

Service  
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Service

RADIO- EN TELEVISIESERVICE  
KEES van de MORTEL  
DOORSCHUWELSTRAAT 14  
3-HERTOGENBOSCH  
3713 ZW - TEL. 0475 38224



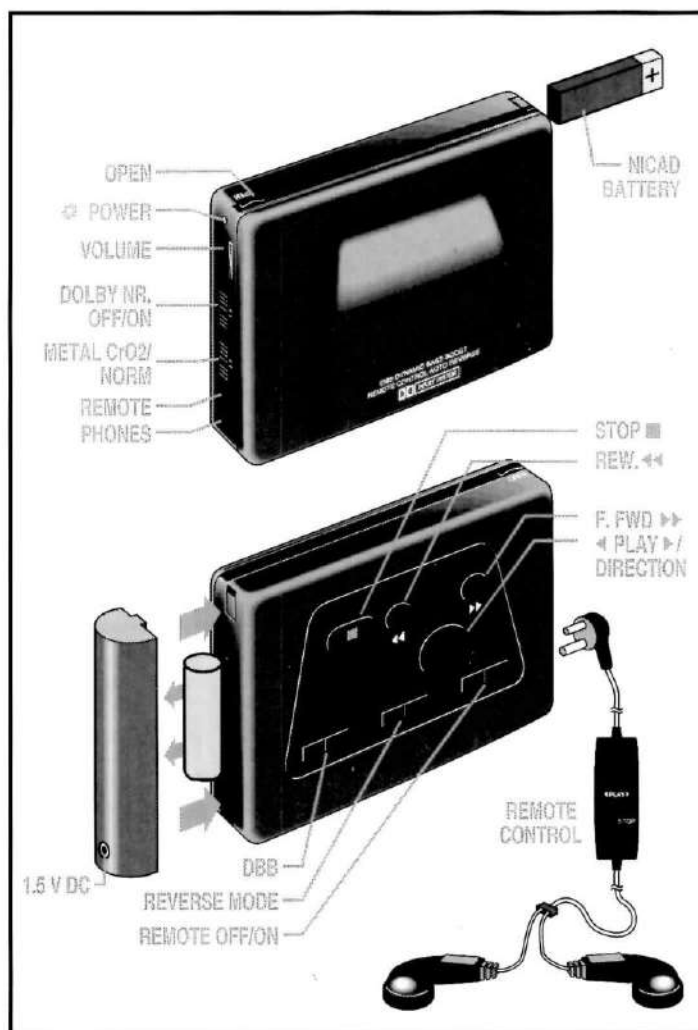
# Service Manual

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# PHILIPS



## SPECIFICATIONS

### GENERAL

Battery : DC1.2V (600mA NiCd )  
DC1.5V ('AA' cell)

### AMPLIFIER

Frequency response within +2 to -6dB : 125Hz - 10kHz  
Headphone output at 16Ω : 5mW (1kHz 0dB)  
Current consumption at DC1.5V : 200mA(play 0.5 VR max)  
: 280mA (F.F & Rew)

### CASSETTE RECORDER

Number of track : 2 x 2 stereo  
Tape speed : 4.76cm/sec ±3%  
Wow & flutter : <0.5%  
Fast-wind time C60 : 200 sec  
Torque : 20 - 50 g-cm (Play)  
: >40 g-cm (F.F & Rew)

## DISASSEMBLY INSTRUCTION

1. Remove the three screws (A)
2. Remove six screw (B)
3. Remove the battery cover
4. Remove two screws (C)
5. Unsolder six position (see fig. 1)
6. Remove two screws (D)

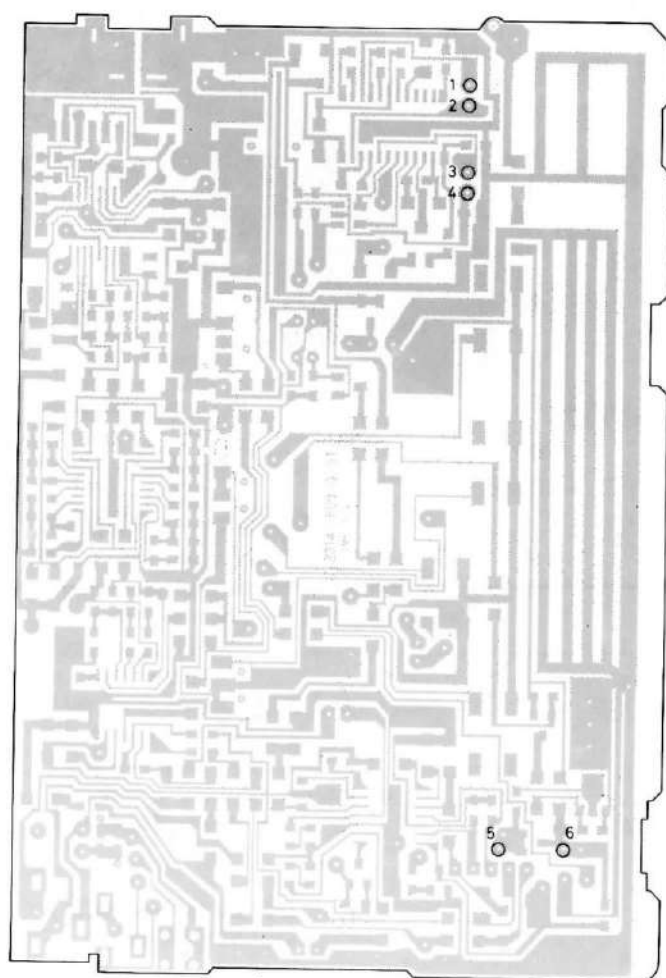
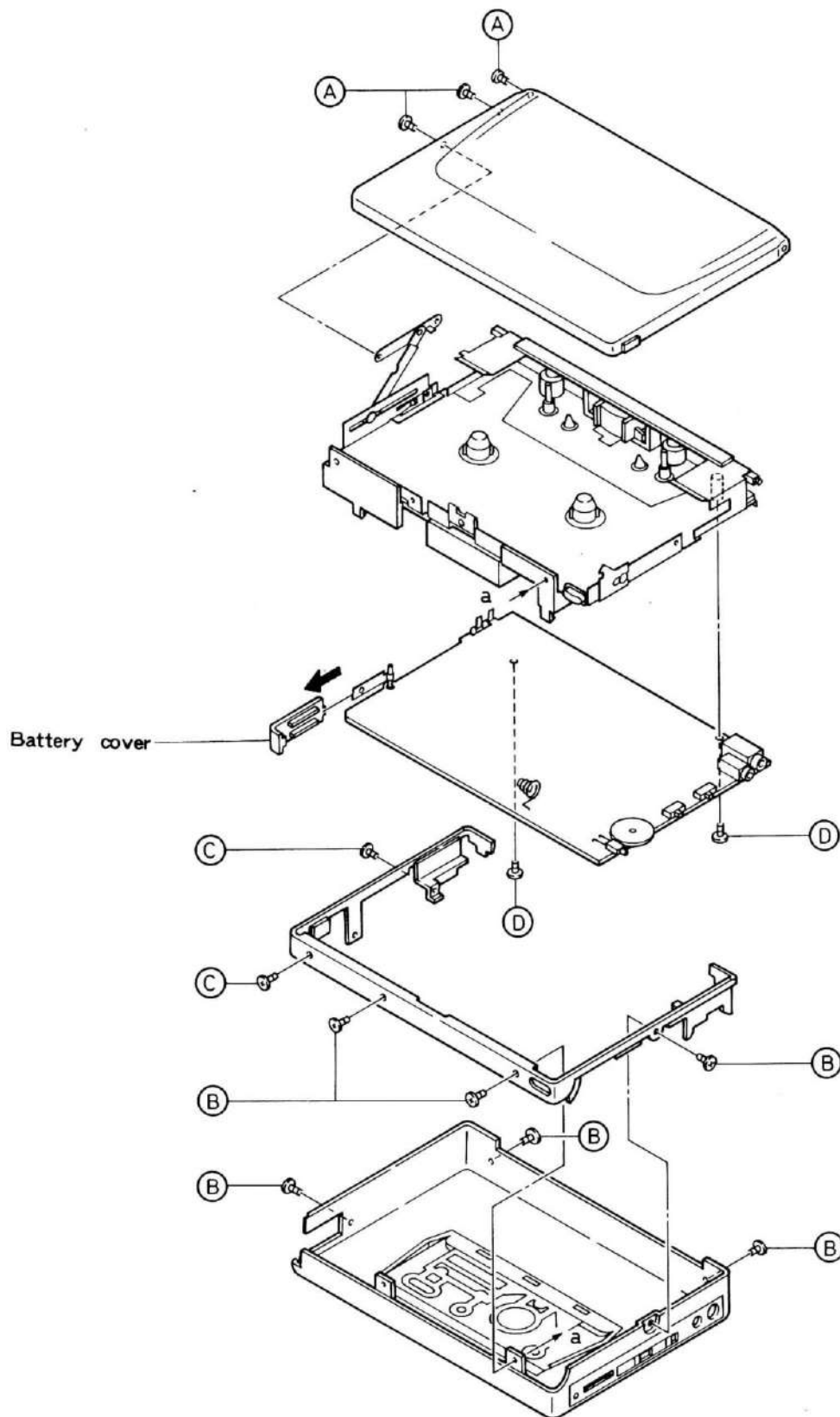


fig 1

# DISASSEMBLY DRAWING



**GB WARNING**

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

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

**F ATTENTION**

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

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

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

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

**ESD**



**NL WAARSCHUWING**

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

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

Houd componenten en hulpmiddelen ook op hetzelfde potentiaal.

