Cassette deck 70FR900/00G/05G/17G

Service
Service
Service

Service Manual

Table of contents **page**

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

Published by Consumer Electronics Printed in The Netherlands

GB 4822 725 23011

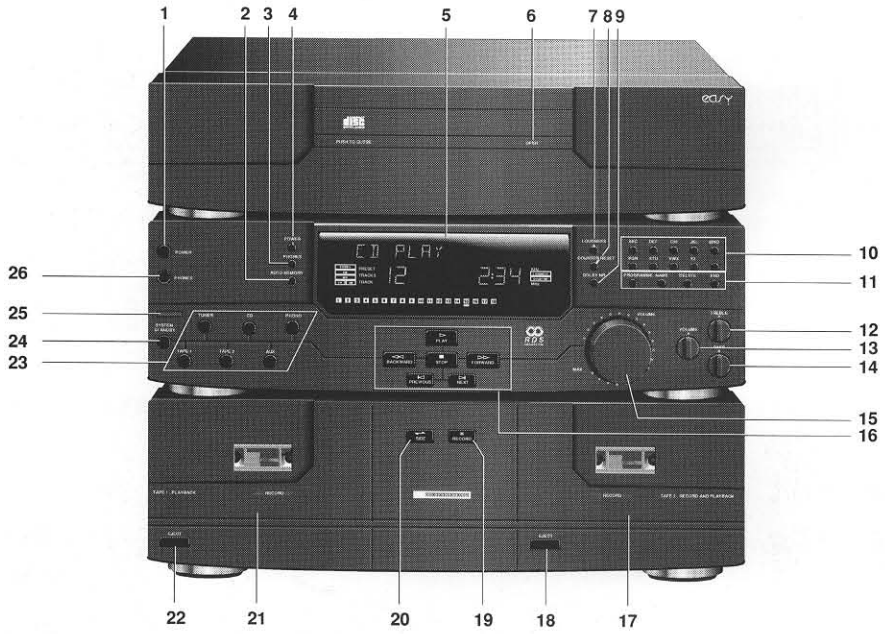
CONNE

1 POWE
2 AUTOM
stations
3 WAVEE
4 MONO
5 Display
6 OPEN
7 LOUDN
8 COUNT
cassett
9 DOLBY
10 Numbe
– selec
progr
– selec
11 Progra
– PROG
– NAM
– DELE
displa
– END
12 TREBL
13 BALAN
left and
14 BASS
15 VOLUM
during
16 Operat

These k
they co
green.

PLAY ▶
– playi
– playi
STOP ■
– stopp
◀◀ BA
– tunin
– fast t
oppo
– fast s
⏮ PR
– selec
– selec
17 Casset
directio
inserte

CONNECTIONS AND CONTROLS



1 **POWER** – switching the system on and off
2 **AUTOMEMORY** – automatic programming of tuner preset stations in the FM waveband
3 **WAVEBAND** – selecting FM, AM, MW or LW band
4 **MONO** – selecting mono reception
5 **Display**
6 **OPEN** – opening the CD compartment
7 **LOUDNESS** – increasing the treble and bass response
8 **COUNTER RESET** – returning the counter for the chosen cassette deck in the display to 0000
9 **DOLBY NR** – switching on/off the Dolby Noise Reduction system
10 **Numbered keys**
– selecting 23 preset stations and entering data when programming a station name
– selecting track numbers
11 **Programming controls:**
– **PROGRAM** – storing CD tracks in a programme
– **NAME** – entering a name for a preset radio station
– **DELETE** – deleting the programmed information shown on the display.
– **END** – finalizing the programme or name entered
12 **TREBLE** – adjusting the high tones
13 **BALANCE** – adjusting the balance of the volume between the left and right speakers
14 **BASS** – adjusting the bass tones
15 **VOLUME** – adjusting the volume; the LED of this control flashes during IR reception.
16 **Operational controls**

These keys have indicators that light up **red** when the function they control is active. The other available keys are coloured **green**. If the key is not illuminated, it has no function.

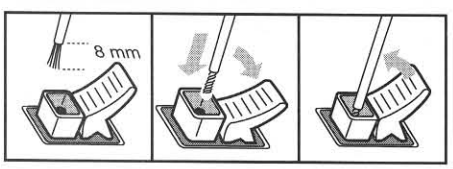
PLAY ▶
– playing/replaying a CD (or CD programme)
– playing a cassette (TAPE 1 or TAPE 2)
STOP ■
– stopping playback, recording, winding, tuning or programming
◀◀ BACKWARD , FORWARD ▶▶
– tuning forward/backward
– fast tape winding forward/backward (in the play direction or opposite to the play direction)
– fast search for a CD passage during play
|◀ PREVIOUS , NEXT ▶|
– selecting the previous or next preset station
– selecting the previous or next track on CD or cassette

17 **Cassette holder TAPE 2** – recording and playback in both directions. A green light indication appears when a cassette is inserted and the power is switched on (not in stand-by mode).
18 **EJECT** – opening the cassette holder of TAPE 2
19 **RECORD**
– starting recording
– recording a pause when the set is in the recording mode
20 **SIDE** – reversing the side of the tape that is being played or recorded. (TAPE FRONT or TAPE BACK) You can also press the button during playback. After switching on the power, the unit always automatically selects TAPE FRONT.
21 **Cassette holder TAPE 1** – playback in both directions
A green light indication appears when a cassette is inserted and the power is switched on (not in stand-by mode).
22 **EJECT** – opening the cassette holder of TAPE 1
23 **Source selectors**

These keys have indicators that light up **red** when the source is selected. The other available sources are coloured **green**.

During recording two indicators are coloured red: TAPE 2 and the source from which you are recording.
24 **STAND BY** – switching to stand-by mode
In stand-by mode the LED of this key is the only one that lights up.
25 **IR** – infrared remote control eye and light sensor
26 **PHONES** – socket for stereo headphones
• You may connect a pair of stereo headphones with 6.3 mm plug to this socket. Inserting the plug will disconnect the speakers.

A **SPEAKERS** – terminals for a pair of speakers, impedance 8 ohms (L = left, R = right).
• One of the wires of a loudspeaker cable is marked, e.g. with a colour or rib. Connect the marked wire to the red terminal, the non-marked wire to the black terminal.



B **REMOTE CONTROL IN/OUT**
• Connect this socket to the input socket of external equipment that uses the RC-5 remote control system.
In this way you can operate external sets by remote control through the sensor of the receiver.
You can control the system from another room by placing a EM 2200 'Pyramid' remote control receiver in the room and connecting it to the RC-5 input on the receiver. The 'Pyramid' will pass on signals from the remote control handset into the receiver.

C FM-ANTENNA
The FM-ANTENNA socket is used for connection to the Community or Cable Antenna System or to a roof-mounted FM aerial with an impedance of 75 ohms. If none of these are available, you may use the wire supplied for nearby stations (performance could be poor).

D LOOP ANTENNA
For AM (MW/LW) reception connect the wires to both LOOP ANTENNA terminals and position the antenna for best reception.
Note: Do ***not*** place the AM loop antenna on the unit as this unit employs a computing device which may result in noise generation.

E Flat cable – connecting the CD player to the amplifier

F CD PLAYER – socket for the CD player
Note: Switch off the set before connecting or disconnecting the cable of the CD player.
- Connect the CD player supplied to this socket by inserting the plug until it clicks firmly in place.
  This special connection also supplies power to the CD player and allows you to operate the CD player by remote control through the sensor of the receiver.
- Disconnect the CD player by pressing the snaps left and right together and pulling out the plug.

G CASSETTE DECK – socket for the cassette deck
Note: Switch off the set before connecting or disconnecting the cable of the cassette deck.
- Connect the cassette deck to this socket by inserting the plug until it clicks firmly in place.
  This special connection also supplies power to the cassette deck and allows you to operate the cassette deck by remote control through the sensor of the receiver.
- Disconnect the cassette deck by pressing the snaps left and right together and pulling out the plug.

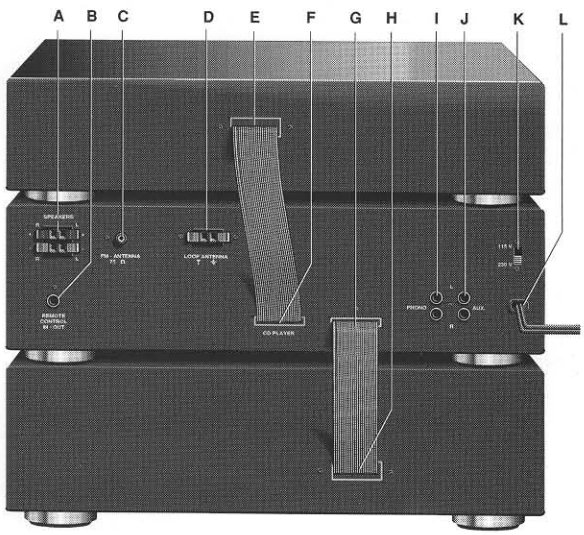
H Flat cable – connecting the cassette deck to the amplifier

I PHONO – input sockets for connecting a record player with a magneto-dynamic pick-up cartridge.

J AUX – input sockets for connecting external equipment, e.g. the sound channel of a TV or a video recorder.

K Voltage selector – selecting the mains voltage (not on all versions)

L MAINS – mains lead



SPECIFICATION

Power supply
(complete system)
AC mains (50/60 Hz)
European versions : 220 V (/05: 240 V)
Overseas versions : 110 - 120/220 - 240 V, switchable
Low-voltage outlet (12 V DC) : for supply of cassette deck and player

FM section
Wave range : 87.5 - 108 MHz
Sensitivity at 75 ohm
mono, 26 dB S/N : 1.3 µV at 75 kHz deviation
stereo, 46 dB S/N : 25 µV at 75 kHz deviation
Selectivity : 60 dB for 300 kHz off resonance
THD : 0.3 %
Frequency response : 30 - 15,000 Hz + 0.5 - 2 dB
S/N ratio (mono/stereo) : 74 dB/68 dB
Stereo seperation (1kHz) : 40 dB
Image rejection : 75 dB
IF suppression : 80 dB
Aerial input : 75 ohm coax

AM section
Wave ranges : LW 153 - 281 kHz
MW 531 - 1602 kHz

Amplifier
Output power : 100 W at 8 ohm, 1 kHz, D ≦ 10 %, ± 1 dB
70 W at 8 ohm, 1 kHz, D ≦ 1 %
Distortion
THD : 0.09 % at 57 W for 1 kHz, 8 ohm
Power bandwidth (D ≦ 1 %) : 10 - 30,000 Hz (at - 3 dB)
Frequency response
linear inputs : 20 - 20,000 Hz, ± 1.5 dB
equalized inputs : 20 - 20,000 Hz, ± 2 dB
S/N ratio : 80 dB weighted
Stereo separation : 60 dB at 1 kHz

Controls
Bass : + 10 to - 10 dB at 80 Hz
Treble : + 10 to - 10 dB at 10 kHz
Loudness : + 8 dB at 125 Hz, + 4.5 dB at 6.3 kHz
Balance control : 0 - 45 dB

Inputs with sensitivity for rated output
Phono MD : 2.5 mV at 47 kohm
Aux : 200 mV at 47 kohm

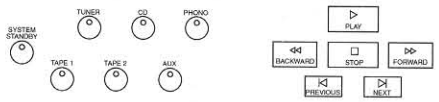
Outputs
2 loudspeakers : 8 ohm
Headphone : 8 - 1000 ohm

TEST MODE

The Test Mode is started by pressing the PROGRAMME, DELETE buttons simultaneously while switching on.

Warning! This Test Mode cancels all data stored in the EEPROM.

Immediately after switching on, all LEDs (except the LED in the volume control) light up red for approx. 2 seconds.



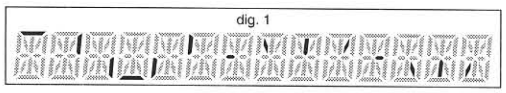
After another 2 seconds approximately, the individual display fields and LEDs are activated in a rhythm of 0.5 s.

Sequence of steps:

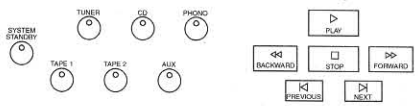
Steps 1-4

LEDs not active!

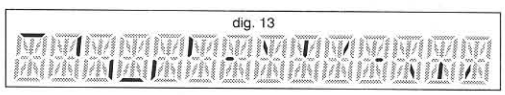
Steps 5-18



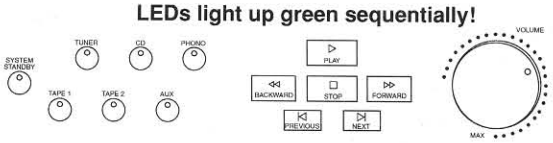
LEDs light up red sequentially!



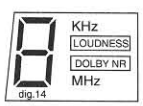
Steps 19-32



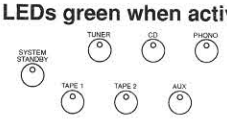
LEDs light up green sequentially!



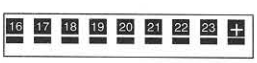
Step 33



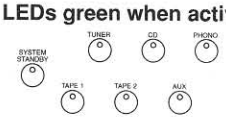
LEDs green when active!



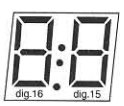
Step 34



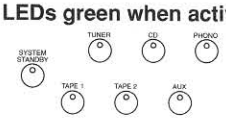
LEDs green when active!



Step 35

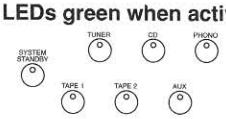


LEDs green when active!



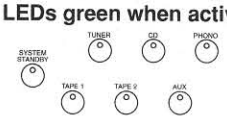
Step 36

LEDs green when active!

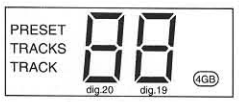


Step 37

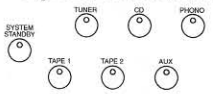
LEDs green when active!



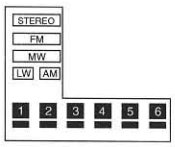
Step 38



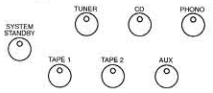
LEDs green when active!



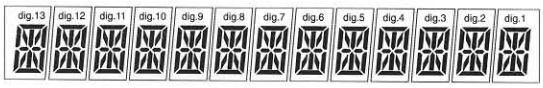
Step 39



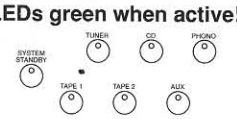
LEDs green when active!



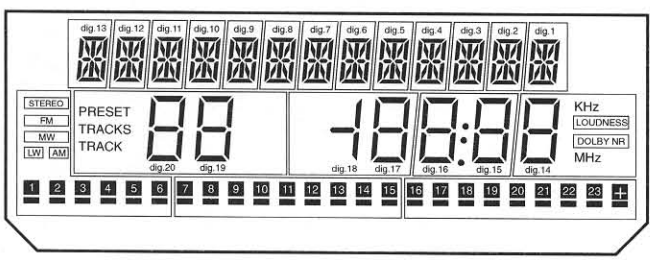
Steps 40-52



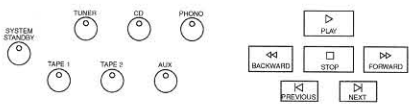
LEDs green when active!



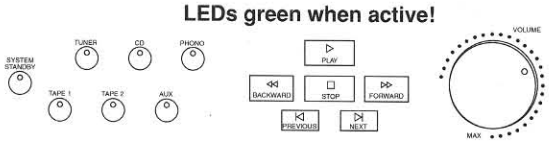
At the end of this test, the complete display is shown and the LEDs change from red to green and green to red, respectively, in the same rhythm.



LEDs red when active!



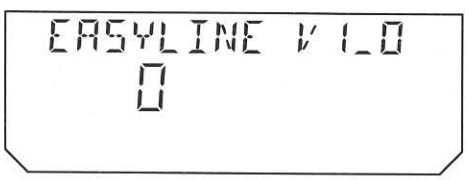
LEDs green when active!



The Test Mode is terminated by switching the system off.

Note:

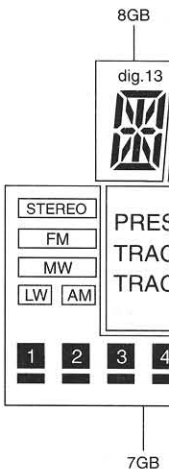
The CD Service Mode is activated by pressing the PROGRAMME, DELETE, END buttons simultaneously while switching on. In this mode, the software version is also indicated in the display among other things.



The Service Mode is also terminated by switching the system off.

DISPLAY

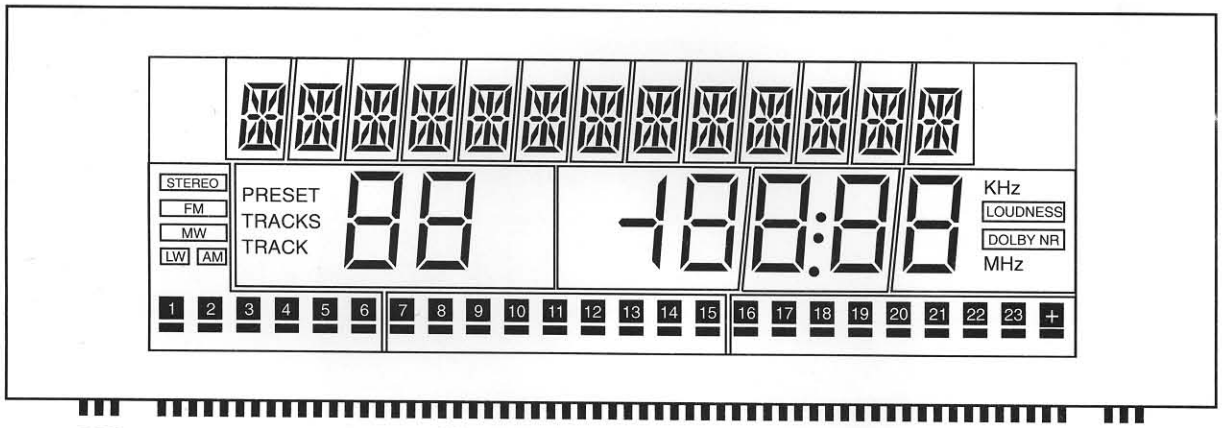
Pin 69 = F 2 (Filament)

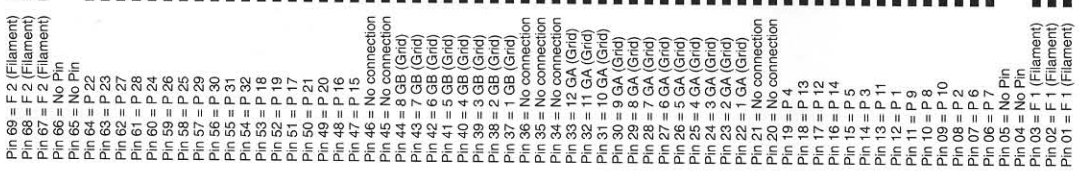


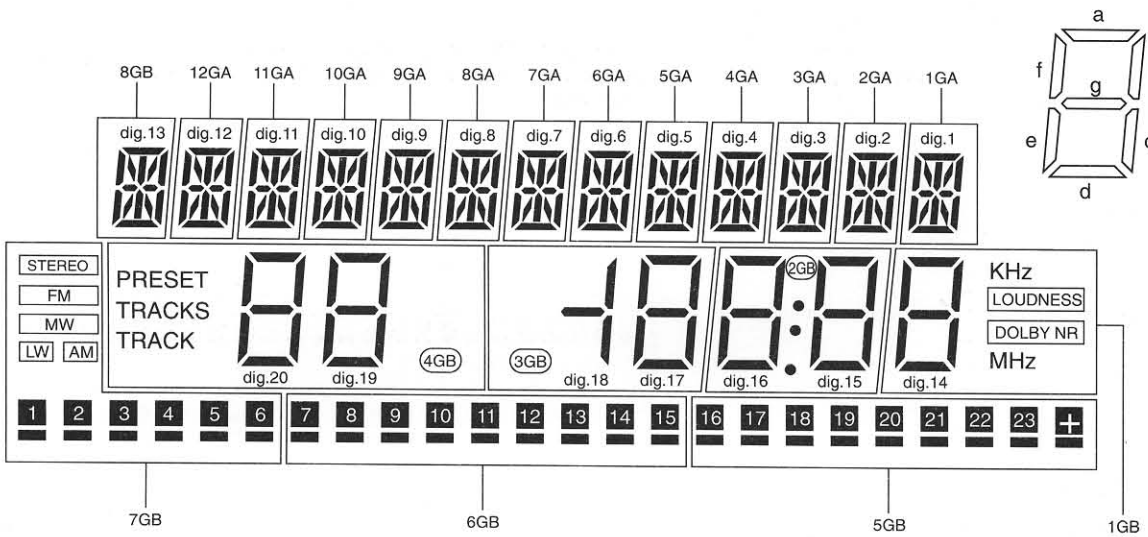
ANODE

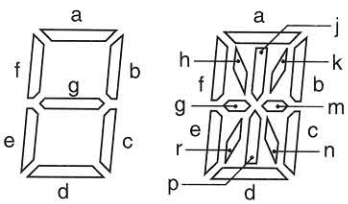
	12
P 1	1
P 2	1
P 3	1
P 4	1
P 5	1
P 6	1
P 7	1
P 8	1
P 9	1
P 10	1
P 11	1
P 12	1
P 13	1
P 14	1

DISPLAY









ANODE CONNECTION

	12 GA	11 GA	- - - - - - -	3 GA	2 GA	1 GA
P 1	12 a	11 a	- - - - - - -	3 a	2 a	1 a
P 2	12 b	11 b	- - - - - - -	3 b	2 b	1 b
P 3	12 c	11 c	- - - - - - -	3 c	2 c	1 c
P 4	12 d	11 d	- - - - - - -	3 d	2 d	1 d
P 5	12 e	11 e	- - - - - - -	3 e	2 e	1 e
P 6	12 f	11 f	- - - - - - -	3 f	2 f	1 f
P 7	12 g	11 g	- - - - - - -	3 g	2 g	1 g
P 8	12 h	11 h	- - - - - - -	3 h	2 h	1 h
P 9	12 j	11 j	- - - - - - -	3 j	2 j	1 j
P 10	12 k	11 k	- - - - - - -	3 k	2 k	1 k
P 11	12 m	11 m	- - - - - - -	3 m	2 m	1 m
P 12	12 n	11 n	- - - - - - -	3 n	2 n	1 n
P 13	12 p	11 p	- - - - - - -	3 p	2 p	1 p
P 14	12 r	11 r	- - - - - - -	3 r	2 r	1 r

	8 GB	7 GB	6 GB	5 GB	4 GB	3 GB	2 GB	1 GB
P 15	13 a	1	7	16	19 a	17 a	15 a	14 a
P 16	13 b	(1)	(7)	(16)	19 b	17 b	15 b	14 b
P 17	13 c	2	8	17	19 c	17 c	15 c	14 c
P 18	13 d	(2)	(8)	(17)	19 d	17 d	15 d	14 d
P 19	13 e	3	9	18	19 e	17 e	15 e	14 e
P 20	13 f	(3)	(9)	(18)	19 f	17 f	15 f	14 f
P 21	13 g	4	10	19	19 g	17 g	15 g	14 g
P 22	13 p	(4)	(10)	(19)	20 a	-	16 a	-
P 23	13 n	5	11	20	20 b	18 b	16 b	-
P 24	13 k	(5)	(11)	(20)	20 c	18 c	16 c	-
P 25	13 j	6	12	21	20 d	-	16 d	-
P 26	13 h	(6)	(12)	(21)	20 e	-	16 e	-
P 27	13 r	STEREO	13	22	20 f	-	16 f	-
P 28	13 m	FM	(13)	(22)	20 g	18 g	16 g	-
P 29	-	MW	14	23	TRACK	-	○ (Lower)	DOLBY NR
P 30	-	LW	(14)	(23)	TRACKS	-	○ ○	LOUDNESS
P 31	-	AM	15	+	PRESET	-	-	KHz
P 32	-	-	(15)	(+)	-	-	-	MHz

SERV

1. ESD

All ICs a
electrost
reduce li
When re
potential
Keep co
Informati

2. Warni

If the set
shock-ha

3. Ceram

When re
colour co

4. FM IF

The cera
different
as a resu
Depende
has to be
to be ope
The resc
provided

ALIGI

SERVICING HINTS

1. ESD

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. See Service Information A86 - 1000 for this.

