Compact disc stereo radio recorder AZ9712

00/02/05/20/22/25

Service
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Service Manual

COMPACT disc DIGITAL AUDIO

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CLASS 1 LASER PRODUCT

Published by Consumer Electronics Printed in The Netherlands GB 4822 725 23706

SPECIFICATION

General:

Mains voltage	:	220V / 50Hz for /20/22
	:	240V / 50Hz for /25
	:	120V / 240V / 50Hz for /21/37 switchable
	:	100V / 50Hz for /26
Power consumption	:	≤ 90W at maximum output power
(mains)	:	≤ 9W in stand by
External DC	:	12 - 16V

CD:

Frequency response	:	20 – 20,000 Hz ±2 dB
Output level at CD out	:	2V ±3 dB at 0dB recording level
Signal/noise ratio	:	≥ 80 dBA
Distortion	:	≤ 0.1% at 1 kHz
Channel difference	:	≤ 2 dB at 1 kHz
Channel crosstalk	:	50 dB max.
De emphasis	:	0 or 15/50µs switched automatically by subcode on the disc

Laser

Output power	:	≤ 5 mW max. (3 mW typ.)
Wavelength	:	780 nm

Tuner:

	FM	MW	LW
Tuning range	87,5 – 108 MHz	520 – 1611 kHz (530 – 1700 kHz)	148 – 284 kHz
Aerial input	75 Ω	Ferrite ant. / frame aerial	Ferrite ant. / frame aerial
IF	10,7 MHz ±25 kHz	450 kHz ±1 kHz	450 kHz ±1 kHz
Sensitivity S/N = 26 dBA	5µV (2 µV typ.)	3 mV/m (1,5 mV/m typ.)	4 mV/m (not guaranteed above 250 kHz)
Image rejection ratio	25 dB (40 dB typ.)	28 dB (32 dB typ.)	30 dB (35 dB typ.)
–3 dB limiting point	8µV (4µV typ.)		

Amplifier:

Output power	3 channel system	L/R	WOOFER	
AC supply	at 1 kHz	: 2 x 11 W	+ 0.1 W	at 8Ω, D=10%
	at 110 Hz	: 2 x 1 W	+ 13 W	at 8Ω, D=10%
14,4V DC supply	at 1 kHz	: 2 x 7.5W	+ 0.08W	at 8Ω, D=10%
	at 110 Hz	: 2 x 0.5W	+ 7.5 W	at 8Ω, D=10%

Headphone	:	6,3mm stereo jack : 16 – 1000Ω
Frequency response	:	Bass 50 Hz – 200 Hz , left and right channel 150 Hz – 16 kHz (–3dB)

Tone control

Defeat mode	:	linear
Pop mode	:	left and right channel + 6 dB at 7 kHz
Jazz mode	:	left and right channel + 6 dB at 200 Hz
Classic mode	:	left and right channel + 5 dB at 100 Hz
	:	left and right channel + 4 dB at 10 kHz
DBB	:	left and right channel + 9 dB at 100 Hz
	:	Bass amplifier +10 dB at 120 Hz
Input sensitivity	:	Line in 300 mV
Output voltage	:	CD out 2 V

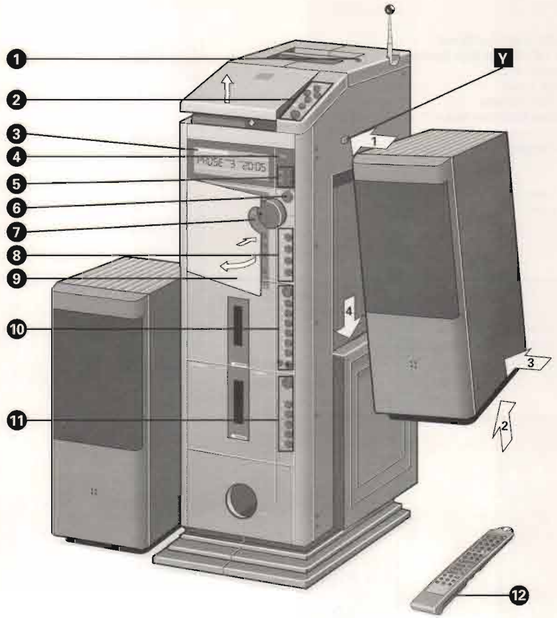
Recorder part:

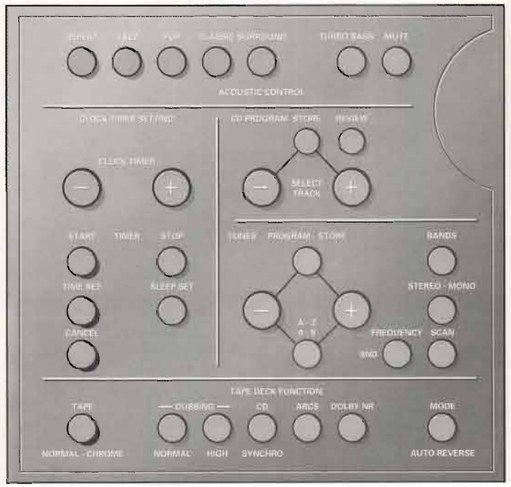
Tape speed	:	4,75 cm/s ±2% in **N**ormal **S**peed
	:	4,75 cm/s x 1,8 ±12% in **H**igh **S**peed
Wow & Flutter	:	≤ 0.3% in normal speed
		≤ 0.4% in high speed
Winding speed	:	≤ 125 s for C60 cassette
Noise reduction system	:	Dolby B (**N**oise **R**eduction factor: 7 dB typ.)
Erase / Bias system	:	AC 80 kHz
RIF–shift	:	service solution on request
Distortion at 250 nWb/m	:	≤ 3%
Channel difference	:	≤ 3 dB
Channel separation	:	> 20 dB at 1 kHz
Track separation	:	> 50 dB at 1 kHz

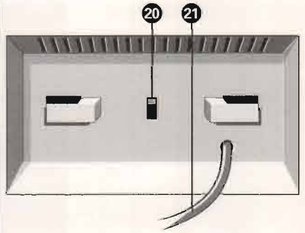
All measurements in defeat mode.

	IEC I	IEC II	Dubbing NS IEC I / IEC II	Dubbing HS IEC I / IEC II
Frequency resp. –5 dB [1]	90 Hz – 12,5 kHz	90 Hz – 12,5 kHz	90 Hz – 12,5 kHz	90 Hz – 12,5 kHz
Signal to Hiss ratio [2]	51 dB	54 dB	51 dB / 54 dB	49 dB / 52 dB
Signal to Noise ratio [2]	43 dB	45 dB	43 dB / 45 dB	43 dB / 45 dB
Erase attenuation	60 dB	60 dB	60 dB	60 dB

[1] typical value
[2] at 250 nWb/m







CONTROLS & CONNECTIONS

Top and Front panel.

1 Stereo headphone socket, 6.3 mm
2 CD keyboard:

MODE press so many times until the required function appears in the display.
REPEAT repeats continuously the disc or the programmed tracks.
SHUFFLE plays all tracks (or the programmed tracks in a random order.
SHUFFLE REPEAT repeats the disc (or programmed tracks a random order).
SCAN plays only the beginning of each track (press PLAY to start SCAN).
NORMAL (no display indication) to defeat the SHUFFLE, REPEAT and SCAN modes.
PREVIOUS/NEXT
- press briefly to jump to a PREVIOUS or NEXT track.
- keep depressed to search fast backward PREVIOUS or NEXT (during playback).
PLAY/PAUSE starts PLAY or PAUSE.
STOP/CANCEL
- being in the stop position, press STOP again to cancel the memory.
OPEN
- to open the CD cover.

3 DISPLAY
4 IR remote control sensor.
5 -/+ PRESET to select PRESET stations in the TUNER mode.
6 STAND BY/ON
- power on/off button.
7 VOLUME control.
8 CD - TUNER - AUX - TAPE
- function buttons to select the sound source.
9 Programming keyboard:
- press the cover to open.

A **ACOUSTIC CONTROL:**
DEFEAT defeats JAZZ/POP/CLASSIC .
JAZZ or **POP** or **CLASSIC** tone buttons.
TURBO BASS to boost the bass response, press again to defeat.
SURROUND for a surround sound effect, press again to defeat.
MUTE to reduce the volume temporarily, press again to defeat.

B **CLOCK/TIMER SETTING:**
-/+ to set the time, timer and sleep time.
START TIMER to adjust the start time.
TIMER STOP to adjust the stop time.
TIME SET to adjust the time.
SLEEP SET to adjust and to activate the sleep function.
CANCEL to defeat the timer and sleep modes.

C **CD PROGRAM:**
STORE to store the displayed track number.
SELECT TRACK -/+ track number selection.
REVIEW to display all stored track numbers.

D **TUNER:**
PROGRAM-STORE to store the displayed frequency and acoustic control settings.
BANDS band selection
-/+ to tune to a radio station and to select station name characters.
A-Z/0-9 to create station names.
STEREO/MONO FM mono/stereo selection.
FREQUENCY/SND to display either frequency or station name.
SCAN plays in sequence a few seconds of each preset radio station.

E **TAPE DECK FUNCTIONS:**
TAPE cassette type selection for deck 1:
NORMAL for IEC type I cassettes.
CHROME for IEC type II cassettes.
DUBBING speed selection:
NORMAL for normal speed dubbing.
HIGH for high speed dubbing.
CD SYNCHRO automatic start of a CD recording.
ARCS rewind to the beginning of a tape and then automatic start of a CD recording.
DOLBY NR noise reduction.
AUTO REVERSE/MODE press so many times until the required function appears in the display.
⇉ no reverse.
⊃ single reverse.
↻ continuous reverse.
AUTOPLAY non-stop playback of deck 1 and 2.

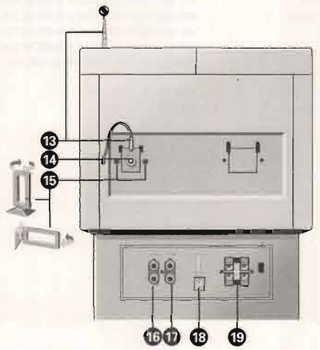
10 Deck 1 keyboard - recording and playback:
EJECT
◄ PLAY
PLAY►
►► FAST fast winding to the right.
◄◄ FAST fast winding to the left.
STOP
PAUSE
◄► to chance the play direction.
● RECORD

11 Deck 2 keyboard - playback only:
EJECT
PLAY►
F.FWD fast forward wind.
REWIND fast rewind.
STOP
PAUSE

12 REMOTE control unit.

Back Panel.

13 telescopic aerial with plug, for FM radio.
14 EXT.ANTENNA (not on all versions) socket for the telescopic aerial, external FM-aerial or cable antenna system.
15 CD OUT sockets for CD-reproduction through e.g. your stereo system.
16 LINE IN sockets for recording from an amplifier, receiver, recorder, CD-player, etc.
17 DC IN socket for 12 V DC car battery supply (- = centre pin).
18 SPEAKERS loudspeaker terminals.
19 VOLTAGE selector (not on all versions).
20 MAINS mains lead.



CLOCK

You can choose 24 hours or 12 hours time indication:
press TIME SET and then press CANCEL.
In case of 12 hours indication, AM or PM appears on the display.
If the clock figures flash, e.g. after a mains breakdown or power interruption, the time setting needs to be readjusted.

TIME SETTING

* Press TIME SET: the hours flash.
* Set the hours with the buttons - and +.

Keep the button - or + pressed: after some seconds, the displayed time starts running. When approaching the actual time, release - or + and running stops. After that, press - or + briefly each time; the time is changed step-by-step until you finally reach the correct time.

* Press TIME SET again: the minutes flash.
* Set in the same way the minutes with the buttons - and +.
* The clock starts running when pressing the TIME SET button again.

TIMER

With the TIMER function, the set can be switched on and off. You can use the TIMER function:

- to wake you at a preset radio station CD or cassette playback;
- to start and stop a radio (or other) recording during absence.

Start and stop time setting.

* To set the start time, press START TIMER: the hours flash. Use the buttons - and + for setting.
* Press START TIMER again: the minutes flash. Use the buttons - and + for setting.
* To set the stop time, press TIMER STOP: the hours flash. Use the buttons - and + for setting.
* Press STOP TIMER again: the minutes flash. Use the buttons - and + for setting.
* Press START TIMER or TIMER STOP again to leave the programming mode.

If no stop time has been programmed, the set will start normally and is switched off 2 hours after the preset start time.

If the start and stop time are the same, the set will play for 1 minute.

To delete a preset stop time, first press TIMER STOP and then CANCEL.

Preparation

* To check the preset time, press START TIMER or TIMER STOP and the preset time flashes a while.
* Adjust the set for the required function:
  - Wake by radio: press function button **8** TUNER and select the radio station.
  - Wake by CD: press function button **8** CD and insert the CD.
  - Wake by cassette: press function button **8** TAPE and insert the cassette into deck 2.
  - Recording from the radio: press function button **8** TUNER and select the radio station. Insert a blank cassette into deck 1 and press PAUSE. When nobody needs to hear the radio program during recording, reduce the volume.
* For wakening, ensure that no headphones are connected (otherwise the loudspeakers are muted) and adjust the volume loud enough to wake you.

Timer on and off

* Press START TIMER so many times until "START TIMER" appears on the display.
* The TIMER function is only active, if the set is in the STAND BY mode. So switch off the set using the STAND BY/ON button **6** or using the SLEEP function.
* When the adjust start time is reached, the set is switched on in the preset function.
* When the adjust stop time is reached, the set is switched off.
* To defeat the TIMER function, first press START TIMER and then CANCEL.

SLEEP

You can use the sleep function e.g. if you are going to sleep and you want to listen for a while (or to continue a recording for a while). If the sleep time has been set to e.g. 30 minutes, the set remains switched and counts down from 00:30 to 00:00. When reaching 00:00, the set is switched off to the STAND BY mode.

Sleep time setting

* Press SLEEP longer than 1 second: the hours flash. Use the buttons - and + for setting.
* Press SLEEP again longer than 1 second: the minutes flash. Use buttons - and + for setting.
* Press SLEEP again longer than 1 second: the sleep time has been set.

If no sleep time has been adjusted, it is automatically set to 1 hour.

Sleep on and off

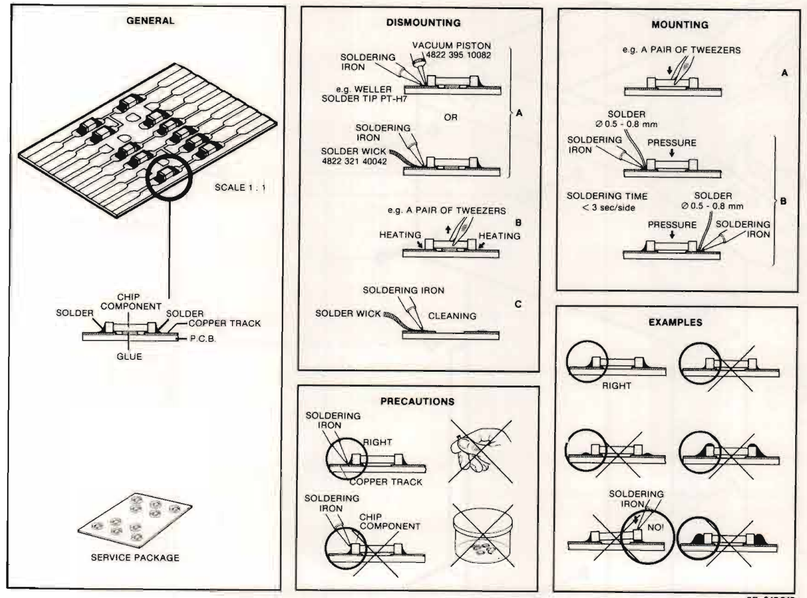
* By pressing SLEEP briefly (less than 1 second), the sleep function is activated and the word SLEEP appears in the display.
* If you press SLEEP again before the switch-off-moment is reached, count-down will start from the beginning (the full pre-set sleep time period).
* To leave the SLEEP mode before the sleep time has expired, press CANCEL and the word SLEEP disappears from the display.

PROGRAMMING A STATION NAME

A station name of 6 characters can be given to each PRESET radio station.

* Select the PRESET station using the PRESET buttons 5 -/+.
* Press FREQUENCY/SND until "STATION NAME" appears in the display 3.
* Press A-Z/ 0-9 once; in the display, the character A starts flashing on the first position.
* Within 5 seconds, press - or + so many times, until the required character appears. Available are the characters A-Z, the figures 0-9, a hyphen - and a blank.
* To store that character, press within 10 seconds A-Z/0-9 again and A starts flashing on the next position.
* After the sixth character, the station name is stored. To store a name of less than 6 characters, insert blanks.
* If you change the frequency of a PRESET location, the old station name remains unchanged, unless you overwrite it.
* To overwrite a name or character, press A-Z/0-9 again and again until the character starts flashing. then modify it.
* Press FREQUENCY/SND to switch between "FREQUENCY" and "STATION NAME" display indication.

HANDLING CHIP COMPONENTS



27 012C12

Carbon film 0.2 W	70°C	5%	
Carbon film 0.33 W	70°C	5%	
Metal film 0.33 W	70°C	5%	
Carbon film 0.5 W	70°C	5%	
Carbon film 0.67 W	70°C	5%	
Carbon film 1.15 W	70°C	5%	

Ceramic plate Tuning ⩽ 120 pF NP.0		2%
Ceramic plate Others		−20/+80%
Polyester flat foil		10%
Metalized polyester flat film		10%
Polyester flat foil small size (Mylar)		10%
Polysterene film/foil		1%
Tubular ceramic		
Miniature single		
Subminiature tantalum		± 20%

*a = 2,5 V
b = 4 V
c = 6,3 V
d = 10 V
e = 16 V
f = 25 V
g = 40 V
h = 63 V
j = 100 V
l = 125 V
m = 150 V
n = 160 V
q = 200 V
r = 250 V
s = 300 V
t = 350 V
u = 400 V
v = 500 V
w = 630 V
x = 1000 V
A = 1,6 V
B = 6 V
C = 12 V
D = 15 V
E = 20 V
F = 35 V
G = 50 V
H = 75 V
I = 80 V

(C) Chip component

27 037A/C

(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

(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 kan 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.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)

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

(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.

(NL)

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

(I)

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

(F)

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

(S) Varning !
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

(DK) Advarsel !
Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

(SF) Varoitus !
Laite sisältää laserdiodin, joka lähettää näkymätöntä silmille vaarallista lasersäteilyä.

(F) "Pour votre sécurite, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

SERVICE TOOLS

TORX screwdriver set	4822 395 50145
Audio signal disc	4822 397 30184
Audio signal disc 3 inch diameter	4822 397 30229
Test disc 5 (disc without errors) + Test disc 5A (disc with dropout errors, black spots and finger prints)	4822 397 30096

TUNER

In AZ9712/00/05/20/25 **ECO 3** tuner board is used.

Schematic diagram see pages 48 - 50
Assembly drawing see pages 51 - 52
Adjustment table see page 53

In AZ9712/02/22 **HERA C3** tuner board is used.

Schematic diagram see pages 54 - 56
Assembly drawing see pages 57 - 58
Adjustment table see page 59

For **HERA C3** tuner a higher loop voltage is necessary.
Therefore an additional **voltage multiplier** is used:
Schematic diagram see POWER/Selector part pages 29 -31
Assembly drawing see KEY board pages 41 - 42

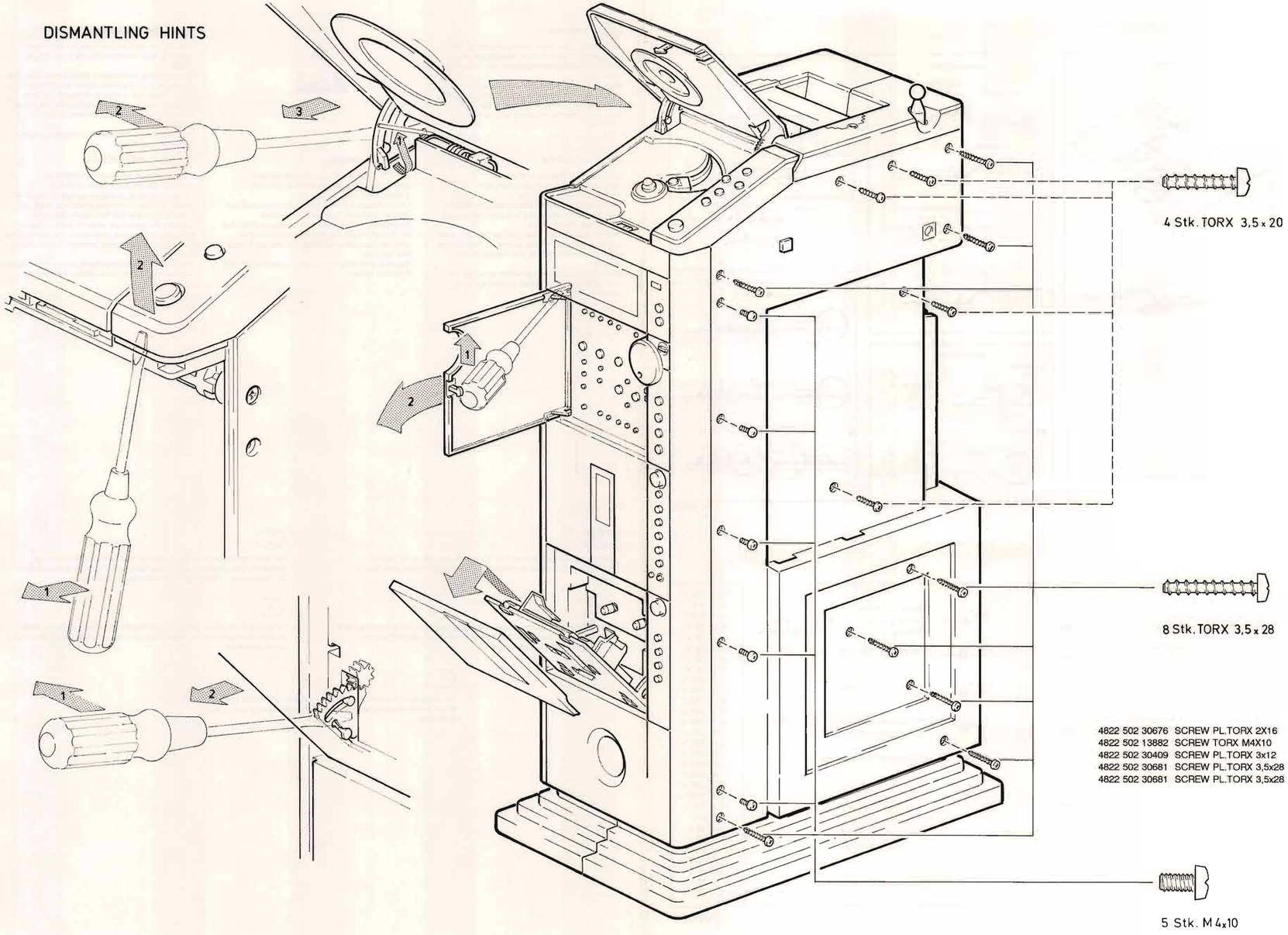
CD

Attention: In case disc drive has to be exchanged by a new one:

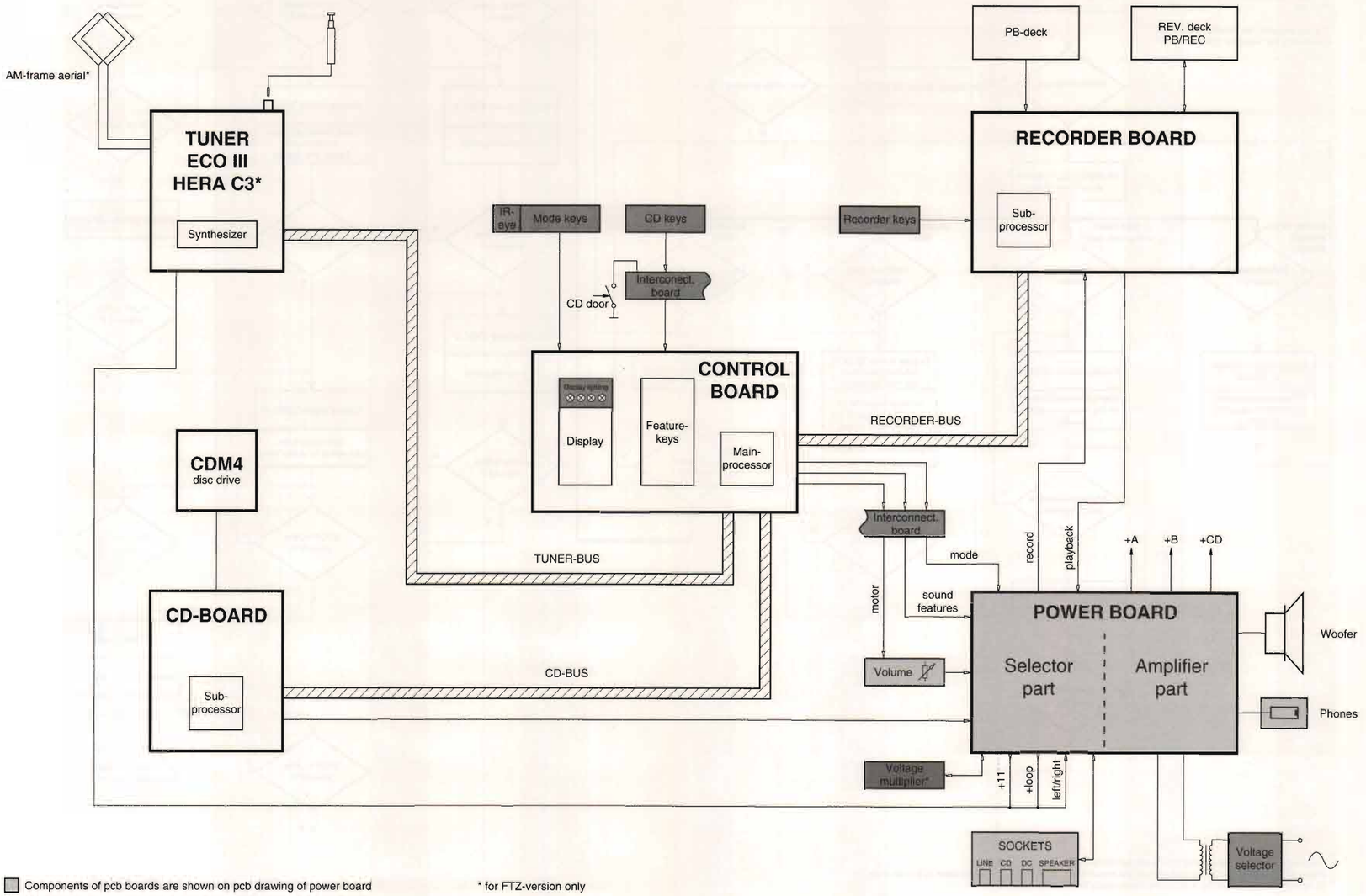
To avoid a damage of the laser diode because of a too high laser current, preadjust R3804 before switching power on:

1) Measure resistance of R3803 + R3804.
2) Adjust R3804 to R3803 + R3804 = 1 kOhm

DISMANTLING HINTS



SET BLOCK DIAGRAM



Components of pcb boards are shown on pcb drawing of power board

Components of pcb boards are shown on pcb drawing of key board

* for FTZ-version only

ABBREVIATIONS (CD-PART)

ACLR	–	P interface register clear input
AGC	–	Automatic gain control
AOL–R	–	Analogue output left–right
B0–B3	–	Control bits for radial circuit
BCK	–	Bit clock input
BEQ	–	Equalizer reference current input
BGC	–	DC and LF gain control reference input
BPA–C	–	Display backplane A–C
C16M1	–	divider input
CAS	–	Column address strobe signal input
Cosc1	–	Capacitor wobble oscillator
Cosc2	–	Capacitor wobble oscillator
CS	–	Chip select
D1–D4	–	Photodiode currents
DASEL1–4	–	DAC interface format select
DATA	–	Data input
DEC	–	Decoupling input internal bypass
DET	–	HF detector voltage input
DI	–	Serial data input
DISBL	–	Display blank
DISCLK	–	Display clock
DISDAT	–	Display data
DISENA–B	–	Disenable A–B
DIV4	–	Divide by 4 input
DLRCK	–	Left/right channel clock
DO1	–	Dual DAC Rch serial data output
DOBSEL	–	Data bit select
DODS	–	Drop out detector suppression
DRD	–	8/12 cm Disc detection
DSCK	–	Data shift clock to DAC
EFFK	–	EFM frame clock output
EMP	–	Emphasis flag output
EST2	–	Error status 2
FE	–	Focus error signal
FE lag	–	Focus error signal for LAG network
FS	–	Focus starting current
GCHF	–	Gain control input of HF amplifier
GCLF	–	Gain control input for AC and LF amplifiers
HF	–	HF output for DEMOD
HF–out	–	HF amplifier and equalizer voltage output
HFD	–	HF detector output for DEMOD
IREF	–	Current reference
KBSC0–5	–	Keyboard scanning 0–5
LM	–	Laser monitor diode input
LO	–	Laser amplifier current output
LPF	–	PLL loop filter
MCK	–	P interface shift clock input
MLA	–	P interface data latch clock input
MSD	–	P interface serial data input
PLLH	–	PLL on hold output
PWM	–	Disc motor driving output (pulse width modulation)
RAD	–	Radial drive input
RAD0–7	–	Address output
RADout	–	Output of RE_2–RE_1 input
RAS	–	Row address strobe signal output
RDB1–4	–	Data input/output
RE dig	–	Radial error digital
RE	–	Radial error signal (Amplified RE_2–RE_1 currents)
RE1	–	Radial error signal 1 (summation of amplified currents D3 and D4)
RE2	–	Radial error signal 2 (summation of amplified currents D3 and D2)
REin	–	Radial error input
RElag	–	Radial error for LAG network
Rosc	–	Resistor wobble oscillator
Rwob	–	Wobble generator input
SA1–SC4	–	12 multiplexed outputs
Sc	–	Starting up capacitor input
SCCK	–	Shift clock input for serial subcode data output
SCINT	–	Interrupt output of subcode Q
SCOE1	–	Enable input of subcode T
Si/RD	–	On/off control for laser supply and focus circuit. Ready signal, Starting up procedure successful.
SIN	–	Tray switch
SK	–	Serial clock input
SQRCK	–	Subcode Q register
SQRO	–	Subcode Q register output
TEST1	–	Test control input
TL	–	Track loss output signal
TLC	–	Output from slice level control
TTM	–	Control voltage for turntable motor
Vext+	–	Supply connection
Vext–	–	Supply connection
VLCD	–	Supply liquid crystal display
WE	–	Write enable output
WS	–	Word select input
XI	–	Crystal oscillator input
XO	–	Crystal oscillator output

SERVICE PRESET FREQUENCIES		
preset	**frequencies for version: /00/02/05/20/22/25**	**frequencies for version: /17**
	FM	**FM**
1	87.50 MHz	87.50 MHz
2	97.00 MHz	106.0 MHz
3	98.00 MHz	87.50 MHz
4	99.00 MHz	87.50 MHz
5	108.00 MHz	87.50 MHz
	MW	**MW**
6	522 kHz	530 kHz
7	567 kHz	530 kHz
8	603 kHz	620 kHz
9	1278 kHz	1370 kHz
10	1494 kHz	1610 kHz
11	1611 kHz	530 kHz
	LW (if available)	**LW** (if available)
12	148 kHz	148 kHz
13	155 kHz	155 kHz
14	200 kHz	200 kHz
15	275 kHz	275 kHz
16	284 kHz	284 kHz
17	3820 kHz	3820 kHz
18	3900 kHz	3900 kHz
19	11900 kHz	11900 kHz
20	12100 kHz	12100 kHz

table 1

Key activated:	Display shows:	Key activated:	Display shows:
Preset up	3	CD-select–	29
Preset down	1	CD-select+	33
Stand-by	2	Tuner program store	28
CD-select	47	Tuner–	7
Tuner-select	46	Tuner+	30
Tape-select	44	A-Z 0-9	27
Defeat	13	Bands	20
Jazz	12	Stereo/Mono	23
Pop	16	Scan frequency	22
Classic	17	Frequency/SND	31
Surround	18	Normal/Chrome	6
Turbo bass	19	Dubbing normal	4
Mute	32	Dubbing high	5
Clock–	15	CD-synchro	25
Clock+	14	ARCS	24
Timer start	10	Dolby NR	26
Timer stop	8	Autoreverse	21
Time set	9	CD-mode	39
Sleep set	11	CD-next	41
Cancel	0	CD-previous	38
CD-store	35	CD-play	42
CD-review	34	CD-stop	37

Please notice that the TAPE buttons are not included.

