ) volume 2x 50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 1 MΩ trimmer 1 kΩ trimmer 4.7 MΩ 1/4 W 4.9 kΩ trimmer 4.0 kΩ trimmer 4.0 kΩ trimmer 4.1 kΩ trimmer 4.2 LΩ 1 W 1.2 Ω 2.6 W wire 3.9 Ω 5 W wire 1 Ω 1 W 1.2 Ω 2.6 W wire 1 Ω 1 W 1.2 Ω 1 W 1.2 Ω 2.6 W wire 3.9 Ω 5 W wire 1 Ω 1 W 1.0 Ω 1/8 W safety 100 Ω 1/8 W safety 100 Ω 1/8 W safety 100 Ω 5 W 27 Ω 1/8 W safety 100 Ω 5 W wire 330 Ω 5 W wire 1 kΩ trimmer 1 kΩ trimmer 1 kΩ trimmer 1 kΩ 5 W 56 Ω 5 W	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7019 4822 105 1004 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5026 4822 110 5026 4822 111 5036 4822 113 8012 4822 113 8012 4822 111 5013 4822 111 5013 4822 112 2006 4822 112 2007 4822 112 2006 4822 112 2006 4822 112 2007 4822 112 2007 4822 112 2007 4822 112 2007 4822 112 2007 4822 134 4033 4822 134 4033 4822 134 4033 4822 134 4033 4822 134 4033 4822 134 4033 4822 134 4033
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81502 81503 D	AA119 BZX79/C4V7 BA217 OF156 AA119 2x AA119 OF156 BA216 BA216 BA216 BA148 BZY88/C6V8 BA148 BY126 BZY88/C6V2 12BB105A   abcd Ferroceptor Mains transformer Aerial coil SW Aerial coil MW 412-Aerial coil LW Aerial coil SW 212-Aerial coil W 412-Aerial coil SW 292-Aerial coil MW 412-Ail Coil SW 412-Ail Coil SW 412-Ail Coil SW 412-Ail Coil SW 413-Ail Coil SW 414-Ail Coil SW 415-Ail Coil SW 416-Ail Coil SW 417-Ail Coil AII 417-Ail Feiction coil SW 418-Ail Coil AII 418-Ail Coil AII 419-Ail Coil A	4822 130 40229 4822 130 30773 4822 130 30773 4822 130 30703 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30265 4822 130 30702 4822 130 30702 4822 130 30702 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 3079 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 130 30766 4822 156 3037  4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 40527 4822 156 30426 4822 156 30426 4822 156 30426 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30427 4822 156 30424 4822 156 30427	C1056,1126 C1085,1092 C1101,1102 C1407 C1408  -R-  R431 ÷ 436 R440 R441,442 R443 R702 R703 R716 R717,718 R722 R737,749,761 R774,786 R801 R802 R821 R839 R1186,1306 R1220,1340 R1241 ÷ 1245 R1248,1368 R1249 R1361 ÷ 1365 R1423 R1424 R1425 R1423 R1424 R1425 R1428 R1431 R1433 R1437 R1439 R1440  Miscellaneous  LA411 ÷ 417 Lam LA418,422 Lam LA419,427 LA420,421,423	3300 μF 40 V elco 270 pF + 10 % 82 nF + 2 % 2x2350 μF 63 V elco 100 nF  100 kΩ pot.meter 2x (20+80 kΩ) volume 2x 50 kΩ bass, treble 2x20 kΩ balance 10 MΩ 1/8 W 4.7 MΩ 1/4 W 1 MΩ trimmer 4.7 MΩ 1/4 W 4.8 trimmer 4.0 kΩ trimmer 4.0 kΩ trimmer 4.0 kΩ trimmer 4.1 kΩ trimmer 1 Ω 1 W 1.2 Ω 2.6 W wire 3.9 Ω 5 W wire 1 Ω 1 W 100 Ω 1/8 W safety 100 Ω 1/8 W safety 100 Ω 5 W 27 Ω 1/8 W safety 100 Ω 5 W wire 330 Ω 5 W wire 330 Ω 5 W wire 330 Ω 5 W wire 1 kΩ trimmer 1 kΩ 5 W 56 Ω 5 W  P 6 V 40 mA P 6 V 30 mA 12 V 30 mA 12 V 30 mA 12 V 30 mA 2.55 A	4822 124 7023 4822 121 5028 4822 121 5028 4822 124 7019 4822 105 1004 4822 105 1004 4822 105 1004 4822 105 1004 4822 101 5026 4822 110 5026 4822 111 5036 4822 113 8012 4822 113 8012 4822 111 5013 4822 111 5013 4822 112 2006 4822 112 2007 4822 112 2006 4822 112 2006 4822 112 2007 4822 112 2007 4822 112 2007 4822 112 2007 4822 112 2007 4822 134 4033 4822 134 4033 4822 134 4033 4822 134 4033 4822 134 4033 4822 134 4033 4822 134 4033

