

Service
Service
Service



Service Manual

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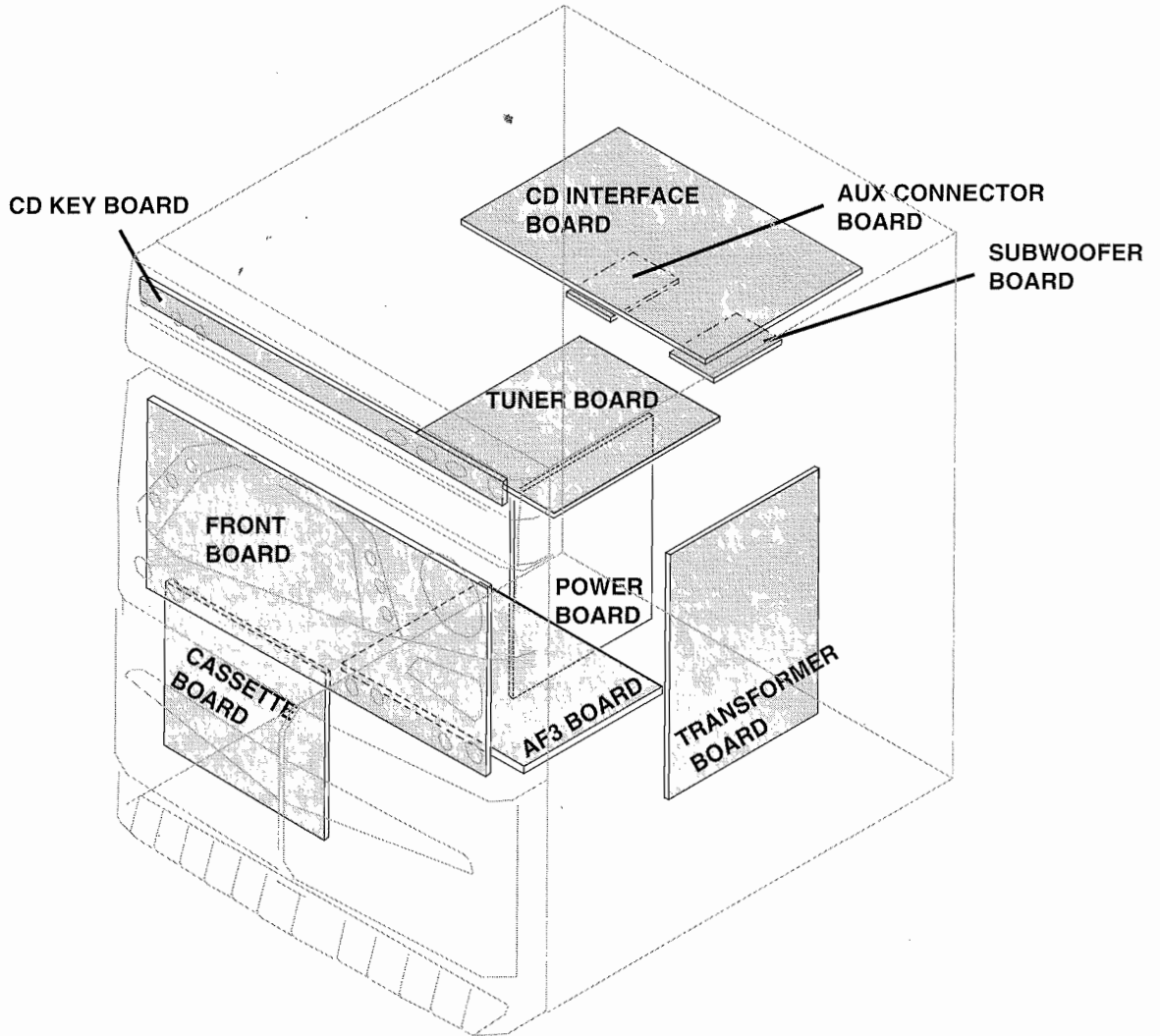
AF3 board 12

Exploded view of set 14

Mechanical partslist of set 14



LOCATION OF PRINTED CIRCUIT BOARD



TECHNICAL SPECIFICATION

General:

Mains voltage	: 120 - 230V -/21/21M 220 - 230V -/22 250V -/25 230V -/34
Mains frequency	: 50 - 60Hz
Power consumption	: 28W max. @ 1/8Prated

Amplifier:

Output power	: 2 x 12W at 3Ω
Headphone	: 3.5mm stereo jack
Frequency response	: 40Hz - 20kHz (-3dB) Limit
Dynamic bass boost	: +8dB ±1dB at 100Hz

Input sensitivity

Aux/Line	: 400mV ±2dB
Microphone	: 2.5mV ±2dB @ 1kHz

Equalizer:

100 Hz	: -1 ~ 5dB
1 kHz	: ±4dB
12kHz	: -3 ~ 6dB

Tuner:

FM

Tuning range	: 87.5MHz - 108MHz
Grid	: 100kHz
IF	: 10.7MHz
Sensitivity Mono 26dB S/N	: < 7μV
Distortion at RF=1mV, _f=75kHz	: 3% (1%)

IF rejection	: > 60dB
Image rejection	: > 25dB
-3dB Limiting Point	: < 23.5dBf {22dBf}

MW

Tuning range	: 530kHz - 1700kHz {531 - 1602kHz}
Grid	: 10kHz
IF	: 450kHz ±1kHz
Sensitivity at 26dB S/N	: < 4.0mV/M
Distortion at RF=50mV, m=80%)	: < 5% {3%}

IF rejection	: > 45dB
Image rejection	: > 28dB

LW

Tuning Range	: 153kHz - 279kHz
Sensitivity at 26dB S/N	: < 6.0mV/M
IF rejection	: > 26 dB
Image rejection	: > 28dB {35dB}

CD Unit:

Frequency response within	: 20Hz - 20kHz at ±3dB
Signal/Noise ratio	: > 86dB (A-weighted)
Channel unbalance	: < 1dB
Channel crosstalk at 1kHz	: > 50dB
De-emphasis	: 0 or 15/50 μS

Recorder Part:

Tape speed	: 4.76 cm/sec ± 2%
Wow and flutter	: < 0.4%
Fast-wind time C60	: 130 sec
Bias system	AM/FM : AC 65kHz ±5kHz
Distortion at 250nWb/m	: < 5%
Channel difference at PB	: < 3dB
Channel difference overall	: < 3dB
Channel Separation	: > 24dB at 1kHz
Track Separation	: > 55dB at 1kHz
ALC attack time	: < 300ms
ALC recovery time	: > 10s
Frequency Response	: 80Hz - 12.5kHz within -8dB
Signal to noise ratio ①	: > 43dB
Signal to Hiss ratio ②	: > 48dB
Erase attenuation ③	: > 55dB at 1kHz

① at 250 nW/m FF-weighted (22Hz - 22kHz band pass filter)

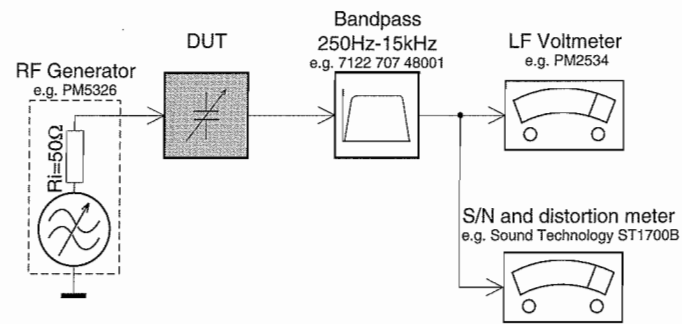
② at 250 nW/m A-weighted

③ use a 1kHz passfilter to minimize the wide band noise component

Note : {...} for version 22 only

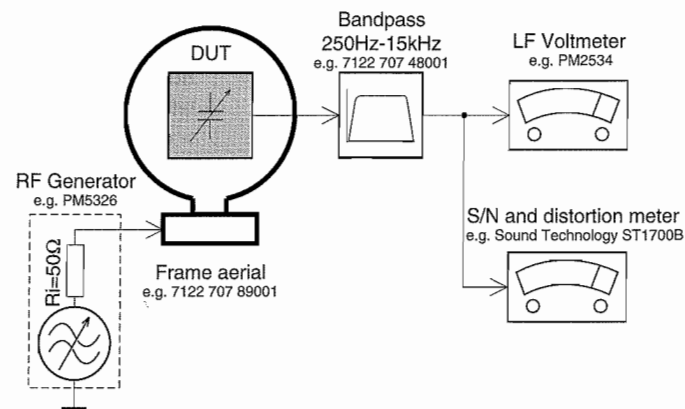
MEASUREMENT SETUP

Tuner FM



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilotone (19kHz, 38kHz).

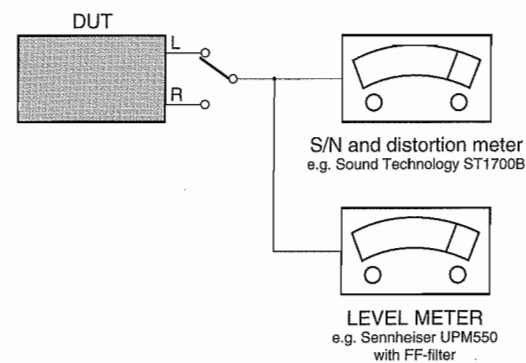
Tuner AM (MW, LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage.
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

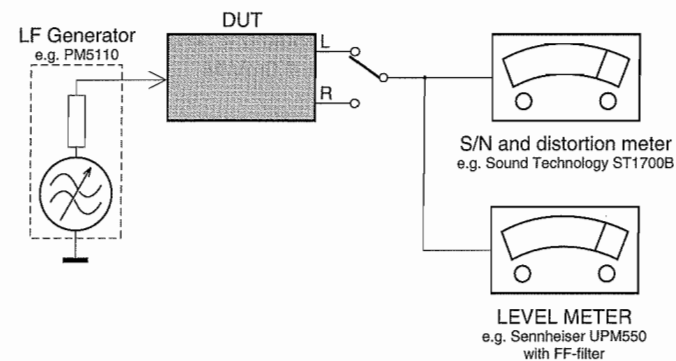
CD

Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)



Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6 - T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Cassette:

SBC419 Test cassette CrO2	4822 397 30069
SBC420 Test cassette Fe	4822 397 30071
MTT150 Dolby level 200nWb/M	4822 397 30271

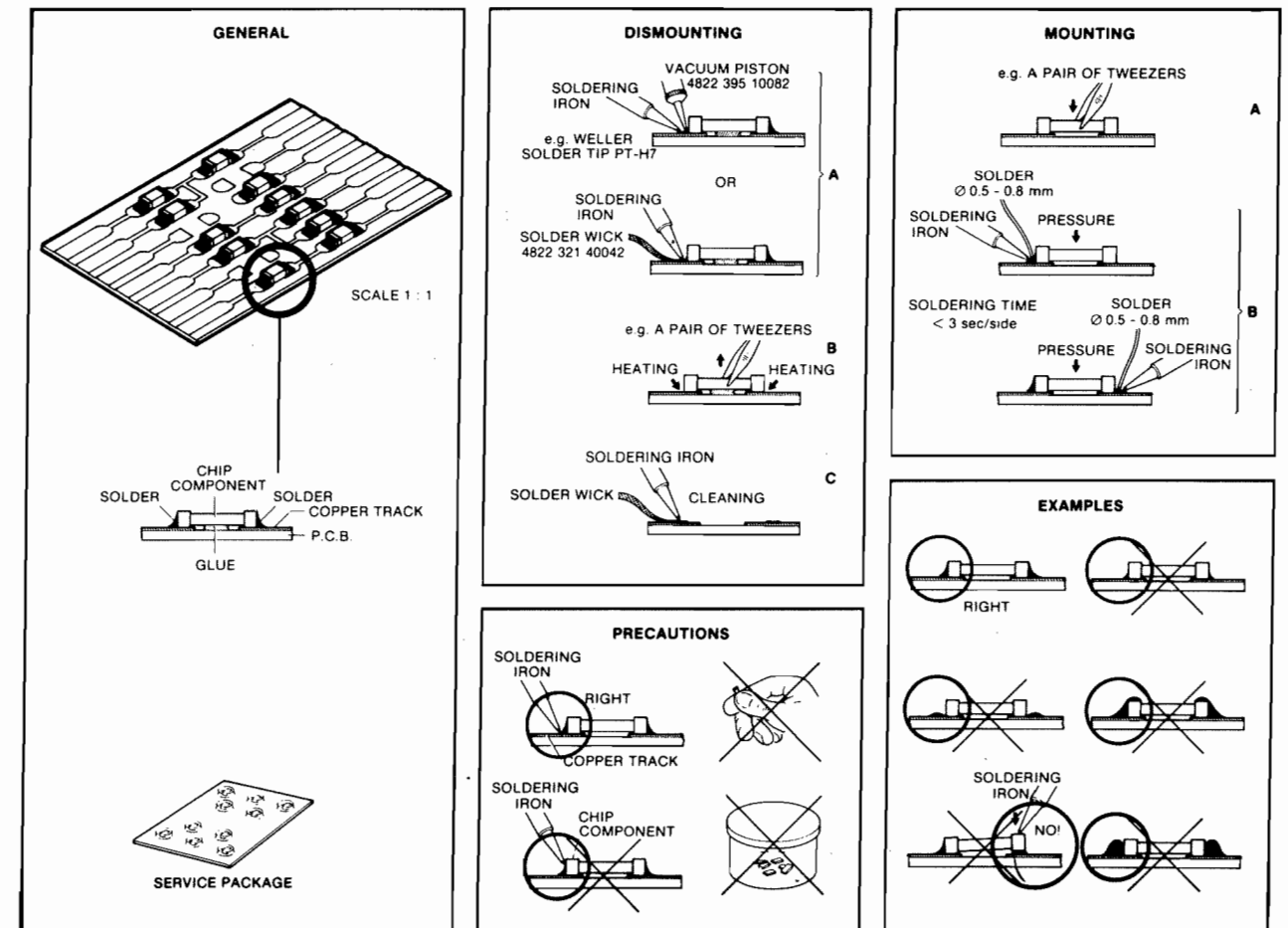
Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm ...	4822 466 10953
Anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connector box (1MΩ)	4822 320 11307
Extension cable (to connect wristband to conn. box)	4822 320 11305
Connecting cable (to connect table mat to conn. box)	4822 320 11306
Earth cable (to connect product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS



(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.

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.

(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.

(D) WARNUNG

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

Unsorgfältige 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.

(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.

(GB)

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

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

(NL)

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

(F)

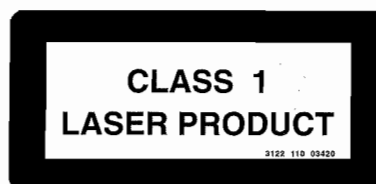
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisés les pièces de rechange identiques à celles spécifiées.

(D)

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

(I)

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

**(GB) Warning !**

Invisible laser radiation when open.
Avoid direct exposure to beam.

(S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spärrar är urkopplad. Betrakta ej strålen.

(SF) Varoitut !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

(DK) Advarse !

Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for strålning.

Dismantling & Service hints

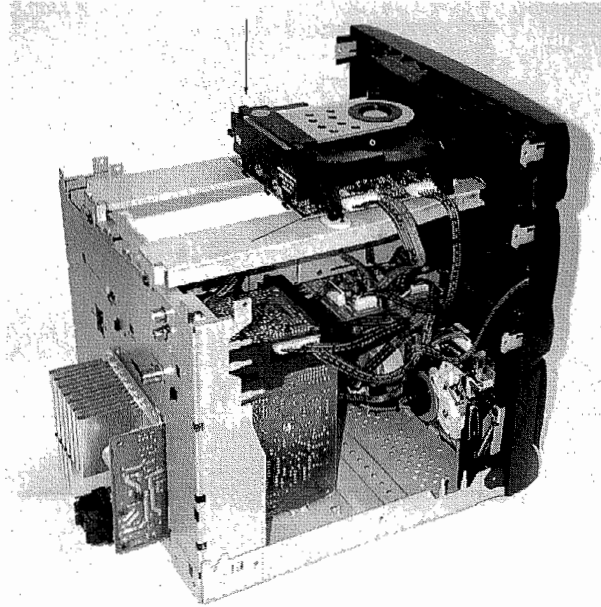


Figure 1

- 1) Remove the top cabinet.
- 2) Remove the 2 screw on the CD module.

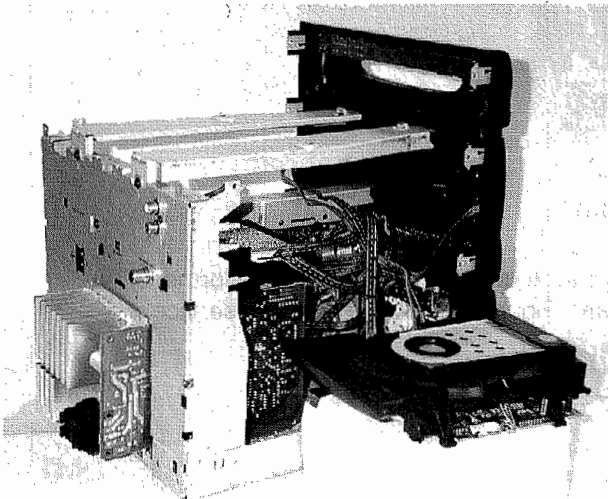


Figure 2

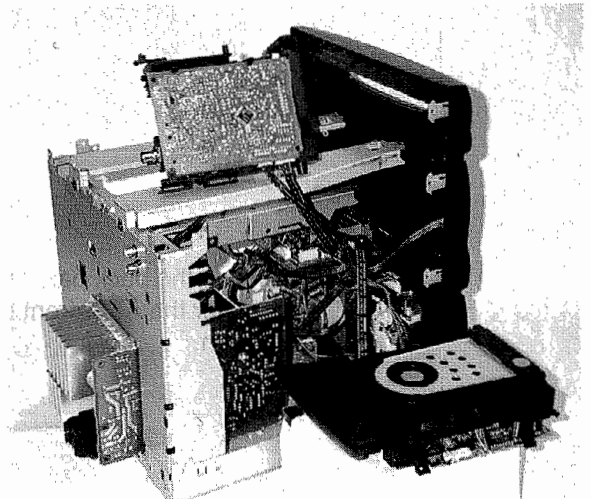


Figure 3

- 3) Place the CD module on the side for servicing.
 - 4) Remove the screw for the tuner on the back panel.
- Figure 3 show the tuner & CD service

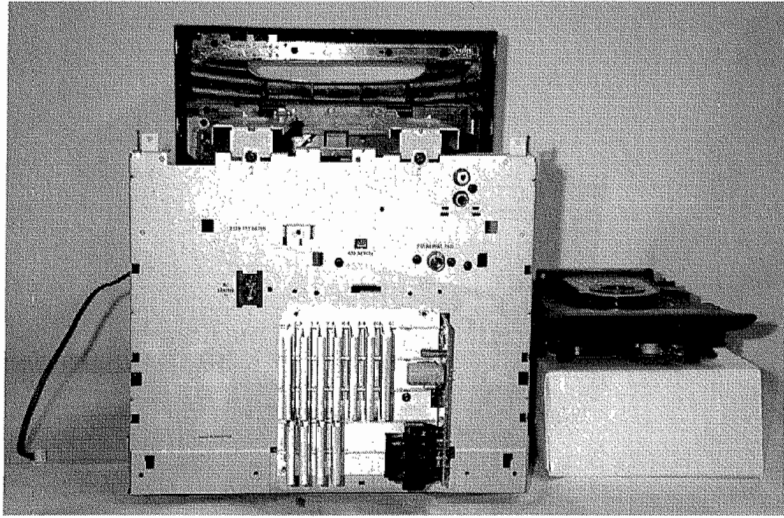


Figure 4

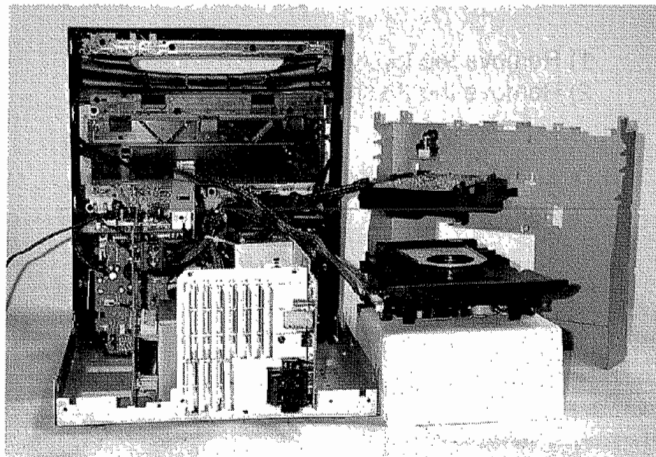


Figure 5

- 5) Remove the back panel in-order to service the power, transformer board or the AF & front board. Figure 5 show the possible service position.

SERVICE TEST PROGRAM

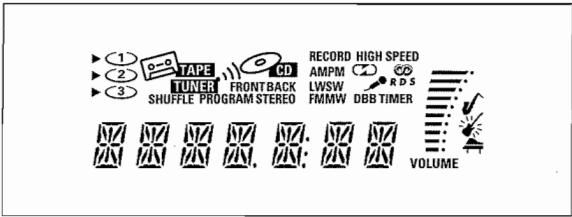
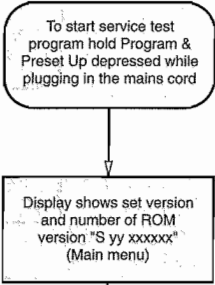
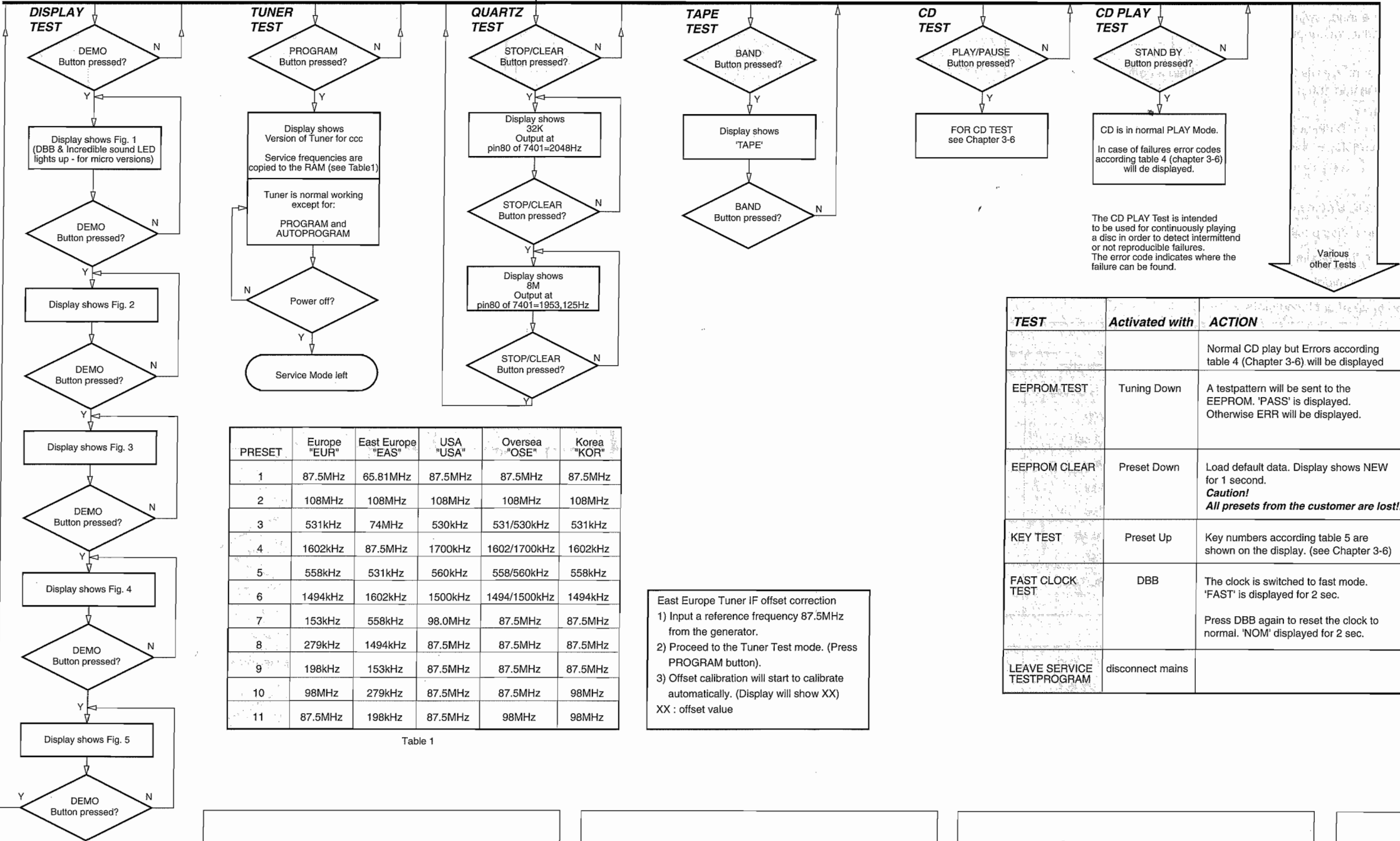


Figure 1



1) S stands for Service Testprogram
yy stands for software version number of uP on Front Board (counted from 01 upwards)
xxxxxx stands for model numbers (NOT APPLICABLE IN SERVICE MODE)



PRESET	Europe "EUR"	East Europe "EAS"	USA "USA"	Oversea "OSE"	Korea "KOR"
1	87.5MHz	65.81MHz	87.5MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	74MHz	530kHz	531/530kHz	531kHz
4	1602kHz	87.5MHz	1700kHz	1602/1700kHz	1602kHz
5	558kHz	531kHz	560kHz	558/560kHz	558kHz
6	1494kHz	1602kHz	1500kHz	1494/1500kHz	1494kHz
7	153kHz	558kHz	98.0MHz	87.5MHz	87.5MHz
8	279kHz	1494kHz	87.5MHz	87.5MHz	87.5MHz
9	198kHz	153kHz	87.5MHz	87.5MHz	87.5MHz
10	98MHz	279kHz	87.5MHz	87.5MHz	98MHz
11	87.5MHz	198kHz	87.5MHz	98MHz	98MHz

Table 1

East Europe Tuner IF offset correction
1) Input a reference frequency 87.5MHz from the generator.
2) Proceed to the Tuner Test mode. (Press PROGRAM button).
3) Offset calibration will start to calibrate automatically. (Display will show XX)
XX : offset value

TEST	Activated with	ACTION
		Normal CD play but Errors according table 4 (Chapter 3-6) will be displayed
EEPROM TEST	Tuning Down	A testpattern will be sent to the EEPROM. 'PASS' is displayed. Otherwise ERR will be displayed.
EEPROM CLEAR	Preset Down	Load default data. Display shows NEW for 1 second. Caution! All presets from the customer are lost!!
KEY TEST	Preset Up	Key numbers according table 5 are shown on the display. (see Chapter 3-6)
FAST CLOCK TEST	DBB	The clock is switched to fast mode. 'FAST' is displayed for 2 sec. Press DBB again to reset the clock to normal. 'NOM' displayed for 2 sec.
LEAVE SERVICE TESTPROGRAM	disconnect mains	

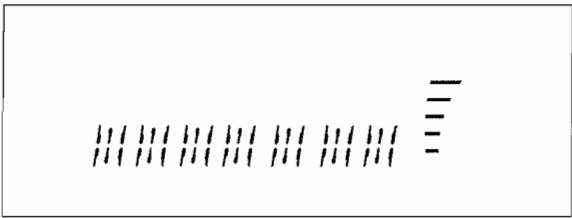


Figure 2

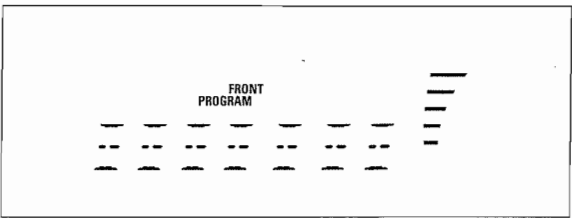


Figure 3

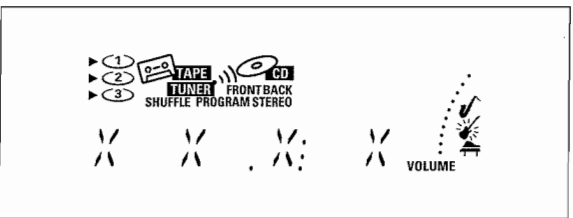


Figure 4

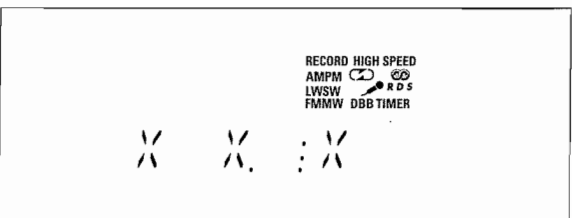


Figure 5

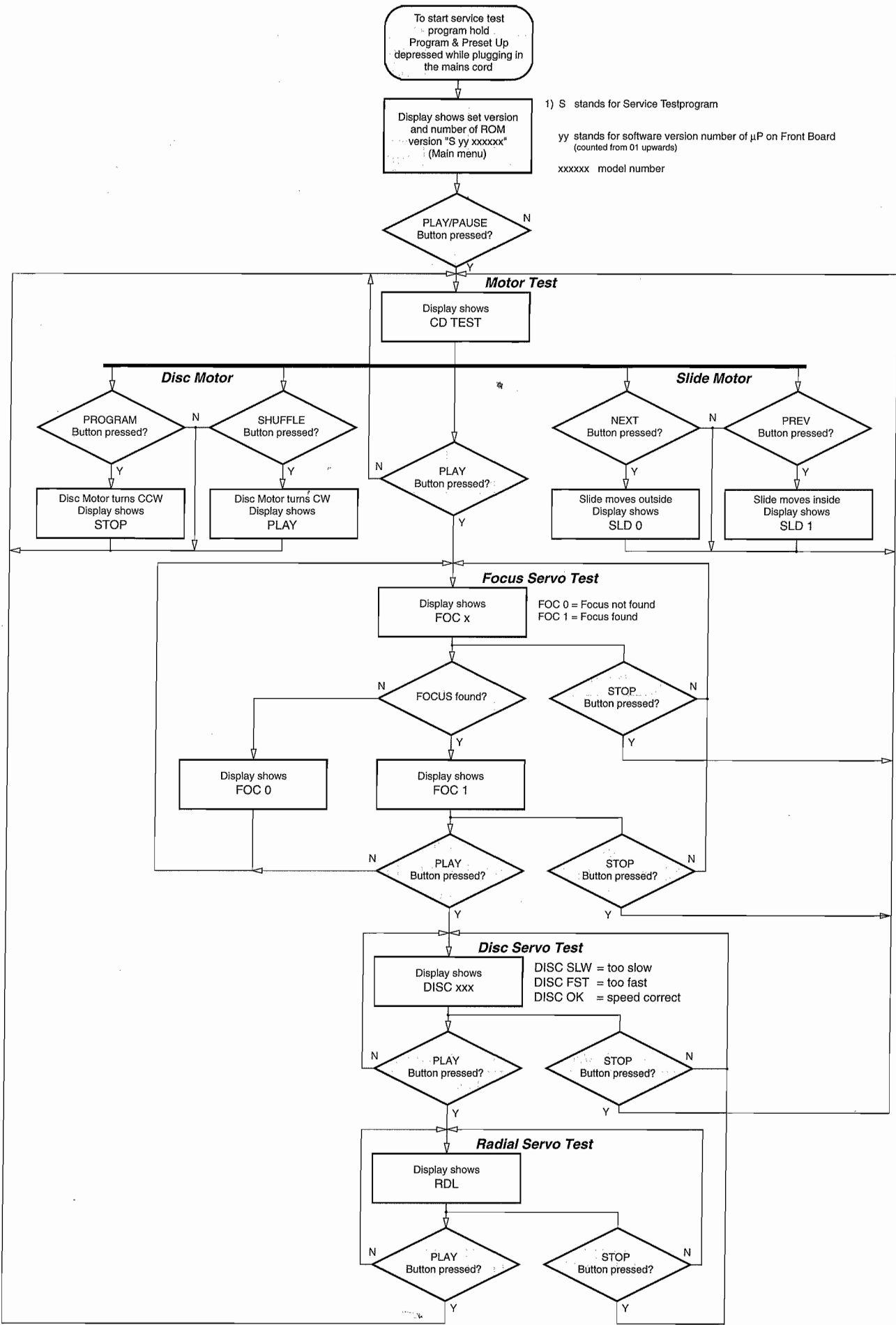
Error number	CD Error description
E 1002	Focus error Triggered when the focus could not found within a certain time when starting up the CD, or when the focus is lost for more than a certain time during playing the CD.
E 1007	Subcode error (no subcode within certain time)
E 1008	TOC error Triggered when during reading the TOC the lead-in(track nr. 0) is left. This can be caused by a misaligned Inner-switch or by a disc with a mispositioned lead-in.
E 1010	Radial error Triggered when the radial servo is not on track for a certain time during playing the CD.
E 1011	Sledge error Generated when the Inner-switch did not open within a certain time when the pickup is moved to the inner position.
E 1012	Fatal sledge error Triggered when the Inner-switch did not close within a certain time when moving the pickup inside. Inner-switch or sledge motor problem.
E 1013	Turntable motor error Generated when the CD did not reach 75% of speed during startup within a certain time. Disc motor problem.
E 1014	Jump-offtrack error (too less grooves within time)
E 1020	PLL locked error Triggered when the PLL of the decoder did not locked within a certain time.
E 1070	Carousel blocked in a disc position
E 1071	Carousel blocked in the middle
E 1075	Drawer blocked in the middle
E 1076	Drawer blocked in open or closed state

For FW335

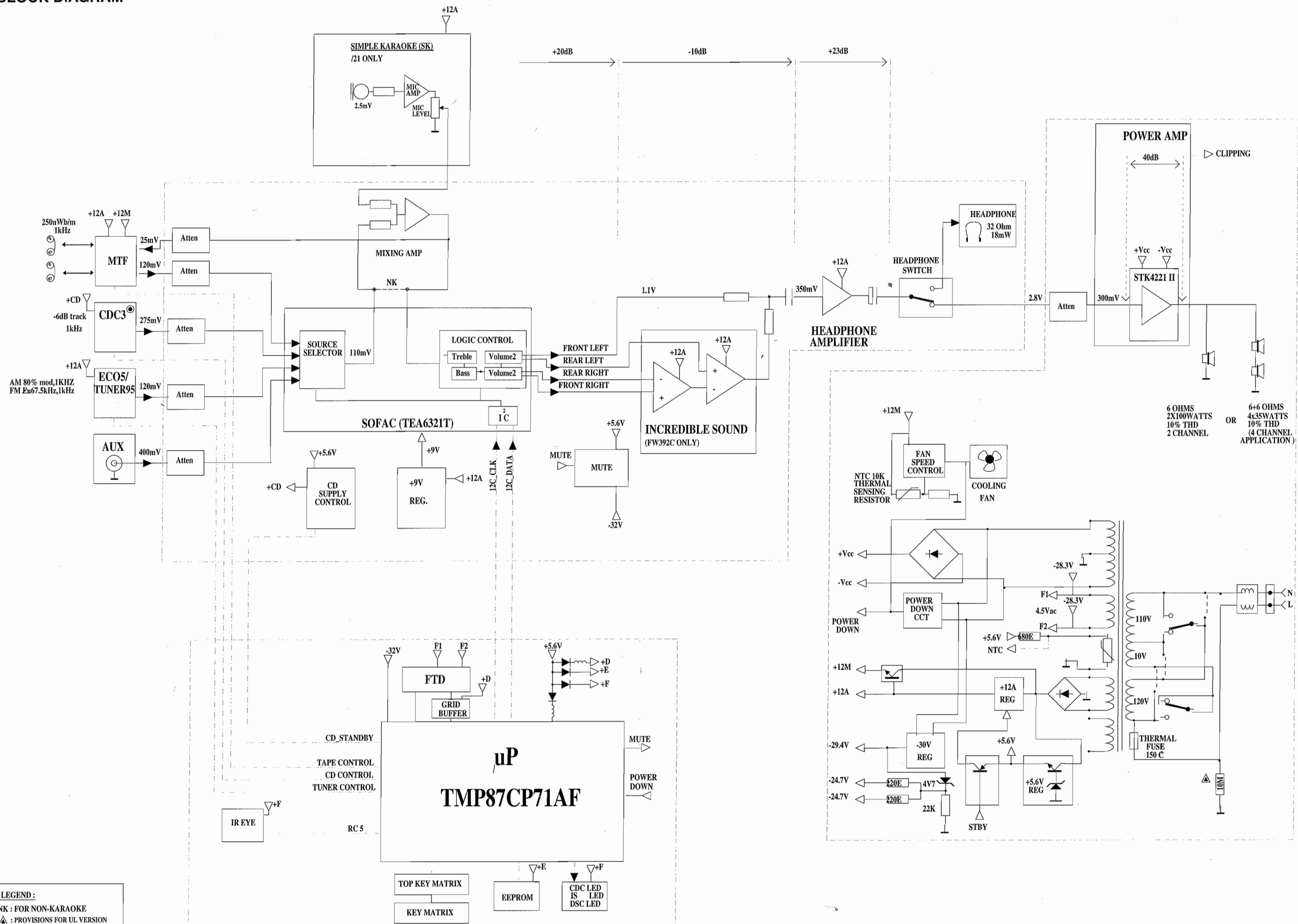
Key activated	Display	Key activated	Display	Key activated	Display
Stop/Clear	01	Clock Set	11	Incredible Sound	21
Program (CD)	02	Timer Set	12	Dbb	22
Shuffle	03	Timer On/Off	13	Optimal	23
Search/Prev	04	Demo	14	Jazz	24
Play/Pause	05	Tuning Down	15	Rock	25
Search/Next	06	Tuning Up	16	Pop	26
CD Open/Close	07	Preset Down	17	Classic	27
Program (TU)	08	Preset Up	18	HSD	28
Band	09	Power/Standby	19	any RC keys	RC
RDS Mode	10	Scroll Source	20		