**I AVVERTIMENTO**

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

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

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

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

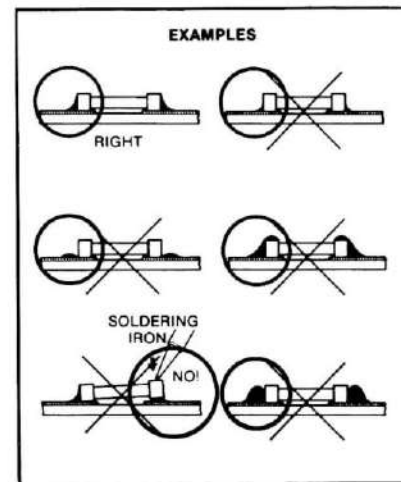
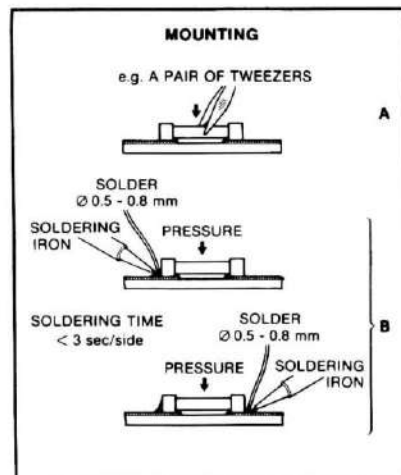
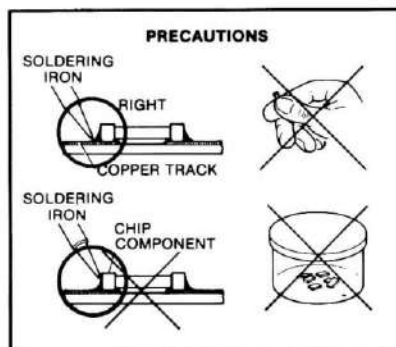
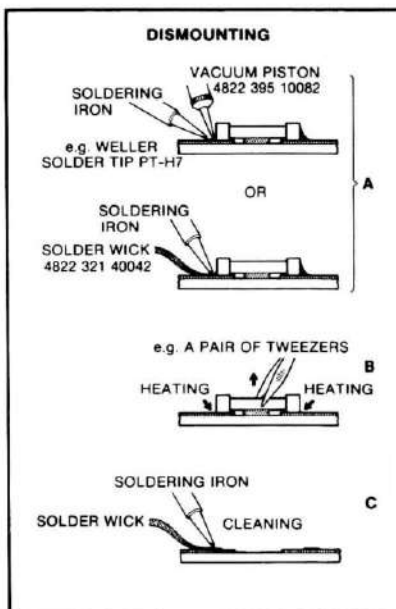
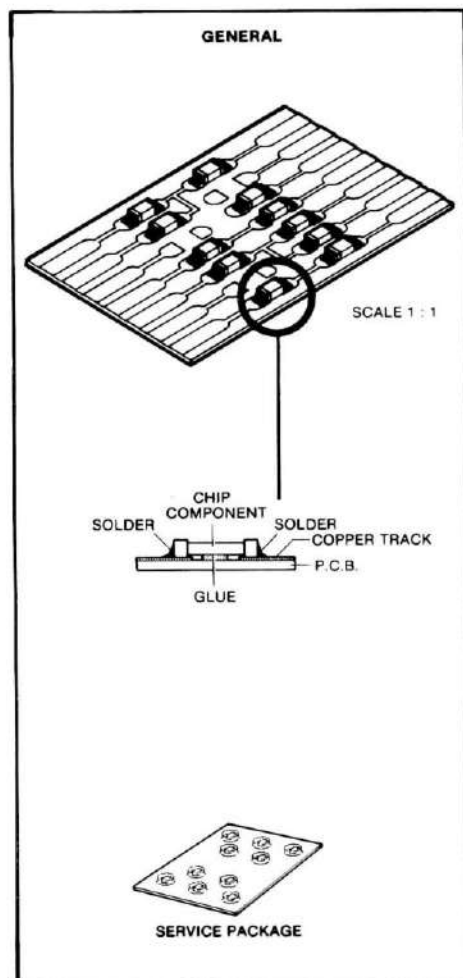
**D WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).

Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.

Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

**HANDLING CHIP COMPONENTS**



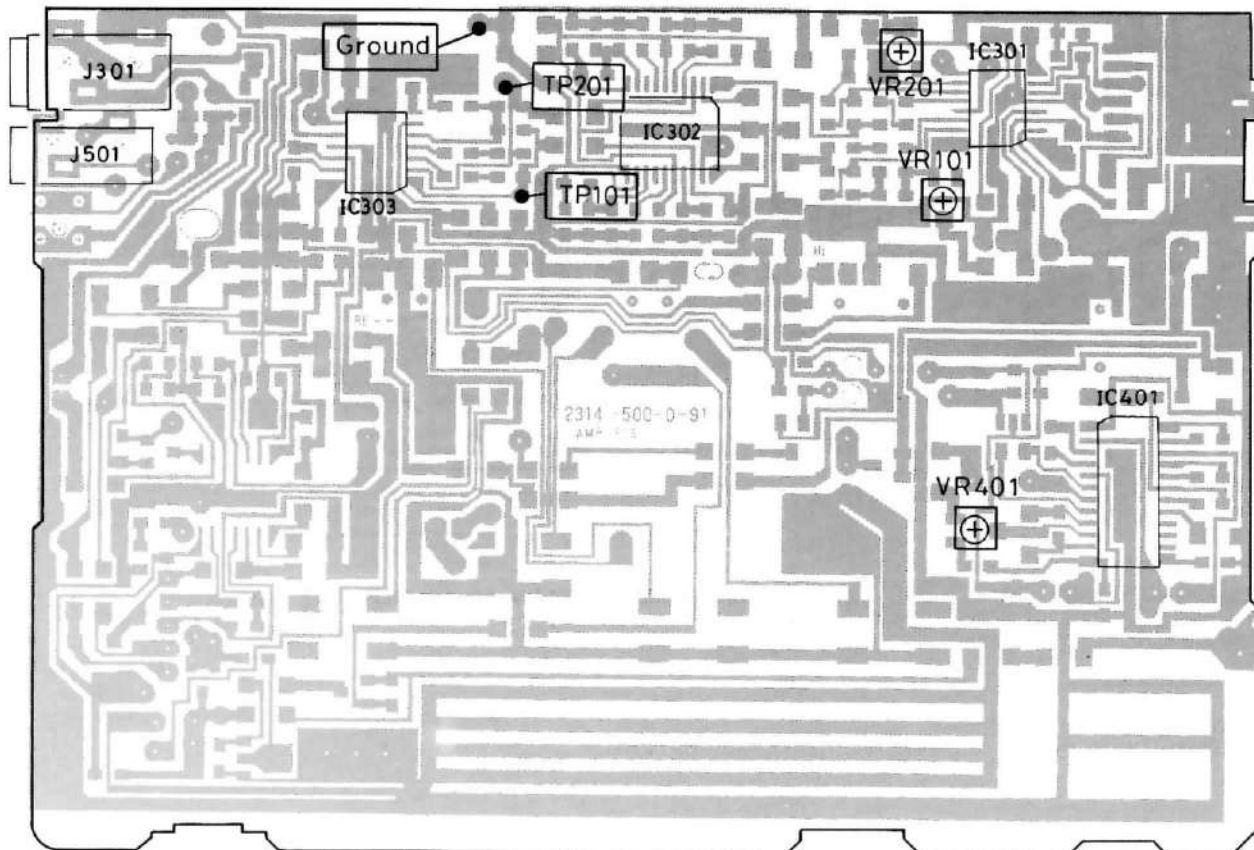
ADJUSTMENT	CASSETTE	INPUT	SK..	ADJUST WITH	READ ON	ADJUST TO
Dolby level	315Hz SBC 420*	—	Tape @	VR101 (VR201)	mV-meter #	300mV