## PHILIPS



Service-mededeling R 232

Hifi Tuner Amplifier 22 RH720

Maart 1973

- 1. Om de inschakeldrempel van de elektronische kortsluitbeveiling te verhogen zijn R1236, R1356 veranderd van 1,2 k Ohm in 1 k Ohm D
- 2. Om te voorkomen dat de FET transistoren TS495, TS496 in vochtige omgeving schakelen, is D516 vervangen door een weerstand van 1 M ohm□
- 3. Om te voorkomen dat de ferroceptor schakelimpulsen van de monostabiele multivibrator TS490, 491 opvangt is R889 gewijzigd van 180 k Ohm in 27 k Ohm□
- 4. Om de padding afwijking bij MG te verminderen wordt C 626 niet meer toegepast.
- 5. Ter vermindering van de modulatiebrom op FM bij ca. 88 MHz is C1412 (47 uF, 63 V, O) toegevoegd tussen knooppunt CTS1381, R1431, R1433 en massa.
- 6. Om de inschakeldrempel van de pilottoon bij stereo-ontvangst goed te leggen is R830 gewijzigd van 6,2 k Ohm naar 7,5 k Ohm □
- 7. Om het spontaan defect raken van smeltveiligheden, worden i.p.v. snelle, nu trage veiligheden van 2,5 A toegepast met als bestelnummer 4822 253 30026.

  Voor PL nummers van bovenstaande wijzigingen zie tabel 1.

## Correcties dokumentatie:

R1145, R1265 moeten 2,7 k Ohm D zijn.

R1216, R1336 moet metaalfilmweerstand van 470 ohm zijn (5322 116 50545)

R1428 moet veiligheidsweerstand van 2,2, k Ohm zijn (4822 110 53116)

R1425 moet 120 ohm zijn (4922 112 20083)

Steker ferroceptor moet 4822 265 30122 zijn.

Voor hoofdtelefoon/microfoondeksel is het bestelnummer van de veer opgenomen. Dit nummer luidt: 4822 492 40532.

Tabel 1

## Wijzigingen

	1	2	3	4	5	6	7
22RH720/00	PL01/02	PL03/04	PL05	PL06	*	*	*
22RH720/15	PL00	PL00	PL01	PLO2	*	*	*
22RH720/16	PL00	PL00	PLOO	PL01	*	*	*
22RH720/22	PL01	PL01	PLO2	PLO3	*	*	*
22RH720/33	PL00	PL00	PL01	PL01	*	*	*

Op bovengenoemde datum waren de PL-codes van wijzigingen 5, 6 en 7 nog niet bekend.





R 238

HIFI TUNER AMPLIFIER 22 RH 720

april 1973

- Om ratel te verminderen is C1409 (820 nF 4822 121 40073) toegevoegd tussen knooppunt C1408, VL426 en massa.
- Teneinde te voorkomen dat de ferroceptor los gaat zitten, dient men het plastic stuk draadeind van de pluggen van de ferroceptor weg te snijden, zodat de totale ferroceptor dieper in de aansluitingen kan.
- Het bestelnummer van de ferroceptor S407 moet 4822 158 60349 zijn.
- Een afregeling welke eenvoudiger is dan aangegeven in de 22RH720 is voor de FM-MF is in onderstaande trimtabel aangegeven.

		<b>(2)</b>	UVWXXTATB	Y	via 100 kΩ max.+sym
FM (87.5-104 MHz)	10.7 MHz △f = 200 kHz (50 Hz) via 33 nF	<b>(\$)</b>		Z	
		<ul><li>♠</li><li>♦</li><li>♦</li></ul>		W X	max.via 100 kΩ  4 max.+sym.
		₩.		TA TB+	



Dit is de basis van TS481

PHILIPS NEDERLAND B.V. - EINDHOVEN Technische Service

R 257/1

Type 22 RH 720

Datum

januari 1974

Een extra winding is om de afstemas gelegd. De aandrijfsnaar is hierdoor verlengd van 970 tot 1000 mm. Reden: Het slipkoppel was te laag.

- 1. C1051 en C1121 zijn parallel gemonteerd aan respectievelijk R1217 en R1337 ter vermindering van instabiliteit op de ferroceptor.