2. Warning

If the set is connected to mains voltage, there is a risk of shock-hazard voltages after the set is decased.

3. Ceramic resonators

When replacing one of the ceramic resonators, take care that the colour codes of all three resonators are the same.

4. FM IF offset

The ceramic resonators have different intermediate frequencies as a result of tolerances. Dependent on the IF, a jumper has to be closed or a jumper has to be opened. B0 - B3 (see table). The resonators have been provided with a colour code.

	Jumper				
IF (MHz)	B 3	B 2	B 1	B 0	Filter color
10.6500	0	1	0	0	Black
10.6750	0	1	1	0	Blue
10.7000	1	0	0	0	Red
10.7250	1	0	1	0	Orange
10.7500	1	1	0	0	White

0 = jumper open 1 = jumper closed

ELECTRICAL ADJUSTMENT AND CHECK

General

- For the HF adjustments, the injected signals should be kept as small as possible.
- Connect the frame aerial in case AM is used.
- The AM IF amplifier is adjusted with a wobbulator signal of approx. 600 kHz having a sweep of 250 kHz at a rhythm of 50 Hz.

Measuring equipment used

- Power-supply equipment
- Oscilloscope
- DC voltmeter
- AC millivoltmeter
- Distortion meter

ELUCIDATIONS

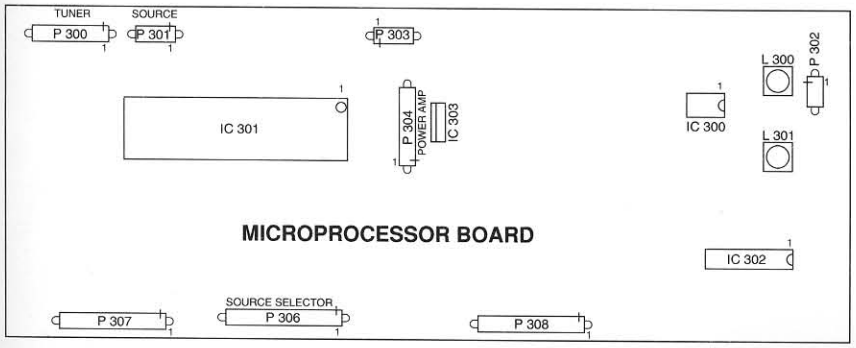
[1] Before adjustment turn the potentiometer to its extreme counterclockwise position.

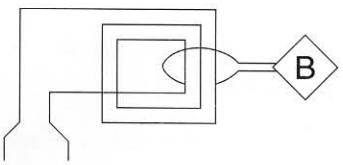
[2] Adjust the left and the right channel to the same minimum level.

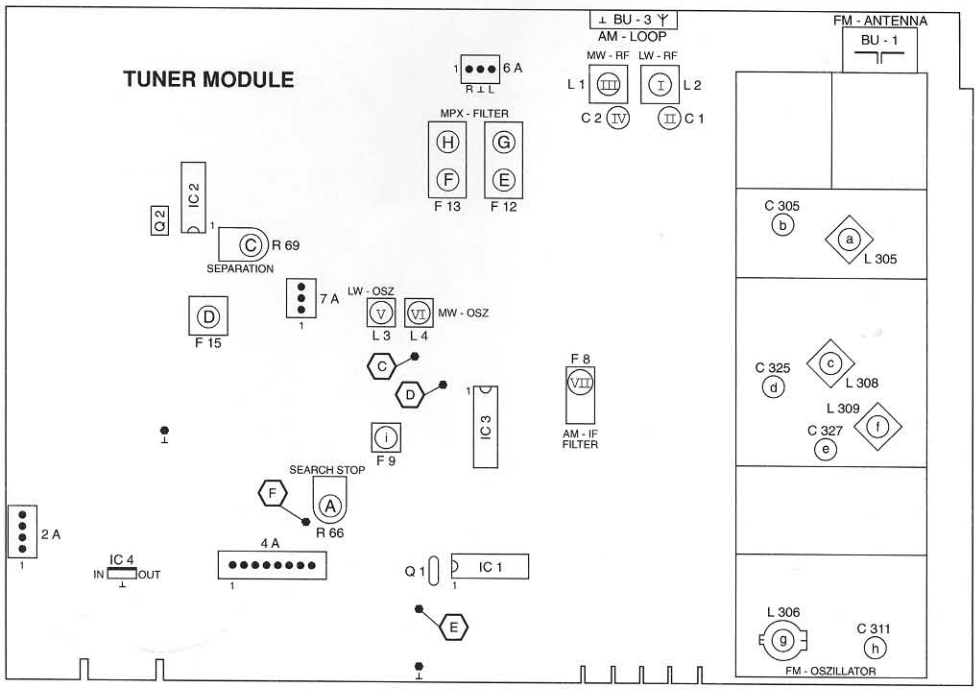
⬡ Measuring point

◯ Trimming element

ALIGNMENT LAYOUT: TUNER MODULE







ALIGNMENT: TUNER MODULE

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	REMARKS DETUNE	ADJUST	OSCILLOSCOPE OR A.C. METER	D.C. METER INDICATOR
FM-RF (Oscillator)							
FM Distant			Display 108.00 MHz		(h) C311		(E) 8.5 V =
			Display 87.50 MHz		(g) L 306		(E) 2.5 V=
FM-IF/T.H.D.							
FM Distant	108 MHz U_{RF} = 1 mV f_{mod} = 1kHz Δf = 75kHz	BU-1	Display 108.00 MHz		(i) F 9	PLUG 6A PIN 1, 3 min. distortion	
FM-RF							
FM Distant	106 MHz U_{RF} variable below limiting threshold f_{mod} = 1kHz	BU-1	Display 106.00 MHz		(b) C 305 (d) C 325 (e) C 327	PLUG 6A PIN 1, 3 max. ~	
	88 MHz U_{RF} variable below limiting threshold f_{mod} = 1kHz		Display 88.00 MHz		(a) L 305 (c) L 308 (f) L 309		
FM -SEARCH STOP							
FM Distant	106 MHz U_{RF} = 15 µV	BU-1	Display 106.00 MHz		(A) R 66		PLUG 4A PIN 6 0.7 V +0.05 V
FM -STEREO DECODER CROSSTALK							
FM Distant Stereo	106 MHz L mod. 1kHz	BU-1	Display 106.00 MHz		(C) R 69 [1]	PLUG 6A PIN 3 [2] min. ~	
	106 MHz R mod. 1kHz					PLUG 6A PIN 1 [2] min. ~	

↕ Repeat -Herhalen -Répéter -Wiederholen -Ricomminciare -Repetera -Gentage -Gjentagelse -Toista

SK... WAVE RAN SWITCH

ADJACENT

FM Distant Stereo Mute off

FM -PILOT -

FM Distant

RDS - DEM

FM Distant

AM-RF (Osc

MW

LW

AM-RF-IF

MW

LW

↕ Repeat -H

SK... WAVE RANGE SWITCH	SIGNAL	TO	DISPLAY TUNE IN	REMARKS DETUNE	ADJUST	OSCILLOSCOPE OR A.C. METER	D.C. METER INDICATOR

ADJACENT CHANNEL FILTER

FM Distant Stereo Mute off	114 kHz approx. 100 mV	F 15 PIN 2			(D) F 15	F 15 PIN 4 min. ~	

FM -PILOT -FILTERS

FM Distant	106 MHz U_{RF} = 1 mV f_{mod} = 19 kHz	BU-1	Display 106 MHz	NOTE: SET IN MONO	(G) F 12 (H) F 13	PLUG 6A PIN 1, 3 min. ~	
	106 MHz U_{RF} = 1 mV f_{mod} = 38 kHz				(E) F 12 (F) F 13	PLUG 6A PIN 1, 3 min. ~	

RDS - DEMODULATOR

FM Distant	106 MHz U_{RF} = 1mV 56.4kHz±50Hz mod Δf 2 - 3 kHz	BU-1	Display 106 MHz		(m) L 300	IC 302 PIN 5 max. ~	
	106 MHz U_{RF} = 1mV 57.7kHz±50Hz mod Δf 2 - 3 kHz				(n) L 301		

AM-RF (Oscillator)

MW			Display 531 kHz		(VI) L 4		(E) 1,1 V =
LW			Display 153 kHz		(V) L 3		(E) 1,8 V =

AM-RF-IF

MW	1449 kHz 1 kHz mod. m=30 %	(B)	Display 1449 kHz		(IV) C 2 (VII) F 8	PLUG 6A PIN 1, 3 max. ~	
	558 kHz 1 kHz mod. m=30 %		Display 558 kHz		(III) L 1		
LW	261 kHz 1 kHz mod. m=30 %		Display 261 kHz		(II) C 1		
	162 kHz 1 kHz mod. m=30 %		Display 162 kHz		(I) L 2		

↕ Repeat -Herhalen -Répéter -Wiederholen -Ricominciare -Repetera -Gentage -Gjentagelse -Toista

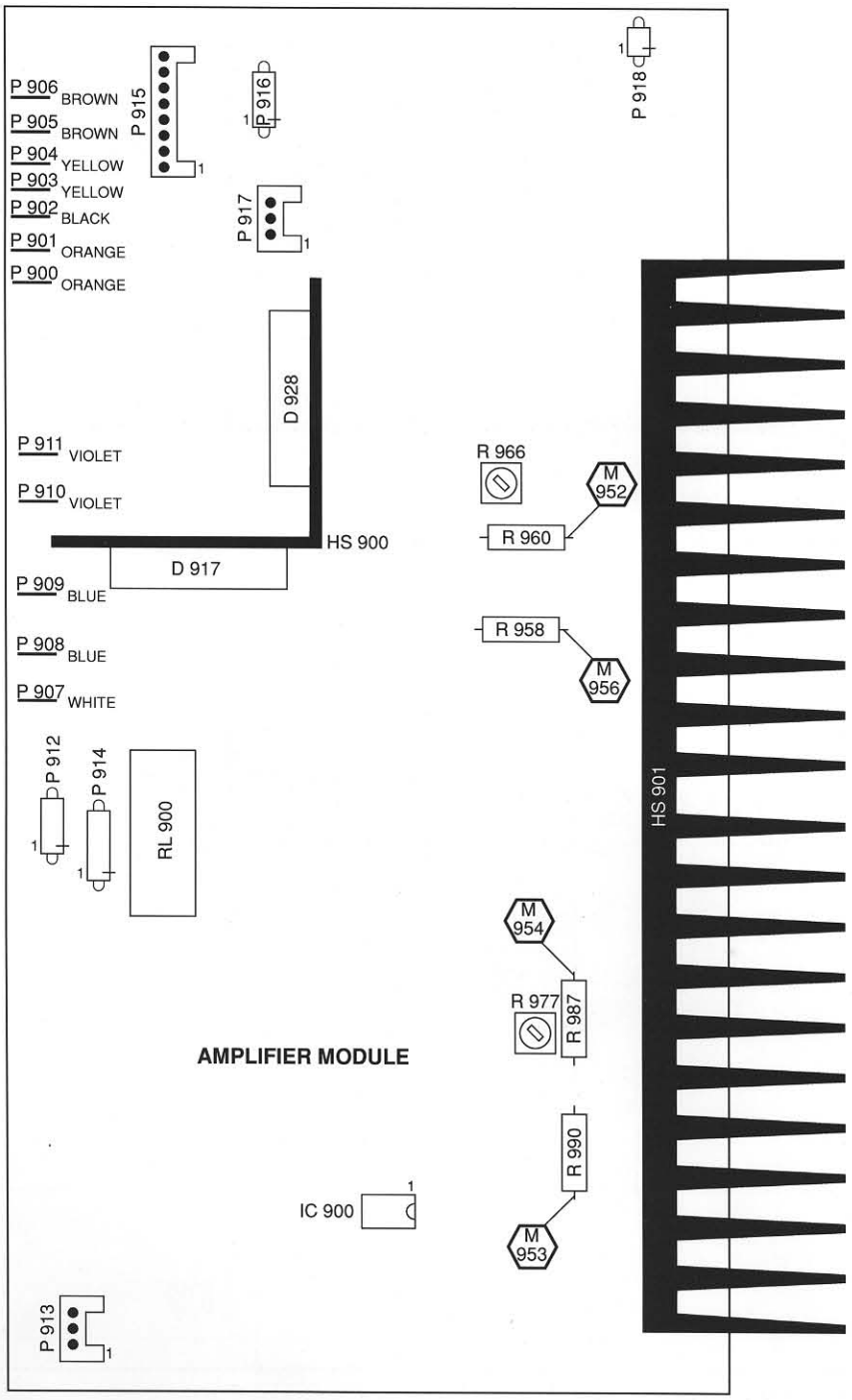
ALIGNMENT AND ALIGNMENT LAYOUT: AMPLIFIER MODULE

SK... SWITCH	SIGNAL	TO	VOLUME	ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR

IDLING CURRENT

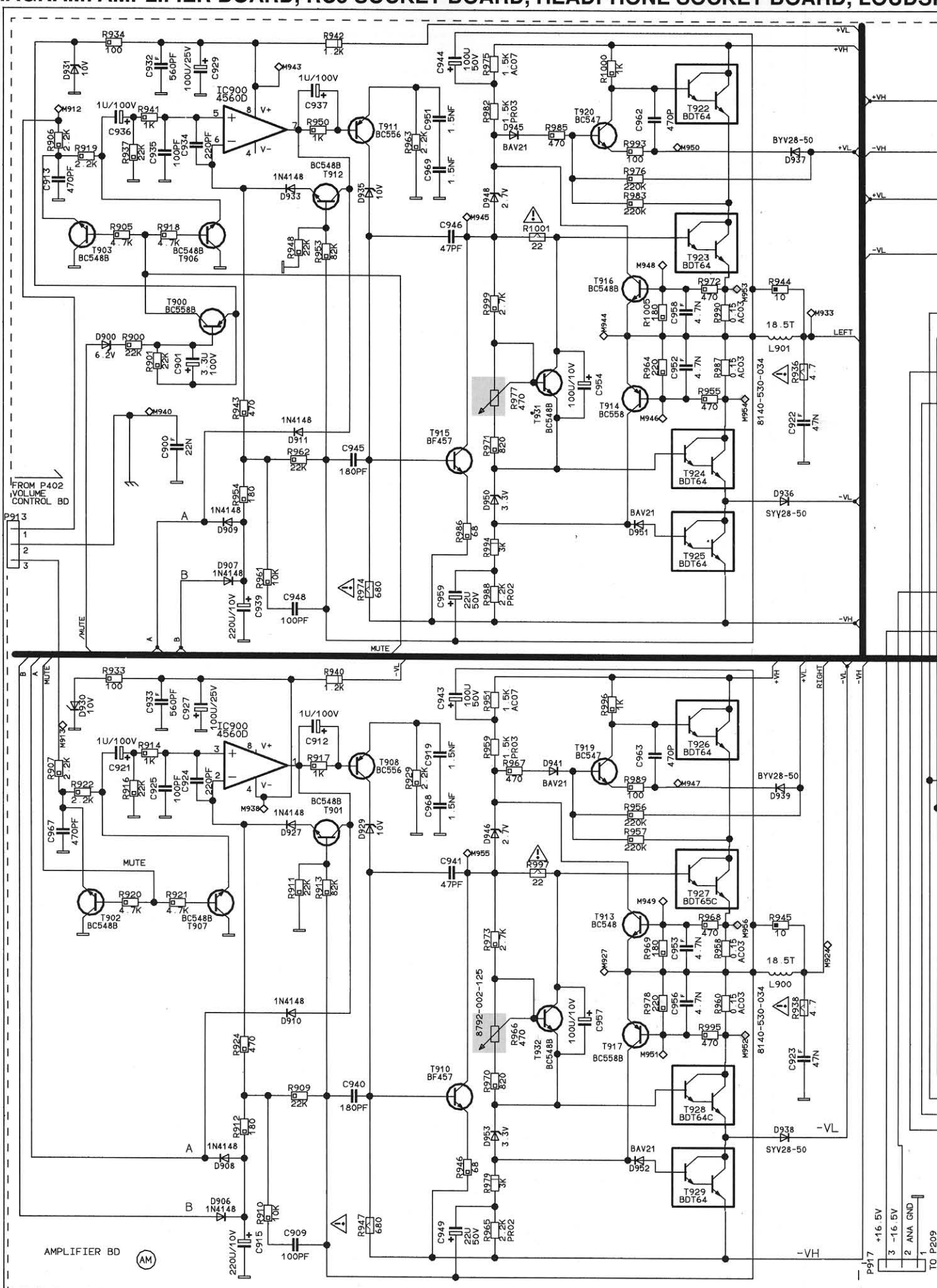
			min.	Lch R 977		Lch M953 (+) ↔ M954 (-) DC 6 mV (20 mA)
				Rch R 966		Rch M956 (+) ↔ M952 (-) DC 6 mV (20 mA)