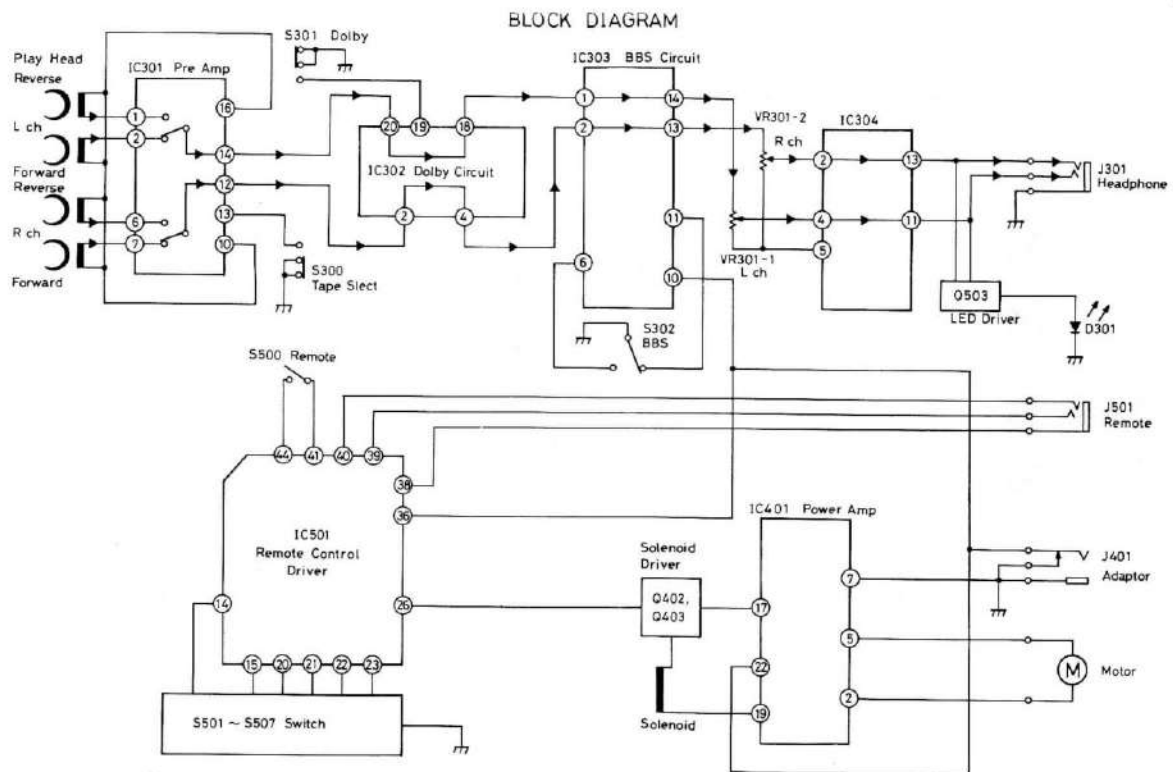
- \* SBC 420 : 4822 397 30071  
# Across TP101 (L ch), TP201 (R ch) and ground  
(...) For right channel adjustment  
@ Tape selector switch: CR02/Metal position

ADJUSTMENT	CASSETTE	SK...	TAPE DECK POSITION	MEASURE ON	READ ON	ADJUST WITH	ADJUST TO
Motor speed (normal)	3150Hz SBC 420*	Tape	Play fwd	*1	Wow and Flutter meter	VR401	**a

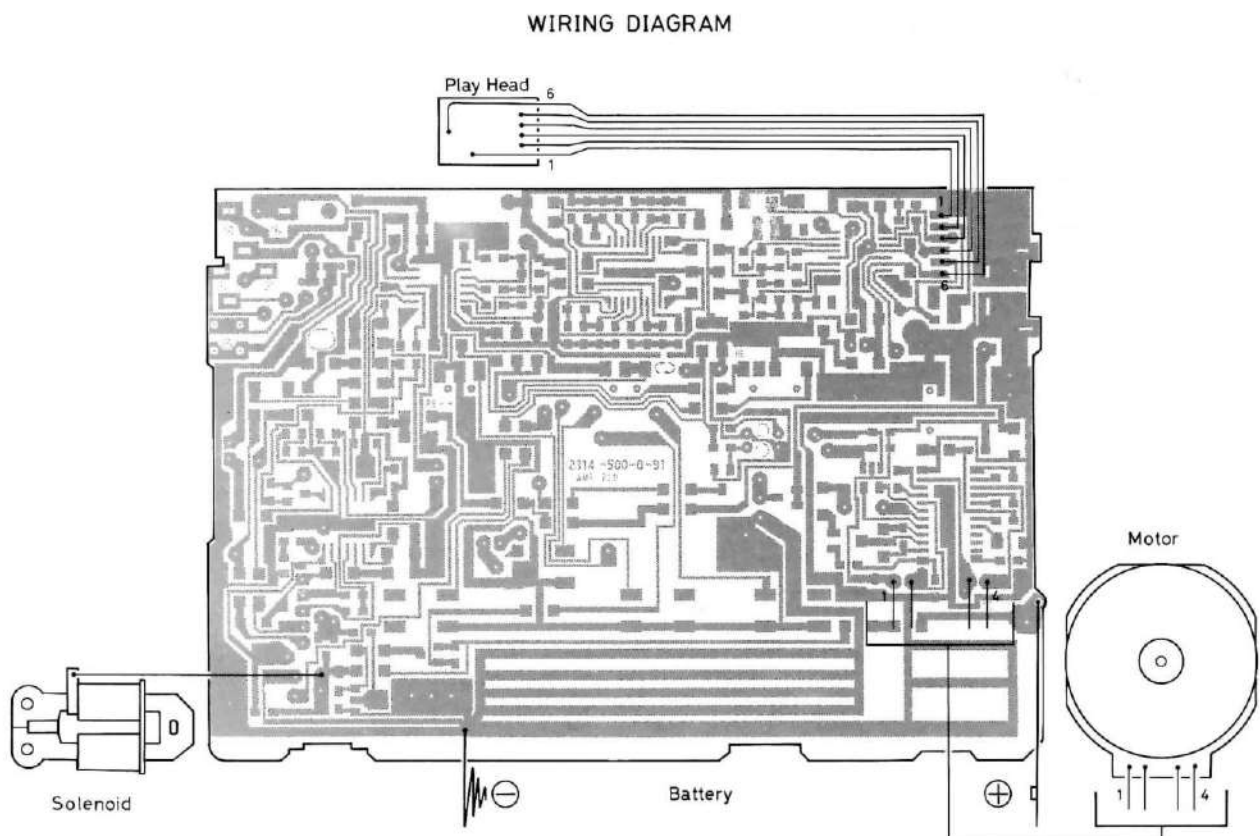
- \* SBC 420 : 4822 397 30071  
\*\*a The maximum permissible speed deviation is 2%.  
Moreover, the wow and flutter value can be read.  
This value should not exceed 0.35%.  
\*1 Connected across the headphone jack parallel with a 16Ω non-reactive dummy load.