For FW315C/FW340C/FW345C/FW355C/FW365C

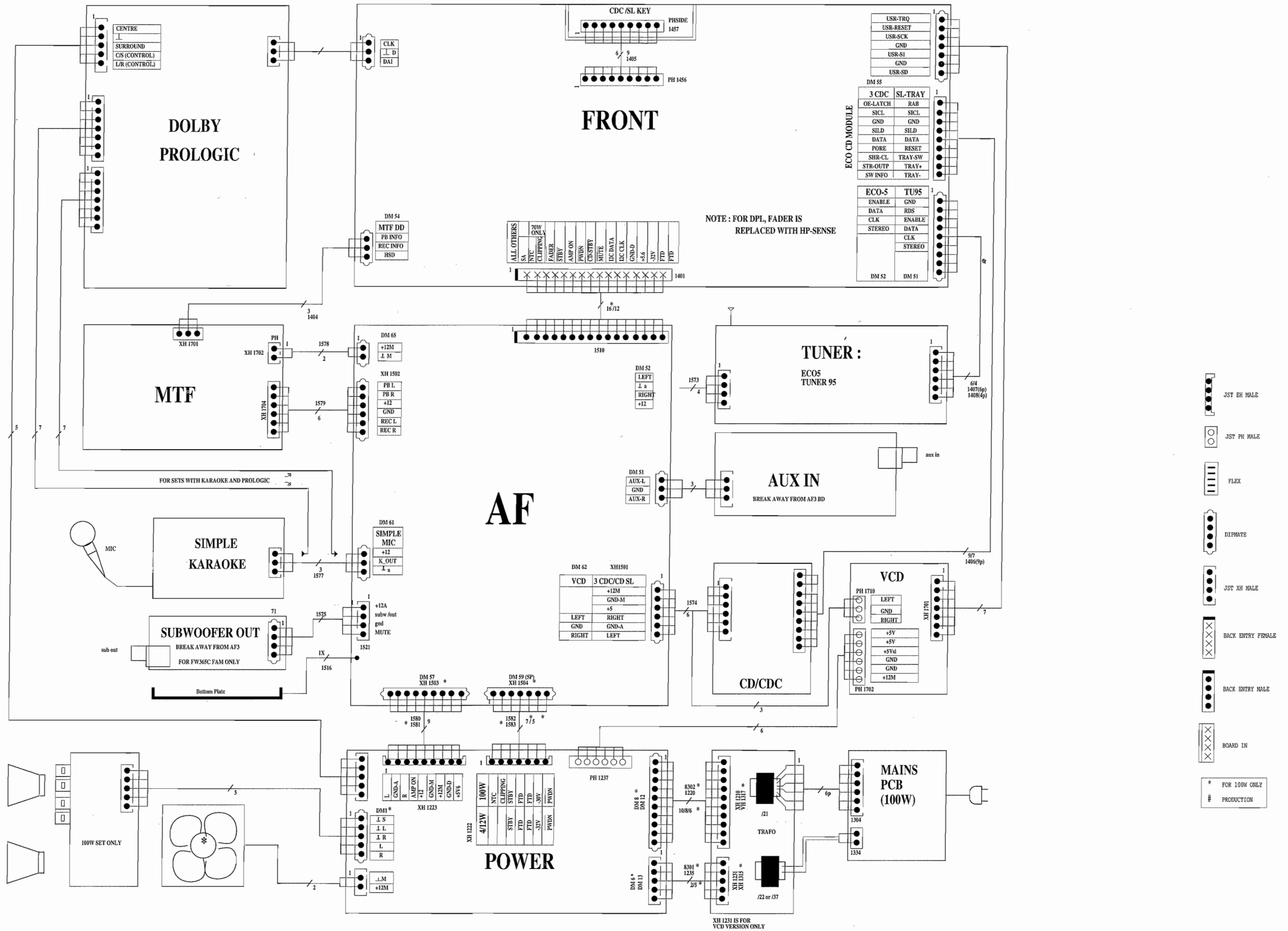
Key activated	Display	Key activated	Display	Key activated	Display
Stop/Clear	01	RDS Mode	13	Scroll Source	25
Program (CDC)	02	Clock Set	14	Incredible Stereo	26
Shuffle	03	Timer Set	15	Dbb	27
Search/Prev	04	Timer On/Off	16	Optimal	28
Play/Pause	05	Demo	17	Jazz	29
Search/Next	06	Volume Up	18	Rock	30
Disc 1	07	Volume Down	19	Pop	31
Disc 2	08	Tuning Down	20	Classic	32
Disc 3	09	Tuning Up	21	HSD	33
CD Open Close	10	Preset Down	22	any RC keys	RC
Program (TU)	11	Preset Up	23		
Band	12	Power/Standby	24		



LEGEND :
NK : FOR NON-KARAOKE
▲ : PROVISIONS FOR UL VERSION



WIRING DIAGRAM



FRONT BOARD

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COMPONENT LAYOUT DIAGRAM

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30 D 1	1415 D 4	1427 B 5	1446 A 2	2410 C 4	3592 B 2	6404 B 2	6422 A 6	6455 B 3	9407 B 1	9420 C 3	9432 C 1	9445 C 2	9459 D 5	9472 A 5	9485 B 6	9501 B 7	9514 B 5	9528 C 2
51 C 1	1416 D 5	1428 B 1	1447 A 6	2422 C 3	3610 B 5	6405 D 3	6423 A 7	6456 B 3	9408 C 1	9421 B 1	9433 C 1	9446 C 4	9460 D 5	9473 A 6	9487 B 6	9502 C 6	9516 C 7	9530 D 5
52 C 1	1417 C 3	1429 D 2	1448 A 6	2425 A 1	5402 C 4	6412 C 3	6441 B 4	6457 B 3	9410 B 2	9422 B 1	9434 C 1	9447 C 3	9461 B 5	9474 B 5	9488 B 6	9503 C 6	9517 C 7	9531 D 6
54 C 2	1418 C 2	1430 B 2	1449 A 7	2426 B 5	5403 C 5	6413 C 2	6446 B 4	6467 C 4	9411 B 2	9423 B 2	9435 C 2	9448 C 3	9462 B 5	9475 B 5	9489 B 6	9504 C 6	9518 C 5	9532 D 6
55 B 7	1419 C 2	1431 B 5	1450 A 2	2441 C 5	5405 B 2	6414 B 2	6447 B 4	7403 C 3	9412 B 2	9424 B 1	9436 C 1	9451 C 3	9463 C 6	9477 B 5	9490 B 6	9506 B 6	9519 C 7	9533 D 6
1400 A 3	1420 C 3	1432 D 3	1456 A 1	2447 D 5	5406 C 3	6415 C 3	6448 B 4	9400 C 4	9413 B 2	9425 C 3	9437 C 2	9452 C 4	9464 B 5	9478 B 6	9491 B 6	9507 C 6	9521 C 6	9534 D 4
1401 D 5	1421 B 7	1433 D 2	1457 A 1	2465 D 1	5410 C 4	6416 D 4	6449 B 4	9401 A 2	9414 B 3	9426 B 2	9438 C 2	9453 C 4	9465 B 5	9479 B 6	9494 C 6	9508 C 7	9522 C 6	9535 C 7
1410 C 6	1422 A 7	1441 A 3	1468 B 7	2466 D 1	5411 C 3	6417 C 6	6450 A 4	9402 A 3	9415 B 3	9427 B 2	9439 C 2	9454 D 4	9466 B 5	9480 B 6	9495 C 6	9509 C 7	9523 C 6	----
1411 C 7	1423 D 6	1442 A 1	1499 B 1	2469 D 3	5421 C 5	6418 C 6	6451 A 3	9403 B 3	9416 B 3	9428 B 2	9441 C 2	9455 C 4	9467 B 5	9481 B 6	9496 C 6	9510 D 6	9524 C 6	
1412 C 7	1424 B 6	1443 A 3	2401 C 4	2470 D 3	6401 D 4	6419 C 7	6452 B 3	9404 B 1	9417 B 3	9429 C 2	9442 C 2	9456 C 5	9468 B 5	9482 B 6	9497 C 6	9511 D 6	9525 C 6	
1413 C 6	1425 D 5	1444 A 7	2402 B 3	3401 B 2	6402 B 2	6420 C 7	6453 B 3	9405 B 1	9418 B 1	9430 C 2	9443 C 2	9457 C 5	9469 A 5	9483 B 6	9498 C 6	9512 C 3	9526 D 6	

1

2

3

4

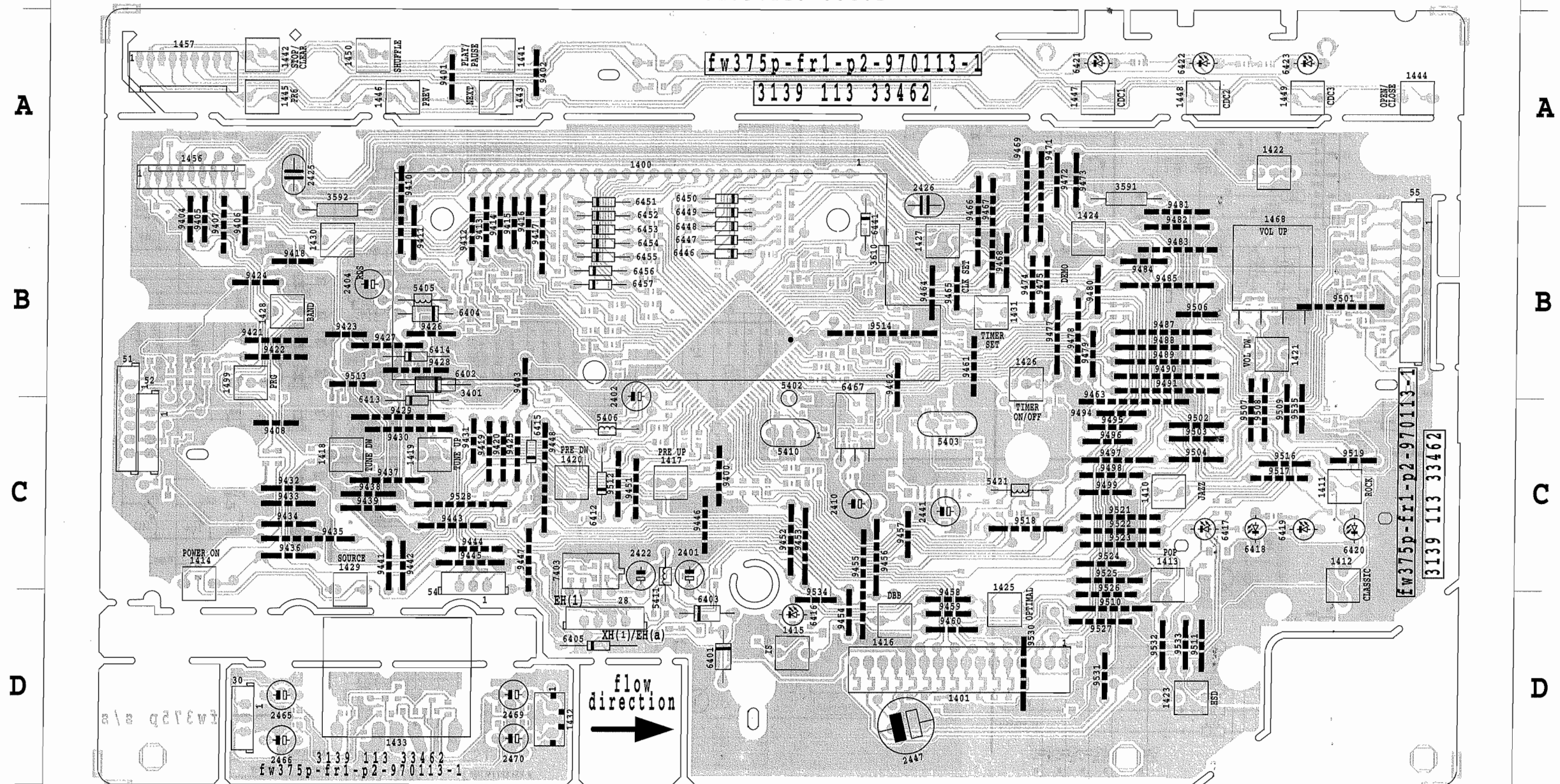
5

6

7

fw375p/fr1panel-p2-970113-1 mpcb
3139 113 33462

FRONT COMPONENT LAYOUT COMPONENT VIEW



This assembly drawing shows a summary of all possible versions.
For components used in as specific version see schematic diagram and respective partslist.

1

2

3

4

5

6

7

This schematic drawing shows a summary of all possible versions. It includes a legend for key functions and a list of components.

KEY FUNCTIONS

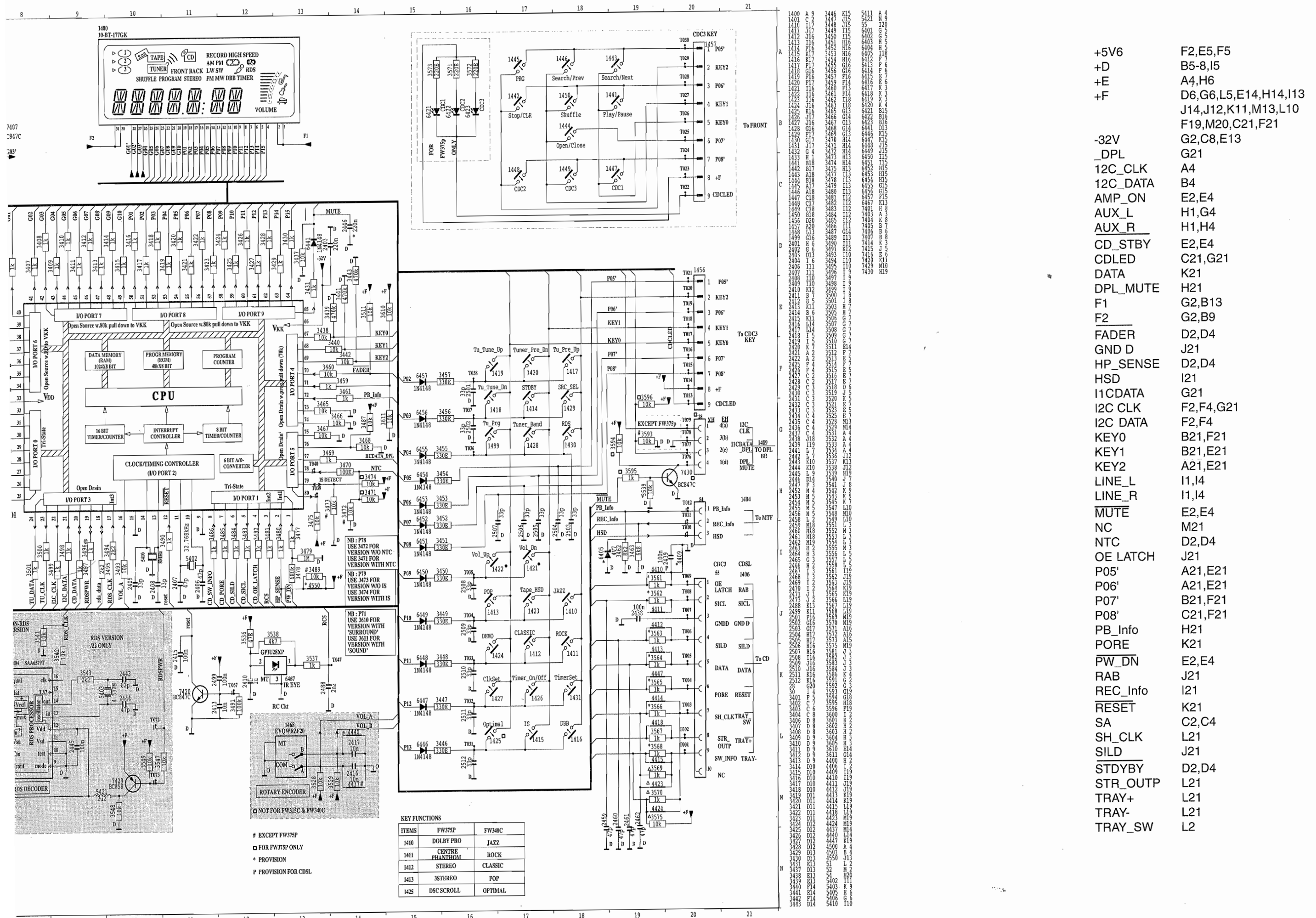
ITEMS	FW375P	FW340C
1410	DOLBY PRO	JAZZ
1411	CENTRE PHANTOM	ROCK
1412	STEREO	CLASSIC
1413	3STEREO	POP
1425	DSC SCROLL	OPTIMAL

COMPONENTS

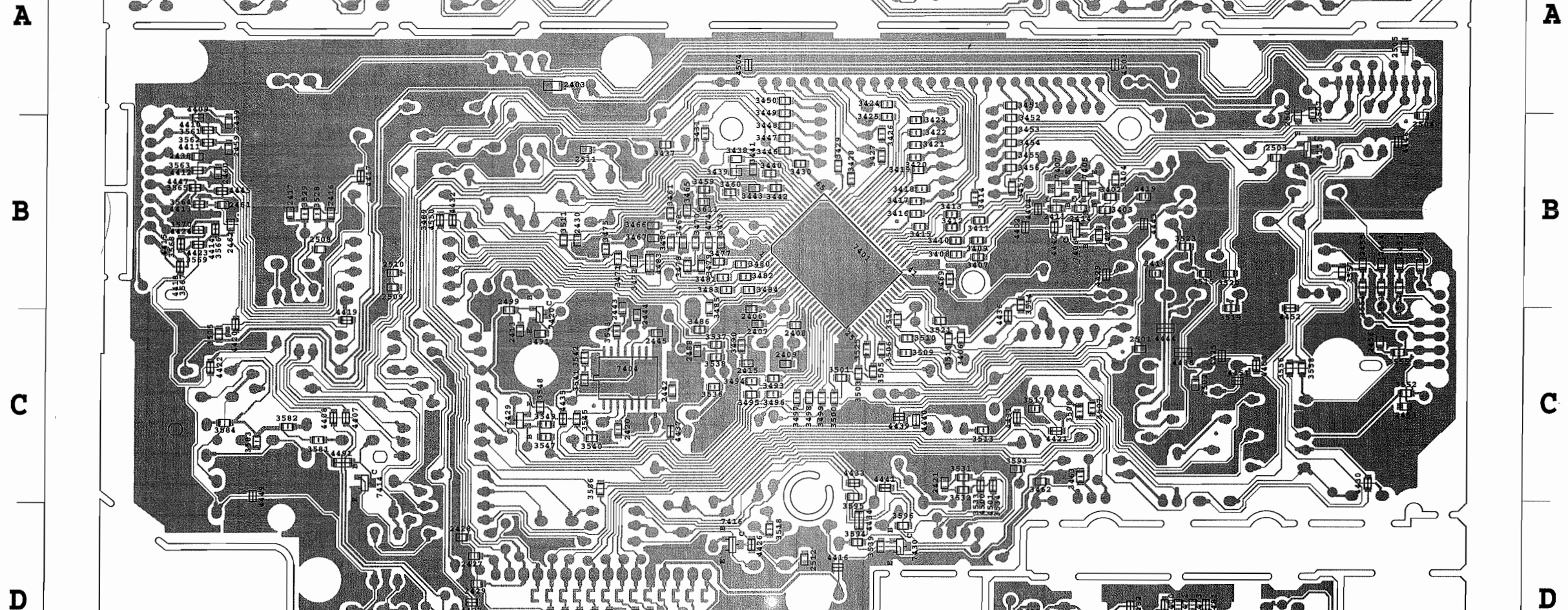
- 1400 10-BT-1776K
- 1401 10-BT-1776K
- 1402 10-BT-1776K
- 1403 10-BT-1776K
- 1404 10-BT-1776K
- 1405 10-BT-1776K
- 1406 10-BT-1776K
- 1407 10-BT-1776K
- 1408 10-BT-1776K
- 1409 10-BT-1776K
- 1410 10-BT-1776K
- 1411 10-BT-1776K
- 1412 10-BT-1776K
- 1413 10-BT-1776K
- 1414 10-BT-1776K
- 1415 10-BT-1776K
- 1416 10-BT-1776K
- 1417 10-BT-1776K
- 1418 10-BT-1776K
- 1419 10-BT-1776K
- 1420 10-BT-1776K
- 1421 10-BT-1776K
- 1422 10-BT-1776K
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- 1424 10-BT-1776K
- 1425 10-BT-1776K
- 1426 10-BT-1776K
- 1427 10-BT-1776K
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- 1492 10-BT-1776K
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- 1494 10-BT-1776K
- 1495 10-BT-1776K
- 1496 10-BT-1776K
- 1497 10-BT-1776K
- 1498 10-BT-1776K
- 1499 10-BT-1776K
- 1500 10-BT-1776K

3139 118 89530 (27.1.97)

KEY FUNCTIONS		
ITEMS	FW375P	FW340C
1410	DOLBY PRO	JAZZ
1411	CENTRE PHANTOM	ROCK
1412	STEREO	CLASSIC
1413	3STEREO	POP
1425	DSC SCROLL	OPTIMAL

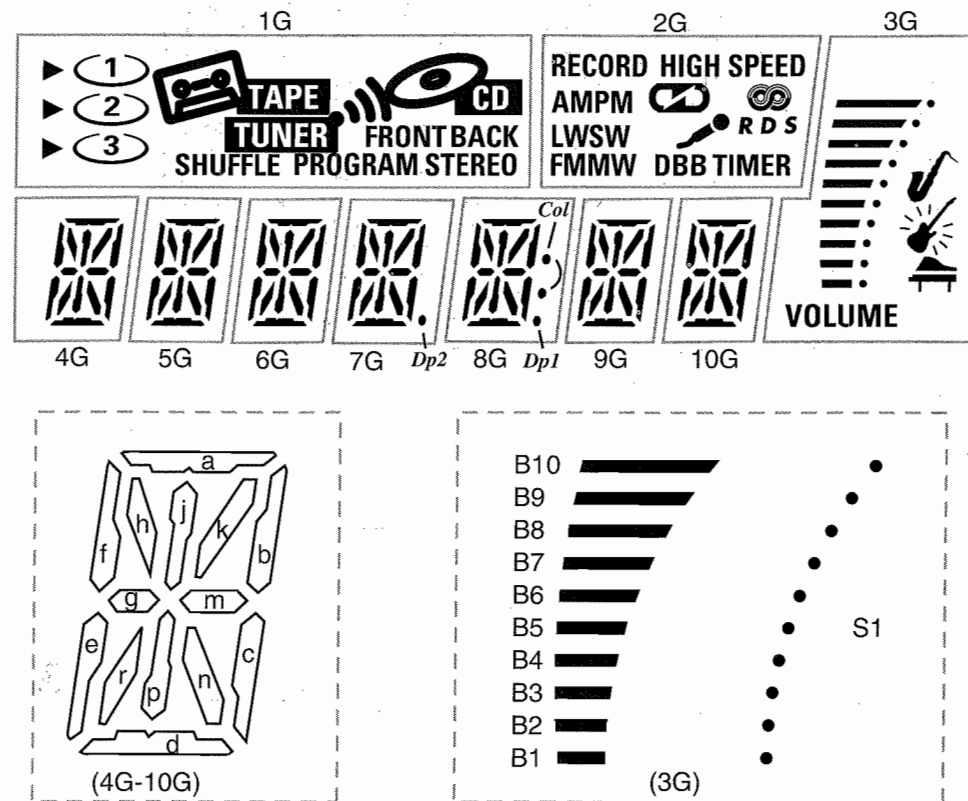


7 6 5 4 3 2 1

[illegible]

fw375p s/s

LCD PIN CONNECTION



	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G
P1	▶ (1)	RECORD	B1	a	a	a	a	a	a	a
P2	▶ (2)	HIGH SPEED	B2	h	h	h	h	h	h	h
P3	▶ (3)	AM	B3	j, p	j, p	j, p	j, p	j, p	j, p	j, p
P4	1 2 3	PM	B4	k	k	k	k	k	k	k
P5	○ (1)	RDS	B5	b	b	b	b	b	b	b
P6	○ (2)	—	B6	f	f	f	f	f	f	f
P7	○ (3)	(B7	m	m	m	m	m	m	m
P8	TAPE)	B8	g	g	g	g	g	g	g
P9	TUNER	—	B9	c	c	c	c	c	c	c
P10	CD	LW	B10	e	e	e	e	e	e	e
P11	FRONT	SW	VOLUME	r	r	r	r	r	r	r
P12	BACK	FM	—	n	n	n	n	n	n	n
P13	SHUFFLE	MW	—	d	d	d	d	d	d	d
P14	PROGRAM	DBB	—	-	-	-	Dp2	Dp1	-	-
P15	STEREO	TIMER	—	-	-	-	-	col	-	-

MICROPROCESSOR PIN DESCRIPTION

T001	Cd Sw Info	T031	P13	T061	Amp_On
T002	Cd Str Output	T032	P12	T062	Stdbby
T003	Cd Sh Clk	T033	P11	T063	-
T004	Cd Pore	T034	P10	T064	Hp Sen
T005	Cd Data	T035	P035	T065	-
T006	Cd Sild	T036	P04	T066	NTC
T007	GND D	T037	P03	T067	-
T008	Cd Sici	T038	P02	T068	E2prom Sup
T009	Cd OE Latch	T039	-	T069	Vdd
T010	HSD	T040	NTC	T070	+F
T011	Rec_Info	T041	Tu Stereo	T071	+D
T012	Pb_Info	T042	Tu Clk	T072	-
T013	Cdcled	T043	Tu Data	T073	-
T014	+F	T044	Tu Enable	T074	-
T015	P08'	T045	Tu RDS	T075	-
T016	P07'	T046	Tu GND	T076	Mute
T017	KEY 0	T047	-	T077	I2C Data
T018	KEY 1	T048	-	T078	GND
T019	P06'	T049	-	T079	I2C Clk
T020	KEY 2	T050	-		
T021	P05'	T051	FTD (F2)		
T022	Cdcled	T052	FTD (F1)		
T023	+F	T053	-32V		
T024	P08'	T054	+5V6		
T025	P07'	T055	+D		
T026	KEY 0	T056	I2C Clk		
T027	KEY 1	T057	I2C Data		
T028	P06'	T058	Mute		
T029	KEY 2	T059	Cd Stdbby		
T030	P05'	T060	Pw_Dn		

ELECTRICAL PARTSLIST - FRONT BOARD

MISCELLANEOUS

1400	4822 135 00014	Fluorescent Display
1410	4822 276 13114	Tact Switch
1411	4822 276 13114	Tact Switch
1412	4822 276 13114	Tact Switch
1413	4822 276 13114	Tact Switch
1414	4822 276 13114	Tact Switch
1415	4822 276 13114	Tact Switch
1416	4822 276 13114	Tact Switch
1417	4822 276 13114	Tact Switch
1418	4822 276 13114	Tact Switch
1419	4822 276 13114	Tact Switch
1420	4822 276 13114	Tact Switch
1423	4822 276 13114	Tact Switch
1424	4822 276 13114	Tact Switch
1425	4822 276 13114	Tact Switch
1426	4822 276 13114	Tact Switch
1427	4822 276 13114	Tact Switch
1428	4822 276 13114	Tact Switch
1429	4822 276 13114	Tact Switch
1431	4822 276 13114	Tact Switch
1441	4822 276 13114	Tact Switch
1442	4822 276 13114	Tact Switch
1443	4822 276 13114	Tact Switch
1444	4822 276 13114	Tact Switch
1445	4822 276 13114	Tact Switch
1446	4822 276 13114	Tact Switch
1450	4822 276 13114	Tact Switch
1468	4822 101 90254	Switch
1499	4822 276 13114	Tact Switch

CAPACITORS

2401	4822 124 41584	100µF 20% 10V
2402	4822 124 42446	100µF 20% 10V
2403	4822 122 33496	100nF 10%X7R 63V
2404	4822 124 41596	22µF 20% 50V
2406	5322 122 32481	15pF 5% 50V
2407	5322 122 32481	15pF 5% 50V
2408	5322 122 32659	33pF 5% 50V
2409	5322 122 33514	68pF 5% 50V
2410	4822 124 40242	1µF 20% 63V
2411	5322 122 32531	100pF 5% NP0 50V
2412	5322 122 32531	100pF 5% NP0 50V
2413	4822 122 33177	10nF 20% X7R 50V
2414	5322 122 32531	100pF 5% NP0 50V
2415	4822 126 13838	100nF Y5V 0805 50V P
2416	4822 122 33177	10nF 20% X7R 50V
2417	4822 122 33177	10nF 20% X7R 50V
2418	5322 122 34099	470pF 10% 63V -/21/34
2419	5322 122 34099	470pF 10% 63V -/21/34
2422	4822 124 41584	100µF 20% 10V
2425	4822 121 51252	470nF 5% 63V
2426	4822 121 51252	470nF 5% 63V
2428	4822 122 33177	10nF 20% X7R 50V
2429	5322 122 34099	470pF 10% X7R 63V
2431	5322 122 34099	470pF 10% X7R 63V
2432	5322 122 34099	470pF 10% X7R 63V

2433	5322 122 34099	470pF 10% X7R 63V
2434	5322 122 34099	470pF 10% X7R 63V
2435	5322 122 34099	470pF 10% X7R 63V
2436	5322 122 32452	47pF 5% NPO 63V
2437	5322 122 32452	47pF 5% NPO 63V
2438	4822 126 13838	100nF Y5V 0805 50V
2439	4822 126 13838	100nF Y5V 0805 50V
2441	4822 124 41576	2.2µF 20% 50V -/22/25
2442	5322 116 80853	560pF 5% NP0 63V -/22/25
2443	4822 122 33515	82pF 5% NP0 63V -/22/25
2444	5322 122 32452	47pF 5% NP0 63V -/22/25
2447		100µF 20% 63V -/21/34
2452	5322 122 32452	47pF 5% NP0 63V -/22/25
2453	5322 122 32452	47pF 5% NP0 63V
2454	5322 122 32452	47pF 5% NP0 63V
2455	5322 122 32452	47pF 5% NP0 63V
2456	5322 122 32452	47pF 5% NP0 63V
2458	5322 126 10184	680pF 5% NP0 63V -/22/25
2459	5322 122 32452	47pF 5% NP0 63V
2460	5322 122 32452	47pF 5% NP0 63V
2461	5322 122 32452	47pF 5% NP0 63V
2462	5322 122 32452	47pF 5% NP0 63V
2488	4822 122 33175	2.2nF 20% X7R 50V
2499	4822 126 13838	100nF Y5V 0805 50V
2501	5322 122 32659	33pF 5% NP0 63V
2502	5322 122 32659	33pF 5% NP0 63V
2503	5322 122 32659	33pF 5% NP0 63V
2504	5322 122 32659	33pF 5% NP0 63V
2505	5322 122 32659	33pF 5% NP0 63V
2506	5322 122 32659	33pF 5% NP0 63V
2507	5322 122 32659	33pF 5% NP0 63V
2508	5322 122 32659	33pF 5% NP0 63V
2509	5322 122 32659	33pF 5% NP0 63V
2510	5322 122 32659	33pF 5% NP0 63V
2511	5322 122 32659	33pF 5% NP0 63V
2512	5322 122 32659	33pF 5% NP0 63V

RESISTORS

3402	4822 051 20104	100K 5% 0,1W
3403	4822 051 20104	100K 5% 0,1W
3404	4822 051 20104	100K 5% 0,1W
3406	4822 051 10102	1K 2% 0,25W
3407	4822 051 10102	1K 2% 0,25W
3408	4822 051 10102	1K 2% 0,25W
3409	4822 051 10102	1K 2% 0,25W
3410	4822 051 10102	1K 2% 0,25W
3411	4822 051 10102	1K 2% 0,25W
3412	4822 051 10102	1K 2% 0,25W
3413	4822 051 10102	1K 2% 0,25W
3414	4822 051 10102	1K 2% 0,25W
3415	4822 051 10102	1K 2% 0,25W
3416	4822 051 10102	1K 2% 0,25W
3417	4822 051 10102	1K 2% 0,25W
3418	4822 051 10102	1K 2% 0,25W
3419	4822 051 10102	1K 2% 0,25W
3420	4822 051 10102	1K 2% 0,25W

ELECTRICAL PARTSLIST - FRONT BOARD

3421	4822 051 10102	1K 2% 0,25W
3422	4822 051 10102	1K 2% 0,25W
3423	4822 051 10102	1K 2% 0,25W
3424	4822 051 10102	1K 2% 0,25W
3425	4822 051 10102	1K 2% 0,25W
3426	4822 051 10102	1K 2% 0,25W
3427	4822 051 10102	1K 2% 0,25W
3428	4822 051 10102	1K 2% 0,25W
3429	4822 051 10102	1K 2% 0,25W
3430	4822 051 10102	1K 2% 0,25W
3431	4822 051 10102	1K 2% 0,25W
3437	4822 117 10833	10K 10% 0,1W
3438	4822 117 10833	10K 10% 0,1W
3439	4822 051 20474	470K 5% 0,1W
3440	4822 117 10833	10K 10% 0,1W
3441	4822 051 20474	470K 5% 0,1W
3442	4822 117 10833	10K 10% 0,1W
3443	4822 051 20474	470K 5% 0,1W
3446	4822 051 20331	330R 5% 0,1W
3447	4822 051 20331	330R 5% 0,1W
3448	4822 051 20331	330R 5% 0,1W
3449	4822 051 20331	330R 5% 0,1W
3450	4822 051 20331	330R 5% 0,1W
3451	4822 051 20331	330R 5% 0,1W
3452	4822 051 20331	330R 5% 0,1W
3453	4822 051 20331	330R 5% 0,1W
3454	4822 051 20331	330R 5% 0,1W
3455	4822 051 20331	330R 5% 0,1W
3456	4822 051 20331	330R 5% 0,1W
3457	4822 051 20331	330R 5% 0,1W
3459	4822 051 10102	1K 2% 0,25W
3460	4822 117 10833	10K 10% 0,1W
3461	4822 051 10102	1K 2% 0,25W
3462	4822 051 20822	8K2 5% 0,1W
3463	4822 051 20682	6K8 5% 0,1W
3465	4822 117 10833	10K 10% 0,1W
3466	4822 117 10833	10K 10% 0,1W
3467	4822 117 10833	10K 10% 0,1W
3468	4822 117 10833	10K 10% 0,1W
3469	4822 051 10102	1K 2% 0,25W
3470	4822 051 20101	100R 5% 0,1W
3472	4822 117 10833	10k 1% 0,1W
3474	4822 117 10833	10k 10% 0,1W
3475	4822 117 10833	10K 10% 0,1W
3477	4822 051 10102	1K 2% 0,25W
3478	4822 051 20684	680K 5% 0,1W
3479	4822 051 20105	1M 5% 0,1W
3480	4822 051 10102	1K 2% 0,25W
3481	4822 051 10102	1K 2% 0,25W
3482	4822 051 10102	1K 2% 0,25W
3483	4822 051 10102	1K 2% 0,25W
3484	4822 051 10102	1K 2% 0,25W
3485	4822 051 10102	1K 2% 0,25W
3486	4822 051 10102	1K 2% 0,25W
3489	4822 117 10833	10k 1% 0,1W

3490	4822 051 10102	1K 2% 0,25W
3491	4822 051 20104	100K 5% 0,1W
3493	4822 117 10833	10K 10% 0,1W
3494	4822 117 11449	2K2 1% 0,1W
3495	4822 117 11449	2K2 1% 0,1W
3496	4822 051 10102	1K 2% 0,25W -/22/25
3497	4822 051 10102	1K 2% 0,25W
3498	4822 051 10102	1K 2% 0,25W
3499	4822 051 10102	1K 2% 0,25W
3500	4822 051 10102	1K 2% 0,25W
3501	4822 051 10102	1K 2% 0,25W
3503	4822 051 10102	1K 2% 0,25W
3505	4822 051 10102	1K 2% 0,25W
3506	4822 051 10102	1K 2% 0,25W
3507	4822 051 20272	2K7 5% 0,1W
3508	4822 051 20472	4K7 5% 0,1W
3509	4822 117 10833	10K 10% 0,1W
3510	4822 051 10102	1K 2% 0,25W
3511	4822 117 10833	10K 10% 0,1W
3512	4822 051 10102	1K 2% 0,25W
3513	4822 117 10833	10K 10% 0,1W
3514	4822 051 20008	Jumper
3516	4822 117 10833	10K 10% 0,1W
3517	4822 117 10833	10K 10% 0,1W
3518	4822 051 20331	330R 5% 0,1W
3521	4822 117 10833	10K 10% 0,1W
3525	4822 051 10102	1K 2% 0,25W
3528	4822 117 10833	10k 10% 0,1W
3529	4822 117 10833	10k 10% 0,1W
3531	4822 117 10833	10K 10% 0,1W
3532	4822 117 10833	10K 10% 0,1W
3533	4822 051 10102	1K 2% 0,25W
3534	4822 051 10102	1K 2% 0,25W
3536	4822 051 20479	47R 5% 0,1W
3537	4822 051 10102	1K 2% 0,25W
3538	4822 051 20472	4K7 5% 0,1W -/21
3540	4822 117 10833	10K 10% 0,1W -/21
3541	4822 117 10833	10K 10% 0,1W -/21
3542	4822 117 10833	10K 10% 0,1W -/22/25
3543	4822 117 11449	2K2 1% 0,1W -/22/25
3545	4822 117 10833	10K 10% 0,1W -/22/25
3547	4822 117 10833	10K 10% 0,1W -/22/25
3548	4822 117 10833	10K 10% 0,1W -/22/25
3549	4822 117 10833	10K 10% 0,1W -/22/25
3551	4822 117 10833	10K 10% 0,1W -/22/25
3552	4822 051 10102	1K 2% 0,25W
3553	4822 051 10102	1K 2% 0,25W
3554	4822 051 10102	1K 2% 0,25W
3555	4822 051 10102	1K 2% 0,25W
3556	4822 117 10833	10K 10% 0,1W
3557	4822 117 10833	10K 10% 0,1W
3558	4822 117 10833	10K 10% 0,1W
3575	4822 117 10833	10K 10% 0,1W
3581	4822 051 20331	330R 5% 0,1W
3582	4822 051 20331	330R 5% 0,1W