table 2

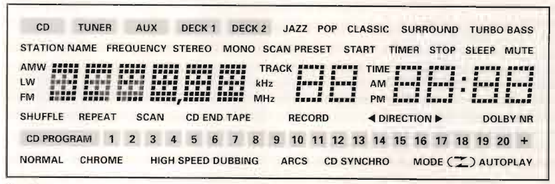
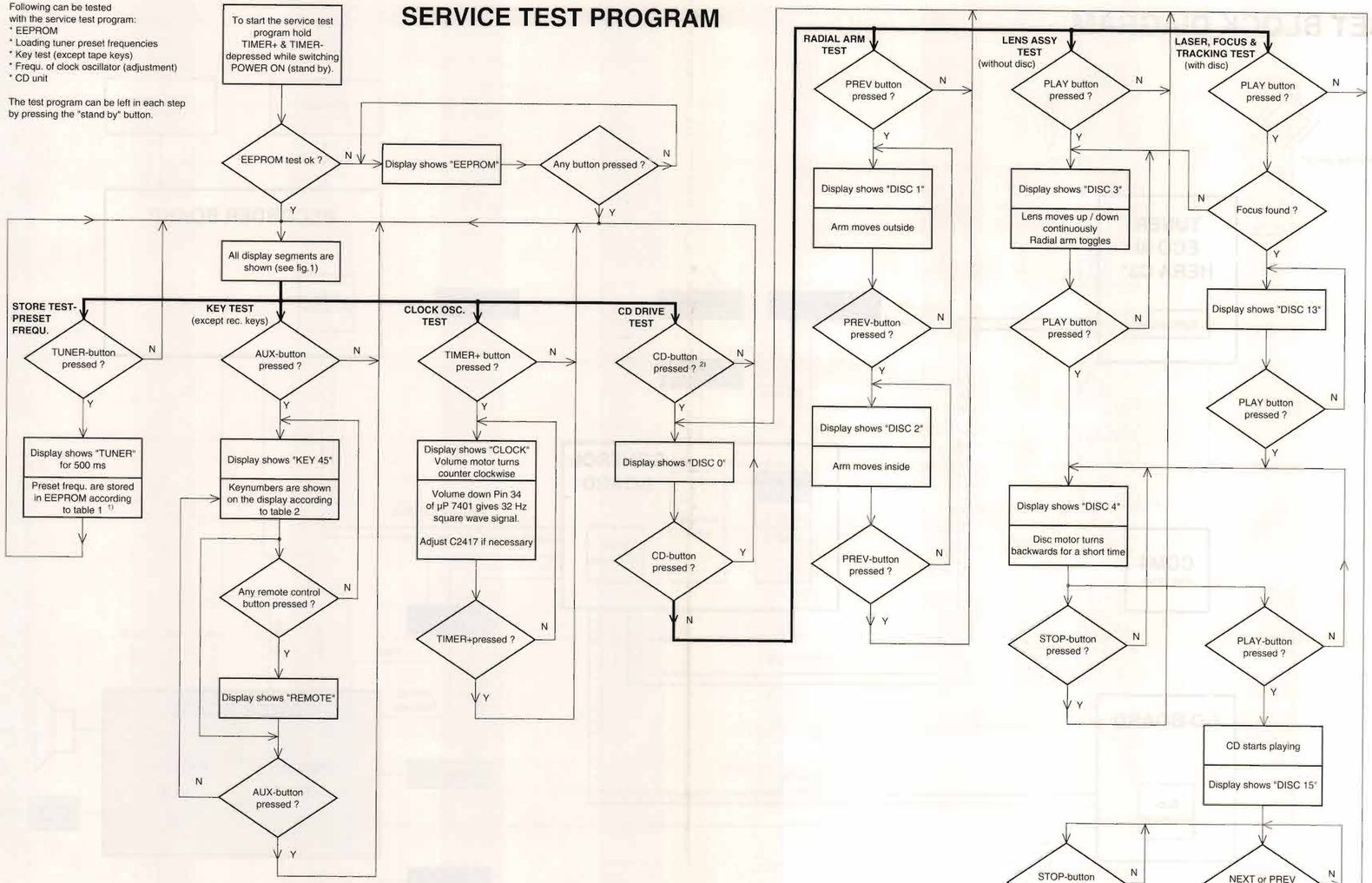


fig. 1

SERVICE TEST PROGRAM

Following can be tested with the service test program:
* EEPROM
* Loading tuner preset frequencies
* Key test (except tape keys)
* Frequ. of clock oscillator (adjustment)
* CD unit

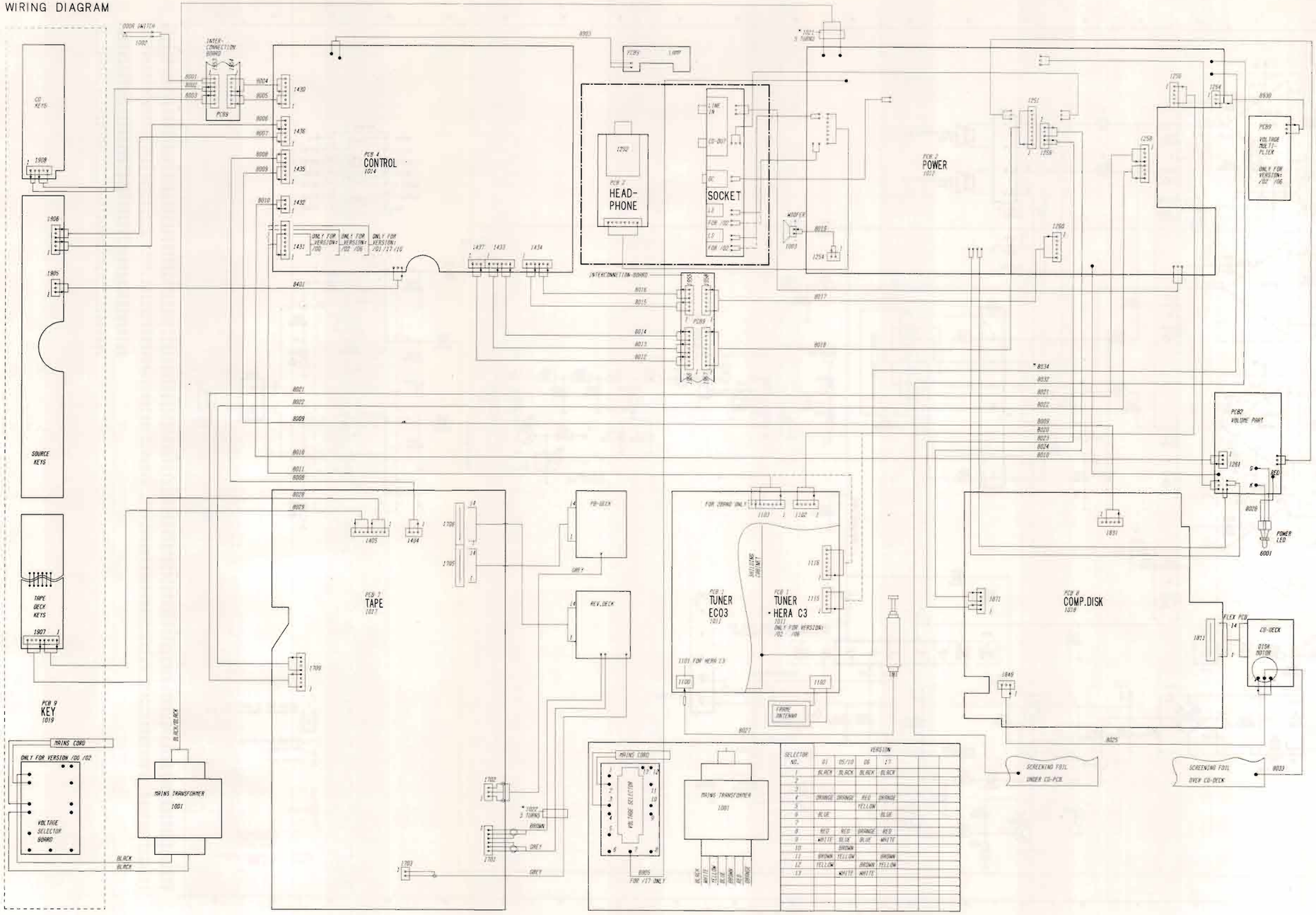
The test program can be left in each step by pressing the "stand by" button.



1) Frequencies of table 1 can now be used in the normal operation.
Preset frequencies stored by the customer are still stored in the EEPROM and can be recalled by a reset of the µP.
To reset the µP disconnect the set from the mains supply for about 5 minutes.

2) During service test program door switch is out of function,
so CD door can be opened during RADIAL ARM TEST and LENS ASSY TEST.

WIRING DIAGRAM



CAD-REF: WD.RZ9712.DD.SH1.004 (91-06-05)

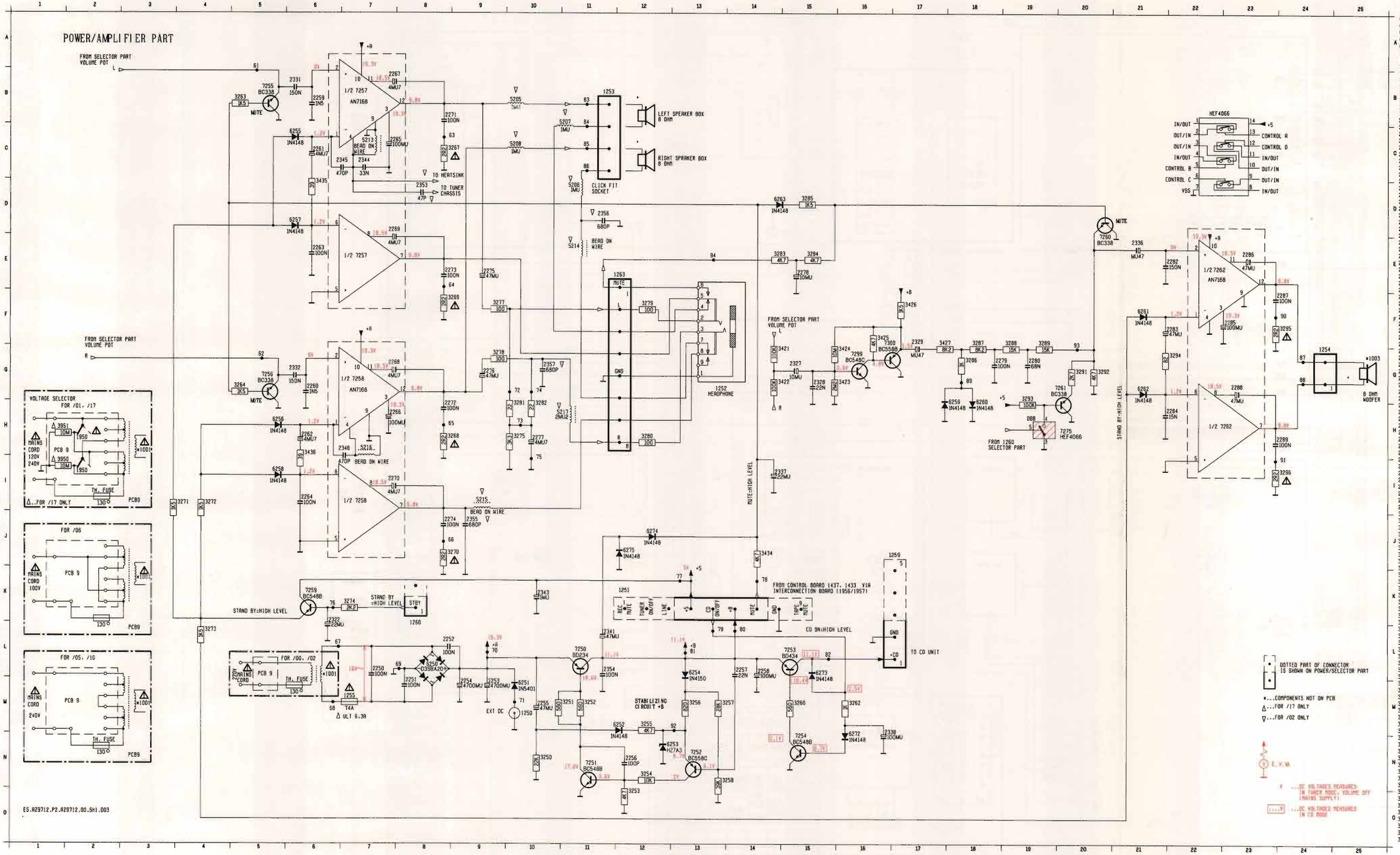
ALL PCBS SHOWN FROM THE COMPONENT SIDE

SOLDER-POINT, HANDSOLDERED

INTERNAL WIRING/MACHINE SOLDERED! FOR PBS, NO. SEE RDS1 3F PCB 2

* FOR FIX VERSION /02 /06 ONLY

POWER/AMPLIFIER PART



*1001	L 6	3435	D 6
*1001	M 3	3436	H 6
*1001	K 3	3950	I 1
*1001	H 3	3951	H 1
*1003	G25	5205	B10
1250	M10	5206	D11
1251	K11	5207	B11
1252	G13	5208	C10
1253	B11	5213	C 7
1254	G24	5214	E11
1255	M 7	5215	I 9
1259	J16	5216	H 7
1263	E12	5217	H11
1950	H 2	6250	L 8
1950	I 2	6251	M10
1950	L 7	6252	M12
2251	M 8	6253	N12
2252	L 8	6254	L13
2253	M 9	6255	C 6
2254	M 9	6256	H 5
2255	M10	6257	D 6
2256	N12	6258	I 5
2257	L14	6259	G17
2258	L14	6260	G18
2259	B 6	6261	F21
2260	D 6	6262	G21
2261	C 6	6263	D14
2262	H 6	6272	M16
2263	E 6	6273	L15
2264	I 6	6274	J12
2265	C 7	6275	J12
2266	H 7	7250	L11
2267	B 7	7251	N11
2268	D 7	7252	N13
2269	D 7	7253	L15
2270	I 7	7254	N15
2271	B 8	7255	B 5
2272	H 8	7256	D 5
2273	E 8	7257	B 7
2274	J 8	7258	D 7
2275	E 9	7259	K 6
2276	G 9	7260	E20
2277	H10	7261	G20
2278	E15	7262	E22
2279	G18	7275	H19
2280	G19	7299	G16
2282	E21	7300	F16
2283	F21		
2284	H21		
2285	F22		
2286	F23		
2287	F23		
2288	G23		
2289	H23		
2322	K 6		
2327	G15		
2328	G15		
2329	F17		
2331	B 6		
2332	D 6		
2336	E21		
2337	I14		
2338	M16		
2341	L11		
2343	K10		
2344	C 7		
2345	C 7		
2346	H 7		
2353	D 8		
2354	L11		
2355	J 9		
2356	D11		
2357	D10		
3250	N10		
3251	M10		
3252	M11		
3253	D12		
3254	N12		
3255	M12		
3256	M13		
3257	M13		
3258	N13		
3260	M15		
3262	M16		
3263	B 5		
3264	G 5		
3267	C 8		
3268	H 8		
3269	F 8		
3270	J 8		
3271	I 3		
3272	I 4		
3273	L 4		
3274	K 7		
3275	H10		
3277	F 9		
3278	D 9		
3279	F12		
3280	H12		
3281	H10		
3282	H10		
3283	E14		
3284	E15		
3285	D15		
3286	G18		
3287	F18		
3288	F19		
3289	F19		
3291	G20		
3292	G20		
3293	G19		
3294	G21		
3295	F23		
3296	I23		
3421	G14		
3422	G14		
3423	G15		
3424	G15		
3426	F16		
3427	F17		
3434	J14		

DOTTED PART OF CONNECTOR IS SHOWN ON POWER/SELECTOR PART

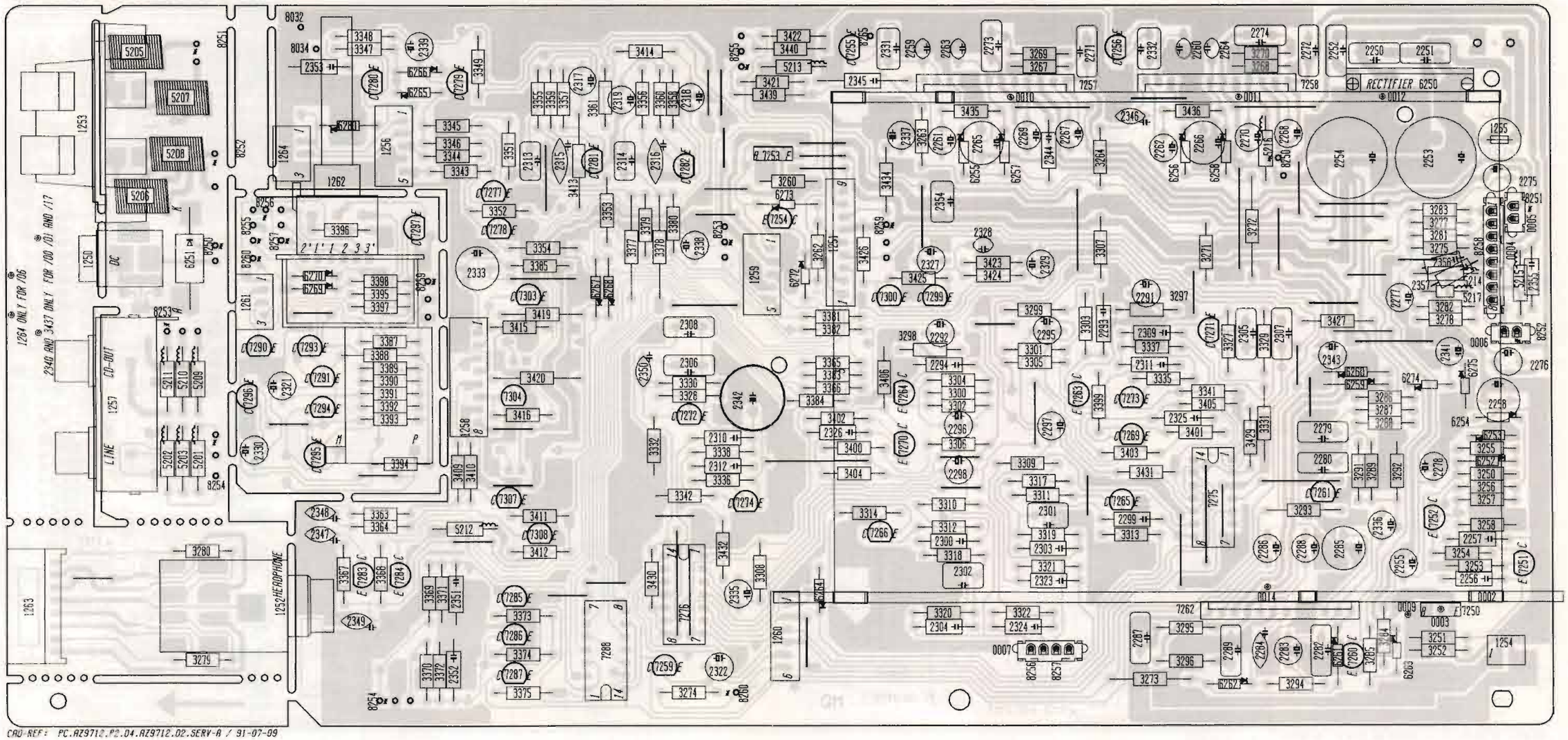
*...COMPONENTS NOT ON PCB
Δ...FOR /17 ONLY
▽...FOR /02 ONLY

E.V.M.

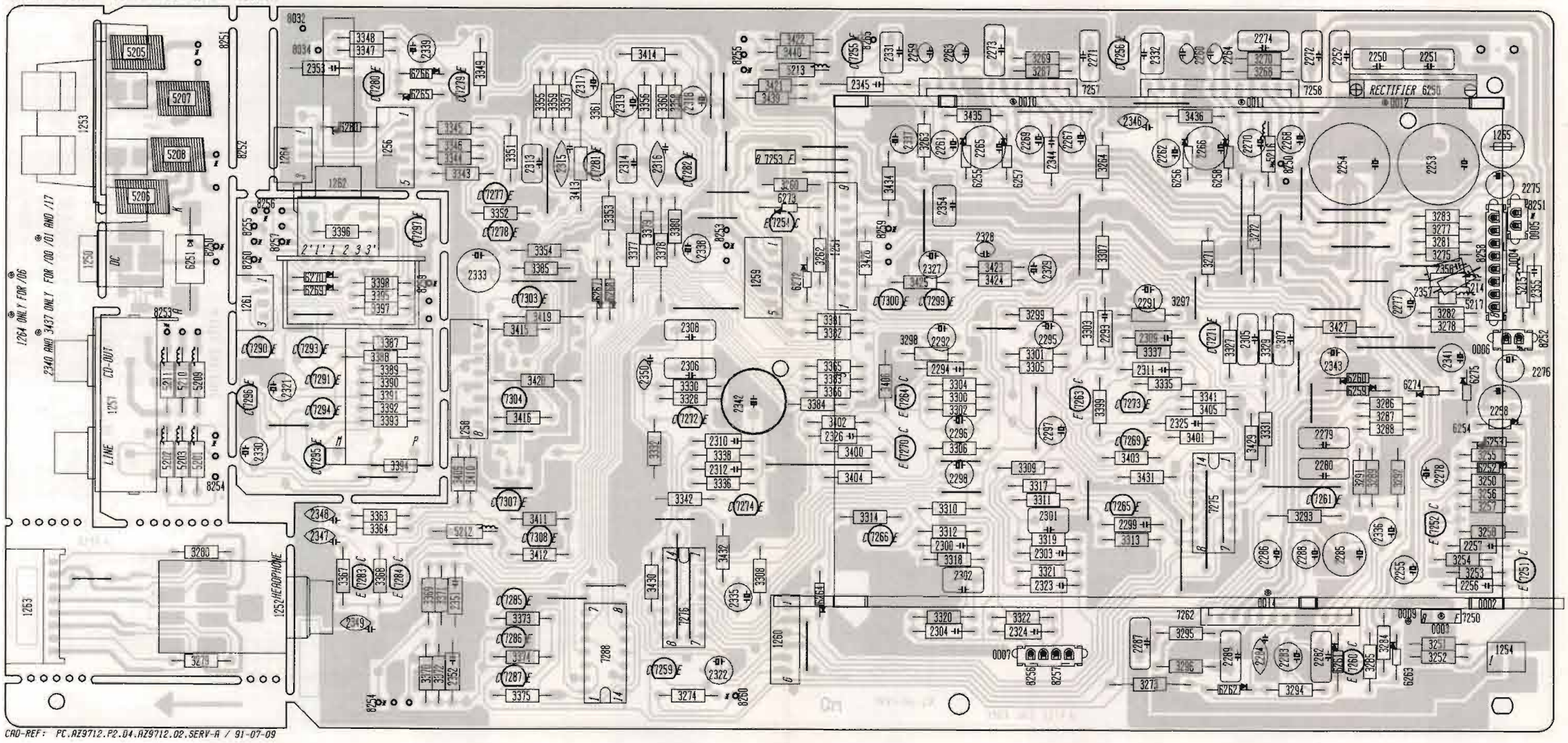
V ...DC VOLTAGES MEASURED IN TUNER MODE+ VOLUME OFF (MAINS SUPPLY)

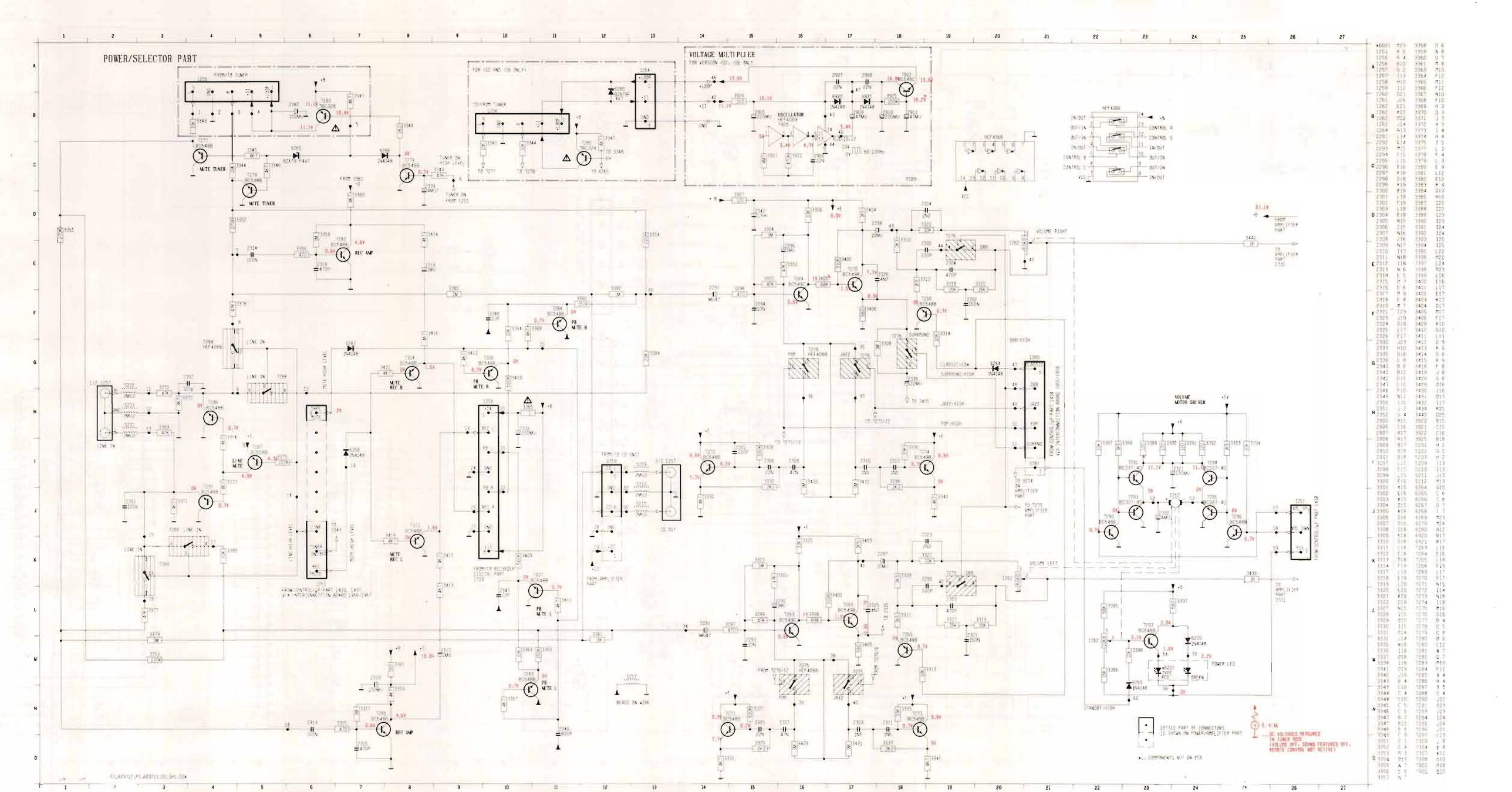
(...V ...DC VOLTAGES MEASURED IN CD MODE

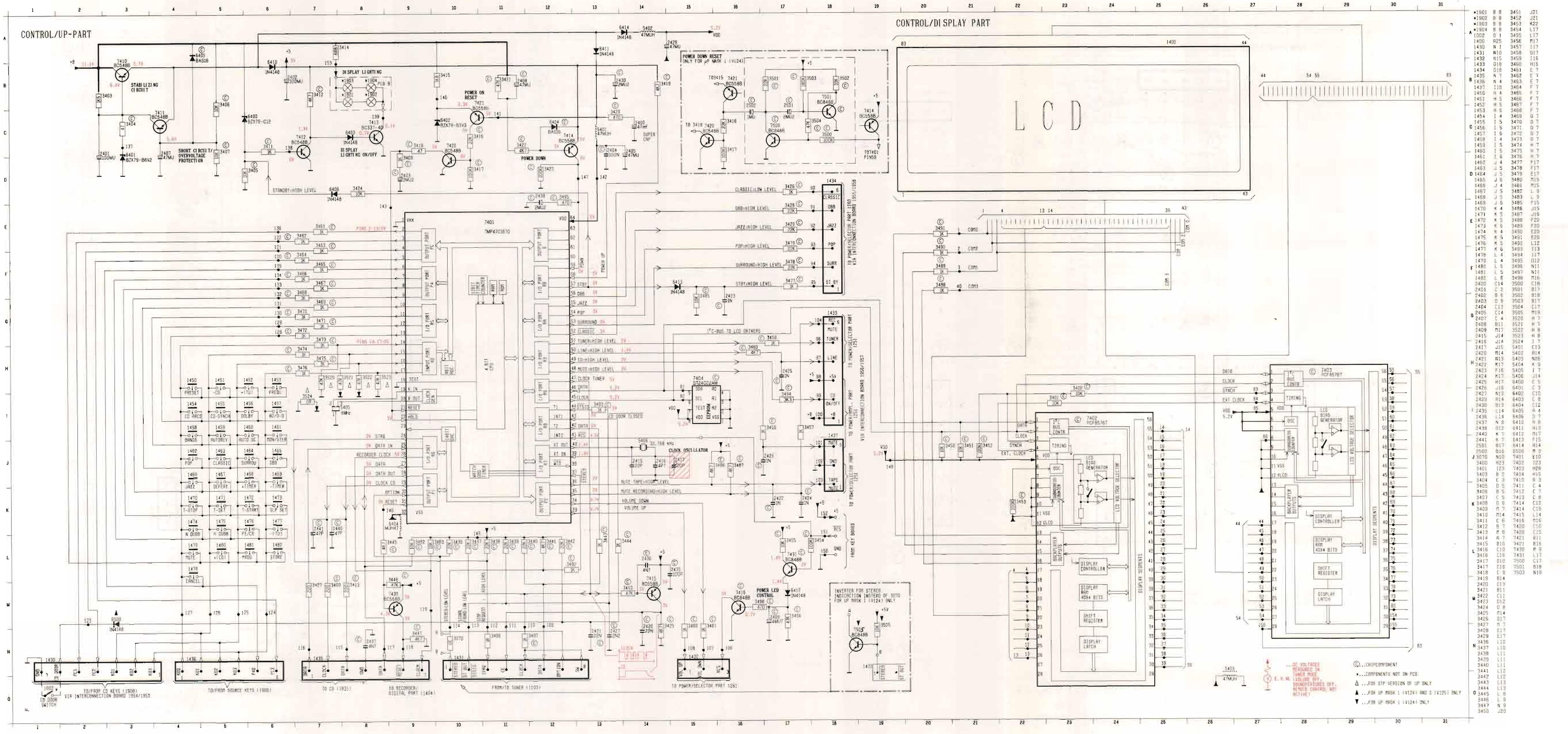
POWER BOARD / COPPERSIDE VIEW / AZ9712



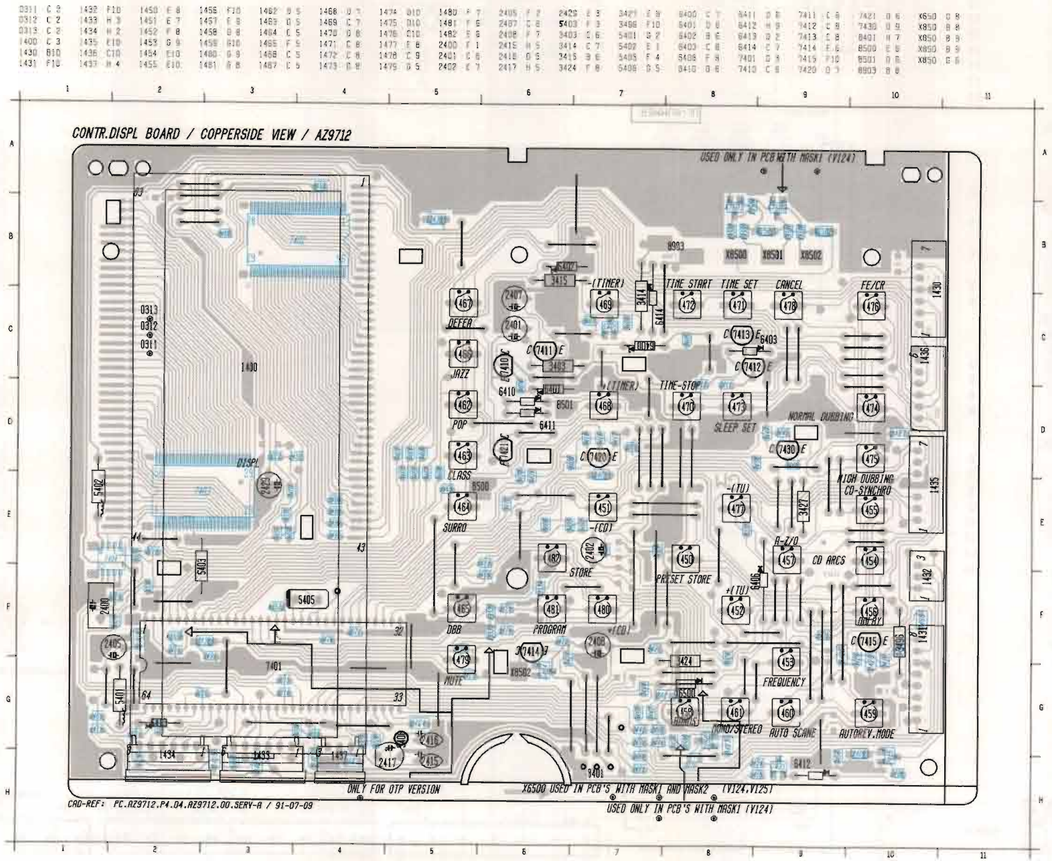
POWER BOARD / COPPERSIDE VIEW / AZ9712



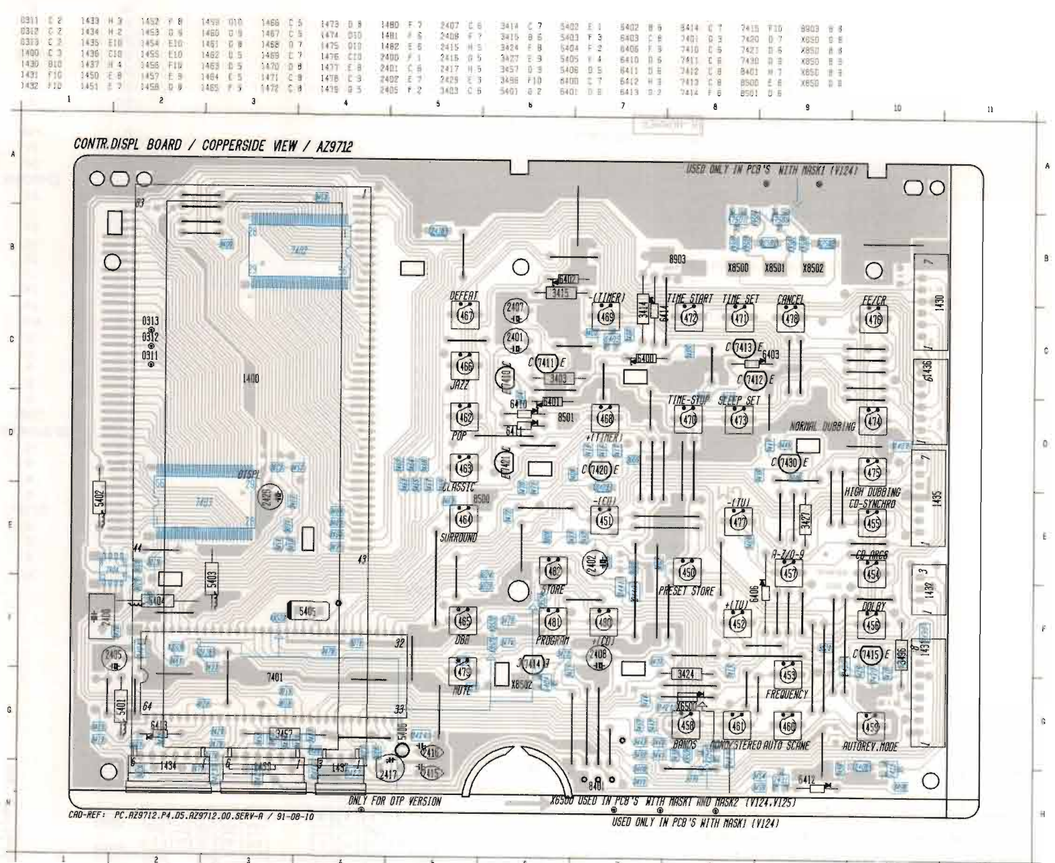

POWER/SELECTOR PART
VOLTAGE MULTIPLIER
OSCILLATOR
MUTE TUNER
REC AMP
PB MUTE R
PB MUTE L
MUTE REC R
MUTE REC L
LINE IN
LINE MUTE
VOLUME MOTOR DRIVER
VOLUME RIGHT
VOLUME LEFT
SURROUND
JAZZ
POP
STANDBY HIGH
POWER LED
GREEN
DC VOLTAGES MEASURES IN TUNER MODE VOLUME OFF, SOUND FEATURES OFF, REMOTE CONTROL NOT ACTIVE!