MAIN PCB BOTOM VIEW





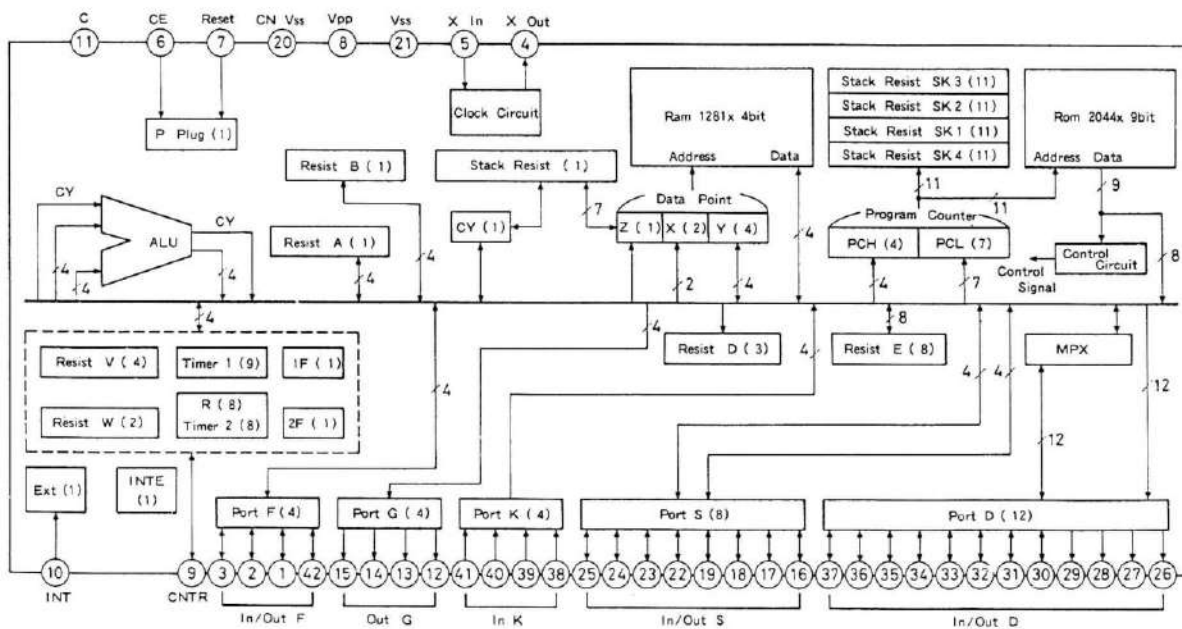
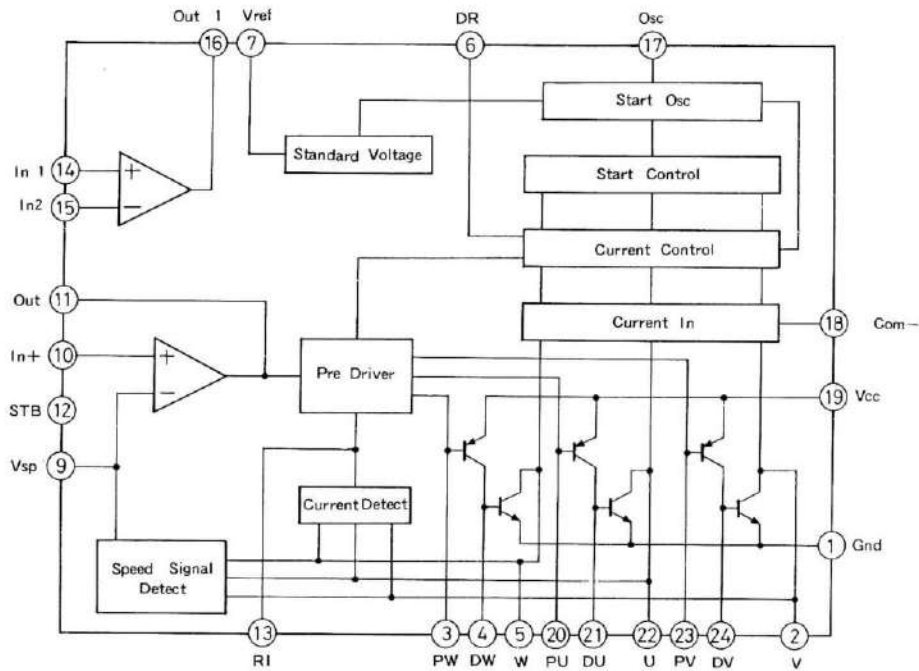
PD-2314



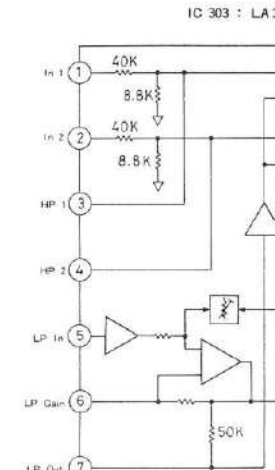
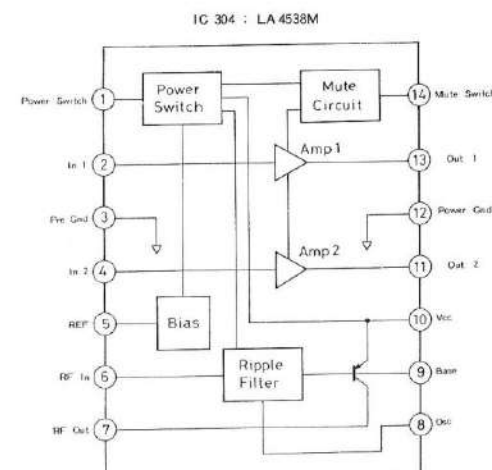
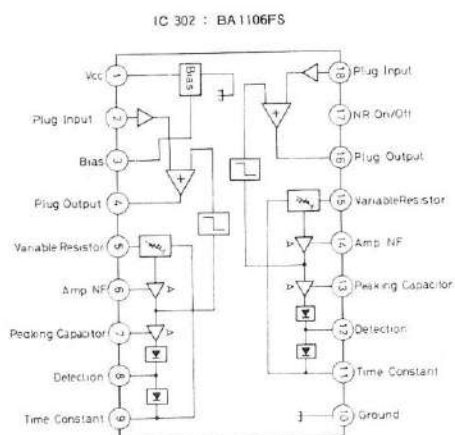
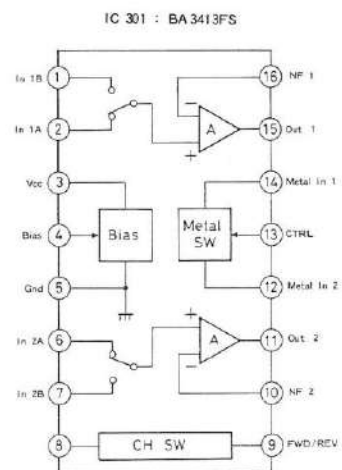
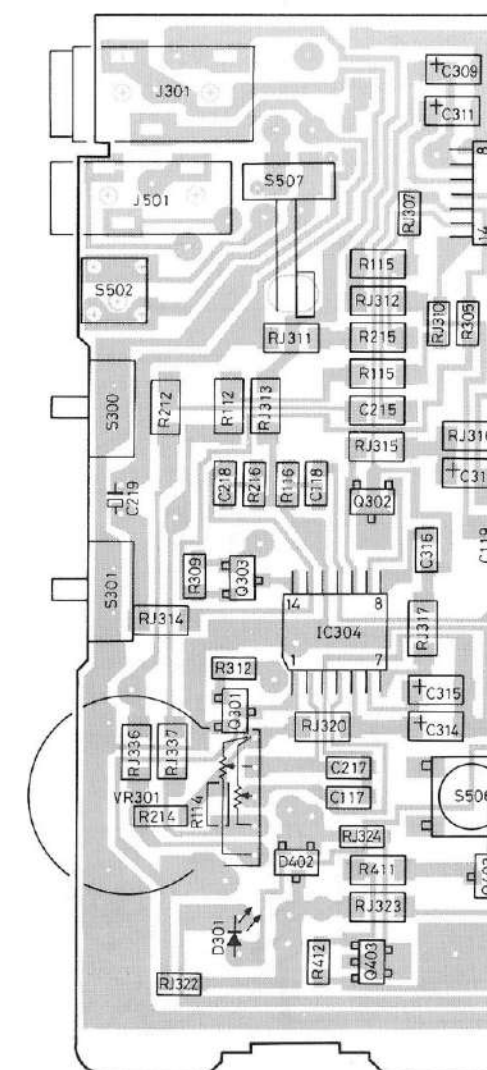
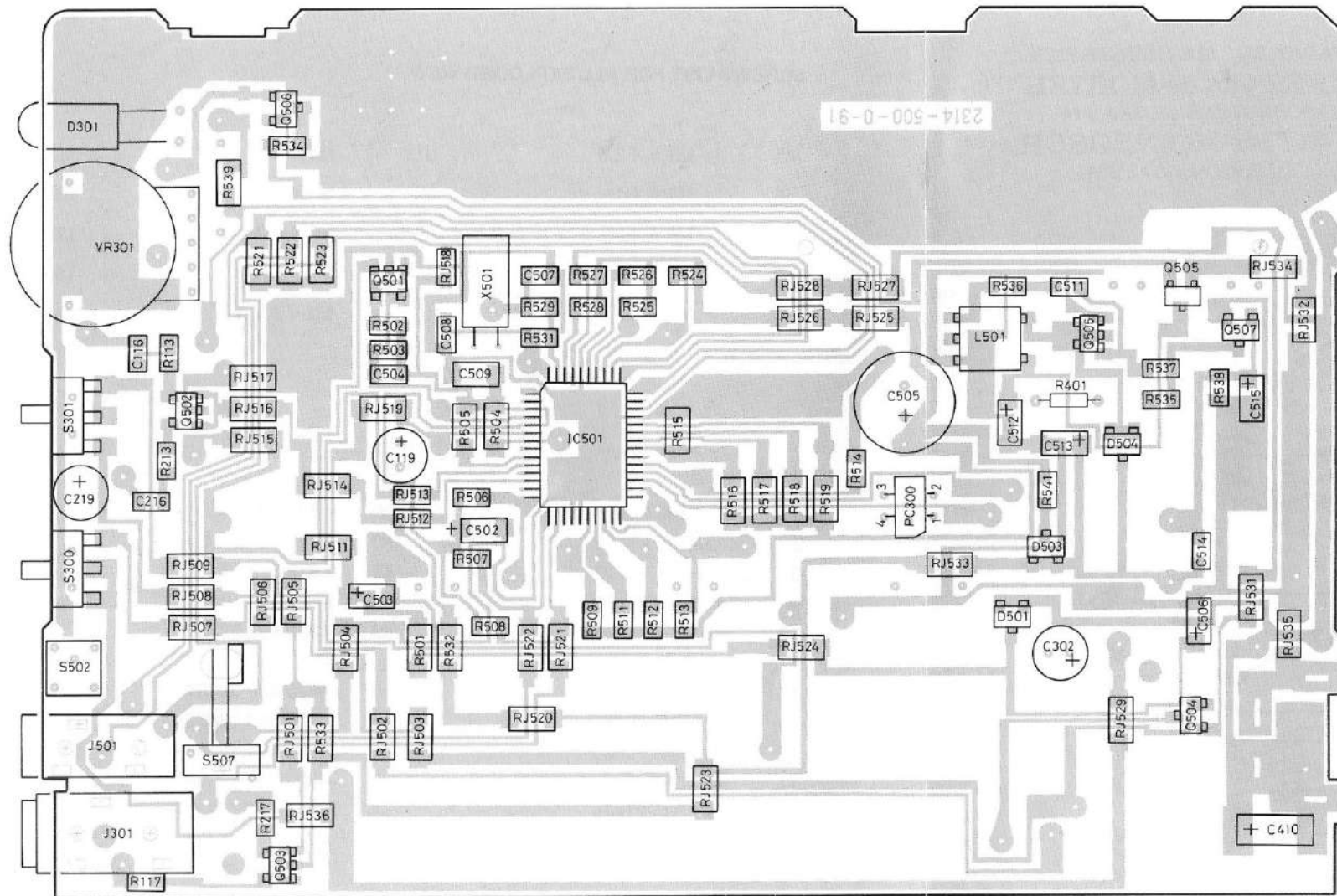