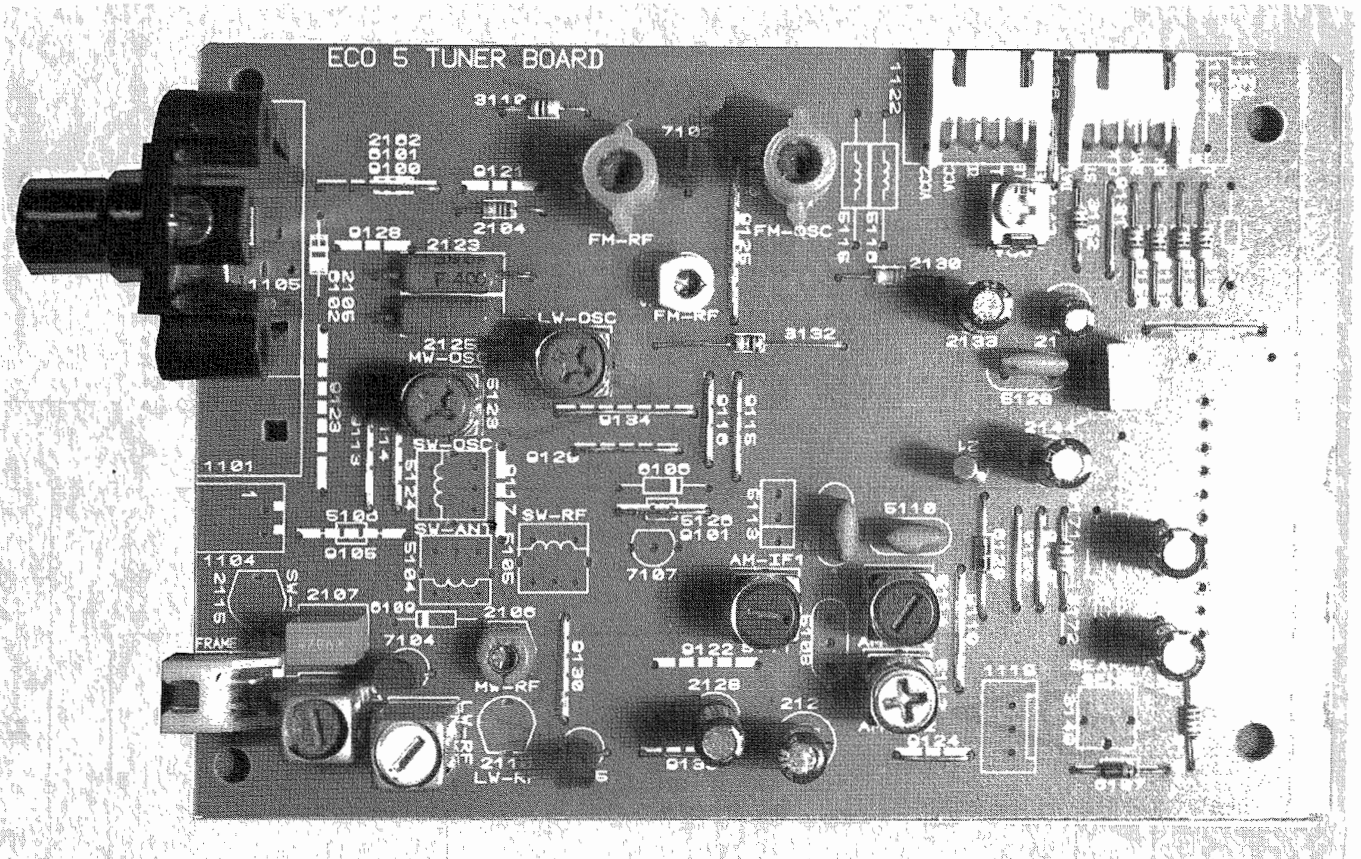
ELECTRICAL PARTSLIST - FRONT BOARD

RESISTORS			JUMPERS		
3583	4822 051 20331	330R 5% 0,1W	4401	4822 051 20008	JUMPER OR
3584	4822 051 20331	330R 5% 0,1W	4402	4822 051 20008	JUMPER OR -/21
3586	4822 051 20392	3k9 5% 0,1W	4403	4822 051 20008	JUMPER OR
3591	4822 052 10108	1R 5% 0,33W	4404	4822 051 20008	JUMPER OR -/21
3592	4822 052 10108	1R 5% 0,33W	4407	4822 051 20008	JUMPER OR
3593	4822 117 10833	10K 10% 0,1W	4408	4822 051 20008	JUMPER OR
3611	4822 117 10833	10K 10% 0,1W	4410	4822 051 20008	JUMPER OR
			4411	4822 051 20008	JUMPER OR
			4412	4822 051 20008	JUMPER OR
			4413	4822 051 20008	JUMPER OR
			4416	4822 051 20008	JUMPER OR
			4417	4822 051 20008	JUMPER OR
			4418	4822 051 20008	JUMPER OR
			4419	4822 051 20008	JUMPER OR
			4420	4822 051 20008	JUMPER OR
			4421	4822 051 20008	JUMPER OR
			4422	4822 051 20008	JUMPER OR
			4423	4822 051 20008	JUMPER OR
			4424	4822 051 20008	JUMPER OR
			4425	4822 051 20008	JUMPER OR
			4426	4822 051 20008	JUMPER OR
			4427	4822 051 20008	JUMPER OR
			4428	4822 051 20008	JUMPER OR
			4429	4822 051 20008	JUMPER OR
			4430	4822 051 20008	JUMPER OR
			4431	4822 051 20008	JUMPER OR
			4432	4822 051 20008	JUMPER OR
			4433	4822 051 20008	JUMPER OR
			4434	4822 051 10008	JUMPER OR
			4435	4822 051 20008	JUMPER OR
			4436	4822 051 20008	JUMPER OR
			4438	4822 051 10008	JUMPER OR -/21
			4439	4822 051 20008	JUMPER OR
			4441	4822 051 20008	JUMPER OR
			4442	4822 051 20008	JUMPER OR
			4443	4822 051 20008	JUMPER OR
			4444	4822 051 10008	JUMPER OR -/21
			4445	4822 051 20008	JUMPER OR
			4446	4822 051 20008	JUMPER OR
			4447	4822 051 20008	JUMPER OR
			4449	4822 051 20008	JUMPER OR
			4451	4822 051 20008	JUMPER OR
			4452	4822 051 20008	JUMPER OR
			4453	4822 051 20008	JUMPER OR
			4483	4822 051 10008	JUMPER OR -/21
			4491	4822 051 20008	JUMPER OR
			4503	4822 051 20008	JUMPER OR -/21
			4504	4822 051 20008	JUMPER OR -/21

ELECTRICAL PARTSLIST - FRONT BOARD

COILS & INDUCTORS		
5402	4822 242 70938	TA252E00 (32,768KHz)
5403	4822 242 72195	CRYSTAL -/22/25
5405	4822 156 21721	INDUCTOR 2,2μH 10%
5406	4822 156 21721	INDUCTOR 2,2μH 10%
5410	4822 242 72066	CERAMIC FILTER 8MHz
5411	4822 156 21721	INDUCTOR 2,2μH 10%
5421	4822 156 21721	INDUCTOR 2,2μH 10%
DIODES		
6401	5322 130 30684	1N4002
6402	5322 130 30684	1N4002
6403	5322 130 30684	1N4002
6404	5322 130 30684	1N4002
6405	4822 130 34174	BZX79-B4V7
6412	4822 130 30621	1N4148
6413	4822 130 30621	1N4148
6414	4822 130 30621	1N4148
6415	4822 130 30621	1N4148
6416	4822 130 10791	LED
6417	4822 130 10791	LED
6418	4822 130 10791	LED
6419	4822 130 10791	LED
6420	4822 130 10791	LED
6441	4822 130 30621	1N4148
6446	4822 130 30621	1N4148
6447	4822 130 30621	1N4148
6448	4822 130 30621	1N4148
6449	4822 130 30621	1N4148
6450	4822 130 30621	1N4148
6451	4822 130 30621	1N4148
6452	4822 130 30621	1N4148
6453	4822 130 30621	1N4148
6454	4822 130 30621	1N4148
6455	4822 130 30621	1N4148
6456	4822 130 30621	1N4148
6457	4822 130 30621	1N4148
6467	4822 130 10165	GP1U28XP
INTERGRATED CIRCUITS		
7401	4822 209 15397	TMP87CP71F-332S51361
7403	4822 209 31508	ST24C01B6
TRANSISTORS		
7404	5322 130 42755	BC847C
7405	5322 130 42755	BC847C
7406	5322 130 42755	BC847C
7407	5322 130 42755	BC847C
7414	5322 130 42755	BC847C
7416	5322 130 42755	BC847C
7420	5322 130 42755	BC847C
7429	4822 130 42513	BC858C

Note : Only the parts mentioned in this list are normal service spare parts.



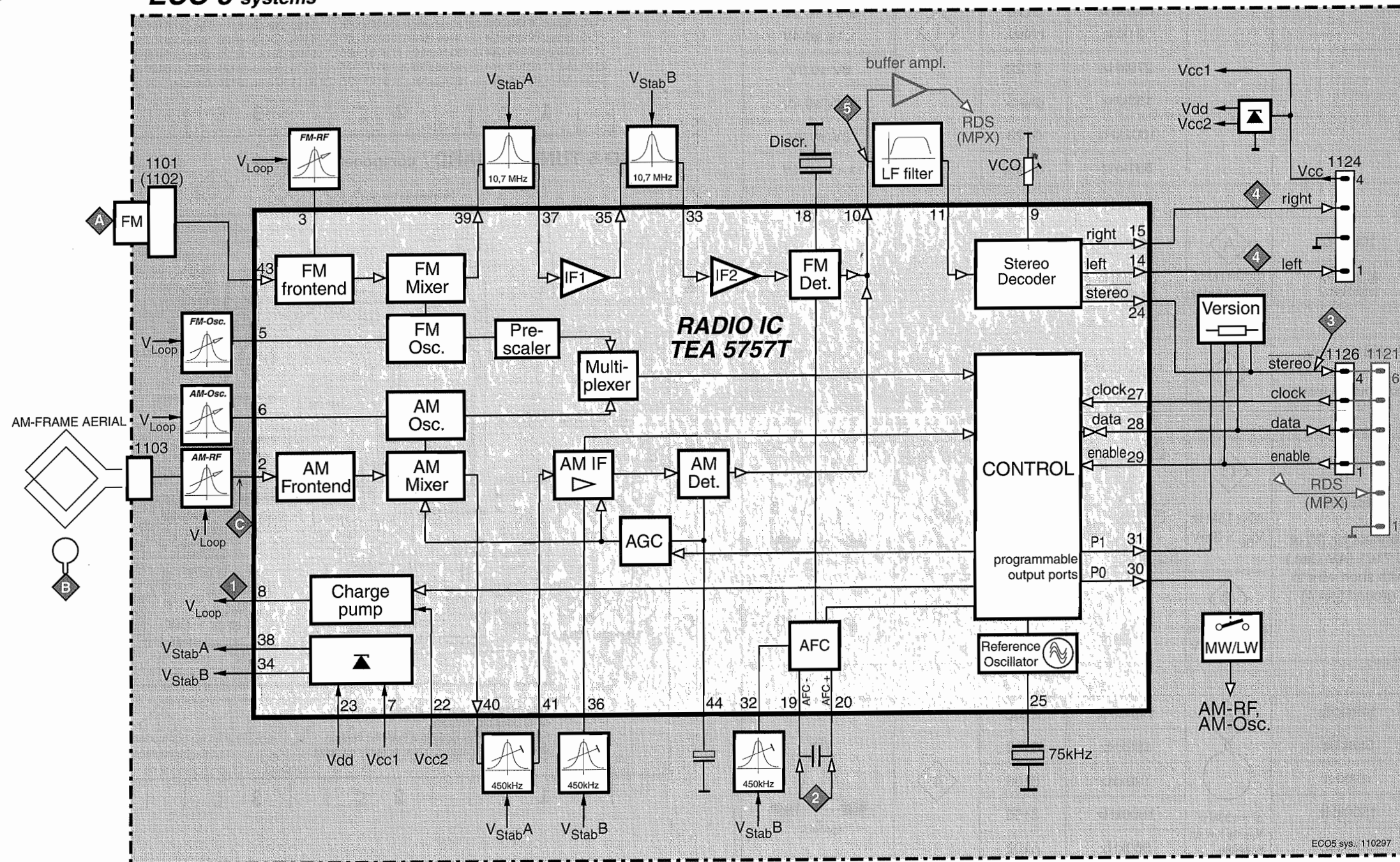
TUNER BOARD ECO5

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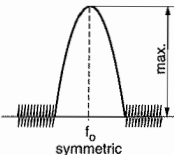

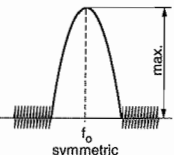
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Component layout	7B-2
Circuit diagram	7B-3
Partslist	7B-4

BLOCKDIAGRAM

TUNER BOARD **ECO 5 systems**



TUNER ADJUSTMENT TABLE (ECO5 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	1	8V ±0.2V
MW FM/AM-version, 10kHz grid 530 - 1700kHz			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
	FM/MW-version, 9kHz grid 531 - 1602kHz		1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
LW 153 - 279kHz			1602kHz	5123		6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
		1602kHz	5123	8V ±0.2V		
		531kHz	check	1.1V ±0.4V		
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A mod=1kHz Δf=±22.5kHz	108MHz	2155	4	MAX
	87.5MHz (65.81MHz)		87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz ¹⁾
AM IF						
MW	450kHz connect pin 26 of IC 7101 (AM Osc.) with short wire to ground (pin 4)	C Δf=±15kHz V _{RF} = 3mV	IC 7101 36 100nF 220R	5111	4	
			IC 7101 40 100nF 220R see remark 2)	5112		
AM AFC MW		C continuous wave V _{RF} = 10mV		5114	2	0 ± 2 mV DC
AM RF ³⁾						
MW ⁴⁾ FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	B 	1494kHz	2106	4	
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz		1500kHz	2106		
	560kHz	Δf = ±30kHz V _{RF} as low as possible	560kHz	5102		

Use service test program. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

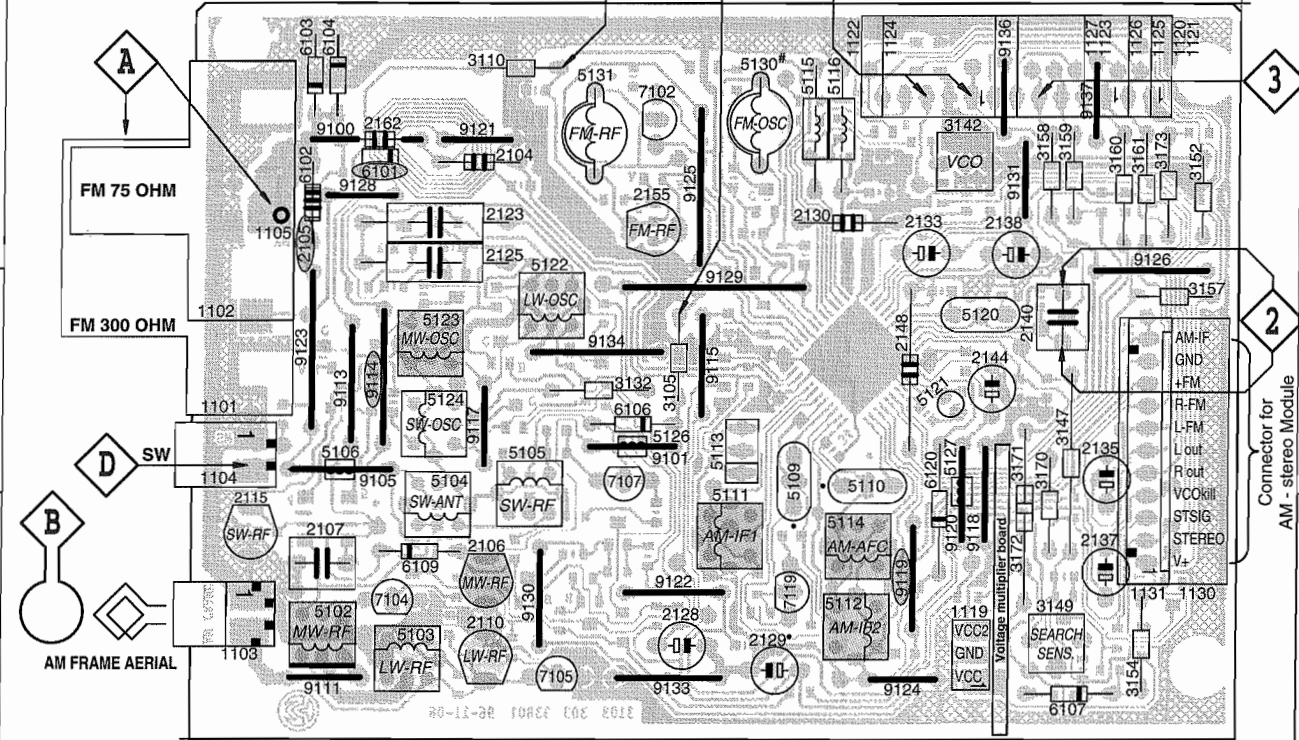
- 1) If sensitivity of frequency counter is too low adjust to max. channel separation
(input signal: stereo left 90% + 9%, adjust output on right channel to minimum)
- 2) RC network serves for damping the IF-filter while adjusting the other one.
- 3) For AM RF adjustments the original frame antenna has to be used !
- 4) MW has to be aligned before LW.

↑ Repeat

1101 A1	2106 C2	2137 C5	3147 B5	3172 C5	5112 C4	5130 A3	7104 C2	9118 B4	9130 C3
1102 A1	2107 C2	2138 A5	3149 C5	3173 A5	5113 B3	5131 A3	7105 C3	9119 C4	9131 A5
1103 C1	2110 C2	2140 B5	3152 A5	5102 C2	5114 C4	6101 A2	7107 B3	9120 B4	9133 C3
1104 B1	2115 C1	2144 B5	3154 C5	5103 C2	5115 A4	6102 A1	9100 A2	9121 A2	9134 B3
1105 A1	2123 A2	2148 B4	3157 B5	5104 C2	5116 A4	6103 A1	9101 B3	9122 C3	9136 A5
1119 C5	2125 A2	2155 A3	3158 A5	5105 B2	5120 B4	6104 A2	9105 B2	9123 B1	9137 A5
1120 A5	2128 C3	2162 A2	3159 A5	5106 B2	5121 B4	6106 B3	9111 C2	9124 C4	
1130 B5	2129 C4	3105 B3	3160 A5	5108 C4	5122 B3	6107 C5	9113 B2	9125 A3	
1131 B5	2130 A4	3110 A2	3161 A5	5109 B4	5123 B2	6109 C2	9114 B2	9126 B5	
2104 A2	2133 A4	3132 B3	3170 C5	5110 B4	5124 B2	6120 C4	9115 B3	9128 A2	
2105 A1	2135 B5	3142 A4	3171 C5	5111 C3	5126 B3	7102 A3	9117 B2	9129 B3	

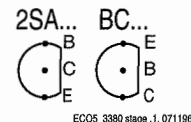
2101 C4	2119 B4	2141 B1	2154 C3	3101 C3	3116 A3	3133 B4	3153 C2	4103 C2	4151 B3	6110 A4	7121 B3
2102 C4	2120 B4	2142 B1	2156 C4	3102 C3	3117 B4	3134 B4	3155 A2	4104 A2	4152 B3	6111 B4	7122 B4
2103 C3	2122 B3	2143 A1	2157 B4	3103 C3	3118 B3	3136 B4	3156 A1	4105 B3	4153 B4	6130 C2	7123 B4
2108 A4	2124 A5	2145 C1	2158 B4	3104 B3	3120 B4	3137 B4	3167 C2	4106 B4	4154 C3	6131 C3	7124 C4
2109 A4	2126 C2	2146 C1	2159 C2	3106 C4	3121 A3	3140 B1	3168 B3	4107 C4	4155 A4	7101 B2	
2112 B5	2127 C2	2147 C1	2160 C4	3108 A4	3122 B3	3141 C2	3169 B2	4108 B4	4156 A2	7103 C2	
2113 A4	2131 C2	2149 B2	2161 A3	3109 A4	3123 A3	3143 C2	3175 A2	4109 A3	4157 B3	7106 A4	
2114 A4	2132 C1	2150 B2	2163 A2	3111 A3	3125 A3	3144 C2	3176 C2	4110 A3	4158 C2	7108 A3	
2116 B3	2134 C1	2151 C2	2165 B3	3112 A3	3126 B3	3145 C2	3177 A1	4111 C1	4159 A2	7109 A3	
2117 A3	2136 B1	2152 C3	2166 B2	3114 A3	3127 B3	3146 A1	4101 A4	4120 C2	4160 A1	7111 A1	
2118 B4	2139 B2	2153 C3	2167 B2	3115 A3	3128 B3	3148 A1	4102 A4	4150 B2	6105 A4	7120 B4	

ECO 5 TUNER BOARD / component side view

In the East European version
coil 5130 has to be rotated 180°.

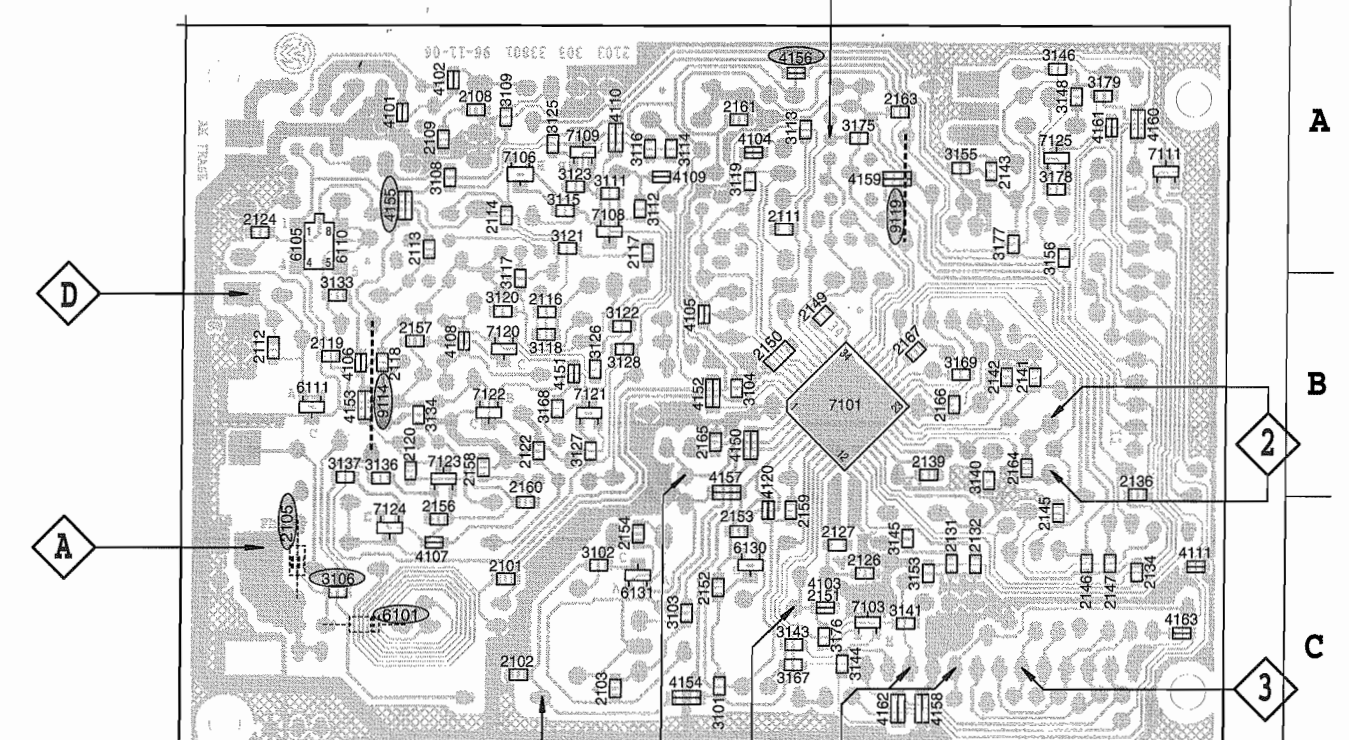
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

marked components to be assembled
as service solution for **Local/DX** - switching



ECOS 3380 stage 1, 071196

ECO 5 TUNER BOARD / copper side view



41... Chip jumper
(not all items shown
in schematic diagram)

marked components to be assembled
as service solution for **Local/DX** - switching

This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

ECOS 3380 stage 1, 071196

[illegible]

MISCELLANEOUS

1101	4822 267 31505	SOCKET CLICKFIT (/14)
1102	4822 267 10283	SOCKET COAXIAL 75Ω

CAPACITORS

2101	5322 122 32531	100pF 5% 50V
2101	5322 122 32452	47pF 5% 50V -/37
2102	4822 122 33177	10nF 20% 50V
2103	5322 122 34123	1nF 10% 50V
2104	4822 122 33195	100pF 10% 50V
2106	4822 125 50355	TRIMCAP. 4-20pF (/00,/34)
2106	4822 125 60101	TRIMCAP. 3-11pF (/21,/37)
2107	4822 121 51319	1μF 10% 63V
2108	5322 122 32531	100pF 5% 50V (/00,/34)
2109	5322 122 32448	10pF 5% 50V (/00,/34)
2120	5322 122 31946	27pF 5% 63V (/00,/34)
2120	5322 122 32658	22pF 5% 50V (/21,/37)
2122	4822 122 33891	3.3nF 10% 63V (/00,/34)
2123	4822 121 51254	390pF 1% 400V (/00,/34)
2125	4822 121 51381	560pF 5% 400V
2126	5322 122 31863	330pF 5% 50V
2127	4822 126 13473	220nF +80-20% 50V
2128	4822 124 41579	10μF 20% 50V
2129	4822 124 41584	100μF 20% 10V
2130	4822 126 11585	22nF +80-20% 25V
2131	4822 126 13482	470nF 16V
2132	4822 126 13482	470nF 16V
2133	4822 124 40242	1μF 20% 63V
2134	4822 122 33128	15nF 10% 63V (not for /37)
2134	5322 122 32654	22nF 10% 63V (/37)
2135	4822 124 40746	0.22μF 20% 63V
2136	4822 122 33128	15nF 10% 63V
2136	5322 122 32654	22nF 10% 63V (/37)
2137	4822 124 40746	0.22μF 20% 63V
2138	4822 124 41576	2.2μF 20% 50V
2139	5322 122 32447	1pF 5% 50V
2141	4822 126 10002	100nF 20% 63V
2142	4822 126 10002	100nF 20% 63V
2143	4822 126 13473	220nF +80-20% 50V
2144	4822 124 40242	1μF 20% 63V
2145	4822 122 33575	220pF 5% 50V
2146	4822 122 33575	220pF 5% 50V
2147	4822 122 33575	220pF 5% 50V
2148	4822 126 11585	22nF +80-20% 25V
2149	5322 122 32654	22nF 10% 63V
2150	4822 122 31947	100nF 20% 63V
2152	5322 116 80853	560pF 5% 63V (/34)
2152	4822 122 33342	33nF 10% 63V
2153	4822 122 32139	12pF 2% 63V (/34)
2153	4822 126 13689	18pF 1% 63V

CAPACITORS

2155	4822 125 60101	3P0-11pF N45 100V
2158	5322 122 32448	10pF 5% 50V (/00,/34)
2159	5322 122 32659	33pF 5% 50V
2160	5322 122 32654	22nF 10% 63V
2161	4822 126 10002	100nF 20% 63V (/00,/34)
2163	4822 126 10002	100nF 20% 63V (/00,/34)
2164	4822 126 13482	470nF 20% 16V
2165	4822 126 10002	100nF 20% 63V
2166	5322 122 34123	1nF 10% 50V
2167	4822 122 32139	12pF 2% 63V

RESISTORS

3101	4822 051 20562	5k6 5% 0.1W (/34)
3101	4822 051 20333	33k 5% 0.1W
3102	4822 051 20104	100k 5% 0.1W
3103	4822 051 20183	18k 5% 0.1W
3104	4822 051 20181	180Ω 5% 0.1W
3105	4822 116 52215	220Ω 5% 0.5W
3108	4822 051 20222	2k2 5% 0.1W (/00,/34)
3109	4822 051 20472	4k7 5% 0.1W (/00,/34)
3110	4822 116 52195	47Ω 5% 0.5W
3120	4822 051 20008	0Ω Jumper
3123	4822 051 20472	4k7 5% 0.1W (/00,/34)
3125	4822 051 20103	10k 5% 0.1W (/00,/34)
3128	4822 051 20222	2k2 5% 0.1W (/00,/34)
3132	4822 116 52195	47Ω 5% 0.5W
3134	4822 051 20224	220k 5% 0.1W
3137	4822 051 20223	22k 5% 0.1W (/00,/34)
3140	4822 051 20008	0Ω Jumper (if 5120 4822 242 82065)
3140	4822 117 10353	150Ω 1% 0.1W (if 5120 4822 242 10251)
3141	4822 051 20563	56k 5% 0.1W
3142	4822 100 11163	100k 30%LIN 0.1W
3145	4822 051 20222	2k2 5% 0.1W
3146	4822 051 20229	22Ω 5% 0.1W
3152	4822 116 52224	470Ω 5% 0.5W
3153	4822 051 20471	470Ω 5% 0.1W
3154	4822 116 52211	150Ω 5% 0.5W
3155	4822 051 20471	470Ω 5% 0.1W
3156	4822 051 20104	100k 5% 0.1W (/01)
3157	4822 116 52234	100k 5% 0.5W (/17)
3158	4822 116 83883	470Ω 5% 0.5W
3159	4822 116 83883	470Ω 5% 0.5W
3160	4822 116 83883	470Ω 5% 0.5W
3161	4822 116 83883	470Ω 5% 0.5W
3167	4822 051 20221	220Ω 5% 0.1W
3169	4822 051 20154	150k 5% 0.1W
3170	4822 116 52234	100k 5% 0.5W (not for /00)
3171	4822 116 52219	330Ω 5% 0.5W

JUMPER

4101	4822 051 20008	0Ω Jumper (not for /00)
4102	4822 051 20008	0Ω Jumper (not for /00)
4103	4822 051 20008	0Ω Jumper
4104	4822 051 20008	0Ω Jumper
4105	4822 051 20008	0Ω Jumper
4106	4822 051 20008	0Ω Jumper
4108	4822 051 20008	0Ω Jumper
4111	4822 051 20008	0Ω Jumper
4120	4822 051 20008	0Ω Jumper
4150	4822 051 10008	0Ω 5% 0.25W
4151	4822 051 20008	0Ω Jumper (/00,/34)
4152	4822 051 10008	0Ω 5% 0.25W
4153	4822 051 10008	0Ω 5% 0.25W
4154	4822 051 10008	0Ω 5% 0.25W
4155	4822 051 10008	0Ω 5% 0.25W (/00,/34)
4156	4822 051 20008	0Ω Jumper (/00,/34)
4157	4822 051 10008	0Ω 5% 0.25W
4158	4822 051 10008	0Ω 5% 0.25W
4159	4822 051 10008	0Ω 5% 0.25W

COILS

5102	4822 157 71634	RF-COIL MW
5103	4822 157 71635	RF-COIL LW
5122	4822 157 60517	OSC. COIL LW
5123	4822 157 60517	OSC. COIL MW
5130	4822 156 30947	RF-COIL 1.5 T
5131	4822 156 30947	RF-COIL 1.5 T

CRYSTALS/FILTERS

5109	4822 242 70665	Ceram Filter 10.7MHZ
5110	4822 242 70665	Ceram Filter 10.7MHZ
5111	4822 158 60511	AM-IF Filter 450KHZ
5112	4822 157 70302	AM-IF Filter 450KHZ
5114	4822 157 71637	AM-AFC Filter 450KHZ
5120	4822 242 82065	CER.DISCRIMINATOR
5120	4822 242 10251	CER.DISCRIMINATOR
5121	4822 242 10261	QUARTZ 75KHZ

DIODES

6103	4822 130 30621	1N4148
6104	4822 130 30621	1N4148
6105	4822 130 83075	HN1V02H. VARICAP.
6106	4822 130 30621	1N4148
6107	4822 130 34488	BZX79-C11
6120	4822 130 30621	1N4148
6130	4822 130 82833	1SV228
6131	4822 130 82833	1SV228

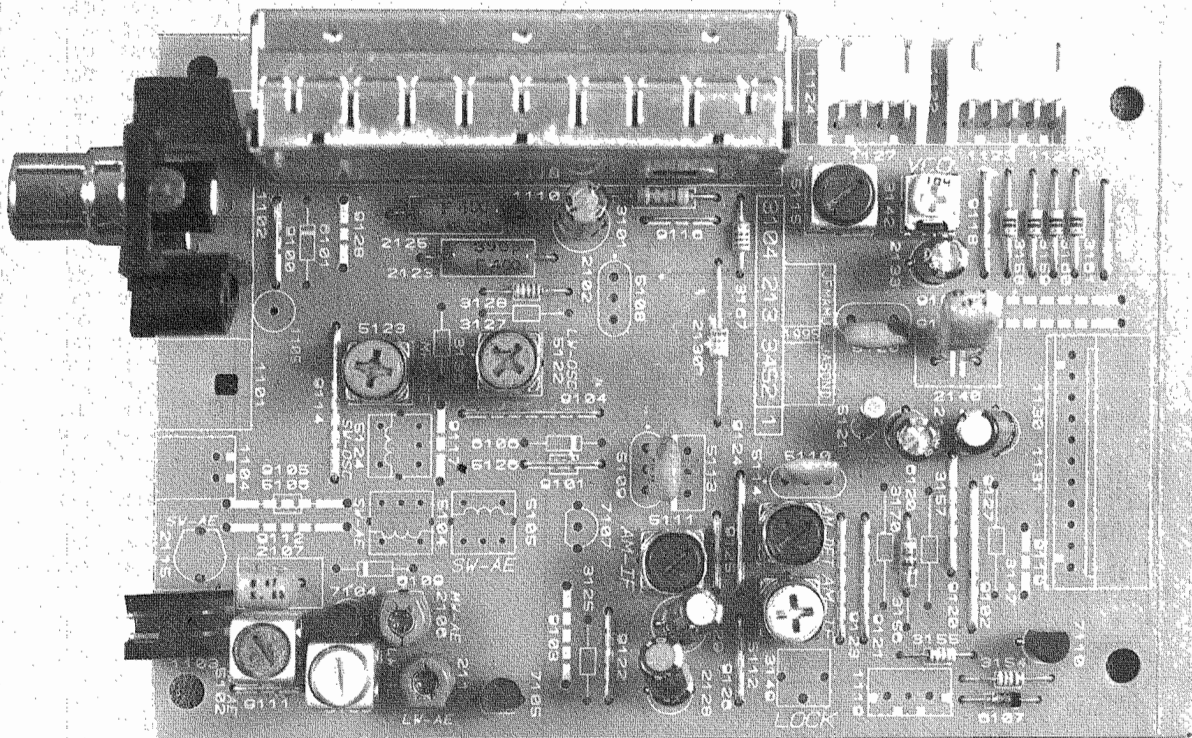
INTERGRATED CIRCUITS

7101	4822 209 90924	TEA5757H/V1.RADIO IC
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TRANSISTORS

7102	4822 130 60093	2SA838B
7104	5322 130 44779	BC338-40
7105	5322 130 44779	BC338-40
7109	5322 130 41983	BC858B
7111	5322 130 42136	BC848C
7122	5322 130 42136	BC848C
7124	5322 130 42136	BC848C

Note: Only the parts mentioned in this list are normal service parts.



TUNER 95 BOARD

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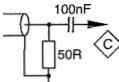
Circuit diagram7D-3

Partslist7D-4

The schematic diagram illustrates the internal architecture and external connections of the TEA5762 radio receiver IC. The IC is divided into several functional blocks:

- FM FRONTEND:** This block handles the initial FM signal processing. It includes an antenna input (Ant1), a variable frequency oscillator (VFO) with a 10.7 MHz reference, and a mixer. The output is the IF Out (7), which is connected to the FM-IF1 In pin (37).
- AM-RF:** This block handles the initial AM signal processing. It includes an antenna input (Ant2) and a mixer. The output is the AM-RF pin (2).
- AM-Osc:** This block provides the AM oscillator signal, which is connected to the AM-Osc pin (6).
- Internal Processing:** The IC contains several internal blocks for signal processing, including:
 - STABILIZER:** Connected to VCC1 (7) and VDD (23).
 - FM-IF2:** Connected to V Stab B (35) and V Stab A (34).
 - FM-IF1:** Connected to FM-IF1 In (37) and FM-IF2 (33).
 - FM-IF2:** Connected to FM-IF2 (33) and FM-IF1 (38).
 - AM-IF1:** Connected to AM-IF1 In (41) and AM-IF2 (36).
 - AM-IF2:** Connected to AM-IF2 (36) and AM-IF1 (40).
 - AM-MIX Out:** Connected to AM-MIX Out (40) and AM-IF1 (41).
 - AM-DET:** Connected to AM-DET (32) and AM-IF2 (36).
 - AM-AFC:** Connected to AM-AFC (19) and AM-DET (32).
 - AM-DET:** Connected to AM-DET (32) and AM-AFC (19).
 - CONTROL:** The central control block, connected to various pins including WRITE Enable (29), DATA (28), CLOCK (27), P1 (31), P0 (30), Mono/Stereo (24), Left (14), Mute (13), Right (15), PILOT Filter (16), and AGC (44).
 - CHARGE PUMP:** Connected to the FM Osc. (5) and I-Tune (8) pins.
 - AM FRONTEND:** Connected to the AM Osc. (6) and AM MIXER (42).
 - AM MIXER:** Connected to the AM FRONTEND (42) and AM OSC. (6).
 - FM DET:** Connected to the FM DET (18) and FM-IF1 (37).
 - AGC:** Connected to the AGC (44) and FM-DET (18).
 - XTAL OSC:** Connected to the XTAL OSC (25) and 75kHz (21) pins.
 - STEREO DECODER:** Connected to the STEREO DECODER (11) and MPX-In (9) pins.
 - ANTI BIRDY FILTER:** Connected to the ANTI BIRDY FILTER (10) and RDS (7) pins.
- Pin Connections:** The IC has 42 pins. Key connections include:
 - VCC1 (7):** Connected to VCC1.
 - VDD (23):** Connected to VDD.
 - VCC2 (22):** Connected to VCC2.
 - Ant1 (1):** Connected to Ant1.
 - Ant2 (2):** Connected to Ant2.
 - FM Osc. (5):** Connected to FM Osc.
 - I-Tune (8):** Connected to I-Tune.
 - AM-RF (2):** Connected to AM-RF.
 - AM-Osc (6):** Connected to AM-Osc.
 - FM-IF1 In (37):** Connected to FM-IF1 In.
 - FM-IF2 (33):** Connected to FM-IF2.
 - FM-IF1 (38):** Connected to FM-IF1.
 - AM-IF1 In (41):** Connected to AM-IF1 In.
 - AM-IF2 (36):** Connected to AM-IF2.
 - AM-MIX Out (40):** Connected to AM-MIX Out.
 - AM-DET (32):** Connected to AM-DET.
 - AM-AFC (19):** Connected to AM-AFC.
 - AM-DET (32):** Connected to AM-DET.
 - CONTROL (29):** Connected to CONTROL.
 - DATA (28):** Connected to DATA.
 - CLOCK (27):** Connected to CLOCK.
 - P1 (31):** Connected to P1.
 - P0 (30):** Connected to P0.
 - Mono/Stereo (24):** Connected to Mono/Stereo.
 - Left (14):** Connected to Left.
 - Mute (13):** Connected to Mute.
 - Right (15):** Connected to Right.
 - PILOT Filter (16):** Connected to PILOT Filter.
 - XTAL OSC (25):** Connected to XTAL OSC.
 - MPX-In (9):** Connected to MPX-In.
 - LPF (12):** Connected to LPF.
 - ANTI BIRDY FILTER (10):** Connected to ANTI BIRDY FILTER.
 - RDS (7):** Connected to RDS.