ALIGNMENT LAYOUT

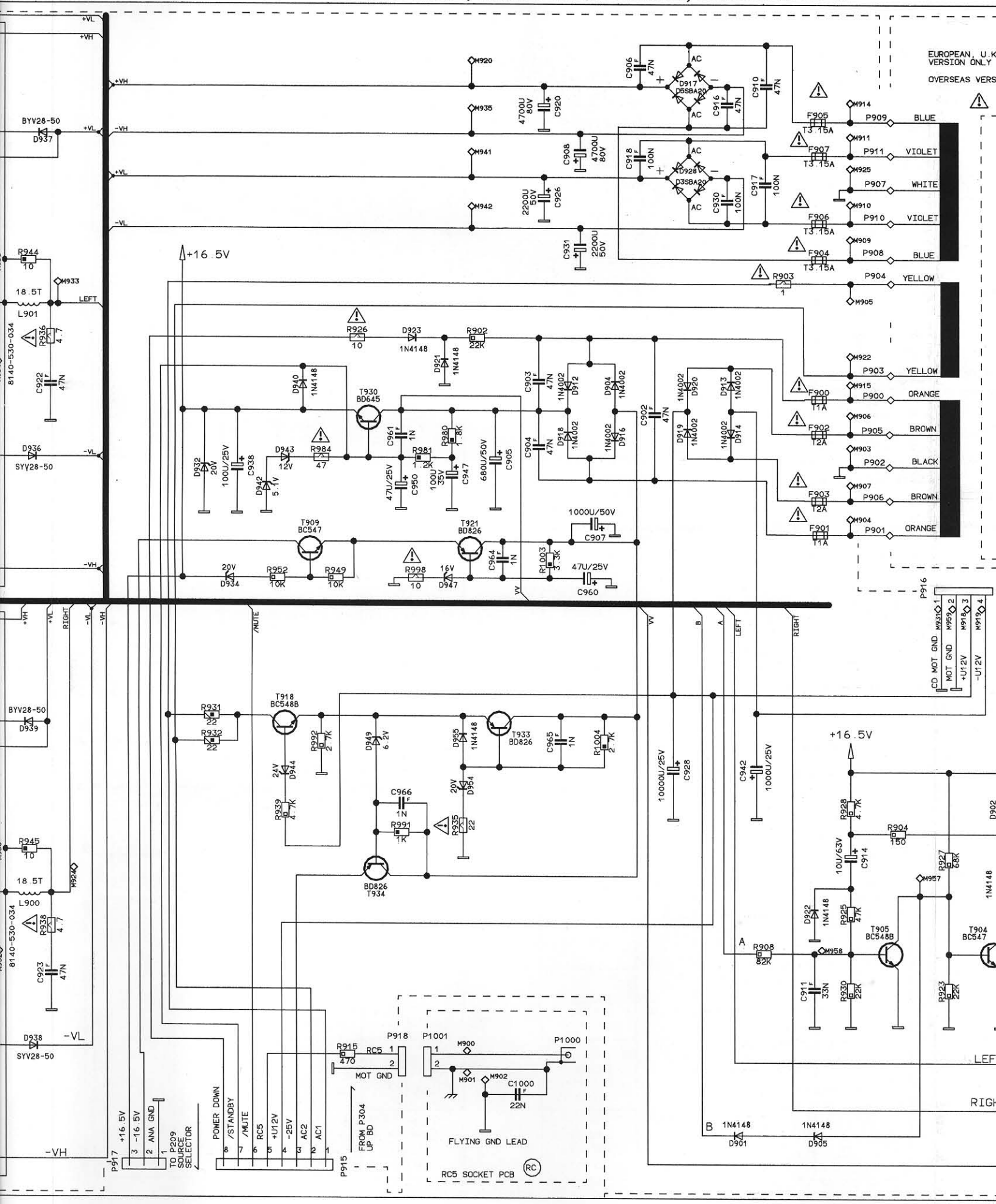


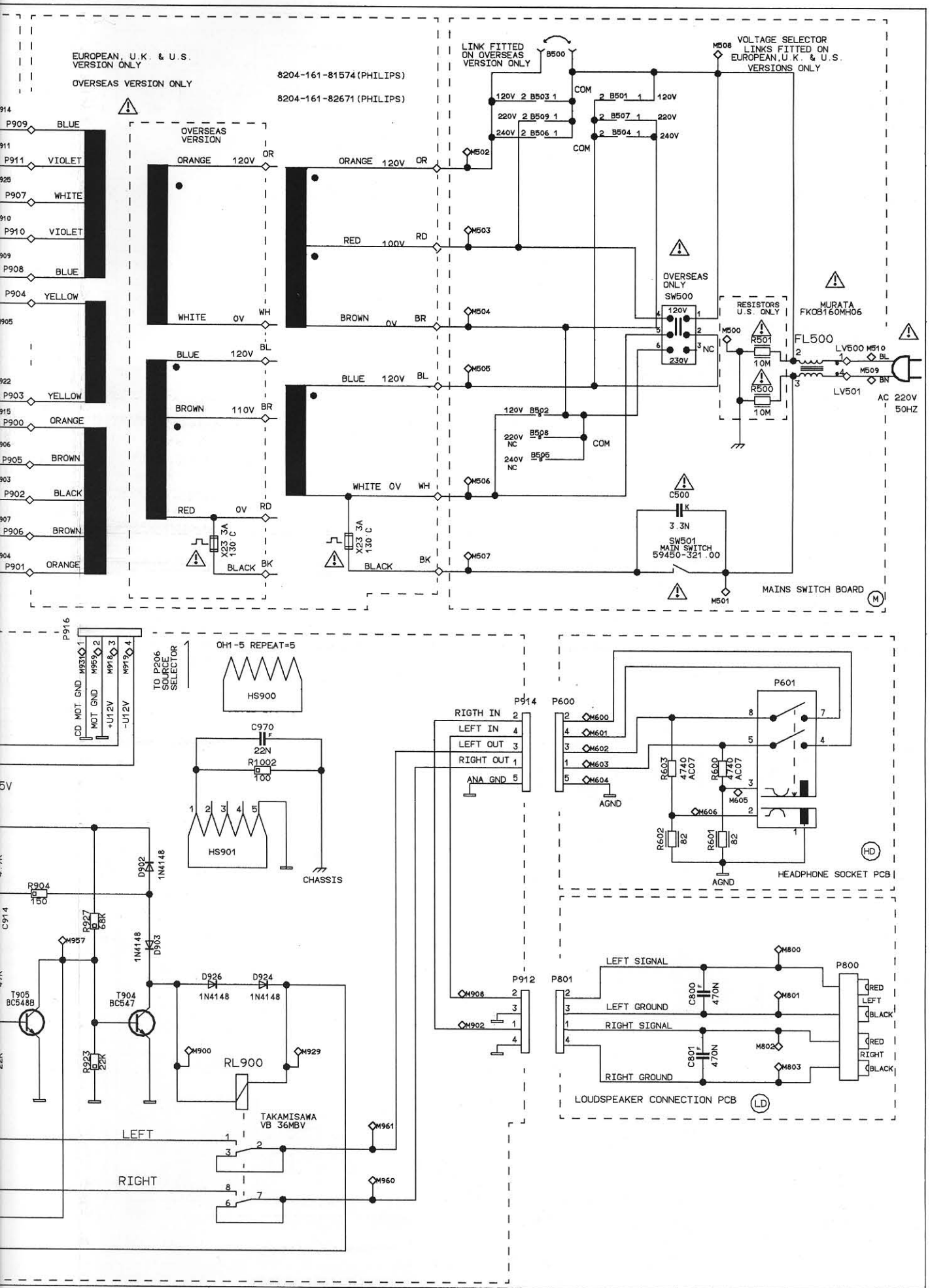
CS 33 071

CIRCUIT DIAGRAM: AMPLIFIER BOARD, RC5 SOCKET BOARD, HEADPHONE SOCKET BOARD, LOUDSI



ET BOARD, LOUDSPEAKER CONNECTION BOARD, MAIN SWITCH BOARD, TRANSFORMER



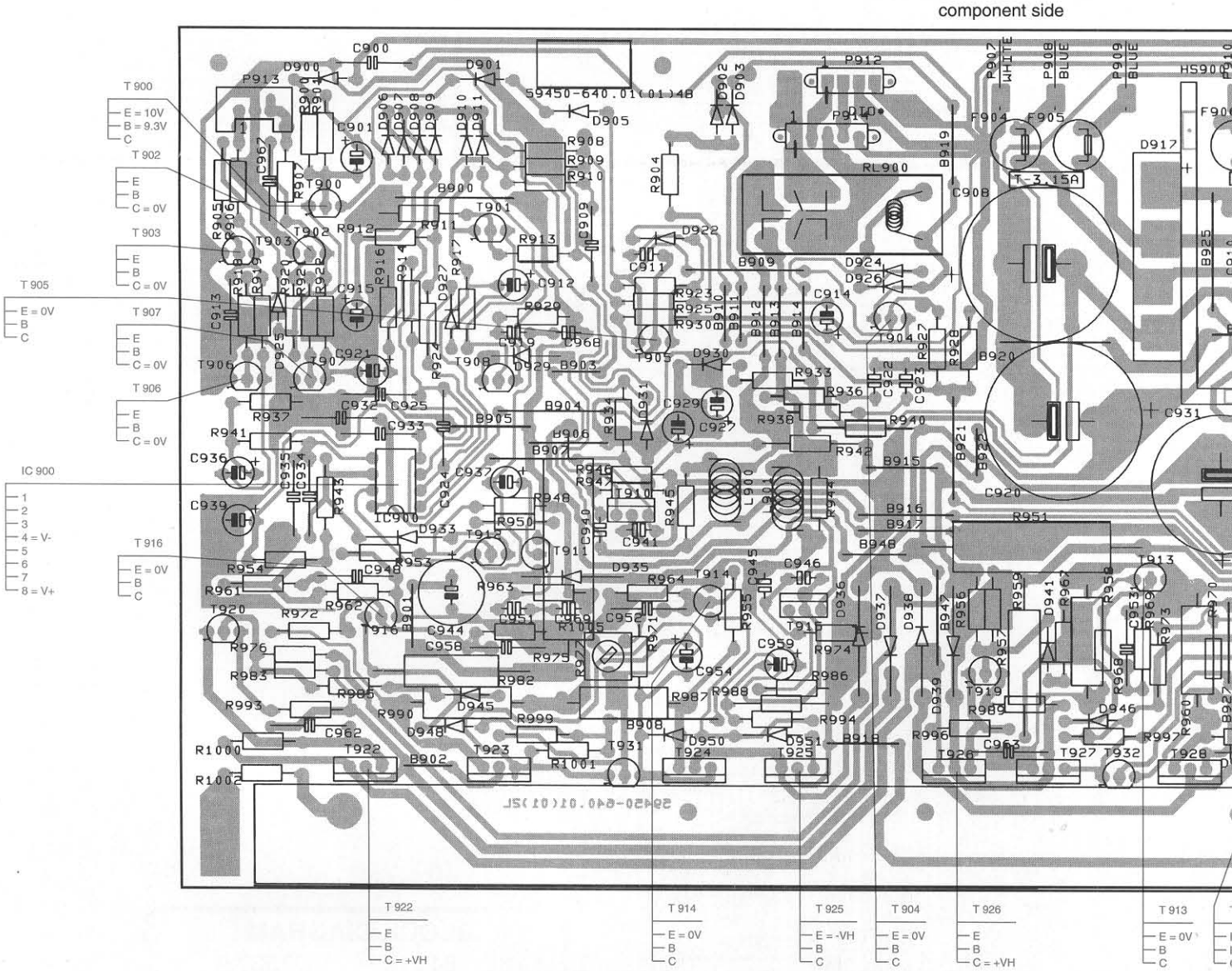

EUROPEAN, U.K. & U.S. VERSION ONLY
OVERSEAS VERSION ONLY
8204-161-81574(PHILIPS)
8204-161-82671(PHILIPS)
OVERSEAS VERSION
LINK FITTED ON OVERSEAS VERSION ONLY
VOLTAGE SELECTOR LINKS FITTED ON EUROPEAN,U.K. & U.S. VERSIONS ONLY
OVERSEAS ONLY
SW500
RESISTORS U.S. ONLY
MURATA FKOB160MH06
FL500
LV500
LV501
AC 220V 50HZ
SW501 MAIN SWITCH 59450-321.00
MAINS SWITCH BOARD
P909 BLUE
P911 VIOLET
P907 WHITE
P910 VIOLET
P908 BLUE
P904 YELLOW
P903 YELLOW
P900 ORANGE
P905 BROWN
P902 BLACK
P906 BROWN
P901 ORANGE
ORANGE 120V OR
RED 100V RD
BROWN 0V BR
BLUE 120V BL
WHITE 0V WH
BLACK BK
BROWN 110V BR
RED 0V RD
X23 3A 130°C
M500
M501
M502
M503
M504
M505
M506
M507
M508
M509
M510
R500 10M
R501 10M
C500 3.3N
P916
CD MOT GND M931
MOT GND M932
+U12V M918
-U12V M919
TO P206 SOURCE SELECTOR
OH1-5 REPEAT=5
HS900
HS901
C970 22N
R1002 100
CHASSIS
P914
RIGTH IN
LEFT IN
LEFT OUT
RIGHT OUT
ANA GND
P912
P600
P601
M600
M601
M602
M603
M604
M605
M606
R603 4740 AC07
R600 4740 AC07
R602 82
R601 82
AGND
HEADPHONE SOCKET PCB
P801
P800
LEFT SIGNAL
LEFT GROUND
RIGHT SIGNAL
RIGHT GROUND
C800 470N
C801 470N
M800
M801
M802
M803
M908
M902
RED LEFT BLACK
RED RIGHT BLACK
LOUDSPEAKER CONNECTION PCB
R904 150
R927 68R
R923 22R
D902 1N4148
D903 1N4148
D926 1N4148
D924 1N4148
T905 BC548B
T904 BC547
M957
M900
M929
RL900
TAKAMISAWA VB 36MBV
LEFT
RIGHT
M961
M960

AMPLIFIER PCB, RC5 SOCKET PCB, HEADPHONE SOCKET PCB, LOUDSPEAKER CONNECTION PCB,

C 500	F 14	C 912	E 2	C 927	D 3	C 942	C 9	C 958	C 2	D 903	F 3	D 919	E 9	D 934	C 8	D 949	B 8	HS 900	F 6	P 904	F 8	R 1000	B 1	R 903	E 8
C 800	G 16	C 913	E 1	C 928	D 9	C 943	C 6	C 959	C 4	D 904	F 7	D 920	E 9	D 935	C 3	D 950	B 3	HS 901	B 7	P 905	F 8	R 1001	B 3	R 904	E 3
C 801	G 16	C 914	E 4	C 929	D 3	C 944	C 2	C 960	C 8	D 905	F 3	D 921	E 7	D 936	C 4	D 951	B 4	IC 900	D 2	P 906	F 9	R 1002	B 1	R 905	E 1
C 900	F 1	C 915	E 1	C 930	D 7	C 945	C 4	C 961	C 8	D 906	E 2	D 922	E 3	D 937	C 4	D 952	B 7	L 900	D 3	P 907	F 5	R 1003	B 8	R 906	E 1
C 901	E 1	C 916	E 6	C 931	D 6	C 946	C 4	C 962	B 1	D 907	E 2	D 923	E 8	D 938	C 4	D 953	B 6	L 901	D 4	P 908	F 5	R 1004	B 8	R 907	E 1
C 902	E 8	C 917	E 7	C 932	D 1	C 947	C 7	C 963	B 5	D 908	E 2	D 924	E 4	D 939	C 5	D 954	B 8	P 1000	E 16	P 909	F 6	R 1005	C 3	R 908	E 2
C 903	E 8	C 918	E 7	C 933	D 2	C 948	C 1	C 964	B 8	D 909	E 2	D 925	E 1	D 940	C 8	D 955	B 8	P 1001	E 16	P 910	F 6	R 500	G 11	R 909	E 2
C 904	E 8	C 919	D 2	C 934	D 1	C 949	C 7	C 965	B 8	D 910	E 2	D 926	E 4	D 941	C 5	F 900	E 8	P 600	C 16	P 911	F 6	R 501	G 11	R 910	E 2
C 905	E 7	C 920	D 5	C 935	D 1	C 950	C 8	C 966	B 8	D 911	E 2	D 927	E 2	D 942	C 7	F 901	E 8	P 601	A 16	P 912	F 4	R 600	B 17	R 911	E 2
C 906	E 6	C 921	D 1	C 936	D 1	C 951	C 2	C 967	E 1	D 912	F 7	D 928	D 7	D 943	C 7	F 902	E 8	P 800	G 16	P 913	F 1	R 601	B 16	R 912	E 2
C 907	E 7	C 922	D 4	C 937	D 2	C 952	C 3	C 968	D 3	D 913	E 8	D 929	D 2	D 944	C 9	F 903	F 9	P 801	G 16	P 914	F 4	R 602	B 16	R 913	E 2
C 908	E 5	C 923	D 4	C 938	C 8	C 953	C 6	C 969	C 3	D 914	E 8	D 930	D 3	D 945	C 2	F 904	E 5	P 900	F 7	P 915	E 9	R 603	B 16	R 914	E 2
C 909	E 3	C 924	D 2	C 939	C 1	C 954	C 3	D 900	F 1	D 916	E 7	D 931	D 3	D 946	B 5	F 905	E 5	P 901	F 8	P 916	D 9	R 900	F 1	R 915	E 9
C 910	E 6	C 925	D 2	C 940	C 3	C 956	C 7	D 901	F 2	D 917	E 6	D 932	D 8	D 947	B 8	F 906	E 6	P 902	F 8	P 917	D 8	R 901	F 1	R 916	E 2
C 911	E 3	C 926	D 7	C 941	C 3	C 957	C 6	D 902	F 3	D 918	E 7	D 933	C 2	D 948	B 2	F 907	E 6	P 903	F 8	P 918	B 9	R 902	E 7	R 917	E 2

AMPLIFIER PCB

component side



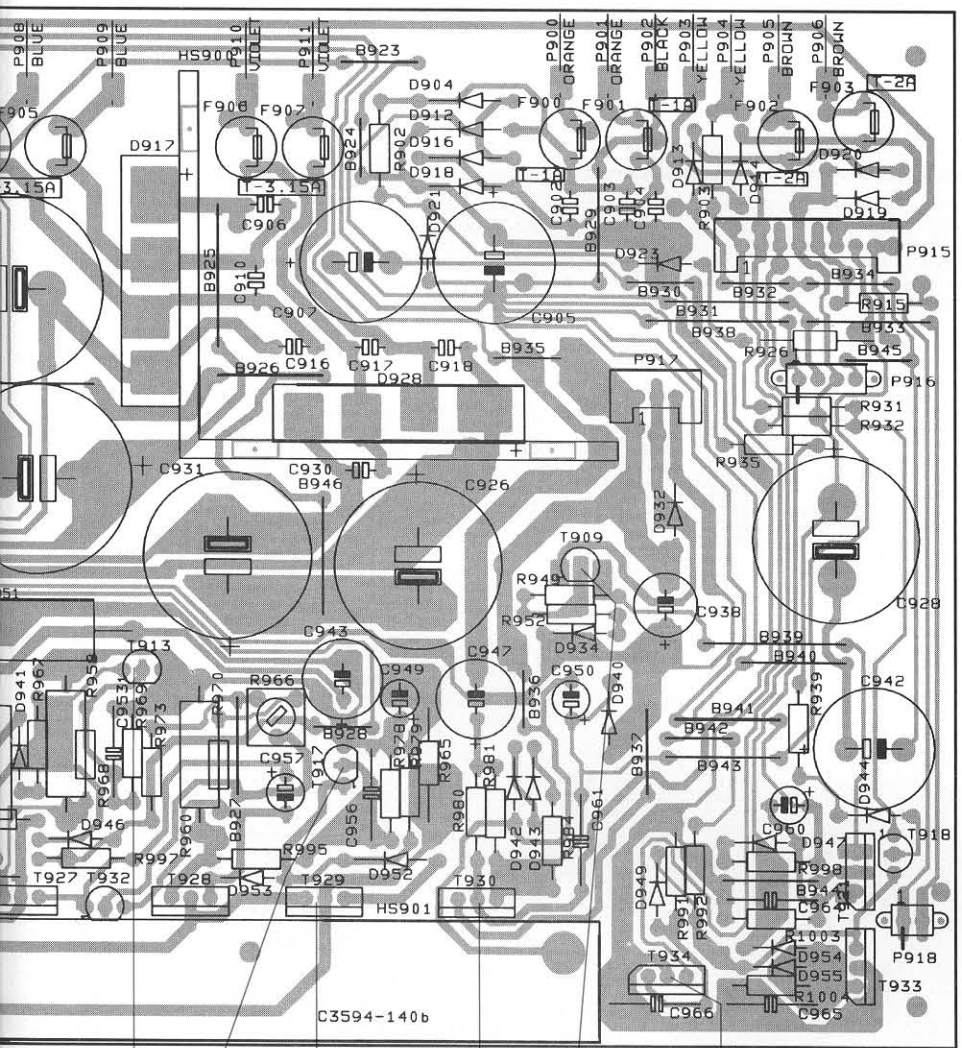
NNECTION PCB, MAIN SWITCH PCB, TRANSFORMER

5	6	7	8	9	10	11	12

8	R 1000	B 1	R 903	E 8	R 918	E 1	R 933	D 4	R 948	D 2	R 963	C 2	R 978	C 7	R 993	B 1	T 905	D 3	T 920	C 1
8	R 1001	B 3	R 904	E 3	R 919	E 1	R 934	D 3	R 949	C 8	R 964	C 3	R 979	C 7	R 994	B 4	T 906	D 1	T 921	B 9
9	R 1002	B 1	R 905	E 1	R 920	E 1	R 935	D 8	R 950	C 2	R 965	C 7	R 980	C 7	R 995	B 6	T 907	D 1	T 922	B 1
5	R 1003	B 8	R 906	E 1	R 921	E 1	R 936	D 4	R 951	C 5	R 966	C 6	R 981	C 7	R 996	B 5	T 908	D 2	T 923	B 2
5	R 1004	B 8	R 907	E 1	R 922	E 1	R 937	D 1	R 952	C 8	R 967	C 5	R 982	C 2	R 997	B 5	T 909	D 8	T 924	B 3
6	R 1005	C 3	R 908	E 2	R 923	E 3	R 938	D 4	R 953	C 2	R 968	C 5	R 983	C 1	R 998	B 8	T 910	D 3	T 925	B 4
6	R 500	G 11	R 909	E 2	R 924	D 2	R 939	C 9	R 954	C 1	R 969	C 6	R 984	B 7	R 999	B 2	T 911	C 2	T 926	B 5
6	R 501	G 11	R 910	E 2	R 925	E 3	R 940	D 4	R 955	C 3	R 970	C 6	R 985	C 1	RL 900	E 4	T 912	C 2	T 927	B 5
4	R 600	B 17	R 911	E 2	R 926	E 9	R 941	D 1	R 956	C 5	R 971	C 3	R 986	C 4	SW 500	F 11	T 913	C 6	T 928	B 6
1	R 601	B 16	R 912	E 2	R 927	D 4	R 942	D 4	R 957	C 5	R 972	C 1	R 987	C 3	SW 501	G 14	T 914	C 3	T 929	B 6
4	R 602	B 16	R 913	E 2	R 928	D 5	R 943	D 1	R 958	C 5	R 973	C 6	R 988	C 4	T 900	E 1	T 915	C 4	T 930	B 7
9	R 603	B 16	R 914	E 2	R 929	E 2	R 944	D 4	R 959	C 5	R 974	C 4	R 989	B 5	T 901	E 2	T 916	C 2	T 931	B 3
9	R 900	F 1	R 915	E 9	R 930	E 3	R 945	D 3	R 960	C 6	R 975	C 3	R 990	B 2	T 902	E 1	T 917	C 6	T 932	B 5
8	R 901	F 1	R 916	E 2	R 931	D 9	R 946	D 3	R 961	C 1	R 976	C 1	R 991	B 8	T 903	E 1	T 918	B 9	T 933	B 9
9	R 902	E 7	R 917	E 2	R 932	D 9	R 947	D 3	R 962	C 1	R 977	C 3	R 992	B 8	T 904	D 4	T 919	C 5	T 934	B 8

R PCB

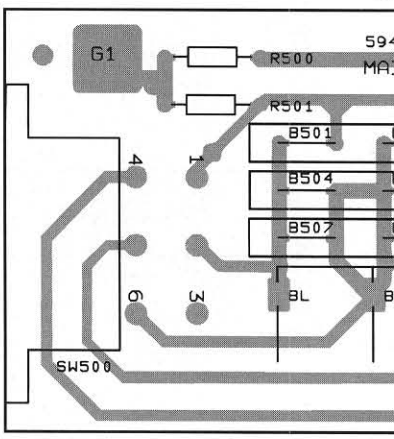
side



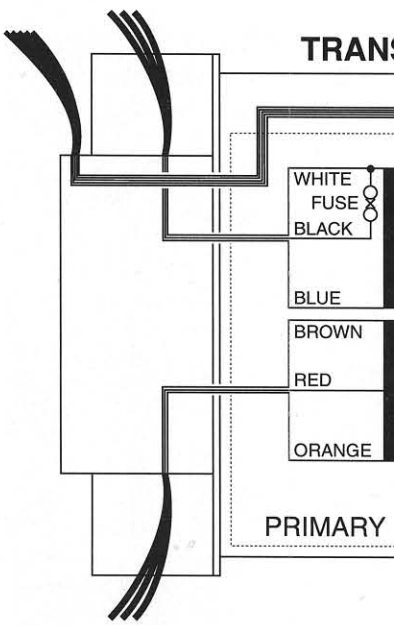
T 913	T 917	T 929	T 930	T 909	T 934
E = 0V	E = 0V	E = -VH	E = 16.5V	E	E = -25V
B	B	B	B = 17.2V	B	B
C	C	C	C	C = -16.5V	C