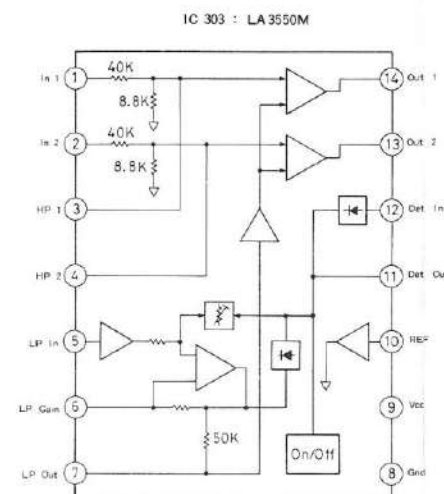
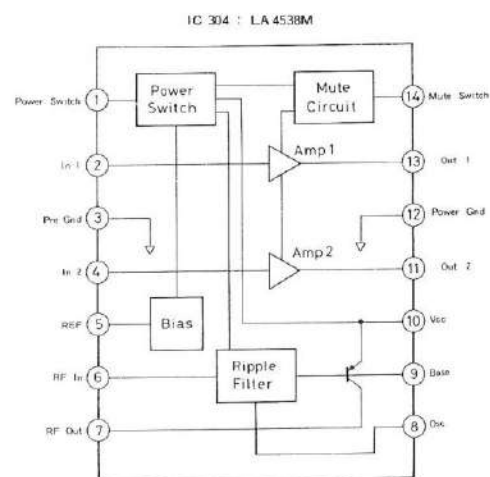
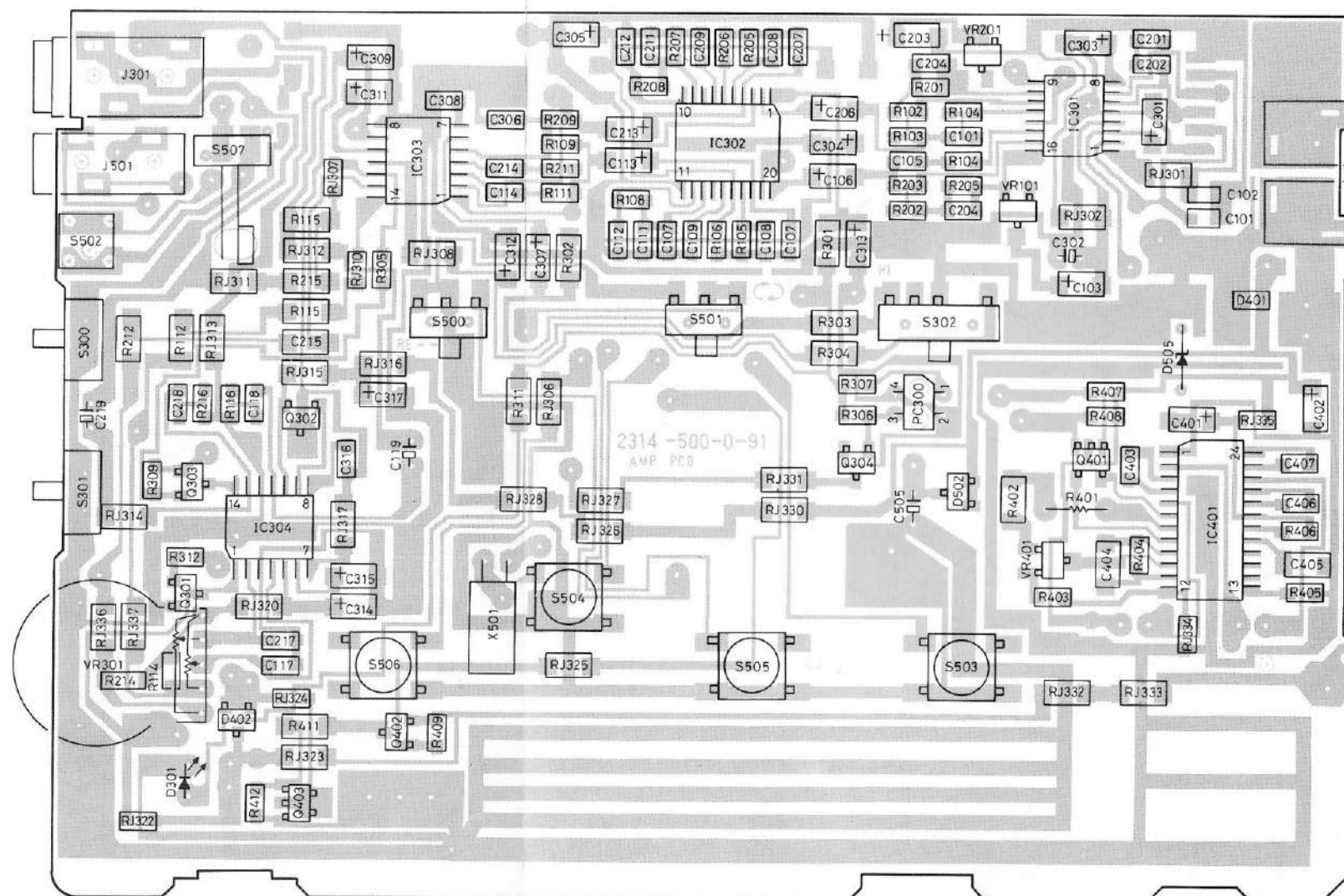




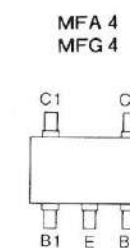
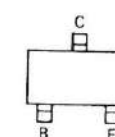