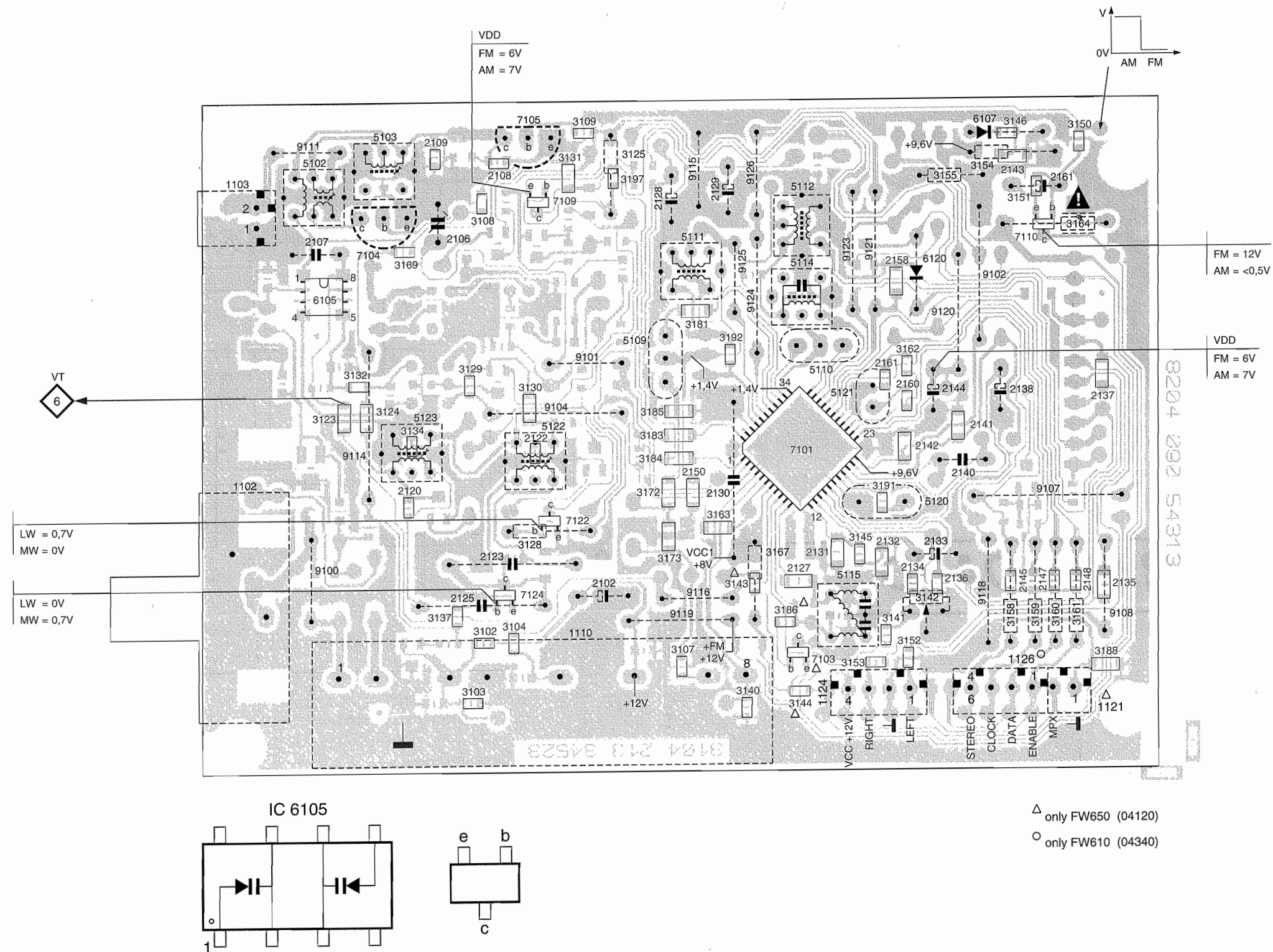
ADJUSTMENT TABLE

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (50kHz grid)			108MHz	check	6	7...9V
			87.5MHz	check		1.3...2V
MW 531 - 1602kHz (9kHz grid)			1602kHz	5123		8.3V ±0.2V
			531kHz	check		1V ±0.4V
LW 153 - 279kHz (3kHz grid)			279kHz	5122		8.3V ±0.2V
			153kHz	check		1V ±0.4V
FM - VCO						
FM	98MHz 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz
DISTORTION						
FM	98MHz 1mV 90% L, 9% pilot mod=1kHz	A	98MHz	mixcoil inside tuner 1110	4	min. distortion
AM IF						
MW	450kHz Δf=10kHz as low as possible			5111	7	symmetrical and max. height
				5112		
		450.0kHz continuous wave		C	5114	1 2
AM RF						
MW	588kHz mod=1kHz, 30% AM 1494kHz	B*	558kHz	5102	7	MAX
			1494kHz	2106		
LW	198kHz mod=1kHz, 30% AM			198kHz		5103

* Signal supplied via frame antenna

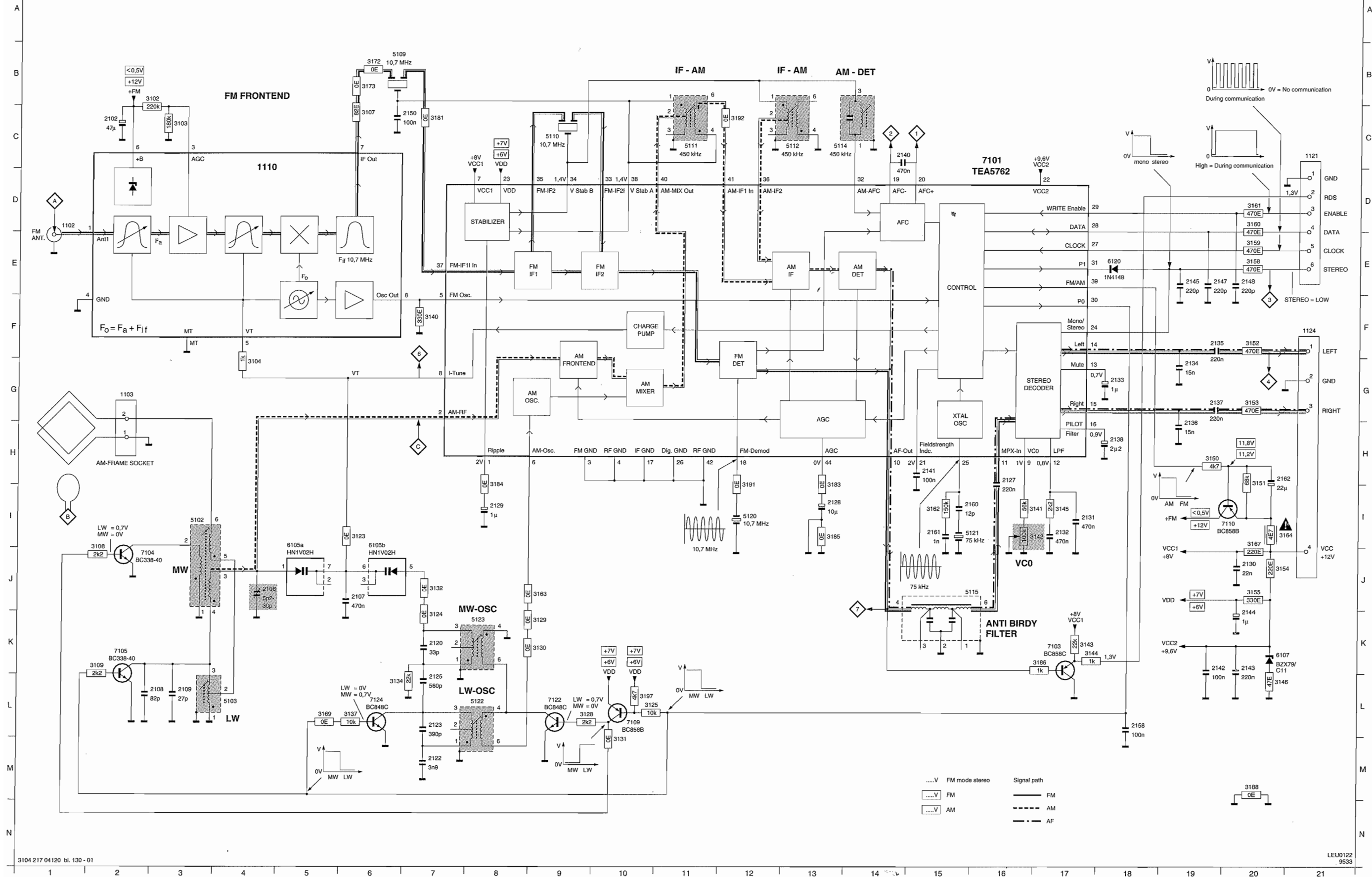
↑ Repeat

TUNER 95 – Copperside view



1102 D1 1124 F21 2108 L3 2123 L7 2129 I8 2133 G18 2137 G19 2142 K19 2147 E19 2160 I15 3103 C3 3109 K2 3128 L9 3132 J7 3141 I16 3145 I17 3152 F20 3158 E20 3162 I15 3169 L5 3183 I13 3188 M20 5102 I3 5111 C11 5120 I12 6105a I5 7101 C16 7109 L10
 1103 G2 2102 C2 2109 L3 2125 L7 2130 J20 2134 G19 2138 H18 2143 K20 2148 E20 2161 I15 3104 G4 3123 I6 3129 K9 3134 L6 3142 I16 3146 L20 3153 G20 3159 E20 3163 J9 3172 B6 3194 I8 3191 I12 5103 L4 5112 C12 5121 I15 6105b I8 7103 K17 7110 I19
 1110 D4 2106 J4 2120 K7 2127 H16 2131 I17 2135 F19 2140 C14 2144 K20 2150 C6 2162 H20 3107 C6 3124 K7 3130 K9 3137 L6 3143 K17 3150 H19 3154 J20 3160 D20 3164 I20 3173 B6 3185 I13 3192 C12 5109 B6 5114 C13 5122 L8 6107 K20 7104 J2 7122 L9
 1121 C21 2107 J6 2122 M7 2128 I13 2132 I17 2136 H19 2141 H15 2145 E19 2158 L18 3102 B2 3108 J2 3125 L10 3131 M10 3140 F7 3144 K17 3151 I20 3155 J20 3161 D20 3167 I20 3181 C7 3186 K16 3197 L10 5110 C9 5115 J15 5123 K8 6120 E18 7105 K2 7124 L6

TUNER 95



ELECTRICAL PARTSLIST TUNER 95 BOARD

MISCELLANEOUS				
1102	4822 267 10283	SOCKET COAX IEC 75R		
1103	4822 265 31184	JST CONNECTOR 2 POLE		
1110	4822 210 10492	FRONTEND ASSY /02/08		
DIODES				
6105	4822 130 83075	HN1V02H		
6107	4822 130 34488	BZX79-C11		
6120	4822 130 30621	1N4148		
TRANSISTORS				
7103	4822 130 42513	BC858C		
7104	5322 130 44779	BC338-40		
7105	5322 130 44779	BC338-40		
7109	5322 130 41983	BC858B		
7110	5322 130 41983	BC858B		
7122	5322 130 42136	BC848C		
7124	5322 130 42136	BC848C		
INTEGRATED CIRCUITS				
7101	4822 209 90315	TEA5762H/V1		
COILS				
5102	4822 157 71634	RF-COIL MW		
5103	4822 157 71635	RF-COIL LW		
5109	4822 157 71639	CER. FILTER 10,7MHz		
5110	4822 242 70665	CER. FILTER 10,7MHZ		
5111	4822 158 60511	AM-IF FILTER 450kHz		
5112	4822 157 70302	AM-IF FILTER 450kHz		
5114	4822 157 71637	AM-AFC FILTER 450KHZ		
5115	4822 157 71636	ANTI-BIRDY FILTER		
5120	4822 242 82065	CER. DISCRIMINATOR		
5121	4822 242 81021	QUARTZ 75kHz		
5122	4822 157 60517	RF-COIL AM		
5123	4822 157 60517	RF-COIL AM		
RESISTORS				
3125	4822 116 83864	10k	5%	0,5W
3128	4822 116 52256	2k2	5%	0,16W
3142	4822 100 11163	TRIMPOT. 100K LIN.		
3154	4822 116 52215	220R	5%	0,16W
3155	4822 116 52219	330R	5%	0,5W
3158	4822 116 52224	470R	5%	0,5W
3159	4822 116 52224	470R	5%	0,5W
3160	4822 116 52224	470R	5%	0,5W
3161	4822 116 52224	470R	5%	0,5W
3164	4822 052 10478	4R7	5%	NFR
3167	4822 116 52215	220R	5%	0,16W
CHIP RESISTORS				
3102	4822 051 20224	220k	5%	0,1W
3103	4822 051 20184	180k	5%	0,1W
3104	4822 051 10102	1k	2%	0,25W
3107	4822 051 20829	82R	5%	0,1W
3108	4822 051 20222	2k2	5%	0,1W
3109	4822 051 20222	2k2	5%	0,1W
3123	4822 051 10008	CHIP JUMPER 1206		
3124	4822 051 10008	CHIP JUMPER 1206		
3129	4822 051 20008	CHIP JUMPER 0805		
3130	4822 051 10008	CHIP JUMPER 1206		

CHIP RESISTORS				
3131	4822 051 10008	CHIP JUMPER 1206		
3132	4822 051 20008	CHIP JUMPER 0805		
3134	4822 051 20223	22k	5%	0,1W
3137	4822 051 20103	10k	5%	0,1W
3140	4822 051 20331	330R	5%	0,1W
3141	4822 051 20563	56k	5%	0,1W
3143	4822 051 20223	22k	5%	0,1W
3144	4822 051 10102	1k	2%	0,25W
3145	4822 051 20222	2k2	5%	0,1W
3146	4822 051 20479	47R	5%	0,1W
3150	4822 051 20472	4k7	5%	0,1W
3151	4822 051 20683	68k	5%	0,1W
3152	4822 051 20471	470R	5%	0,1W
3153	4822 051 20471	470R	5%	0,1W
3162	4822 051 20154	150k	5%	0,1W
3163	4822 051 10008	CHIP JUMPER 1206		
3169	4822 051 20008	CHIP JUMPER 0805		
3172	4822 051 10008	CHIP JUMPER 1206		
3173	4822 051 10008	CHIP JUMPER 1206		
3181	4822 051 10008	CHIP JUMPER 1206		
3183	4822 051 10008	CHIP JUMPER 1206		
3184	4822 051 10008	CHIP JUMPER 1206		
3185	4822 051 10008	CHIP JUMPER 1206		
3186	4822 051 10102	1k	2%	0,25W
3188	4822 051 10008	CHIP JUMPER 1206		
3191	4822 051 20008	CHIP JUMPER 0805		
3192	4822 051 20008	CHIP JUMPER 0805		
3197	4822 051 20472	4k7	5%	0,1W
CAPACITORS				
2102	4822 124 40433	47µF	20%	25V
2106	4822 125 60102	30pF		VARIABLE
2107	4822 121 51252	470nF	5%	63V
2123	4822 121 51254	390pF	1%	400V
2125	4822 121 51381	560pF	1%	400V
2128	4822 124 41579	10µF	20%	50V
2129	4822 124 40242	1µF	20%	63V
2130	4822 126 11585	22nF	20%	50V
2133	4822 124 40242	1µF	20%	63V
2138	4822 124 41576	2,2µF	20%	50V
2140	4822 121 51252	470nF	5%	63V
2144	4822 124 40242	1µF	20%	63V
2162	4822 124 41596	22µF	20%	50V
CHIP CAPACITORS				
2108	4822 122 33515	82pF	5%	50V
2109	5322 122 31946	27pF	5%	50V
2120	5322 122 32659	33pF	5%	50V
2122	5322 126 10465	3,9nF	10%	63V
2127	4822 122 32927	220nF	10%	63V
2131	4822 122 33325	470nF	20%	50V
2132	4822 122 33325	470nF	20%	50V
2134	4822 122 33128	15nF	10%	63V
2135	4822 122 32927	220nF	10%	63V
2136	4822 122 33128	15nF	10%	63V
2137	4822 122 32927	220nF	10%	63V
2141	4822 122 31947	100nF	20%	50V
2142	4822 122 31947	100nF	20%	50V
2143	4822 122 32927	220nF	10%	63V
2145	4822 122 33575	220pF	5%	50V
2147	4822 122 33575	220pF	5%	50V

ELECTRICAL PARTSLIST TUNER 95 BOARD

CHIP CAPACITORS					
2148	4822 122 33575	220pF	5%	50V	
2150	4822 122 31947	100nF	20%	50V	
2158	4822 122 31947	100nF	20%	50V	
2160	4822 122 32139	12pF	5%	63V	
2161	5322 122 34123	1nF	10%	50V	

ELECTRICAL PARTSLIST TUNER 95 BOARD

MISCELLANEOUS

1102	4822 267 10283	SOCKET COAX IEC 75R
1103	4822 265 31184	JST CONNECTOR 2 POLE
1110	4822 210 10492	FRONTEND ASSY /02/08

DIODES

6105	4822 130 83075	HN1V02H
6107	4822 130 34488	BZX79-C11
6120	4822 130 30621	1N4148

TRANSISTORS

7103	4822 130 42513	BC858C
7104	5322 130 44779	BC338-40
7105	5322 130 44779	BC338-40
7109	5322 130 41983	BC858B
7110	5322 130 41983	BC858B

7122	5322 130 42136	BC848C
7124	5322 130 42136	BC848C

INTEGRATED CIRCUITS

7101	4822 209 90315	TEA5762H/V1
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COILS

5102	4822 157 71634	RF-COIL MW
5103	4822 157 71635	RF-COIL LW
5109	4822 157 71639	CER. FILTER 10,7MHZ
5110	4822 242 70665	CER. FILTER 10,7MHZ
5111	4822 158 60511	AM-IF FILTER 450kHz

5112	4822 157 70302	AM-IF FILTER 450kHz
5114	4822 157 71637	AM-AFC FILTER 450KHZ
5115	4822 157 71636	ANTI-BIRDY FILTER
5120	4822 242 82065	CER. DISCRIMINATOR
5121	4822 242 81021	QUARTZ 75kHz

5122	4822 157 60517	RF-COIL AM
5123	4822 157 60517	RF-COIL AM

RESISTORS

3125	4822 116 83864	10k	5%	0,5W
3128	4822 116 52256	2k2	5%	0,16W
3142	4822 100 11163	TRIMPOT. 100K LIN.		
3154	4822 116 52215	220R	5%	0,16W
3155	4822 116 52219	330R	5%	0,5W

3158	4822 116 52224	470R	5%	0,5W
3159	4822 116 52224	470R	5%	0,5W
3160	4822 116 52224	470R	5%	0,5W
3161	4822 116 52224	470R	5%	0,5W
3164	4822 052 10478	4R7	5%	NFR

3167	4822 116 52215	220R	5%	0,16W
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CHIP RESISTORS

3102	4822 051 20224	220k	5%	0,1W
3103	4822 051 20184	180k	5%	0,1W
3104	4822 051 10102	1k	2%	0,25W
3107	4822 051 20829	82R	5%	0,1W
3108	4822 051 20222	2k2	5%	0,1W

3109	4822 051 20222	2k2	5%	0,1W
3123	4822 051 10008	CHIP JUMPER 1206		
3124	4822 051 10008	CHIP JUMPER 1206		
3129	4822 051 20008	CHIP JUMPER 0805		
3130	4822 051 10008	CHIP JUMPER 1206		

CHIP RESISTORS

3131	4822 051 10008	CHIP JUMPER 1206		
3132	4822 051 20008	CHIP JUMPER 0805		
3134	4822 051 20223	22k	5%	0,1W
3137	4822 051 20103	10k	5%	0,1W
3140	4822 051 20331	330R	5%	0,1W

3141	4822 051 20563	56k	5%	0,1W
3143	4822 051 20223	22k	5%	0,1W
3144	4822 051 10102	1k	2%	0,25W
3145	4822 051 20222	2k2	5%	0,1W
3146	4822 051 20479	47R	5%	0,1W

3150	4822 051 20472	4k7	5%	0,1W
3151	4822 051 20683	68k	5%	0,1W
3152	4822 051 20471	470R	5%	0,1W
3153	4822 051 20471	470R	5%	0,1W
3162	4822 051 20154	150k	5%	0,1W

3163	4822 051 10008	CHIP JUMPER 1206		
3169	4822 051 20008	CHIP JUMPER 0805		
3172	4822 051 10008	CHIP JUMPER 1206		
3173	4822 051 10008	CHIP JUMPER 1206		
3181	4822 051 10008	CHIP JUMPER 1206		

3183	4822 051 10008	CHIP JUMPER 1206		
3184	4822 051 10008	CHIP JUMPER 1206		
3185	4822 051 10008	CHIP JUMPER 1206		
3186	4822 051 10102	1k	2%	0,25W
3188	4822 051 10008	CHIP JUMPER 1206		

3191	4822 051 20008	CHIP JUMPER 0805		
3192	4822 051 20008	CHIP JUMPER 0805		
3197	4822 051 20472	4k7	5%	0,1W

CAPACITORS

2102	4822 124 40433	47µF	20%	25V
2106	4822 125 60102	30pF		VARIABLE
2107	4822 121 51252	470nF	5%	63V
2123	4822 121 51254	390pF	1%	400V
2125	4822 121 51381	560pF	1%	400V

2128	4822 124 41579	10µF	20%	50V
2129	4822 124 40242	1µF	20%	63V
2130	4822 126 11585	22nF	20%	50V
2133	4822 124 40242	1µF	20%	63V
2138	4822 124 41576	2,2µF	20%	50V

2140	4822 121 51252	470nF	5%	63V
2144	4822 124 40242	1µF	20%	63V
2162	4822 124 41596	22µF	20%	50V

CHIP CAPACITORS

2108	4822 122 33515	82pF	5%	50V
2109	5322 122 31946	27pF	5%	50V
2120	5322 122 32659	33pF	5%	50V
2122	5322 126 10465	3,9nF	10%	63V
2127	4822 122 32927	220nF	10%	63V

2131	4822 122 33325	470nF	20%	50V
2132	4822 122 33325	470nF	20%	50V
2134	4822 122 33128	15nF	10%	63V
2135	4822 122 32927	220nF	10%	63V
2136	4822 122 33128	15nF	10%	63V

2137	4822 122 32927	220nF	10%	63V
2141	4822 122 31947	100nF	20%	50V
2142	4822 122 31947	100nF	20%	50V
2143	4822 122 32927	220nF	10%	63V
2145	4822 122 33575	220pF	5%	50V

2147	4822 122 33575	220pF	5%	50V
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ELECTRICAL PARTSLIST TUNER 95 BOARD

CHIP CAPACITORS

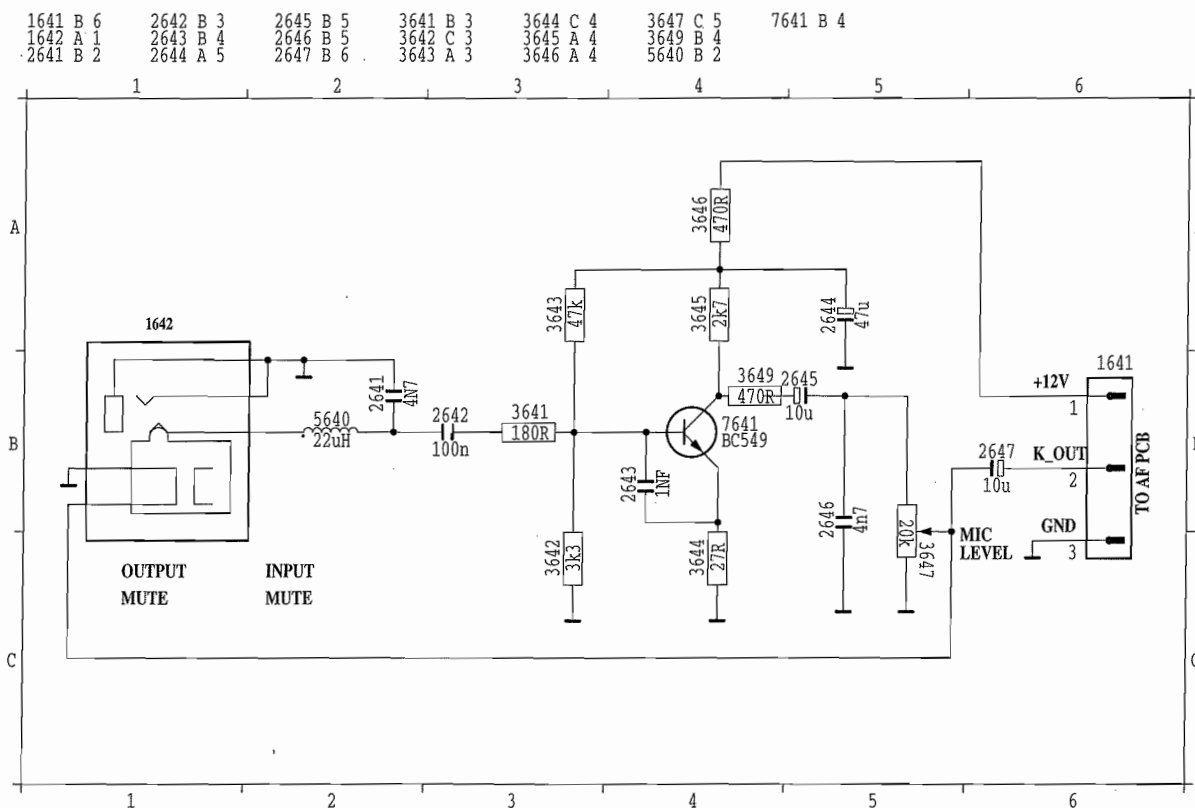
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2150	4822 122 31947	100nF	20%	50V
2158	4822 122 31947	100nF	20%	50V
2160	4822 122 32139	12pF	5%	63V
2161	5322 122 34123	1nF	10%	50V

KARAOKE BOARD

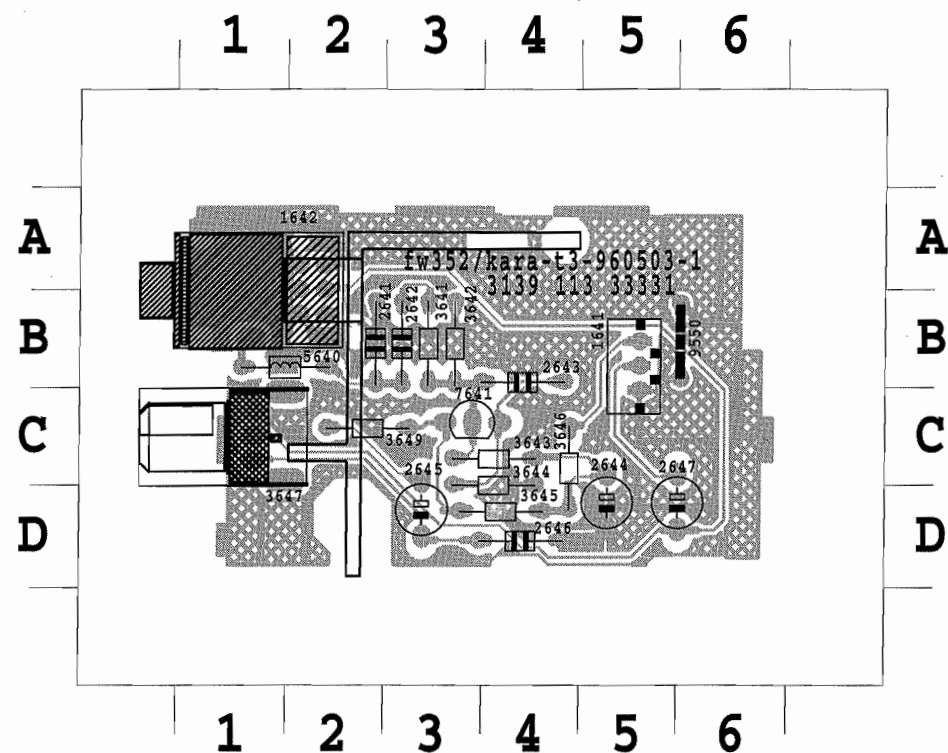
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KARAOKE CIRCUIT & LAYOUT



1641 B 5 2643 B 4 2647 D 6 3644 D 4 3649 C 2
 1642 B 1 2644 D 5 3641 B 3 3645 D 4 5640 B 1
 2641 B 2 2645 D 3 3642 B 3 3646 C 4 7641 C 3
 2642 B 3 2646 D 4 3643 C 4 3647 C 1 9550 B 6



KARAOKE BOARD PARTSLIST

MISCELLANEOUS

2 4822 402 10222 Bracket
 1642 4822 267 40898 Connector

CAPACITORS

2641 4822 126 11714 4.7nF 20% 50V
 2642 4822 126 12882 100nF+80-20% 50V
 2643 4822 122 33197 1nF 10% 50V
 2644 4822 124 41751 47μF 20% 50V
 2645 4822 124 41579 10μF 20% 50V
 2646 4822 126 11714 4.7nF 20%
 2647 4822 124 41579 10μF 20% 50V

RESISTORS

3641 4822 116 52213 180Ω 5% 0.5W
 3642 4822 116 52269 3k3 5% 0.5W
 3643 4822 116 52284 47k 5% 0.5W
 3644 4822 116 52188 27Ω 5% 0.5W
 3645 4822 116 52263 2k7 5% 0.5W
 3646 4822 116 52224 470Ω 5% 0.5W
 3647 4822 101 21204 20k Variable
 3649 4822 116 52224 470Ω 5% 0.5W

TRANSISTOR

7641 4822 130 41096 BC550C

COIL

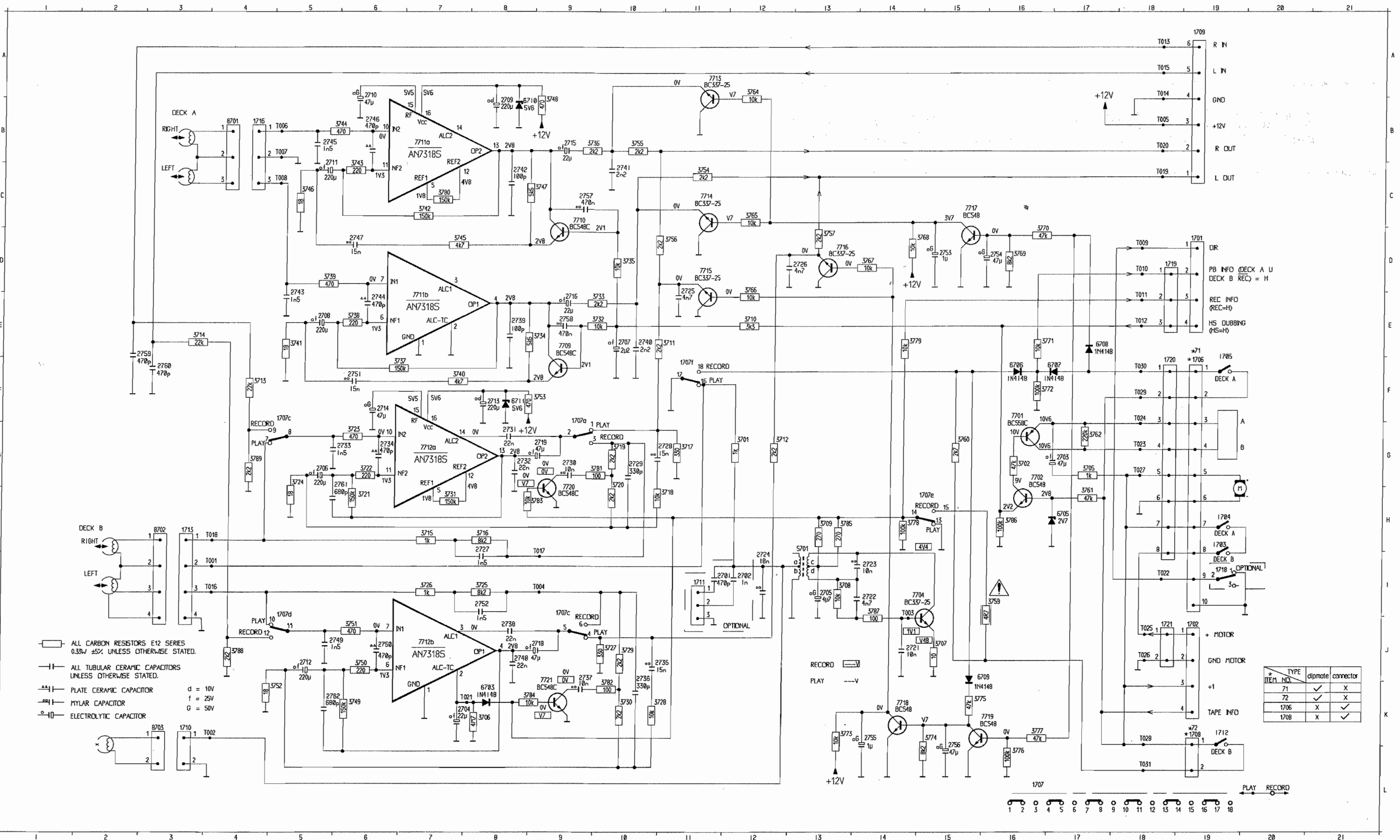
5640 4822 157 52983 Coil 2.2μH 10%

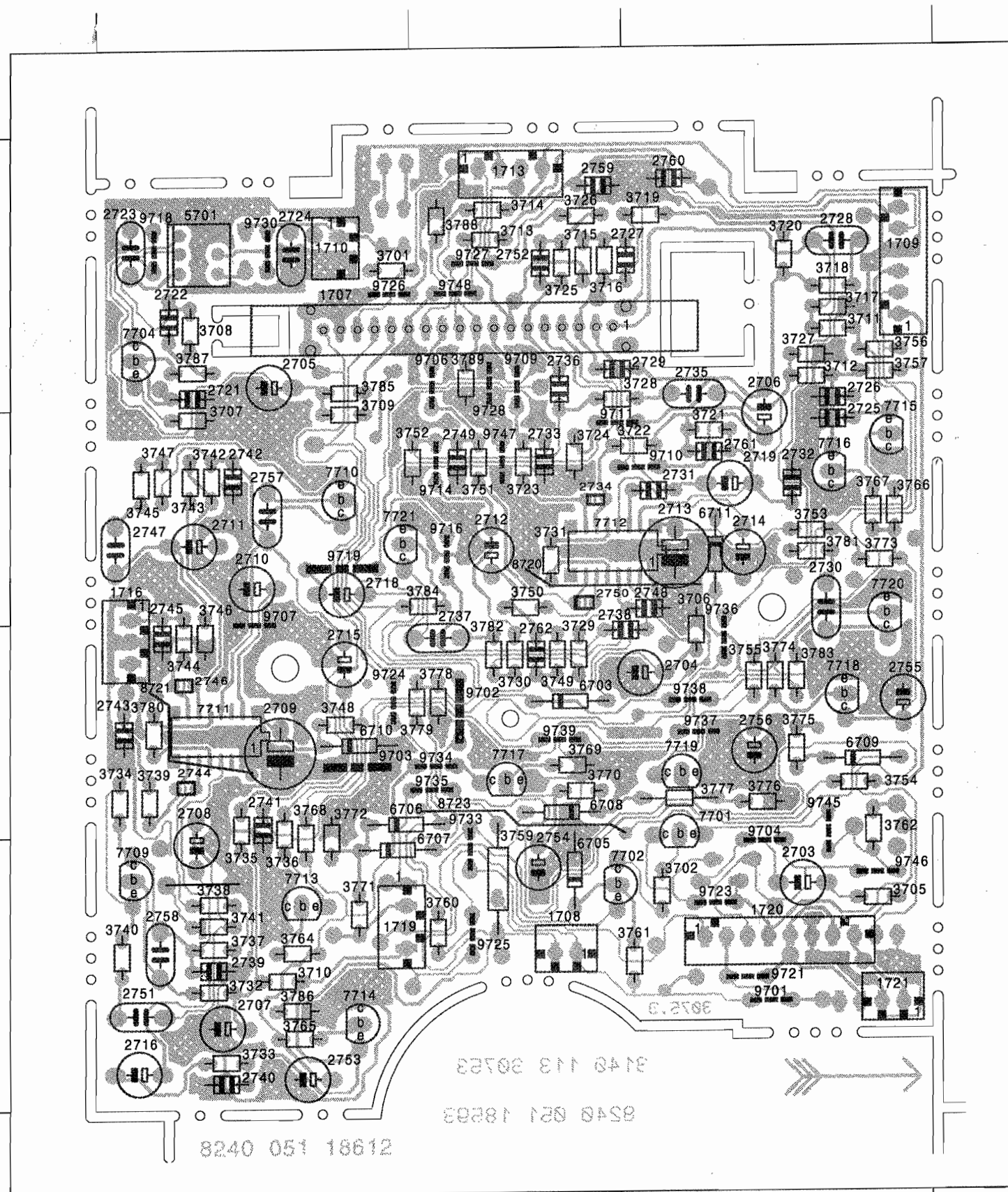
MTF CASSETTE BOARD

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1701 D19 1702 19 1712 K19 2702 112 2710 A 6 2719 G 9 2728 G11 2736 J10 2744 E 6 2752 I 8 2760 F 3 3708 I13 3716 H 8 3724 G 5 3732 E10 3740 F 2 3748 B 9 3756 D11 3766 D12 3774 K15 3782 K10 5701 H13 6711 F 8 7712 G 7 7719 K15 7720 K14 7721 J 9 7722 H 9 7723 A11 7724 C11 7725 D11 7726 J 7 7727 J 9 7728 H 9 7729 K15 7730 I 9 7731 A11 7732 H 9 7733 A11 7734 A11 7735 A11 7736 A11 7737 A11 7738 A11 7739 A11 7740 A11 7741 A11 7742 A11 7743 A11 7744 A11 7745 A11 7746 A11 7747 A11 7748 A11 7749 A11 7750 A11 7751 A11 7752 A11 7753 A11 7754 A11 7755 A11 7756 A11 7757 A11 7758 A11 7759 A11 7760 A11 7761 A11 7762 A11 7763 A11 7764 A11 7765 A11 7766 A11 7767 A11 7768 A11 7769 A11 7770 A11 7771 A11 7772 A11 7773 A11 7774 A11 7775 A11 7776 A11 7777 A11 7778 A11 7779 A11 7780 A11 7781 A11 7782 A11 7783 A11 7784 A11 7785 A11 7786 A11 7787 A11 7788 A11 7789 A11 7790 A11 7791 A11 7792 A11 7793 A11 7794 A11 7795 A11 7796 A11 7797 A11 7798 A11 7799 A11 7800 A11 7801 A11 7802 A11 7803 A11 7804 A11 7805 A11 7806 A11 7807 A11 7808 A11 7809 A11 7810 A11 7811 A11 7812 A11 7813 A11 7814 A11 7815 A11 7816 A11 7817 A11 7818 A11 7819 A11 7820 A11 7821 A11 7822 A11 7823 A11 7824 A11 7825 A11 7826 A11 7827 A11 7828 A11 7829 A11 7830 A11 7831 A11 7832 A11 7833 A11 7834 A11 7835 A11 7836 A11 7837 A11 7838 A11 7839 A11 7840 A11 7841 A11 7842 A11 7843 A11 7844 A11 7845 A11 7846 A11 7847 A11 7848 A11 7849 A11 7850 A11 7851 A11 7852 A11 7853 A11 7854 A11 7855 A11 7856 A11 7857 A11 7858 A11 7859 A11 7860 A11 7861 A11 7862 A11 7863 A11 7864 A11 7865 A11 7866 A11 7867 A11 7868 A11 7869 A11 7870 A11 7871 A11 7872 A11 7873 A11 7874 A11 7875 A11 7876 A11 7877 A11 7878 A11 7879 A11 7880 A11 7881 A11 7882 A11 7883 A11 7884 A11 7885 A11 7886 A11 7887 A11 7888 A11 7889 A11 7890 A11 7891 A11 7892 A11 7893 A11 7894 A11 7895 A11 7896 A11 7897 A11 7898 A11 7899 A11 7900 A11 7901 A11 7902 A11 7903 A11 7904 A11 7905 A11 7906 A11 7907 A11 7908 A11 7909 A11 7910 A11 7911 A11 7912 A11 7913 A11 7914 A11 7915 A11 7916 A11 7917 A11 7918 A11 7919 A11 7920 A11 7921 A11 7922 A11 7923 A11 7924 A11 7925 A11 7926 A11 7927 A11 7928 A11 7929 A11 7930 A11 7931 A11 7932 A11 7933 A11 7934 A11 7935 A11 7936 A11 7937 A11 7938 A11 7939 A11 7940 A11 7941 A11 7942 A11 7943 A11 7944 A11 7945 A11 7946 A11 7947 A11 7948 A11 7949 A11 7950 A11 7951 A11 7952 A11 7953 A11 7954 A11 7955 A11 7956 A11 7957 A11 7958 A11 7959 A11 7960 A11 7961 A11 7962 A11 7963 A11 7964 A11 7965 A11 7966 A11 7967 A11 7968 A11 7969 A11 7970 A11 7971 A11 7972 A11 7973 A11 7974 A11 7975 A11 7976 A11 7977 A11 7978 A11 7979 A11 7980 A11 7981 A11 7982 A11 7983 A11 7984 A11 7985 A11 7986 A11 7987 A11 7988 A11 7989 A11 7990 A11 7991 A11 7992 A11 7993 A11 7994 A11 7995 A11 7996 A11 7997 A11 7998 A11 7999 A11 8000 A11