MAIN

co



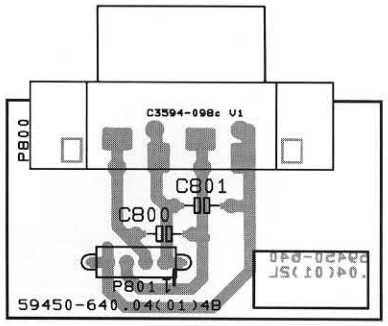
TRANS



5	6	7	8	9	10	11	12

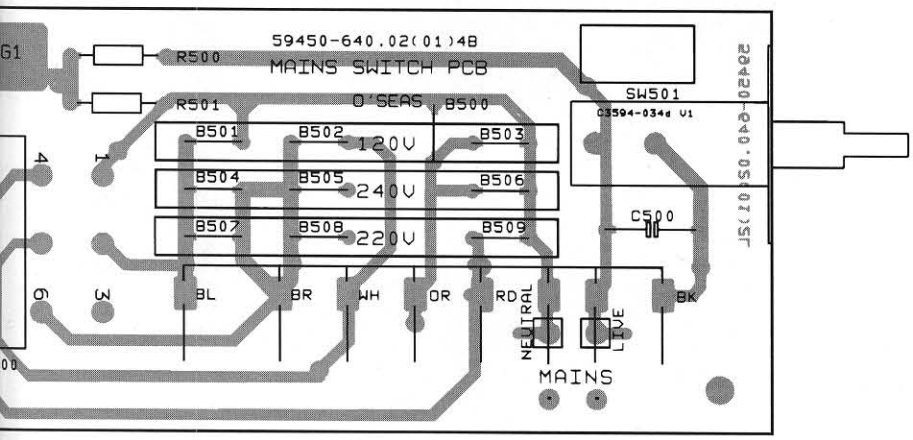
LOUDSPEAKER CONNECTION PCB

component side



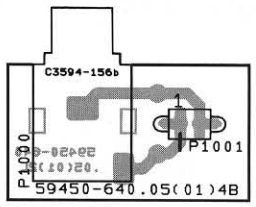
MAIN SWITCH PCB

component side

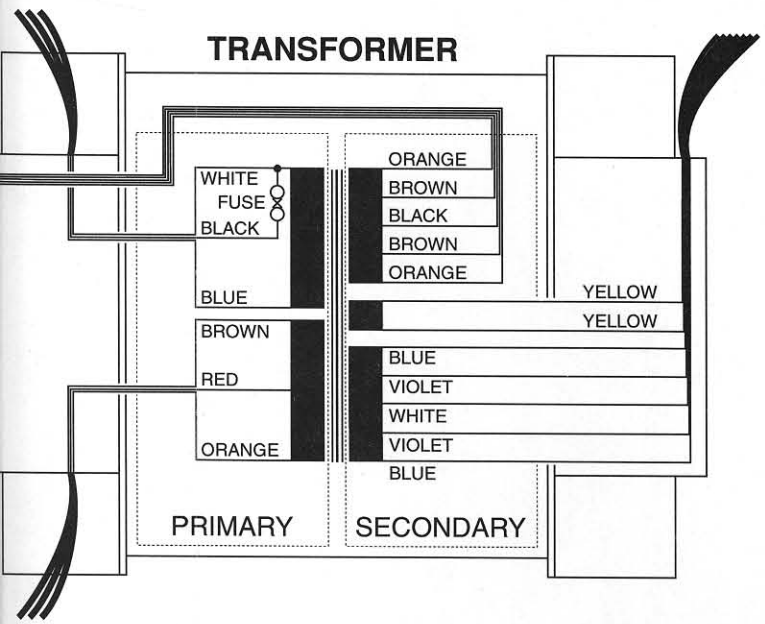


RC5 SOCKET PCB

component side

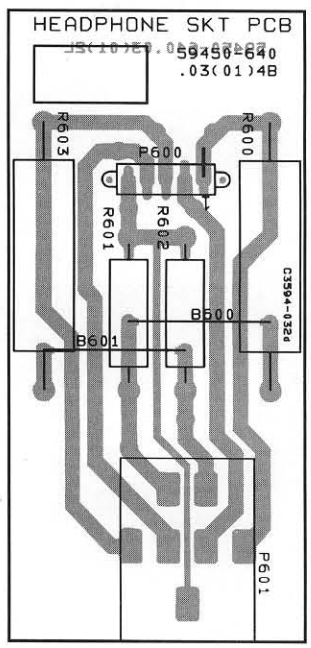


TRANSFORMER

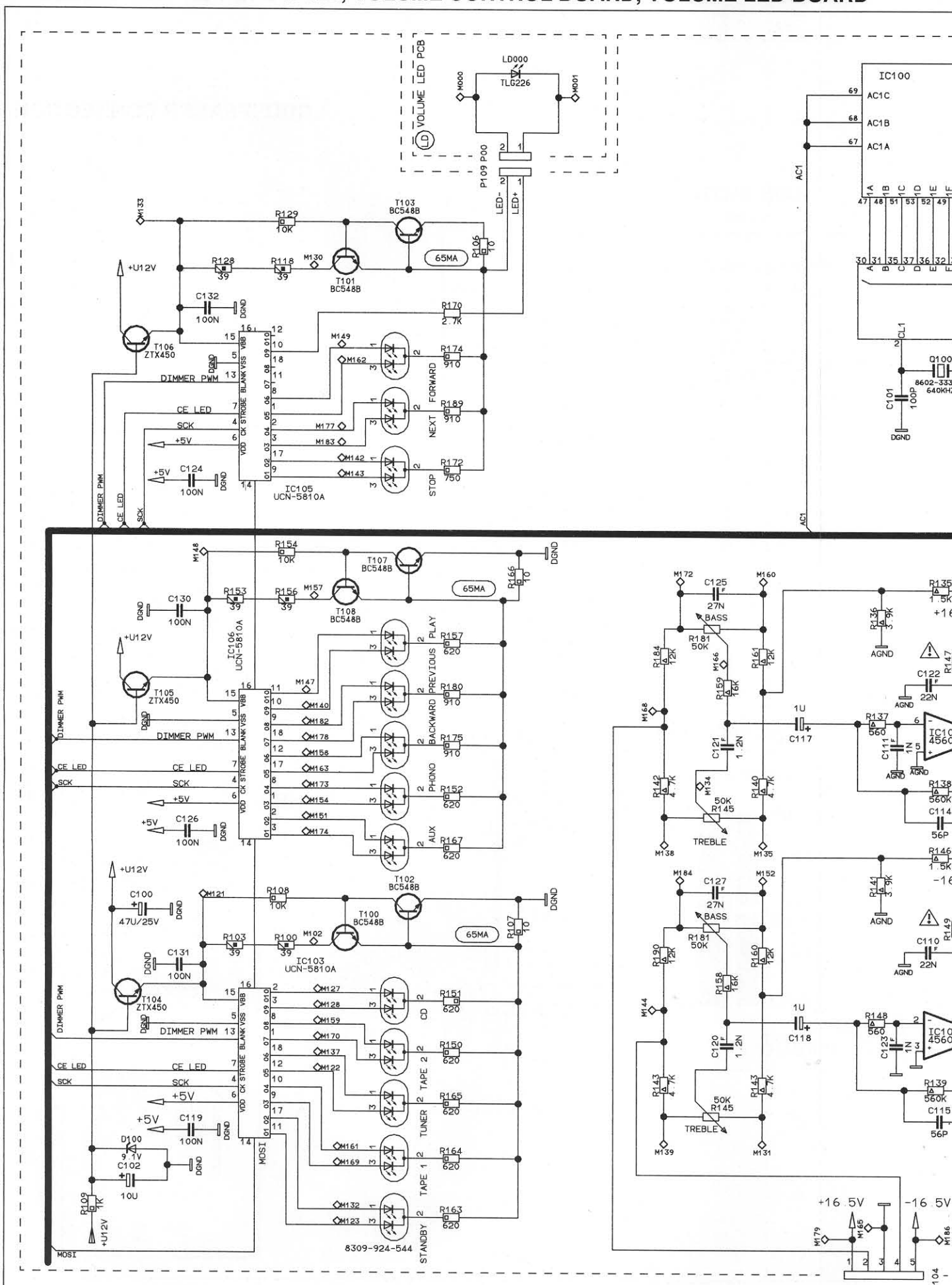


HEADPHONE SOCKET PCB

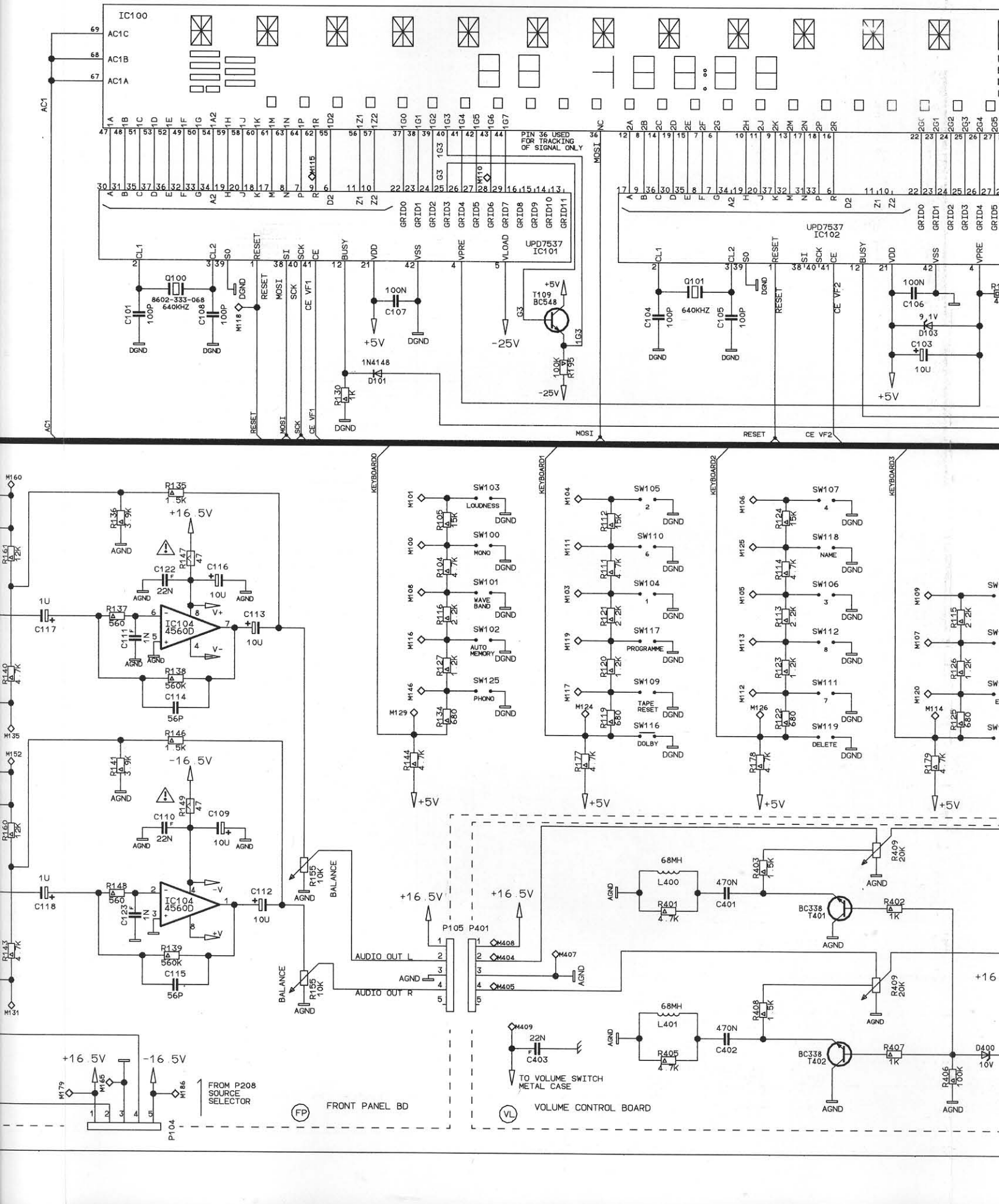
component side

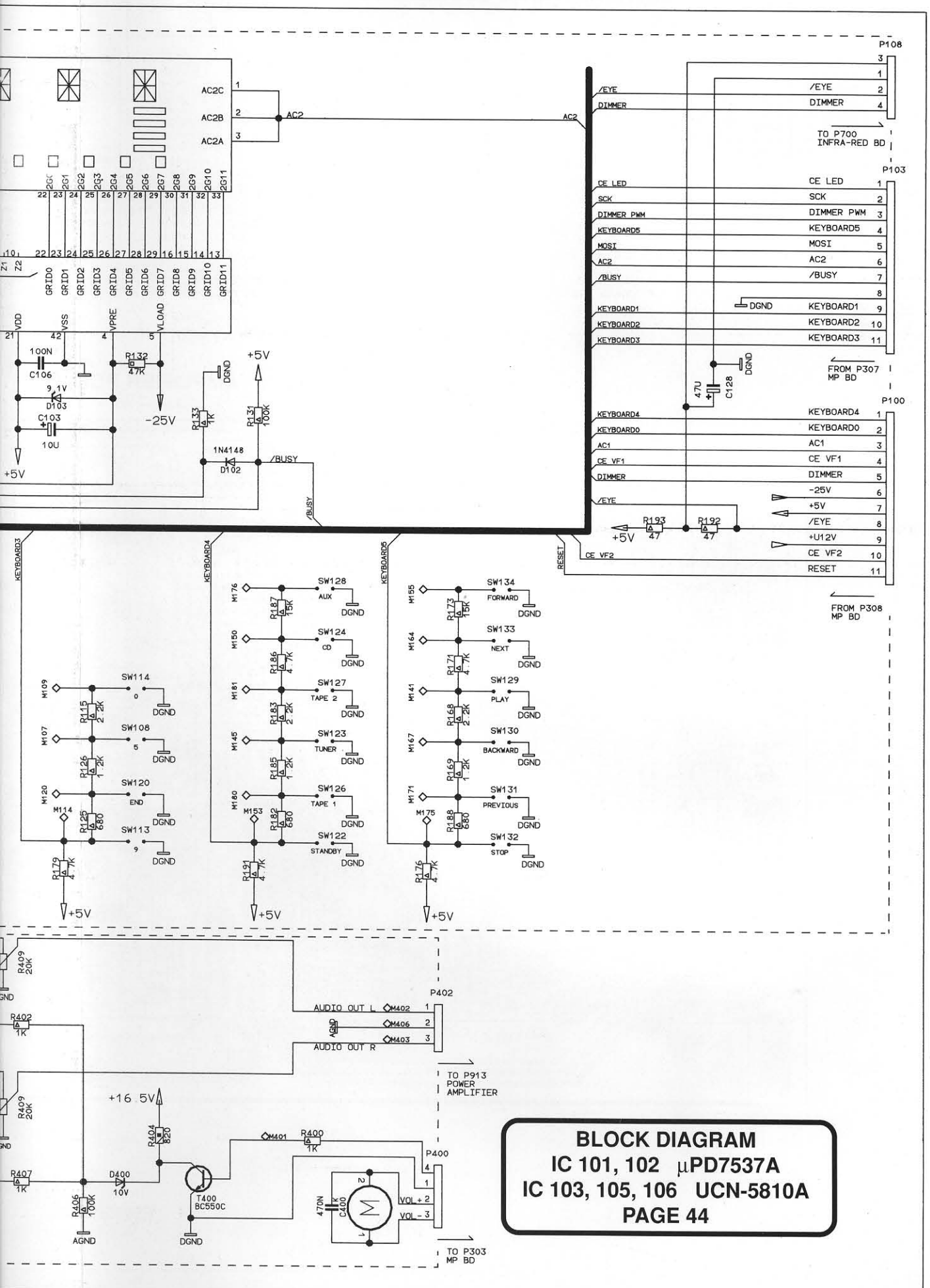


CIRCUIT DIAGRAM: FRONT PANEL BOARD, VOLUME CONTROL BOARD, VOLUME LED BOARD



LED BOARD

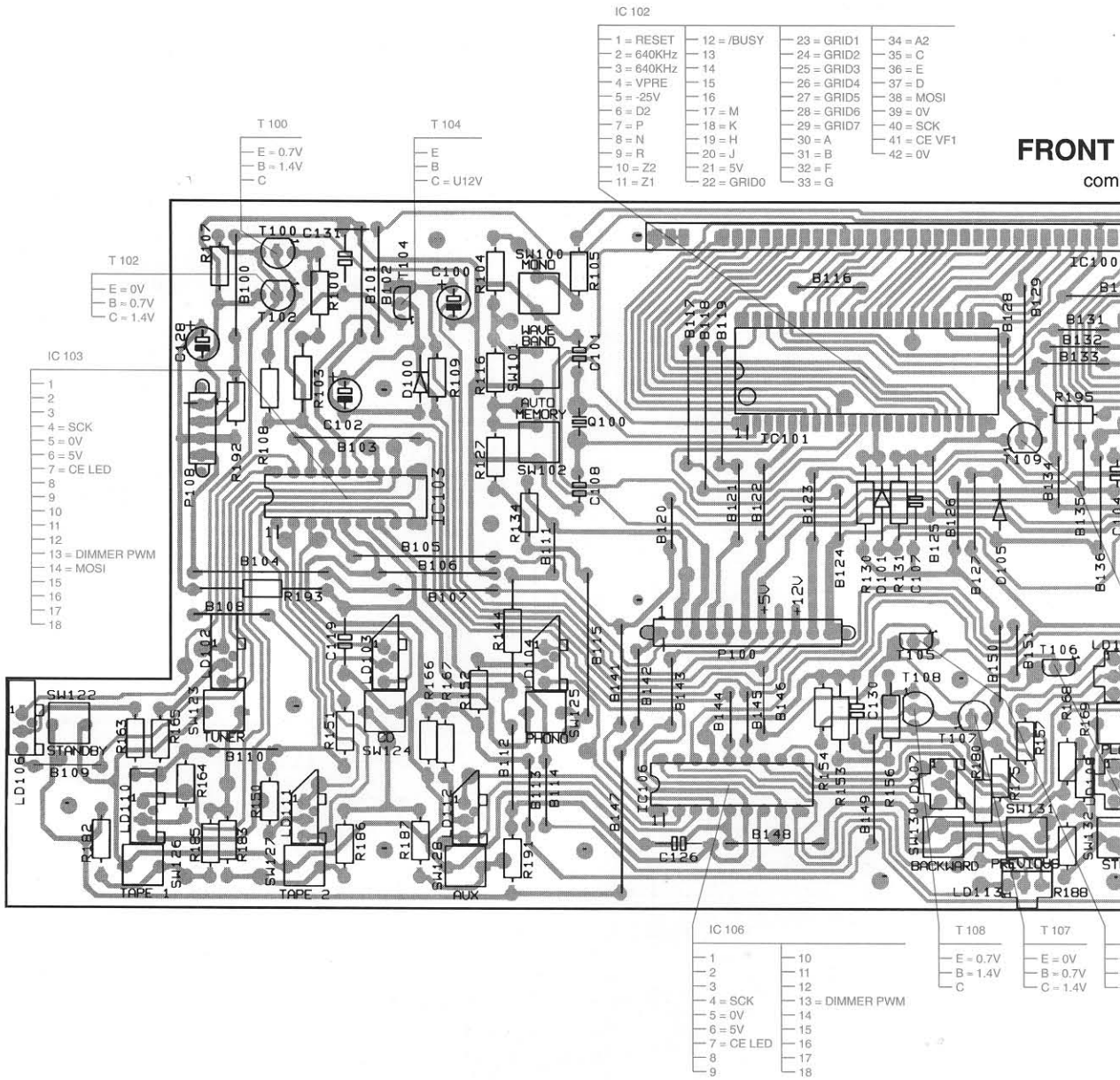

IC100
AC1C
AC1B
AC1A
PIN 36 USED FOR TRACKING OF SIGNAL ONLY
UPD7537 IC101
UPD7537 IC102
Q100 8602-333-068 640KHZ
Q101 640KHZ
T109 BC548
D101 1N4148
D103 9.1V
-25V
+5V
MOSI
RESET
CE VF2
KEYBOARD0
KEYBOARD1
KEYBOARD2
KEYBOARD3
SW103 LOUDNESS
SW100 MONO
SW101 WAVE BAND
SW102 AUTO MEMORY
SW125 PHONO
SW105
SW110
SW104
SW117 PROGRAMME
SW109 TAPE RESET
SW116 DOLBY
SW107
SW118 NAME
SW106
SW112
SW111
SW119 DELETE
IC104 4560D
+16.5V
-16.5V
BALANCE
AUDIO OUT L
AUDIO OUT R
P105 P401
L400 68MH
L401 68MH
BC338 T401
BC338 T402
TO VOLUME SWITCH METAL CASE
FROM P208 SOURCE SELECTOR
P104
FP FRONT PANEL BD
VL VOLUME CONTROL BOARD



BLOCK DIAGRAM
IC 101, 102 μPD7537A
IC 103, 105, 106 UCN-5810A
PAGE 44

FRONT PANEL PCB, VOLUME CONTROL PCB, VOLUME LED PCB

C 100	D 3	C 115	B 11	C 130	B 5	IC 101	C 5	LD 109	A 7	P 400	C 14	R 113	C 10	R
C 101	C 3	C 116	B 9	C 131	D 2	IC 102	C 7	LD 110	A 1	P 401	D 14	R 114	C 11	R
C 102	C 2	C 117	B 10	C 132	C 8	IC 103	C 2	LD 111	A 2	P 402	D 15	R 115	C 12	R
C 103	C 7	C 118	B 10	C 400	B 15	IC 104	B 10	LD 112	A 3	Q 100	C 3	R 116	C 3	R
C 104	C 6	C 119	B 2	C 401	D 15	IC 105	B 7	LD 113	A 6	Q 101	B 6	R 118	C 8	R
C 105	C 6	C 120	B 10	C 402	D 14	IC 106	A 4	LD 114	A 6	R 100	D 2	R 119	C 9	R
C 106	B 7	C 121	B 10	C 403	D 15	L 400	D 15	M 400	B 15	R 103	C 2	R 120	C 9	R
C 107	B 5	C 122	B 9	C 404	D 15	L 401	D 14	P 000	A 14	R 104	D 3	R 121	C 10	R
C 108	C 3	C 123	B 11	D 100	C 3	LD 102	B 2	P 001	A 14	R 105	D 3	R 122	C 10	R
C 109	B 9	C 124	A 7	D 101	B 5	LD 103	B 2	P 100	B 4	R 106	A 8	R 123	C 10	R
C 110	B 9	C 125	A 11	D 102	B 7	LD 104	B 3	P 103	A 8	R 107	D 2	R 124	C 11	R
C 111	B 10	C 126	A 4	D 103	B 7	LD 105	B 6	P 104	A 10	R 108	C 2	R 125	C 11	R
C 112	B 11	C 127	A 11	D 105	B 5	LD 106	A 1	P 105	A 9	R 109	C 3	R 126	C 12	R
C 113	B 11	C 128	C 1	D 400	C 14	LD 107	A 5	P 108	C 1	R 111	C 10	R 127	C 3	R
C 114	B 10	C 129	A 10	IC 100	D 6	LD 108	A 6	P 109	B 9	R 112	C 10	R 128	C 8	R



5	6	7	8	9	10	11	12

400	C 14	R 113	C 10	R 129	B 8	R 144	B 3	R 159	A 10	R 174	A 7	R 189	A 7	R 408	C 14	SW 113	C 11	SW 130	A 5	T 400	C 14
401	D 14	R 114	C 11	R 130	B 5	R 145	B 12	R 160	A 11	R 175	A 5	R 190	A 11	R 409	C 15	SW 114	C 11	SW 131	A 6	T 401	D 15
402	D 15	R 115	C 12	R 131	B 5	R 146	B 11	R 161	A 11	R 176	A 8	R 191	A 3	SW 100	D 3	SW 116	C 9	SW 132	A 6	T 402	D 14
100	C 3	R 116	C 3	R 132	B 6	R 147	A 9	R 162	B 11	R 177	A 8	R 192	C 2	SW 101	C 3	SW 117	C 10	SW 133	A 6		
101	B 6	R 118	C 8	R 133	B 7	R 148	B 10	R 163	A 1	R 178	A 8	R 193	B 2	SW 102	C 3	SW 118	C 10	SW 134	A 7		
100	D 2	R 119	C 9	R 134	B 3	R 149	B 9	R 164	A 1	R 179	A 8	R 194	A 8	SW 103	D 9	SW 119	C 11	T 100	D 2		
103	C 2	R 120	C 9	R 135	B 11	R 150	A 2	R 165	A 1	R 180	A 5	R 195	C 6	SW 104	D 10	SW 120	C 11	T 101	B 8		
104	D 3	R 121	C 10	R 136	B 11	R 151	A 2	R 166	A 3	R 181	A 12	R 400	C 14	SW 105	D 10	SW 122	A 1	T 102	D 2		
105	D 3	R 122	C 10	R 137	B 10	R 152	B 3	R 167	A 3	R 182	A 1	R 401	D 15	SW 106	D 11	SW 123	A 2	T 103	B 8		
106	A 8	R 123	C 10	R 138	B 10	R 153	A 5	R 168	A 6	R 183	A 2	R 402	C 15	SW 107	D 11	SW 124	A 2	T 104	D 2		
107	D 2	R 124	C 11	R 139	B 11	R 154	A 5	R 169	A 6	R 184	A 11	R 403	C 15	SW 108	D 11	SW 125	A 3	T 105	B 5		
108	C 2	R 125	C 11	R 140	B 11	R 155	A 11	R 170	B 9	R 185	A 1	R 404	C 14	SW 109	C 9	SW 126	A 1	T 106	B 6		
109	C 3	R 126	C 12	R 141	B 11	R 156	A 5	R 171	A 6	R 186	A 2	R 405	D 14	SW 110	C 10	SW 127	A 2	T 107	A 5		
111	C 10	R 127	C 3	R 142	B 11	R 157	A 6	R 172	A 6	R 187	A 3	R 406	C 14	SW 111	C 10	SW 128	A 3	T 108	B 5		
112	C 10	R 128	C 8	R 143	B 11	R 158	A 10	R 173	A 7	R 188	A 6	R 407	C 14	SW 112	C 11	SW 129	A 6	T 109	C 6		