CONTROL/UP-PART
CONTROL/DISPLAY PART
LCD
STABILIZING CIRCUIT
SHORT CIRCUIT/OVERVOLTAGE PROTECTION
DISPLAY LIGHTING
DISPLAY LIGHTING ON/OFF
POWER ON RESET
POWER DOWN
POWER DOWN RESET ONLY FOR µP MASK 1 (V124)
STANDBY=HIGH LEVEL
CLASSIC=LOW LEVEL
DBB=HIGH LEVEL
JAZZ=HIGH LEVEL
POP=HIGH LEVEL
SURROUND=HIGH LEVEL
STBY=HIGH LEVEL
7401 TMP47C1670
7404 ST24C02AN
7402 PCF8576T
7403 PCF8576T
CLOCK OSCILLATOR
POWER LED CONTROL
INVERTER FOR STEREO INDICATION (INSTEAD OF 3070 FOR UP MASK 1 (V124) ONLY
TO/FROM CD KEYS (1908) VIA INTERCONNECTION BOARD 1954/1953
TO/FROM SOURCE KEYS (1906)
TO CD (1835)
TO RECORDER/DIGITAL PART (1404)
FROM/TO TUNER (1103)
TO POWER/SELECTOR PART 1261
CD DOOR SWITCH
...CHIPCOMPONENT
...COMPONENTS NOT ON PCB
...FOR OTP VERSION OF UP ONLY
...FOR UP MASK 1 (V124) AND 2 (V125) ONLY
...FOR UP MASK 1 (V124) ONLY

Layout stage .4



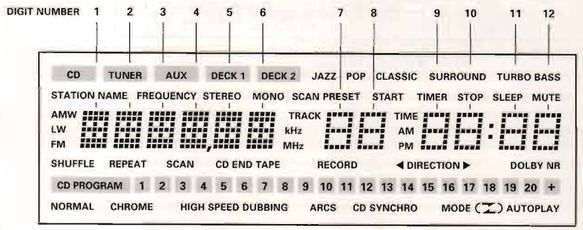
Layout stage .5

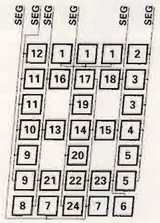


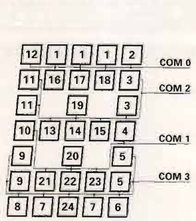
DISPLAY SEGMENT CONNECTION TABLE

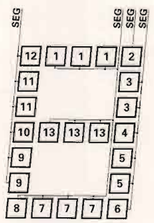
PIN LCD	COM 3	COM 1	COM 2	COM 0	DIGIT
4	9	10	11	12	1
5	8	21	13	16	1
6	7	22	14	17	1
7	6	23	15	18	1
8	5	4	3	2	1
9	9	10	11	12	2
10	8	21	13	16	2
11	7	22	14	17	2
12	6	23	15	18	2
13	5	4	3	2	2
39	ARCS	11	10	9	
38	7	8	RECORD	2	7
37	6	5	4	3	7
36	8	7	13	1	7
35	9	10	11	12	7
34	5	4	3	2	6
33	6	23	15	18	6
32	7	22	14	17	6
31	8	21	13	16	6
30	9	10	11	12	6
29	5	4	3	2	5
28	6	23	15	18	5
27	7	22	14	17	5
26	8	21	13	16	5
25	9	10	11	12	5
24	HIGH SPEED	DUBBING			
23	5	4	3	2	4
22	6	23	15	18	4
21	7	22	14	17	4
20	8	21	13	16	4
19	9	10	11	12	4
18	5	4	3	2	3
17	6	23	15	18	3
16	7	22	14	17	3
15	8	21	13	16	3
14	9	10	11	12	3
COM3	40	COM 3			
COM1	41		COM 1		
COM2	42			COM 2	
COM0	43				COM 0
COM0	1				COM 0
COM2	2			COM 2	
COM1	3		COM 1		

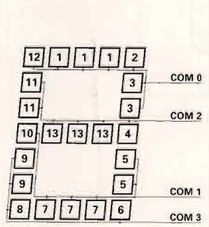
PIN LCD	COM 3	COM 1	COM 2	COM 0	DIGIT
44	◄	)	AUTOPLAY		
45	MODE	(	►	+	
46	17	18	19	20	
47	15	16	DOLBY NR	2	12
48	6	5	4	3	12
49	8	7	13	1	12
50	9	10	11	12	12
51	MUTE	TURBO BASS	SLEEP	2	11
52	6	5	4	3	11
53	8	7	13	1	11
54	9	10	11	12	11
83	FM	SHUFFLE	CD PROGRAM	NORMAL	
82	W	M	A	LW	
81	24	20	19	1	1
80	CHROME	REPEAT	STATION NAME	CD	
79	24	20	19	1	2
78	1	2	FREQUENCY	TUNER	
77	24	20	19	1	3
76	3	SCAN	STEREO	AUX	
75	24	20	19	1	4
74	4	.	MONO	DECK 1	
73	24	20	19	1	5
72	24	20	19	1	6
71	CD	MHz	TRACK	DECK 2	
70	5	END	kHz	SCAN	
69	6	TAPE	PRESET	JAZZ	
68	9	10	11	12	8
67	8	7	13	1	8
66	6	5	4	3	8
65	TIME	START	POP	2	8
64	CD SYNCHRO	12	◄	AM	
63	13	DIRECTION	PM	CLASSIC	
62	9	10	11	12	9
61	8	7	13	1	9
60	6	5	4	3	9
59	STOP	SURROUND	TIMER	2	9
58	9	10	11	12	10
57	8	7	13	1	10
56	6	5	4	3	10
55	14	►	:	2	10

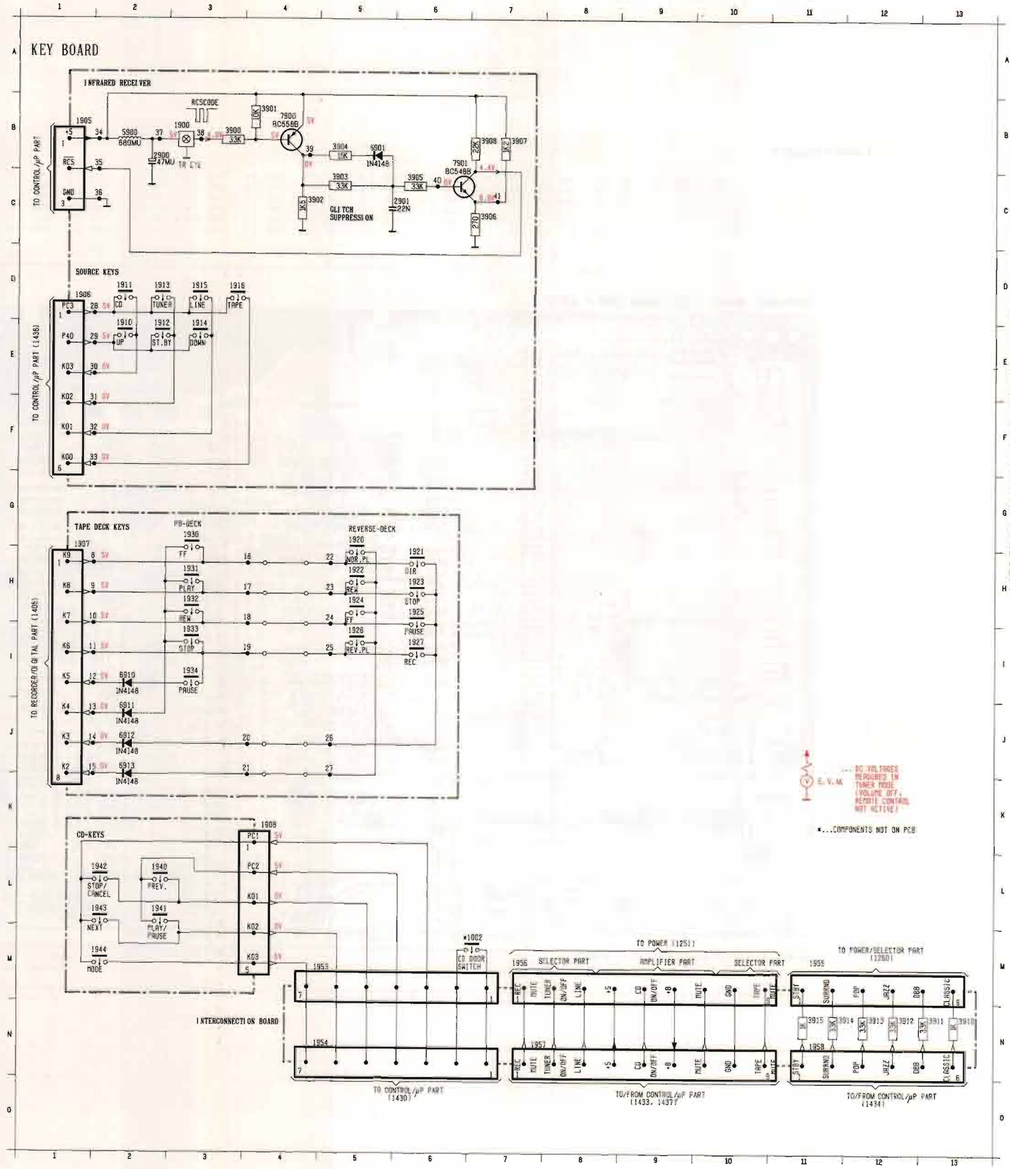






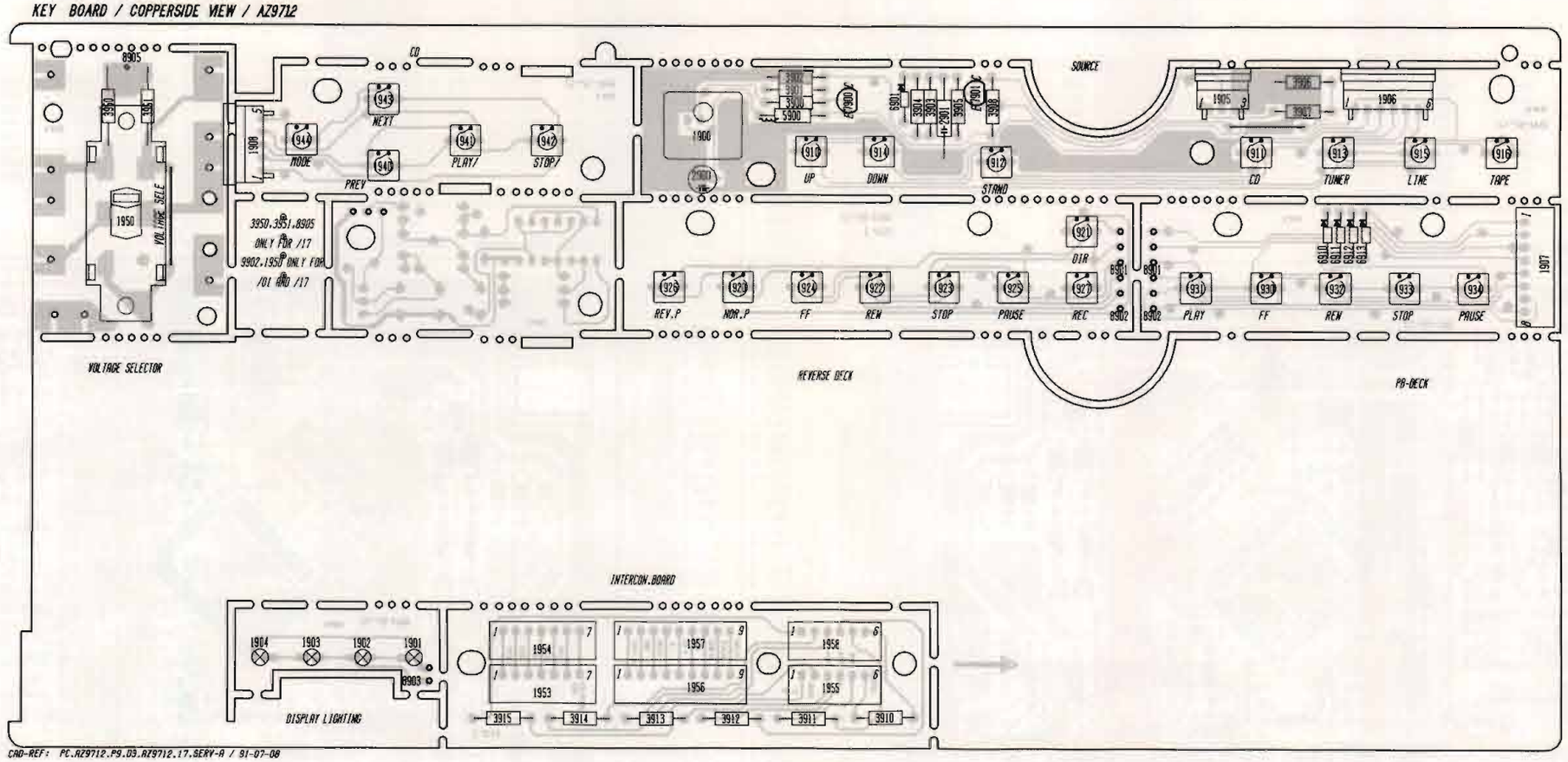






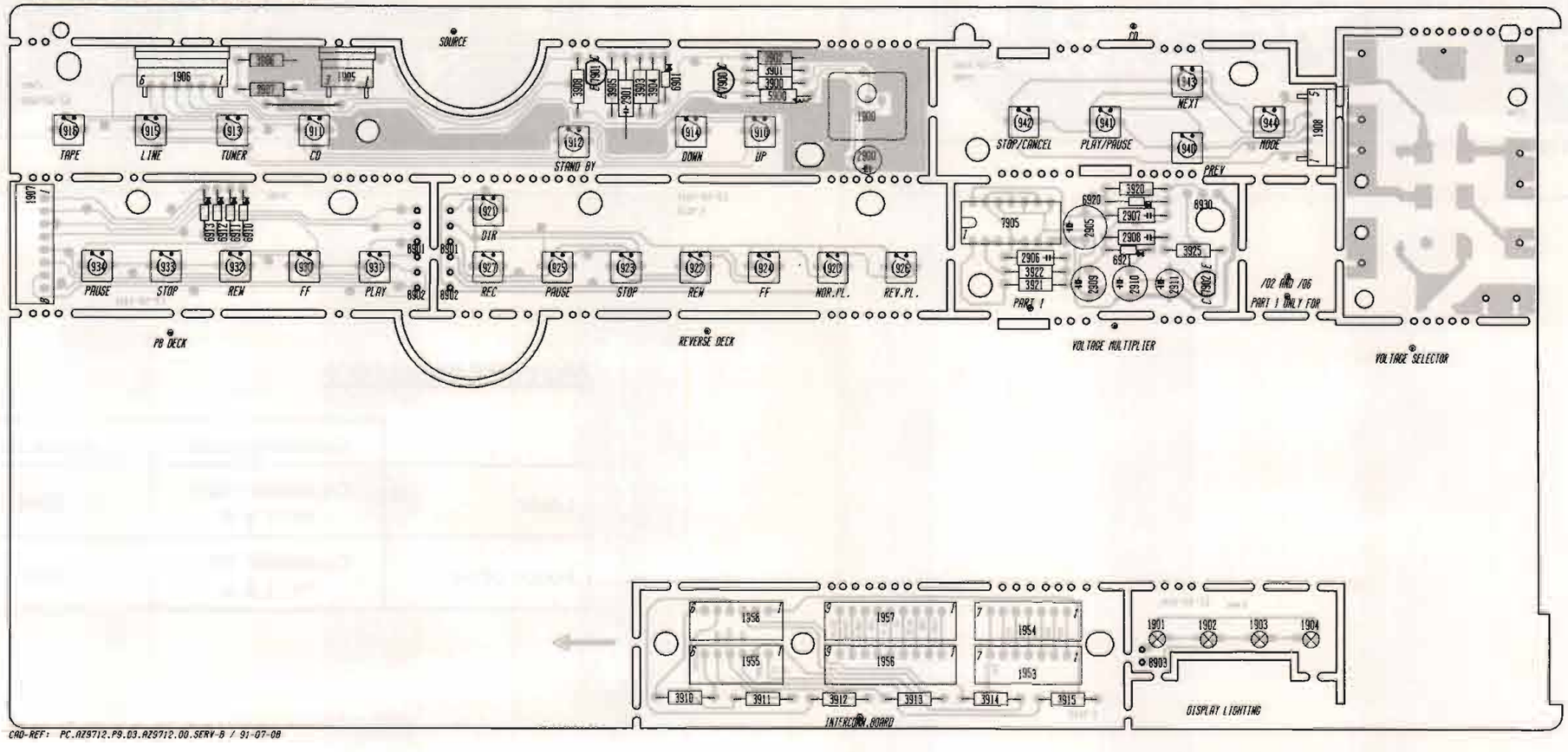
CAD-REF: ES_AZ9712_P9_AZ9712_00_SH1_D02 (91-06-14)

KEY BOARD / COPPERSIDE VIEW / AZ9712

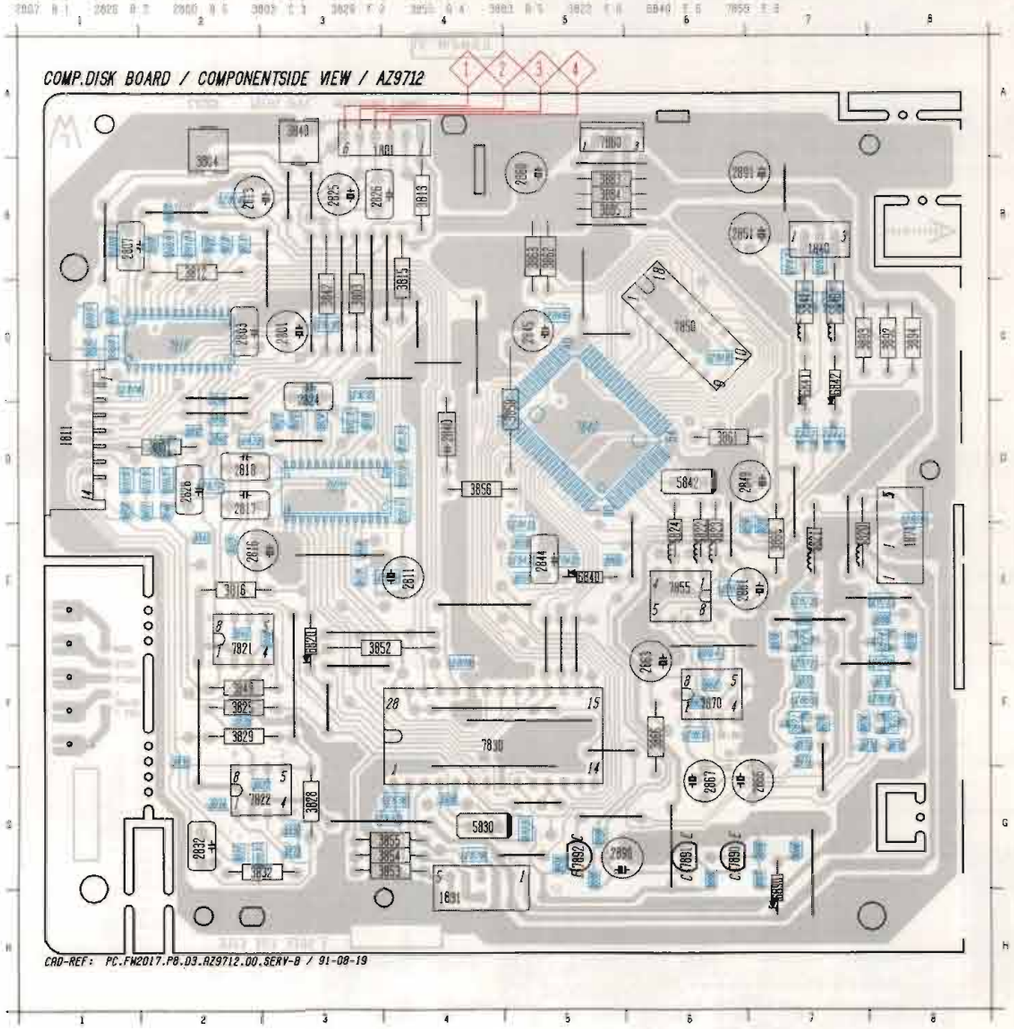


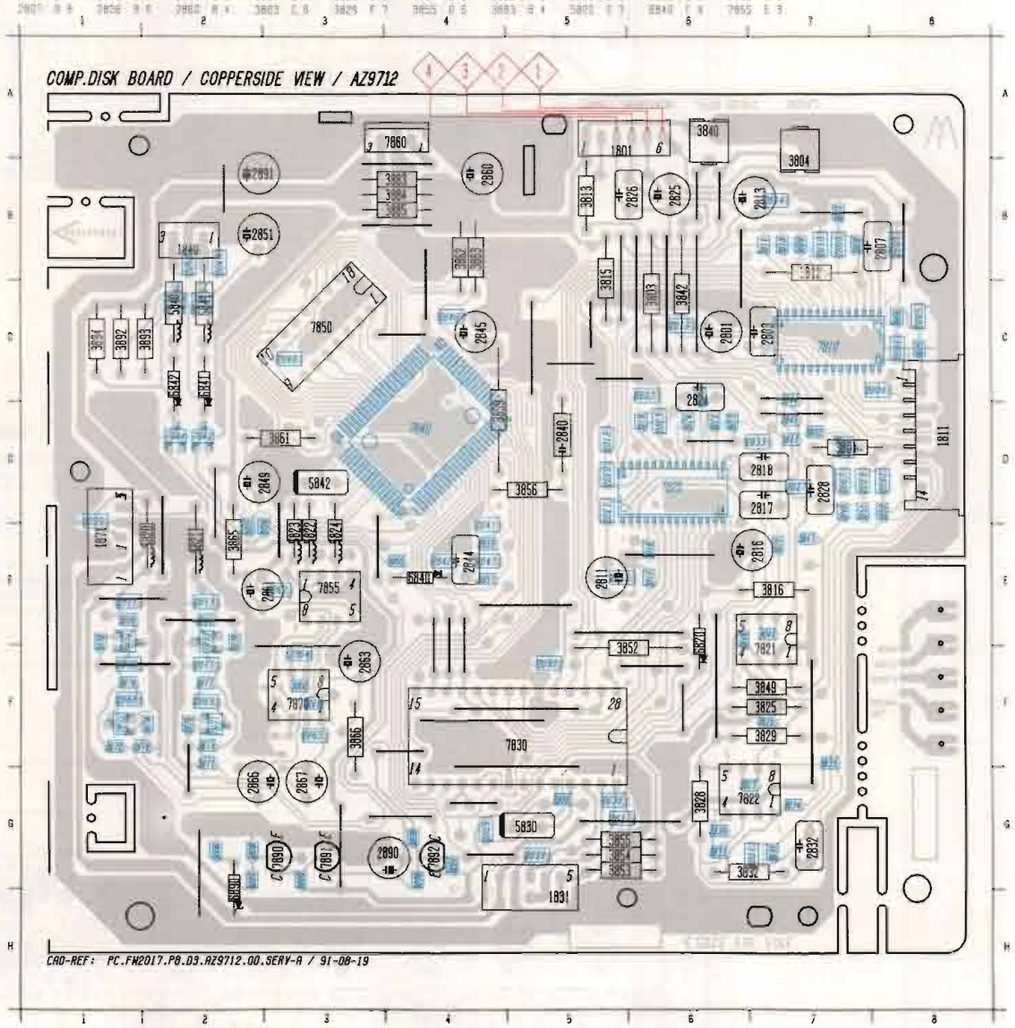
CAD-REF: PC.AZ9712.P9.03.AZ9712.17.SERV-A / 91-07-08

KEY BOARD / COMPONENTSIDE VIEW / AZ9712



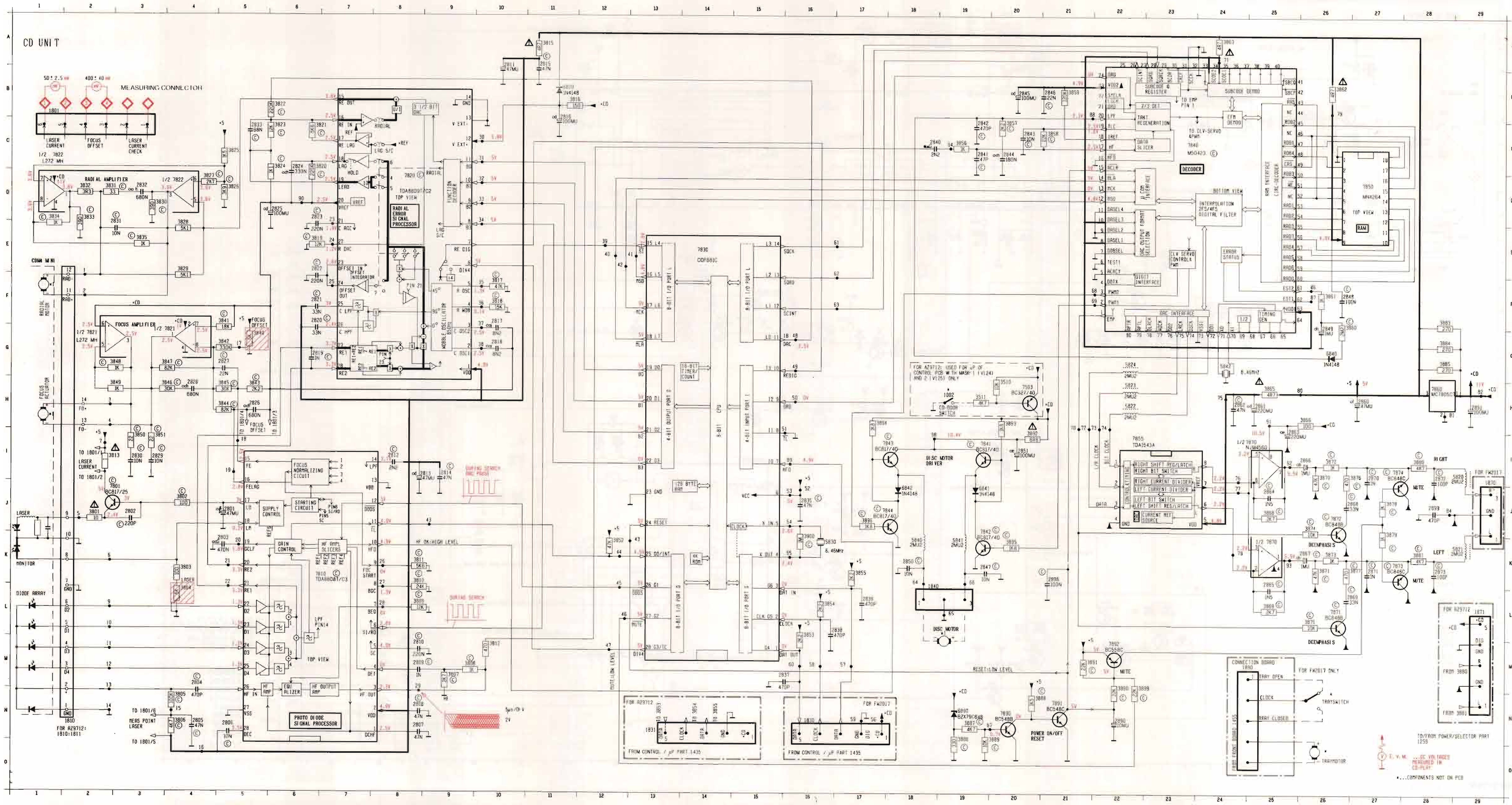
CAD-REF: PC.AZ9712.P9.03.AZ9712.00.SERV-B / 91-07-08





Alignment instructions

	Measuring point	Adjust with	Value
Laser	Connector 1801 Pin 1 & 2	3804	50mV ± 2,5mV
Focus offset	Connector 1801 Pin 3 & 4	3840	400mV ± 40mV



•I	F 1	3847	G 4
•I	H 1	3848	G 3
•I	L19	3849	H 3
1002	H19	3850	I 3
1801	B 1	3851	J 3
1810	N 1	3852	K12
1830	N16	3853	L16
1831	N13	3854	L18
1840	K18	3855	K17
1870	I29	3856	C19
1871	L29	3857	C20
1890	M25	3858	C21
2801	J 5	3859	B21
2802	J 3	3860	F26
2803	K 5	3861	F26
2804	M 4	3862	B26
2805	N 4	3863	A24
2806	N 5	3865	H25
2807	N 8	3866	H26
2808	N 8	3868	J25
2809	M 8	3869	L25
2810	M 8	3870	I26
2811	A10	3871	K26
2812	I 8	3872	I26
2813	I 8	3873	K26
2814	I 9	3874	J26
2815	A11	3875	L26
2816	B11	3876	I26
2817	F10	3877	K25
2818	G10	3878	J27
2819	G 6	3879	J27
2820	F 6	3880	I28
2821	F 6	3881	K28
2822	E 6	3883	F28
2823	D 6	3884	G28
2824	C 6	3885	G28
2825	D 5	3886	N19
2826	H 5	3887	N19
2827	G 5	3888	N20
2828	H 4	3889	N19
2829	I 3	3890	M22
2830	I 3	3891	M21
2831	E 3	3892	I20
2832	D 3	3893	H20
2833	F 5	3894	H17
2835	J16	3895	K20
2837	M16	3896	J17
2838	L16	3899	M22
2839	L17	3900	K16
2840	C18	5820	I29
2841	C19	5821	K29
2842	C19	5822	H22
2843	C20	5823	H22
2844	C20	5824	G22
2845	B20	5830	K16
2846	B20	5840	K18
2847	K19	5841	K19
2848	F26	5842	G24
2849	F26	6820	B11
2850	K18	6840	G26
2851	I20	6841	J19
2860	H27	6842	J18
2861	H25	6890	N19
2862	H24	7503	H20
2863	H25	7801	J 3
2864	J25	7810	K 6
2865	K25	7820	D 8
2866	I26	7821	G 2
2867	K26	7822	C 1
2868	J26	7830	E14
2869	L26	7840	C23
2870	I27	7841	I19
2871	K27	7842	J19
2872	I28	7843	I18
2873	K28	7844	J18
2890	N22	7850	D27
2891	H29	7855	I22
2898	K21	7860	H28
2899	J28	7870	I24
3510	H20	7871	L26
3511	H19	7872	J26
3801	J 2	7873	K27
3802	J 4	7874	I27
3803	K 4	7890	N20
3804	L 4	7891	N21
3805	N 4	7892	M22
3806	N 4		
3807	M 9		
3808	M 9		
3809	L 8		
3810	K 8		
3811	K 8		
3812	M10		
3813	I 2		
3815	A11		
3816	B11		
3817	F10		
3818	F10		
3819	E 6		
3820	C 6		
3821	C 6		
3822	B 6		
3823	C 6		
3824	C 6		
3825	C 5		
3826	D 5		
3827	D 4		
3828	E 4		
3829	E 4		
3830	D 3		
3831	D 2		
3832	D 2		
3833	D 2		
3834	D 1		
3835	E 3		
3840	G 5		
3841	F 5		
3842	G 5		
3843	H 5		
3844	H 5		
3845	H 5		
3846	H 4		

CS 45 566

ECO 3 TUNER

FM FRONTEND

FM OSCILLATOR

AM OSCILATOR

FM-IF

LOOPFILTER

SYNTESIZER

LW

TRIMMING ITEMS

FM : 2105 | FM FRONTEND
5102
5103 FM OSCILATOR

AM : 5107 | AM AERIAL CIRCUIT
2135
5108 | AM OSCILATOR
2139

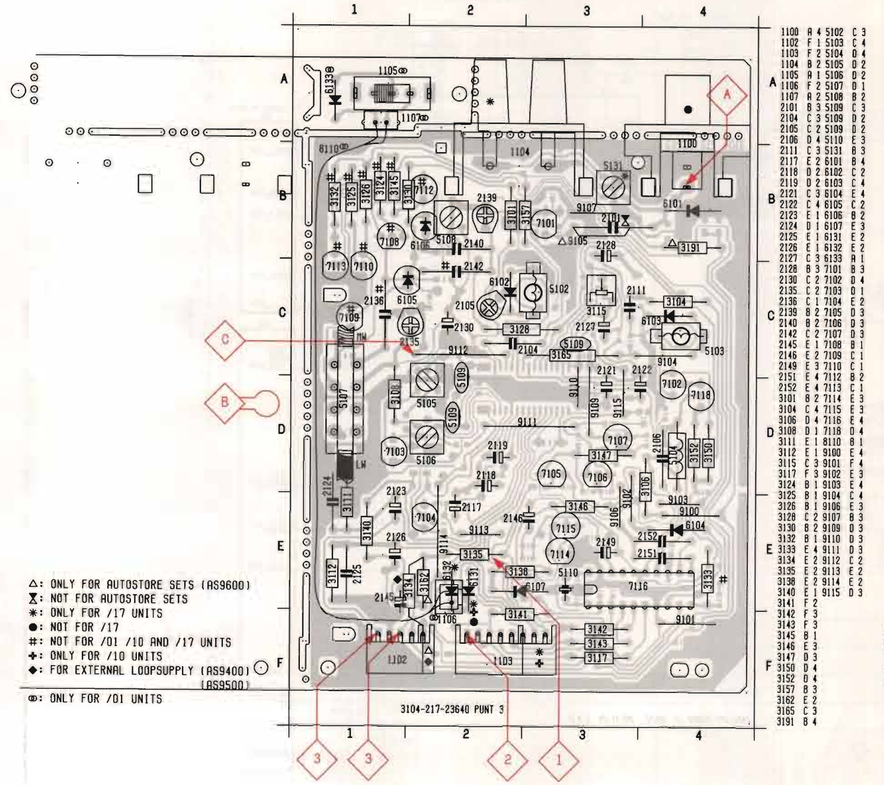
5105 | AM-IF
5106 |

3115 STEREO-DECODER PART VCO

AS9400
AS9500
AS9600
AS9604
AH807
AH808
AH809
AZ9712
RF PART

3104-21-23540.srv c.e.d. 91-08-02

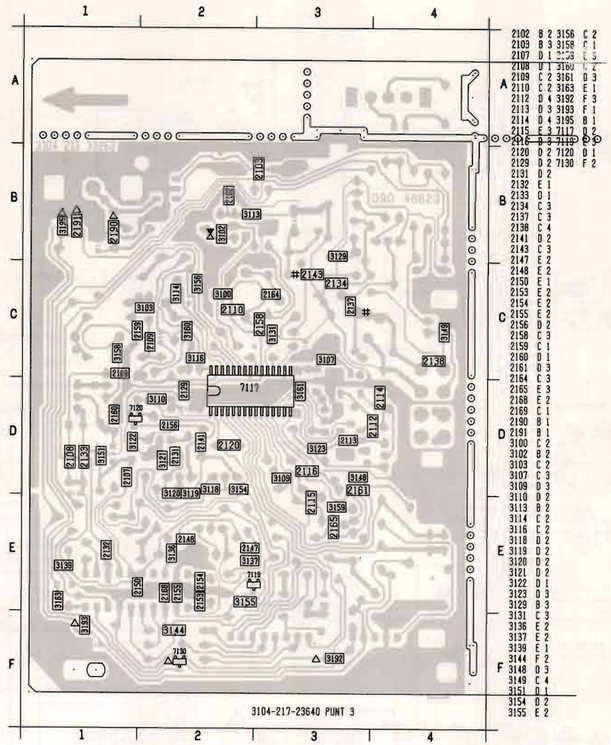
ECO 3 TUNER BOARD / Component side view



1100 A 4 5102 C 3
1102 F 1 5103 C 4
1103 F 2 5104 D 4
1104 B 2 5105 D 2
1105 A 1 5106 D 2
1106 F 2 5107 D 1
1107 A 2 5108 B 2
2101 B 3 5109 C 3
2104 C 3 5109 D 2
2105 C 2 5109 D 2
2106 D 4 5110 E 3
2111 C 3 5131 B 3
2117 E 2 6101 B 4
2118 D 2 6102 C 2
2119 D 2 6103 C 4
2121 C 3 6104 E 4
2122 C 4 6105 C 2
2123 E 1 6106 B 2
2124 D 1 6107 E 3
2125 E 1 6131 E 2
2126 E 1 6132 E 2
2127 C 3 6133 A 1
2128 B 3 7101 B 3
2130 C 2 7102 D 4
2135 C 2 7103 D 1
2136 C 1 7104 E 2
2139 B 2 7105 D 3
2140 B 2 7106 D 3
2142 C 2 7107 D 3
2145 E 1 7108 B 1
2146 E 2 7109 C 1
2149 E 3 7110 C 1
2151 E 4 7112 B 2
2152 E 4 7113 C 1
3101 B 2 7114 E 3
3104 C 4 7115 E 3
3106 D 4 7116 E 4
3108 D 1 7118 D 4
3111 E 1 8110 B 1
3112 E 1 9100 E 4
3115 C 3 9101 F 4
3117 F 3 9102 E 3
3124 B 1 9103 E 4
3125 B 1 9104 C 4
3126 B 1 9106 E 3
3128 C 2 9107 B 3
3130 B 2 9108 D 3
3132 B 1 9110 D 3
3133 E 4 9111 D 3
3134 E 2 9112 C 2
3135 E 2 9113 E 2
3138 E 2 9114 E 2
3140 E 1 9115 D 3
3141 F 2
3142 F 3
3143 F 3
3145 B 1
3146 E 3
3147 D 3
3150 D 4
3152 D 4
3157 B 3
3162 E 2
3165 C 3
3191 B 4