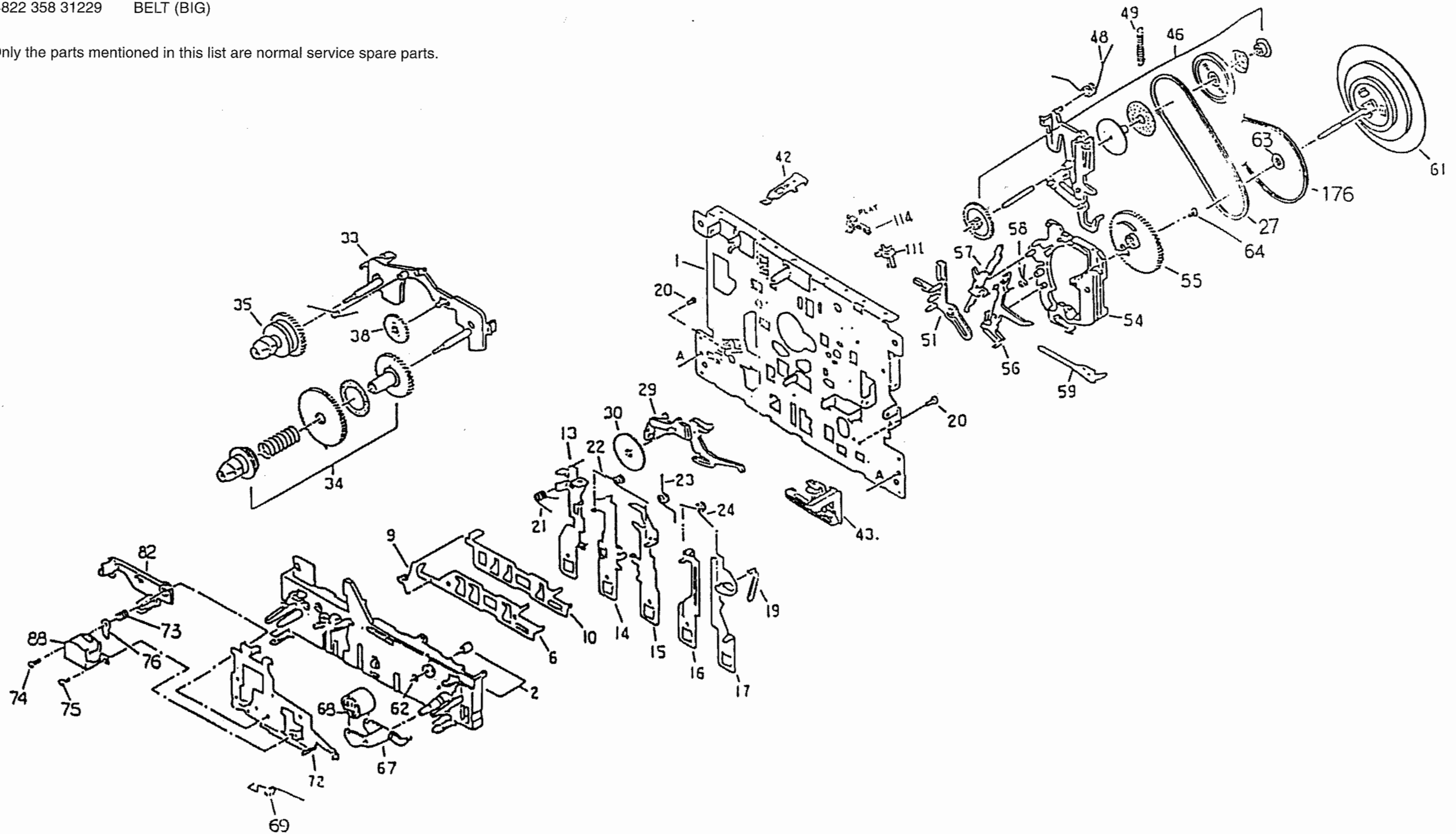
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	2707 D 1	3705 D 3	3762 C 3	9706 A 2
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	2709 C 1	3707 B 1	3765 D 1	9709 A 2
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	2711 B 1	3709 B 1	3767 B 3	9711 B 2
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	2713 B 3	3711 A 3	3769 C 2	9716 B 2
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	2719 B 3	3716 A 2	3774 C 3	9724 C 1
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	2722 A 1	3718 A 3	3776 C 3	9726 A 1
	2723 A 1	3719 A 3	3777 C 3	9727 A 2
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	2725 B 3	3721 B 3	3779 C 2	9730 A 1
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	2728 A 3	3724 B 2	3782 C 2	9735 C 2
C	2729 A 2	3725 A 2	3783 C 3	9736 C 3
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	2731 B 3	3727 A 3	3785 A 1	9738 C 3
	2732 B 3	3728 A 2	3786 D 1	9739 C 2
	2733 B 2	3729 C 2	3787 A 1	9745 D 3
	2734 B 2	3730 C 2	3788 A 2	9746 D 3
	2735 A 3	3731 B 2	3789 A 2	9747 B 2
	2736 A 2	3732 D 1	5701 A 1	9748 A 2
	2737 C 2	3733 D 1	6703 C 2	8720 B 2
	2738 C 3	3734 C 1	6705 D 2	8721 C 1
	2739 D 1	3735 C 1	6706 C 1	8723 C 2
	2740 D 1	3736 C 1	6707 D 1	
D	2741 C 1	3737 D 1	6708 C 2	
	2742 B 1	3738 D 1	6709 C 3	
	2743 C 1	3739 C 1	6710 C 1	
	2744 C 1	3740 D 1	6711 B 3	
	2745 C 1	3741 D 1	7701 D 3	
	2746 C 1	3742 B 1	7702 D 2	
	2747 B 1	3743 B 1	7704 A 1	
	2748 B 3	3744 C 1	7709 D 1	
	2749 B 2	3745 B 1	7710 B 1	
	2750 B 2	3746 C 1	7711 C 1	
	2751 D 1	3747 B 1	7712 B 2	

Exploded View-Play(Mech A)Mechanism

MECHANISM A - PLAYBACK DECK

27	4822 358 31231	BELT DRIVING
43	4822 403 30811	LEVER EJECT
67	4822 402 61418	ARM PINCH
68	4822 528 70785	ROLLER PINCH
88	4822 249 10425	R/P HEAD
111	4822 278 90752	LEAF SWITCH
114	4822 278 90751	LEAF SWITCH
176	4822 358 31229	BELT (BIG)

Note : Only the parts mentioned in this list are normal service spare parts.

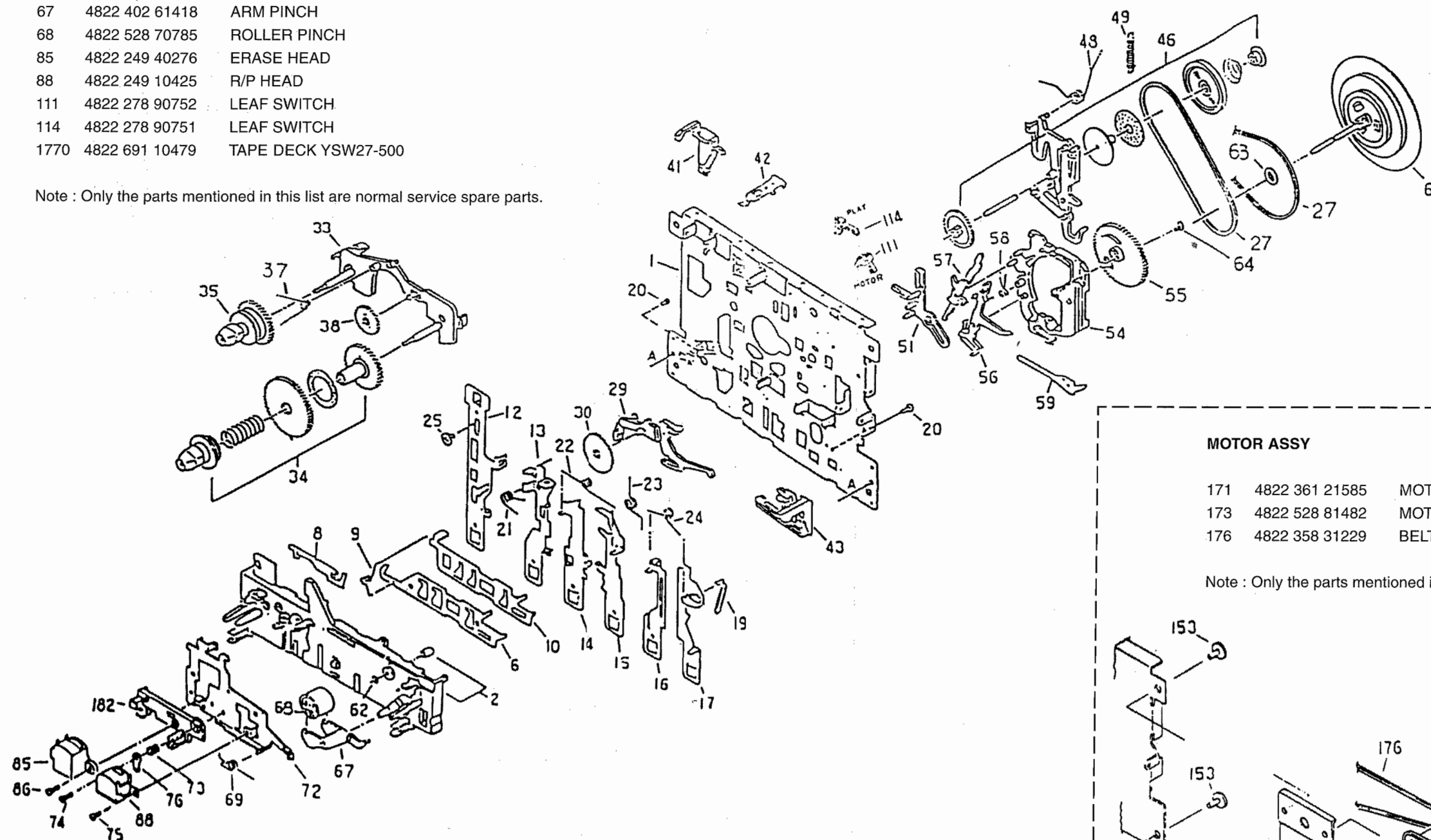


Exploded View-Rec/PB(Mech B)Mechanism & Motor Assy

MECHANISM B - PLAYBACK DECK

27	4822 358 31231	BELT DRIVING
43	4822 403 30811	LEVER EJECT
67	4822 402 61418	ARM PINCH
68	4822 528 70785	ROLLER PINCH
85	4822 249 40276	ERASE HEAD
88	4822 249 10425	R/P HEAD
111	4822 278 90752	LEAF SWITCH
114	4822 278 90751	LEAF SWITCH
1770	4822 691 10479	TAPE DECK YSW27-500

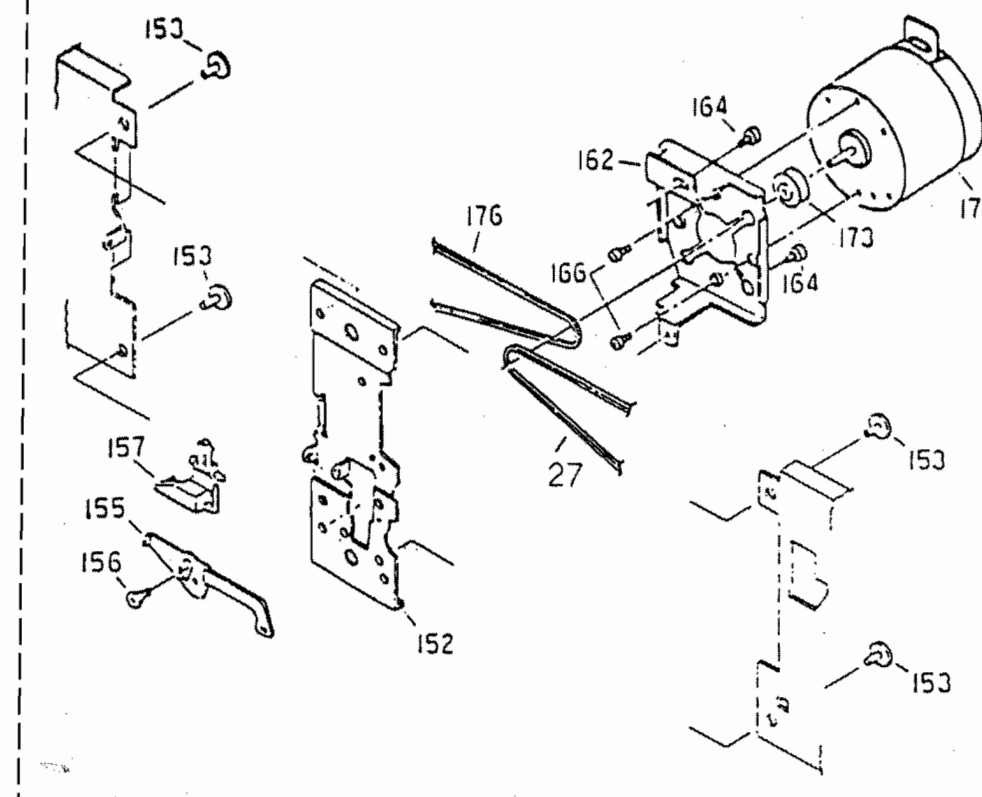
Note : Only the parts mentioned in this list are normal service spare parts.



MOTOR ASSY

171	4822 361 21585	MOTOR
173	4822 528 81482	MOTOR PULLEY
176	4822 358 31229	BELT

Note : Only the parts mentioned in this list are normal service spare parts.

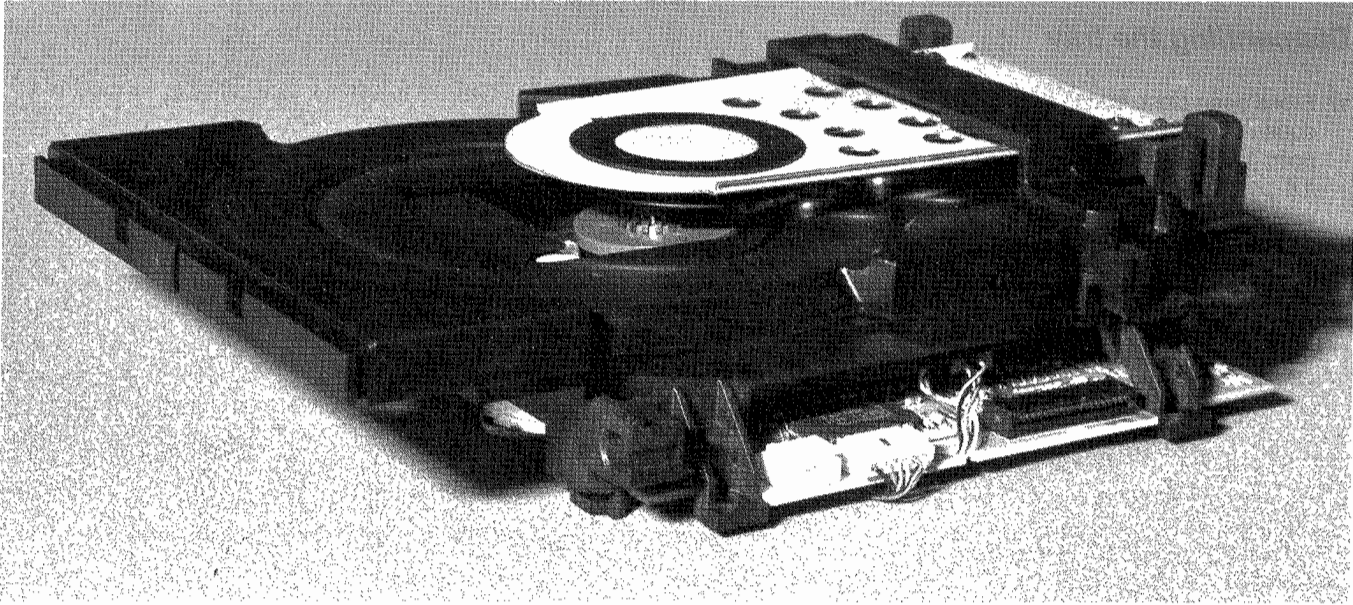


ELECTRICAL PARTSLIST - MTF CASSETTE BOARD

CAPACITORS					
2703	4822 124 41397	47μF 20% 25V	2760	4822 122 33519	470pF 10% 50V
2704	4822 124 41596	22μF 20% 50V	2761	4822 122 33169	680pF 10% 50V
2705	4822 124 40246	4.7μF 20% 63V	2762	4822 122 33169	680pF 10% 50V
2706	4822 124 40181	220μF 20% 10V	RESISTORS		
2707	4822 124 41576	2.2μF 20% 50V	3701	4822 116 83863	1k 5% 0.5W
2708	4822 124 40181	220μF 20% 10V	3702	4822 116 52284	47k 5% 0.5W
2709	4822 124 80144	220μF 20% 25V	3705	4822 116 83863	1k 5% 0.5W
2710	4822 124 41397	47μF 20% 25V	3706	4822 111 30893	4M7 5% 0.2W
2711	4822 124 40181	220μF 20% 10V	3707	4822 116 52176	10Ω 5% 0.5W
2712	4822 124 40181	220μF 20% 10V	3708	4822 116 83864	10k 5% 0.5W
2713	4822 124 80144	220μF 20% 25V	3709	4822 116 52217	270Ω 5% 0.5W
2714	4822 124 41397	47μF 20% 25V	3710	4822 116 52269	3k3 5% 0.5W
2715	4822 124 41596	22μF 20% 50V	3711	4822 116 52256	2k2 5% 0.5W
2716	4822 124 41596	22μF 20% 50V	3712	4822 116 52256	2k2 5% 0.5W
2718	4822 124 41397	47μF 20% 25V	3713	4822 116 52257	22k 5% 0.5W
2719	4822 124 41397	47μF 20% 25V	3714	4822 116 52257	22k 5% 0.5W
2721	4822 121 51387	10nF 20% 16V	3715	4822 116 52256	2k2 5% 0.5W
2722	4822 126 11714	4.7nF 20% 50V	3716	4822 116 52303	8k2 5% 0.5W
2723	4822 121 51304	10nF 10% 50V	3718	4822 116 83864	10k 5% 0.5W
2724	4822 121 51306	18nF 10% 50V	3719	4822 116 52256	2k2 5% 0.5W
2725	4822 126 11714	4.7nF 20% 16V	3720	4822 116 52256	2k2 5% 0.5W
2726	4822 126 11714	4.7nF 20% 16V	3721	4822 116 52245	150k 5% 0.5W
2727	4822 126 12878	1.5nF 10% 50V	3722	4822 116 52215	220Ω 5% 0.5W
2728	4822 121 51305	15nF 10% 50V	3723	4822 116 52224	470Ω 5% 0.5W
2729	4822 126 12787	330pF 10% 50V	3724	4822 116 52184	18Ω 5% 0.5W
2730	4822 121 51304	10nF 10% 50V	3725	4822 116 52303	8k2 5% 0.5W
2731	4822 126 11585	22nF +80-20% 25V	3726	4822 116 83863	1k 5% 0.5W
2732	4822 126 11585	22nF +80-20% 25V	3727	4822 116 52219	330Ω 5% 0.5W
2733	4822 126 12878	1.5nF 10% 16V	3728	4822 116 83864	10k 5% 0.5W
2734	5322 122 32311	470pF 10% 100V	3729	4822 116 52256	2k2 5% 0.5W
2735	4822 121 51305	15nF 10% 50V	3730	4822 116 52256	2k2 5% 0.5W
2736	4822 126 12787	330pF 10% 50V	3734	4822 116 52289	5k6 5% 0.5W
2737	4822 121 51304	10nF 10% 50V	3731	4822 116 52245	150k 5% 0.5W
2738	4822 126 11585	22nF +80-20% 25V	3732	4822 116 83864	10k 5% 0.5W
2739	4822 122 33195	100pF 10% 50V	3733	4822 116 52256	2k2 5% 0.5W
2740	4822 126 12339	2.2nF 20%	3735	4822 116 83864	10k 5% 0.5W
2741	4822 126 12339	2.2nF 20%	3736	4822 116 52256	2k2 5% 0.5W
2742	4822 122 33195	100pF 10% 50V	3737	4822 116 52245	150k 5% 0.5W
2743	4822 126 12878	1.5nF 10% 16V	3738	4822 116 52215	220Ω 5% 0.5W
2744	5322 122 32311	470pF 10% 100V	3739	4822 116 52224	470Ω 5% 0.5W
2745	4822 126 12878	1.5nF 10% 16V	3740	4822 116 52283	4k7 5% 0.5W
2746	5322 122 32311	470pF 10% 100V	3741	4822 116 52184	18Ω 5% 0.5W
2747	4822 121 51305	15nF 10% 50V	3742	4822 116 52245	150k 5% 0.5W
2748	4822 126 11585	22nF +80-20% 25V	3743	4822 116 52215	220Ω 5% 0.5W
2749	4822 126 12878	1.5nF 10% 16V	3744	4822 116 52224	470Ω 5% 0.5W
2750	5322 122 32311	470pF 10% 100V	3745	4822 116 52283	4k7 5% 0.5W
2751	4822 121 51305	15nF 10% 50V	3746	4822 116 52184	18Ω 5% 0.5W
2752	4822 126 12878	1.5nF 10% 50V	3747	4822 116 52289	5k6 5% 0.5W
2753	4822 124 40242	1μF 20% 63V	3748	4822 116 52224	470Ω 5% 0.5W
2754	4822 124 41397	47μF 20% 25V	3749	4822 116 52245	150k 5% 0.5W
2755	4822 124 40242	1μF 20% 63V	3750	4822 116 52215	220Ω 5% 0.5W
2756	4822 124 41397	47μF 20% 25V	3751	4822 116 52224	470Ω 5% 0.5W
2757	4822 121 51252	470nF 5% 63V	3752	4822 116 52184	18Ω 5% 0.5W
2758	4822 121 51252	470nF 5% 63V	3753	4822 116 52224	470Ω 5% 0.5W
2759	4822 122 33519	470pF 10% 50V			

ELECTRICAL PARTSLIST - MTF CASSETTE BOARD

			TRANSISTORS		
3754	4822 116 52256	2k2 5% 0.5W	7701	4822 130 42231	BC557C
3755	4822 116 52256	2k2 5% 0.5W	7702	4822 130 40938	BC548
3756	4822 116 52256	2k2 5% 0.5W	7704	4822 130 40981	BC337-25
3757	4822 116 52256	2k2 5% 0.5W	7709	4822 130 44503	BC547C
3759	4822 052 10478	4Ω7 5% 0.33W	7710	4822 130 44503	BC547C
3760	4822 116 52263	2k7 5% 0.5W	7711	4822 209 32918	AN7318S
3761	4822 116 52284	47k 5% 0.5W	7712	4822 209 32918	AN7318S
3762	4822 116 83874	220k 5% 0.5W	7713	4822 130 40981	BC337-25
3764	4822 116 83864	10k 5% 0.5W	7714	4822 130 40981	BC337-25
3765	4822 116 83864	10k 5% 0.5W	7715	4822 130 40981	BC337-25
3766	4822 116 83864	10k 5% 0.5W	7716	4822 130 40981	BC337-25
3767	4822 116 83864	10k 5% 0.5W	7717	4822 130 40938	BC548
3768	4822 116 83864	10k 5% 0.5W	7718	4822 130 40959	BC547B
3769	4822 116 52303	8k2 5% 0.5W	7719	4822 130 40959	BC547B
3770	4822 116 52284	47k 5% 0.5W	7720	4822 130 44503	BC547C
3771	4822 116 83864	10k 5% 0.5W	7721	4822 130 44503	BC547C
3772	4822 116 52234	100k 5% 0.5W	Note : Only the parts mentioned in this list are normal service spare parts.		
3773	4822 116 83864	10k 5% 0.5W			
3774	4822 116 52303	8k2 5% 0.5W			
3775	4822 116 52284	47k 5% 0.5W			
3776	4822 116 52234	100k 5% 0.5W			
3777	4822 116 52284	47k 5% 0.5W			
3778	4822 116 52234	100k 5% 0.5W			
3779	4822 116 83864	10k 5% 0.5W			
3780	4822 116 52245	150k 5% 0.5W			
3781	4822 116 52175	100Ω 5% 0.5W			
3782	4822 116 52175	100Ω 5% 0.5W			
3783	4822 116 83864	10k 5% 0.5W			
3784	4822 116 83864	10k 5% 0.5W			
3785	4822 116 52217	270Ω 5% 0.5W			
3786	4822 116 52234	100k 5% 0.5W			
3787	4822 116 52175	100Ω 5% 0.5W			
3788	4822 116 52256	2k2 5% 0.5W			
3789	4822 116 52256	2k2 5% 0.5W			
COIL					
5701	4822 157 10371	100KHZ OSC COIL			
DIODES					
6703	4822 130 30621	1N4148			
6705	5322 130 34563	BZX79-C2V7			
6706	4822 130 30621	1N4148			
6708	4822 130 30621	1N4148			
6707	4822 130 30621	1N4148			
6709	4822 130 30621	1N4148			
6710	4822 130 34173	BZX79-C5V6			
6711	4822 130 34173	BZX79-C5V6			



ECO SHORT LOADER UNIT

for Systems

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Dismantling hints CD Short Loader

Dismantling the tray

- Press open/close button to open the tray. If the tray doesn't work, use a small screwdriver as shown in Fig. 1 point 1 to move the tray outside. After the first centimetre it is possible to pull the tray out by hand.
- Release two snaps and remove tray.

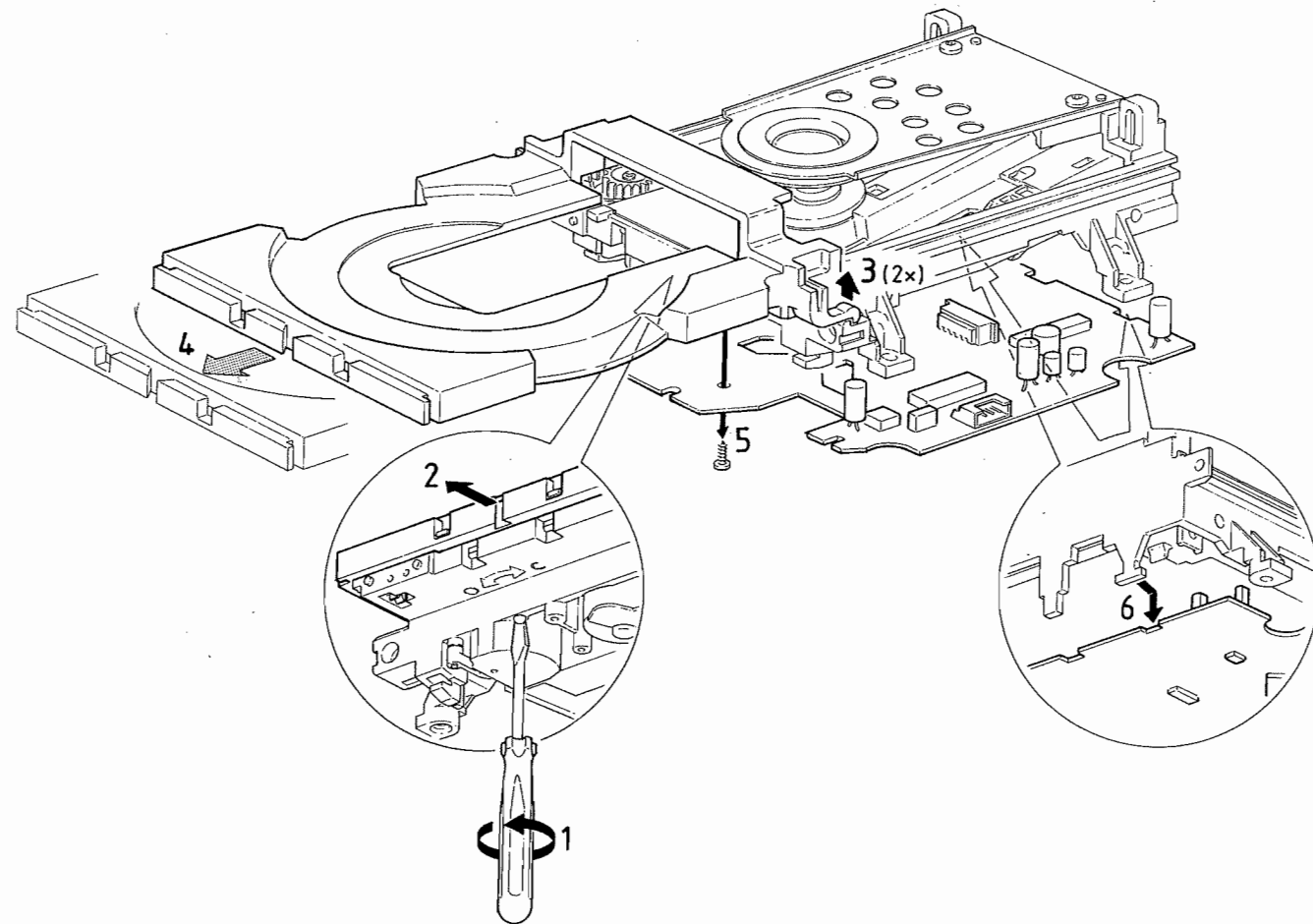


Fig. 1

Assembly of gear

- Use a pin (e.g. a paperclip) to align the cam wheel (a) with the gear wheel (b). See Fig. 2.
- Fix the wheels with the small plastic washers.

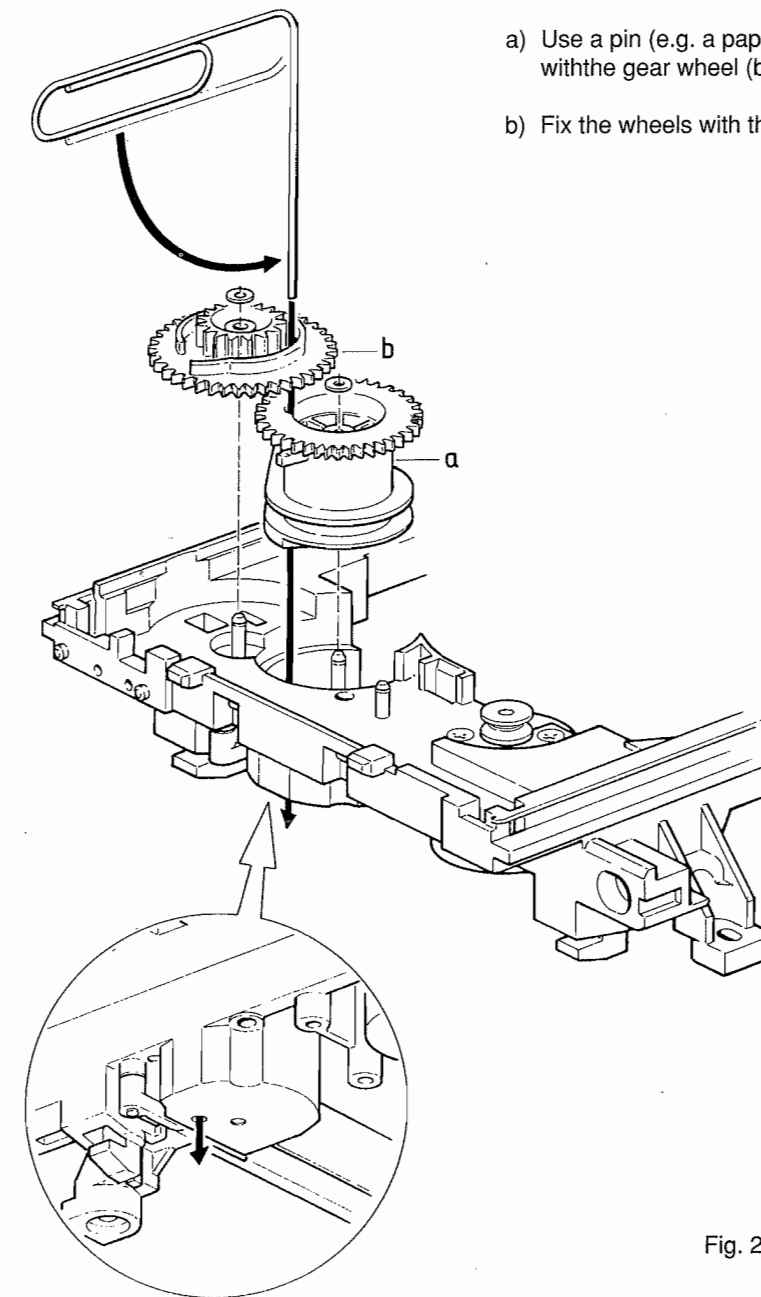


Fig. 2

- c) Mount idle wheel 2 (c) and idle wheel 1 (d) in any position. See Fig. 3.
- d) Fix the idle wheel 1 (d) with the small plastic washer.
- e) Mount the driving belt.