# MAIN PCB PARTS LOCATION TOP VIEW



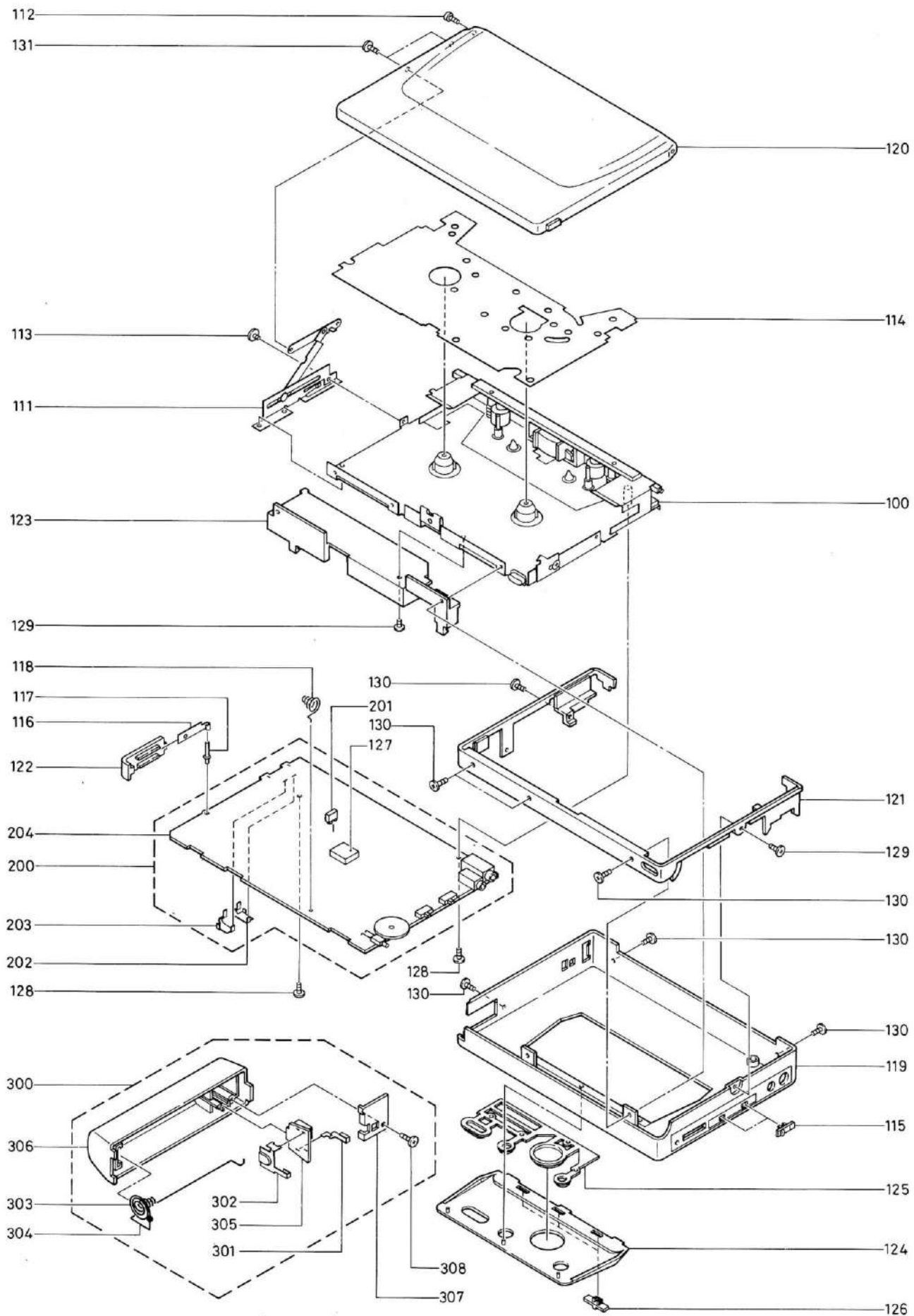


2SC 2412  
2SB 1301  
DTA 114TK  
DTC 114TK  
2SD 1952  
2SA 1037



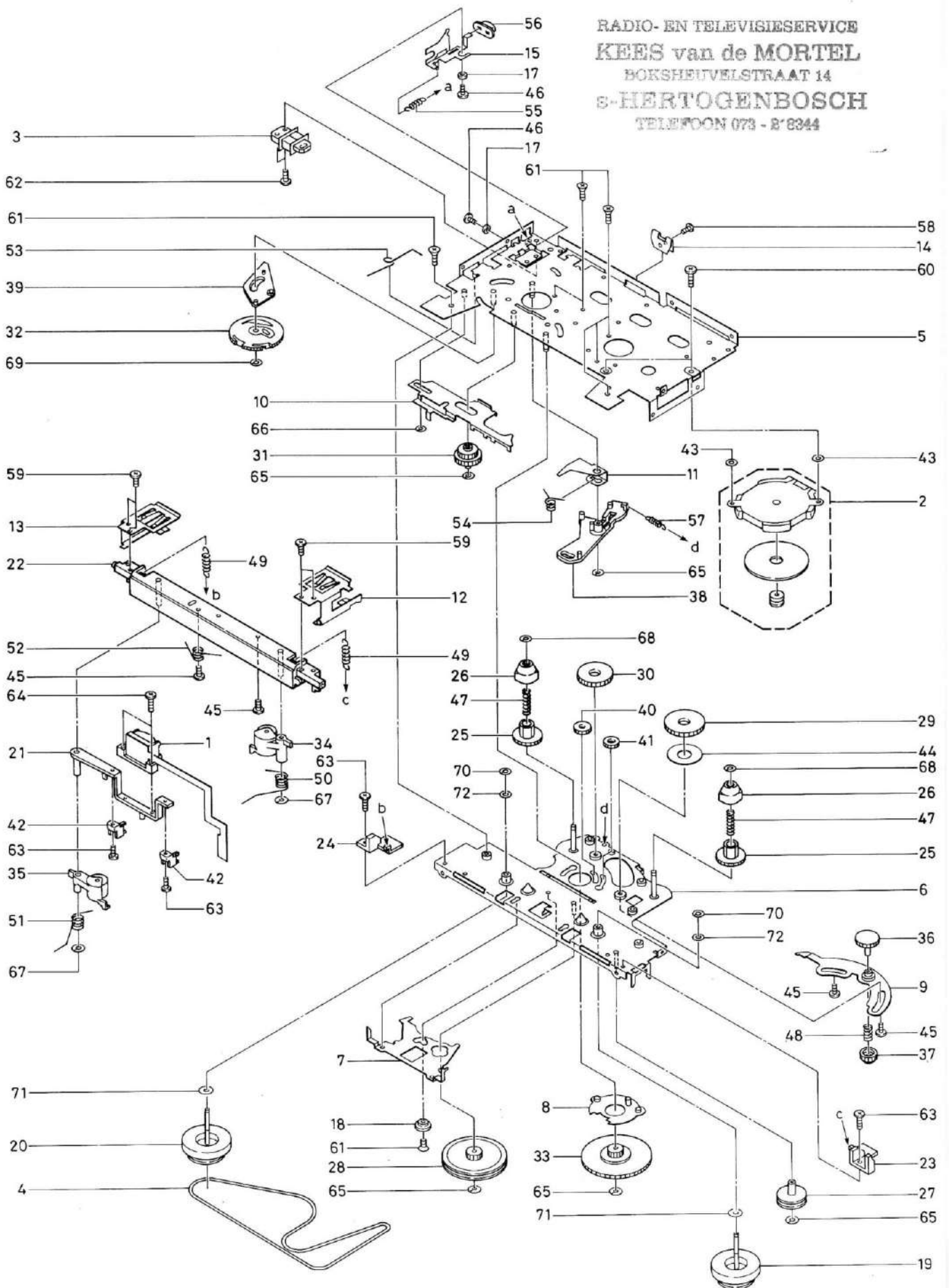
B, B 1, B 2, .....Base  
C, C 1, C 2, .....Collector  
E ..... Emitter