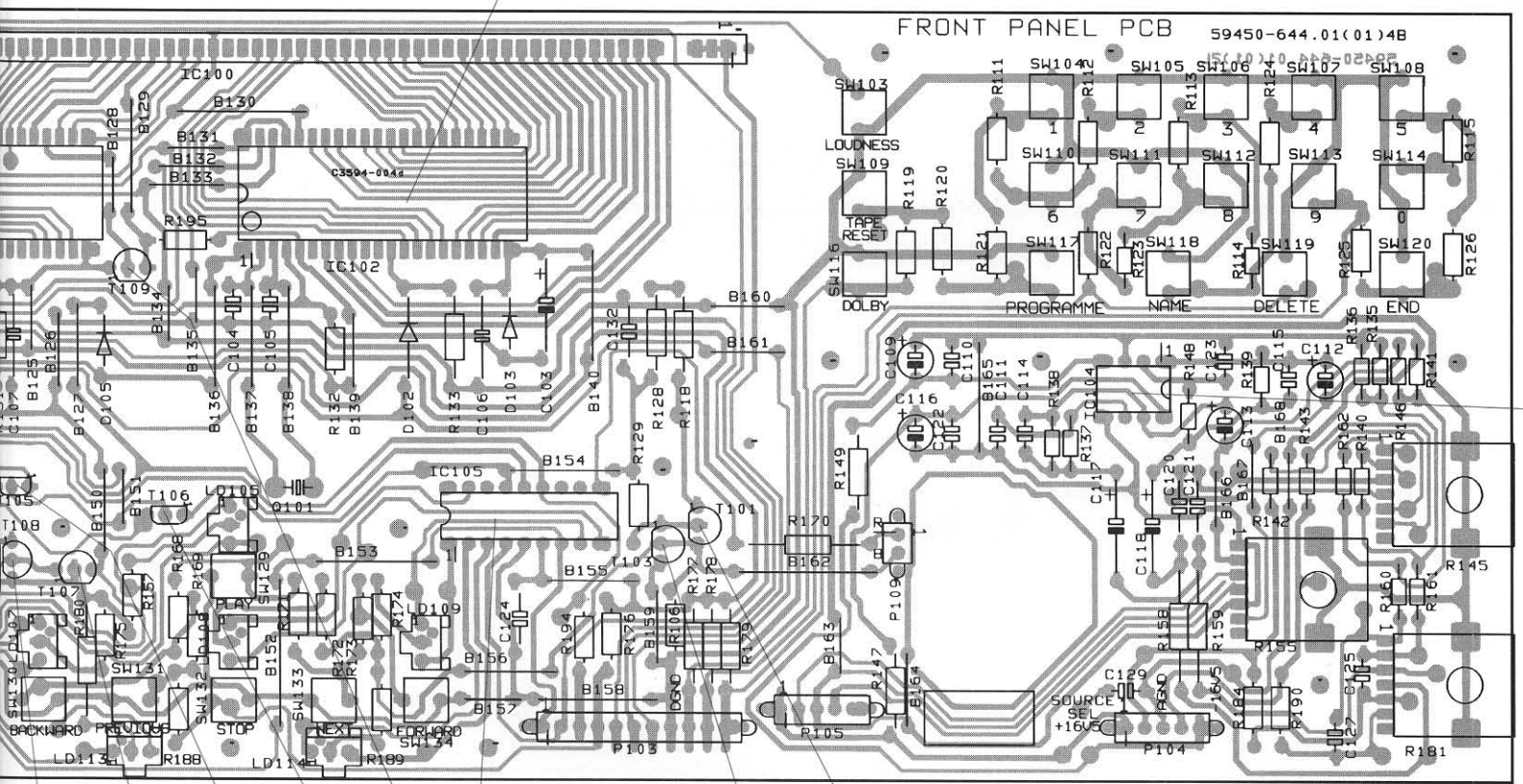
= A2
= C
= E
= D
= MOSI
= 0V
= SCK
= CE VF1
= 0V

IC 102

- 1 = RESET
- 2 = 640KHz
- 3 = 640KHz
- 4 = VPRE
- 5 = -25V
- 6 = R
- 7 = G
- 8 = F
- 9 = B
- 10
- 11
- 12 = /BUSY
- 13 = GRID11
- 14 = GRID10
- 15 = GRID9
- 16 = GRID8
- 17 = A
- 18
- 19 = H
- 20 = J
- 21 = 5V
- 22 = GRID0
- 23 = GRID1
- 24 = GRID2
- 25 = GRID3
- 26 = GRID4
- 27 = GRID5
- 28 = GRID6
- 29 = GRID7
- 30 = D
- 31 = N
- 32 = M
- 33 = P
- 34
- 35 = E
- 36 = C
- 37 = K
- 38
- 39 = 0V
- 40
- 41 = CE VF2
- 42 = 0V

FRONT PANEL PCB

component side



T 108
- E = 0.7V
- B = 1.4V
- C

T 107
- E = 0V
- B = 0.7V
- C = 1.4V

T 105
- E
- B
- C = U12V

T 106
- E
- B
- C = U12V

T 109
- E = 5V
- B
- C

IC 105
- 1
- 2
- 3
- 4 = SCK
- 5 = 0V
- 6 = 5V
- 7 = CE LED
- 8
- 9
- 10
- 11
- 12
- 13 = DIMMER PWM
- 14
- 15
- 16
- 17
- 18

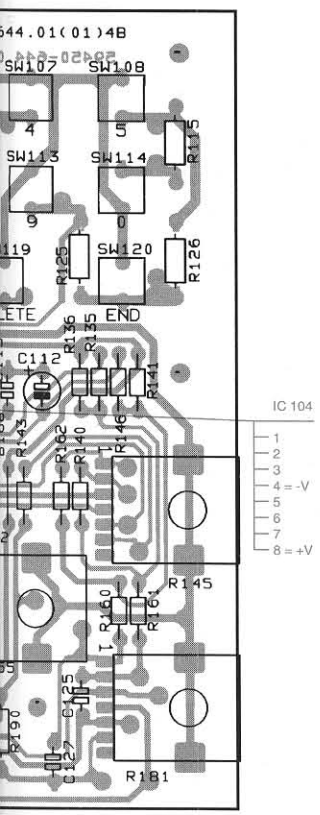
T 103
- E = 0V
- B = 0.7V
- C = 1.4V

T 101
- E = 0.7V
- B = 1.4V
- C

5	6	7	8	9	10	11	12

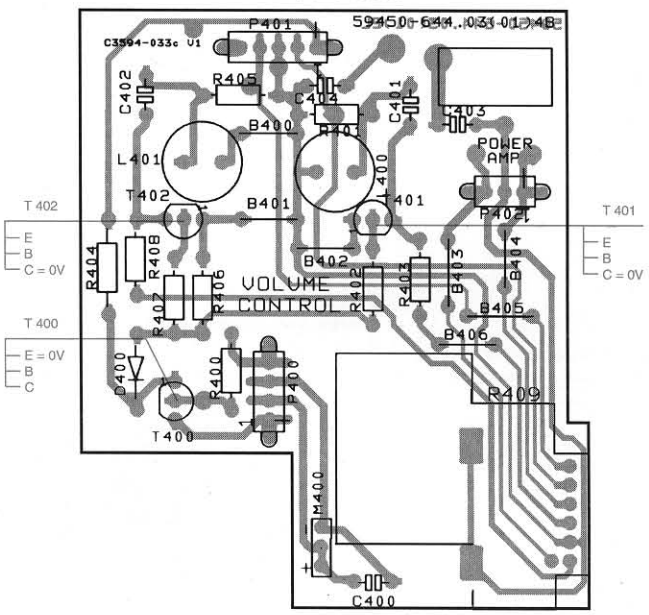
11 | 12 | 13 | 14 | 15 | 16

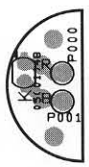
C 14
D 15
D 14



VOLUME CONTROL PCB

component side





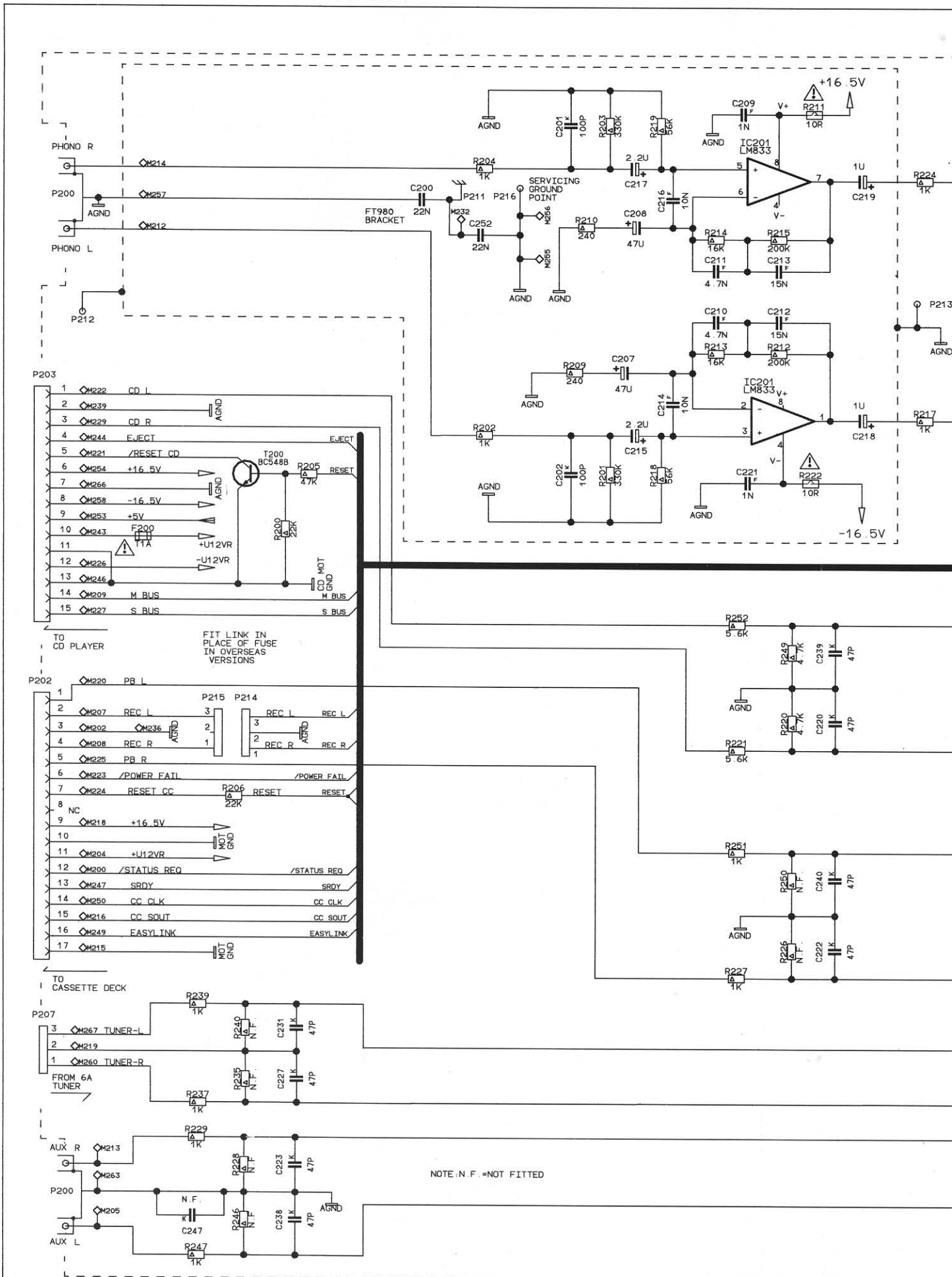
VOLUME LED PCB

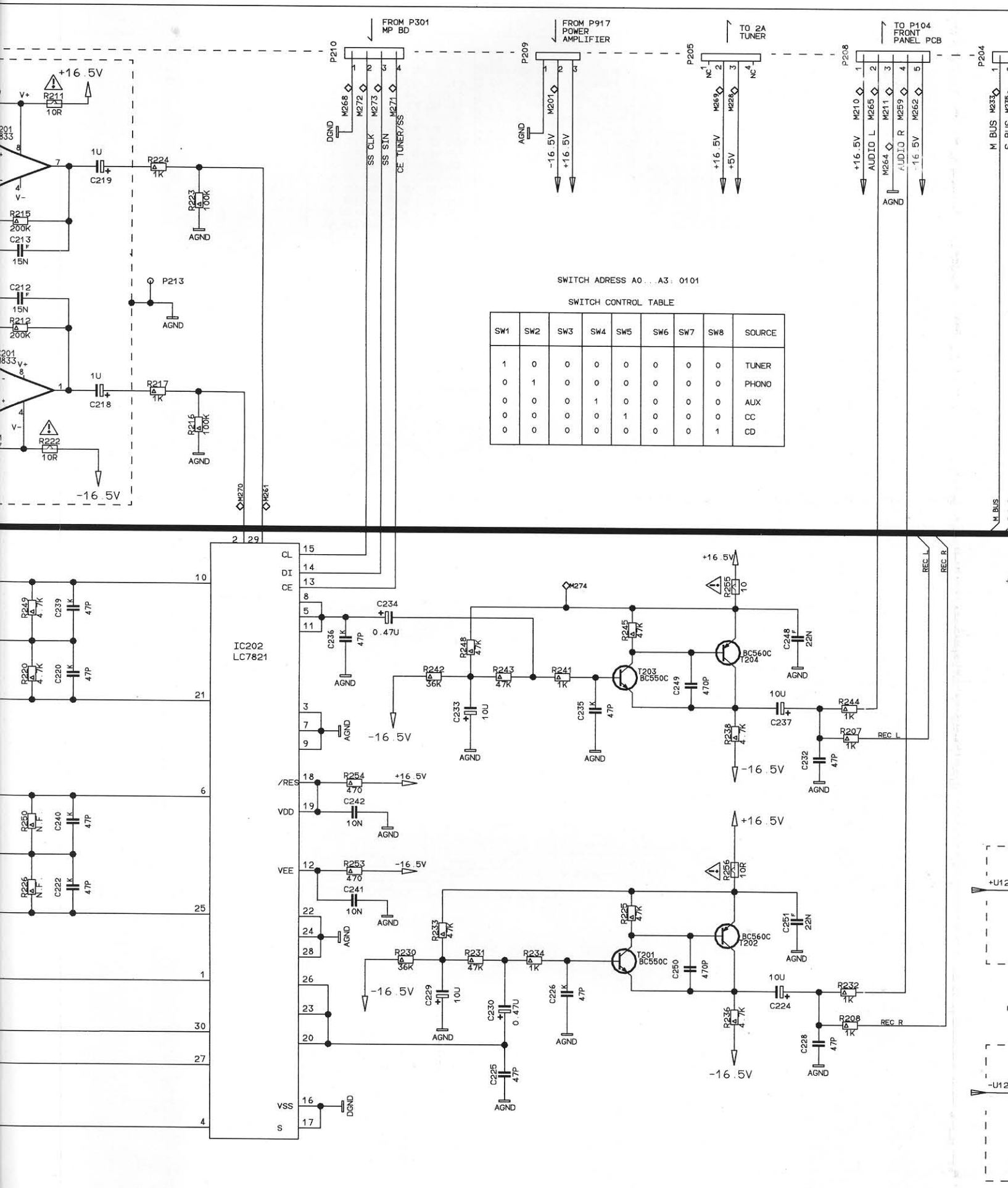
component side

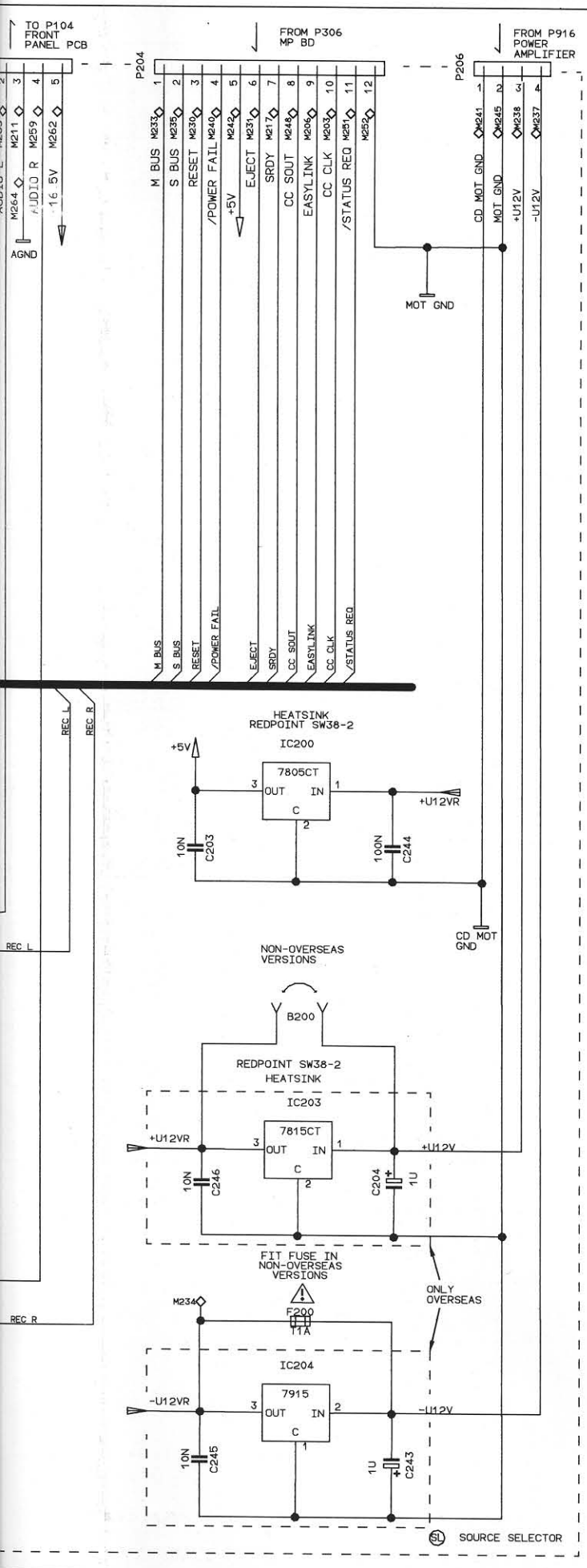
D
C
B
A

11 | 12 | 13 | 14 | 15 | 16

CIRCUIT DIAGRAM SOURCE SELECTOR BOARD




FROM P301
MP BD
FROM P917
POWER
AMPLIFIER
TO 2A
TUNER
TO P104
FRONT
PANEL PCB
P210
P209
P205
P208
P204
M268
M272
M273
M271
DGND
SS CLK
SS SIN
CE TUNER/SS
M201
AGND
-16.5V
+16.5V
M269
M228
+5V
M210
M265
M211
M259
M262
AUDIO L
AUDIO R
M264
M BUS
M233
+16.5V
R211
10R
1U
C219
R224
1K
R223
100K
R215
200K
C213
15N
C212
15N
R212
200K
P213
1U
C218
R217
1K
R216
100K
R222
10R
M270
M261
SWITCH ADRESS A0...A3: 0101
SWITCH CONTROL TABLE
SW1 SW2 SW3 SW4 SW5 SW6 SW7 SW8 SOURCE
1 0 0 0 0 0 0 0 TUNER
0 1 0 0 0 0 0 0 PHONO
0 0 0 1 0 0 0 0 AUX
0 0 0 0 1 0 0 0 CC
0 0 0 0 0 0 0 1 CD
IC202
LC7821
CL
DI
CE
/RES
VDD
VEE
VSS
S
M274
C234
0.47U
C236
47P
R248
47K
R242
36K
R243
47K
R241
1K
R245
47K
T203
BC550C
T204
BC560C
C249
470P
C248
22N
C233
10U
C235
47P
R238
4.7K
C237
10U
R244
1K
R207
1K
REC L
C232
47P
R255
10
R254
470
C242
10N
R253
470
C241
10N
R233
47K
R230
36K
R231
47K
R234
1K
R225
47K
T201
BC550C
T202
BC560C
C250
470P
C251
22N
C229
10U
C230
0.47U
C226
47P
C225
47P
R236
4.7K
C224
10U
R232
1K
R208
1K
REC R
C228
47P
R256
10R
R249
4.7K
C239
47P
R220
4.7K
C220
47P
R250
N.F
C240
47P
R226
N.F
C222
47P



CR16 0.2W (KSW0204 DIN)
CR37 0.5W (KSW0411 DIN)
SFR16T (MSW0204 DIN)
CR25 0.33W (KSW0207 DIN)
CR52 0.67W (KSW0617 DIN)
SFR25H 0.6W (MSW0207 DIN)

LOW FLAMMABILITY
METAL OXYDE
SAFETY RESISTOR

CAPACITOR

ELECTROLYTIC
CERAMIC
TANTALUM ELECTROLYTIC
MULTILAYER
FOIL
POLYPROPYLEN (KS-KP)

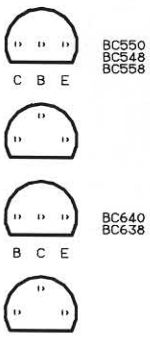
IF NOT OTHERWISE INDICATED ALL VOLTAGES ARE MEASURED AGAINST CHASSIS WITH A VOLTMETER (RI=10M). THE VALUES ARE VALID FOR 220V AC MAINS VOLTAGES.

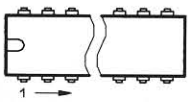
ATTENTION!
OBSERVE MOS COMPONENTS HANDLING INSTRUCTIONS WHEN SERVICING!

ABSOLUTELY NECESSARY FOR THE SAFETY OF THE SET. THESE COMPONENTS MEET THE SAFETY REQUIREMENTS ACCORDING TO VDE OR IEC RESP AND MUST BE REPLACED BY PARTS OF SAME SPECIFICATION ONLY.