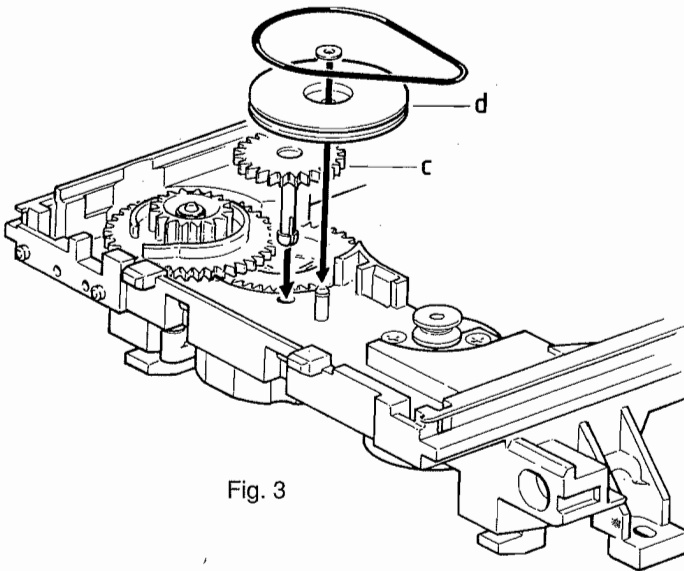


Fig. 3

- f) Mount the pinion guiding assy and the cover as shown in Fig. 4.
- g) Turn the gear wheel (b) counter clockwise to endposition.

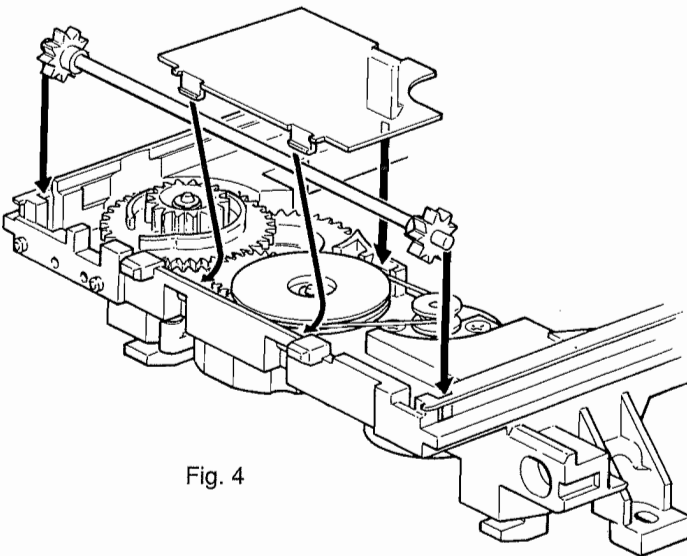


Fig. 4

- h) Mount the CD Mechanism as shown in Fig. 5.
- i) Mount the tray (Align the tray to the chassis and push it inside).

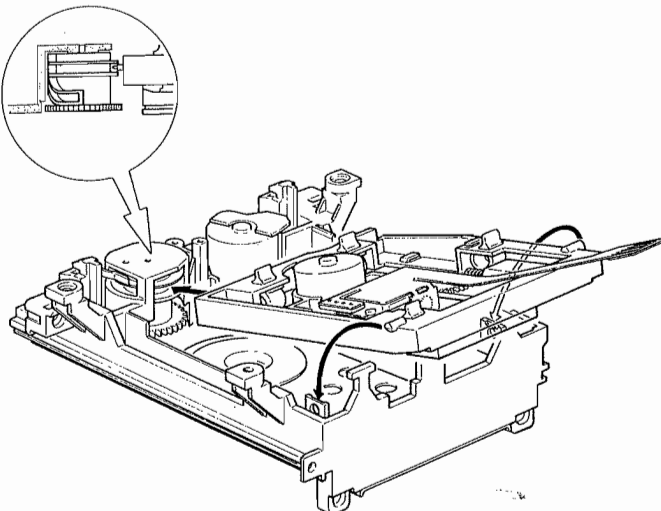


Fig. 5

Check if tray mechanism works correctly!

- 1) Turn the gear wheel (b) clockwise to its endposition (Use a small screwdriver as shown in Fig. 1 point 1).

The tray has to move to inner position first and then the CD mechanism has to move to its upper position.

- 2) Turn the gear wheel (b) counter clockwise to its endposition.

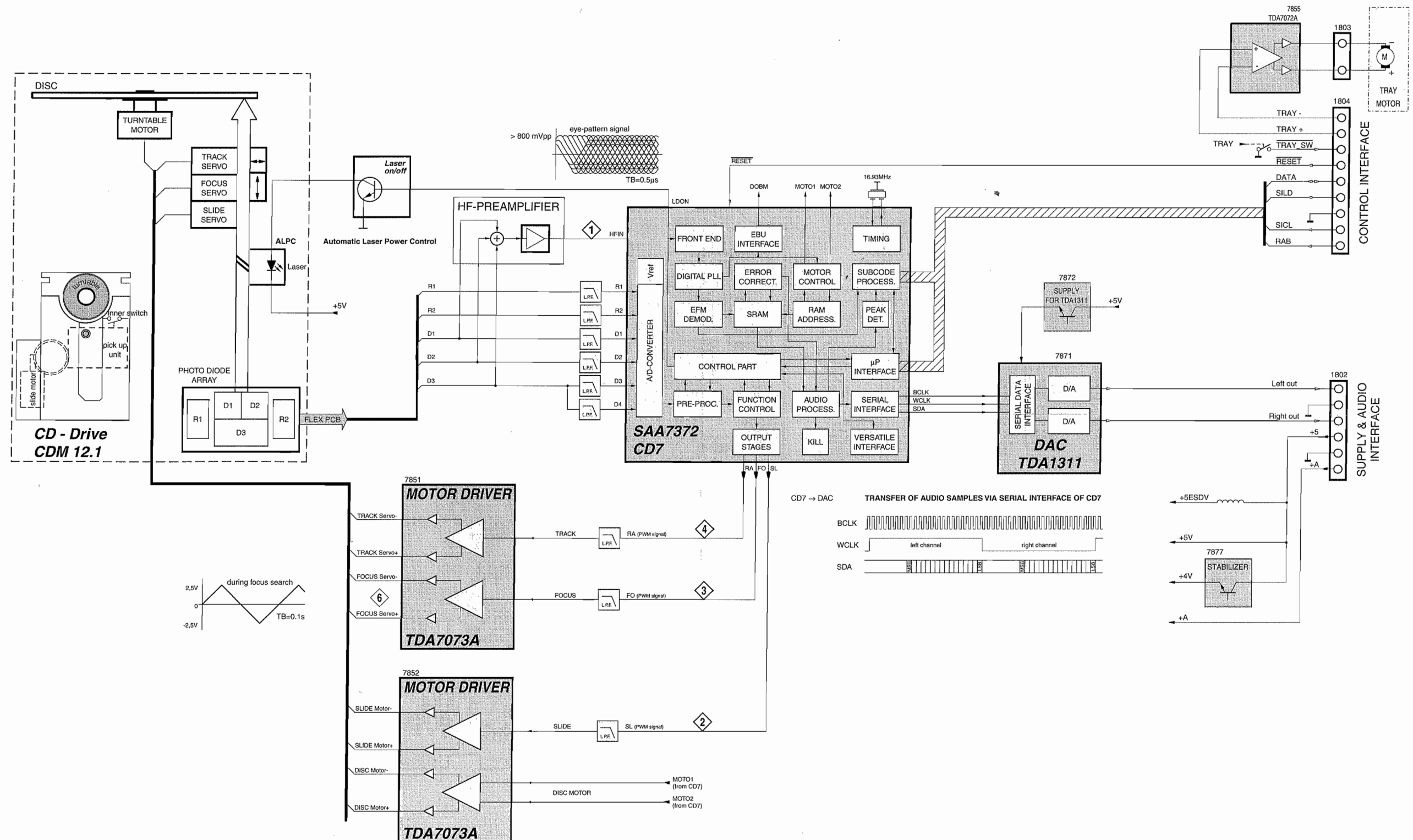
The CD Mechanism has to move to its lower position first and then the tray has to move outside.

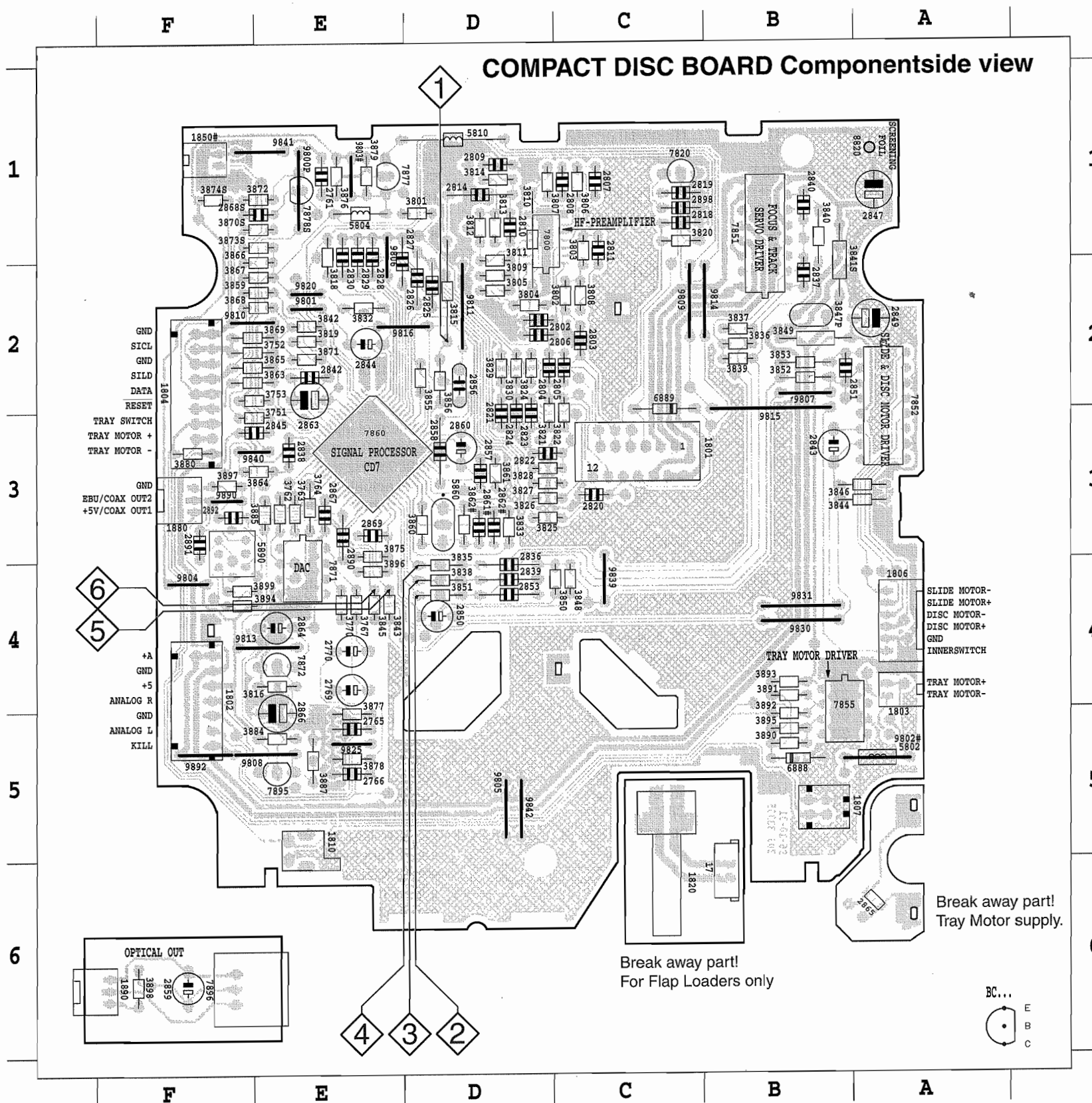
Abbreviations CD Part

SAA7372 - DECODER AND DIGITAL SERVO IC CD7

Pin	Name	Direction	Description
1	VSSA1	GND	supply (analog) of CD7
2	VDDA1	+4V	supply (analog) of CD7
3	D1	HF-preamp → CD7	unipolar current input (central diode signal input)
4	D2	HF-preamp → CD7	unipolar current input (central diode signal input)
5	D3	HF-preamp → CD7	unipolar current input (central diode signal input)
6	VRL	GND	reference input for ADC
7	D4	HF-preamp → CD7	unipolar current input (central diode signal input)
8	R1	HF-preamp → CD7	unipolar current input (central diode signal input)
9	R2	HF-preamp → CD7	unipolar current input (central diode signal input)
10	IRET	→ CD7	current reference for calibration ADC
11	VRH	not connected	reference output from ADC
12	VSSA2	GND	supply (analog) of CD7
13	SELPLL	+4V	selects whether internal clock multiplier PLL is used
14	ISLICE	CD7 →	current feedback from data slicer
15	HFIN	→ CD7	comparator signal input
16	VSSA3	GND	supply (analog) of CD7
17	HFREF	→ CD7	comparator common mode input
18	IREF	→ CD7	reference current pin (nom. VDD/2)
19	VDDA2	+4V	supply (analog) of CD7
20	TEST 1	GND	test control input
21	CRIN	X-Tal → CD7	crystal/resonator input
22	CDOUT	X-Tal → CD7	crystal/resonator output
23	TEST 2	GND	test control input
24	CL16	not connected	16.9344MHz system clock output
25	CL11	not connected	11.2896MHz to 5.6448MHz clock output (3-state)
26	RA	CD7 → servo driver	radial actuator output
27	FO	CD7 → servo driver	focus actuator output
28	SL	CD7 → servo driver	slide actuator output
29	TEST3	GND	test control input
30	VDD1P	+4V	supply (digital) of CD7
31	DOBM	CD7 → digital output	bi-phase mark output (3-state)
32	VSS1	GND	supply (digital) of CD7
33	MOTO1	CD7 → servo driver	motor output1 of CD7; versatile (3-state)
34	MOTO2	CD7 → servo driver	motor output2 of CD7; versatile (3-state)
35	SBSY	not connected	subcode block sync (3-state)
36	SFSY	not connected	subcode frame sync (3-state)
37	RCK	GND	subcode clock input
38	SUB	not connected	P to W subcode bits (3-state)
39	VSS2	GND	supply (digital) of CD7
40	V5	not connected	versatile output pin of CD7
41	V4	not connected	versatile output pin of CD7
42	V3	not connected	versatile output pin of CD7 (open drain)
43	KILL	CD7 →	kill output; programmable (open drain)
44	MISC	not connected	C2 error flag; output only defined in CD-ROM modes (3-state)
45	DATA	CD7 → DAC	serial data output (3-state)
46	WCLK	CD7 → DAC	word clock output (3-state)
47	VDD2P	+4V	supply (digital) of CD7
48	BCLK	CD7 → DAC	serial bit clock output (3-state)
49	VSS3	GND	supply (digital) of CD7
50	CL4	not connected	4.2336MHz μ P clock output
51	SDA	μ P → CD7	μ P interface data I/O line (open drain output)
52	SCL	μ P → CD7	μ P interface clock line
53	RAB	μ P → CD7	μ P interface R/W and load control line
54	SILD	μ P → CD7	μ P interface R/W and load control line
55	NC		no connection
56	VSS4	GND	supply (digital) of CD7
57	RESET	μ P → CD7	power-on reset input (active low)
58	STATUS	not connected	servo interrupt request line /CD7 status register output (open drain)
59	VDD3C	+4V	supply core (digital)
60	C2FAIL	not connected	indication of correction failure (open drain)
61	CFLG	not connected	correction flag output (open drain)
62	V1	→ CD7	versatile input pin
63	V2	→ CD7	versatile input pin
64	LDON	CD7 → 7820	laser drive on output (open drain)

Functional Diagram ECO Short Loader with CD7



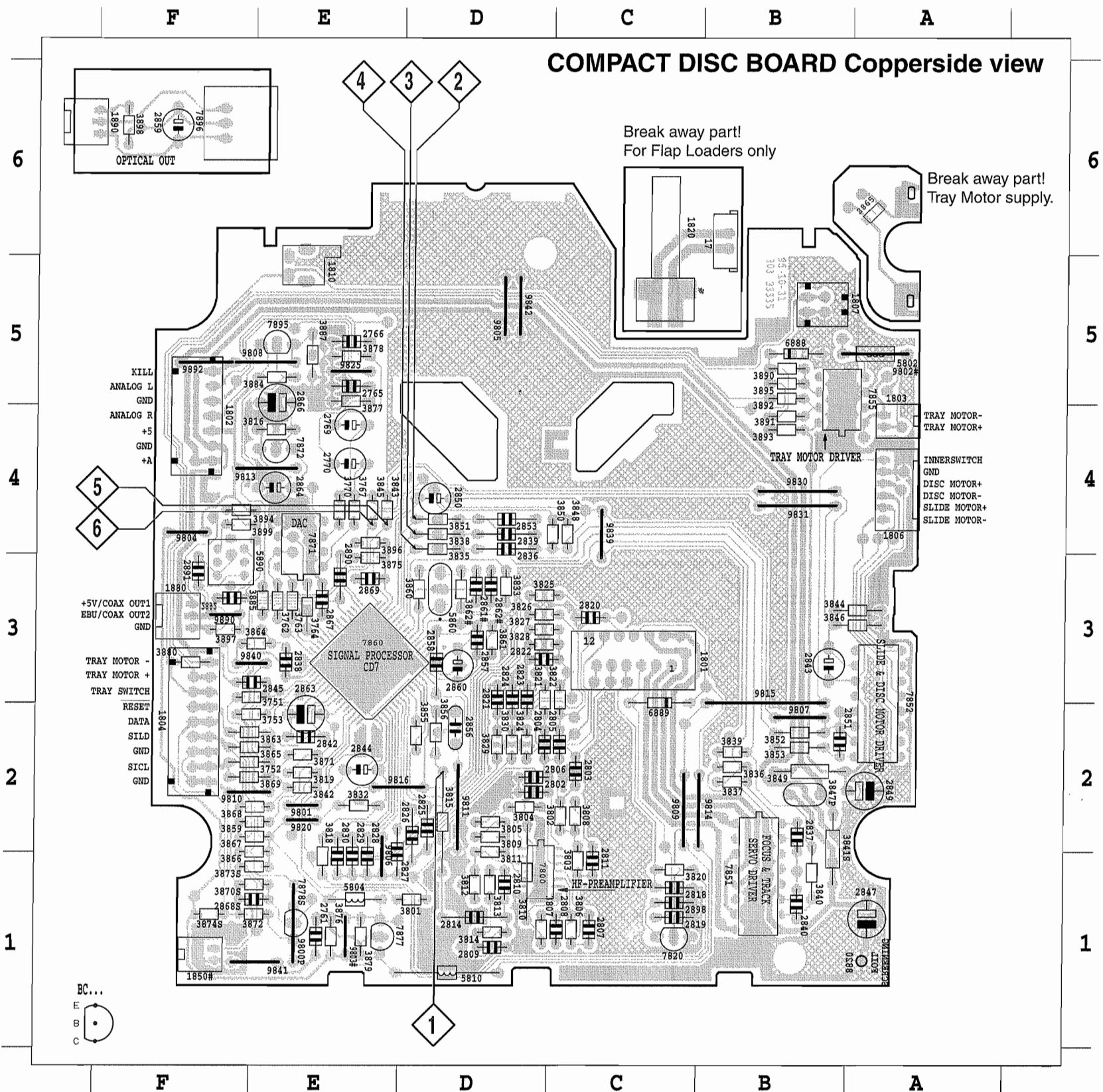


17	B6	3751	F3	3873S	E1
1801	C3	3752	F2	3874S	F1
1802	F4	3753	F2	3875	E3
1803	A4	3762	E3	3876	E1
1804	F2	3763	E3	3877	E5
1806	A4	3764	E3	3878	E5
1807	B5	3767	E4	3879	E1
1810	E5	3770	E4	3880	F3
1820	C5	3801	D1	3884	E5
1850#	F1	3802	C2	3885	E3
1880	F3	3803	C1	3887	E5
1890	F6	3804	D2	3888	F6
2761	E1	3805	D2	3890	B5
2765	E5	3806	C1	3891	B4
2766	E5	3807	D1	3892	B5
2769	E4	3808	C2	3893	B4
2770	E4	3809	D2	3894	F4
2802	D2	3810	D1	3895	B5
2803	C2	3811	D1	3896	E4
2804	D2	3812	D1	3897	F3
2805	C2	3813	D1	3898	F6
2806	D2	3814	D1	3899	F4
2807	C1	3815	D2	5802	A5
2808	C1	3816	E4	5804	E1
2809	D1	3818	E1	5810	D1
2810	D1	3819	E2	5860	D3
2811	C1	3820	C1	5890	F3
2814	D1	3821	D3	6888	B5
2818	C1	3822	C3	6889	C2
2819	C1	3824	D2	7800	D1
2820	C3	3825	D3	7820	C1
2821	D3	3826	D3	7851	B1
2822	D3	3827	D3	7852	A2
2823	D3	3828	D3	7855	B5
2824	D3	3829	D2	7860	E3
2825	D2	3830	D2	7871	E4
2826	D2	3832	E2	7872	E4
2827	E1	3833	D3	7877	E1
2828	E1	3835	D4	7878S	E1
2829	E1	3836	B2	7895	E5
2830	E1	3837	B2	7896	F6
2836	D4	3838	D4	9800P	E1
2837	B2	3839	B2	9801	E2
2838	E3	3840	B1	9803#	E1
2839	D4	3842	E2	9804	F4
2840	B1	3841S	B2	9805	D5
2842	E2	3843	E4	9806	E1
2843	B3	3844	A3	9802#	A5
2844	E2	3845	E4	9807	B2
2845	F3	3846	A3	9808	E5
2847	A1	3848	C4	9809	C2
2849	A2	3847P	B2	9810	F2
2850	D4	3849	B2	9811	D2
2851	B2	3850	C4	9813	E4
2853	D4	3851	D4	9814	B2
2856	D2	3852	B2	9815	B2
2857	D3	3853	B2	9816	E2
2858	D3	3855	D2	9820	E2
2859	F6	3856	D2	9825	E5
2860	D3	3859	E2	9830	B4
2863	E2	3860	D3	9831	B4
2861#	D3	3861	D3	9839	C4
2864	E4	3863	F2	9840	F3
2865	A6	3864	E3	9841	E1
2862#	D3	3862#	D3	9842	D5
2866	E5	3865	F2	9890	F3
2867	E3	3866	E1	9892	F5
2868S	E1	3867	E2		
2869	E3	3868	E2		
2890	E3	3869	F2		
2891	F3	3870S	E1		
2892	F3	3871	E2		
2898	C1	3872	E1		

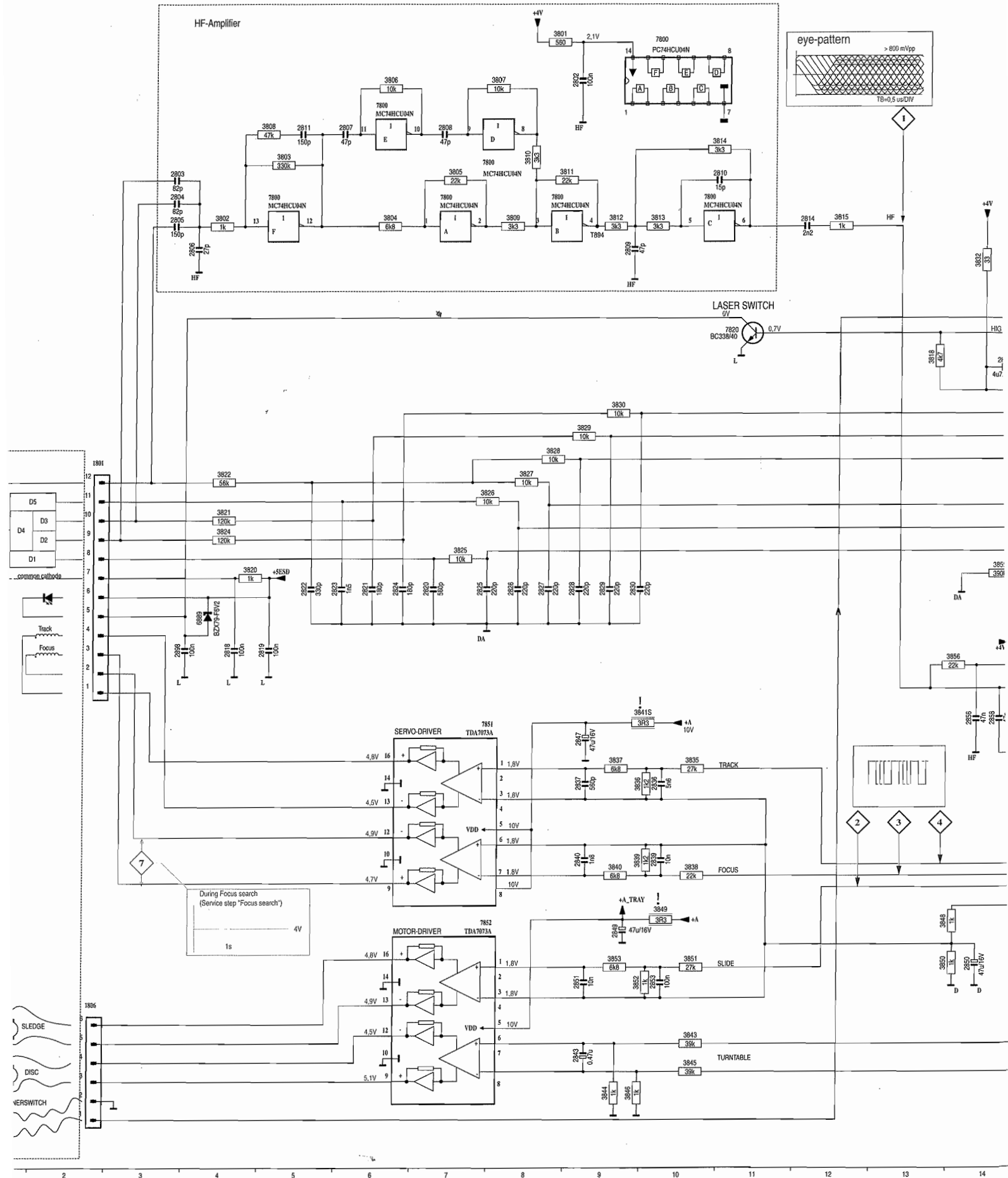
S = for Systems
P = for Portables
= provisional

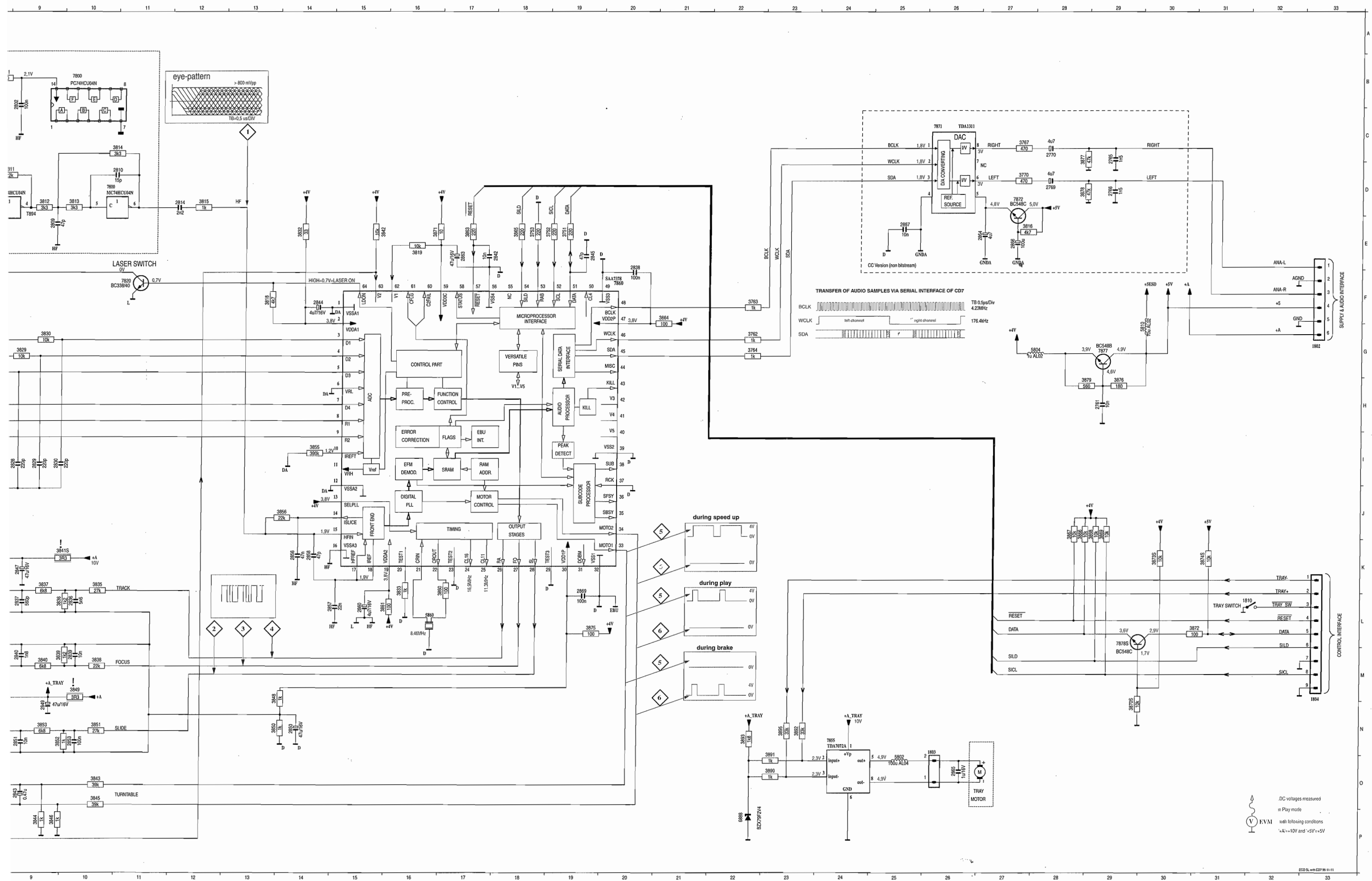
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram respectively partslist.

COMPACT DISC BOARD Copperside view



D Board





WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CDM-ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE

- **SWITCH OFF POWER SUPPLY**
- **ESD PROTECTION**

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CDM mechanism:

1. Disconnect old CDM flexfoil from printed board
2. Connect paperclip to CDM flexfoil to short-circuit flexfoil (fig. 1)
3. Short-circuit printed board with brass-sheet (4822 321 11197) plugged into the flexfoil connector (fig. 2)
4. Remove old CDM mechanism
5. Position new CDM mechanism in its studs
6. Remove short-circuit from printed board connector
7. Remove shor-circuit from flexfoil of new CDM
8. Connect new flexfoil to print connector (fig. 3)

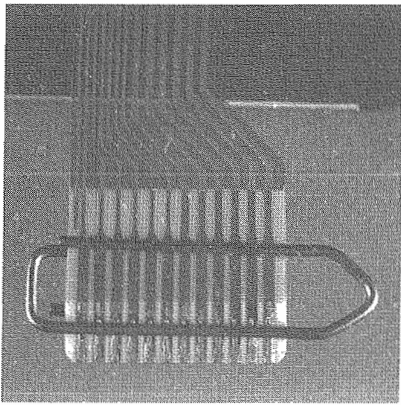


Fig. 1

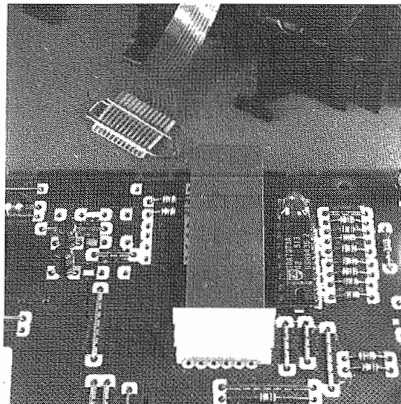


Fig. 2

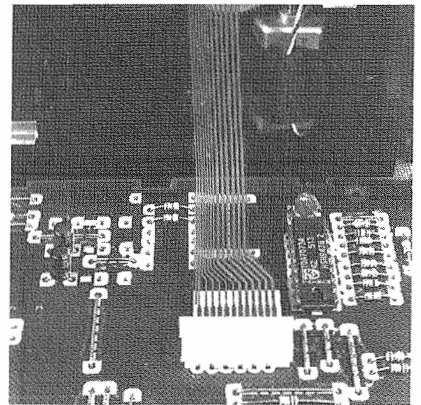
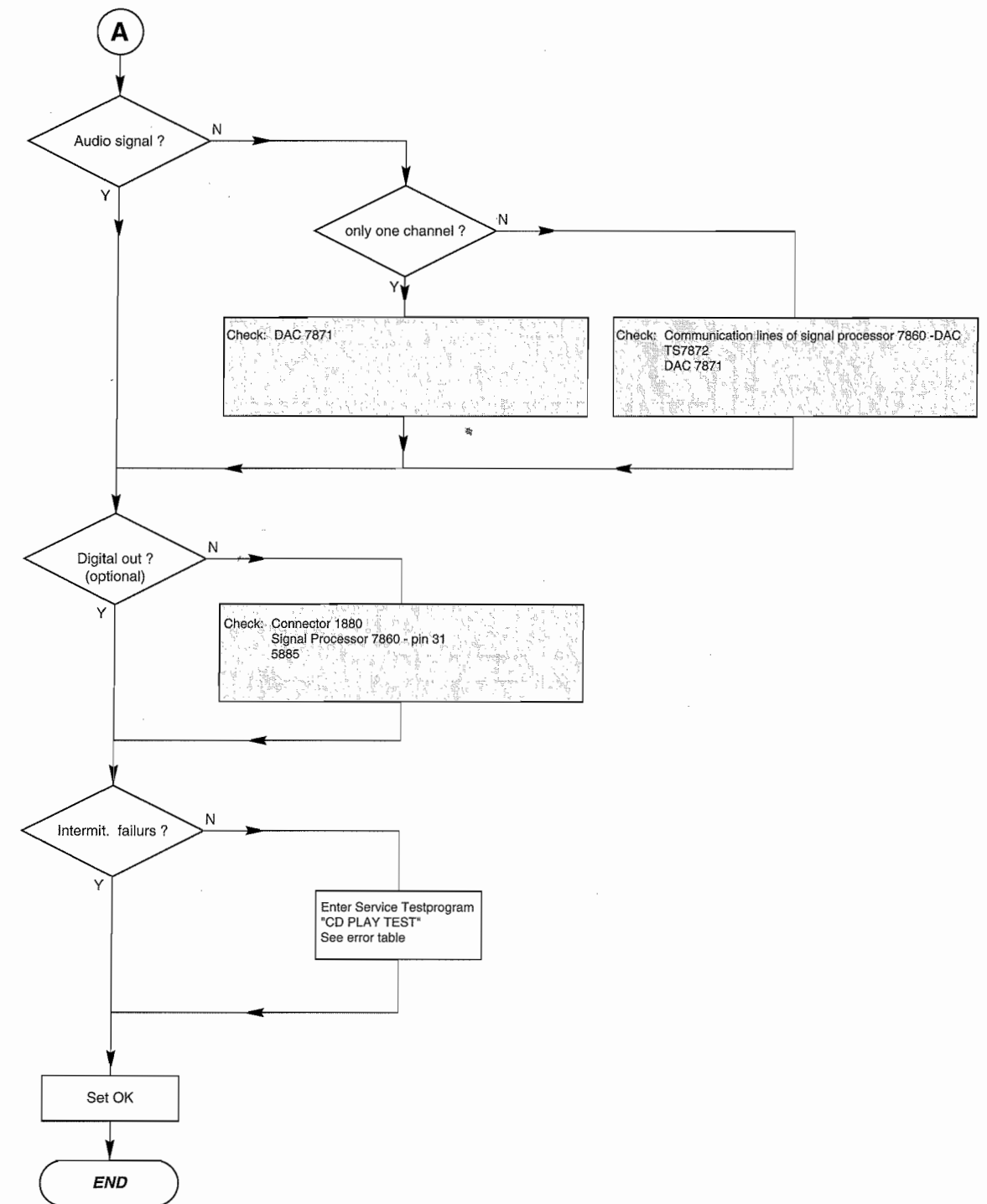
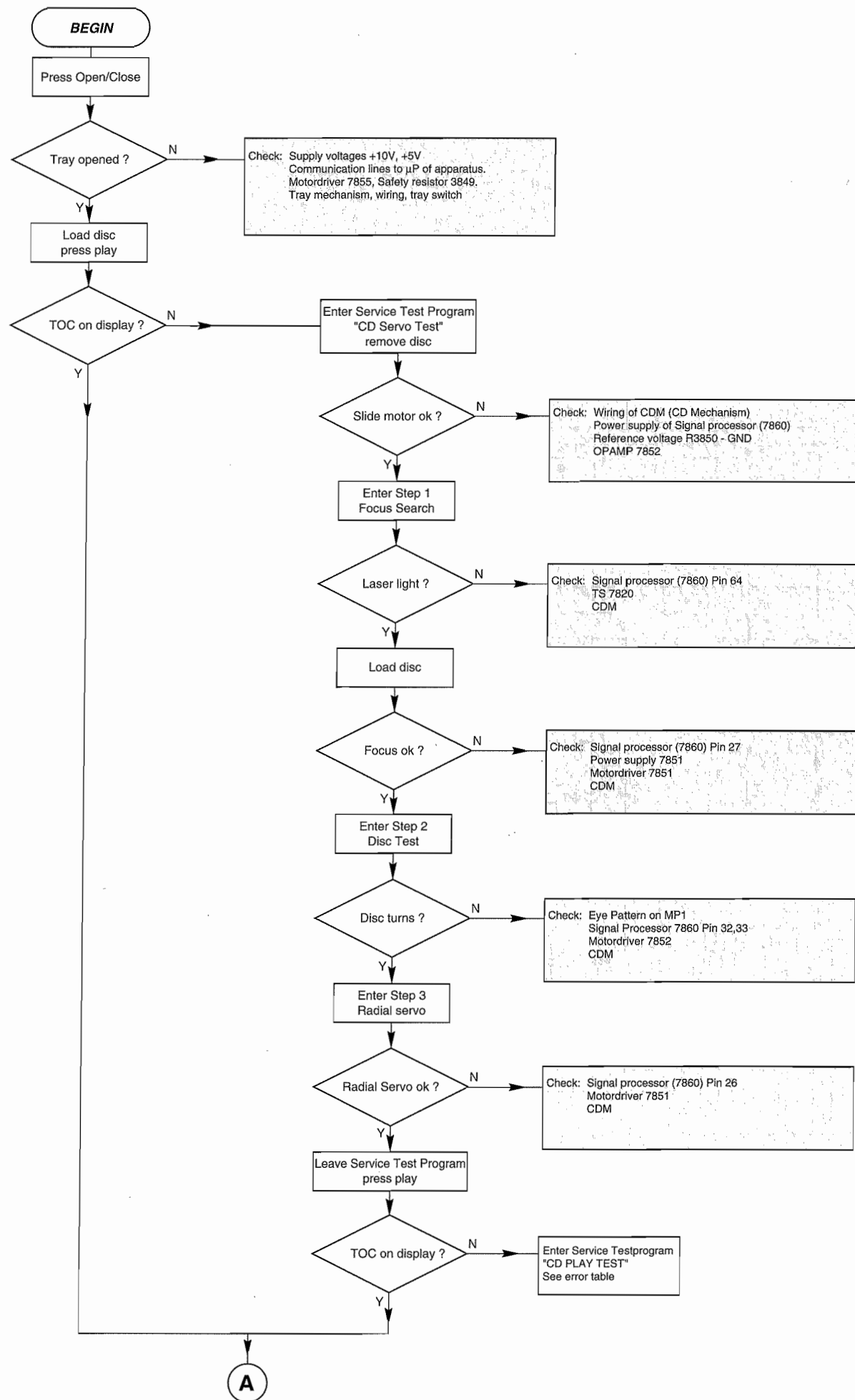
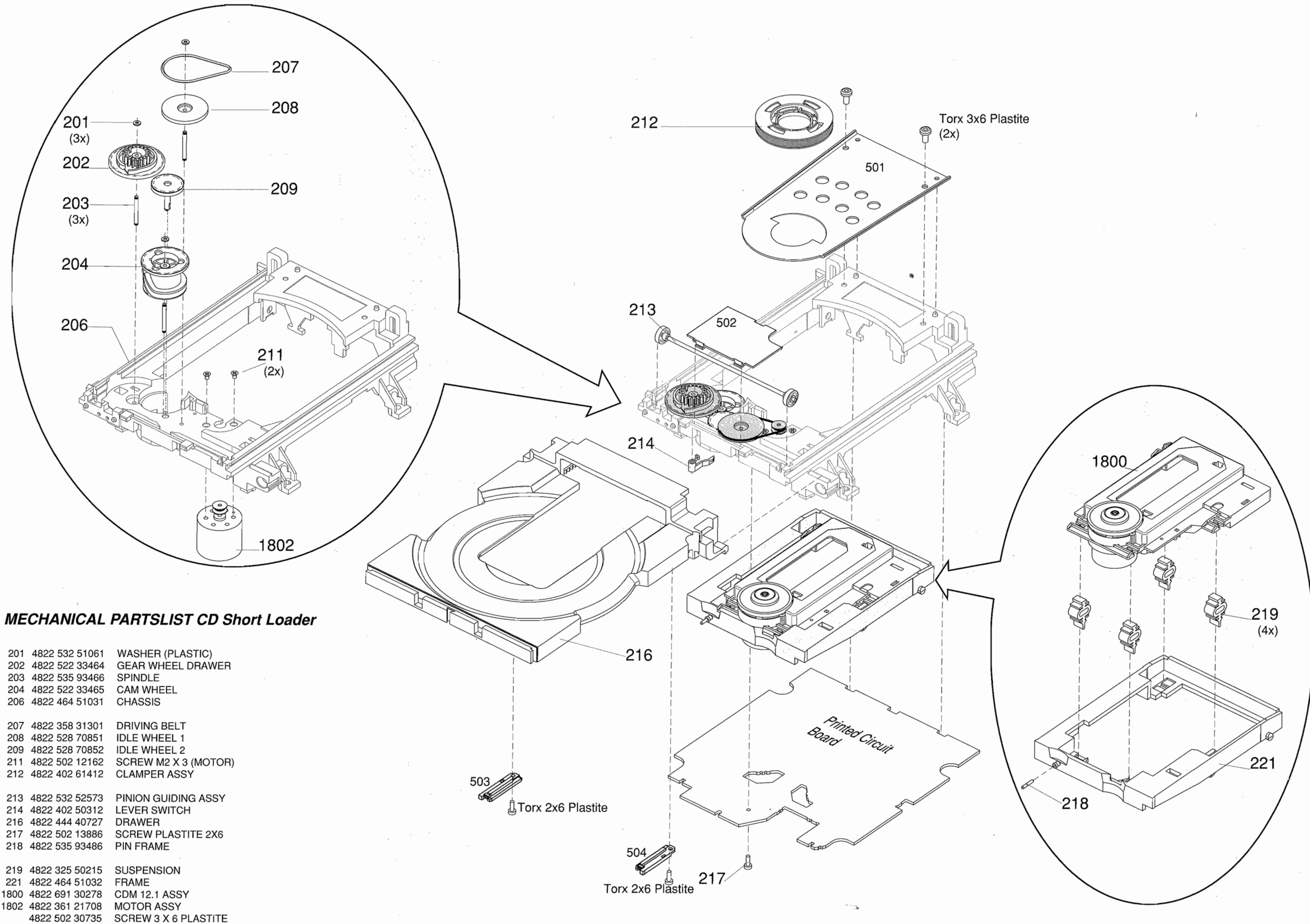