△: ONLY FOR AUTOSTORE SETS (AS9600)
⧗: NOT FOR AUTOSTORE SETS
✱: ONLY FOR /17 UNITS
#: NOT FOR /10 AND /17 UNITS
✚: ONLY FOR /10 UNITS

ECO 3 TUNER BOARD / Copper side view



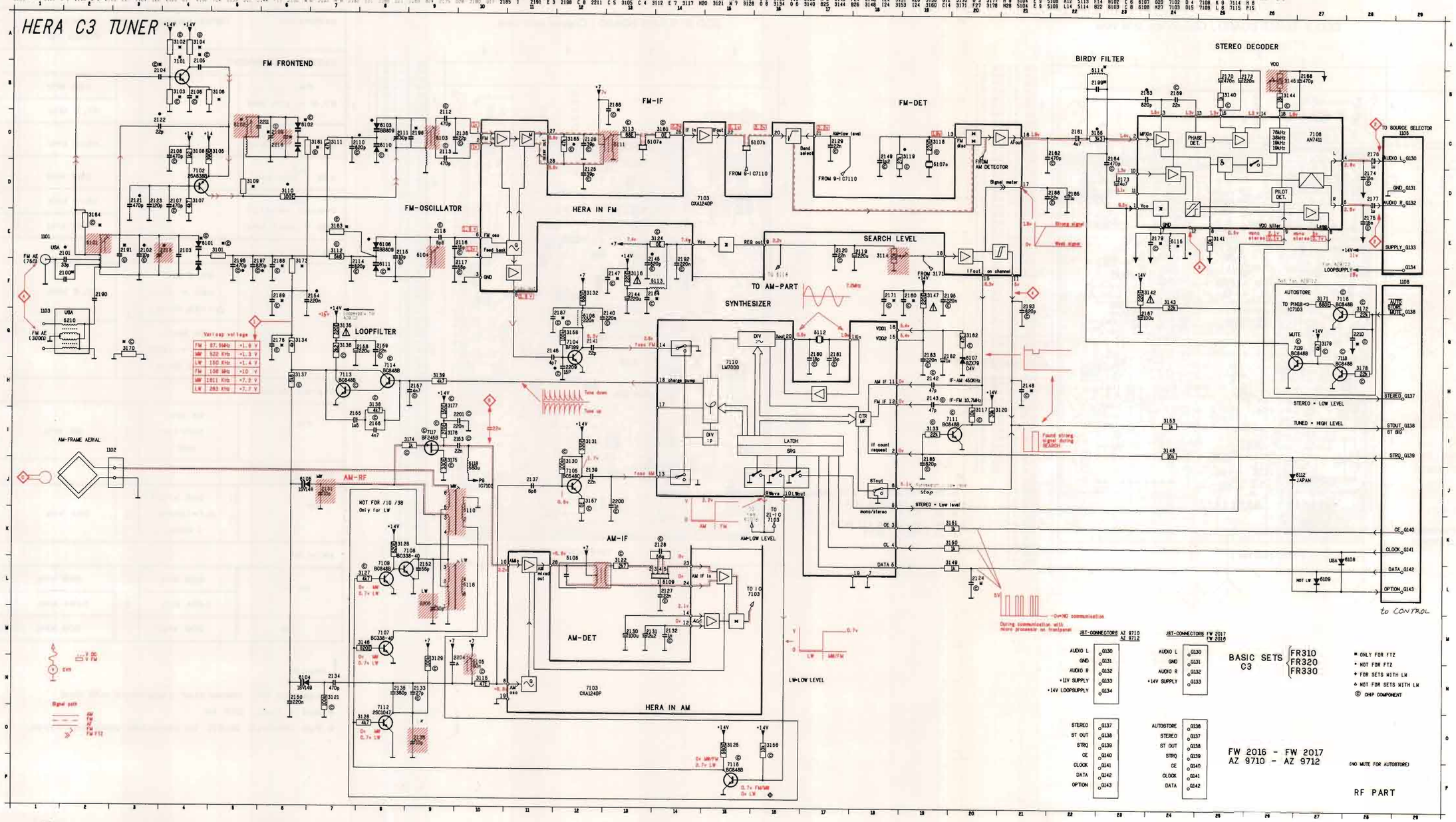
2102 B 2 3156 C 2
2103 B 3 3158 C 1
2107 D 1 3159 E 3
2108 D 1 3160 E 2
2109 C 2 3161 D 3
2110 C 2 3163 E 1
2112 D 4 3192 F 3
2113 D 3 3193 F 1
2114 D 4 3195 B 1
2115 E 3 7117 D 2
2116 D 3 7119 D 2
2120 D 2 7120 D 1
2129 D 2 7130 F 2
2131 D 2
2132 E 1
2133 D 1
2134 C 3
2137 C 3
2138 C 4
2141 D 2
2143 C 3
2147 E 2
2148 E 2
2150 E 1
2153 E 2
2154 E 2
2155 E 2
2156 D 2
2158 C 3
2159 C 1
2160 D 1
2161 D 3
2164 C 3
2165 E 3
2188 E 2
2189 C 1
2190 B 1
3100 C 2
3102 B 2
3103 C 2
3107 C 3
3109 D 3
3110 B 2
3113 B 2
3114 C 2
3116 C 2
3118 D 2
3119 D 2
3120 D 2
3121 D 2
3122 D 1
3123 D 3
3129 B 3
3131 C 3
3136 E 2
3137 E 2
3139 E 1
3144 F 2
3148 D 3
3149 C 4
3151 D 1
3154 D 2
3155 E 2

TUNER Adjustment table

WAVERANGE	INPUT FREQU.	I/P	SET TUNED TO	ADJUST	O/P	SCOPE/METER
VARICAP ALIGNMENT						
FM 87,5 - 108 MHz			108 MHz	5103	1	8 V
			87,5 MHz	check		2,9 +/- 0,3 V
MW 522 - 1611 kHz			1611 kHz	2139		8,5 V
LW 148 - 284 kHz			284 kHz	5108		8,5 V
MW 2-band version 522 - 1611 kHz			1611 kHz	2139		8,5 V
			522 kHz	5108		1,2 V
FM - RF						
FM	87,5 MHz mod = 1kHz △f=22,5kHz	A	87,5 MHz	5102	3	max.
	108 MHz mod = 1kHz △f=22,5kHz		108 MHz	2105		
Stereo decoder						
FM	98 MHz carrier 1mV	A	98 MHz	3115	2	76 +/- 0,2 kHz
AM - IF						
MW	522 kHz * △f=10kHz (50Hz)	C	522 kHz	5106 5105	3	max. symmetrical f_o
AM - RF						
MW +o	558 kHz	B	558 kHz	5107 (MW)	3	max.
	1494 kHz		1494 kHz	2135		
LW	200 kHz		200 kHz	5107 (LW)		

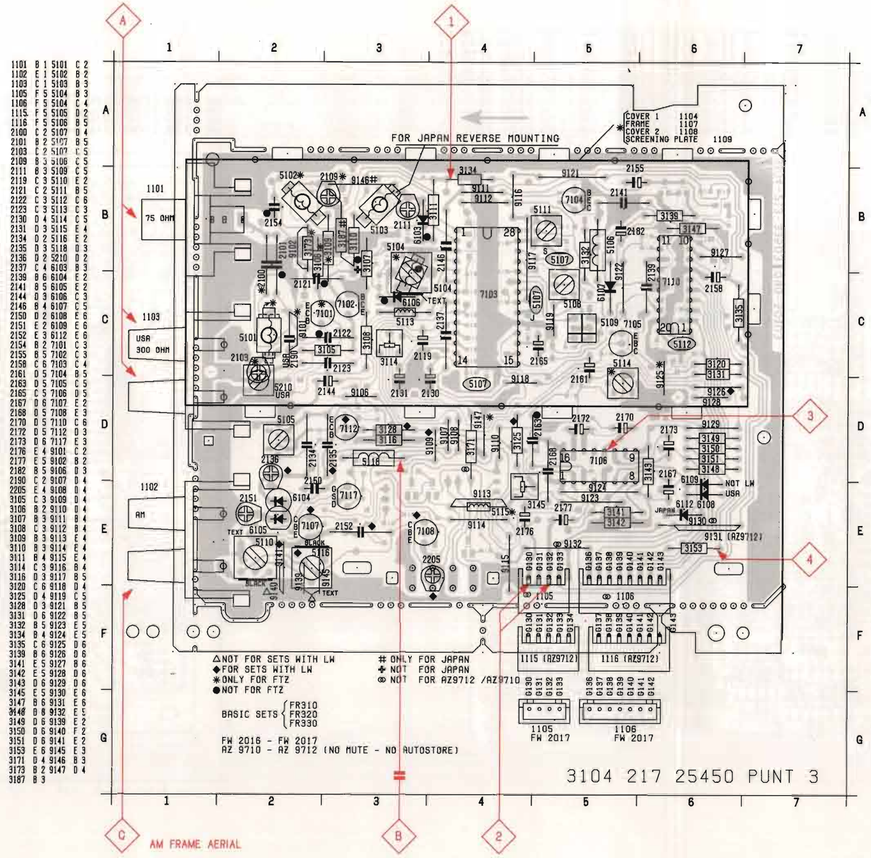
↕ Repeat

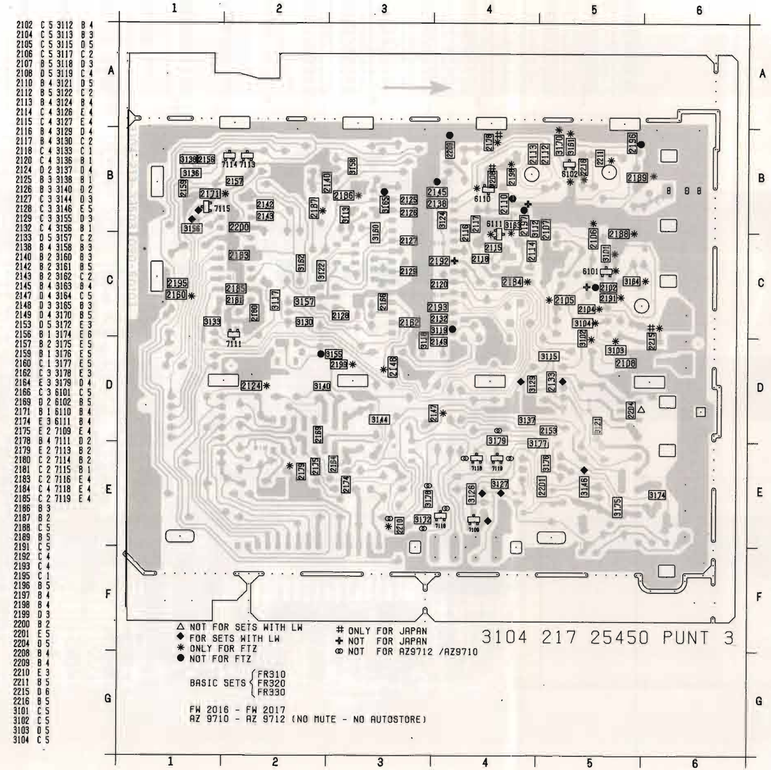
* via 100 nF (Generator impedance <75 Ohm)
+ mod = 1kHz, 30% AM
o Put LW-coil (5107) in expected position first.


HERA C3 TUNER
FM FRONTEND
FM-IF
FM-DET
BIRDY FILTER
STEREO DECODER
FM-OSCILLATOR
HERA IN FM
SEARCH LEVEL
TO AM-PART
SYNTHESIZER
LOOPFILTER
AM-FRAME AERIAL
AM-RF
AM-IF
AM-DET
HERA IN AM
AM-LOW LEVEL
LW-LOW LEVEL
TO SOURCE SELECTOR 1106
AUTOSTORE
MUTE
STEREO = LOW LEVEL
TUNED = HIGH LEVEL
STEREO - Low level
to CONTROL
JST-CONNECTORS AZ 9710 AZ 9712
JST-CONNECTORS FW 2017 FW 2016
BASIC SETS C3
FR310
FR320
FR330
FW 2016 - FW 2017
AZ 9710 - AZ 9712
RF PART

TUNER Adjustment table

Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM 87,5 - 108 MHz			108 MHz	5104		10V ± 50 mV[4] 8V ± 50 mV
			87,5 MHz	check		1,15V ± 250 mV[4] 2,7V ± 400 mV
AM (2-band version) 530 - 1700 kHz [1]			1700 kHz	5105	1	7,6V ± 100 mV
			530 kHz	check		1V ± 200 mV
LW 148 - 284 kHz			284 kHz	5105		8,4V ± 200 mV
MW (3-band version) 522 - 1611 kHz [2]			1611 kHz	2136		8,5V ± 100 mV
FM - RF [3]						
FM	87,5 MHz mod = 1 kHz Δf = 22,5 kHz	A	87,5 MHz	5103	2	max.
				5101 [4] 5102 [4]		
	108 MHz mod = 1 kHz Δf = 22,5 kHz		108 MHz	2111		
				2103 [4] 2109 [4]		
FM - IF						
FM	108 MHz Δf = 500 kHz as low as possible		108 MHz	5111	2	symmetrical and max. height
STEREO DECODER						
FM	98 MHz carrier 1 mV	A	98 MHz	3145	3	19 kHz ± 50 Hz
SEARCH SENSITIVITY						
FM	98 MHz carrier 12 µV	A	98 MHz	3114	4	adjust so that voltage switches from low to high
FM	98 MHz carrier 15 µV	A	99 MHz or 97 MHz	check		press DOWN or UP and check that set stops at 98 MHz
FM Autostore [5]	98 MHz carrier 350 µV	A	99 MHz or 97 MHz	check		press DOWN or UP and check that set stops at 98 MHz
AM - IF						
MW	522 kHz [6] Δf = 10 kHz as low as possible	B via 100nF	522 kHz	5108	2	symmetrical and max. height
AM - RF						
MW mod = 1 kHz 30% AM	560 kHz[1] 558 kHz	C	560 kHz[1] 558 kHz	5110	2	max.
	1600 kHz[1] 1494 kHz		1600 kHz[1] 1494 kHz	2151		
LW mod =1 kHz 30% AM	155 kHz		155 kHz	5116		max.
	270 kHz		270 kHz	2205		





↕ Repeat

1) used in AUSTRALIA, CANADA and USA versions.

2) used in European versions.

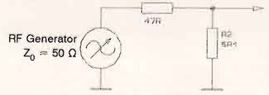
3) For all sets except FTZ versions adjust coil 5101 for nominal position (top of core approx. 3mm from topedge coil).

4) only for FTZ versions (metal screening cabinet)

5) Connect G136 to GND to switch set into Autostore sensitivity

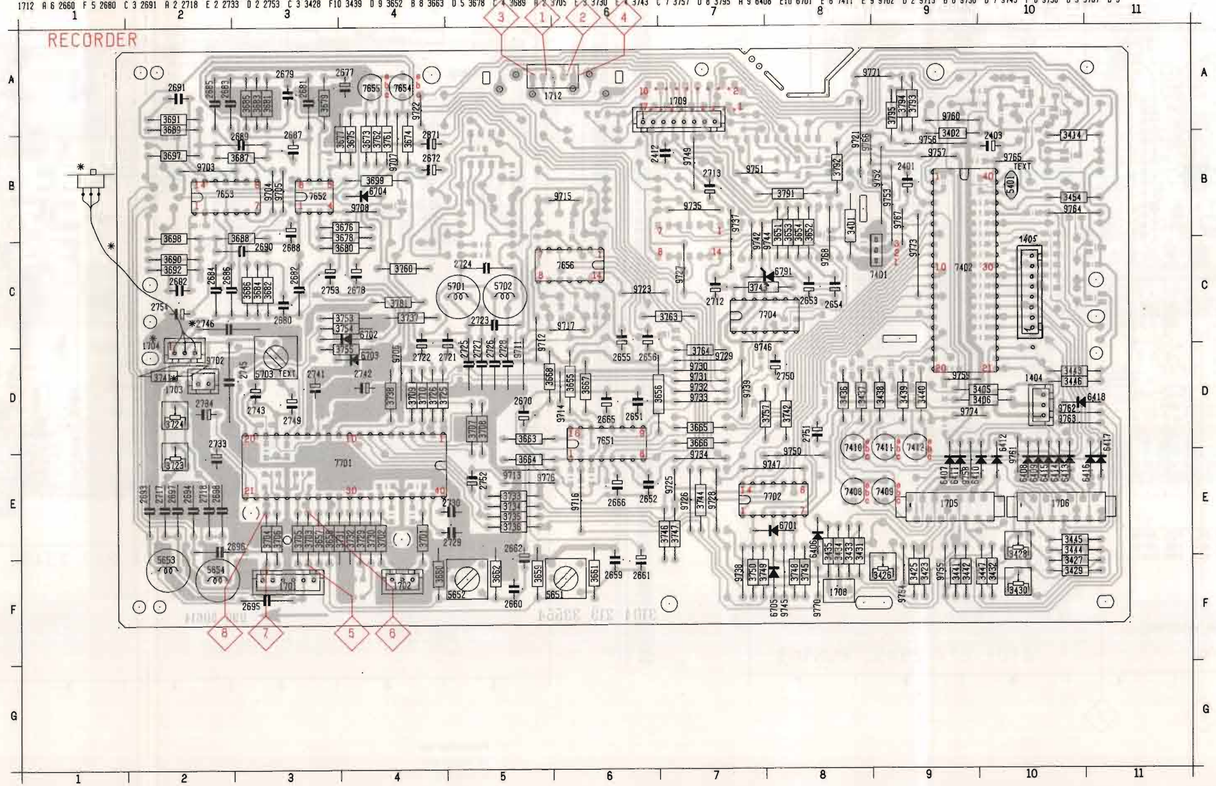
6) via low impedance (5Ω) direct to pin 10 of 7103 (see fig. 1).

Protection for
RF Generator
R1+R2≈Z_0=50Ω



$$Z = \frac{R2*(Z_0+R1)}{R2+(Z_0+R1)} \approx 5\Omega$$

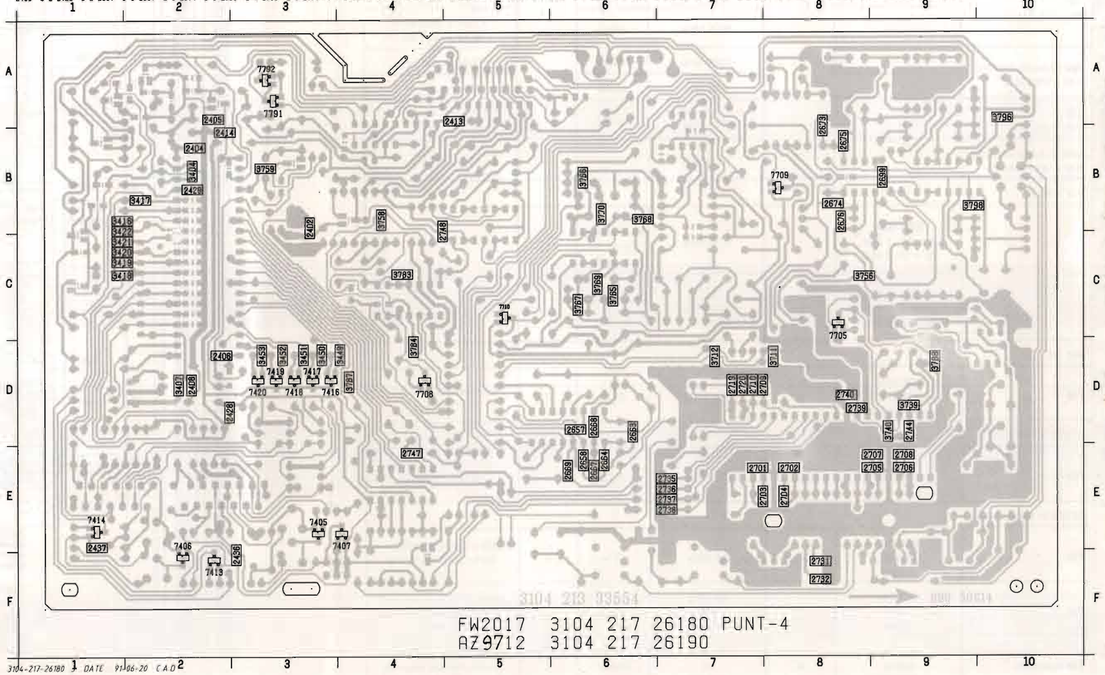
Fig. 1



* Only if the Service Solution for RIF - Switch is required

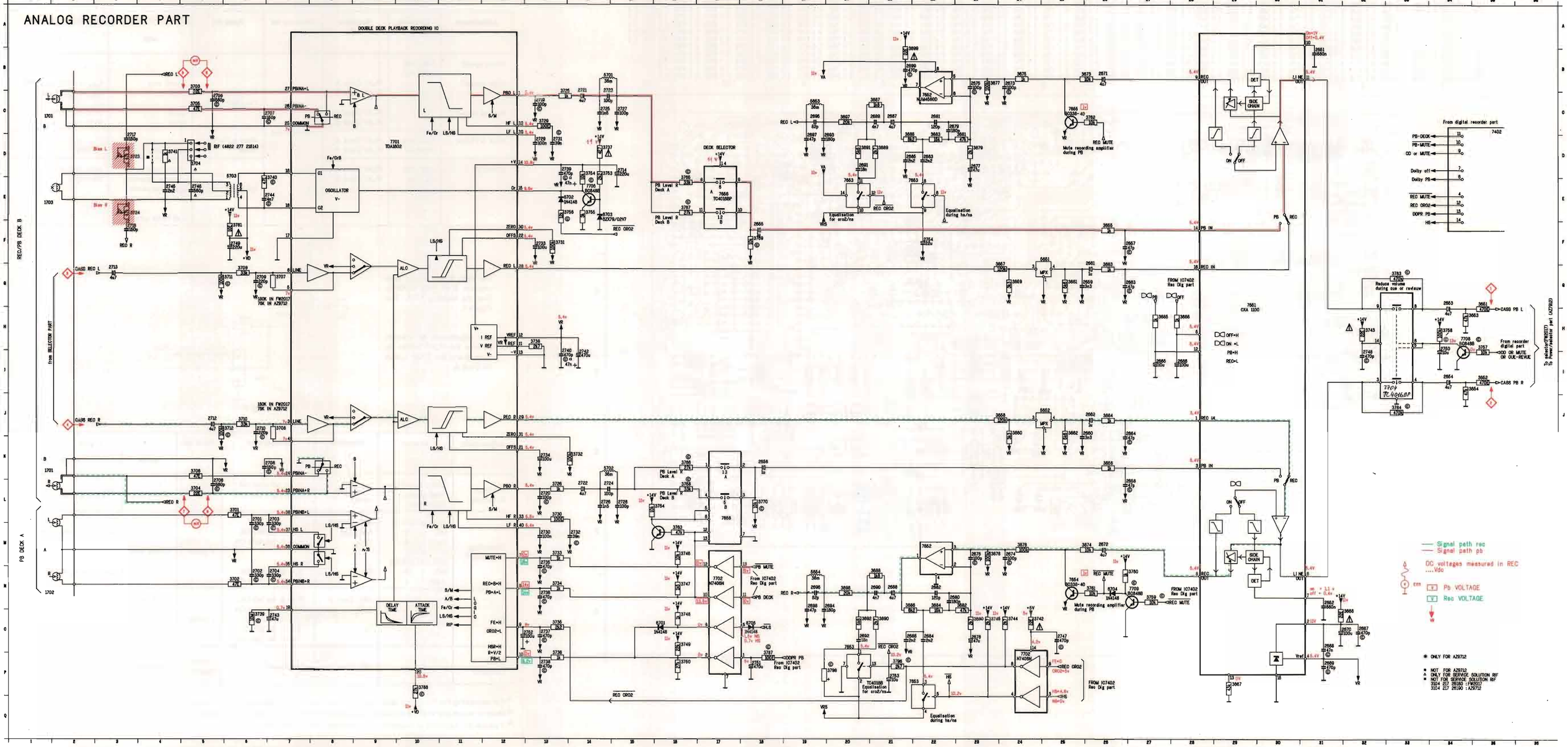
2746	560 pF Polypropylen
3741	1 kΩ 0,25W
Switch	4822 277 21514

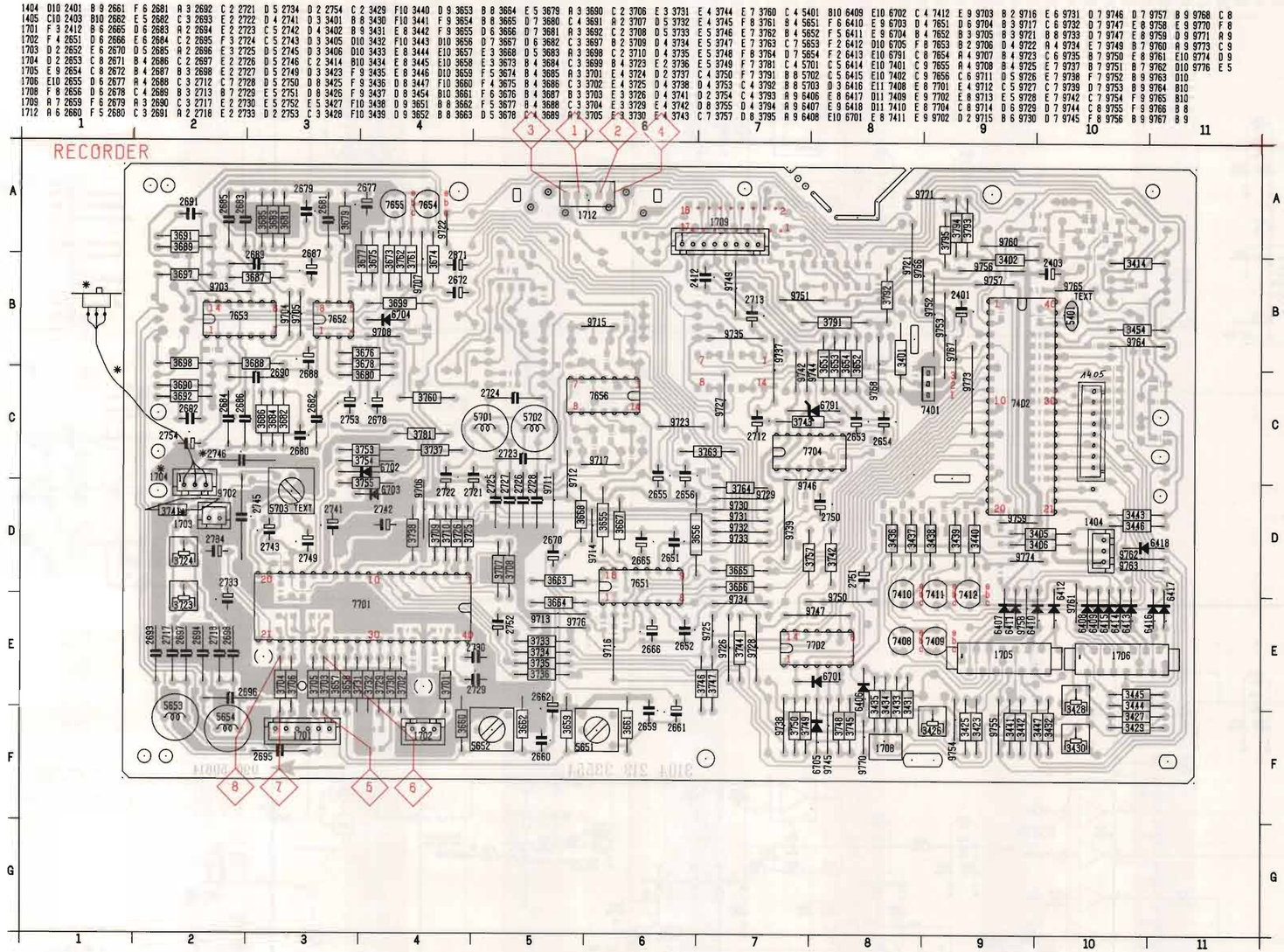
Delete bridge wire 9702



FW2017 3104 217 26180 PUNT-4
AZ9712 3104 217 26190

ANALOG RECORDER PART





Adjustment table Recorder part

Adjustment	Cassette	Recorder	Measure on ◇	Read on	Adjust with	Adjust to
Motor speed High speed[1] Normal speed	SBC 420 3150 Hz	 PLAY Deck **A** PLAY Deck **B** PLAY Deck **A** PLAY Deck **B**	1 or 2 or Speaker out	Frequency Counter	 check only 3428 3426 3430	 f_{HS1} = 6000 Hz ± 10% $f_{HS2} = f_{HS1}$ ±1% 3150 Hz ± 1% 3150 Hz ± 1%
Wow & Flutter	SBC 420 3150 Hz	PLAY Deck **A** PLAY Deck **B**		Wow & Flutter meter	check only	≤ 0,3%
Azimuth[2]	SBC 420 10 kHz	PLAY Deck **A** PLAY Deck **B**		mV-meter	Right hand screw (normal direction) Left hand screw (reverse direction) Left hand screw	max. output left=right

1) For High Speed during play connect B of 7407 to GND. Use the testplug 1708. See Figure 1.

2) For adjustment of azimuth remove the PLAY button for Deck **B** and the STOP button for Deck **A**.