MEASUREMENT POINT

ALIGNMENT POINT



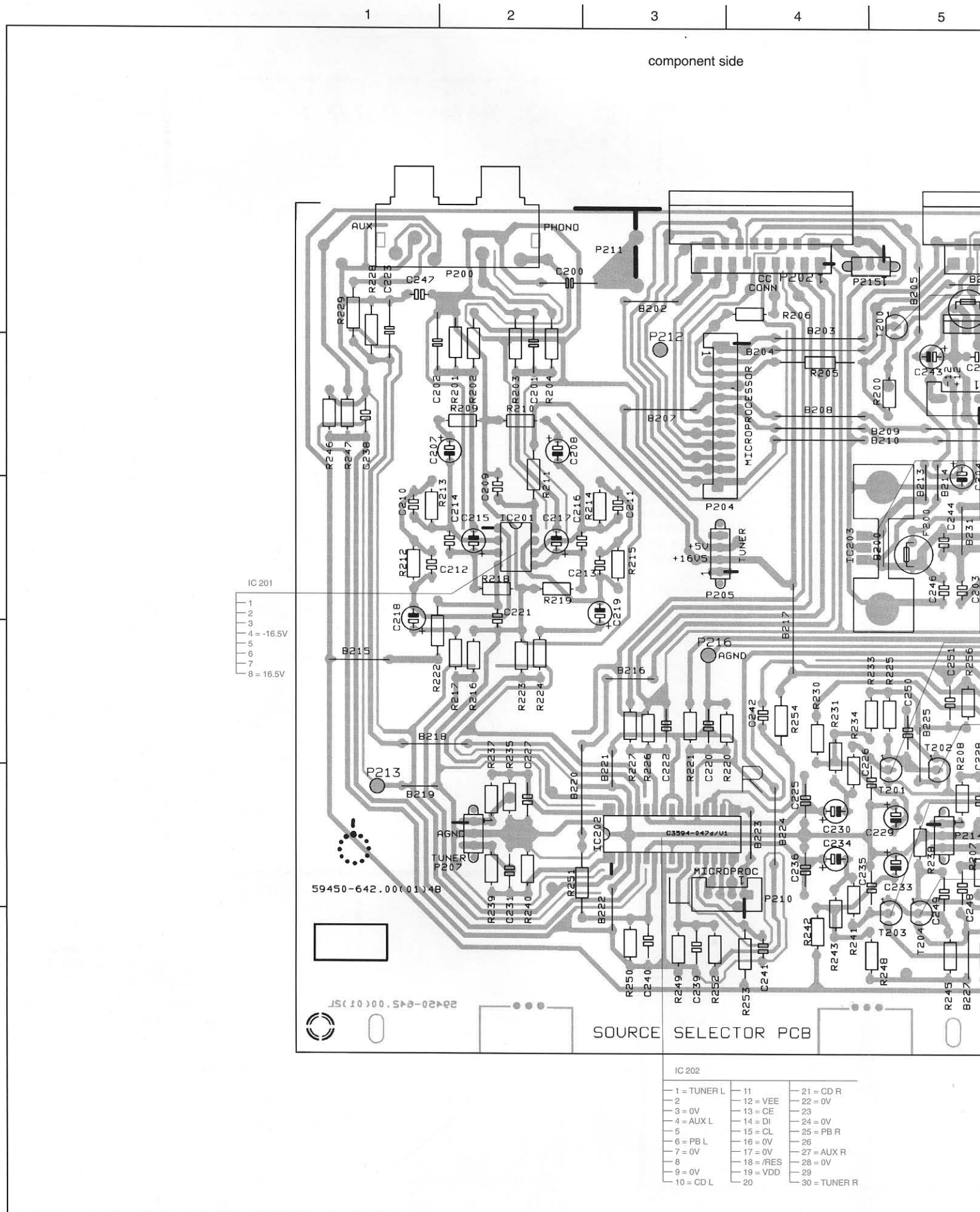


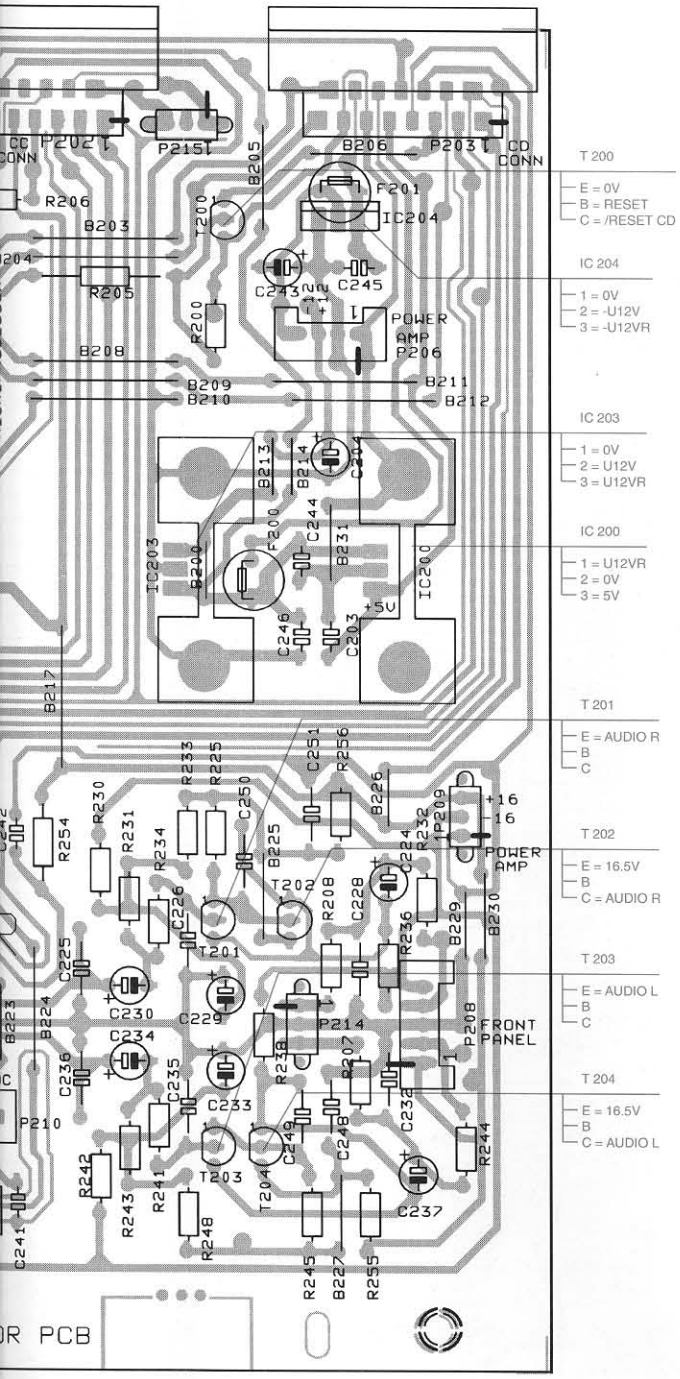
LM833	MOS
LM358	
4966	MOS
M50726	MOS
LC7520	MOS
TA8135	MOS
LC7565	MOS

TOP VIEW

BLOCK DIAGRAM
IC 202 LC7821
PAGE 44

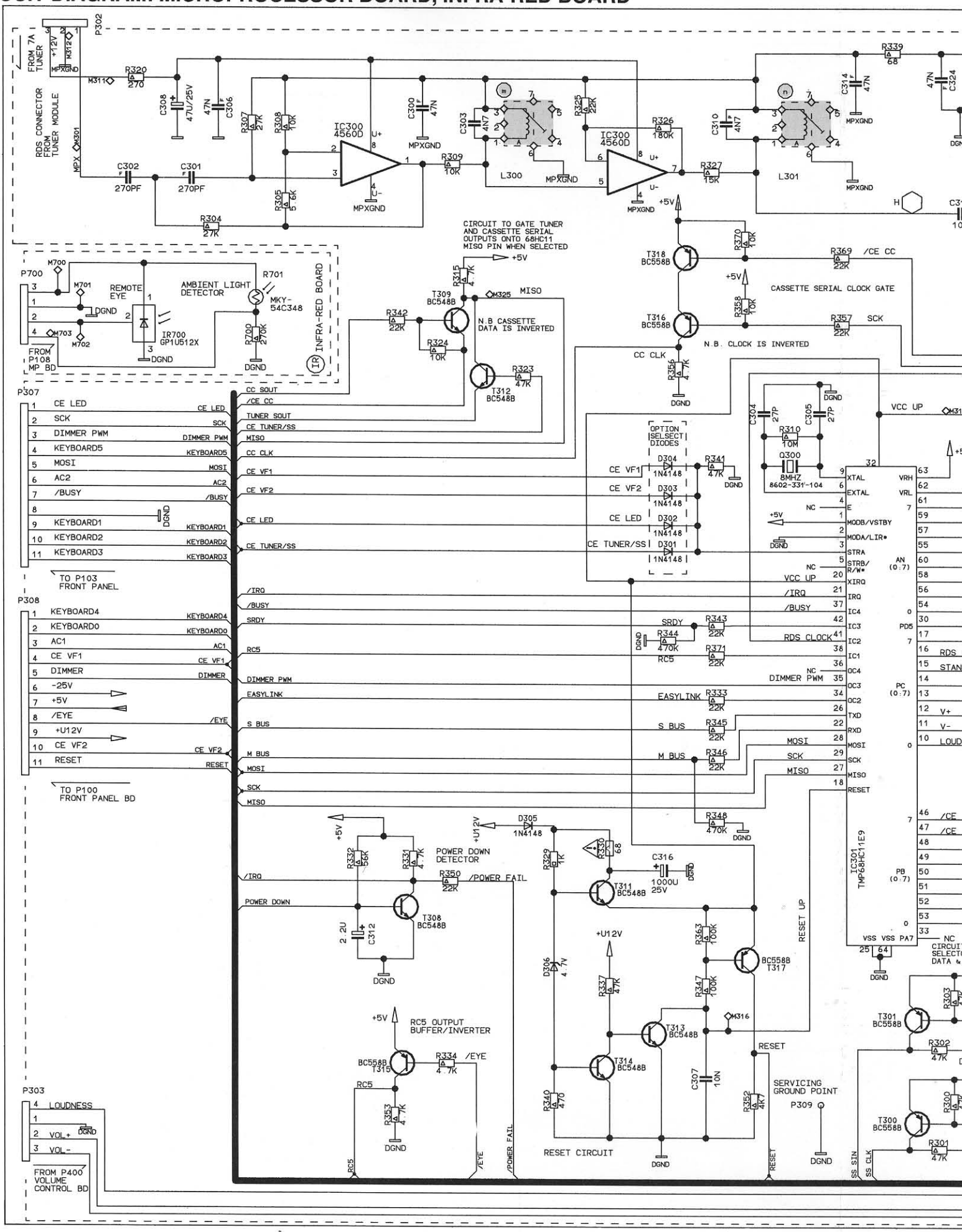
SOURCE SELECTOR PCB

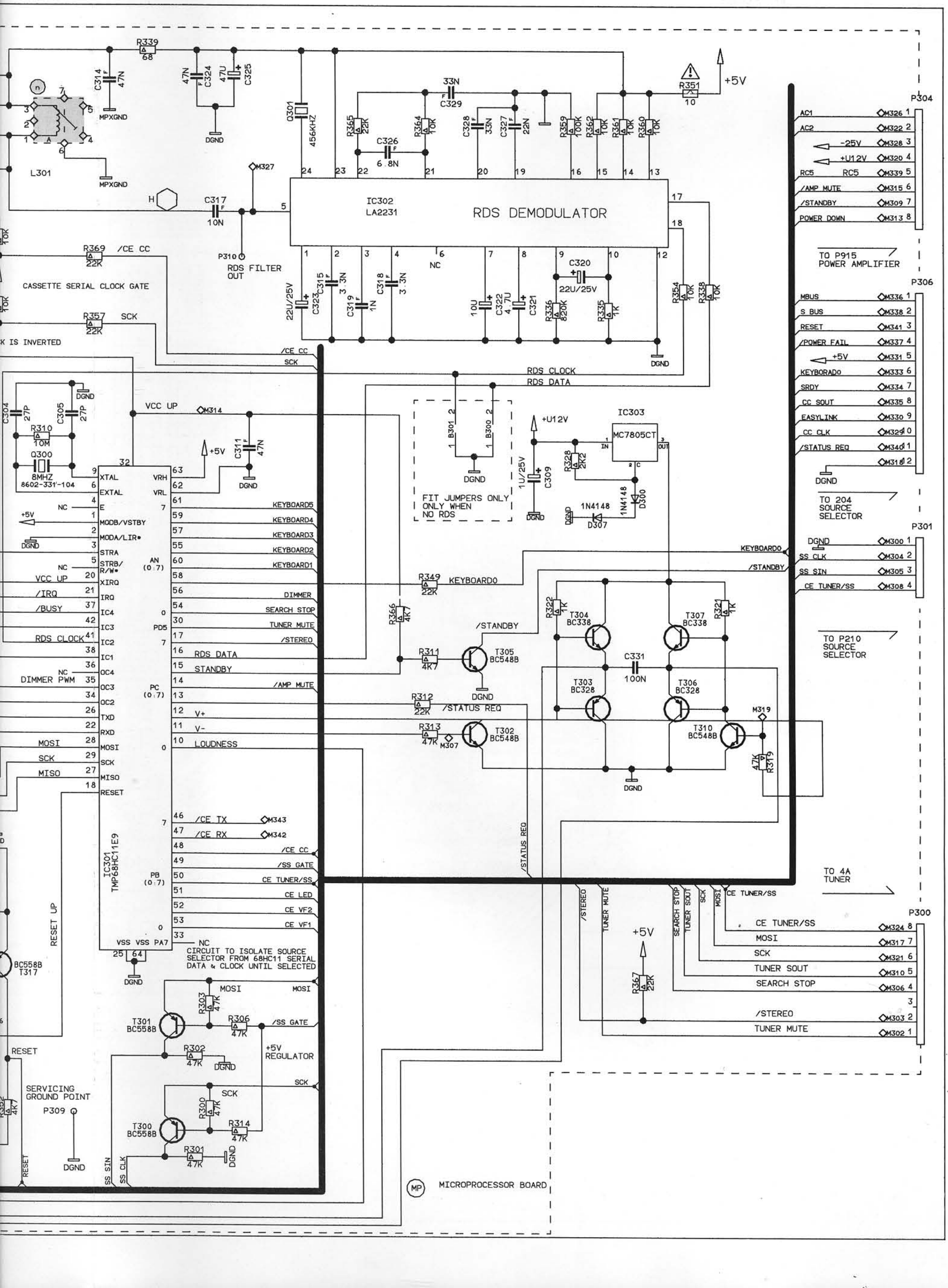




C 200	F 2	P 212	E 3
C 201	E 2	P 213	B 1
C 202	E 1	P 214	B 5
C 203	D 5	P 215	F 4
C 207	E 2	P 216	C 3
C 208	E 2	R 200	E 5
C 209	D 2	R 201	E 2
C 210	D 1	R 202	E 2
C 211	D 3	R 203	E 2
C 212	D 1	R 204	E 2
C 213	D 3	R 205	E 4
C 214	D 2	R 206	F 4
C 215	D 2	R 207	B 5
C 216	D 2	R 208	B 5
C 217	D 2	R 209	E 2
C 218	D 1	R 210	E 2
C 219	D 3	R 211	E 2
C 220	C 3	R 212	D 1
C 221	D 2	R 213	D 1
C 222	C 3	R 214	D 3
C 223	F 1	R 215	D 3
C 224	C 5	R 216	C 2
C 225	B 4	R 217	C 2
C 226	B 4	R 218	D 2
C 227	B 2	R 219	D 2
C 228	B 5	R 220	C 3
C 229	B 5	R 221	C 3
C 230	B 4	R 222	C 1
C 231	B 2	R 223	C 2
C 232	B 5	R 224	C 2
C 233	B 5	R 225	C 5
C 234	B 4	R 226	C 3
C 235	B 4	R 227	C 3
C 236	B 4	R 228	F 1
C 237	A 5	R 229	F 1
C 238	E 1	R 230	C 4
C 239	A 3	R 231	C 4
C 240	A 3	R 232	C 6
C 241	A 4	R 233	C 4
C 242	C 4	R 234	C 4
C 243	E 5	R 235	B 2
C 244	D 5	R 236	B 5
C 245	E 5	R 237	B 2
C 246	D 5	R 238	B 5
C 247	F 1	R 239	B 2
C 248	B 5	R 240	B 2
C 249	B 5	R 241	B 4
C 250	C 5	R 242	A 4
C 251	C 5	R 243	A 4
F 200	D 5	R 244	A 6
F 201	F 5	R 245	A 5
IC 200	D 5	R 246	E 1
IC 201	D 2	R 247	E 1
IC 202	B 3	R 248	A 5
IC 203	D 5	R 249	A 3
IC 204	F 5	R 250	A 3
P 200	F 2	R 251	B 2
P 202	F 4	R 252	A 3
P 203	F 6	R 253	A 4
P 204	E 3	R 254	C 4
P 205	D 3	R 255	A 5
P 206	E 5	R 256	C 5
P 207	B 2	T 200	F 5
P 208	B 6	T 201	B 5
P 209	C 6	T 202	B 5
P 210	B 4	T 203	A 5
P 211	F 3	T 204	A 5

CIRCUIT DIAGRAM: MICROPROCESSOR BOARD, INFRA-RED BOARD

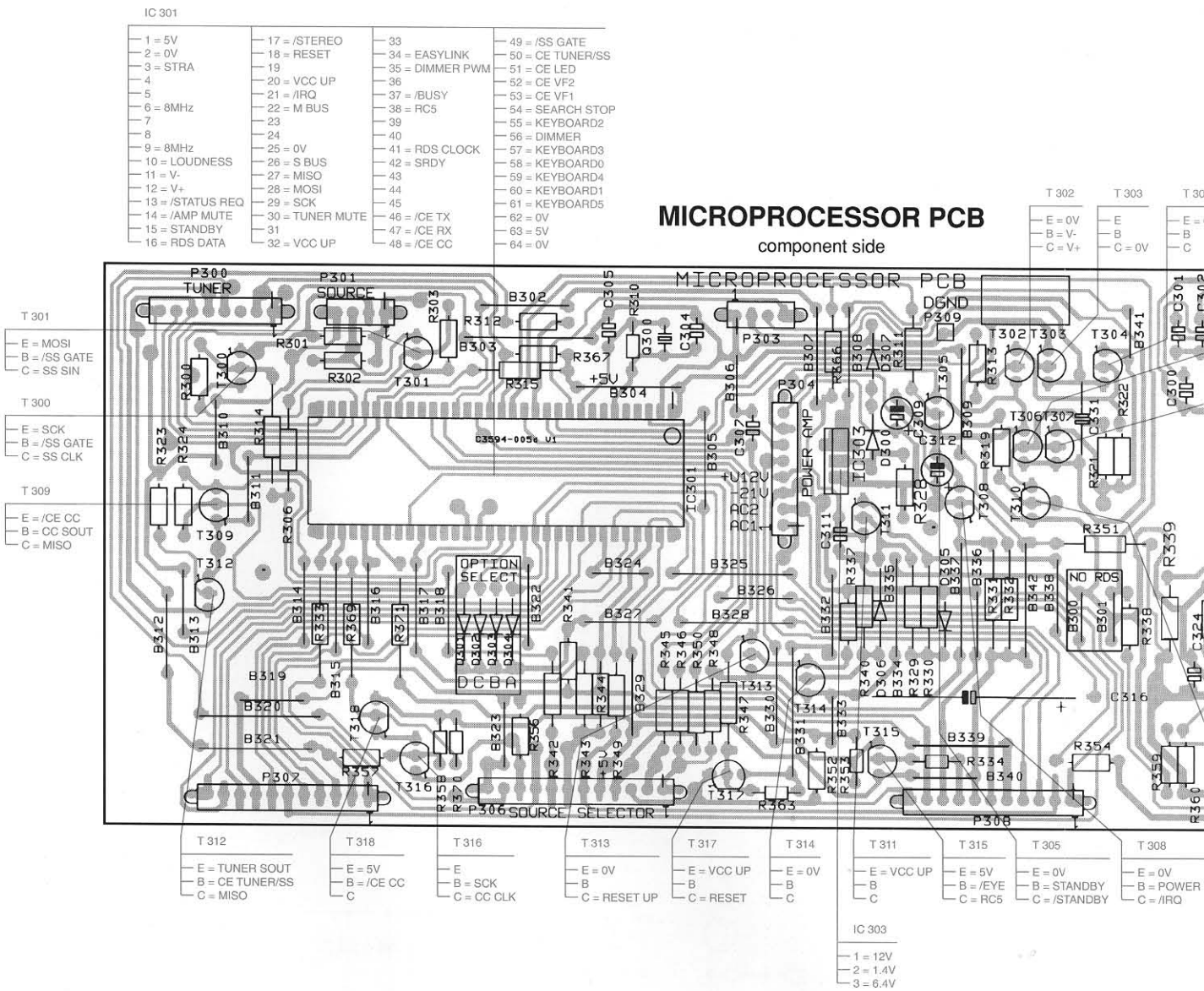




RDS DEMODULATOR
IC302
LA2231
IC301
TMP68HC11E9
IC303
MC7805CT
L301
Q301
456KHZ
Q300
8MHZ
8602-331-104
CASSETTE SERIAL CLOCK GATE
K IS INVERTED
RDS FILTER
OUT
P310
FIT JUMPERS ONLY
ONLY WHEN
NO RDS
B301
B300
CIRCUIT TO ISOLATE SOURCE
SELECTOR FROM 68HC11 SERIAL
DATA & CLOCK UNTIL SELECTED
+5V
REGULATOR
SERVICING
GROUND POINT
P309
MICROPROCESSOR BOARD
P304
AC1
AC2
-25V
+U12V
RC5
/AMP MUTE
/STANDBY
POWER DOWN
TO P915
POWER AMPLIFIER
P306
MBUS
S BUS
RESET
/POWER FAIL
+5V
KEYBORAD0
SRDY
CC SOUT
EASYLINK
CC CLK
/STATUS REQ
DGND
TO 204
SOURCE
SELECTOR
P301
SS CLK
SS SIN
CE TUNER/SS
TO P210
SOURCE
SELECTOR
TO 4A
TUNER
P300
CE TUNER/SS
MOSI
SCK
TUNER SOUT
SEARCH STOP
/STEREO
TUNER MUTE
KEYBOARD0
KEYBOARD1
KEYBOARD2
KEYBOARD3
KEYBOARD4
KEYBOARD5
DIMMER
SEARCH STOP
TUNER MUTE
/STEREO
RDS DATA
RDS CLOCK
STANDBY
/AMP MUTE
LOUDNESS
/CE TX
/CE RX
/CE CC
/SS GATE
CE TUNER/SS
CE LED
CE VF2
CE VF1
VCC UP
/IRQ
/BUSY
DIMMER PWM
RESET UP
T300 BC558B
T301 BC558B
T302 BC548B
T303 BC328
T304 BC338
T305 BC548B
T306 BC328
T307 BC338
T310 BC548B
T317 BC558B
D300 1N4148
D307 1N4148

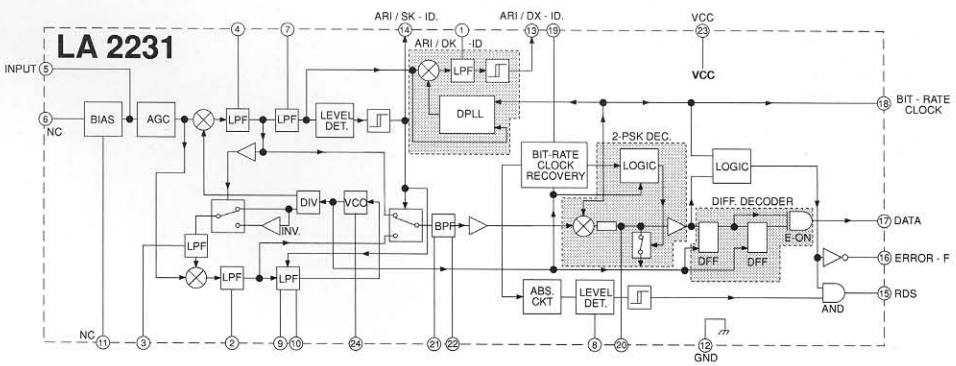
MICROPROCESSOR PCB, INFRA-RED PCB

C 300	C 6	C 310	B 7	C 321	B 7	D 300	C 5	IC 302	A 7	P 306	A 3	R 302	C 2	R 312	C 3	R 328	B 5	R 338	B 6	R 348	A 4	R 359	A 6	R 370	A 2	T 3			
C 301	C 6	C 311	B 4	C 322	B 7	D 301	B 2	IC 303	B 4	P 307	A 1	R 303	C 2	R 313	C 5	R 329	B 5	R 339	B 6	R 349	A 3	R 360	A 6	R 371	B 2	T 3			
C 302	C 6	C 312	B 5	C 323	B 8	D 302	B 2	IR 700	B 10	P 308	A 5	R 304	C 6	R 314	C 1	R 330	B 5	R 340	B 4	R 350	A 4	R 361	A 6	R 700	B 10	T 3			
C 303	C 7	C 314	B 6	C 324	A 6	D 303	B 3	L 300	C 7	P 309	C 5	R 305	C 7	R 315	C 3	R 331	B 5	R 341	A 3	R 351	B 6	R 362	A 6	R 701	B 10	T 3			
C 304	C 4	C 315	B 8	C 325	A 8	D 304	B 3	L 301	B 7	P 310	B 7	R 306	B 1	R 319	B 5	R 332	B 5	R 342	A 3	R 352	A 4	R 363	A 4	T 300	C 1	T 3			
C 305	C 3	C 316	A 5	C 326	A 7	D 305	B 5	P 300	C 1	P 700	B 11	R 307	C 6	R 320	C 7	R 333	B 2	R 343	A 3	R 353	A 4	R 364	A 7	T 301	C 2	T 3			
C 306	C 6	C 317	B 7	C 327	A 7	D 306	B 5	P 301	C 2	Q 300	C 3	R 308	C 7	R 321	B 6	R 334	A 5	R 344	A 3	R 354	A 6	R 365	A 7	T 302	C 5	T 3			
C 307	C 4	C 318	B 7	C 328	A 7	D 307	C 5	P 302	C 8	Q 301	A 8	R 309	C 7	R 322	B 6	R 335	B 6	R 345	A 3	R 356	A 3	R 366	C 4	T 303	C 5	T 3			
C 308	C 7	C 319	B 8	C 329	A 7	IC 300	C 7	P 303	C 4	R 300	C 1	R 310	C 3	R 323	B 1	R 336	B 6	R 346	A 3	R 357	A 2	R 367	C 3	T 304	C 6	T 3			
C 309	C 5	C 320	B 7	C 331	C 6	IC 301	B 3	P 304	B 4	R 301	C 2	R 311	C 5	R 324	B 1	R 337	B 4	R 347	A 4	R 358	A 2	R 369	B 2	T 305	C 5	T 3			