Fig. 3



Exploded view CD Short Loader



ELECTRICAL PARTS LIST - CD BOARD

MISCELLANEOUS		
1801	4822 267 51453	Flex foil connector 12 pin
1804	5322 265 40945	Connector 9pin
1810	4822 276 13503	Tray Switch

CAPACITORS		
2761	4822 121 51387	10nF 20% 16V
2765	4822 126 12878	1,5nF 10% 16V
2766	4822 126 12878	1,5nF 10% 16V
2769	4822 124 41969	1µF 20% 50V
2770	4822 124 23401	4,7µF 20% 25V
2802	4822 126 12882	100nF 20% 50V
2803	4822 122 10319	82pF 5% 50V
2804	4822 122 10319	82pF 5% 50V
2805	4822 122 33849	150pF 10% 50V
2806	4822 122 33192	27pF 5% 50V
2807	4822 122 33848	47pF 5% 50V
2808	4822 122 33848	47pF 5% 50V
2809	4822 122 33848	47pF 5% 50V
2810	4822 122 10462	15pF 5% 50V
2811	4822 122 33849	150pF 10% 50V
2814	4822 126 12339	2,2nF 10% 16V
2818	4822 126 12882	100nF 20% 50V
2819	4822 126 12882	100nF 20% 50V
2820	4822 122 10459	560pF 10% 50V
2821	4822 126 10053	180pF 10% 50V
2822	4822 126 12787	330pF 10% 50V
2823	4822 126 12878	1,5nF 10% 16V
2824	4822 126 10053	180pF 10% 50V
2825	4822 122 10466	220pF 10% 50V
2826	4822 122 10466	220pF 10% 50V
2827	4822 122 10466	220pF 10% 50V
2828	4822 122 10466	220pF 10% 50V
2829	4822 122 10466	220pF 10% 50V
2830	4822 122 10466	220pF 10% 50V
2836	4822 126 13098	5,6nF 20% 16V
2837	4822 122 10459	560pF 10% 50V
2838	4822 126 12882	100nF 20% 50V
2839	4822 121 51387	10nF 20% 16V
2840	4822 122 10576	1,8nF 10% 16V
2842	4822 121 51387	10nF 20% 16V
2843	5322 124 41948	0,47µF 20% 50V
2844	4822 124 23401	4,7µF 20% 25V
2845	4822 122 33848	47pF 5% 50V
2847	4822 124 40433	47µF 20% 25V
2849	4822 124 40433	47µF 20% 25V
2850	4822 124 23178	47µF 20% 16V
2851	4822 121 51387	10nF 20% 16V
2853	4822 126 12882	100nF 20% 50V
2856	4822 121 43526	47nF 5% 100V
2857	4822 126 11585	22nF 20% 50V
2858	4822 122 33848	47pF 5% 50V
2860	4822 124 23401	4,7µF 20% 25V
2863	4822 124 23178	47µF 20% 16V
2864	4822 124 23401	4,7µF 20% 25V
2866	4822 124 23264	100µF 20% 6,3V

RESISTORS		
2898	4822 121 51387	10nF 10% 16V
2869	4822 126 12882	100nF 20% 50V
2898	4822 126 12882	100nF 20% 50V
3751	4822 116 83872	220R 5% 0,5W
3752	4822 116 83872	220R 5% 0,5W
3753	4822 116 83872	220R 5% 0,5W
3762	4822 050 11002	1K 5% 0,2W
3763	4822 050 11002	1K 5% 0,2W
3764	4822 050 11002	1K 5% 0,2W
3767	4822 116 52224	470R 5% 0,5W
3770	4822 116 52224	470R 5% 0,5W
3801	4822 116 52226	560R 5% 0,5W
3802	4822 050 11002	1K 5% 0,2W
3803	4822 116 52272	330K 5% 0,5W
3804	4822 116 83961	6,8K 5% 0,16W
3805	4822 116 52257	22K 5% 0,5W
3806	4822 116 83864	10K 5% 0,5W
3807	4822 116 83864	10K 5% 0,5W
3808	4822 116 52284	47K 5% 0,5W
3809	4822 116 52269	3,3K 5% 0,5W
3810	4822 116 52269	3,3K 5% 0,5W
3811	4822 116 52257	22K 5% 0,5W
3812	4822 116 52269	3,3K 5% 0,5W
3813	4822 116 52269	3,3K 5% 0,5W
3814	4822 116 52269	3,3K 5% 0,5W
3815	4822 050 11002	1K 5% 0,2W
3816	4822 116 52283	4,7K 5% 0,5W
3818	4822 116 52283	4,7K 5% 0,5W
3819	4822 116 83868	150R 5% 0,5W
3820	4822 050 11002	1K 5% 0,2W
3821	4822 116 52239	120k 5% 0,5W
3822	4822 116 52291	56k 5% 0,5W
3824	4822 116 52239	120k 5% 0,5W
3825	4822 116 83864	10k 5% 0,5W
3826	4822 116 83864	10k 5% 0,5W
3827	4822 116 83864	10k 5% 0,5W
3828	4822 116 83864	10k 5% 0,5W
3829	4822 116 83864	10k 5% 0,5W
3830	4822 116 83864	10k 5% 0,5W
3832	4822 116 52191	33R 5% 0,5W
3833	4822 050 11002	1K 5% 0,2W
3835	4822 116 52264	27K 5% 0,5W
3836	4822 116 52207	1,2K 5% 0,5W
3837	4822 116 83961	6,8K 5% 0,16W
3838	4822 116 52257	22K 5% 0,5W
3839	4822 116 52207	1,2K 5% 0,5W
3840	4822 116 83961	6,8K 5% 0,16W
3841	4822 052 10338	3,3R NFR25
3842	4822 116 83864	10K 5% 0,5W
3843	4822 116 83882	39K 5% 0,5W
3844	4822 050 11002	1K 5% 0,2W
3845	4822 116 83882	39K 5% 0,5W
3846	4822 050 11002	1K 5% 0,2W

ELECTRICAL PARTS LIST - CD BOARD

3848	4822 050 11002	1K 5% 0,2W
3849	4822 052 10338	3,3R NFR25
3850	4822 050 11002	1K 5% 0,2W
3851	4822 116 52264	27K 5% 0,5W
3852	4822 050 11002	1K 5% 0,2W
3853	4822 116 83961	6,8K 5% 0,16W
3855	4822 116 52278	390K 5% 0,5W
3856	4822 051 20154	150K 5% 0,5W
3859	4822 116 52257	22K 5% 0,5W
3860	4822 116 52175	100R 5% 0,5W
3861	4822 116 52175	100R 5% 0,5W
3862	4822 116 52235	1M 5% 0,5W
3863	4822 116 83872	220R 5% 0,5W
3864	4822 116 52175	100R 5% 0,5W
3865	4822 116 83872	220R 5% 0,5W
3866	4822 116 83864	10K 5% 0,5W
3867	4822 116 83864	10K 5% 0,5W
3868	4822 116 83864	10K 5% 0,5W
3869	4822 116 83864	10K 5% 0,5W
3870	4822 116 83864	10K 5% 0,5W
3871	4822 116 52176	10R 5% 0,5W
3872	4822 116 52175	100R 5% 0,5W
3873	4822 116 83864	10K 5% 0,5W
3874	4822 116 83864	10K 5% 0,5W
3875	4822 116 52175	100R 5% 0,5W
3876	4822 116 52213	180R 5% 0,5W
3877	4822 116 52284	47K 5% 0,5W
3878	4822 116 52284	47K 5% 0,5W
3879	4822 116 52226	560R 5% 0,5W
3890	4822 050 11002	1K 5% 0,2W
3891	4822 050 11002	1K 5% 0,2W
3892	4822 116 52271	33K 5% 0,16W
3893	4822 116 52249	1,8K 5% 0,16W
3895	4822 116 52271	33K 5% 0,16W

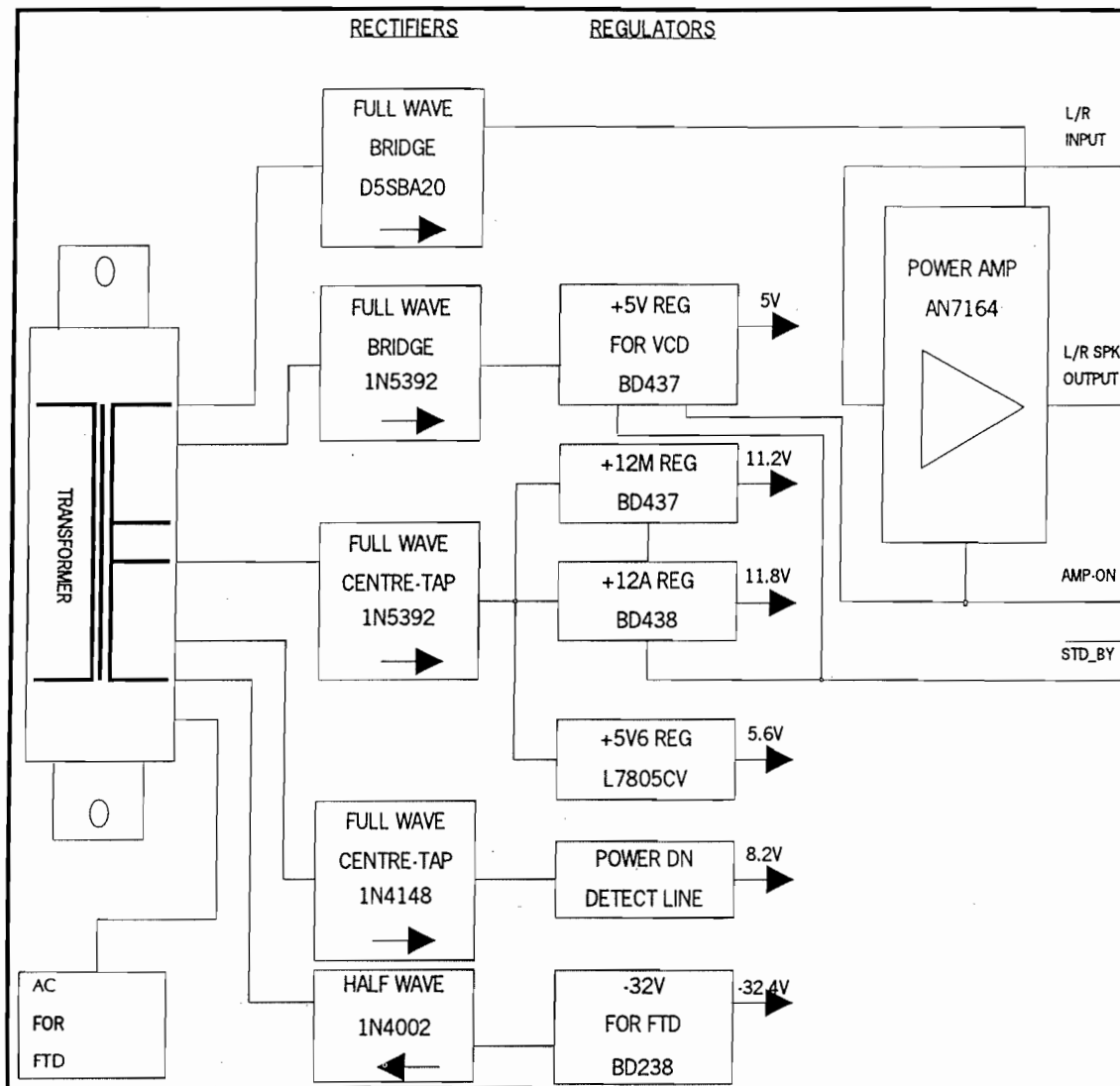
COILS		
5804	4822 157 53302	1µH
5810	4822 152 20677	10µH
5860	4822 242 73557	Ceramic Res. 8,46MHz

DIODES		
6888	4822 130 80655	BZX79-F2V4
6889	4822 130 34167	BZX79-B6V2

TRANSISTORS		
7820	5322 209 11517	PC74HCU04T
7851	4822 209 32852	TDA7073A/N2
7852	4822 209 32852	TDA7073A/N2
7855	4822 209 31519	TDA7072A
7860	4822 209 12752	SAA7378GP
7871	4822 209 32421	TDA1311A/N2

Note : Only the parts mentioned in this list are normal service spare parts.

POWER BOARD



WARNING : If the power amplifier heatsink is not attached to the power amplifier during testing, do not make the amplifier deliver more than 500mW per channel. It is advisable to inject signal one channel at a time whenever possible and to remove all input signal immediately after test.

CONNECTOR 12 TO 1210

o 1	PA	AC input to power amplifier rectifier
o 2	PA	AC input to power amplifier rectifier [Note: Pin 1 is shorted to Pin 2]
o 3	PA	AC input to power amplifier rectifier
o 4	PA	AC input to power amplifier rectifier [Note: Pin 3 is shorted to Pin 4]
o 5	+12V/+5V6	AC input to +12V & +5V6 rectifier
o 6	GND	Centre-tap of secondary winding of Pin 5, 7 and 8
o 7	+12V/+5V6	AC input to +12V & +5V6 rectifier
o 8	-35V	AC input to FTD rectifier
o 9	FTD	FTD filament voltage
o 10	FTD	FTD filament voltage

CONNECTOR 1222

o 1	STDBY	Standby signal from microprocessor
o 2	~F1	AC voltage for FTD filament
o 3	~F2	AC voltage for FTD filament
o 4	-32V	-32.4V voltage for FTD grid
o 5	PWD DN	Power down signal to microprocessor

CONNECTOR 1223

o 1	L	Left input for power amplifier
o 2	a	AF ground
o 3	R	Right input for power amplifier
o 4	AMP_ON	Control from up to switch power amplifier and VCD regulator to standby
o 5	+12M	+12V for tape deck motors and CD mechanisms
o 6	B	Ground for +12A
o 7	+12A	+12V for analog circuitries
o 8	D	Motor and Digital ground
o 9	+5V6	+5V6 for set uP and VCD uP

CONNECTOR 1224

o 1	L	Left input for power amplifier
o 2	a	AF ground
o 3	R	Right input for power amplifier
o 4	AMP_ON	Control from uP to switch power amplifier and VCD regulator to standby
o 5	+12A	+12V for analog circuitries
o 6	B	Ground for +12A
o 7	+12M	+12V for tape deck motors and CD mechanisms
o 8	M	Motor ground
o 9	+5V6	+5V6 for set up and VCD up
o 10	D	Digital ground

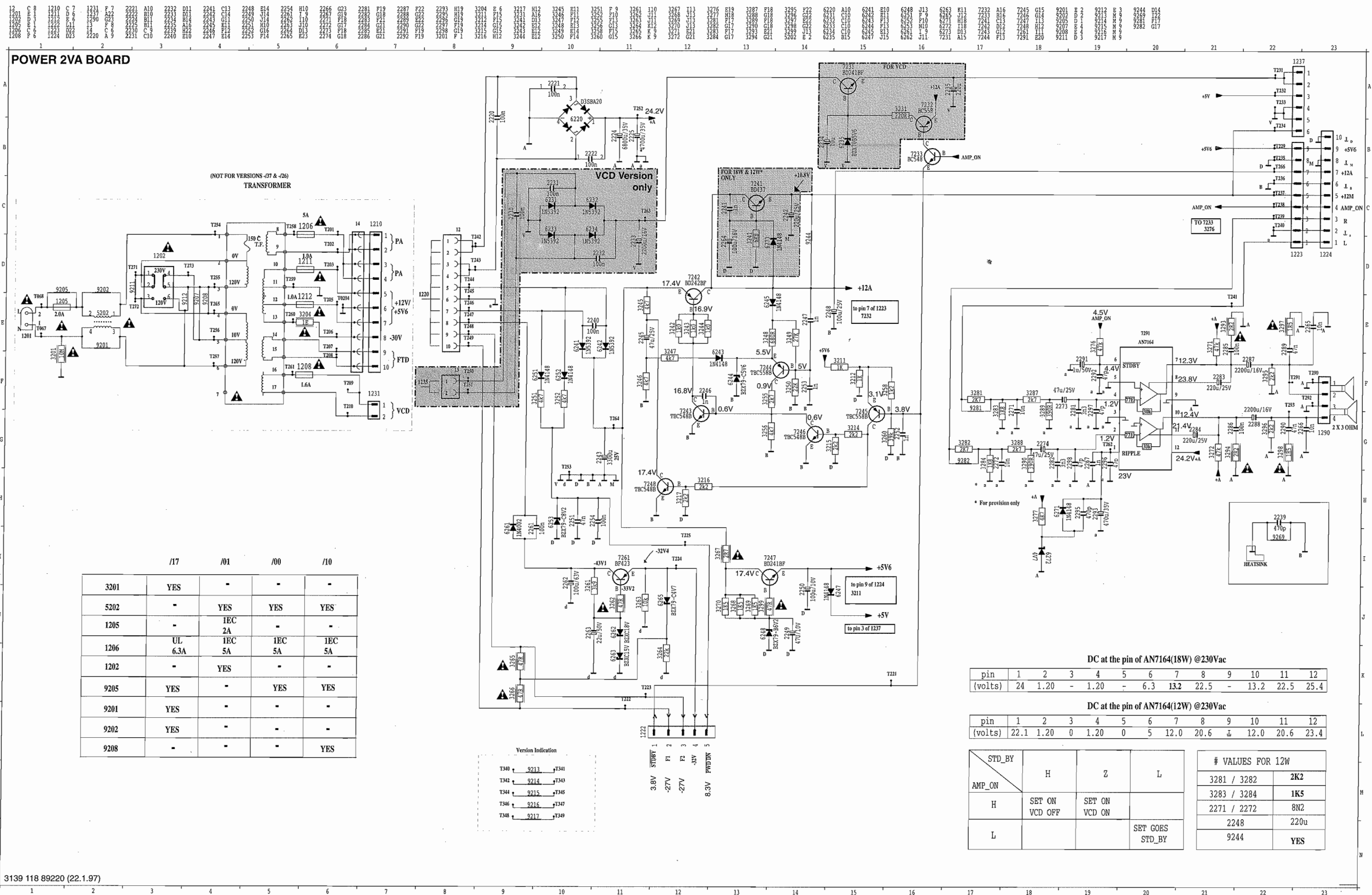
CONNECTOR 1237

o 1	+VCD	+5V for VCD module
o 2	+VCD	+5V for VCD module
o 3	+Vsl	+5V for VCD uP-SRAM
o 4	GND	Ground
o 5	GND	Ground
o 6	+VA	+12V for VCD servo drivers

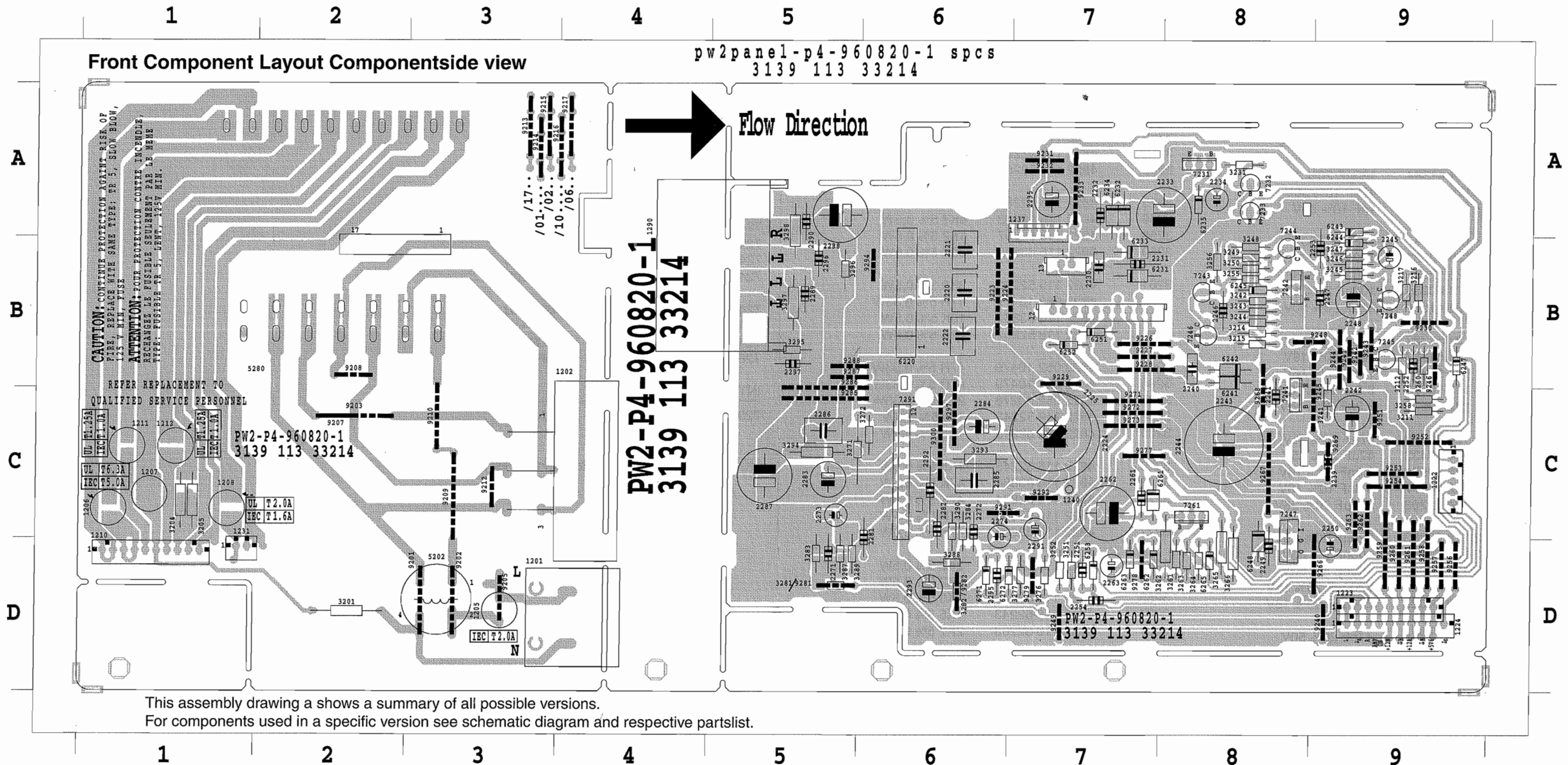
CONNECTOR 13 TO 1231

o 1	VCD	AC input to VCD rectifier
o 2	VCD	AC input to VCD rectifier

POWER 2VA CIRCUIT



12 B 7	1211 C 1	2220 B 6	2234 A 8	2246 B 8	2261 C 7	2283 C 5	2292 C 6	3212 B 9	3244 B 8	3255 B 8	3266 D 8	3287 D 5	3298 A 5	6241 B 8	6253 D 7	7233 A 8	7261 C 8	9210 C 3	9226 B 7	9240 D 9	9251 C 9	9261 D 9	9273 C 7	9288 B 5
13 B 7	1212 C 1	2221 B 6	2235 A 7	2247 B 9	2262 C 7	2284 C 6	2293 D 6	3214 B 8	3245 B 9	3256 B 8	3271 C 5	3288 D 6	5202 D 3	6242 B 8	6261 C 7	7241 C 8	7291 C 6	9212 C 3	9227 B 7	9241 B 9	9252 C 9	9262 C 9	9277 C 7	9291 C 6
1201 D 4	1222 C 9	2222 B 6	2239 C 9	2248 B 9	2263 D 7	2285 C 6	2295 D 6	3215 B 8	3246 B 9	3258 C 9	3272 C 6	3289 D 5	5280 B 2	6243 A 9	6262 D 7	7242 B 8	9201 D 3	9213 A 3	9228 B 7	9242 B 9	9253 C 9	9263 C 9	9278 D 7	9292 C 7
1202 C 3	1223 D 9	2224 C 7	2240 B 8	2249 D 8	2271 D 5	2286 C 5	2296 B 5	3216 B 9	3247 B 9	3260 B 9	3276 D 7	3290 C 6	6220 B 6	6244 B 9	6263 D 7	7243 B 8	9202 D 3	9214 A 3	9229 B 7	9243 B 9	9254 C 9	9266 D 9	9279 D 7	9294 B 6
1205 D 3	1224 D 9	2225 C 7	2241 C 8	2250 D 9	2272 C 6	2287 C 5	2297 B 5	3217 B 9	3248 B 8	3261 D 8	3277 D 7	3293 C 6	6231 B 7	6245 B 8	6265 D 8	7244 B 8	9203 C 2	9215 A 3	9230 B 9	9244 B 9	9256 D 9	9267 C 8	9281 D 5	9294 B 6
1206 C 1	1231 D 1	2230 B 7	2242 C 9	2251 D 7	2273 C 5	2288 A 5	3201 D 2	3231 A 8	3249 B 8	3262 D 8	3281 D 5	3294 C 5	6232 A 7	6247 B 9	6271 D 6	7245 B 9	9205 D 3	9216 A 4	9231 A 7	9245 C 9	9257 D 9	9268 C 8	9282 D 6	9300 C 6
1207 C 1	1237 A 7	2231 B 7	2243 C 8	2252 B 9	2274 C 6	2289 B 5	3204 C 1	3241 C 9	3250 B 8	3263 D 8	3282 D 6	3295 B 5	6233 B 7	6248 D 8	6272 D 7	7246 B 8	9207 C 2	9217 A 4	9232 A 7	9246 B 9	9258 D 9	9269 C 9	9285 C 5	
1208 C 1	1240 C 7	2232 A 7	2244 C 8	2253 B 9	2281 C 6	2290 A 5	3205 C 1	3242 B 8	3251 D 7	3264 D 8	3283 D 5	3296 B 5	6234 A 7	6251 B 7	7231 A 8	7247 D 8	9208 B 2	9223 B 6	9233 A 7	9248 B 8	9259 D 9	9271 C 7	9286 C 5	
1210 D 1	1290 B 5	2233 A 8	2245 B 9	2254 D 7	2282 C 6	2291 C 7	3211 C 9	3243 B 8	3252 D 7	3265 D 8	3284 C 6	3297 B 5	6235 A 8	6252 B 7	7232 A 8	7248 B 9	9209 C 3	9224 B 6	9235 A 7	9249 D 7	9260 D 9	9272 C 7	9287 B 5	



ELECTRICAL PARTS LIST - POWER BOARD**MISCELLANEOUS**

1201	4822 265 31015	AC socket
1202	4822 272 10269	Voltage selector /21
1205	4822 071 52002	Fuse 2A /21
1206	4822 071 55002	Fuse 5A
1211	4822 071 51002	Fuse 1A
1212	4822 071 51002	Fuse 1A

CAPACITORS

2220	5322 121 42386	100nF 5% 63V
2221	5322 121 42386	100nF 5% 63V
2222	5322 121 42386	100nF 5% 63V
2225	4822 124 80563	4700µF 20% 35V
2239	4822 122 33519	470pF 10% 50V
2240	5322 121 42386	100nF 5% 63V
2243	4822 124 42057	3300µF 20% 25V
2245	4822 124 40433	47µF 20% 25V
2246	4822 122 33197	1nF 10% 50V
2247	4822 122 33197	1nF 10% 50V
2248	4822 124 22263	220µF 20% 25V
2249	4822 124 40433	47µF 20% 25V
2250	4822 124 41584	100µF 20% 10V
2251	4822 126 12785	47nF 10% 50V
2252	4822 122 33197	1nF 10% 50V
2253	4822 122 33197	1nF 10% 50V
2254	4822 126 12882	100nF +80-20% 50V
2261	4822 126 12882	100nF +80-20% 50V
2262	4822 124 40255	100µF 20% 10V
2263	4822 124 41596	22µF 20% 50V
2265	4822 121 51387	10nF 20% 16V
2266	4822 121 51387	10nF 20% 16V
2267	4822 121 51387	10nF 20% 16V
2271	4822 122 10575	8.2nF 20% 16V
2272	4822 122 10575	8.2nF 20% 16V
2273	4822 124 40433	47µF 20% 25V
2274	4822 124 40433	47µF 20% 25V
2281	4822 122 10577	3.3nF 10% 16V
2282	4822 122 10577	3.3nF 10% 16V
2283	4822 124 22263	220µF 20% 25V
2284	4822 124 22263	220µF 20% 25V
2285	5322 121 42386	100nF 5% 63V
2286	5322 121 42386	100nF 5% 63V
2287	4822 123 14025	2200µF 20% 16V
2288	4822 123 14025	2200µF 20% 16V
2289	4822 126 12785	47nF 20% 50V
2290	4822 126 12785	47nF 20% 50V
2291	4822 124 40242	1µF 20% 63V
2293	4822 123 14026	470µF 20% 35V
2295	4822 122 33519	470pF 10% 50V
2297	4822 122 33848	47pF 5% 50V
2298	4822 122 33848	47pF 5% 50V

RESISTORS

3201	4822 053 21106	10M 5% 0,5W
3204	4822 052 10108	1R 5% 0,33W
3211	4822 050 11002	1K 1% 0,4W
3212	4822 050 11002	1K 1% 0,4W
3214	4822 116 52256	2K2 5% 0,1W
3215	4822 116 52256	2K2 5% 0,5W
3216	4822 116 52256	2K2 5% 0,5W
3217	4822 116 52256	2K2 5% 0,5W
3241	4822 116 83961	6K8 5% 0,5W
3242	4822 050 11002	1K 5% 0,5W
3243	4822 050 11002	1K 5% 0,5W
3244	4822 050 11002	1K 5% 0,5W
3245	4822 116 52283	4K7 5% 0,5W
3246	4822 116 52283	4K7 5% 0,5W
3247	4822 116 52283	4K7 5% 0,5W
3248	4822 116 52228	680R 5% 0,5W
3249	4822 116 52264	27K 5% 0,5W
3250	4822 116 52257	22K 5% 0,5W
3251	4822 116 52283	4K7 5% 0,5W
3252	4822 116 52283	4K7 5% 0,5W
3255	4822 116 52263	2K7 5% 0,5W
3256	4822 116 52283	4K7 5% 0,5W
3258	4822 116 52207	1K2 5% 0,5W
3260	4822 116 83882	39K 5% 0,5W
3261	4822 116 52276	3K9 5% 0,5W
3262	4822 052 10479	47R 5% 0,33W
3263	4822 116 83864	10K 5% 0,5W
3264	4822 116 52257	22K 5% 0,5W
3265	4822 052 10479	47R 5% 0,33W
3266	4822 051 10479	47R 5% 0,33W
3267	4822 052 10278	2R7 5% 0,33W
3268	4822 116 52243	1k5 5% 0,5W
3269	4822 116 52243	1K5 5% 0,5W
3270	4822 116 52243	1K5 5% 0,5W
3271	4822 116 83884	47K 5% 0,5W
3272	4822 116 83884	47K 5% 0,5W
3276	4822 116 83884	47K 5% 0,5W
3277	4822 116 83884	47K 5% 0,5W
3281	4822 116 52256	2K2 5% 0,5W
3282	4822 116 52256	2K2 5% 0,5W
3283	4822 116 52243	1K5 5% 0,5W
3284	4822 116 52243	1K5 5% 0,5W
3287	4822 116 52263	2K7 5% 0,5W
3288	4822 116 52263	2K7 5% 0,5W
3289	4822 116 52222	390R 5% 0,5W
3290	4822 116 52222	390R 5% 0,5W
3293	4822 052 10228	2R2 5% 0,33W
3294	4822 052 10228	2R2 5% 0,33W
3295	4822 116 52256	2K2 5% 0,5W
3296	4822 116 52256	2K2 5% 0,5W
3297	4822 117 12148	1R5 5% 330mW
3298	4822 117 12148	1R5 5% 330mW
3299	4822 052 10479	47R 5% 0,33W

ELECTRICAL PARTS LIST - POWER BOARD**COIL & DIODES**

5202	4822 157 71285	Choke coil 400µH
6220	4822 130 82079	D3SBA20
6241	5322 130 80686	1N5392
6242	5322 130 80686	1N5392
6243	4822 130 30621	1N4148
6244	4822 130 34173	BZX79-C5V6
6245	4822 130 30621	1N4148
6247	4822 130 30621	1N4148
6248	4822 130 34167	BZX79-B
6251	4822 130 30621	1N4148
6252	4822 130 30621	1N4148
6253	4822 130 34382	BZX79-C8V2
6261	5322 130 30684	1N4002GP
6262	4822 130 31024	BZX79-C18
6263	4822 130 34281	BZX79-C15
6265	4822 130 34174	BZX79-C4V7
6271	4822 130 30621	1N4148
6272	4822 130 34174	BZX79-C4V7
6273	4822 130 30621	1N4148

TRANSISTORS

7241	4822 130 40982	BD437
7242	4822 130 63575	BD242BF1
7243	4822 130 40937	BC548B
7244	4822 130 44197	BC558B
7245	4822 130 44197	BC558B
7246	4822 130 40937	BC548B
7247	4822 130 63615	BD241BF1
7248	4822 130 40937	BC548B
7261	4822 130 41646	BF423

INTERGRATED CIRCUIT

7291	4822 209 90411	AN7164
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NOTE : Only the parts mentioned in this list are normal service spare parts.