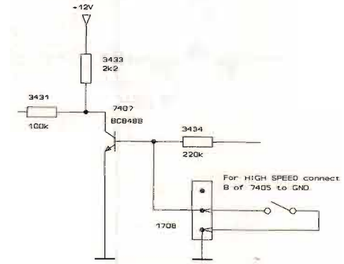


Fig. 1

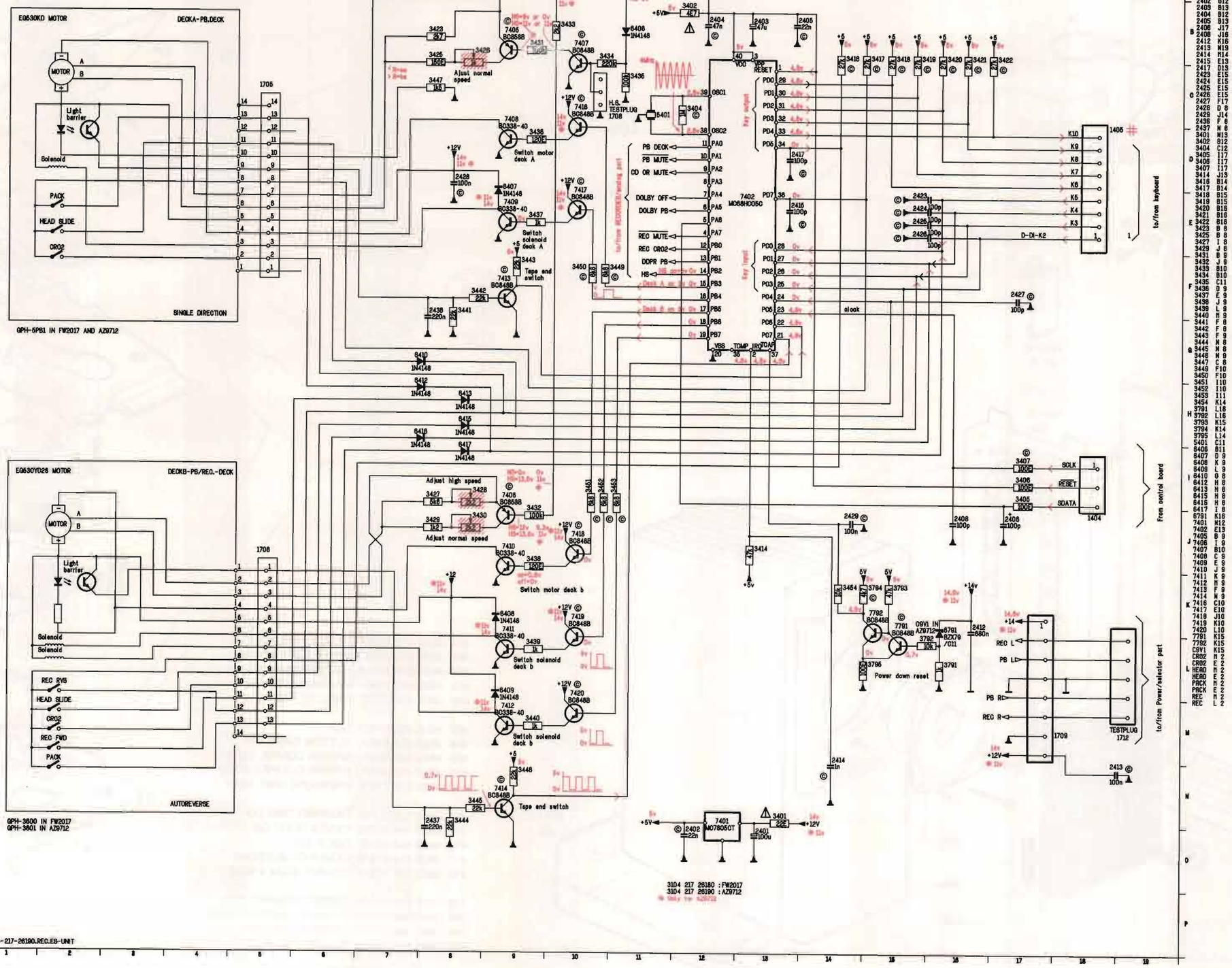
Adjustment	Source ◇	Recorder	Measure on ◇	Read on	Adjust width	Adjust to
Playback Sensitivity	Dolby reference level cassette 200 nW/m	PLAY both decks	1 for left channel 2 for right channel	V meter	Check only	775 mV ± 2 dB
Recording Sensitivity[3]	500 mV/ 315 Hz left : 3 right : 4 500 mV/ 315 Hz left : 3 right : 4	REC Deck **B** Dolby off CrO_2 Fe	5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch. 5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch.	V meter	Check only	U_{CrO2} = 2,1mV ± 2dB[4] $U_{Fe} = U_{CrO2}$ -3,5dB ± 1dB
Bias	-	REC Deck **B** CrO_2 Fe	5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch. 5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch.	V meter	3723 left 3724 right Check only	U_{CrO2} = 14,5 mV[5] U_{CrO2} = 14,5 mV $U_{Fe} = U_{CrO2}$ -3,5dB ± 1dB
Erase Oscillator	-	REC Deck **B**	Erase head	V meter Counter	Check only	CrO_2 33V ± 5V Fe 22V ± 4V f=80kHz ± 6kHz

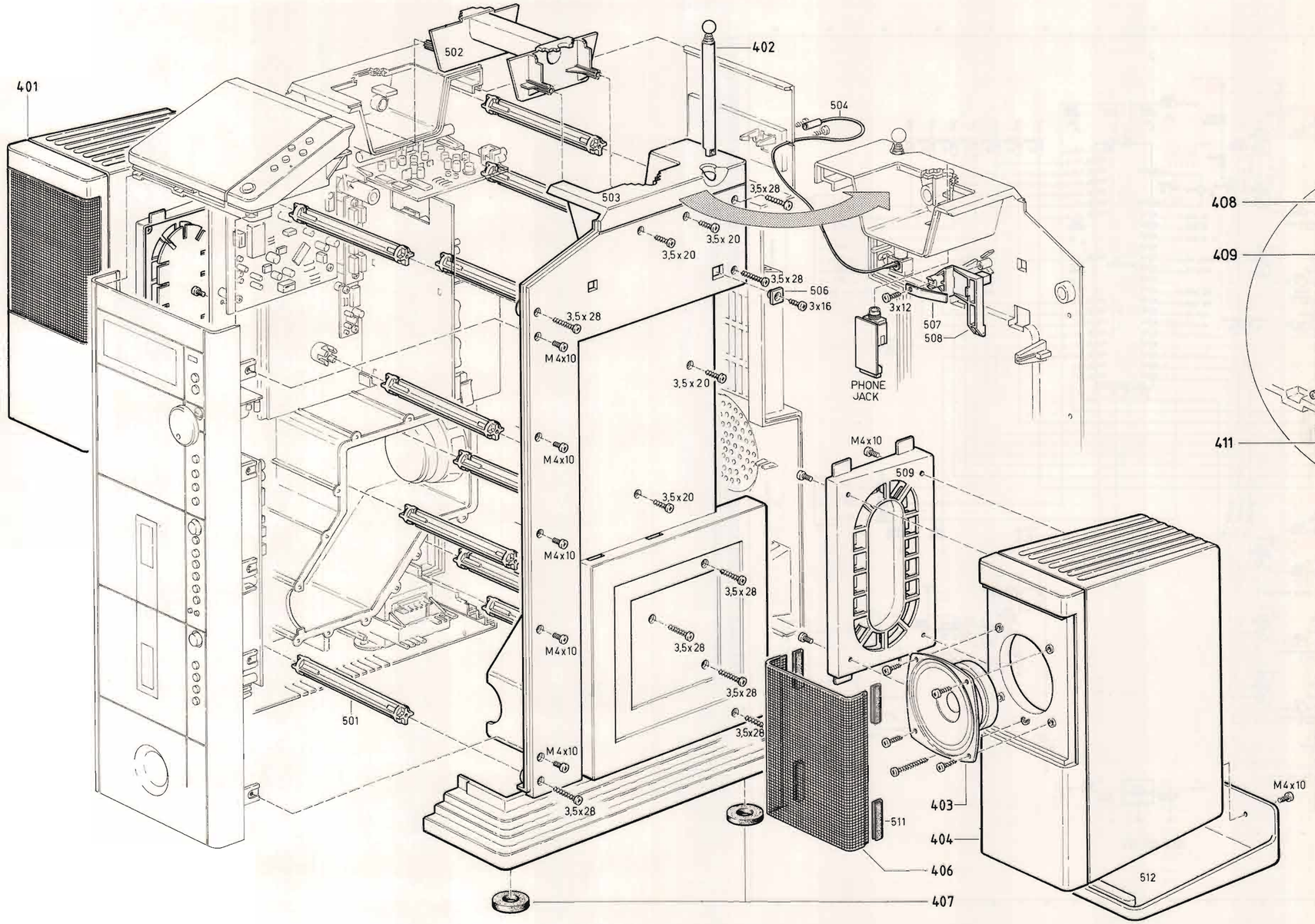
3) For measuring the Recording sensitivity use a low pass filter to attenuate the bias component.

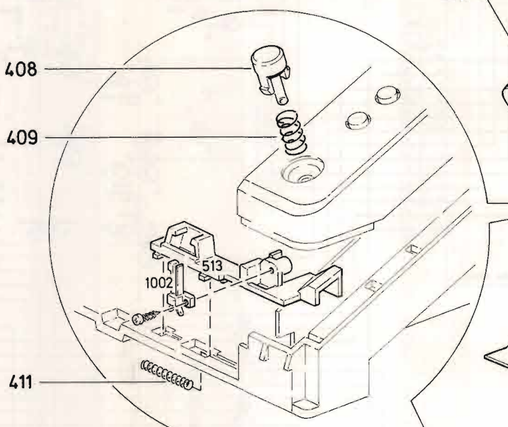
4) Make a record and check if recorded signal gives 775 mV on 1 and 2 in playback. Distortion ≤3%.

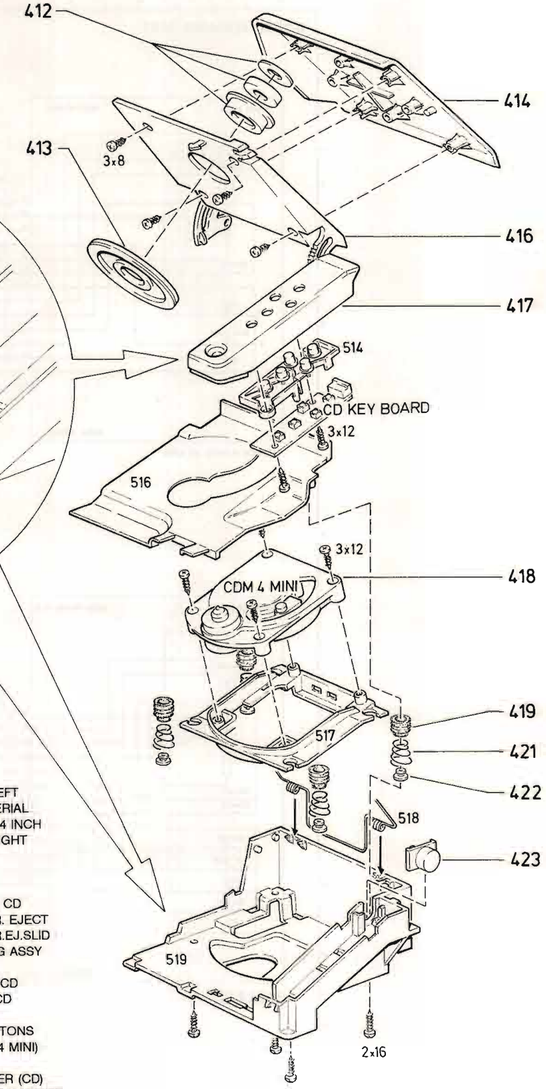
5) If sensitivity, distortion or frequency response (see specification) are wrong, then readjust bias and check again.

DIGITAL RECORDER PART

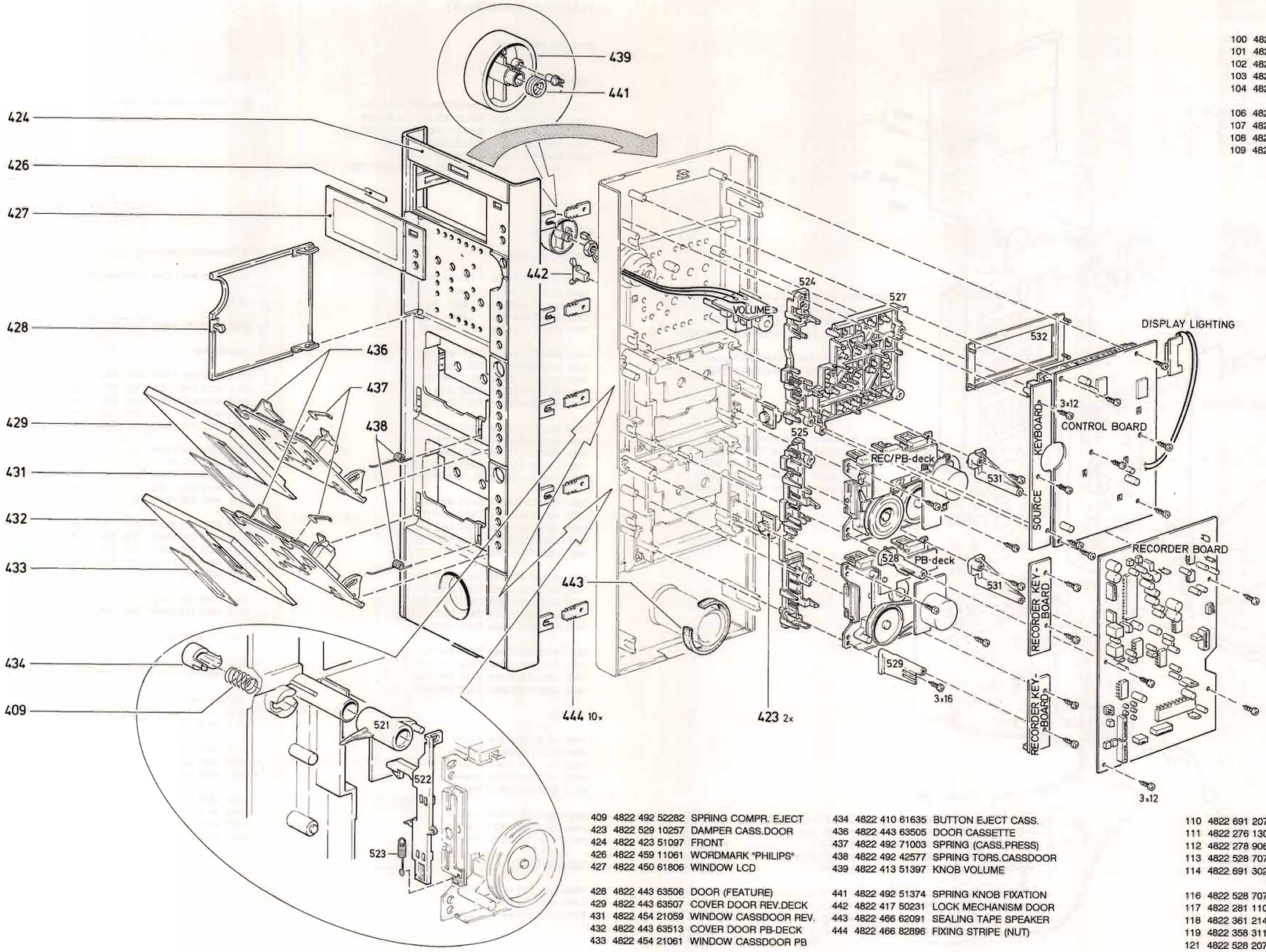








401	4822 445 10303	LS BOX ASSY LEFT
402	4822 303 30409	TELESCOPIC AERIAL
403	4822 240 50316	LOUDSPEAKER 4 INCH
404	4822 445 10304	LS BOX ASSY RIGHT
406	4822 458 20197	GRILL LS BOX
407	4822 462 41479	LEG
408	4822 410 61634	BUTTON EJECT CD
409	4822 492 52282	SPRING COMPR. EJECT
411	4822 492 52281	SPRING COMPR.EJ.SLID
412	4822 532 51871	PRESSURE RING ASSY
413	4822 535 60096	DAMPING DISC CD
414	4822 444 60798	COVER DOOR CD
416	4822 444 60797	DOOR CD
417	4822 410 61636	COVER CD-BUTTONS
418	4822 691 30229	CD-UNIT (CDM 4 MINI)
419	4822 532 61103	RUBBER DAMPER (CD)
421	4822 492 52283	SPRING COMPR.CD DAMP
422	4822 462 71567	DISTANCE HOLDER
423	4822 535 70618	DAMPER DOOR CD



409 4822 492 52282 SPRING COMPR. EJECT
423 4822 529 10257 DAMPER CASS.DOOR
424 4822 423 51097 FRONT
426 4822 459 11061 WORDMARK "PHILIPS"
427 4822 450 61806 WINDOW LCD

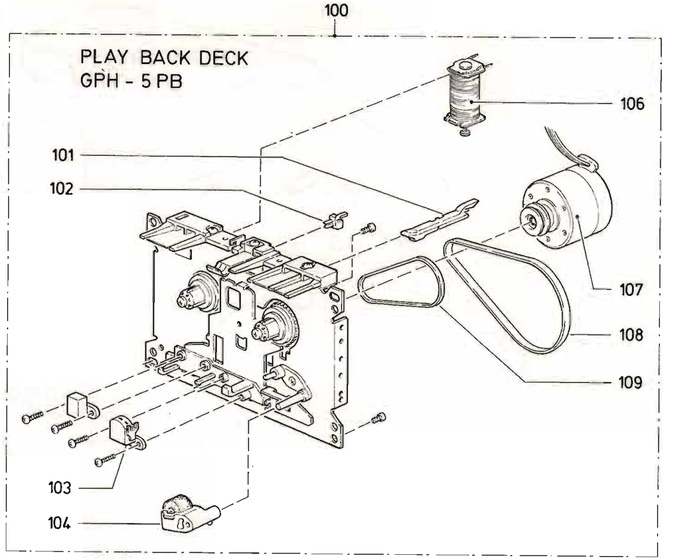
428 4822 443 63506 DOOR (FEATURE)
429 4822 443 63507 COVER DOOR REV.DECK
431 4822 454 21059 WINDOW CASSDOOR REV.
432 4822 443 63513 COVER DOOR PB-DECK
433 4822 454 21061 WINDOW CASSDOOR PB

434 4822 410 61635 BUTTON EJECT CASS.
436 4822 443 63505 DOOR CASSETTE
437 4822 492 71003 SPRING (CASS.PRESS)
438 4822 492 42577 SPRING TORS.CASSDOOR
439 4822 413 51397 KNOB VOLUME

441 4822 492 51374 SPRING KNOB FIXATION
442 4822 417 50231 LOCK MECHANISM DOOR
443 4822 466 62091 SEALING TAPE SPEAKER
444 4822 466 82896 FIXING STRIPE (NUT)

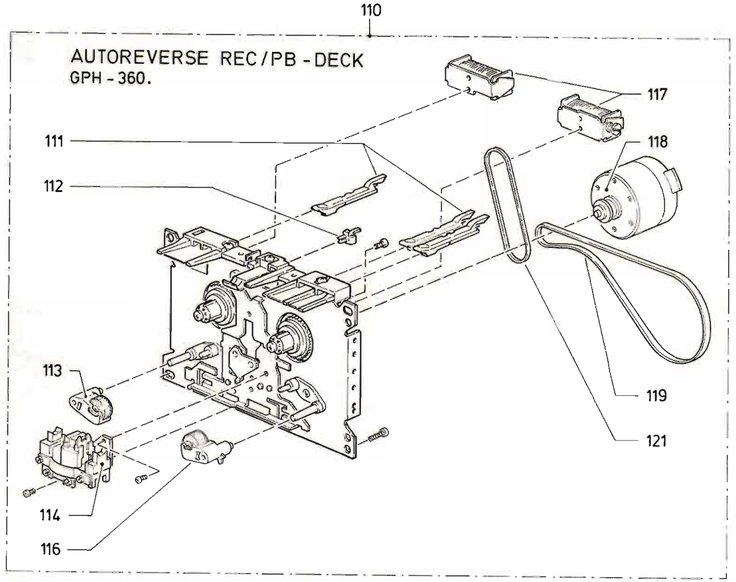
100 4822 691 20706 PB DECK (GPH5-PB1)
101 4822 276 13076 SWITCH LEAF
102 4822 278 90673 SWITCH LEAF
103 4822 249 30168 HEAD PLAY BACK
104 4822 528 70727 PINCH ROLLER ASSY

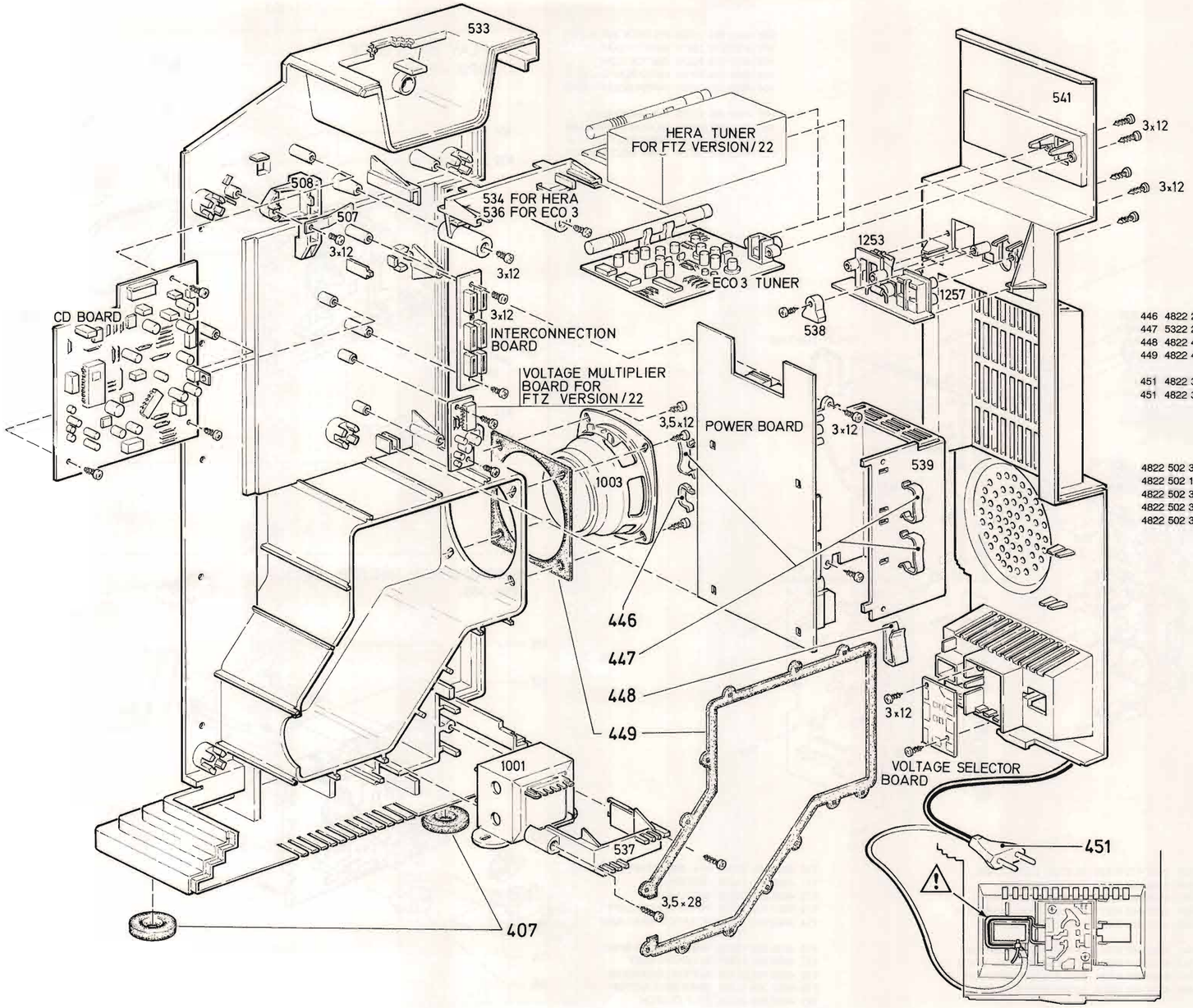
106 4822 281 11059 SOLENOID ASSY
107 4822 361 21431 MOTOR EG530KD-2B
108 4822 358 31122 DRIVE BELT MOTOR
109 4822 528 20724 DRIVE BELT CLUTCH



110 4822 691 20715 GPH-3601D TAPE DECK
111 4822 276 13076 SWITCH LEAF
112 4822 278 90673 SWITCH LEAF
113 4822 528 70729 PINCH ROLLER LEFT
114 4822 691 30245 ROTATION HEAD ASSY

116 4822 528 70728 PINCH ROLLER RIGHT
117 4822 281 11061 SOLENOID ASSY
118 4822 361 21429 MOTOR EG530YD-2B
119 4822 358 31123 DRIVE BELT MOTOR
121 4822 528 20725 BELT CLUTCH





446 4822 255 40128 CLIP TO126
447 5322 255 40397 CLIP IC
448 4822 492 70583 CLIP RECTIFIER
449 4822 466 62089 SEALING SET SPEAKER

451 4822 321 10781 MAINS CORD EU
451 4822 321 60718 MAINS CORD GB

4822 502 30676 SCREW PL.TORX 2X16
4822 502 13882 SCREW TORX M4X10
4822 502 30409 SCREW PL.TORX 3x12
4822 502 30681 SCREW PL.TORX 3,5x28
4822 502 30681 SCREW PL.TORX 3,5x28

ELECTRICAL PARTSLIST

GENERAL PARTS SET

MISCELLANEOUS

1001 4822 146 31032 TRANSFORMER MAINS EU
1001 4822 146 31033 TRANSFORMER MAINS GB
1002 4822 271 30598 SWITCH MICRO CD-DOOR
1003 4822 240 50317 LOUDSPEAKER BASS
1020 4822 303 40055 AM FRAME AERIAL
4822 218 10435 RH6920/01 IR TRANSMITTER

DIODES

6001 4822 130 82159 GL3ED8 LED

KEY - BOARD

MISCELLANEOUS

1901 4822 134 41096 LAMP 5V 75mA
1902 4822 134 41096 LAMP 5V 75mA
1903 4822 134 41096 LAMP 5V 75mA
1904 4822 134 41096 LAMP 5V 75mA
1910 4822 276 13066 TACT SWITCH

1911 4822 276 13066 TACT SWITCH
1912 4822 276 13066 TACT SWITCH
1913 4822 276 13066 TACT SWITCH
1914 4822 276 13066 TACT SWITCH
1915 4822 276 13066 TACT SWITCH

1916 4822 276 13066 TACT SWITCH
1920 4822 276 13066 TACT SWITCH
1921 4822 276 13066 TACT SWITCH
1922 4822 276 13066 TACT SWITCH
1923 4822 276 13066 TACT SWITCH

1924 4822 276 13066 TACT SWITCH
1925 4822 276 13066 TACT SWITCH
1926 4822 276 13066 TACT SWITCH
1927 4822 276 13066 TACT SWITCH
1930 4822 276 13066 TACT SWITCH

1931 4822 276 13066 TACT SWITCH
1932 4822 276 13066 TACT SWITCH
1933 4822 276 13066 TACT SWITCH
1934 4822 276 13066 TACT SWITCH
1940 4822 276 13066 TACT SWITCH

1941 4822 276 13066 TACT SWITCH
1942 4822 276 13066 TACT SWITCH
1943 4822 276 13066 TACT SWITCH
1944 4822 276 13066 TACT SWITCH

DIODES

1900 4822 130 81254 IR-EYE
6901 4822 130 30621 1N4148
6910 4822 130 30621 1N4148
6911 4822 130 30621 1N4148
6912 4822 130 30621 1N4148

6913 4822 130 30621 1N4148
6920 4822 130 30621 1N4148
6921 4822 130 30621 1N4148

TRANSISTORS

7900 4822 130 44197 BC558B
7901 4822 130 40937 BC548B
7902 4822 130 44196 BC548C

INTEGRATED CIRCUITS

7905 4822 209 10264 HEF4069UBP

COILS

5900 4822 157 53809 680µH 10%

RESISTORS

3900 4822 050 13303 33k 1% 0,4W
3901 4822 050 21003 10k 2% 0,25W
3902 4822 050 21502 1k5 1% 0,6W
3903 4822 050 13303 33k 1% 0,4W
3904 4822 116 52244 15k 5% 0,5W

3905 4822 050 13303 33k 1% 0,4W
3906 4822 116 52217 270R 5% 0,5W
3908 4822 050 22203 22k 1% 0,6W
3910 4822 050 21002 1k 1% 0,6W
3911 4822 050 13303 33k 1% 0,4W

3912 4822 050 13303 33k 1% 0,4W
3913 4822 050 13303 33k 1% 0,4W
3914 4822 050 13303 33k 1% 0,4W
3915 4822 050 21002 1k 1% 0,6W
3921 4822 050 24705 4M7 1% 0,6W

3922 4822 050 24704 470k 1% 0,6W
3925 4822 116 52234 100k 5% 0,5W

CHIP RESISTORS

3907 4822 051 10122 1k2 2% 0,25W
3920 4822 051 10101 100R 2% 0,25W

CAPACITORS

2900 4822 124 40433 47µF 20% 25V
2901 4822 122 10166 22nF 30% 16V
2905 4822 124 40196 220µF 20% 16V
2906 4822 122 10166 22nF 30% 16V
2907 4822 122 10166 22nF 30% 16V

2908 4822 122 10166 22nF 30% 16V
2909 4822 124 40433 47µF 20% 25V
2910 4822 124 40196 220µF 20% 16V
2911 4822 124 40433 47µF 20% 25V

POWER - BOARD

MISCELLANEOUS

1252	4822 265 20534	PHONE JACK
1253	4822 290 60673	LOUDSPEAKER TERMINAL
1255	4822 071 54002	FUSE T4A
1257	4822 267 31432	SOCKET ASSY CINCH
1262	4822 102 10442	POTMETER MOTOR

DIODES

6250	4822 130 82079	D3SBA20
6251	5322 130 34939	1N5401
6252	4822 130 30621	1N4148
6253	4822 130 34278	BZX79-C6V8
6254	4822 130 30841	1N4150
6255	4822 130 30621	1N4148
6256	4822 130 30621	1N4148
6257	4822 130 30621	1N4148
6258	4822 130 30621	1N4148
6259	4822 130 30621	1N4148
6260	4822 130 30621	1N4148
6261	4822 130 30621	1N4148
6262	4822 130 30621	1N4148
6263	4822 130 30621	1N4148
6264	4822 130 30621	1N4148
6265	4822 130 34174	BZX79-C4V7
6266	4822 130 30621	1N4148
6267	4822 130 30621	1N4148
6268	4822 130 30621	1N4148
6269	4822 130 30621	1N4148
6270	4822 130 30621	1N4148
6272	4822 130 30621	1N4148
6273	4822 130 30621	1N4148
6274	4822 130 30621	1N4148
6275	4822 130 30621	1N4148
6280	4822 130 34174	BZX79-C4V7

TRANSISTORS

7250	4822 130 61236	BD234
7251	4822 130 40937	BC548B
7252	5322 130 60068	BC558C
7253	4822 130 40995	BD434
7254	4822 130 40937	BC548B
7255	4822 130 44121	BC338
7256	4822 130 44121	BC338
7259	4822 130 40937	BC548B
7260	4822 130 44121	BC338
7261	4822 130 44121	BC338
7263	4822 130 44246	BC549C
7264	4822 130 44246	BC549C
7265	4822 130 40937	BC548B
7266	4822 130 40937	BC548B
7271	4822 130 40937	BC548B
7272	4822 130 40937	BC548B
7277	4822 130 40937	BC548B
7278	4822 130 40937	BC548B
7279	4822 130 40937	BC548B
7280	4822 130 44104	BC328
7281	4822 130 40937	BC548B
7282	4822 130 40937	BC548B
7283	4822 130 40937	BC548B
7284	4822 130 40937	BC548B
7285	4822 130 40937	BC548B
7286	4822 130 40937	BC548B
7287	4822 130 44197	BC558B
7290	4822 130 40937	BC548B
7291	4822 130 41344	BC337-40
7293	4822 130 41327	BC327-40
7294	4822 130 41344	BC337-40
7295	4822 130 41327	BC327-40
7296	4822 130 40937	BC548B
7297	4822 130 40937	BC548B
7299	4822 130 44196	BC548C
7300	4822 130 44197	BC558B
7303	4822 130 40937	BC548B
7304	4822 130 40937	BC548B
7307	4822 130 40937	BC548B
7308	4822 130 40937	BC548B

INTEGRATED CIRCUITS

7257	4822 209 81837	AN7168
7258	4822 209 81837	AN7168
7262	4822 209 81837	AN7168
7269	4822 130 40936	BC549B
7270	4822 130 40936	BC549B
7273	4822 130 40936	BC549B
7274	4822 130 40936	BC549B
7275	5322 209 10357	HEF4066B
7276	5322 209 10357	HEF4066B
7288	5322 209 10357	HEF4066B

COILS

5201	4822 157 62552	COIL 2,2µH
5202	4822 157 62552	COIL 2,2µH
5203	4822 157 62552	COIL 2,2µH
5205	4822 157 62255	COIL 18,5 TURNS
5206	4822 157 62255	COIL 18,5 TURNS
5207	4822 157 62255	COIL 18,5 TURNS
5208	4822 157 62255	COIL 18,5 TURNS
5209	4822 157 62552	COIL 2,2µH
5210	4822 157 62552	COIL 2,2µH
5211	4822 157 62552	COIL 2,2µH
5212	4822 157 60147	COIL 2,2µH
5213	4822 157 60147	COIL 2,2µH
5214	4822 157 60147	COIL 2,2µH
5215	4822 157 60147	COIL 2,2µH
5216	4822 157 60147	COIL 2,2µH
5217	4822 157 62552	COIL 2,2µH

RESISTORS

3250	4822 050 22203	22k	1%	0,6W
3253	4822 050 24702	4k7	1%	0,6W
3254	4822 050 21003	10k	2%	0,25W
3255	4822 050 24702	4k7	1%	0,6W
3256	4822 050 28201	820R	1%	0,6W
3257	4822 050 22803	28k	1%	MRS25
3258	4822 050 23903	39k	1%	0,6W
3262	4822 050 21002	1k	1%	0,6W
3263	4822 050 21502	1k5	1%	0,6W
3264	4822 050 21502	1k5	1%	0,6W
3267	4822 116 82366	2R2	5%	
3268	4822 116 82366	2R2	5%	
3269	4822 116 82366	2R2	5%	
3270	4822 116 82366	2R2	5%	
3271	4822 050 21502	1k5	1%	0,6W