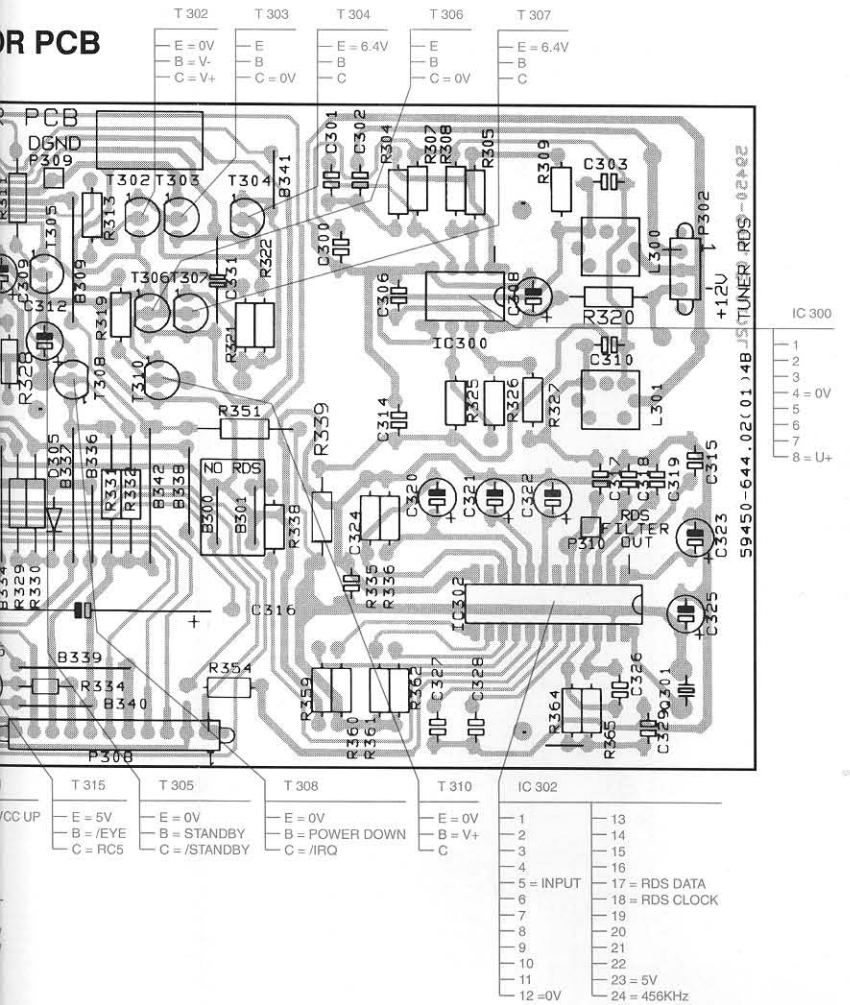


5	6	7	8	9	10	11

R 348	A 4	R 359	A 6	R 370	A 2	T 306	C 5	T 316	A 2
R 349	A 3	R 360	A 6	R 371	B 2	T 307	C 5	T 317	A 4
R 350	A 4	R 361	A 6	R 700	B 10	T 308	B 5	T 318	A 2
R 351	B 6	R 362	A 6	R 701	B 10	T 309	B 1		
R 352	A 4	R 363	A 4	T 300	C 1	T 310	B 5		
R 353	A 4	R 364	A 7	T 301	C 2	T 311	B 4		
R 354	A 6	R 365	A 7	T 302	C 5	T 312	B 1		
R 356	A 3	R 366	C 4	T 303	C 5	T 313	A 4		
R 357	A 2	R 367	C 3	T 304	C 6	T 314	A 4		
R 358	A 2	R 369	B 2	T 305	C 5	T 315	A 5		

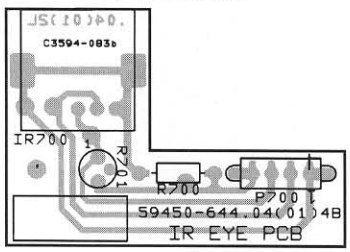


OR PCB



INFRA-RED PCB

component side



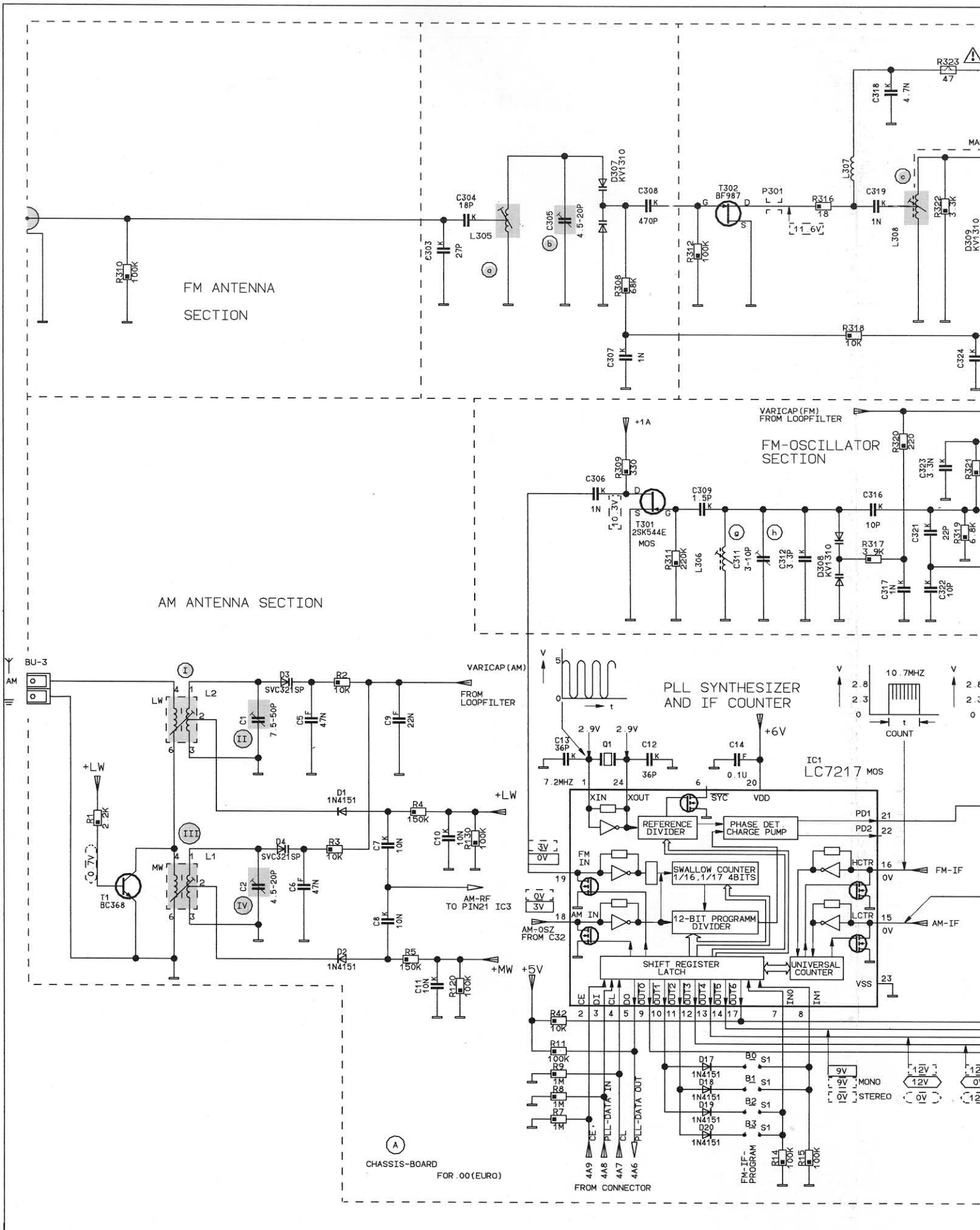
5	6	7	8	9	10	11

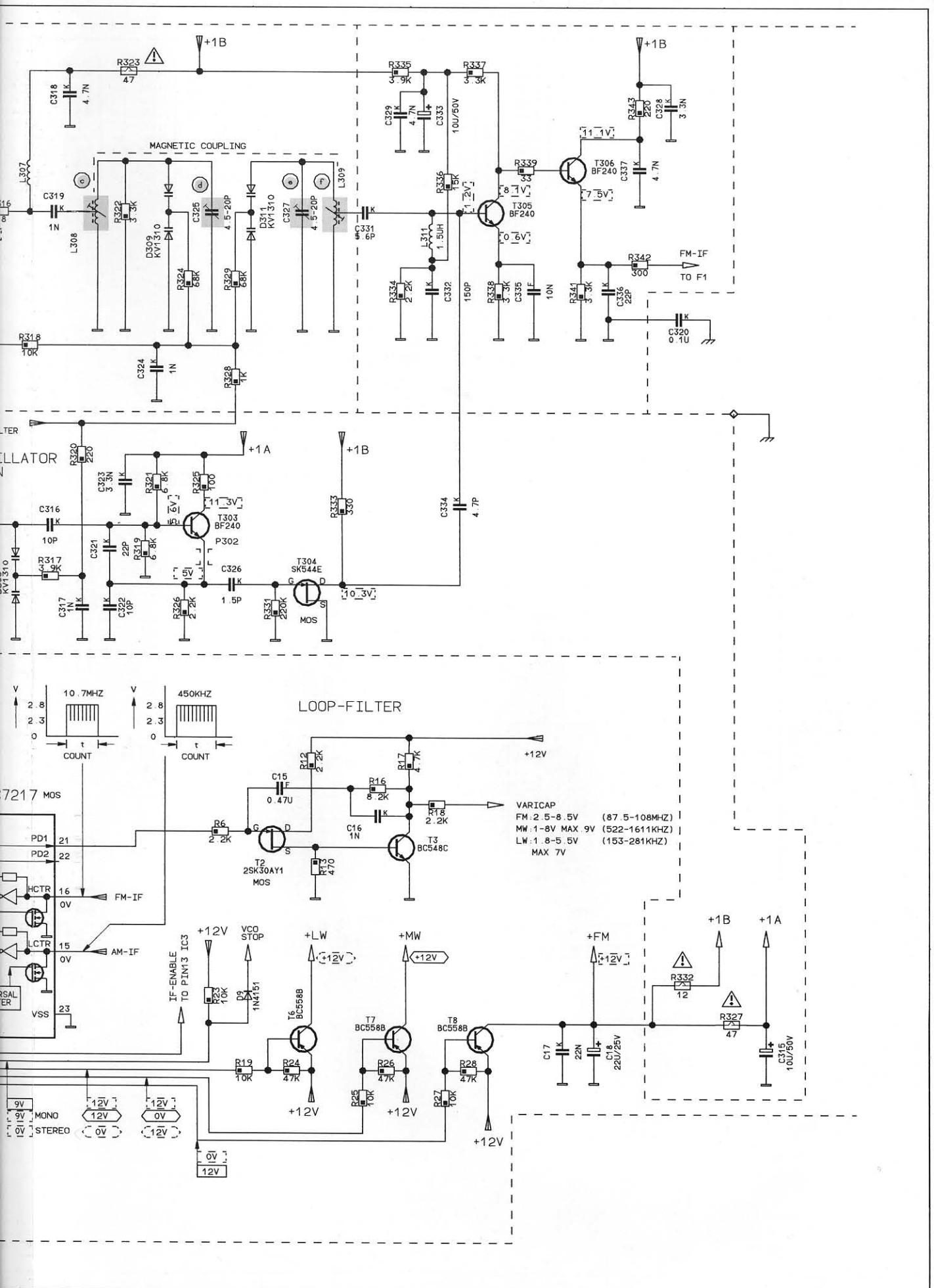
C

B

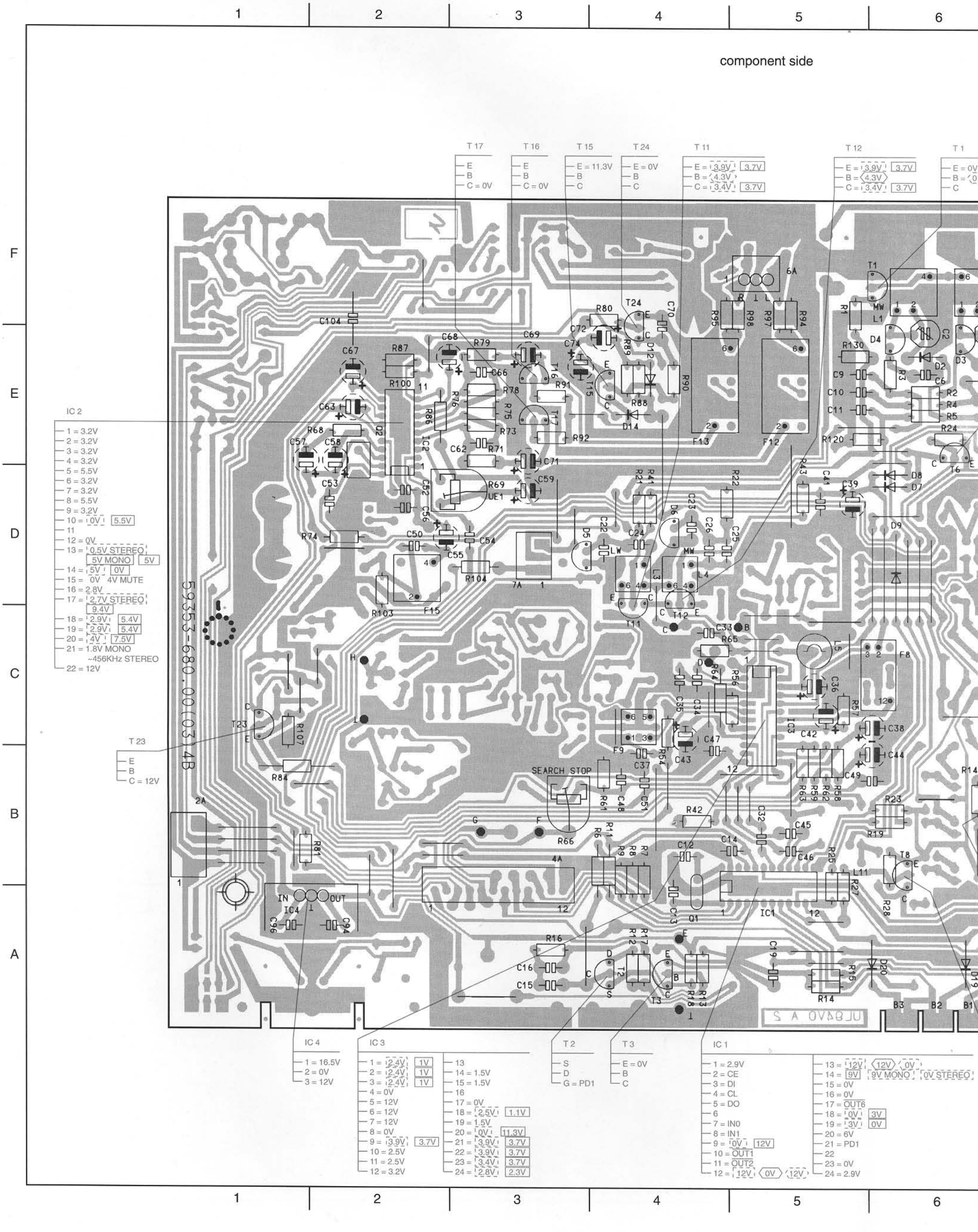
A

CIRCUIT DIAGRAM TUNER MODULE - PART 1



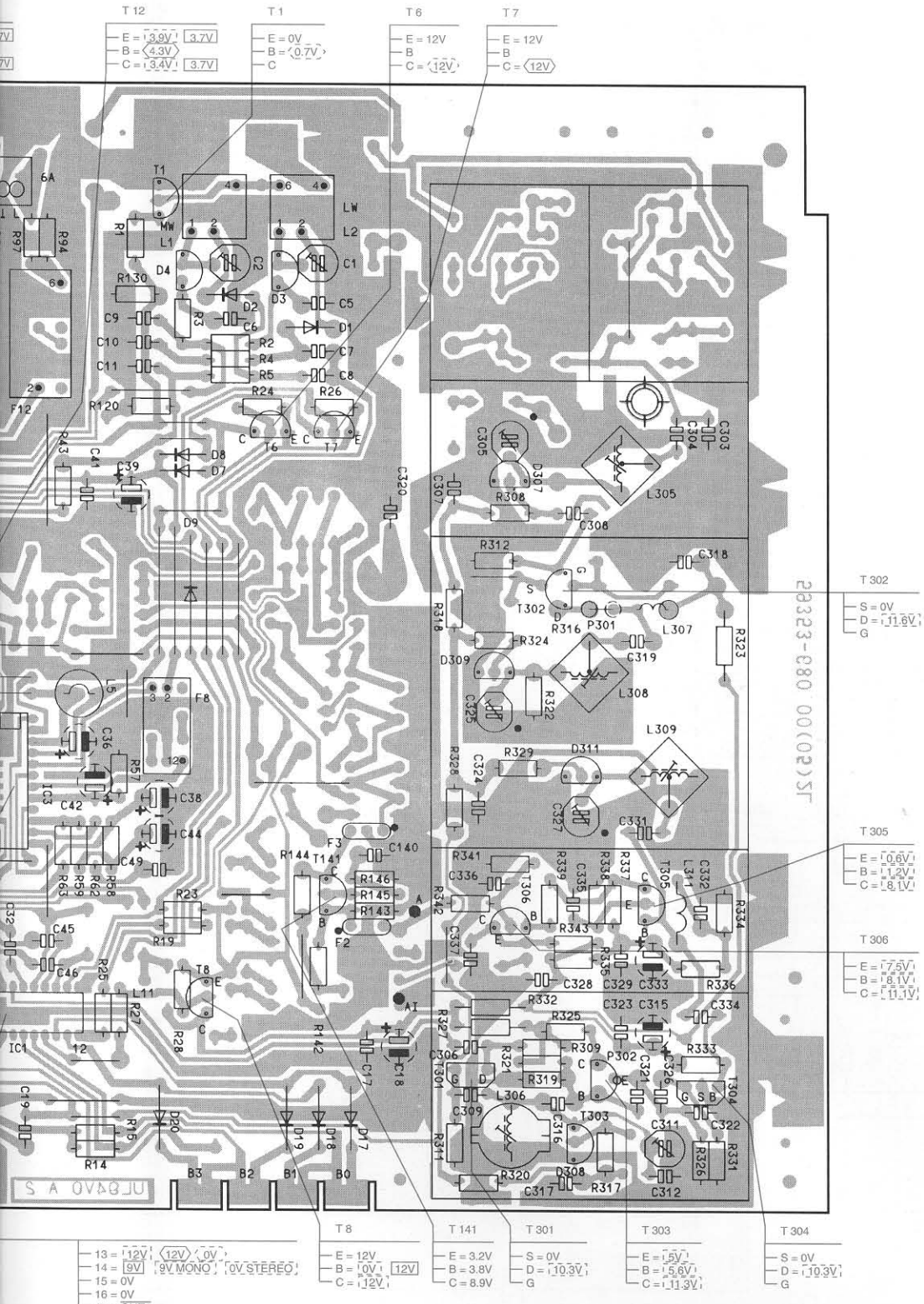

+1B
R323
47
C318
4.7N
MAGNETIC COUPLING
L307
C319
1N
L308
R322
3.3K
D309
KV1310
C325
4.5-20P
D311
KV1310
C327
4.5-20P
L309
C331
5.6P
R324
68K
R329
68K
R318
10K
C324
1N
R328
1K
R335
3.9K
R337
3.3K
C329
4.7N
C333
10U/50V
R336
15K
R339
33
T305
BF240
L311
1.5UH
R334
2.2K
C332
150P
R338
3.3K
C335
10N
R343
220
C328
3.3N
T306
BF240
C337
4.7N
R342
300
FM-IF
TO F1
R341
3.3K
C336
22P
C320
0.1U
+1A
R320
220
C323
3.3N
R321
6.8K
R325
100
T303
BF240
P302
C316
10P
R319
6.8K
C321
22P
R317
4.9K
C326
1.5P
T304
SK544E
MOS
R333
330
C334
4.7P
C317
1N
C322
10P
R326
2.2K
R331
220K
10.7MHZ
450KHZ
COUNT
LOOP-FILTER
+12V
R12
2.2K
R17
4.7K
C15
0.47U
R16
8.2K
R18
2.2K
C16
1N
R6
2.2K
T2
2SK30AY1
MOS
T3
BC548C
R13
470
VARICAP
FM:2.5-8.5V (87.5-108MHZ)
MW:1-8V MAX 9V (522-1611KHZ)
LW:1.8-5.5V (153-281KHZ)
MAX 7V
PD1
PD2
HCTR
FM-IF
LCTR
AM-IF
VSS
IF-ENABLE
TO PIN13 IC3
VCO
STOP
R23
10K
D7
1N4151
+LW
+MW
+FM
T6
BC558B
T7
BC558B
T8
BC558B
R19
10K
R24
47K
R26
47K
R28
47K
R25
10K
R27
10K
C17
22N
C18
220/25V
R332
12
R327
47
C315
10U/50V
MONO
STEREO

TUNER PCB


component side
T 17
E
B
C = 0V
T 16
E
B
C = 0V
T 15
E = 11.3V
B
C
T 24
E = 0V
B
C
T 11
E = 3.9V 3.7V
B = 4.3V
C = 3.4V 3.7V
T 12
E = 3.9V 3.7V
B = 4.3V
C = 3.4V 3.7V
IC 2
1 = 3.2V
2 = 3.2V
3 = 3.2V
4 = 3.2V
5 = 5.5V
6 = 3.2V
7 = 3.2V
8 = 5.5V
9 = 3.2V
10 = 0V 5.5V
11
12 = 0V
13 = 0.5V STEREO 5V MONO 5V
14 = 5V 0V
15 = 0V 4V MUTE
16 = 2.8V
17 = 2.7V STEREO 9.4V
18 = 2.9V 5.4V
19 = 2.9V 5.4V
20 = 4V 7.5V
21 = 1.8V MONO ~456KHz STEREO
22 = 12V
T 23
E
B
C = 12V
SEARCH STOP
IC 4
1 = 16.5V
2 = 0V
3 = 12V
IC 3
1 = 2.4V 1V
2 = 2.4V 1V
3 = 2.4V 1V
4 = 0V
5 = 12V
6 = 12V
7 = 12V
8 = 0V
9 = 3.9V 3.7V
10 = 2.5V
11 = 2.5V
12 = 3.2V
13
14 = 1.5V
15 = 1.5V
16
17 = 0V
18 = 2.5V 1.1V
19 = 1.5V
20 = 0V 11.3V
21 = 3.9V 3.7V
22 = 3.9V 3.7V
23 = 3.4V 3.7V
24 = 2.8V 2.3V
T 2
S
D
G = PD1
T 3
E = 0V
B
C
IC 1
1 = 2.9V
2 = CE
3 = DI
4 = CL
5 = DO
6
7 = IN0
8 = IN1
9 = 0V 12V
10 = OUT1
11 = OUT2
12 = 12V 0V 12V
13 = 12V 12V 0V
14 = 9V 9V MONO 0V STEREO
15 = 0V
16 = 0V
17 = OUT6
18 = 0V 3V
19 = 3V 0V
20 = 6V
21 = PD1
22
23 = 0V
24 = 2.9V