AF3 BOARD

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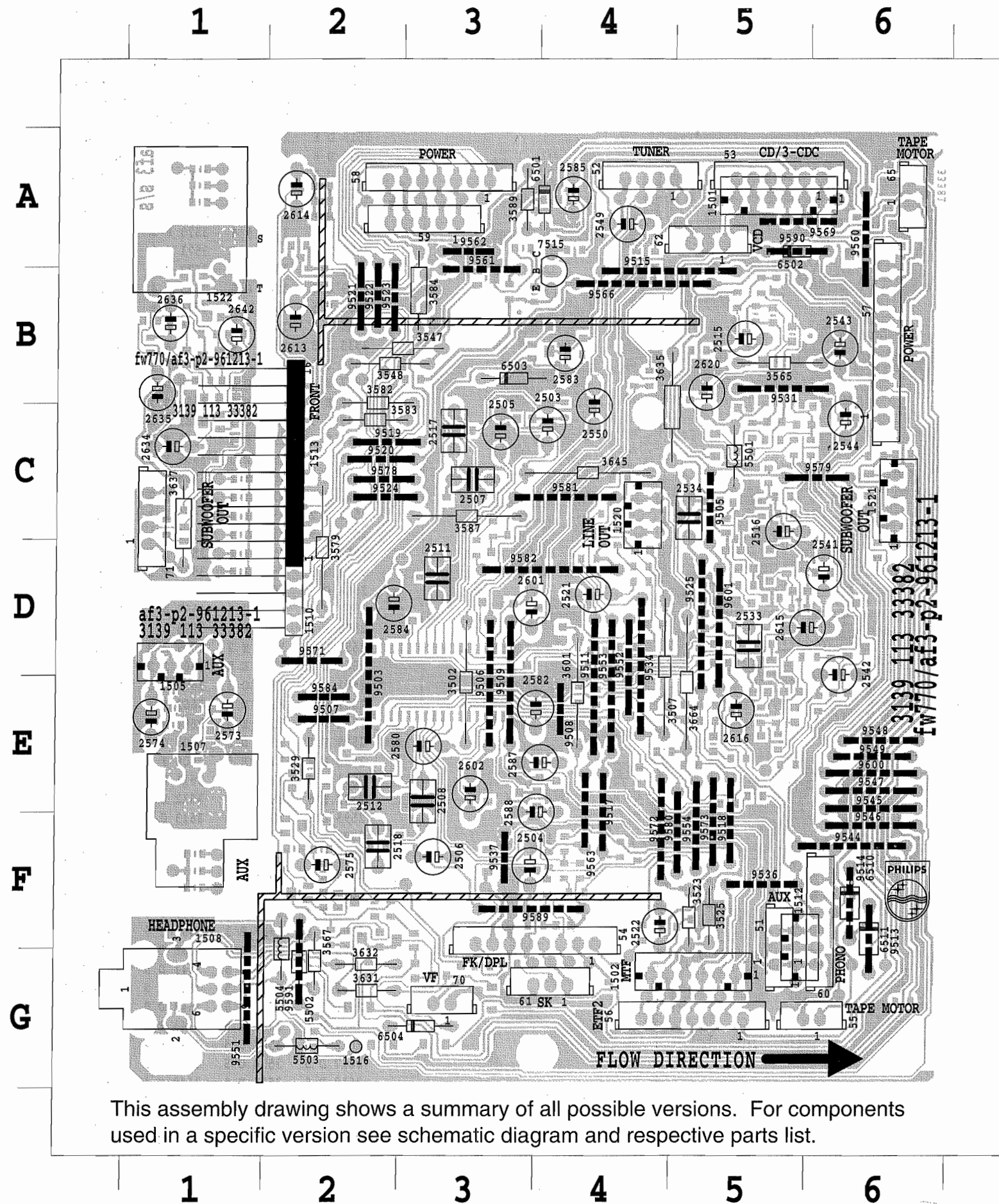
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BRIEF INTRODUCTION OF AF3 BOARD

The AF3 Board consists of the following:

- a. SOFAC IC which includes functions such as source selection, loudness control, dynamic bass control, treble control, front/rear volume control and muting function. Sound features such as DBB, DSC, and IS are controllable via I²C data from the microprocessor.
The SOFAC IC caters for 4 input sources namely Tuner, Tape, CD and AUX.
- b. Karaoke Mic Mixing
NK: Non-Karaoke
SK: Simple Karaoke which caters for mic. mixing with additional mic. amplifier board.
FK: Full Karaoke with vocal fader and echo effect with additional Karaoke Board.
- c. Dolby Pro-Logic interface
It caters for DPL and also DPL with one of the Karaoke functions.
- d. Line out provision
- e. Sub-woofer output with cinch socket for connection to active sub-woofer speaker.
- f. Incredible Surround effect using transistor circuit to create phase shifting and spatial effect.
- g. Headphone amplifier using Op-Amp. NJM4456M
- h. CD Standby control circuit which switches on the supply to CD Servo control IC, HF circuit and the laser light pen in CD mode only.
- i. Headphone Sensing circuit to mute centre and surround channels in DPL application.
- j. Attenuation network is provided at the output of the AF3 Board for interfacing with power board of different output power.

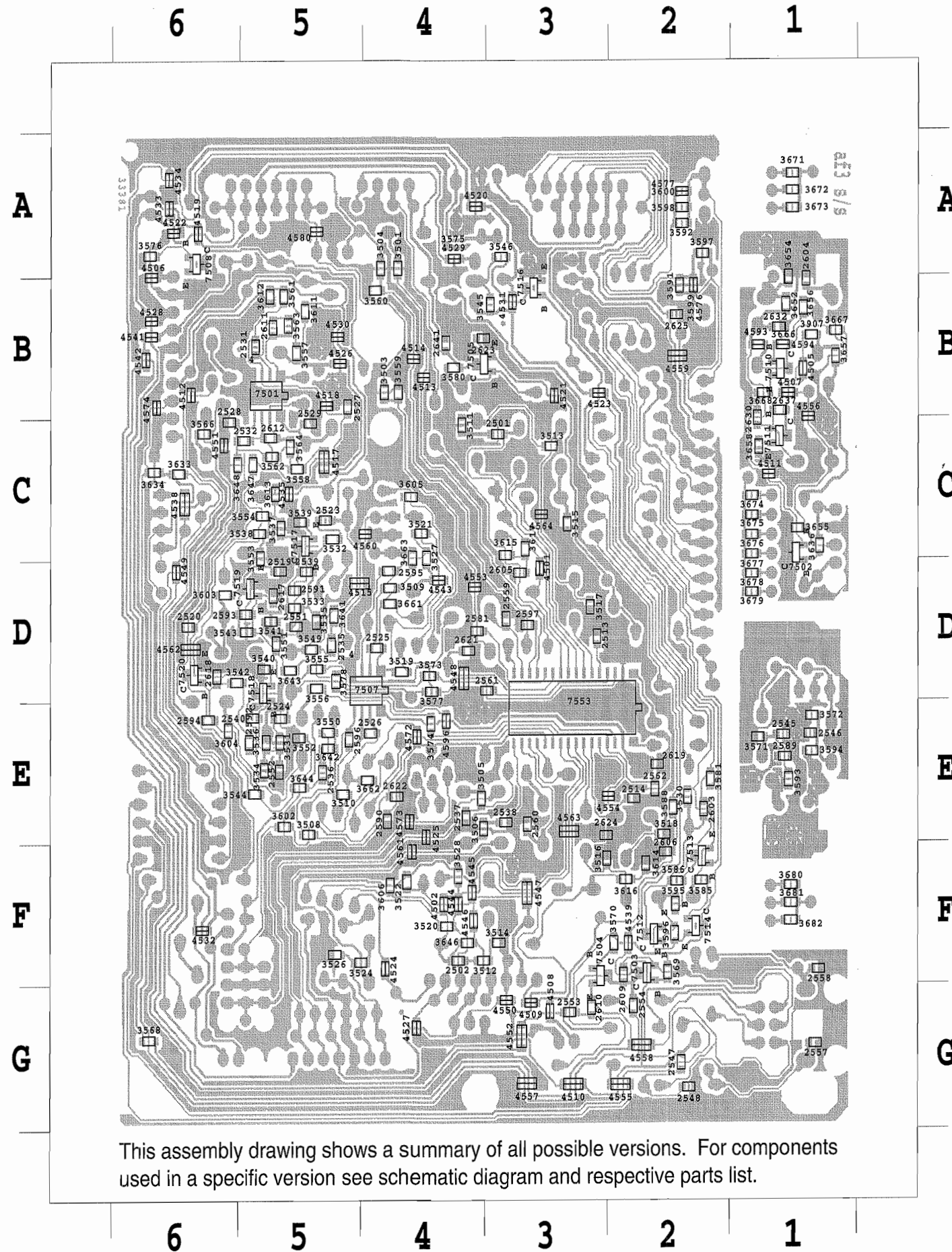




This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

51 F 5	2588 F 4	9520 C 2
52 A 4	2601 D 3	9521 B 2
53 A 5	2602 E 3	9522 B 2
54 F 4	2613 B 2	9523 B 2
55 G 6	2614 A 2	9524 C 2
56 G 5	2615 D 6	9525 D 5
57 B 6	2616 E 5	9531 B 5
58 A 3	2620 B 5	9534 D 4
59 A 3	2634 C 1	9536 F 5
60 F 6	2635 B 1	9537 F 3
61 G 4	2636 B 1	9544 F 6
62 A 5	2642 B 1	9545 E 6
65 A 6	3502 E 3	9546 F 6
70 G 3	3507 D 4	9547 E 6
71 C 1	3523 F 5	9548 E 6
1501 A 5	3525 F 5	9549 E 6
1502 G 5	3529 E 2	9551 G 1
1505 D 1	3547 B 2	9552 D 4
1507 E 1	3548 B 2	9553 E 4
1508 G 1	3565 B 5	9554 F 5
1510 C 2	3567 G 2	9560 A 6
1512 F 5	3579 D 2	9561 B 3
1513 C 2	3582 C 2	9562 A 3
1516 G 2	3583 C 2	9563 E 4
1520 C 4	3584 B 3	9566 B 4
1521 C 6	3587 C 3	9569 A 5
1522 A 1	3589 A 3	9571 D 2
2503 C 4	3601 E 4	9572 F 4
2504 F 3	3631 G 2	9573 F 5
2505 C 3	3632 G 2	9578 C 2
2506 F 3	3635 C 4	9579 C 6
2507 C 3	3637 C 1	9580 F 5
2508 E 3	3645 C 4	9581 C 4
2511 D 3	3664 E 5	9582 D 4
2512 E 2	5501 C 5	9584 E 2
2515 B 5	5502 G 2	9589 F 3
2516 C 5	5503 G 2	9590 A 5
2517 C 3	5504 G 2	9591 G 2
2518 F 2	6501 A 4	9600 E 6
2521 D 4	6502 A 5	9601 D 5
2522 F 4	6503 B 3	
2533 D 5	6504 G 3	
2534 C 5	6510 F 6	
2541 D 6	6511 F 6	
2542 D 6	7515 B 4	
2543 B 6	9503 E 2	
2544 C 6	9505 C 5	
2549 A 4	9506 E 3	
2550 C 4	9507 E 2	
2573 E 1	9508 E 4	
2574 E 1	9509 E 3	
2575 F 2	9511 E 4	
2580 E 3	9513 F 6	
2582 E 3	9514 F 6	
2583 B 4	9515 B 4	
2584 D 2	9517 F 4	
2585 A 4	9518 F 5	
2587 E 4	9519 C 2	

CHIP LAYOUT



A	2501 C 3	2623 B 4	3559 B 4	3656 B 1
B	2502 F 4	2624 E 3	3560 B 4	3657 B 1
C	2513 D 3	2625 B 2	3561 B 5	3658 C 1
D	2514 E 2	2630 C 1	3562 C 5	3661 D 4
E	2519 D 5	2632 B 1	3563 B 5	3662 E 4
F	2520 D 6	2637 B 1	3564 C 5	3663 C 4
G	2523 C 5	2641 B 4	3566 C 6	3666 B 1
	2524 E 5	3501 A 4	3568 G 6	3667 B 1
	2525 D 4	3503 B 4	3569 F 2	3668 B 1
	2526 E 4	3504 A 4	3570 F 2	3671 A 1
	2527 B 5	3505 E 4	3571 E 1	3672 A 1
	2528 C 6	3506 E 4	3572 E 1	3673 A 1
	2529 C 5	3508 E 5	3573 D 4	3674 C 1
	2531 B 5	3509 D 4	3574 E 4	3675 C 1
	2532 C 5	3510 E 5	3575 A 4	3676 C 1
	2535 D 5	3511 C 4	3576 A 6	3677 C 1
	2536 E 5	3512 F 4	3577 D 4	3678 D 1
	2537 E 4	3513 C 3	3578 D 5	3679 D 1
	2538 E 3	3514 F 3	3580 B 4	3680 F 1
	2539 D 5	3515 C 3	3581 E 2	3681 F 1
	2540 E 5	3516 F 3	3585 F 2	3682 F 1
	2545 E 1	3517 D 3	3586 F 2	3907 B 1
	2546 E 1	3518 E 2	3588 E 2	4501 D 3
	2547 G 2	3519 D 4	3591 B 2	4502 F 4
	2548 G 2	3520 F 4	3592 A 2	4505 B 1
	2551 D 5	3521 C 4	3593 E 1	4506 B 6
	2552 E 5	3522 F 4	3594 E 1	4507 B 1
	2553 G 3	3524 F 4	3595 F 2	4508 G 3
	2554 G 2	3526 F 5	3596 F 2	4509 G 3
	2557 G 1	3527 C 4	3597 A 2	4510 G 3
	2558 F 1	3528 F 4	3598 A 2	4511 C 1
	2559 D 3	3530 E 2	3599 B 2	4512 B 6
	2560 E 3	3531 E 5	3600 A 2	4513 B 4
	2561 D 3	3532 C 5	3602 E 5	4514 B 4
	2562 E 2	3533 D 5	3603 D 6	4515 D 5
	2581 D 4	3534 E 5	3604 E 6	4517 C 5
	2589 E 1	3535 D 5	3605 C 4	4518 B 5
	2590 E 4	3536 E 5	3606 F 4	4519 A 6
	2591 D 5	3537 C 5	3611 B 5	4520 A 4
	2592 E 5	3538 C 5	3612 B 5	4521 B 3
	2593 D 5	3539 C 5	3613 C 5	4522 A 6
	2594 E 6	3540 D 5	3614 F 2	4523 B 3
	2595 D 4	3541 D 5	3615 C 3	4524 F 4
	2596 E 5	3542 D 6	3616 F 2	4525 E 4
	2597 D 3	3543 D 5	3617 C 3	4526 B 5
	2603 E 2	3544 E 5	3633 C 6	4527 G 4
	2604 B 1	3545 B 3	3634 C 6	4528 B 6
	2605 D 3	3546 A 3	3636 C 1	4529 A 4
	2606 F 2	3549 D 5	3641 D 5	4530 B 5
	2609 F 2	3550 E 5	3642 E 5	4531 B 3
	2610 G 3	3551 D 5	3643 D 5	4532 F 6
	2611 B 5	3552 E 5	3644 E 5	4533 A 6
	2612 C 5	3553 C 5	3646 F 4	4534 A 6
	2617 D 5	3554 C 5	3647 C 5	4535 C 5
	2618 D 6	3555 D 5	3648 C 6	4538 C 6
	2619 E 2	3556 D 5	3652 B 1	4539 F 2
	2621 D 4	3557 B 5	3654 B 1	4541 B 6
	2622 E 4	3558 C 5	3655 C 1	4542 B 6

ELECTRICAL PARTS LIST - AF3 BOARD**MISCELLANEOUS**

1507	4822 265 20553	AUX socket
1508	4822 267 40898	Headphone
1522	4822 267 31729	Subwoofer socket

CAPACITORS

2501	4822 122 33336	8,2nF 10% 50V
2502	4822 122 33336	8,2nF 10% 50V
2503	4822 124 41407	0.47μF 50V
2504	4822 124 41407	0.47μF 50V
2505	4822 124 40746	0.22μF 50V

2506	4822 124 40746	0.22μF 50V
2507	5322 121 42386	100nF 5% 63V
2508	5322 121 42386	100nF 5% 63V
2511	4822 121 51252	470nF 50V
2512	4822 121 51252	470nF 50V

2513	4822 122 32646	5,6nF 10% 50V
2514	4822 122 32646	5,6nF 10% 50V
2515	4822 124 40433	47μF 25V
2516	4822 124 81029	100μF 25V
2517	4822 121 51252	470nF 50V

2518	4822 121 51252	470nF 50V
2519	5322 122 32268	470pF 10% 50V
2520	5322 122 32268	470pF 10% 50V
2521	4822 124 41407	0.47μF 50V
2522	4822 124 41407	0.47μF 50V

2523	4822 122 33342	33nF 5% 50V
2524	4822 122 33342	33nF 5% 50V
2525	5322 122 32452	22pF 5% 50V
2526	5322 122 32452	22pF 5% 50V
2527	5322 122 32531	100pF 5% 50V

2528	5322 122 32531	100pF 5% 50V
2529	5322 122 32654	22nF 10% 63V
2531	5322 122 32268	470pF 10% 50V
2532	5322 122 32268	470pF 10% 50V
2533	4822 121 51252	470nF 50V

2534	4822 121 51252	470nF 50V
2535	4822 122 33219	1.8nF 5% 50V
2536	4822 122 33219	1.8nF 5% 50V
2537	5322 122 32531	100pF 5% 50V
2538	5322 122 32531	100pF 5% 50V

2539	4822 122 33891	3.3nF 5% 50V
2540	4822 122 33891	3.3nF 5% 50V
2541	4822 124 40246	4.7μF 50V
2542	4822 124 40246	4.7μF 50V
2543	4822 124 41751	47μF 50V

2544	4822 124 41751	47μF 50V
2545	5322 122 32268	470pF 10% 50V
2546	5322 122 32268	470pF 10% 50V
2547	4822 122 32654	22nF Y5V 50V
2548	4822 122 32654	22nF Y5V 50V

2549	4822 124 40246	4.7μF 50V
2550	4822 124 40246	4.7μF 50V
2551	5322 122 32268	470pF 10% 50V
2552	5322 122 32268	470pF 10% 50V
2557	5322 122 32654	22nF 10% 63V

2558	5322 122 32654	22nF 10% 63V
2559	5322 122 32531	100pF NPO 50V

2560	5322 122 32531	100pF NPO 50V
2561	5322 122 34123	1nF 10% 50V
2562	5322 122 34123	1nF 10% 50V
2573	4822 124 40246	4.7μF 50V
2574	4822 124 40246	4.7μF 50V

2575	4822 124 40246	4.7μF 50V
2580	4822 124 41751	4.7μF 50V
2581	4822 122 33177	10nF 10% 50V
2582	4822 124 41751	4.7μF 50V
2583	4822 124 81029	100μF 25V

2584	4822 124 81029	100μF 25V
2587	4822 124 40246	4.7μF 50V
2588	4822 124 40246	4.7μF 50V
2589	4822 126 13838	100nF +80/-20% 50V
2590	5322 122 32658	22pF 5% 50V

2591	4822 126 13838	100nF +80/-20% 50V
2592	4822 126 13838	100nF +80/-20% 50V
2593	4822 122 33575	220pF 5% 50V
2594	4822 122 33575	220pF 5% 50V
2595	4822 122 32535	680pF 5% 50V
2596	4822 122 32535	680pF 5% 50V
2597	4822 126 13838	100nF +80/-20% 50V
2601	4822 124 40246	4.7μF 50V
2602	4822 124 40246	4.7μF 50V

2604	4822 126 13838	100nF +80/-20% 50V
2609	5322 122 32531	100pF 5% 50V
2610	5322 122 32531	100pF 5% 50V
2611	5322 122 32452	47pF 5% NPO 63V
2611	5322 122 32658	22pF 5% 50V -/21

2612	5322 122 32658	22pF 5% 50V -/21
2612	5322 122 32452	47pF 5% NPO 63V
2615	4822 124 40246	4.7μF 50V
2616	4822 124 40246	4.7μF 50V
2617	5322 122 34123	1nF 10% 50V

2618	5322 122 34123	1nF 10% 50V
2620	4822 124 40433	47μF 25V
2621	5322 122 32658	22pF 5% 50V
2622	5322 122 32658	22pF 5% 50V
2623	5322 126 10223	4.7nF 10% 63V

2624	5322 126 10223	4.7nF 10% 63V
2625	4822 126 13838	100nF 20% 50V
2630	5322 122 34123	1nF 10% 50V
2632	5322 122 32531	100pF 5% 50V
2634	4822 124 40242	1μF 50V

2636	4822 124 40242	1μF 50V
2641	4822 122 33175	2,2nF 20% 50V

ELECTRICAL PARTS LIST - AF3 BOARD**RESISTORS**

3501	4822 051 20109	10R 5% 0,1W
3502	4822 116 52176	10R 5% 0,5W
3503	4822 051 20562	5K6 5% 0,1W
3504	4822 051 20562	5K6 5% 0,1W
3505	4822 051 20332	3K3 5% 0,1W

3506	4822 051 20332	3K3 5% 0,1W
3507	4822 116 52244	15K 5% 0,1W
3508	4822 116 52244	15K 5% 0,1W
3509	4822 051 20104	100k 5% 0,1W
3510	4822 051 20104	100k 5% 0,1W

3511	4822 051 20223	22K 5% 0,1W
3512	4822 051 20223	22K 5% 0,1W
3513	4822 117 11449	2K2 5% 0,1W
3514	4822 117 11449	2K2 5% 0,1W
3515	4822 051 20472	4K7 5% 0,1W

3516	4822 051 20472	4K7 5% 0,1W
3517	4822 051 20472	4K7 5% 0,1W
3518	4822 051 20472	4K7 5% 0,1W
3522	4822 051 20223	22K 5% 0,1W -/21
3523	4822 116 83884	47K 5% 0,5W

3524	4822 051 20473	47K 5% 0,1W
3525	4822 116 83882	39K 5% 0,5W
3526	4822 051 20393	39K 5% 0,1W
3527	4822 051 20223	22K 5% 0,1W -/21
3528	4822 051 20223	22K 5% 0,1W -/21

3531	4822 051 20562	5k6 5% 0,1W
3532	4822 051 20562	5k6 5% 0,1W
3533	4822 051 20225	2M2 5% 0,1W
3534	4822 051 20225	2M2 5% 0,1W
3537	4822 117 10833	10k 5% 0,1W

3538	4822 117 10833	10k 5% 0,1W
3539	4822 117 10833	10k 5% 0,1W
3540	4822 117 10833	10k 5% 0,1W
3541	4822 051 20562	5k6 5% 0,1W
3542	4822 051 20562	5k6 5% 0,1W

3543	4822 051 20273	27k 5% 0,1W
3544	4822 051 20273	27k 5% 0,1W
3545	4822 051 20562	5K6 5% 0,1W
3546	4822 051 20562	5K6 5% 0,1W
3547	4822 116 83864	10K 5% 0,5W

3548	4822 116 52256	2K2 5% 0,5W
3549	4822 051 20562	5K6 5% 0,1W
3550	4822 051 20562	5K6 5% 0,1W
3551	4822 051 20472	4K7 5% 0,1W
3552	4822 051 20472	4K7 5% 0,1W

3553	4822 117 10833	10K 1% 0,1W
3554	4822 117 10833	10K 1% 0,1W
3555	4822 051 20182	1K8 5% 0,1W
3556	4822 051 20182	1K8 5% 0,1W
3557	4822 051 20223	22K 5% 0,1W

3558	4822 051 20223	22K 5% 0,1W
3559	4822 051 20822	8K2 5% 0,1W
3560	4822 051 20822	8K2 5% 0,1W
3561	4822 051 20273	27K 5% 0,1W -/21
3561	4822 116 52195	47R 5% 0,5W

3562	4822 051 20273	27K 5% 0,1W
3563	4822 051 20154	150K 5% 0,1W
3564	4822 051 20154	150K 5% 0,1W
3565	4822 116 52195	47R 5% 0,5W
3566	4822 051 20479	47R 5% 0,1W

3567	4822 116 52195	47R 5% 0,5W
3568	4822 051 20479	47R 5% 0,1W
3569	4822 051 10102	1K 5% 0,1W
3570	4822 051 10102	1K 5% 0,1W
3571	4822 117 11149	82K 5% 0,1W

3572	4822 117 11149	82K 5% 0,1W
3573	4822 051 20822	8K2 5% 0,1W
3574	4822 051 20822	8K2 5% 0,1W
3575	4822 051 20228	2R2 5% 0,1W
3577	4822 051 10102	1K 5% 0,1W
3578	4822 051 10102	1K 5% 0,1W
3579	4822 116 52256	2K2 5% 0,5W
3580	4822 117 11139	1K5 5% 0,1W
3581	4822 117 10833	10K 5% 0,1W
3582	4822 050 11002	1K 5% 0,5W

3583	4822 050 11002	1K 5% 0,5W
3584	4822 050 24705	4M7 1% 0,6W
3585	4822 051 20472	4K7 5% 0,1W
3586	4822 051 10102	1K 5% 0,1W
3593	4822 051 10102	1K 5% 0,1W

3594	4822 051 10102	1K 5% 0,1W
3595	4822 051 20562	5K6 5% 0,1W
3601	4822 116 52304	82K 5% 0,5W
3602	4822 117 11149	82K 5% 0,1W
3603	4822 117 10833	10K 5% 0,1W

3604	4822 117 10833	10K 5% 0,1W
3605	4822 051 10102	1k 5% 0,1W
3606	4822 051 10102	1k 5% 0,1W
3611	4822 051 20472	4K7 5% 0,1W
3612	4822 051 20472	4K7 5% 0,1W

3613	4822 051 10102	1K 2% 0,25W
3631	4822 051 20101	100R 5% 0,5W
3632	4822 051 20101	100R 5% 0,5W
3633	4822 051 20224	220K 5% 0,1W
3634	4822 051 20224	220K 5% 0,1W

3635	4822 052 10109	25R 5% 0,33W
3636	4822 051 10102	1K 5% 0,1W
3641	4822 051 20562	5k6 5% 0,1W
3642	4822 051 20562	5k6 5% 0,1W
3643	4822 051 20562	5K6 5% 0,1W

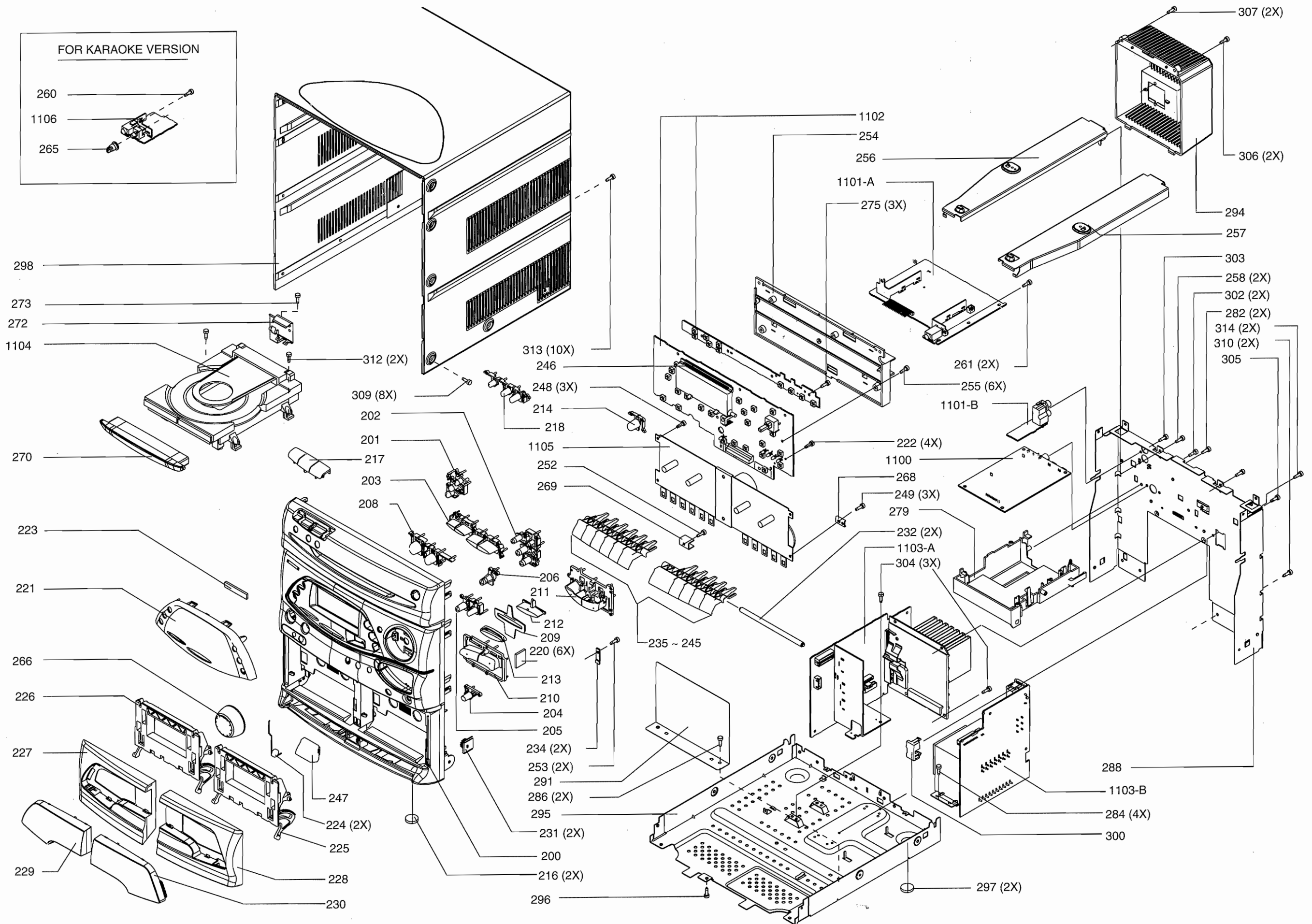
3644	4822 051 20562	5K6 5% 0,1W
3645	4822 116 52271	33K 5% 0,5W
3646	4822 116 52271	33K 5% 0,5W
3647	4822 051 20101	100R 5% 0,1W

3648	4822 051 20101	100R 5% 0,1W
3661	4822 051 20472	4K7 5% 0,1W
3662	4822 051 20472	4K7 5% 0,1W
3907	4822 051 20334	330K 5% 0,1W

ELECTRICAL PARTS LIST - AF3 BOARD

JUMPER			INDUCTORS		
4501	4822 051 20008	JUMPER -/22/25/34	5501	4822 156 21721	INDUCTOR 2,2μH 10%
4502	4822 051 20008	JUMPER -/22/25/34	5502	4822 156 21721	INDUCTOR 2,2μH 10%
4506	4822 051 20008	CHIP JUMPER	5503	4822 156 21721	INDUCTOR 2,2μH 10%
4508	4822 051 20008	CHIP JUMPER	5504	4822 156 21721	INDUCTOR 2,2μH 10%
4509	4822 051 20008	CHIP JUMPER	DIODES		
4510	4822 051 10008	CHIP JUMPER	6503	4822 130 30862	BZX79-C9V1
4511	4822 051 20008	CHIP JUMPER	6504	4822 130 30621	1N4148
4512	4822 051 20008	CHIP JUMPER	TRANSISTORS		
4513	4822 051 20008	CHIP JUMPER	7503	4822 130 42615	BC817-40
4514	4822 051 20008	CHIP JUMPER	7504	4822 130 42615	BC817-40
4515	4822 051 10008	CHIP JUMPER	7505	5322 130 42755	BC847C
4517	4822 051 10008	CHIP JUMPER	7507	4822 209 83357	NJM 4560M -/21
4518	4822 051 20008	CHIP JUMPER	7512	5322 130 42755	BC847C
4519	4822 051 20008	CHIP JUMPER	7513	5322 130 42755	BC847C
4520	4822 051 20008	CHIP JUMPER	7514	5322 130 60508	BC857B
4521	4822 051 20008	CHIP JUMPER	7515	4822 130 41327	BC327-40
4522	4822 051 20008	CHIP JUMPER	7516	5322 130 42755	BC847C
4523	4822 051 20008	CHIP JUMPER	7517	5322 130 42755	BC847C
4524	4822 051 20008	CHIP JUMPER	7518	5322 130 42755	BC847C
4525	4822 051 20008	CHIP JUMPER	7519	5322 130 42755	BC847C
4526	4822 051 20008	CHIP JUMPER	7520	5322 130 42755	BC847C
4528	4822 051 20008	CHIP JUMPER	INTERGRATED CIRCUITS		
4530	4822 051 20008	CHIP JUMPER	7501	4822 209 31378	NJM4556AM
4531	4822 051 20008	CHIP JUMPER	7553	4822 209 33652	TEA6321T
4532	4822 051 20008	CHIP JUMPER	Note : Only the parts mentioned in this lists are noraml service spare parts.		
4533	4822 051 20008	CHIP JUMPER			
4534	4822 051 20008	CHIP JUMPER			
4535	4822 051 20008	CHIP JUMPER			
4538	4822 051 10008	CHIP JUMPER			
4539	4822 051 20008	CHIP JUMPER			
4541	4822 051 20008	CHIP JUMPER			
4542	4822 051 20008	CHIP JUMPER			
4547	4822 051 10008	CHIP JUMPER			
4548	4822 051 10008	CHIP JUMPER			
4549	4822 051 20008	CHIP JUMPER			
4550	4822 051 20008	CHIP JUMPER			
4552	4822 051 10008	CHIP JUMPER			
4553	4822 051 20008	CHIP JUMPER			
4555	4822 051 10008	CHIP JUMPER			
4556	4822 051 20008	CHIP JUMPER			
4557	4822 051 10008	CHIP JUMPER			
4558	4822 051 10008	CHIP JUMPER			
4561	4822 051 20008	JUMPER -/21			
4562	4822 051 20008	CHIP JUMPER			
4563	4822 051 10008	CHIP JUMPER			
4572	4822 051 20008	CHIP JUMPER			
4573	4822 051 20008	CHIP JUMPER			
4576	4822 051 20008	CHIP JUMPER			
4577	4822 051 20008	CHIP JUMPER			
4580	4822 051 20008	CHIP JUMPER			
4585	4822 051 20008	JUMPER			
4596	4822 051 20008	CHIP JUMPER			

SET EXPLODED VIEW



MECHANICAL & ACCESSORIES PARTSLIST - MAIN UNIT

200	4822 459 04509	CABINET FRONT /22/25/34	229	4822 450 10246	LENS CASSETTE LEFT
200	4822 459 04506	CABINET FRONT /21	230	4822 450 10247	LENS CASSETTE RIGHT
201	4822 410 10195	BUTTON LEFT (N/RDS) /21	231	4822 529 10322	DAMPER ASSY
201	4822 410 10522	BUTTON LEFT /22/25/34	235	4822 410 10208	BUTTON CASS 1 REC
202	4822 410 10196	BUTTON DISPLAY RIGHT	236	4822 410 10209	BUTTON CASS 2 PLAY
203	4822 410 10918	BUTTON SET TUNER	237	4822 410 10211	BUTTON CASS 3 FRW
204	4822 410 10198	BUTON HSD	238	4822 410 10212	BUTTON CASS 4 FFW
205	4822 410 10199	BUTTON OPT/DBB	239	4822 410 10213	BUTTON CASS 5 STOP
206	4822 410 10418	KNOB INCRED. SOUND /21	240	4822 410 10214	BUTTON CASS 6 PAUSE
208	4822 410 10201	BUTTON POWER/SOURCE	241	4822 410 10215	BUTTON CASS 7 PLAY
210	4822 410 11006	BUTTON DSC1	242	4822 410 10216	BUTTON CASS 8 FRW
211	4822 410 11007	BUTTON DSC2	243	4822 410 10217	BUTTON CASS 9 FFW
212	4822 466 11124	LIGHT SUIDE DSC	244	4822 410 10218	BUTTON CASS 10 STOP
213	4822 462 10758	CAP LIGHT GUIDE DSC	245	4822 410 10219	BUTTON CASS 11 PAUSE
214	4822 410 10204	BUTTON OPEN/CLOSE	265	4822 410 10533	KNOB KARAOKE /21
216	4822 462 40683	PLATE (FOOT)*	266	4822 410 10966	KNOB VOLUME ROTARY
217	4822 410 10922	BUTTON CDC1	270	4822 442 00799	COVER TRAY 3-CDC
218	4822 410 10207	BUTTON CDC2	297	4822 462 40683	PLATE (FOOT)
221	4822 450 10245	WINDOW DISP(N/RDS) /21/34	298	4822 426 10187	CABINET REAR
221	4822 450 10294	WINDOW DISPLAY RDS /22/25	300	4822 402 10288	BRACKET MAINS SOCKET
224	4822 492 11049	SPRING	1110	4822 146 10443	TRANSFORMER /21
225	4822 443 10173	DOOR CASSETTE RIGHT	1110	4822 146 10465	TRANSFORMER /22/25/34
226	4822 443 10173	DOOR CASSETTE RIGHT		4822 321 10886	MAINS CORD /25
227	4822 442 00815	COVER DOOR CASS L /21		4822 321 10249	MAINS CORD
228	4822 442 00784	COVER DOOR CASS R		4822 445 10592	1X LOUDSPEAKER BOX
				4822 219 10195	REMOTE CONTROL /21
				4822 303 50063	FM AERIAL /21
				4822 303 50082	AM FRAME AERIAL
				4822 736 15099	INSTRUCTION FOR USE /21
				4822 736 15105	INSTRUCTION FOR USE /22/25
				4822 736 15104	INSTRUCTION FOR USE /34
				4822 691 10479	TAPEDECK MECHANISM
					YSW27-500

SCREW LISTS - MAIN UNIT

222	D3 X 12	296	D3 X 10
248	D3 X 10	302	D3 X 12
249	D3 X 10	303	D3 X 12
252	D3 X 10	304	M3 X 6
253	D3 X 10	305	D3 X 12
255	D3 X 12	306	D3 X 6
258	D3 X 12	307	D3 X 12
260	D3 X 10	309	D3 X 10
261	D3 X 10	310	M3 X 6
263	D3 X 12	312	D3 X 10
273	M3 X 10	313	D3 X 10
275	D3 X 12	314	M3 X 6
282	D3 X 12		
284	M3 X 6		
286	M3 X 10		

Note : Only the parts mentioned in this list are normal service spare parts.