POWER - BOARD

RESISTORS

3272	4822 050 21502	1k5	1%	0,6W
3273	4822 050 21502	1k5	1%	0,6W
3274	4822 050 22202	2k2	1%	0,6W
3275	4822 050 23302	3k3	1%	0,6W
3281	4822 116 52186	22R	5%	0,5W
3282	4822 116 52186	22R	5%	0,5W
3283	4822 050 24702	4k7	1%	0,6W
3284	4822 050 24702	4k7	1%	0,6W
3285	4822 050 21502	1k5	1%	0,6W
3286	4822 050 21002	1k	1%	0,6W
3287	4822 116 52303	8k2	5%	0,5W
3288	4822 116 52244	15k	5%	0,5W
3289	4822 116 52244	15k	5%	0,5W
3291	4822 116 52263	2k7	5%	0,5W
3292	4822 050 24702	4k7	1%	0,6W
3293	4822 116 52234	100k	5%	0,5W
3294	4822 050 28209	82R	1%	0,6W
3295	4822 116 82366	2R2	5%	
3296	4822 116 82366	2R2	5%	
3297	4822 116 52224	470R	5%	0,5W
3298	4822 116 52224	470R	5%	0,5W
3299	4822 050 24703	47k	1%	0,6W
3300	4822 050 24703	47k	1%	0,6W
3301	4822 050 24703	47k	1%	0,6W
3302	4822 050 24703	47k	1%	0,6W
3303	4822 116 52235	1M	5%	0,5W
3304	4822 116 52235	1M	5%	0,5W
3305	4822 050 13303	33k	1%	0,4W
3306	4822 050 13303	33k	1%	0,4W
3307	4822 050 21201	120R	1%	0,6W
3308	4822 116 52235	1M	5%	0,5W
3309	4822 050 23302	3k3	1%	0,6W
3310	4822 050 23302	3k3	1%	0,6W
3311	4822 050 21502	1k5	1%	0,6W
3312	4822 050 21502	1k5	1%	0,6W
3313	4822 050 21003	10k	2%	0,25W
3314	4822 050 21003	10k	2%	0,25W
3317	4822 116 52244	15k	5%	0,5W
3318	4822 116 52244	15k	5%	0,5W
3319	4822 116 52244	15k	5%	0,5W
3320	4822 116 52244	15k	5%	0,5W
3321	4822 050 21003	10k	2%	0,25W
3322	4822 050 21003	10k	2%	0,25W
3327	4822 116 52272	330k	5%	0,5W
3328	4822 116 52272	330k	5%	0,5W
3329	4822 050 22202	2k2	1%	0,6W
3330	4822 050 22202	2k2	1%	0,6W
3331	4822 050 24702	4k7	1%	0,6W
3332	4822 050 24702	4k7	1%	0,6W
3335	4822 050 13303	33k	1%	0,4W
3336	4822 050 13303	33k	1%	0,4W
3337	4822 050 22202	2k2	1%	0,6W
3338	4822 050 22202	2k2	1%	0,6W
3341	4822 050 24702	4k7	1%	0,6W
3342	4822 050 24702	4k7	1%	0,6W
3343	4822 050 21003	10k	2%	0,25W
3344	4822 050 21003	10k	2%	0,25W
3345	4822 050 24702	4k7	1%	0,6W
3346	4822 050 24702	4k7	1%	0,6W
3347	4822 050 24702	4k7	1%	0,6W
3348	4822 050 22202	2k2	1%	0,6W
3349	4822 050 24703	47k	1%	0,6W
3351	4822 050 22704	270k	1%	0,6W
3352	4822 050 22704	270k	1%	0,6W
3353	4822 050 22204	220k	1%	0,6W
3354	4822 050 22204	220k	1%	0,6W
3355	4822 116 52224	470R	5%	0,5W
3356	4822 116 52224	470R	5%	0,5W
3357	4822 116 52235	1M	5%	0,5W
3358	4822 116 52235	1M	5%	0,5W
3359	4822 050 24702	4k7	1%	0,6W
3360	4822 050 24702	4k7	1%	0,6W
3361	4822 050 21501	150R	1%	0,6W
3363	4822 050 21003	10k	2%	0,25W
3364	4822 050 21003	10k	2%	0,25W
3365	4822 050 21504	150k	1%	0,6W
3366	4822 050 21504	150k	1%	0,6W
3367	4822 050 24702	4k7	1%	0,6W
3368	4822 050 24702	4k7	1%	0,6W
3369	4822 050 24703	47k	1%	0,6W
3370	4822 050 24703	47k	1%	0,6W
3371	4822 050 24702	4k7	1%	0,6W
3372	4822 050 24702	4k7	1%	0,6W
3373	4822 050 24702	4k7	1%	0,6W
3374	4822 050 24702	4k7	1%	0,6W
3375	4822 116 52234	100k	5%	0,5W
3377	4822 050 24703	47k	1%	0,6W
3378	4822 050 24703	47k	1%	0,6W
3379	4822 116 52235	1M	5%	0,5W
3380	4822 116 52235	1M	5%	0,5W
3381	4822 116 52235	1M	5%	0,5W
3382	4822 116 52235	1M	5%	0,5W
3383	4822 050 22203	22k	1%	0,6W
3384	4822 050 22203	22k	1%	0,6W
3385	4822 052 10108	1R	5%	0,33W
3387	4822 050 21003	10k	2%	0,25W
3388	4822 050 21502	1k5	1%	0,6W
3389	4822 050 21201	120R	1%	0,6W
3390	4822 050 21201	120R	1%	0,6W
3391	4822 050 21201	120R	1%	0,6W
3392	4822 050 21201	120R	1%	0,6W
3393	4822 050 21502	1k5	1%	0,6W
3394	4822 050 21003	10k	2%	0,25W
3395	4822 050 25603	56k	1%	0,6W
3396	4822 116 52244	15k	5%	0,5W
3398	4822 050 21003	10k	2%	0,25W
3399	4822 050 26803	68k	1%	0,6W
3400	4822 050 26803	68k	1%	0,6W
3401	4822 050 25104	510k	1%	0,6W
3402	4822 050 25104	510k	1%	0,6W
3403	4822 050 21502	1k5	1%	0,6W
3404	4822 050 21502	1k5	1%	0,6W
3409	4822 050 25604	560k	1%	0,6W
3410	4822 050 25604	560k	1%	0,6W
3411	4822 050 24702	4k7	1%	0,6W
3412	4822 050 24702	4k7	1%	0,6W
3413	4822 050 24702	4k7	1%	0,6W
3414	4822 050 24702	4k7	1%	0,6W
3415	4822 050 24702	4k7	1%	0,6W
3416	4822 050 24702	4k7	1%	0,6W

POWER - BOARD

RESISTORS

3419	4822 050 24702	4k7	1%	0,6W
3420	4822 050 24702	4k7	1%	0,6W
3421	4822 116 52234	100k	5%	0,5W
3422	4822 116 52234	100k	5%	0,5W
3423	4822 050 22205	2M2	1%	0,6W
3424	4822 050 21006	10M	1%	0,6W
3425	4822 050 24702	4k7	1%	0,6W
3426	4822 050 21502	1k5	1%	0,6W
3427	4822 116 52303	8k2	5%	0,5W
3429	4822 116 52235	1M	5%	0,5W
3430	4822 116 52235	1M	5%	0,5W
3431	4822 116 52235	1M	5%	0,5W
3432	4822 116 52235	1M	5%	0,5W
3434	4822 050 24702	4k7	1%	0,6W
3435	4822 050 23909	39R	1%	0,6W
3436	4822 050 23909	39R	1%	0,6W
3439	4822 050 21002	1k	1%	0,6W
3440	4822 050 21002	1k	1%	0,6W
3925	4822 116 52234	100k	5%	0,5W

CHIP RESISTORS

3251	4822 051 10561	560R	2%	0,25W
3252	4822 051 10561	560R	2%	0,25W
3260	4822 051 10561	560R	2%	0,25W
3277	4822 051 10101	100R	2%	0,25W
3278	4822 051 10101	100R	2%	0,25W
3279	4822 051 10101	100R	2%	0,25W
3280	4822 051 10101	100R	2%	0,25W
3397	4822 051 10561	560R	2%	0,25W
3405	4822 051 10561	560R	2%	0,25W
3406	4822 051 10561	560R	2%	0,25W

CAPACITORS

2250	5322 121 42386	100nF	5%	63V
2251	5322 121 42386	100nF	5%	63V
2252	5322 121 42386	100nF	5%	63V
2253	4822 124 42334	4700µF	20%	25V
2254	4822 124 42334	4700µF	20%	25V
2255	4822 124 40433	47µF	20%	25V
2256	4822 122 10183	100pF	5%	50V
2257	4822 122 10166	22nF	30%	16V
2258	4822 124 41643	100µF	20%	16V
2259	4822 122 33857	1,5nF	10%	50V
2260	4822 122 33857	1,5nF	10%	50V
2261	4822 124 41577	4,7µF	20%	50V
2262	4822 124 41577	4,7µF	20%	50V
2263	5322 121 42386	100nF	5%	63V
2264	5322 121 42386	100nF	5%	63V
2265	4822 124 41525	100µF	20%	25V
2266	4822 124 41525	100µF	20%	25V
2267	4822 124 41577	4,7µF	20%	50V
2268	4822 124 41577	4,7µF	20%	50V
2269	4822 124 41577	4,7µF	20%	50V
2270	4822 124 41577	4,7µF	20%	50V
2271	5322 121 42386	100nF	5%	63V
2272	5322 121 42386	100nF	5%	63V
2273	5322 121 42386	100nF	5%	63V
2274	5322 121 42386	100nF	5%	63V
2275	4822 124 40433	47µF	20%	25V
2276	4822 124 40433	47µF	20%	25V
2277	4822 124 40433	47µF	20%	25V
2278	4822 124 40435	10µF	20%	50V
2279	5322 121 42386	100nF	5%	63V
2280	5322 121 42465	68nF	10%	50V
2282	4822 121 41854	150nF	10%	50V
2283	4822 124 40433	47µF	20%	25V
2284	4822 126 11323	15nF	10%	25V
2285	4822 124 41525	100µF	20%	25V
2286	4822 124 40433	47µF	20%	25V
2287	5322 121 42386	100nF	5%	63V
2288	4822 124 40433	47µF	20%	25V
2289	5322 121 42386	100nF	5%	63V
2291	4822 124 41407	0,47µF	20%	50V
2292	4822 124 41407	0,47µF	20%	50V
2293	4822 122 10177	10nF	20%	25V
2294	4822 122 10177	10nF	20%	25V
2295	4822 124 40242	1µF	20%	63V
2296	4822 124 40242	1µF	20%	63V
2297	4822 124 40435	10µF	20%	50V
2298	4822 124 40435	10µF	20%	50V
2299	4822 122 31466	330pF	10%	50V
2300	4822 122 31466	330pF	10%	50V
2301	4822 121 41854	150nF	10%	50V
2302	4822 121 41854	150nF	10%	50V
2303	4822 122 31435	470pF	10%	50V
2304	4822 122 31435	470pF	10%	50V
2305	4822 121 41856	22nF	5%	250V
2306	4822 121 41856	22nF	5%	250V
2307	5322 121 42491	47nF	5%	100V
2308	5322 121 42491	47nF	5%	100V
2309	4822 122 10174	1,5nF	10%	50V
2310	4822 122 10174	1,5nF	10%	50V
2311	4822 122 10174	1,5nF	10%	50V
2312	4822 122 10174	1,5nF	10%	50V
2313	5322 121 42386	100nF	5%	63V
2314	5322 121 42386	100nF	5%	63V
2315	4822 126 11595	470pF	10%	50V
2316	4822 126 11595	470pF	10%	50V
2317	4822 124 40242	1µF	20%	63V
2318	4822 124 40242	1µF	20%	63V
2319	4822 124 41643	100µF	20%	16V
2321	4822 124 41643	100µF	20%	16V
2322	4822 124 41678	22µF	20%	25V
2323	4822 122 10175	2,2nF	10%	50V
2324	4822 122 10175	2,2nF	10%	50V
2325	4822 126 11311	4,7nF		50V
2326	4822 126 11311	4,7nF		50V
2327	4822 124 40435	10µF	20%	50V
2328	4822 126 11313	22nF	10%	25V
2329	4822 124 41407	0,47µF	20%	50V
2330	4822 124 41577	4,7µF	20%	50V
2331	4822 121 41854	150nF	10%	50V
2332	4822 121 41854	150nF	10%	50V
2333	4822 124 40849	330µF	20%	16V
2335	4822 124 41678	22µF	20%	25V
2336	4822 124 41407	0,47µF	20%	50V
2337	4822 124 41678	22µF	20%	25V
2338	4822 124 41643	100µF	20%	16V
2339	4822 124 41577	4,7µF	20%	50V
2340	4822 124 41643	100µF	20%	16V
2341	4822 124 40433	47µF	20%	25V
2342	4822 124 42333	1500µF		
2343	4822 124 40242	1µF	20%	63V
2344	4822 126 10003	33nF	30%	50V
2345	4822 122 31435	470pF	10%	50V
2346	4822 126 11595	470pF	10%	50V
2347	4822 126 11948	22pF	5%	50V
2348	4822 126 11948	22pF	5%	50V

CHIP CAPACITORS

2349	4822 122 30135	820pF	5%	50V
2350	4822 126 10778	220pF	5%	50V
2351	4822 122 31555	120pF	5%	50V
2352	4822 122 31555	120pF	5%	50V
2353	4822 122 10181	47pF	5%	50V
2354	5322 121 42386	100nF	5%	63V
2355	4822 122 31381	680pF	10%	50V
2356	4822 122 31381	680pF	10%	50V
2357	4822 122 31381	680pF	10%	50V

CONTROL - BOARD

MISCELLANEOUS

1400	4822 130 91048	E-5456 LCD
1450	4822 276 13066	TACT SWITCH
1451	4822 276 13066	TACT SWITCH
1452	4822 276 13066	TACT SWITCH
1453	4822 276 13066	TACT SWITCH
1454	4822 276 13066	TACT SWITCH
1455	4822 276 13066	TACT SWITCH
1456	4822 276 13066	TACT SWITCH
1457	4822 276 13066	TACT SWITCH
1458	4822 276 13066	TACT SWITCH
1459	4822 276 13066	TACT SWITCH
1460	4822 276 13066	TACT SWITCH
1461	4822 276 13066	TACT SWITCH
1462	4822 276 13066	TACT SWITCH
1463	4822 276 13066	TACT SWITCH
1464	4822 276 13066	TACT SWITCH
1465	4822 276 13066	TACT SWITCH
1466	4822 276 13066	TACT SWITCH
1467	4822 276 13066	TACT SWITCH
1468	4822 276 13066	TACT SWITCH
1469	4822 276 13066	TACT SWITCH
1470	4822 276 13066	TACT SWITCH
1471	4822 276 13066	TACT SWITCH
1472	4822 276 13066	TACT SWITCH
1473	4822 276 13066	TACT SWITCH
1474	4822 276 13066	TACT SWITCH
1475	4822 276 13066	TACT SWITCH
1476	4822 276 13066	TACT SWITCH
1477	4822 276 13066	TACT SWITCH
1478	4822 276 13066	TACT SWITCH
1479	4822 276 13066	TACT SWITCH
1480	4822 276 13066	TACT SWITCH
1481	4822 276 13066	TACT SWITCH
1482	4822 276 13066	TACT SWITCH

DIODES

6400	4822 130 34197	BZX79-C12 (UAW)
6401	4822 130 34167	BZX79-C6V2
6402	5322 130 31504	BZX79-C20
6403	4822 130 30621	1N4148
6404	5322 130 31928	BAS16
6405	5322 130 31928	BAS16
6406	4822 130 30621	1N4148
6410	4822 130 30621	1N4148
6411	4822 130 30621	1N4148
6412	4822 130 30621	1N4148
6413	4822 130 30621	1N4148
6414	4822 130 30621	1N4148

TRANSISTORS

7410	4822 130 40937	BC548B
7411	4822 130 40937	BC548B
7412	4822 130 40937	BC548B
7413	4822 130 41344	BC337-40
7414	4822 130 44197	BC558B
7415	4822 130 44197	BC558B
7416	5322 130 41982	BC848 (CHIP)
7420	4822 130 40937	BC548B
7421	4822 130 44197	BC558B
7430	4822 130 44197	BC558B
7431	5322 130 41982	BC848 (CHIP)

INTEGRATED CIRCUITS

7401	4822 209 30695	TMP47C1670N-V126 (3)
7402	5322 209 11129	PCF8576T
7403	5322 209 11129	PCF8576T
7404	5322 209 63719	ST24C02

COILS

5401	4822 156 20966	47µH	10%
5402	4822 157 53906	47µH	10%
5403	4822 157 53906	47µH	10%
5405	4822 242 72566	RESONATOR 6,0MHz	
5406	4822 242 81016	CRYSTAL 32,768kHz	

RESISTORS

3403	4822 050 21502	1k5	1%	0,6W
3414	4822 050 26808	6k8	1%	0,6W
3424	4822 050 21003	10k	2%	0,25W
3427	4822 050 22201	220R	2%	0,25W
3496	4822 050 21002	1k	1%	0,6W

CHIP RESISTORS

3002	4822 051 20008	CHIP JUMPER 1206		
3005	4822 051 20008	CHIP JUMPER 1206		
3007	4822 051 20008	CHIP JUMPER 1206		
3008	4822 051 20008	CHIP JUMPER 1206		
3015	4822 051 20008	CHIP JUMPER 1206		
3016	4822 051 20008	CHIP JUMPER 1206		
3019	4822 051 20008	CHIP JUMPER 1206		
3020	4822 051 20008	CHIP JUMPER 1206		
3021	4822 051 20008	CHIP JUMPER 1206		
3022	4822 051 20008	CHIP JUMPER 1206		
3024	4822 051 20008	CHIP JUMPER 1206		
3026	4822 051 20008	CHIP JUMPER 1206		
3027	4822 051 20008	CHIP JUMPER 1206		
3028	4822 051 20008	CHIP JUMPER 1206		
3029	4822 051 20008	CHIP JUMPER 1206		
3030	4822 051 20008	CHIP JUMPER 1206		
3031	4822 051 20008	CHIP JUMPER 1206		
3032	4822 051 20008	CHIP JUMPER 1206		
3070	4822 051 20008	CHIP JUMPER 1206		
3071	4822 051 20008	CHIP JUMPER 1206		
3080	4822 051 20008	CHIP JUMPER 1206		
3400	4822 051 20103	10k	5%	0,1W
3401	4822 051 20103	10k	5%	0,1W
3404	4822 051 20479	47R	5%	0,1W
3405	4822 051 20103	10k	5%	0,1W
3406	4822 051 20103	10k	5%	0,1W
3407	4822 051 20103	10k	5%	0,1W
3408	4822 051 10102	1k	2%	0,25W
3409	4822 051 20221	220R	5%	0,1W
3410	4822 051 20473	47k	5%	0,1W

CONTROL - BOARD

CHIP RESISTORS

3411	4822 051 10102	1k	2%	0,25W
3412	4822 051 20472	4k7	5%	0,1W
3413	4822 051 20221	220R	5%	0,1W
3415	4822 051 10182	1k8	2%	0,25W
3416	4822 051 20223	22k	5%	0,1W
3417	4822 051 20104	100k	5%	0,1W
3418	4822 051 20479	47R	5%	0,1W
3419	4822 051 20472	4k7	5%	0,1W
3420	4822 051 20471	470R	5%	0,1W
3421	4822 051 20473	47k	5%	0,1W
3422	4822 051 20472	4k7	5%	0,1W
3423	4822 051 20104	100k	5%	0,1W
3425	4822 051 20472	4k7	5%	0,1W
3426	4822 051 10102	1k	2%	0,25W
3428	4822 051 20223	22k	5%	0,1W
3436	4822 051 20223	22k	5%	0,1W
3437	4822 051 20223	22k	5%	0,1W
3438	4822 051 20223	22k	5%	0,1W
3439	4822 051 20223	22k	5%	0,1W
3440	4822 051 20223	22k	5%	0,1W
3441	4822 051 20472	4k7	5%	0,1W
3442	4822 051 20223	22k	5%	0,1W
3443	4822 051 10102	1k	2%	0,25W
3444	4822 051 10102	1k	2%	0,25W
3445	4822 051 20472	4k7	5%	0,1W
3446	4822 051 20473	47k	5%	0,1W
3447	4822 051 20472	4k7	5%	0,1W
3450	4822 051 20152	1k5	5%	0,1W
3451	4822 051 20152	1k5	5%	0,1W
3452	4822 051 20104	100k	5%	0,1W
3453	4822 051 20104	100k	5%	0,1W
3454	4822 051 20104	100k	5%	0,1W
3455	4822 051 20103	10k	5%	0,1W
3456	4822 051 20473	47k	5%	0,1W
3461	4822 051 10102	1k	2%	0,25W
3462	4822 051 10102	1k	2%	0,25W
3463	4822 051 10102	1k	2%	0,25W
3464	4822 051 10102	1k	2%	0,25W
3465	4822 051 10102	1k	2%	0,25W
3466	4822 051 10102	1k	2%	0,25W
3467	4822 051 10102	1k	2%	0,25W
3468	4822 051 10102	1k	2%	0,25W
3469	4822 051 10102	1k	2%	0,25W
3470	4822 051 10102	1k	2%	0,25W
3471	4822 051 10102	1k	2%	0,25W
3472	4822 051 10102	1k	2%	0,25W
3473	4822 051 10102	1k	2%	0,25W
3474	4822 051 10102	1k	2%	0,25W
3475	4822 051 10102	1k	2%	0,25W
3476	4822 051 10102	1k	2%	0,25W
3480	4822 051 10102	1k	2%	0,25W
3481	4822 051 10102	1k	2%	0,25W
3482	4822 051 20103	10k	5%	0,1W
3483	4822 051 20103	10k	5%	0,1W
3485	4822 051 20103	10k	5%	0,1W
3486	4822 051 20472	4k7	5%	0,1W
3487	4822 051 20472	4k7	5%	0,1W
3488	4822 051 10102	1k	2%	0,25W
3489	4822 051 10102	1k	2%	0,25W
3490	4822 051 10102	1k	2%	0,25W
3491	4822 051 10102	1k	2%	0,25W
3492	4822 051 10102	1k	2%	0,25W
3493	4822 051 10102	1k	2%	0,25W
3494	4822 051 20332	3k3	5%	0,1W
3495	4822 051 20471	470R	5%	0,1W
3497	4822 051 10102	1k	2%	0,25W
3498	4822 051 20471	470R	5%	0,1W

CAPACITORS

2400	4822 124 42313	47mF	20%	5,5V
2401	4822 124 41643	100µF	20%	16V
2402	4822 124 41643	100µF	20%	16V
2405	4822 124 40433	47µF	20%	25V
2407	4822 124 40433	47µF	20%	25V
2408	4822 124 40433	47µF	20%	25V
2415	4822 126 11948	22pF	5%	50V
2416	4822 126 11947	4,7pF		50V
2417	4822 125 50355	4,2-20pF VARIABLE		
2422	4822 122 31746	1nF	5%	50V
2423	4822 122 31746	1nF	5%	50V
2424	4822 122 31746	1nF	5%	50V
2425	4822 122 31746	1nF	5%	50V
2426	4822 122 31746	1nF	5%	50V
2429	4822 124 40433	47µF	20%	25V

CHIP CAPACITORS

2403	4822 124 10965	2,2µF	20%	6,3V
2404	4822 122 31947	100nF		63V
2409	5322 124 10801	4,7µF		4V
2420	4822 122 33809	22nF	+80/-20%	
2421	4822 122 33809	22nF	+80/-20%	
2427	4822 122 32999	2,2nF	5%	
2430	4822 124 10965	2,2µF	20%	6,3V
2435	5322 122 32531	100pF	5%	50V
2436	4822 122 31784	4,7nF	10%	50V
2437	4822 122 31784	4,7nF	10%	50V
2438	4822 124 10965	2,2µF	20%	6,3V

CD - BOARD

DIODES

6820	4822 130 30621	1N4148
6840	4822 130 30621	1N4148
6841	4822 130 30621	1N4148
6842	4822 130 30621	1N4148
6890	4822 130 34278	BZX79-C6V8

TRANSISTORS

7801	4822 130 42804	BC817-25 (CHIP)
7841	4822 130 42615	BC817-40(CHIP)
7842	4822 130 42615	BC817-40(CHIP)
7843	4822 130 42615	BC817-40(CHIP)
7844	4822 130 42615	BC817-40(CHIP)
7871	5322 130 41982	BC848 (CHIP)
7872	5322 130 41982	BC848 (CHIP)
7873	5322 130 42136	BC848C(CHIP)
7874	5322 130 42136	BC848C(CHIP)
7890	4822 130 40937	BC548B
7891	4822 130 44196	BC548C
7892	5322 130 60068	BC558C

INTEGRATED CIRCUITS

7810	4822 209 73234	TDA8808T/C3
7820	4822 209 73235	TDA8809T/C2
7821	4822 209 70705	L272MH
7822	4822 209 70705	L272MH
7830	4822 209 30694	COP881C-RUJ/D (1)
7840	4822 209 62112	M50423FP
7850	4822 209 70422	MN4264-15
7855	4822 209 62584	TDA1543A/M2/S2
7860	4822 209 80891	MC7805CT
7870	4822 209 83274	NJM4560D

COILS

5820	4822 157 62552	COIL 2,2µH
5821	4822 157 62552	COIL 2,2µH
5822	4822 157 62552	COIL 2,2µH
5823	4822 157 62552	COIL 2,2µH
5824	4822 157 62552	COIL 2,2µH
5830	4822 242 73557	CERAMIC RES. 8,46MHz
5840	4822 157 50963	2,2µH
5841	4822 157 50963	2,2µH
5842	4822 242 73557	CERAMIC RES. 8,46MHz

RESISTORS

3801	4822 116 80562	10R	5%	NFR
3804	4822 100 11088	TRIMPOT 5k LINEAR		
3812	4822 116 52224	470R	5%	0,5W
3813	4822 116 80562	10R	5%	NFR
3815	4822 116 80311	4,7R	5%	NFR
3816	4822 050 21501	150R	1%	0,6W
3825	4822 050 21502	1k5	1%	0,6W
3828	4822 050 25102	5,1k	1%	0,6W
3829	4822 050 25102	5,1k	1%	0,6W
3832	4822 050 23308	3,3R	1%	0,6W
3840	4822 100 11088	TRIMPOT 5k LINEAR		
3842	4822 116 52272	330k	5%	0,5W
3849	4822 050 21002	1k	1%	0,6W
3852	4822 050 24703	47k	1%	0,6W
3853	4822 050 22202	2k2	1%	0,6W
3854	4822 050 22202	2k2	1%	0,6W
3855	4822 050 22202	2k2	1%	0,6W
3856	4822 050 21002	1k	1%	0,6W
3859	4822 050 21204	120k	1%	0,6W
3860	4822 050 22205	2M2	1%	0,6W
3861	4822 050 21002	1k	1%	0,6W
3862	4822 116 80311	4,7R	5%	NFR
3863	4822 116 80311	4,7R	5%	NFR
3865	4822 116 80311	4,7R	5%	NFR
3883	4822 116 52217	270R	5%	0,5W
3884	4822 116 52217	270R	5%	0,5W
3885	4822 116 52217	270R	5%	0,5W
3892	4822 052 11688	6R8		

CHIP RESISTORS

3802	4822 051 20101	100R	5%	0,1W
3803	4822 051 10101	100R	2%	0,25W
3805	4822 051 20104	100k	5%	0,1W
3806	4822 051 20472	4k7	5%	0,1W
3807	4822 051 20272	2k7	5%	0,1W
3808	4822 051 10102	1k	2%	0,25W
3809	4822 051 20123	12k	2%	0,1W
3810	4822 051 20243	24k	2%	0,1W
3811	4822 051 20562	5k6	5%	0,1W
3817	4822 051 20473	47k	5%	0,1W
3818	4822 051 20153	15k	5%	0,1W
3819	4822 051 20123	12k	2%	0,1W
3820	4822 051 20224	220k	5%	0,1W
3821	4822 051 20562	5k6	5%	0,1W
3822	4822 051 20224	220k	5%	0,1W
3823	4822 051 20123	12k	2%	0,1W
3824	4822 051 20112	1k1	5%	0,1W
3826	4822 051 20392	3k9	5%	0,1W
3827	4822 051 20272	2k7	5%	0,1W
3830	4822 051 20391	390R	5%	0,1W
3831	4822 051 20339	33R	5%	0,1W
3833	4822 051 20391	390R	5%	0,1W
3834	4822 051 10102	1k	2%	0,25W
3835	4822 051 10102	1k	2%	0,25W
3841	4822 051 20183	18k	5%	0,1W
3843	4822 051 20222	2k2	5%	0,1W
3844	4822 051 20823	82k	5%	0,1W
3845	4822 051 20303	30k	5%	0,1W
3846	4822 051 20303	30k	5%	0,1W
3847	4822 051 20823	82k	5%	0,1W
3848	4822 051 10102	1k	2%	0,25W
3850	4822 051 20229	22R	5%	0,1W
3851	4822 051 20229	22R	5%	0,1W
3857	4822 051 20222	2k2	5%	0,1W
3858	4822 051 20223	22k	5%	0,1W
3866	4822 051 10101	100R	2%	0,25W
3868	4822 051 20272	2k7	5%	0,1W
3869	4822 051 20272	2k7	5%	0,1W
3870	4822 051 20473	47k	5%	0,1W
3871	4822 051 20473	47k	5%	0,1W
3872	4822 051 10102	1k	2%	0,25W
3873	4822 051 10102	1k	2%	0,25W
3874	4822 051 20103	10k	5%	0,1W
3875	4822 051 20103	10k	5%	0,1W
3876	4822 051 20471	470R	5%	0,1W

CD - BOARD

CHIP RESISTORS

3877	4822 051 20471	470R	5%	0,1W
3878	4822 051 10102	1k	2%	0,25W
3879	4822 051 10102	1k	2%	0,25W
3880	4822 051 20472	4k7	5%	0,1W
3881	4822 051 20472	4k7	5%	0,1W
3886	4822 051 20331	330R	5%	0,1W
3887	4822 051 20472	4k7	5%	0,1W
3888	4822 051 20152	1k5	5%	0,1W
3889	4822 051 20103	10k	5%	0,1W
3890	4822 051 20223	22k	5%	0,1W
3891	4822 051 20223	22k	5%	0,1W
3893	4822 051 10182	1k8	2%	0,25W
3894	4822 051 10182	1k8	2%	0,25W
3895	4822 051 10182	1k8	2%	0,25W
3896	4822 051 10182	1k8	2%	0,25W
3899	4822 051 20223	22k	5%	0,1W
3900	4822 051 20105	1M	5%	0,1W

CAPACITORS

2801	4822 124 40433	47µF	20%	25V
2803	4822 121 51252	470nF	5%	63V
2807	4822 121 43526	47nF	5%	100V
2809	4822 122 31746	1nF	5%	50V
2811	4822 124 40433	47µF	20%	25V
2813	4822 124 40433	47µF	20%	25V
2816	4822 124 41643	100µF	20%	16V
2817	4822 121 43898	8,2nF	5%	250V
2818	4822 121 43898	8,2nF	5%	250V
2819	4822 122 31746	1nF	5%	50V
2824	5322 121 42661	330nF	5%	63V
2825	4822 124 40178	100µF	20%	10V
2826	5322 121 42498	680nF	5%	63V
2828	5322 121 42498	680nF	5%	63V
2832	5322 121 42498	680nF	5%	63V
2840	4822 122 10175	2,2nF	10%	50V
2844	4822 121 51356	180nF	10%	63V
2845	4822 124 40178	100µF	20%	10V
2849	4822 124 40242	1µF	20%	63V
2851	4822 124 41643	100µF	20%	16V
2860	4822 124 40433	47µF	20%	25V
2861	4822 124 41554	220µF	20%	10V
2863	4822 124 40196	220µF	20%	16V
2866	4822 124 40242	1µF	20%	63V
2867	4822 124 40242	1µF	20%	63V
2870	4822 122 31746	1nF	5%	50V
2871	4822 122 31746	1nF	5%	50V
2890	4822 124 40435	10µF	20%	50V
2891	4822 124 41643	100µF	20%	16V

CHIP CAPACITORS

2802	4822 122 31965	220pF	5%	
2804	4822 122 31727	470pF	5%	63V
2805	4822 122 32542	47nF	10%	63V
2806	4822 122 32442	10nF	10%	50V
2808	4822 122 32542	47nF	10%	63V
2810	4822 122 32927	220nF	10%	63V
2812	4822 122 31644	2,2nF	10%	63V
2814	4822 122 32542	47nF	10%	63V
2815	4822 122 32542	47nF	10%	63V
2820	4822 122 31981	33nF	10%	50V
2821	4822 122 31981	33nF	10%	50V
2822	4822 122 32927	220nF	10%	63V
2823	4822 122 32927	220nF	10%	63V
2827	4822 122 31797	22nF	10%	63V
2829	4822 122 32442	10nF	10%	50V
2830	4822 122 32442	10nF	10%	50V
2831	4822 122 32442	10nF	10%	50V
2833	4822 122 32891	68nF	10%	63V
2835	4822 122 32542	47nF	10%	63V
2837	4822 122 31727	470pF	5%	63V
2838	4822 122 31727	470pF	5%	63V
2839	4822 122 31727	470pF	5%	63V
2841	4822 122 31772	47pF		
2842	4822 122 31727	470pF	5%	63V
2843	4822 122 32442	10nF	10%	50V
2846	4822 122 31797	22nF	10%	63V
2847	4822 122 32442	10nF	10%	50V
2848	4822 122 33496	100nF	10%	63V
2850	4822 122 32442	10nF	10%	50V
2862	4822 122 32542	47nF	10%	63V
2864	5322 126 10328	1,5nF	5%	63V
2865	5322 126 10328	1,5nF	5%	63V
2868	4822 122 31981	33nF	10%	50V
2869	4822 122 31981	33nF	10%	50V
2872	4822 122 31765	100pF	5%	50V
2873	4822 122 31765	100pF	5%	50V
2898	4822 122 33496	100nF	10%	63V
2899	4822 122 31727	470pF	5%	63V

ECO 3 - TUNER-BOARD

MISCELLANEOUS

1100	4822 267 31128	SOCKET, COAX 75 OHM

DIODES

6101	4822 130 30621	1N4148
6102	5322 130 31684	BB809
6103	5322 130 31684	BB809
6104	4822 130 30621	1N4148
6104	4822 130 81673	1SV149(B)
6105	4822 130 81673	1SV149(B)
6106	4822 130 81673	1SV149(B)
6107	4822 130 34174	BZX79-C4V7

TRANSISTORS

7101	4822 130 60163	2SC1047
7102	4822 130 60163	2SC1047
7103	4822 130 44196	BC548C
7104	4822 130 44196	BC548C
7105	5322 130 60068	BC558C
7106	4822 130 60163	2SC1047
7107	4822 130 60163	2SC1047
7108	4822 130 60163	2SC1047
7109	5322 130 44779	BC338-40
7110	4822 130 44196	BC548C
7112	4822 130 60163	2SC1047
7113	4822 130 44196	BC548C
7114	4822 130 44196	BC548C
7115	4822 130 44196	BC548C
7118	4822 130 60163	2SC1047

ECO 3 - TUNER-BOARD

TRANSISTORS

7119	5322 130 41982	BC848 (CHIP)
7120	5322 130 41982	BC848 (CHIP)

INTEGRATED CIRCUITS

7116	4822 209 71331	LM7000
7117	4822 209 73851	CXA1238M

COILS

5102	4822 156 30947	RF COIL 1,5 TURNS
5103	4822 156 30947	RF COIL 1,5 TURNS
5104	4822 157 53192	0,22µH
5105	4822 156 20816	AM-IF 450kHz
5106	4822 158 60511	AM-IF FILTER
5107	4822 526 10466	FERR.ANT.ASSY MW/LW
5108	4822 156 10459	COIL VAR. AM - OSC.
5109	4822 242 73546	FM-DISC.
5110	4822 303 50034	CRYSTAL 7,2 MHz

RESISTORS

3101	4822 116 52234	100k	5%	0,5W
3104	4822 050 24702	4k7	1%	0,6W
3106	4822 050 26801	680R	1%	0,6W
3108	4822 050 24703	47k	1%	0,6W
3111	4822 050 21203	12k	1%	0,6W
3112	4822 050 21203	12k	1%	0,6W
3115	4822 100 11213	22k	30%	POT.
3117	4822 050 21002	1k	1%	0,6W
3124	4822 050 24702	4k7	1%	0,6W
3125	4822 050 24702	4k7	1%	0,6W
3126	4822 050 22202	2k2	1%	0,6W
3128	4822 050 16809	68R	1%	0,4W
3130	4822 050 15602	5k6	1%	0,4W
3132	4822 050 24702	4k7	1%	0,6W
3133	4822 050 22203	22k	1%	0,6W
3134	4822 050 22201	220R	2%	0,25W
3135	4822 116 52244	15k	5%	0,5W
3138	4822 050 14709	47R	1%	0,4W
3140	4822 050 23301	330R	2%	0,25W
3141	4822 050 21002	1k	1%	0,6W
3142	4822 050 21002	1k	1%	0,6W
3143	4822 050 21002	1k	1%	0,6W
3145	4822 050 24702	4k7	1%	0,6W
3146	4822 053 10151	150R	5%	1W
3147	4822 050 21003	10k	2%	0,25W
3150	4822 050 21002	1k	1%	0,6W
3152	4822 050 22203	22k	1%	0,6W
3157	4822 050 22202	2k2	1%	0,6W
3165	4822 050 11809	18R	1%	0,4W