# UNIT ASSEMBLY EXPLODED VIEW



# MECHANISM UNIT EXPLODED VIEW

RADIO- EN TELEVISIESERVICE  
KEES van de MORTEL  
BOKSHEUVELSTRAAT 14  
6-HERTOGENBOSCH  
TELEFOON 073 - 2'8344





# SCREWS LIST FOR ALL EXPLODED VIEW

45	M1.5 X 2.5	61	M1.4 X 2	113	M1.4 X 1.2
46	M1.4 X 1	62	M1.4 X 2.5	128	M1.4 X 2
58	M1.4 X 1	63	M1.4 X 3	129	M1.4 X 2
59	M1.4 X 2	64	M1.4 X 4	130	M1.4 X 3.5
60	M1.7 X 2.5	112	M1.4 X 1.5	131	M1.4 X 2
1	4822 249 30177	39	4822 403 70534	71	4822 530 80663
2	4822 361 21482	40	4822 522 33176	72	4822 530 80664
3	4822 157 63713	41	4822 522 33177	111	4822 403 70543
4	4822 358 31164	42	4822 403 70535	113	4822 502 13901
12	4822 492 71008	43	4822 532 52384	114	4822 454 12775
13	4822 492 71009	44	4822 380 30297	115	4822 411 61847
14	4822 492 52285	45	4822 502 13899	116	4822 290 61059
15	4822 403 70533	46	4822 502 13901	117	4822 535 93274
17	4822 532 21444	47	4822 492 52286	118	4822 290 81471
18	4822 532 21445	48	4822 492 52287	119	4822 443 51217 /00
19	4822 528 10834	49	4822 492 33315	119	4822 443 51229 /01
20	4822 528 10835	50	4822 492 71011	119	4822 443 51231 /05
25	4822 522 33167	51	4822 492 71012	120	4822 443 30808
26	4822 522 33168	52	4822 492 71013	121	4822 443 41102
27	4822 528 81458	53	4822 492 71014	122	4822 443 63516
28	4822 528 81459	54	4822 492 71015	123	4822 256 91839
29	4822 522 33169	55	4822 492 71016	124	4822 454 12783
30	4822 522 33171	56	4822 410 61655	125	4822 410 61657
31	4822 522 33172	57	4822 492 33316	126	4822 411 61848
32	4822 522 33173	65	4822 532 52125	201	4822 532 52385
33	4822 522 20448	66	4822 532 52127	202	4822 403 70536
34	4822 528 70768	67	4822 530 80659	203	4822 403 70537
35	4822 522 33179	68	4822 530 80661	300	4822 138 10466
36	4822 522 33174	69	4822 530 80662	IFU	4822 736 21294
37	4822 522 33175	70	4822 530 80665		

# MISCELLANEOUS

J301	4822 267 31438	HEADPHONE SOCKET
J401	4822 267 31444	SOCKET DC
J501	4822 267 41029	REMOTE SOCKET
S300	4822 277 21572	TAPE SELECTOR
S301	4822 277 21572	DOLBY IN/OUT
S302	4822 277 21573	DBB SELECTOR
S500	4822 277 21572	REMOTE SELECTOR
S501	4822 277 21572	TAPE MODE
S502	4822 276 13198	PUSH SWITCH
S503	4822 276 13199	TACT SWITCH
S504	4822 276 13199	TACT SWITCH
S505	4822 276 13199	TACT SWITCH
S506	4822 276 13199	TACT SWITCH
S507	4822 276 12234	LEAF SWITCH
X501	4822 242 80326	CRYSTAL 32.768kHz
	4822 242 50067	HEADPHONE W/REMOTE
	4822 138 10465	BATTERY GP6E
△	4822 218 30633	BATTERY CHARGER /00
△	4822 218 30639	BATTERY CHARGER /01
△	4822 218 30638	BATTERY CHARGER /05

# —||—

C101	4822 126 10273	1000pF 50V
C102	4822 126 10273	1000pF 50V
C103	4822 124 42345	10μF 4V
C104	4822 126 10277	0.022μF 50V
C105	4822 126 10277	0.022μF 50V
C106	4822 126 10755	1μF 16V
C107	4822 126 10279	0.033μF 50V
C108	4822 126 10281	4700pF 50V
C109	4822 126 10274	0.01μF 50V
C111	4822 126 10279	0.033μF 50V
C112	4822 126 12009	0.1μF 25V
C113	4822 124 42347	2.2μF 6.3V
C114	4822 126 10276	2200pF 50V
C115	4822 124 42347	2.2μF 6.3V
C116	4822 126 12009	0.1μF 25V
C117	4822 126 10273	1000pF 50V
C118	4822 126 12009	0.1μF 25V
C119	4822 124 42361	220μF 2V
C201	4822 126 10273	1000pF 50V
C202	4822 126 10273	1000pF 50V
C203	4822 124 42345	10μF 4V
C204	4822 126 10277	0.022μF 50V
C205	4822 126 10277	0.022μF 50V
C206	4822 126 10755	1μF 16V
C207	4822 126 10279	0.033μF 50V
C208	4822 126 10281	4700pF 50V
C209	4822 126 10274	0.01μF 50V
C211	4822 126 10279	0.033μF 50V
C212	4822 126 12009	0.1μF 25V

# —||—

C213	4822 124 42347	2.2μF 6.3V
C214	4822 126 10276	2200pF 50V
C215	4822 124 42347	2.2μF 6.3V
C216	4822 126 12009	0.1μF 25V
C217	4822 126 10273	1000pF 50V
C218	4822 126 12009	0.1μF 25V
C219	4822 124 42361	220μF 2V
C301	4822 124 42345	10μF 4V
C302	4822 124 42371	47μF 4V
C303	4822 124 42347	2.2μF 6.3V
C304	4822 124 42345	10μF 4V
C305	4822 124 42345	10μF 4V
C306	4822 126 12009	0.1μF 25V
C307	4822 124 42348	3.3μF 6.3V
C308	4822 126 12009	0.1μF 25V
C309	4822 124 42345	10μF 4V
C311	4822 124 42345	10μF 4V
C312	4822 124 42363	4.7μF 4V
C313	4822 124 42345	10μF 4V
C314	4822 124 42345	10μF 4V
C315	4822 124 42348	3.3μF 6.3V
C316	4822 126 10262	100pF 50V
C317	4822 124 42345	10μF 4V
C401	4822 124 42363	4.7μF 4V
C402	4822 124 42363	4.7μF 4V
C403	4822 126 10281	4700pF 50V
C404	4822 126 10288	1μF 16V
C405	4822 126 10294	0.68μF 16V
C406	4822 126 10281	4700pF 50V
C407	4822 126 10281	4700pF 50V
C410	4822 124 42346	47μF 4V
C502	4822 124 42344	10μF 4V
C503	4822 124 42363	4.7μF 4V
C504	4822 126 12009	0.1μF 25V
C505	4822 124 42342	470μF 4V
C506	4822 124 42373	1μF 16V
C507	4822 126 10266	33pF 50V
C508	4822 126 10263	15pF 50V
C509	4822 124 42344	10μF 4V
C511	4822 126 10273	1000pF 50V
C512	4822 124 42349	2.2μF 16V
C513	4822 124 42349	2.2μF 16V
C514	4822 126 10274	0.01μF 50V
C515	4822 124 42349	2.2μF 16V

# □

R101	4822 051 20184	180k 0.1W 5%
R102	4822 051 20681	6.8k 0.1W 5%
R103	4822 051 20272	2.7k 0.1W 5%
R104	4822 051 20332	3.3k 0.1W 5%
R105	4822 051 20473	47k 0.1W 5%





R106	4822 051 20332	3.3k 0.1W 5%
R107	4822 051 20434	430k 0.1W 5%
R108	4822 051 20824	820k 0.1W 5%
R109	4822 051 20104	100k 0.1W 5%
R111	4822 051 20103	10k 0.1W 5%
R112	4822 051 56802	6.8k 0.125W 5%
R113	4822 051 56801	680Ω 0.125W 5%
R114	4822 051 20102	1k 0.1W 5%
R115	4822 051 54703	47k 0.125W 5%
R116	4822 051 20478	4.7Ω 0.1W 5%
R117	4822 051 20152	1.5k 0.1W 5%
R201	4822 051 20184	180k 0.1W 5%
R202	4822 051 20681	6.8k 0.1W 5%
R203	4822 051 20272	2.7k 0.1W 5%
R204	4822 051 20332	3.3k 0.1W 5%
R205	4822 051 20473	47k 0.1W 5%
R206	4822 051 20332	3.3k 0.1W 5%
R207	4822 051 20434	430k 0.1W 5%
R208	4822 051 20824	820k 0.1W 5%
R209	4822 051 20104	100k 0.1W 5%
R211	4822 051 20103	10k 0.1W 5%
R212	4822 051 56802	6.8k 0.125W 5%
R213	4822 051 56801	680Ω 0.1W 5%
R214	4822 051 51002	1k 0.125W 5%
R215	4822 051 54703	47k 0.125W 5%
R216	4822 051 20478	4.7Ω 0.1W 5%
R217	4822 051 20152	1.5k 0.1W 5%
R301	4822 051 51501	150Ω 0.125W 5%
R302	4822 051 52702	2.7k 0.125W 5%
R303	4822 051 51002	1k 0.125W 5%
R304	4822 051 52202	2.2k 0.125W 5%
R305	4822 051 20222	2.2k 0.1W 5%
R306	4822 051 20105	1M 0.1W 5%
R307	4822 051 20272	2.7k 0.1W 5%
R308	4822 051 20104	100k 0.1W 5%
R309	4822 051 20105	1M 0.1W 5%
R311	4822 051 51002	1k 0.125W 5%
R312	4822 051 20472	4.7k 0.1W 5%
R401	4822 116 83551	5.6k
R402	4822 116 83554	10k
R403	4822 051 20562	5.6k 0.1W 5%
R404	4822 051 20103	10k 0.1W 5%
R405	4822 051 20271	270Ω 0.1W 5%
R406	4822 051 20102	1k 0.1W 5%
R407	4822 051 20105	1M 0.1W 5%
R408	4822 051 20105	1M 0.1W 5%
R409	4822 051 20105	1M 0.1W 5%
R411	4822 051 51001	100Ω 0.125W 5%
R412	4822 051 20472	4.7k 0.1W 5%
R501	4822 051 51005	1M 0.125W 5%
R502	4822 051 20474	470k 0.1W 5%
R503	4822 051 20224	220k 0.1W 5%