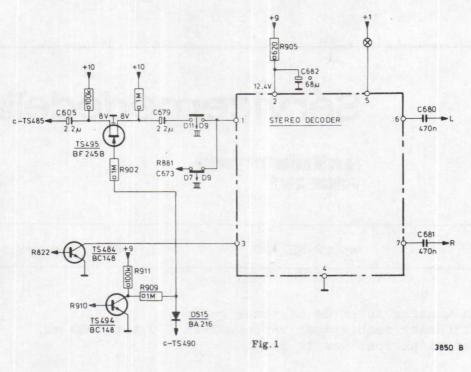
D518 is overbodig geworden door de gewijzigde schakeling volgens punt 2.

- 4. Gewijzigd: TS952,962 worden BC149b (4822 130 40313) i.p.v.
  BC148b

  De volgende weerstanden worden metaalfilmweerstanden:
  R1175,R1277 worden 5322 116 54373
  R1159,R1279 worden 4822 116 51129
  R1161,R1281 worden 4822 116 51131
  R1184,R1304 worden 4822 116 51117
  R1185,R1305 worden 4822 116 51132
- 5. R1238,1358 worden 8,2 kohm i.p.v. 6,8 kohm
- 6. Het vermogen van R1249 is vergroot tot 8 W (4822 113 80119)







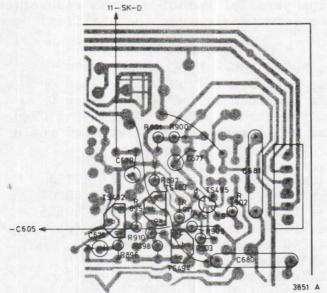
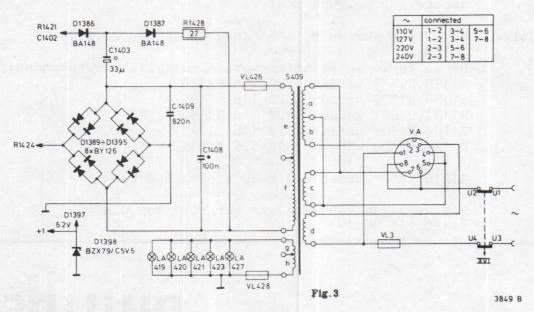


Fig. 2



Published in Heiloo, Holland.

PHILIPS NEDERLAND B.V. - EINDHOVEN Technische Service

et. R 257/2

22 RH 720

Datum

januari 1974

Voor PL nummers van wijziging 1,2 en 3 zie tabel 1.

Gelieve het voedingsgedeelte van het principeschema, dat in de documentatie foutief is weergegeven, als volgt te corrigeren: de verbinding tussen de kathode van D1398 en S409 komt te vervallen. Het voedingspunt +1 komt aan de kathode van D1398 en anode D1397, inplaats van aan R1428 (zie fig.3)





PHILIPS NEDERLAND B.V. - EINDHOVEN TECHNISCHE SERVICE

ef. R 260

Type 22 RH 720

Datum april 1974

De draadaansluiting van de tip-toetsbalk is gewijzigd. De opsteekbusjes zijn vervangen door krimpkous.

De tip-toetsbalk, compleet met aansluitdraden en krimpkousverbindingen, wordt geleverd onder het bestaande bestelnummer. Om de niet bedrade tip-toetsbalk toe te kunnen passen in de gewijzigde apparaten worden de opsteekbusjes geleverd onder bestelnummer 4822 705 15427.



**PHILIPS** 

PHILIPS NEDERLAND B.V. - EINDHOVEN TECHNISCHE SERVICE

Ref R 279

Type 22RH720

Datum maart 1975

- De onderdrukkingstijd van het signaal gedurende het schakelen van de voorkeuze-instellingen is enigzins gewijzigd, R887 wordt nu 33kohm
- Om de ratel bij geringe geluidssterkte te verminderen is C1413, 560nF 4822 121 40068 parallel aan C1409 toegevoegd.
- De dioden met typenummer BY126 zijn vervangen door DS130YB. Bij vervanging van een van de dioden kan altijd BY126 gebruikt worden.
- Transistoren met typenummer BC158b zijn vervangen door BC558b.
- TS484-494 zijn vervangen door 2SC1312F of door BC548. Deze typenummers kunnen in deze situatie door elkaar gebruikt worden.
- In verband met de wijziging van de transformator wordt geleverd, de oude transformator 4822 145 40145 (E-kern) en de nieuwe transformator 4822 145 40154 (C-kern)



**PHILIPS**