CHIP RESISTORS

3100	4822 051 20229	22R	5%	0,1W
3102	4822 051 20561	560R	5%	0,1W
3103	4822 051 20562	5k6	5%	0,1W
3107	4822 051 20331	330R	5%	0,1W
3109	4822 051 20472	4k7	5%	0,1W
3110	4822 051 20222	2k2	5%	0,1W
3113	4822 051 20271	270R	5%	0,1W
3114	4822 051 20103	10k	5%	0,1W
3116	4822 051 20101	100R	5%	0,1W
3118	4822 051 20103	10k	5%	0,1W
3119	4822 051 20103	10k	5%	0,1W
3120	4822 051 20105	1M	5%	0,1W
3121	4822 051 10102	1k	2%	0,25W
3122	4822 051 20105	1M	5%	0,1W
3123	4822 051 20103	10k	5%	0,1W
3129	4822 051 20104	100k	5%	0,1W
3131	4822 051 20008	CHIP JUMPER 1206		
3136	4822 051 20472	4k7	5%	0,1W
3137	4822 051 20472	4k7	5%	0,1W
3139	4822 051 20104	100k	5%	0,1W
3144	4822 051 10102	1k	2%	0,25W
3148	4822 051 20562	5k6	5%	0,1W
3149	4822 051 20474	470k	5%	0,1W
3151	4822 051 20223	22k	5%	0,1W
3154	4822 051 20333	33k	5%	0,1W
3155	4822 051 20223	22k	5%	0,1W
3156	4822 051 20562	5k6	5%	0,1W
3158	4822 051 20331	330R	5%	0,1W
3159	4822 051 20471	470R	5%	0,1W
3160	4822 051 20153	15k	5%	0,1W
3161	4822 051 20008	CHIP JUMPER 1206		
3163	4822 051 20681	680R	5%	0,1W

CAPACITORS

2101	4822 122 10183	100pF	5%	50V
2104	4822 122 10181	47pF	5%	50V
2105	4822 125 60101	10pF VARIABLE		
2106	4822 122 10183	100pF	5%	50V
2111	4822 121 42408	220nF	5%	63V
2117	4822 124 40246	4,7uF	20%	63V
2118	4822 124 40242	1µF	20%	63V
2119	4822 124 22794	47µF	20%	10V
2121	4822 124 41987	0,22µF	20%	63V
2122	4822 124 40239	0,47µF	20%	63V
2123	4822 124 40239	0,47µF	20%	63V
2124	4822 122 10177	10nF	20%	25V
2125	4822 122 10177	10nF	20%	25V
2126	4822 124 40239	0,47µF	20%	63V
2127	4822 124 40248	10µF	20%	63V
2128	4822 124 40246	4,7uF	20%	63V
2130	4822 124 41554	220µF	20%	10V
2135	4822 125 60101	10pF VARIABLE		
2136	4822 121 51288	100pF	2%	630V
2139	4822 125 60101	10pF VARIABLE		
2140	5322 121 50999	470pF	1%	400V
2142	4822 121 43253	360pF	1%	400V
2145	4822 124 40196	220µF	20%	16V
2146	4822 124 41631	1,5µF	20%	50V
2149	4822 124 40242	1µF	20%	63V
2151	4822 122 10183	100pF	5%	50V
2152	4822 122 10181	47pF	5%	50V
2153	5322 122 32965	18pF	5%	50V
2154	5322 122 32481	15pF	5%	50V
2164	5322 122 32967	5,6pF	5%	50V

CHIP CAPACITORS

2102	5322 122 32531	100pF	5%	50V
2103	4822 122 31727	470pF	5%	63V
2107	5322 122 32268	470pF	10%	50V
2108	4822 122 31727	470pF	5%	63V
2109	5322 122 32269	6,8pF	5%	50V

ECO 3 TUNER - BOARD

CHIP CAPACITORS

2110	4822 122 31727	470pF	5%	63V
2112	4822 122 31808	150pF	10%	50V
2113	5322 122 34123	1nF	10%	50V
2114	4822 122 32927	220nF	10%	63V
2115	4822 122 32927	220nF	10%	63V
2116	4822 122 31797	22nF	10%	63V
2120	4822 122 33496	100nF	10%	63V
2129	5322 122 32268	470pF	10%	50V
2131	5322 122 34123	1nF	10%	50V
2132	5322 122 32654	22nF	10%	63V
2133	4822 122 31727	470pF	5%	63V
2134	4822 122 32927	220nF	10%	63V
2137	5322 122 32658	22pF	5%	50V
2138	4822 122 32927	220nF	10%	63V
2141	5322 122 32654	22nF	10%	63V
2143	4822 122 32482	22pF	5%	63V
2147	4822 122 33339	4,7nF	10%	50V
2148	4822 122 33339	4,7nF	10%	50V
2150	5322 122 32654	22nF	10%	63V
2155	4822 122 33806	820pF	10%	63V
2156	5322 122 32654	22nF	10%	63V
2158	4822 122 31727	470pF	5%	63V
2159	5322 122 32268	470pF	10%	50V
2160	5322 122 32268	470pF	10%	50V
2161	4822 122 32927	220nF	10%	63V
2165	4822 122 32927	220nF	10%	63V
2168	4822 122 33891	3,3nF	10%	63V
2169	5322 122 32654	22nF	10%	63V

HERA C3 TUNER - BOARD

MISCELLANEOUS

1101	4822 267 31128	SOCKET, COAX 75 OHM
1102	4822 267 40668	SOCKET FRAME AERIAL

DIODES

6101	4822 130 81643	BB804
6102	4822 130 81643	BB804
6110	4822 130 81643	BB804
6111	4822 130 81643	BB804

TRANSISTORS

7102	4822 130 60093	2SA838B
7104	4822 130 44154	BF199
7105	4822 130 40937	BC548B
7107	5322 130 44779	BC338-40
7108	5322 130 44779	BC338-40
7109	5322 130 41982	BC848 (CHIP)
7111	5322 130 41982	BC848 (CHIP)
7113	5322 130 41982	BC848 (CHIP)
7114	5322 130 41982	BC848 (CHIP)
7115	5322 130 41982	BC848 (CHIP)
7117	4822 130 41024	BF245B

INTEGRATED CIRCUITS

7103	4822 209 72744	CXA1240P
7106	4822 209 71321	AN7411
7110	4822 209 71331	LM7000

COILS

5101	4822 156 30947	RF COIL 1,5 TURNS
5104	4822 157 63288	FM OSC. COIL
5105	4822 157 63031	AM OSCILLATOR COIL
5106	4822 157 53192	0,22µH
5107	4822 242 72096	CER.FILT.KIT 10,7MHz
5108	4822 157 63029	AM IF COIL
5109	4822 242 71878	CERAM.RES. 450kHz
5110	4822 157 63033	MW AERIAL COIL
5111	4822 157 63163	FM IF COIL
5112	4822 242 72976	QUARTZ 2,7MHz
5113	4822 157 60147	COIL 2,2µH
5114	4822 158 60509	BIRDY FILTER
5115	4822 157 60147	COIL 2,2µH
5116	4822 157 63032	LW AERIAL COIL
5118	4822 152 20699	560µH

RESISTORS

3105	4822 050 23901	390R	1%	0,6W
3106	4822 116 52217	270R	5%	0,5W
3107	4822 050 24702	4k7	1%	0,6W
3111	4822 050 24703	47k	1%	0,6W
3114	4822 100 20166	10k TRIMPOT.		
3116	4822 050 21001	100R	5%	SFR25
3120	4822 050 23903	39k	1%	0,6W
3128	4822 050 24702	4k7	1%	0,6W
3131	4822 050 23301	330R	2%	0,25W
3132	4822 050 26801	680R	1%	0,6W
3134	4822 050 24702	4k7	1%	0,6W
3135	4822 050 22201	220R	2%	0,25W
3139	4822 050 24702	4k7	1%	0,6W
3141	4822 050 21003	10k	2%	0,25W
3142	4822 050 21001	100R	5%	SFR25
3143	4822 050 22203	22k	1%	0,6W
3145	4822 100 20166	10k TRIMPOT.		
3147	4822 050 21801	180R	1%	0,6W
3148	4822 050 21003	10k	2%	0,25W
3149	4822 050 21002	1k	1%	0,6W
3151	4822 050 21002	1k	1%	0,6W
3153	4822 050 21002	1k	1%	0,6W
3173	4822 050 21002	1k	1%	0,6W

CHIP RESISTORS

3101	4822 051 20473	47k	5%	0,1W
3102	4822 051 20333	33k	5%	0,1W
3103	4822 051 10472	4k7	2%	0,25W
3104	4822 051 10102	1k	2%	0,25W
3108	4822 051 10122	1k2	2%	0,25W
3109	4822 051 10101	100R	2%	0,25W
3112	4822 051 20008	CHIP JUMPER 1206		
3113	4822 051 20689	68R	5%	0,1W
3115	4822 051 10479	47R		
3117	4822 051 10103	10k	2%	0,25W
3118	4822 051 20271	270R	5%	0,1W
3121	4822 051 20104	100k	5%	0,1W
3122	4822 051 10272	2k7	2%	0,25W
3124	4822 051 10008	JUMPER		
3126	4822 051 10472	4k7	2%	0,25W
3127	4822 051 20472	4k7	5%	0,1W
3130	4822 051 20104	100k	5%	0,1W
3133	4822 051 20223	22k	5%	0,1W
3136	4822 051 10153	15k	2%	0,25W
3137	4822 051 20562	5k6	5%	0,1W

HERA C3 TUNER - BOARD

CHIP RESISTORS

3138	4822 051 20472	4k7	5%	0,1W
3140	4822 051 10102	1k	2%	0,25W
3144	4822 051 20183	18k	5%	0,1W
3146	4822 051 10821	820R	2%	0,25W
3156	4822 051 10103	10k	2%	0,25W
3157	4822 051 10008	JUMPER		
3158	4822 051 20104	100k	5%	0,1W
3160	4822 051 10008	JUMPER		
3161	4822 051 20473	47k	5%	0,1W
3162	4822 051 20479	47R	5%	0,1W
3163	4822 051 20562	5k6	5%	0,1W
3164	4822 051 20008	CHIP JUMPER 1206		
3170	4822 051 10008	JUMPER		
3174	4822 051 10102	1k	2%	0,25W
3175	4822 051 10331	330R	2%	0,25W
3176	4822 051 20271	270R	5%	0,1W
3177	4822 051 10151	150R	2%	0,25W

CAPACITORS

2100	4822 122 31555	120pF	5%	50V
2103	4822 125 50355	4,2-20pF VARIABLE		
2109	4822 125 50355	4,2-20pF VARIABLE		
2111	4822 125 50355	4,2-20pF VARIABLE		
2115	5322 122 32481	15pF	5%	50V
2119	4822 124 41554	220µF	20%	10V
2123	4822 122 31555	120pF	5%	50V
2130	4822 124 40178	100µF	20%	10V
2131	4822 124 40244	2,2µF	20%	63V
2134	5322 121 50999	470pF	1%	400V
2135	4822 121 43253	360pF	1%	400V
2136	4822 125 60101	10pF VARIABLE		
2137	4822 122 10436	6,8pF	10%	50V
2139	4822 122 10166	22nF	30%	16V
2141	4822 122 31385	22pF	5%	50V
2144	4822 124 41554	220µF	20%	10V
2146	4822 122 32096	4,7pF	10%	50V
2150	4822 121 42408	220nF	5%	63V
2151	4822 125 60101	10pF VARIABLE		
2152	4822 121 43861	56pF	1%	63V
2155	4822 124 41631	1,5µF	20%	50V
2158	4822 124 40196	220µF	20%	16V
2161	4822 124 40246	4,7uF	20%	63V
2165	4822 124 40242	1µF	20%	63V
2167	4822 124 41643	100µF	20%	16V
2168	5322 121 50999	470pF	1%	400V
2170	4822 124 40239	0,47µF	20%	63V
2172	4822 124 42129	0,22µF	20%	63V
2173	4822 124 40246	4,7uF	20%	63V
2176	4822 124 40242	1µF	20%	63V
2177	4822 124 40242	1µF	20%	63V
2180	5322 122 32965	18pF	5%	50V
2181	5322 122 32481	15pF	5%	50V
2182	4822 124 40242	1µF	20%	63V
2198	5322 122 32481	15pF	5%	50V
2205	4822 125 60102	30pF VARIABLE		
2215	5322 122 32967	5,6pF	5%	50V
2216	5322 122 32967	5,6pF	5%	50V

CHIP CAPACITORS

2104	5322 122 32658	22pF	5%	50V
2105	5322 122 32531	100pF	5%	50V
2106	4822 122 31727	470pF	5%	63V
2107	4822 122 31727	470pF	5%	63V
2112	4822 122 31727	470pF	5%	63V
2113	4822 122 31727	470pF	5%	63V
2114	4822 122 32765	820pF	10%	63V
2116	5322 122 32658	22pF	5%	50V
2117	4822 122 32139	12pF	5%	63V
2118	4822 122 31971	10pF	10%	50V
2120	5322 122 32654	22nF	10%	63V
2124	4822 122 31727	470pF	5%	63V
2125	5322 122 33538	150pF	5%	63V
2126	5322 122 33538	150pF	5%	63V
2127	5322 122 32654	22nF	10%	63V
2128	5322 122 32661	56pF	5%	50V
2129	5322 122 32654	22nF	10%	63V
2132	5322 122 34123	1nF	10%	50V
2133	4822 122 31825	27pF	10%	50V
2138	4822 122 32482	22pF	5%	63V
2140	4822 122 32927	220nF	10%	63V
2142	5322 122 32452	47pF	5%	50V
2143	5322 122 32452	47pF	5%	50V
2147	5322 122 32268	470pF	10%	50V
2148	4822 122 31727	470pF	5%	63V
2149	5322 122 33537	1,2pF	5%	63V
2153	5322 122 32654	22nF	10%	63V
2156	4822 122 33339	4,7nF	10%	50V
2157	4822 122 33339	4,7nF	10%	50V
2159	5322 122 32654	22nF	10%	63V
2160	4822 122 31727	470pF	5%	63V
2162	4822 122 32142	270pF	5%	63V
2164	4822 122 33173	560pF	10%	63V
2166	5322 122 32654	22nF	10%	63V
2171	4822 122 31727	470pF	5%	63V
2174	4822 122 33543	15nF	10%	
2175	4822 122 33543	15nF	10%	
2178	4822 122 33173	560pF	10%	63V
2179	5322 122 32654	22nF	10%	63V
2183	4822 122 32927	220nF	10%	63V
2184	4822 122 31727	470pF	5%	63V
2185	4822 122 32765	820pF	10%	63V
2186	4822 122 31727	470pF	5%	63V
2187	4822 122 31727	470pF	5%	63V
2188	4822 122 31727	470pF	5%	63V
2189	4822 122 31965	220pF	5%	
2191	5322 122 32287	4,7pF	5%	50V
2192	4822 122 32927	220nF	10%	63V
2193	4822 122 32765	820pF	10%	63V
2195	4822 122 32927	220nF	10%	63V
2199	5322 122 33538	150pF	5%	63V
2200	5322 122 31647	1nF	10%	63V
2201	4822 122 32927	220nF	10%	63V
2211	5322 122 32448	10pF	5%	50V

RECORDER - BOARD

DIODES

6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 30621	1N4148
6409	4822 130 30621	1N4148
6410	4822 130 30621	1N4148
6412	4822 130 30621	1N4148
6413	4822 130 30621	1N4148
6415	4822 130 30621	1N4148
6416	4822 130 30621	1N4148
6417	4822 130 30621	1N4148
6701	4822 130 30621	1N4148
6702	4822 130 30621	1N4148
6703	5322 130 34563	BZX79-C2V7
6704	4822 130 30621	1N4148
6705	4822 130 30621	1N4148
6791	4822 130 30862	BZX79-C9V1

TRANSISTORS

7405	5322 130 41983	BC858B(CHIP)
7406	5322 130 41983	BC858B(CHIP)
7407	5322 130 41982	BC848 (CHIP)
7408	5322 130 44779	BC338-40
7409	5322 130 44779	BC338-40
7410	5322 130 44779	BC338-40
7411	5322 130 44779	BC338-40
7412	5322 130 44779	BC338-40
7413	5322 130 41982	BC848 (CHIP)
7414	5322 130 41982	BC848 (CHIP)
7416	5322 130 41982	BC848 (CHIP)
7417	5322 130 41982	BC848 (CHIP)
7418	5322 130 41982	BC848 (CHIP)
7419	5322 130 41982	BC848 (CHIP)
7420	5322 130 41982	BC848 (CHIP)
7654	5322 130 44779	BC338-40
7655	5322 130 44779	BC338-40
7705	5322 130 41982	BC848 (CHIP)
7708	5322 130 41982	BC848 (CHIP)
7709	5322 130 41982	BC848 (CHIP)
7710	5322 130 41982	BC848 (CHIP)
7791	5322 130 41982	BC848 (CHIP)
7792	5322 130 41982	BC848 (CHIP)

INTEGRATED CIRCUITS

7401	4822 209 80891	MC7805CT
7402	4822 209 30702	MC68HC05-ZC403894P (2)
7651	4822 209 72749	CXA1100P
7652	4822 209 83274	NJM4560D
7653	4822 209 71636	TC4016BP
7656	4822 209 71636	TC4016BP
7701	4822 209 62372	TDA1602A/N3
7702	5322 209 86327	N7406N
7704	4822 209 71636	TC4016BP

COILS

5401	4822 242 72567	FRC4,0MCT
5651	4822 242 73768	MPX-FILTER
5652	4822 242 73768	MPX-FILTER
5653	4822 156 20811	COIL 36µH
5654	4822 156 20811	COIL 36µH
5701	4822 156 20811	COIL 36µH
5702	4822 156 20811	COIL 36µH
5703	4822 156 20946	OSC.COIL 100kHz

RESISTORS

3401	4822 052 10229	22R	5%	0,33W
3402	4822 116 80311	4,7R	5%	NFR
3414	4822 050 24703	47k	1%	0,6W
3423	4822 116 52263	2k7	5%	0,5W
3425	4822 050 21501	150R	1%	0,6W
3426	4822 100 11348	1k POTMETER		
3427	4822 050 15602	5k6	1%	0,4W
3428	4822 100 11391	330R POTMETER		
3430	4822 100 11391	330R POTMETER		
3431	4822 116 52234	100k	5%	0,5W
3432	4822 116 52234	100k	5%	0,5W
3433	4822 050 22202	2k2	1%	0,6W
3434	4822 050 22204	220k	1%	0,6W
3435	4822 116 52234	100k	5%	0,5W
3436	4822 050 21201	120R	1%	0,6W
3437	4822 050 21002	1k	1%	0,6W
3438	4822 050 21201	120R	1%	0,6W
3439	4822 050 21002	1k	1%	0,6W
3440	4822 050 21002	1k	1%	0,6W
3441	4822 050 22203	22k	1%	0,6W
3442	4822 050 22203	22k	1%	0,6W
3443	4822 050 22203	22k	1%	0,6W
3444	4822 050 22203	22k	1%	0,6W
3445	4822 050 22203	22k	1%	0,6W
3446	4822 050 22203	22k	1%	0,6W
3447	4822 050 21502	1k5	1%	0,6W
3454	4822 050 21003	10k	2%	0,25W
3651	4822 116 52224	470R	5%	0,5W
3652	4822 116 52224	470R	5%	0,5W
3653	4822 050 24703	47k	1%	0,6W
3654	4822 050 24703	47k	1%	0,6W
3655	4822 050 21002	1k	1%	0,6W
3656	4822 050 21002	1k	1%	0,6W
3657	4822 050 21204	120k	1%	0,6W
3658	4822 050 21204	120k	1%	0,6W
3659	4822 050 23302	3k3	1%	0,6W
3660	4822 050 23302	3k3	1%	0,6W
3661	4822 050 15602	5k6	1%	0,4W
3662	4822 050 15602	5k6	1%	0,4W
3663	4822 050 21002	1k	1%	0,6W
3664	4822 050 21002	1k	1%	0,6W
3665	4822 050 21002	1k	1%	0,6W
3666	4822 050 21002	1k	1%	0,6W
3667	4822 050 24303	43k	1%	0,6W
3668	4822 052 10229	22R	5%	0,33W
3673	4822 050 21003	10k	2%	0,25W
3674	4822 050 21003	10k	2%	0,25W
3675	4822 050 21002	1k	1%	0,6W
3676	4822 050 21002	1k	1%	0,6W
3677	4822 116 52234	100k	5%	0,5W
3678	4822 116 52234	100k	5%	0,5W
3679	4822 116 52263	2k7	5%	0,5W
3680	4822 116 52263	2k7	5%	0,5W
3681	4822 050 24703	47k	1%	0,6W
3682	4822 050 24703	47k	1%	0,6W
3683	4822 116 52244	15k	5%	0,5W
3684	4822 116 52244	15k	5%	0,5W
3685	4822 116 52303	8k2	5%	0,5W
3686	4822 116 52303	8k2	5%	0,5W
3689	4822 116 52263	2k7	5%	0,5W

RECORDER - BOARD

RESISTORS

3690	4822 116 52263	2k7	5%	0,5W
3691	4822 050 15602	5k6	1%	0,4W
3692	4822 050 15602	5k6	1%	0,4W
3697	4822 050 22003	20k	1%	0,6W
3698	4822 050 22003	20k	1%	0,6W
3699	4822 052 10229	22R	5%	0,33W
3701	4822 050 14709	47R	1%	0,4W
3702	4822 050 14709	47R	1%	0,4W
3703	4822 116 52186	22R	5%	0,5W
3704	4822 116 52186	22R	5%	0,5W
3705	4822 050 14709	47R	1%	0,4W
3706	4822 050 14709	47R	1%	0,4W
3707	4822 050 27503	75k	1%	0,6W
3708	4822 050 27503	75k	1%	0,6W
3709	4822 050 13303	33k	1%	0,4W
3710	4822 050 13303	33k	1%	0,4W
3723	4822 100 11392	47k POTMETER		
3724	4822 100 11392	47k POTMETER		
3725	4822 050 21002	1k	1%	0,6W
3726	4822 050 21002	1k	1%	0,6W
3731	4822 116 52234	100k	5%	0,5W
3732	4822 116 52234	100k	5%	0,5W
3733	4822 050 21002	1k	1%	0,6W
3734	4822 050 21002	1k	1%	0,6W
3735	4822 050 22202	2k2	1%	0,6W
3736	4822 050 21002	1k	1%	0,6W
3737	4822 116 80311	4,7R	5%	NFR
3738	4822 050 22702	2k7	1%	0,6W
3739	4822 051 10106	10M	5%	0,25W
3742	4822 052 10229	22R	5%	0,33W
3743	4822 052 10229	22R	5%	0,33W
3744	4822 116 52263	2k7	5%	0,5W
3745	4822 116 52263	2k7	5%	0,5W
3746	4822 050 21003	10k	2%	0,25W
3747	4822 050 21502	1k5	1%	0,6W
3748	4822 050 21002	1k	1%	0,6W
3749	4822 050 22203	22k	1%	0,6W
3750	4822 116 52264	27k	5%	0,5W
3753	4822 050 22202	2k2	1%	0,6W
3754	4822 050 21003	10k	2%	0,25W
3755	4822 050 23002	3k	1%	0,6W
3757	4822 050 21003	10k	2%	0,25W
3760	4822 050 21002	1k	1%	0,6W
3761	4822 050 21003	10k	2%	0,25W
3762	4822 050 21003	10k	2%	0,25W
3763	4822 050 24703	47k	1%	0,6W
3764	4822 050 21003	10k	2%	0,25W
3781	4822 116 80562	10R	5%	NFR
3791	4822 050 21002	1k	1%	0,6W
3792	4822 050 21003	10k	2%	0,25W
3793	4822 050 24703	47k	1%	0,6W
3794	4822 050 24702	4k7	1%	0,6W

CHIP RESISTORS

3404	4822 051 20105	1M	5%	0,1W
3405	4822 051 10101	100R	2%	0,25W
3406	4822 051 10101	100R	2%	0,25W
3407	4822 051 20101	100R	5%	0,1W
3416	4822 051 20273	27k	5%	0,1W
3417	4822 051 20273	27k	5%	0,1W
3418	4822 051 20273	27k	5%	0,1W
3419	4822 051 20273	27k	5%	0,1W
3420	4822 051 20273	27k	5%	0,1W
3421	4822 051 20273	27k	5%	0,1W
3422	4822 051 20273	27k	5%	0,1W
3429	4822 051 10122	1k2	2%	0,25W
3449	4822 051 20682	6k8	5%	0,1W
3450	4822 051 20682	6k8	5%	0,1W
3451	4822 051 20682	6k8	5%	0,1W
3452	4822 051 20682	6k8	5%	0,1W
3453	4822 051 20682	6k8	5%	0,1W
3687	4822 051 10182	1k8	2%	0,25W
3688	4822 051 10182	1k8	2%	0,25W
3711	4822 051 20104	100k	5%	0,1W
3712	4822 051 20104	100k	5%	0,1W
3729	4822 051 10101	100R	2%	0,25W
3730	4822 051 10101	100R	2%	0,25W
3740	4822 051 20479	47R	5%	0,1W
3756	4822 051 20123	12k	2%	0,1W
3758	4822 051 20104	100k	5%	0,1W
3759	4822 051 20103	10k	5%	0,1W
3765	4822 051 20333	33k	5%	0,1W
3766	4822 051 20273	27k	5%	0,1W
3767	4822 051 20273	27k	5%	0,1W
3768	4822 051 20333	33k	5%	0,1W
3769	4822 051 20103	10k	5%	0,1W
3770	4822 051 20103	10k	5%	0,1W
3783	4822 051 20474	470k	5%	0,1W
3784	4822 051 20474	470k	5%	0,1W
3787	4822 051 20101	100R	5%	0,1W
3788	4822 051 20273	27k	5%	0,1W
3795	4822 051 10101	100R	2%	0,25W
3796	4822 051 20272	2k7	5%	0,1W
3798	4822 051 20104	100k	5%	0,1W

CAPACITORS

2401	4822 124 41525	100µF	20%	25V
2403	4822 124 22794	47µF	20%	10V
2412	5322 121 42498	680nF	5%	63V
2414	4822 122 31746	1nF	5%	50V
2651	5322 121 42498	680nF	5%	63V
2652	5322 121 42498	680nF	5%	63V
2653	4822 124 40246	4,7uF	20%	63V
2654	4822 124 40246	4,7uF	20%	63V
2655	4822 124 40242	1µF	20%	63V
2656	4822 124 40242	1µF	20%	63V
2659	4822 121 43676	3,3nF	5%	50V
2660	4822 121 43676	3,3nF	5%	50V
2661	4822 124 40242	1µF	20%	63V
2662	4822 124 40242	1µF	20%	63V
2665	4822 124 40248	10µF	20%	63V
2666	4822 124 41525	100µF	20%	25V
2670	4822 124 41525	100µF	20%	25V
2671	4822 124 40246	4,7uF	20%	63V
2672	4822 124 40246	4,7uF	20%	63V
2677	4822 124 40433	47µF	20%	25V
2678	4822 124 40433	47µF	20%	25V
2679	4822 121 51356	180nF	10%	63V
2680	4822 121 51356	180nF	10%	63V
2681	4822 122 31555	120pF	5%	50V
2682	4822 122 31555	120pF	5%	50V

RECORDER - BOARD

CAPACITORS

2683	4822 122 10175	2,2nF	10%	50V
2684	4822 122 10175	2,2nF	10%	50V
2685	4822 122 10175	2,2nF	10%	50V
2686	4822 122 10175	2,2nF	10%	50V
2687	4822 124 40246	4,7µF	20%	63V
2688	4822 124 40246	4,7µF	20%	63V
2689	4822 122 10176	4,7nF	10%	50V
2690	4822 122 10176	4,7nF	10%	50V
2691	4822 121 43179	18nF	5%	63V
2692	4822 121 43179	18nF	5%	63V
2693	4822 122 10171	180pF	10%	50V
2694	4822 122 10171	180pF	10%	50V
2695	4822 122 10225	82pF	5%	50V
2696	4822 122 10225	82pF	5%	50V
2697	4822 122 10181	47pF	5%	50V
2698	4822 122 10181	47pF	5%	50V
2712	4822 124 40246	4,7µF	20%	63V
2713	4822 124 40246	4,7µF	20%	63V
2717	5322 122 10237	150pF	10%	
2718	5322 122 10237	150pF	10%	
2721	4822 124 40246	4,7µF	20%	63V
2722	4822 124 40246	4,7µF	20%	63V
2723	4822 122 10183	100pF	5%	50V
2724	4822 122 10183	100pF	5%	50V
2725	4822 122 10174	1,5nF	10%	50V
2726	4822 122 10174	1,5nF	10%	50V
2727	4822 122 10183	100pF	5%	50V
2728	4822 122 10183	100pF	5%	50V
2729	5322 121 42386	100nF	5%	63V
2730	5322 121 42386	100nF	5%	63V
2733	4822 124 40178	100µF	20%	10V
2734	4822 124 40178	100µF	20%	10V
2741	4822 124 22263	220µF	20%	25V
2742	4822 124 41997	470pF	20%	10V
2743	4822 124 40433	47µF	20%	25V
2745	4822 121 42783	2,2nF	1%	250V
2749	4822 124 22263	220µF	20%	25V
2750	4822 124 40248	10µF	20%	63V
2751	4822 124 41997	470pF	20%	10V
2752	4822 124 41643	100µF	20%	16V
2753	4822 124 40435	10µF	20%	50V
2754	4822 124 41678	22µF	20%	25V
2776	4822 124 40435	10µF	20%	50V

CHIP CAPACITORS

2402	4822 122 31797	22nF	10%	63V
2404	4822 122 32542	47nF	10%	63V
2405	4822 122 31797	22nF	10%	63V
2406	4822 122 31765	100pF	5%	50V
2408	4822 122 31765	100pF	5%	50V
2413	4822 122 33496	100nF	10%	63V
2415	4822 122 31765	100pF	5%	50V
2417	4822 122 31765	100pF	5%	50V
2423	4822 122 31765	100pF	5%	50V
2424	4822 122 31765	100pF	5%	50V
2425	4822 122 31765	100pF	5%	50V
2426	4822 122 31765	100pF	5%	50V
2427	4822 122 31765	100pF	5%	50V
2428	4822 122 33496	100nF	10%	63V
2429	4822 122 33496	100nF	10%	63V
2436	4822 122 32927	220nF	10%	63V
2437	4822 122 32927	220nF	10%	63V
2657	4822 122 31772	47pF		
2658	4822 122 31772	47pF		
2663	4822 122 31772	47pF		
2664	4822 122 31772	47pF		
2667	4822 122 31727	470pF	5%	63V
2668	4822 122 32542	47nF	10%	63V
2669	4822 122 31727	470pF	5%	63V
2673	4822 122 31765	100pF	5%	50V
2674	4822 122 31765	100pF	5%	50V
2675	4822 122 31765	100pF	5%	50V
2676	4822 122 31765	100pF	5%	50V
2699	4822 122 31727	470pF	5%	63V
2701	5322 122 31842	330pF	5%	63V
2702	5322 122 31842	330pF	5%	63V
2703	5322 122 31842	330pF	5%	63V
2704	5322 122 31842	330pF	5%	63V
2705	4822 122 31775	680pF	5%	50V
2706	4822 122 31775	680pF	5%	50V
2707	4822 122 31808	150pF	10%	50V
2708	4822 122 31808	150pF	10%	50V
2709	4822 122 31965	220pF	5%	
2710	4822 122 31965	220pF	5%	
2719	4822 122 31765	100pF	5%	50V
2720	4822 122 31765	100pF	5%	50V
2731	4822 122 33608	39nF	10%	63V
2732	4822 122 33608	39nF	10%	63V
2735	4822 122 31727	470pF	5%	63V
2736	4822 122 31727	470pF	5%	63V
2737	4822 122 31727	470pF	5%	63V
2738	4822 122 31727	470pF	5%	63V
2739	4822 122 32542	47nF	10%	63V
2740	4822 122 32542	47nF	10%	63V
2744	4822 122 31784	4,7nF	10%	50V
2747	4822 122 31727	470pF	5%	63V
2748	4822 122 31727	470pF	5%	63V

Service
Service
Service

Product Service Group CE Audio

Service Information

CORRECTIONS TO THE SERVICE MANUAL

* **Specification** (page 2)

Values for frequency response of **POP** mode and **JAZZ** mode are interchanged.
correct is: **POP** mode : left and right channel +6dB at 200Hz
JAZZ mode : left and right channel +6db at 7kHz

* **Connection & Controls** (page 5)

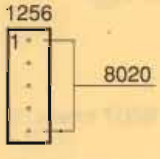
Position numbers in the description of the backpanel – picture are interchanged.
correct is: 17 instead of 15
18 instead of 17
19 instead of 18
20 instead of 19
21 instead of 20
15 frame antenna connection

* **Set Block Diagram** (page 14)

Wire connection "motor" between Control board and volume potentiometer is drawn via "interconnection board".
correct is: direct connection between Control board and volume potentiometer.

* **Wiring diagram** (page 21)

Indication point of wire 8020 on plug 1256 (Power board) is drawn on the wrong side.
correct is:



* **Recorder adjustment table** (page 68)

Footnote 2) for azimuth adjustment is wrong for AZ9712.
correct is: 2) For adjustment of azimuth remove door cover pos.429 respectively pos.432

* **Partslist Control Board** (page 85)
Code number for C2435 mentioned in the partslist is for a wrong chip size.
Correct service code number for C2435 is 4822 122 31765.

CHANGES IN COURSE OF PRODUCTION

* From week 9141 onwards screening foil glued to plastic cover pos.516 (above CD drive) was cancelled.
  Instead of this screening foil plastic cover pos. 516 is made of a conducting material.

* **Loudspeaker boxes**
  Because of reliability reasons grill of the loudspeaker boxes (pos. 406) are glued to the cabinets from production week 9139 onwards.
  Therefore it is not possible to exchange the loudspeakers of boxes produced from this date onwards.

CONTROL BOARD

* From production week 9147 onwards the adjustment of the clock oscillator was cancelled and replaced by a fixed capacitor.
  trimcap. 2417 cancelled
  C2416 changed from 4p7 to 22pF 4822 126 11948

* From production week 9140 onwards pcb with layout stage **.5** was introduced.