R504	4822 051 51004	100k 0.125W 5%
R505	4822 051 51005	1M 0.125W 5%
R506	4822 051 20105	1M 0.1W 5%
R507	4822 051 20105	1M 0.1W 5%
R508	4822 051 20105	1M 0.1W 5%
R509	4822 051 20105	1M 0.1W 5%
R511	4822 051 20105	1M 0.1W 5%
R512	4822 051 20105	1M 0.1W 5%
R513	4822 051 20105	1M 0.1W 5%
R514	4822 051 20105	1M 0.1W 5%
R515	4822 051 51005	1M 0.125W 5%
R516	4822 116 83548	680k 0.125W 5%
R517	4822 051 51005	1M 0.125W 5%
R518	4822 051 51005	1M 0.125W 5%
R519	4822 051 51005	1M 0.125W 5%
R521	4822 051 51005	1M 0.125W 5%
R522	4822 051 51005	1M 0.125W 5%
R523	4822 051 51005	1M 0.125W 5%
R524	4822 051 20105	1M 0.1W 5%
R525	4822 051 20105	1M 0.1W 5%
R526	4822 051 20105	1M 0.1W 5%
R527	4822 051 20105	1M 0.1W 5%
R528	4822 051 20105	1M 0.1W 5%
R529	4822 051 20104	100k 0.1W 5%
R531	4822 051 20106	10M 0.1W 5%
R532	4822 051 56802	6.8k 0.125W 5%
R533	4822 051 51005	1M 0.125W 5%
R534	4822 051 20101	100Ω 0.1W 5%
R535	4822 051 20561	560Ω 0.1W 5%
R536	4822 051 20339	33Ω 0.1W 5%
R537	4822 051 20221	220Ω 0.1W 5%
R538	4822 051 20563	56k 0.1W 5%
R539	4822 051 20104	100k 0.1W 5%
R540	4822 116 83547	47Ω 0.125W 5%
R541	4822 051 20152	1.5k 0.1W 5%
RJ301	4822 051 10008	0Ω 0.125W 5%
RJ302	4822 051 10008	0Ω 0.125W 5%
RJ306	4822 051 10008	0Ω 0.125W 5%
RJ307	4822 051 20008	0Ω 0.1W 5%
RJ308	4822 051 10008	0Ω 0.125W 5%
RJ310	4822 051 20008	0Ω 0.1W 5%
RJ311	4822 051 10008	0Ω 0.125W 5%
RJ312	4822 051 10008	0Ω 0.125W 5%
RJ313	4822 051 10008	0Ω 0.125W 5%
RJ314	4822 051 10008	0Ω 0.125W 5%
RJ316	4822 051 10008	0Ω 0.125W 5%
RJ317	4822 051 10008	0Ω 0.125W 5%
RJ320	4822 051 10008	0Ω 0.125W 5%
RJ322	4822 051 20008	0Ω 0.1W 5%
RJ323	4822 051 10008	0Ω 0.125W 5%
RJ324	4822 051 20008	0Ω 0.1W 5%
RJ325	4822 051 10008	0Ω 0.125W 5%



RJ326	4822 051 10008	0Ω 0.125W 5%
RJ327	4822 051 10008	0Ω 0.125W 5%
RJ328	4822 051 10008	0Ω 0.125W 5%
RJ330	4822 051 10008	0Ω 0.125W 5%
RJ331	4822 051 10008	0Ω 0.125W 5%
RJ332	4822 051 10008	0Ω 0.125W 5%
RJ333	4822 051 10008	0Ω 0.125W 5%
RJ334	4822 051 20008	0Ω 0.1W 5%
RJ335	4822 051 10008	0Ω 0.125W 5%
RJ336	4822 051 20008	0Ω 0.1W 5%
RJ337	4822 051 10008	0Ω 0.125W 5%
RJ501	4822 051 10008	0Ω 0.125W 5%
RJ502	4822 051 10008	0Ω 0.125W 5%
RJ503	4822 051 10008	0Ω 0.125W 5%
RJ504	4822 051 10008	0Ω 0.125W 5%
RJ505	4822 051 10008	0Ω 0.125W 5%
RJ507	4822 051 10008	0Ω 0.125W 5%
RJ508	4822 051 10008	0Ω 0.125W 5%
RJ509	4822 051 10008	0Ω 0.125W 5%
RJ511	4822 051 10008	0Ω 0.125W 5%
RJ512	4822 051 20008	0Ω 0.1W 5%
RJ513	4822 051 20008	0Ω 0.1W 5%
RJ514	4822 051 10008	0Ω 0.125W 5%
RJ515	4822 051 10008	0Ω 0.125W 5%
RJ516	4822 051 10008	0Ω 0.125W 5%
RJ517	4822 051 10008	0Ω 0.125W 5%
RJ518	4822 051 20008	0Ω 0.1W 5%
RJ519	4822 051 10008	0Ω 0.125W 5%
RJ520	4822 051 10008	0Ω 0.125W 5%
RJ521	4822 051 10008	0Ω 0.125W 5%
RJ522	4822 051 10008	0Ω 0.125W 5%
RJ523	4822 051 10008	0Ω 0.125W 5%
RJ524	4822 051 10008	0Ω 0.125W 5%
RJ525	4822 051 10008	0Ω 0.125W 5%
RJ526	4822 051 10008	0Ω 0.125W 5%
RJ527	4822 051 10008	0Ω 0.125W 5%
RJ528	4822 051 10008	0Ω 0.125W 5%
RJ529	4822 051 10008	0Ω 0.125W 5%
RJ531	4822 051 10008	0Ω 0.125W 5%
RJ532	4822 051 10008	0Ω 0.125W 5%
RJ533	4822 051 10008	0Ω 0.125W 5%
VR101	4822 100 11854	PRESET 470Ω
VR201	4822 100 11854	PRESET 470Ω
VR301	4822 101 30641	VOL CONTROL 10k
VR401	4822 100 11856	PRESET 3.3k



L501	4822 148 81222	OSC TRANS-6
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D301	4822 130 82891	GL2PR7
D401	4822 130 82879	RB411D
D402	4822 130 82879	RB411D
D501	4822 130 82879	RB411D
D502	4822 130 82879	RB411D
D503	4822 130 82879	RB411D
D504	4822 130 82879	RB411D
D505	4822 130 82878	HZ3A-LL



IC301	4822 209 30825	BA3413FS
IC302	4822 209 30826	BA1106FS
IC303	4822 209 63828	LA3550M
IC304	4822 209 30824	LA4538M
IC401	4822 209 30795	LB1673M
IC501	4822 209 30794	M34210M2-122GP



Q301	4822 130 62937	2SC2412K-BR
Q302	4822 130 62944	2SB1301-ZQ
Q303	4822 130 90326	DTA114TK
Q304	4822 130 90323	DTC114TK
Q401	4822 130 62939	FMA4
Q402	4822 130 90326	DTA114TK
Q403	4822 130 62945	2SD1952-XP
Q501	4822 130 62938	FMG4
Q502	4822 130 62938	FMG4
Q503	4822 130 62939	FMA4
Q504	4822 130 90326	DTA114TK
Q505	4822 130 61531	2SA1037K-R
Q506	4822 130 62941	2SD1952-XQ
Q507	4822 130 62937	2SC2412K-BR
Q508	4822 130 62937	2SC2412K-BR
PC300	4822 130 62936	NJL5165KB

Note : Only the mentioned parts are normal service parts

(GB)

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

(F)

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

(NL)

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

(D)

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

(I)

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

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."