* To reduce P interferences following changes were implemented from pcb stage **.5** onwards:
  C2422, C2425 and coil 5404 cancelled
  R3430 and R3431 added 1k 4822 051 10102
  C2440 changed from 47pF to 100nF 4822 122 31947
  C2441 changed from 47pF to 100nF 4822 122 31947
  coil 5403 changed from 47µH to 4,7µH 4822 157 51235
  R3427 changed from 220R to 1k 4822 051 10102
  coil 5401 changed from 47µH to 4,7µH 4822 157 51235

  and got another function --> see new circuit diagram

* To avoid tendency to oscillation on +B supply voltage after change of coil 5403 and C2441 because of µP interferences (see above and new circuit diagram) both components were changed again from production week 9151 onwards.
  coil 5403 changed from 4,7µH to 0,47µH 4822 535 97287
  C2441 changed from 100nF to 330nF 4822 122 33064

* To increase base current of TS7415
  R3410 changed from 47k to 12k 4822 051 20123 from production week 9147 onwards.

RECORDER BOARD

* To avoid unwanted stops of the tape transports because of tolerance problems in the "tape end – switch off circuit" the tolerance range of two capacitors were changed from production week 9151 onwards.
  C2436 and C2437 changed to 220nF ±10% 4822 126 11492

* From production week 9207 onwards pcb with layout stage **.5** was introduced.

* To solve latch up problems of IC7701 in playback mode (one channel of deck A has a delayed start up in Pb mode) a diode was added between pin 32 and V_{ref} (pin12) and pin 33 and V_{ref} – with cathodes towards V_{ref}.
  (rework from production week 9132 onwards)
  This modification is implemented in the pcb layout from stage **.5** onwards (D6706).

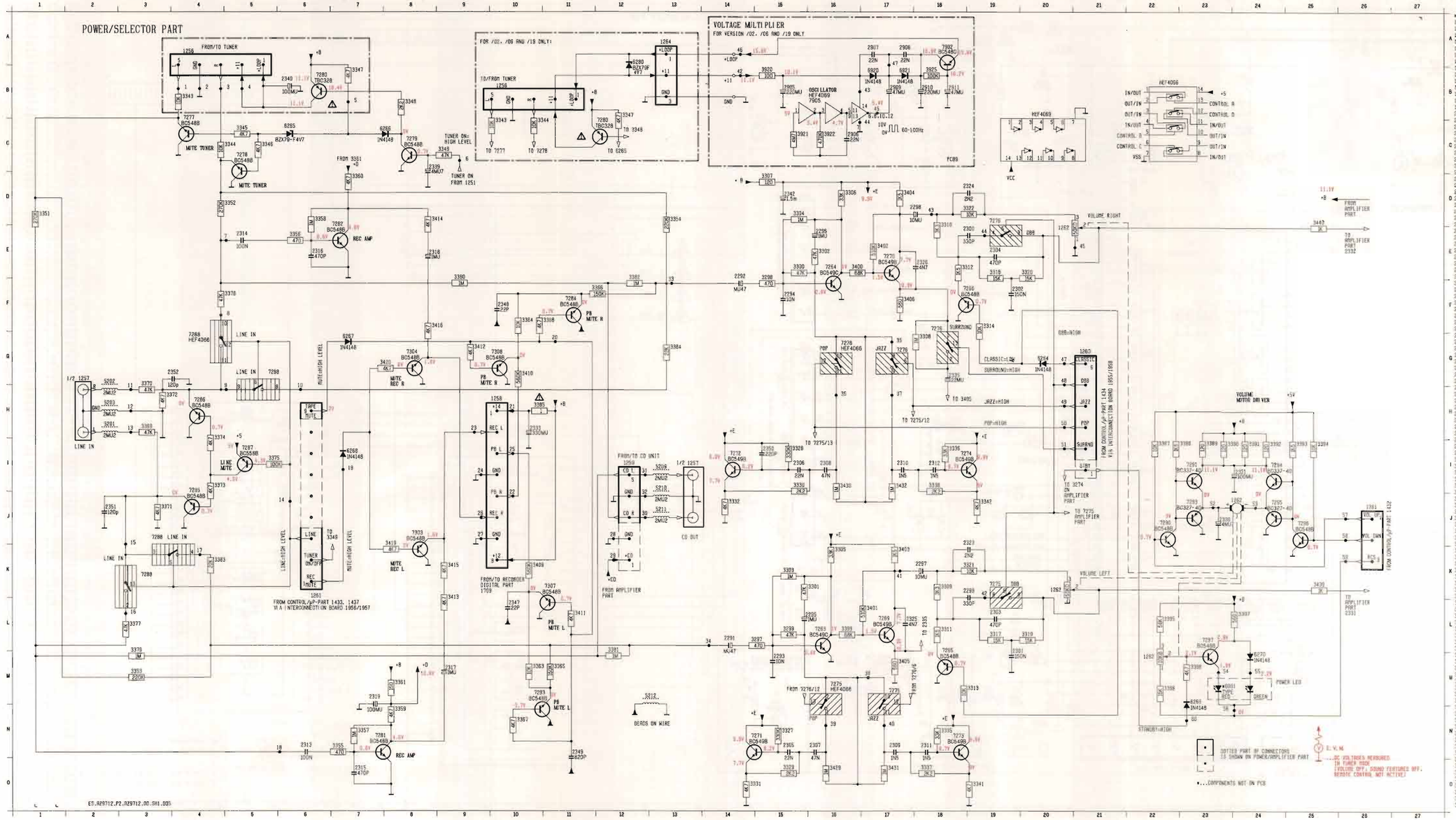
* To reduce µP interferences following changes were implemented from production week 9207 onwards:
  R3405, R3406 and R3407 changed from 100R to 1k 4822 051 10102
  R3464 1k added between pin 36 of IC7402 and pin 8 of socket 1705 (replaces bridge wire 9755)

POWER BOARD

* Because of tolerance problems volume LED shines sometimes orange instead of red in standby mode. To avoid this phenomenon R3398 was changed from production week 9143 onwards:
  R3398 changed from 10k to 4k7 4822 050 24702

* To avoid rattling sound when "pop" mode is switched on
  TS7271 and TS7272 were changed from BC548B to BC549B 4822 130 40936 from production week 9150 onwards.

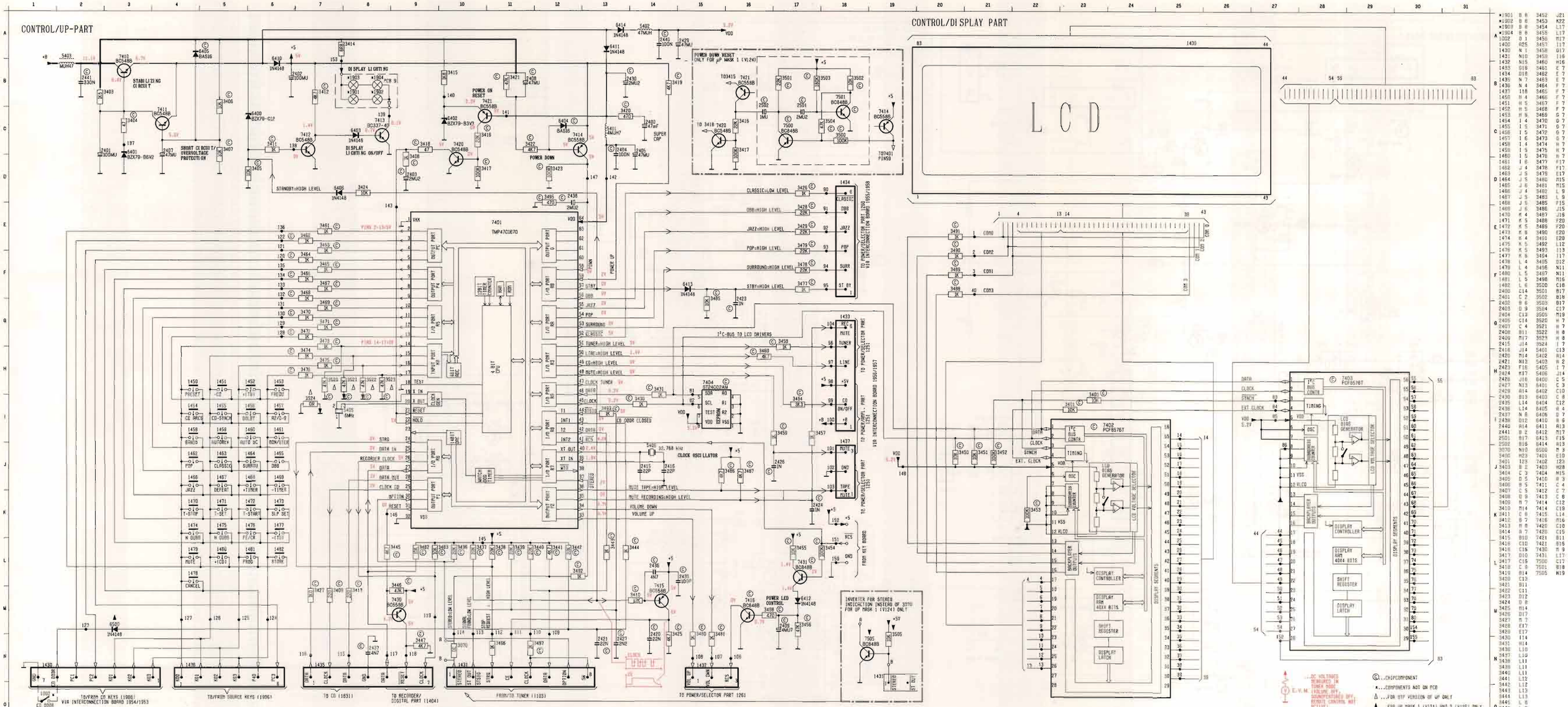
* For reasons of standardization stabilizing transistor 7250 was changed from BD234 to BD436 4822 130 60089.
  In all versions of AZ9712 also the old type BD234 can be used for service purposes.



CAD-REF: ES.AZ9712.P2.AZ9712.00.SH1.007 (92-01-14)

29 30 31

CS 48 514

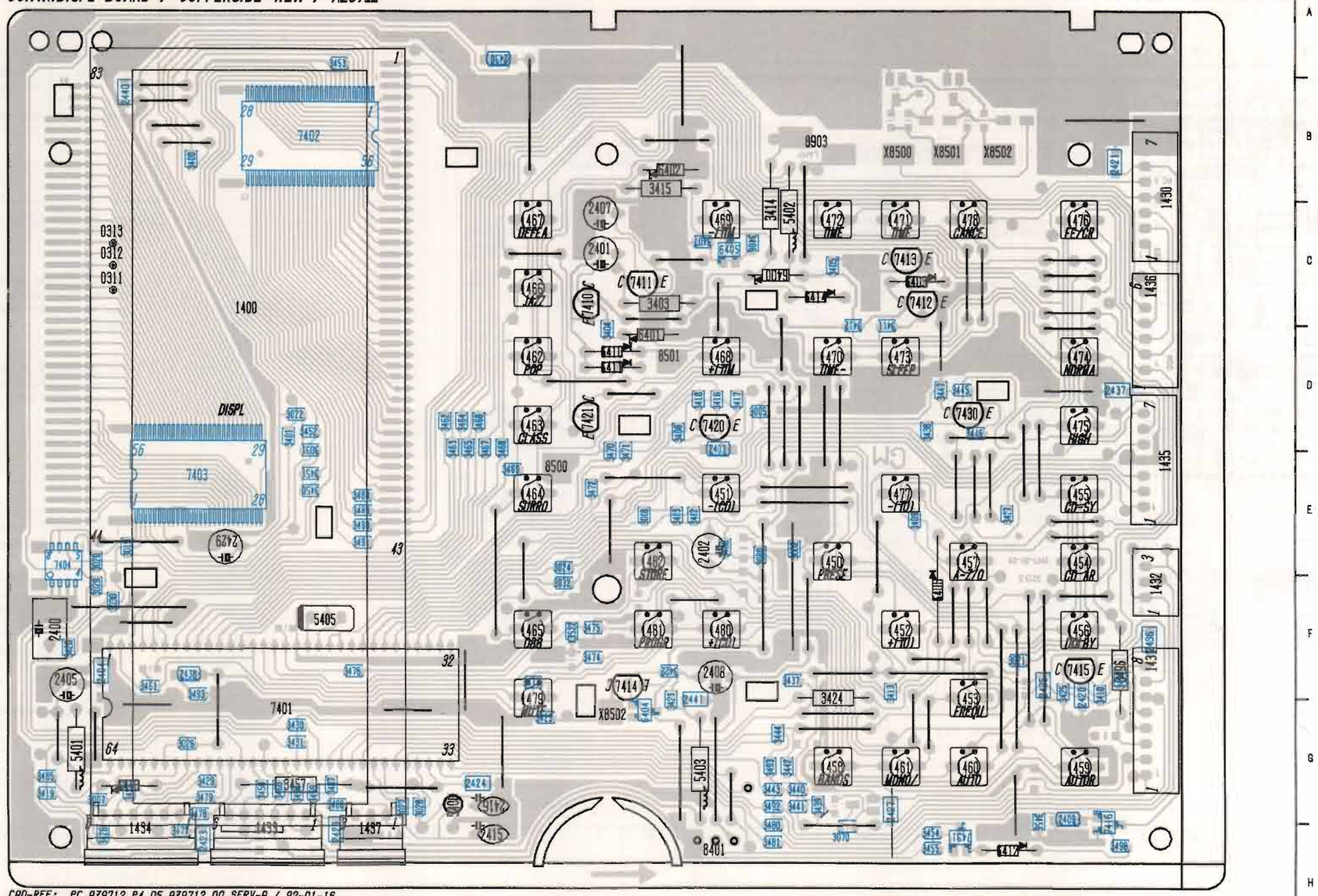

CONTROL/UP-PART
CONTROL/DISPLAY PART
LCD
7401
TMP47C1670
7402
PCF8576T
7403
PCF8576T
7404
ST24C02AM
STABILIZING CIRCUIT
SHORT CIRCUIT/OVERVOLTAGE PROTECTION
POWER ON RESET
POWER DOWN RESET
ONLY FOR µP MASK 1 (V1241)
DISPLAY LIGHTING
DISPLAY LIGHTING ON/OFF
STANDBY=HIGH LEVEL
POWER DOWN
SUPER CAP
CLASSIC=LOW LEVEL
DBB=HIGH LEVEL
JAZZ=HIGH LEVEL
POP=HIGH LEVEL
SURROUND=HIGH LEVEL
STBY=HIGH LEVEL
I²C-BUS TO LCD DRIVERS
CD DOOR CLOSED
CLOCK OSCILLATOR
MUTE TAPE=HIGH LEVEL
MUTE RECORDING=HIGH LEVEL
VOLUME DOWN
VOLUME UP
POWER LED CONTROL
INVERTER FOR STEREO INDICATION (NSTEAD OF 3370 FOR UP MASK 1 (V1241 ONLY
LCD BIAS GENERATOR
LCD VOLTAGE SELECTOR
DISPLAY CONTROLLER
DISPLAY RAM 40X4 BITS
SHIFT REGISTER
DISPLAY LATCH
TIMING
OSC
BACKPLANE OUTPUTS
DISPLAY SEGMENTS
I²C BUS CONTR.
EXT. CLOCK
SYNCH
CLOCK
DATA
TO/FROM CD KEYS (1908)
VIA INTERCONNECTION BOARD 1954/1953
TO/FROM SOURCE KEYS (1906)
TO CD (1831)
TO RECORDER/ DIGITAL PART (1404)
FROM/TO TUNER (1103)
TO POWER/SELECTOR PART 1261
TO POWER/SELECTOR PART 1250 VIA INTERCONNECTION BOARD 1955/1959
TO POWER/SELECTOR PART 1251 VIA INTERCONNECTION BOARD 1955/1957
FROM KEY BOARD
CD DOOR SWITCH
...DC VOLTAGES MEASURED IN TUNER MODE (VOLUME OFF, SOUNDFEATURES OFF, REMOTE CONTROL NOT ACTIVE)
...CHIP-COMPONENT
*...COMPONENTS NOT ON PCB
Δ ...FOR STF VERSION OF UP ONLY
▲ ...FOR UP MASK 1 (V1241) AND 2 (V1251) ONLY
▼ ...FOR UP MASK 1 (V1241) ONLY

0311 C 2 1432 F10 1450 E 8 1456 F10 1462 D 5 1468 D 7 1474 D10 1480 F 7 2405 F 2 3403 C 6 5401 G 2 6401 D 6 6412 H 9 7412 C 8 7430 D 9 X850 B 9
0312 C 2 1433 H 3 1451 E 7 1457 E 9 1463 D 5 1469 C 7 1475 D10 1481 F 6 2407 C 6 3414 C 7 5402 C 7 6402 B 6 6413 G 2 7413 C 8 8401 H 7 X850 B 9
0313 C 2 1434 H 2 1452 F 8 1458 G 8 1464 E 5 1470 D 8 1476 C10 1482 E 6 2408 F 7 3415 B 6 5403 G 7 6403 C 8 6414 C 8 7414 F 6 8500 E 6 X850 G 6
1400 C 3 1435 E10 1453 G 9 1459 G10 1465 F 5 1471 C 8 1477 E 8 2400 F 1 2415 H 5 3424 F 8 5405 F 4 6406 F 9 7401 G 3 7415 F10 8501 D 6
1430 B10 1436 C10 1454 E10 1460 G 9 1466 C 5 1472 C 8 1478 C 9 2401 C 6 2416 G 5 3457 G 3 5406 G 5 6410 D 6 7410 C 6 7420 D 7 8903 B 8
1431 F10 1437 H 4 1455 E10 1461 G 8 1467 C 5 1473 D 8 1479 G 5 2402 E 7 2429 E 3 3496 F10 6400 C 7 6411 D 6 7411 C 6 7421 D 6 X850 B 8

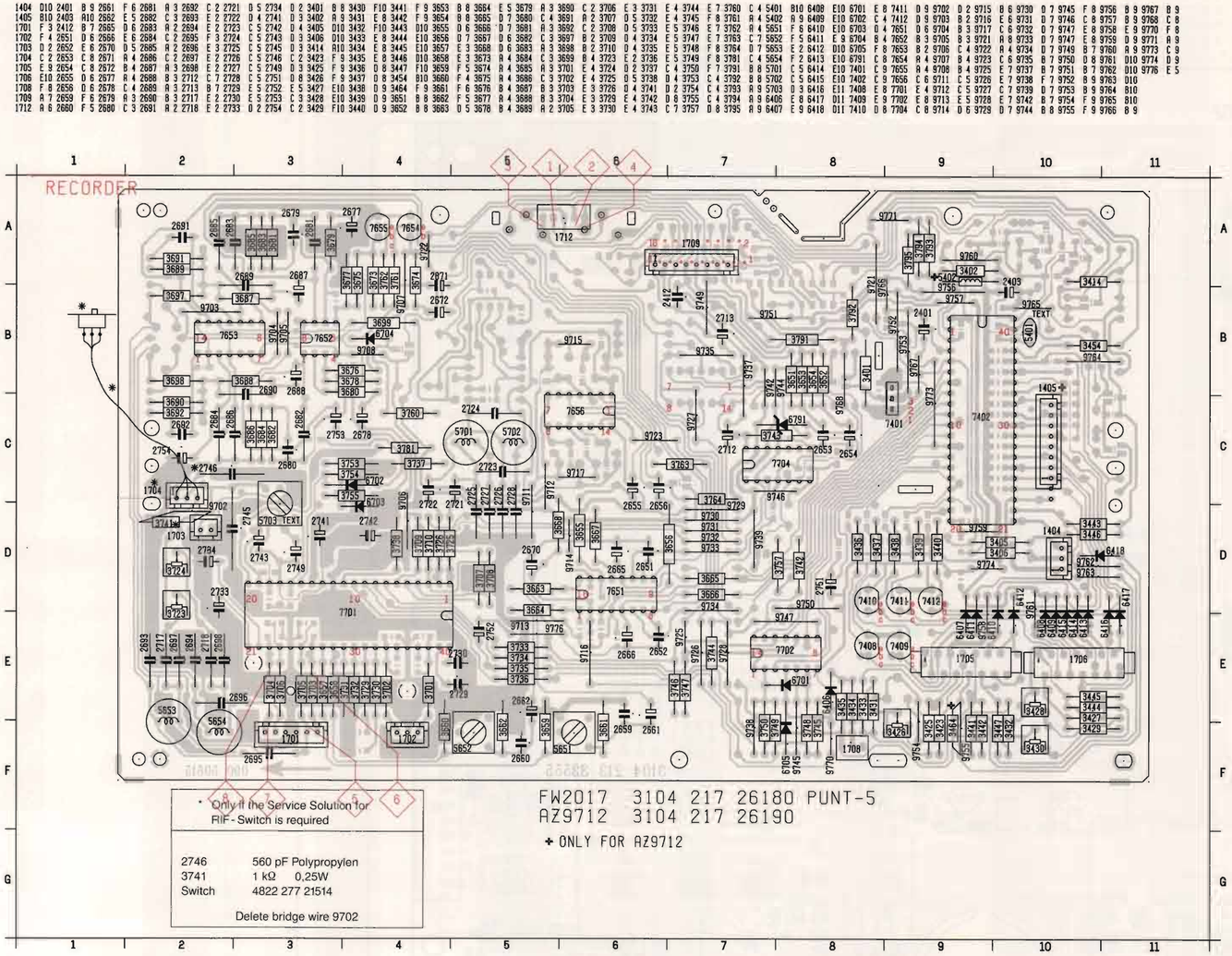
1 2 3 4 5 6 7 8 9 10 11

2403 D 7 3443 G 7
2404 F 2 3444 G 7
2409 G10 3445 D 9
2420 F10 3446 D 9
2421 B10 3447 D 9
2423 H 3 3450 E 4
2424 G 5 3451 E 4
2426 H 4 3452 D 4
2427 G 8 3453 A 4
2430 A 5 3454 H 9
2435 F 9 3455 H 9
2436 F10 3456 H 9
2437 D10 3458 G 3
2438 F 3 3459 G 4
2440 B 2 3460 G 3
2441 G 7 3461 F 2
3002 E 7 3462 D 5
3005 D 7 3463 D 5
3007 G 2 3464 D 5
3008 E 6 3465 D 5
3019 E 2 3466 D 5
3020 E 2 3467 D 5
3021 F 9 3468 D 5
3022 D 3 3469 E 5
3024 E 6 3470 E 6
3026 G 3 3471 E 6
3027 G 4 3472 E 6
3028 G 4 3473 F 5
3029 F 2 3474 F 6
3030 F 2 3475 F 6
3031 E 4 3476 F 4
3032 F 6 3477 H 2
3070 H 8 3478 G 3
3080 E 7 3479 G 3
3400 B 3 3480 H 7
3401 D 3 3481 H 7
3404 D 6 3482 E 7
3405 C 8 3483 E 6
3406 C 7 3485 G 1
3407 C 7 3486 G 4
3408 D 7 3487 G 4
3409 E 8 3488 E 4
3410 F10 3489 E 4
3411 D 8 3490 E 4
3412 D 8 3491 E 4
3413 F 8 3492 G 7
3416 D 7 3493 F 3
3417 D 7 3493 G 7
3418 D 7 3494 G 3
3419 D 1 3497 F10
3420 F 2 3498 H10
3421 G 6 6404 G 6
3422 F 6 6405 C 7
3423 G 5 7402 B 4
3425 F10 7403 E 3
3426 H 2 7404 E 2
3427 E 9 7416 H10
3428 G 2 7431 H 9
3429 G 3 X352 F 6
3430 G 3
3431 G 3
3436 E 7
3437 F 7
3438 D 9
3439 G 8
3440 G 7
3441 G 7
3442 G 7

CONTR.DISPL BOARD / COPPERSIDE VIEW / AZ9712



CAD-REF: PC.AZ9712.P4.D5.AZ9712.00.SERV-A / 92-01-16



Adjustment table Recorder part

Adjustment	Cassette	Recorder	Measure on	Read on	Adjust with	Adjust to
Motor speed High speed[1] Normal speed	SBC 420 3150 Hz	PLAY Deck **A** PLAY Deck **B** PLAY Deck **A** PLAY Deck **B**	1 or 2 or Speaker out	Frequency Counter	3424 3428 3426 3430	f_{HS1} = 6300 Hz ±1% $f_{HS2} = f_{HS1}$ ±1% 3150 Hz ± 1% 3150 Hz ± 1%
Wow & Flutter	SBC 420 3150 Hz	PLAY Deck **A** PLAY Deck **B**		Wow & Flutter meter	check only	≤ 0,3%
Azimuth[2]	SBC 420 10 kHz	PLAY Deck **A** PLAY Deck **B**		mV-meter	Right hand screw (normal direction) Left hand screw (reverse direction) Left hand screw	max. output left=right

SBC 420 4822 397 30071

1) For High Speed during play connect B of 7407 to GND. Use the testplug 1708. See Figure 1.

2) For adjustment of azimuth remove door cover pos.429 respectively pos.432

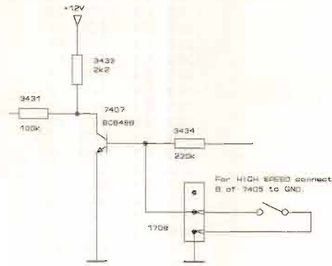
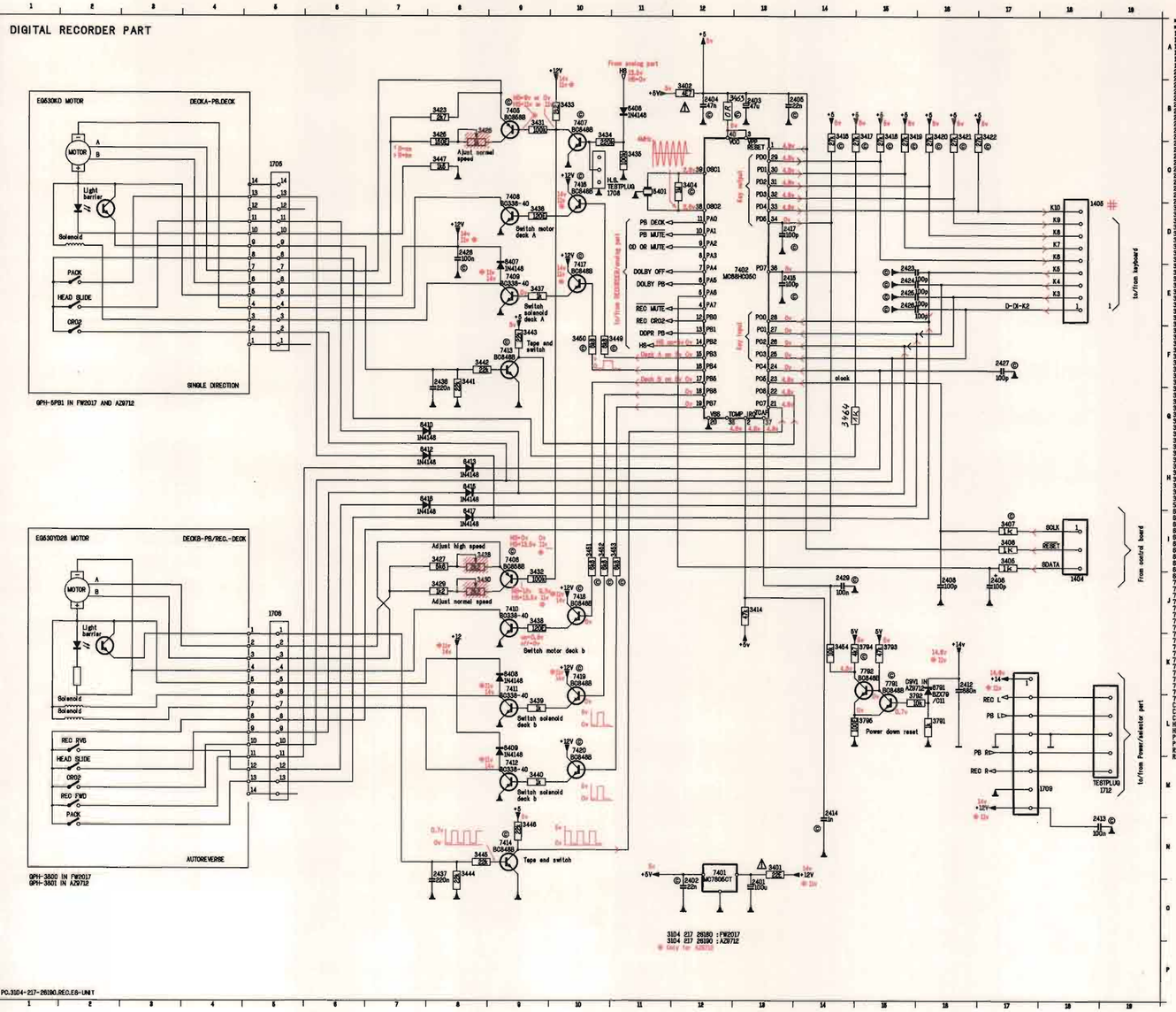
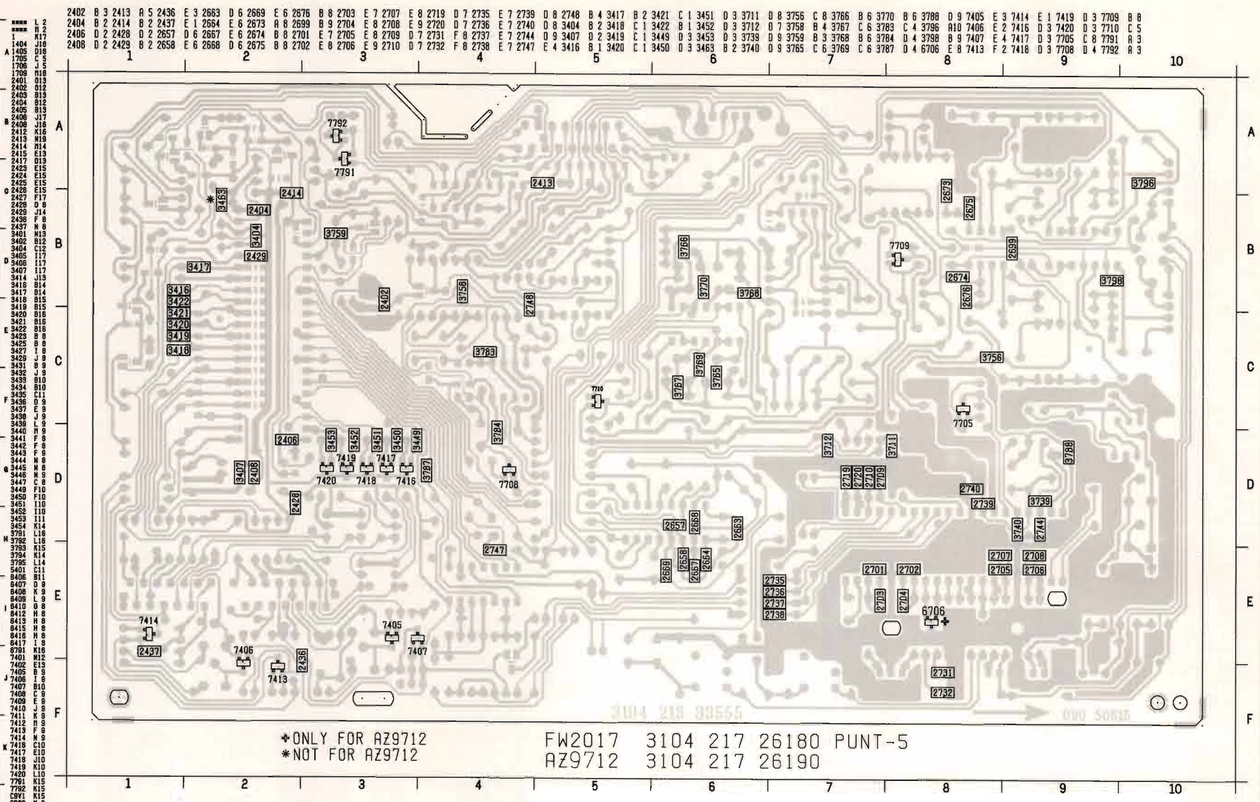


Fig. 1

Adjustment	Source	Recorder	Measure on	Read on	Adjust width	Adjust to
Playback Sensitivity	Dolby reference level cassette 200 nW/m	PLAY both decks	1 for left channel 2 for right channel	mV meter	Check only	775 mV ± 2 dB
Recording Sensitivity[3]	500 mV/ 315 Hz left : 3 right : 4 500 mV/ 315 Hz left : 3 right : 4	REC Deck **B** Dolby off CrO_2 Fe	5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch. 7 ↔ 6 for left Ch. 7 ↔ 8 for right Ch.	mV meter	Check only	U_{CrO2}= 2,1mV ±2dB[4] U_{Fe}= U_{CrO2}-3,5dB ±1dB
Bias	-	REC Deck **B** CrO_2 Fe	5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch. 5 ↔ 6 for left Ch. 7 ↔ 8 for right Ch.	mV meter	3723 left 3724 right Check only	U_{CrO2} = 14,5 mV[5] U_{CrO2} = 14,5 mV U_{Fe}= U_{CrO2}-3,5dB ±1dB
Erase Oscillator	-	REC Deck **B**	Erase head	mV meter Counter	Check only	CrO_2 33V ± 5V Fe 22V ± 4V f=80kHz ±6kHz

3) For measuring the Recording sensitivity use a low pass filter to attenuate the bias component.
4) Make a record and check if recorded signal gives 775 mV on 1 and 2 in playback. Distortion ≤3%.
5) If sensitivity, distortion or frequency response (see specification) are wrong, then readjust bias and check again.


DIGITAL RECORDER PART
EG630KD MOTOR
DECKA-PB,DECK
MOTOR
Light barrier
Solenoid
PACK
HEAD SLIDE
ORIG
SINGLE DIRECTION
GPH-5P81 IN FW2017 AND AZ9712
EG630YD28 MOTOR
DECKB-PB/REC.-DECK
REC FWD
AUTOREVERSE
GPH-3820 IN FW2017
GPH-3801 IN AZ9712
Adjust normal speed
Adjust high speed
Switch motor deck A
Switch motor deck b
Switch solenoid deck A
Switch solenoid deck b
Tape end switch
Power down reset
REC L
PB L
PB R
REC R
TESTPLUG 1712
to/from keyboard
to/from control board
to/from Power/selector part
from analog part
PC.3104-217-26190.REC.E8-UNIT


*ONLY FOR AZ9712
*NOT FOR AZ9712
FW2017 3104 217 26180 PUNT-5
AZ9712 3104 217 26190