5 | 6 | 7 | 8 | 9

onent side

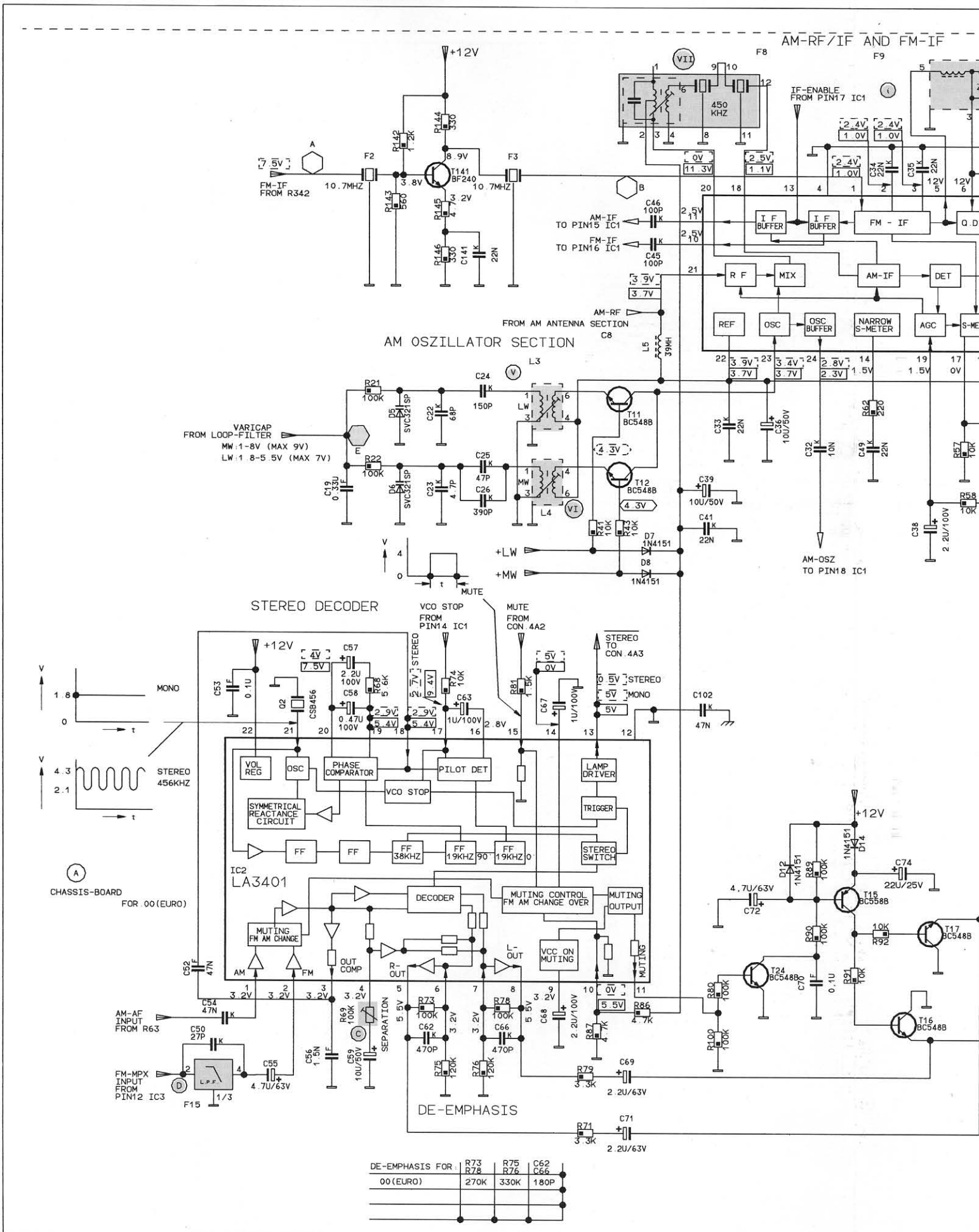


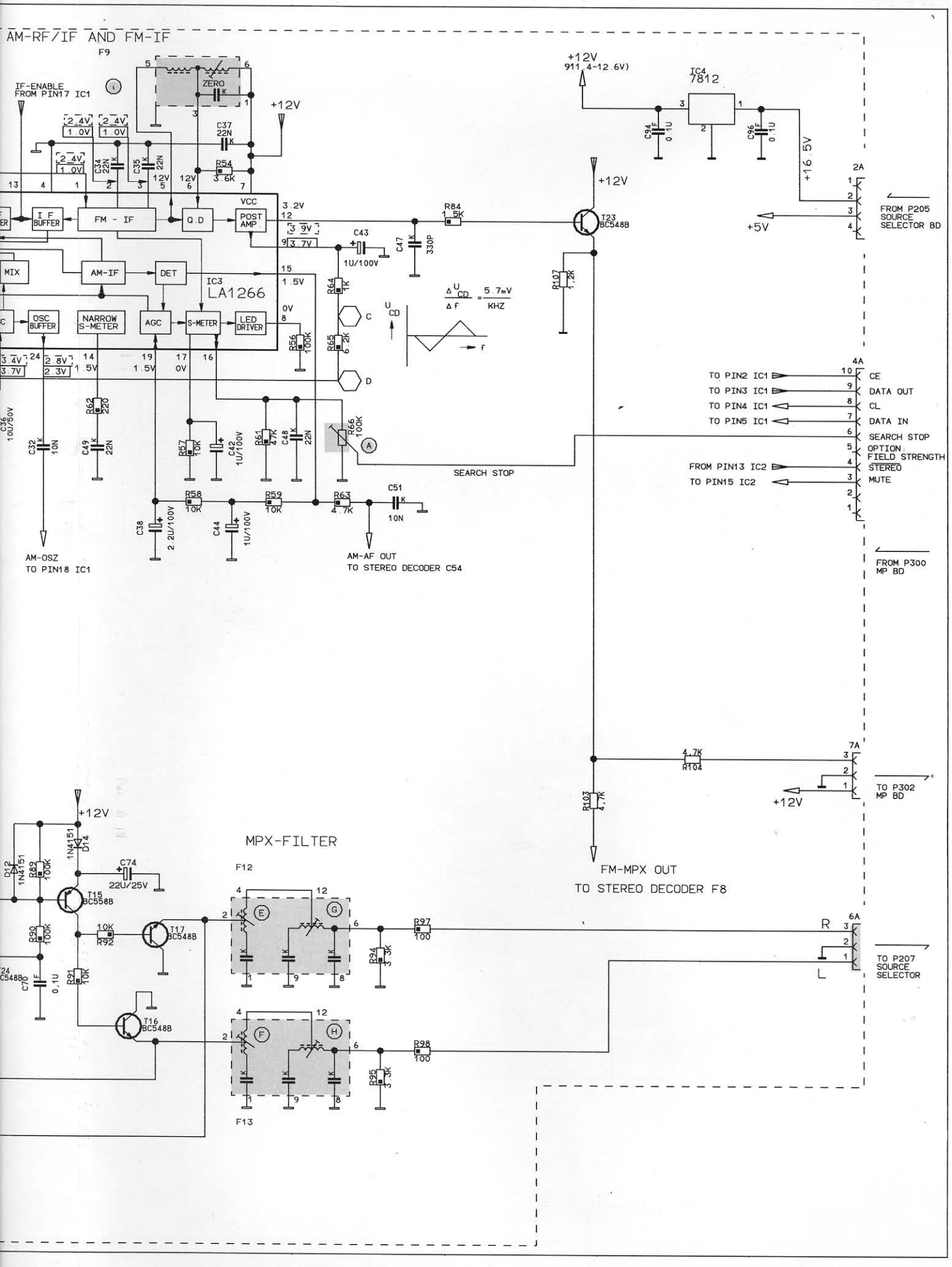
2 A	B 1	C 329	B 8	R 063	B 5
4 A	B 3	C 331	C 8	R 064	C 4
6 A	F 5	C 332	B 8	R 065	C 4
7 A	D 3	C 333	B 8	R 066	B 3
C 001	E 6	C 334	B 8	R 068	E 2
C 002	E 6	C 335	B 8	R 069	D 3
C 005	E 6	C 336	B 7	R 071	E 3
C 006	E 6	C 337	B 7	R 073	E 3
C 007	E 6	D 001	E 6	R 074	D 2
C 008	E 6	D 002	E 6	R 075	E 3
C 009	E 5	D 003	E 6	R 076	E 3
C 010	E 5	D 004	E 6	R 078	E 3
C 011	E 5	D 005	D 3	R 079	E 3
C 012	B 4	D 006	D 4	R 080	F 4
C 013	A 4	D 007	D 6	R 081	B 1
C 014	B 5	D 008	D 6	R 084	B 1
C 015	A 3	D 009	D 6	R 086	E 2
C 016	A 3	D 012	E 4	R 087	E 2
C 017	A 7	D 014	E 4	R 088	E 4
C 018	A 7	D 014	E 4	R 089	E 4
C 019	A 5	D 017	A 7	R 090	E 4
C 022	D 4	D 018	A 6	R 091	E 3
C 023	D 4	D 019	A 6	R 092	E 3
C 024	D 4	D 020	A 6	R 094	F 5
C 025	D 4	D 307	D 7	R 095	F 4
C 026	D 4	D 309	C 7	R 097	F 5
C 032	B 5	D 311	C 8	R 098	F 5
C 033	C 4	F 002	B 7	R 100	E 2
C 034	C 4	F 003	B 7	R 103	D 2
C 035	C 4	F 008	C 6	R 104	D 3
C 036	C 5	F 009	C 4	R 107	C 1
C 037	B 4	F 012	E 5	R 120	E 5
C 038	C 6	F 013	E 4	R 130	E 5
C 039	D 5	F 015	D 2	R 142	B 6
C 041	D 5	IC 001	B 5	R 143	B 7
C 042	C 5	IC 002	E 2	R 144	B 6
C 043	C 4	IC 003	C 5	R 145	B 7
C 044	B 6	IC 004	A 1	R 146	B 7
C 045	B 5	L 001	F 6	R 308	D 7
C 046	B 5	L 002	F 6	R 309	A 8
C 047	B 4	L 003	D 4	R 311	A 7
C 048	B 4	L 004	D 4	R 312	D 7
C 049	B 6	L 005	C 5	R 316	D 8
C 050	D 2	L 305	D 8	R 317	A 8
C 051	B 4	L 306	A 7	R 318	D 7
C 052	D 2	L 307	D 8	R 319	A 8
C 053	D 2	L 308	C 8	R 320	A 7
C 054	D 3	L 309	C 8	R 321	A 8
C 055	D 2	L 311	B 8	R 323	C 8
C 056	D 2	P 301	D 8	R 324	C 7
C 057	E 1	P 302	A 8	R 325	A 8
C 058	E 2	Q 001	A 4	R 326	A 8
C 059	D 3	Q 002	E 2	R 327	A 7
C 062	E 3	R 001	F 5	R 328	C 7
C 063	E 2	R 002	E 6	R 329	C 7
C 067	E 2	R 003	E 6	R 331	A 8
C 068	E 3	R 004	E 6	R 332	B 7
C 069	E 3	R 005	E 6	R 332	C 7
C 070	F 4	R 006	B 4	R 333	A 8
C 071	E 3	R 007	B 4	R 334	B 8
C 072	E 4	R 008	B 4	R 335	B 8
C 074	E 3	R 009	B 4	R 336	B 8
C 094	A 2	R 011	B 4	R 337	B 8
C 096	A 1	R 012	A 4	R 338	B 8
C 104	F 2	R 013	A 4	R 339	B 8
C 140	B 7	R 014	A 5	R 341	B 7
C 303	E 8	R 015	A 5	R 342	B 7
C 304	E 8	R 016	A 3	R 343	B 8
C 305	E 7	R 017	A 4	T 001	F 6
C 306	A 7	R 018	A 4	T 002	A 4
C 307	D 7	R 019	B 6	T 003	A 4
C 308	A 8	R 021	D 4	T 006	E 6
C 308	D 8	R 022	D 4	T 007	E 6
C 309	A 7	R 023	B 6	T 008	B 6
C 311	A 8	R 024	E 6	T 011	C 4
C 312	A 8	R 025	B 5	T 012	D 4
C 315	A 8	R 026	E 6	T 015	E 4
C 316	A 8	R 027	B 5	T 016	E 3
C 318	D 8	R 028	B 6	T 017	E 3
C 319	C 8	R 041	D 4	T 023	C 1
C 320	D 7	R 042	B 4	T 024	F 4
C 321	A 8	R 043	D 5	T 141	B 6
C 322	A 8	R 054	C 4	T 301	A 7
C 323	A 8	R 056	C 5	T 302	D 8
C 324	C 7	R 057	C 5	T 303	A 8
C 325	C 7	R 058	B 5	T 304	A 8
C 326	A 8	R 059	B 5	T 305	B 8
C 327	C 8	R 061	B 4	T 306	B 7
C 328	B 8	R 062	B 5		

F E D C B A

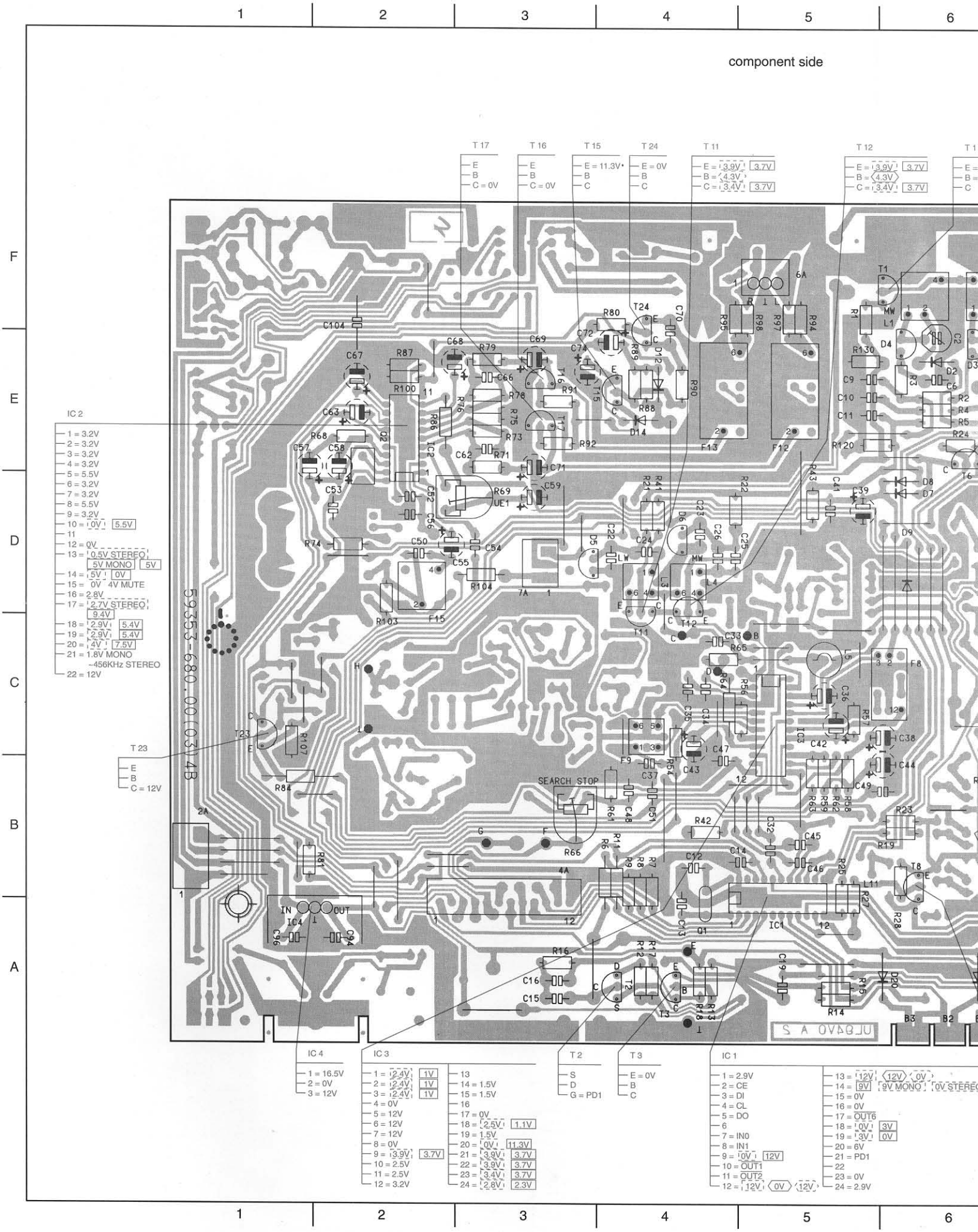
5 | 6 | 7 | 8 | 9

CIRCUIT DIAGRAM TUNER MODULE - PART 2

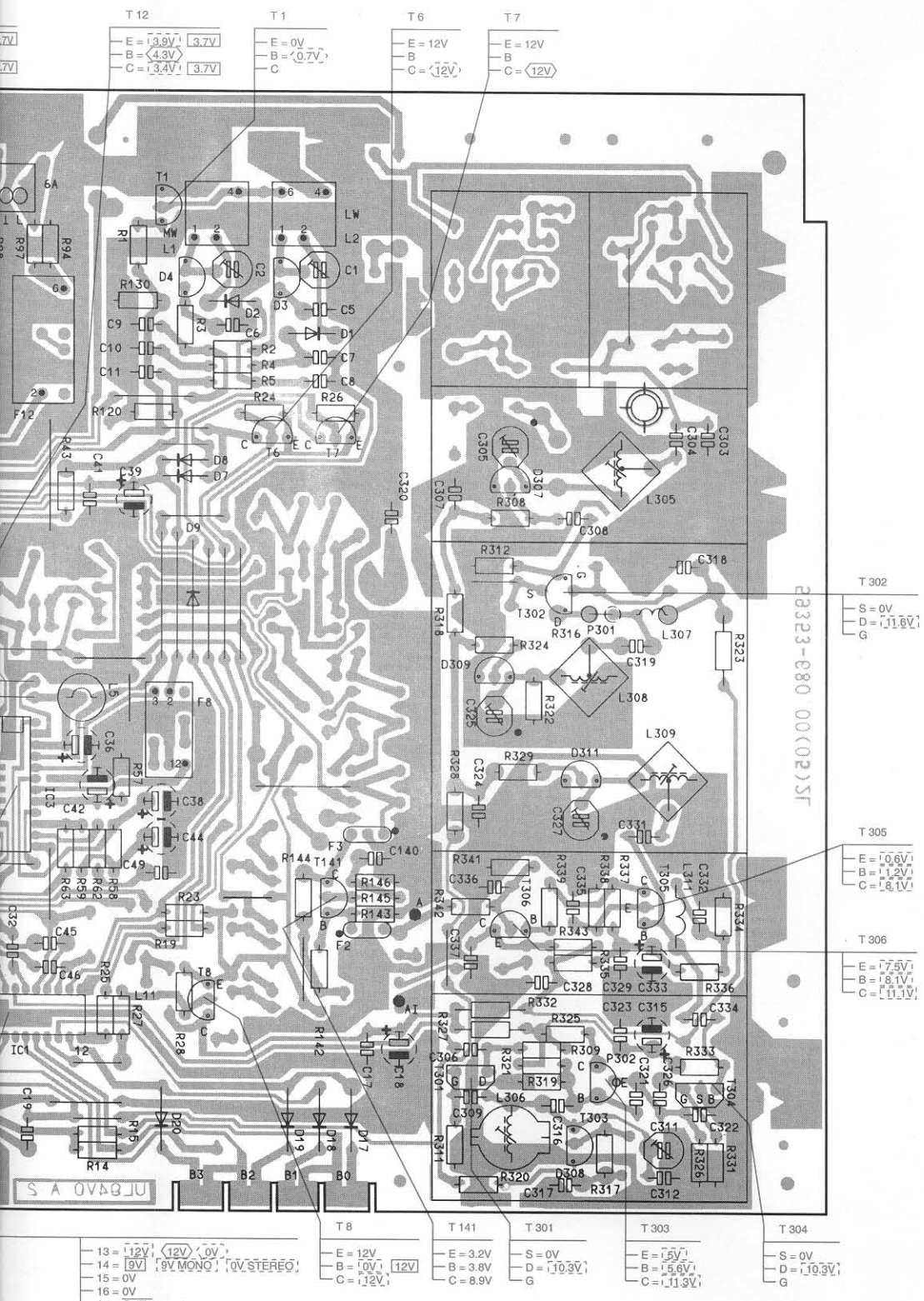



AM-RF/IF AND FM-IF
F9
IF-ENABLE FROM PIN17 IC1
ZERO
+12V
C37 22N
R54 3.6K
I F BUFFER
FM - IF
Q.D
POST AMP
VCC
3.2V
R84 1.5K
T23 BC548B
C43
1U/100V
C47 330P
MIX
AM-IF
DET
IC3 LA1266
OSC BUFFER
NARROW S-METER
AGC
S-METER
LED DRIVER
R64 1K
R65 6.2K
R56 100K
C
D
U CD
f
ΔU CD / Δf = 5.7mV/KHZ
R107 1.2K
+12V (9V-14.6V)
IC4 7812
C94 0.1U
C96 0.1U
+16.5V
+5V
2A
FROM P205 SOURCE SELECTOR BD
4A
TO PIN2 IC1
TO PIN3 IC1
TO PIN4 IC1
TO PIN5 IC1
CE
DATA OUT
CL
DATA IN
SEARCH STOP
OPTION: FIELD STRENGTH
STEREO
MUTE
FROM PIN13 IC2
TO PIN15 IC2
FROM P300 MP BD
R62 220
C32 10N
C49 22N
R57 10K
C42 1U/100V
R61 47K
C48 22N
R66 100K
A
SEARCH STOP
C36 10U/50V
R58 10K
R59 10K
R63 4.7K
C51 10N
C38 2.2U/100V
C44 1U/100V
AM-OSZ TO PIN18 IC1
AM-AF OUT TO STEREO DECODER C54
R104 4.7K
7A
TO P302 MP BD
R103 4.7K
FM-MPX OUT TO STEREO DECODER F8
+12V
D14 1N4151
D12 1N4151
C74 22U/25V
T15 BC558B
R89 100K
R90 100K
10K R92
T17 BC548B
R91 10K
C71 0.1U
T16 BC548B
MPX-FILTER
F12
F13
E
G
F
H
R94 3.3K
R95 3.3K
R97 100
R98 100
R
L
6A
TO P207 SOURCE SELECTOR

TUNER PCB


component side
1
2
3
4
5
6
A
B
C
D
E
F
T 17
E
B
C = 0V
T 16
E
B
C = 0V
T 15
E = 11.3V
B
C
T 24
E = 0V
B
C
T 11
E = 3.9V 3.7V
B = 4.3V
C = 3.4V 3.7V
T 12
E = 3.9V 3.7V
B = 4.3V
C = 3.4V 3.7V
IC 2
1 = 3.2V
2 = 3.2V
3 = 3.2V
4 = 3.2V
5 = 5.5V
6 = 3.2V
7 = 3.2V
8 = 5.5V
9 = 3.2V
10 = 0V 5.5V
11
12 = 0V
13 = 0.5V STEREO 5V MONO 5V
14 = 5V 0V
15 = 0V 4V MUTE
16 = 2.8V
17 = 2.7V STEREO 9.4V
18 = 2.9V 5.4V
19 = 2.9V 5.4V
20 = 4V 7.5V
21 = 1.8V MONO ~456KHz STEREO
22 = 12V
T 23
E
B
C = 12V
59353-680.00(03)4B
SEARCH STOP
IN
OUT
IC4
IC 4
1 = 16.5V
2 = 0V
3 = 12V
IC 3
1 = 2.4V 1V
2 = 2.4V 1V
3 = 2.4V 1V
4 = 0V
5 = 12V
6 = 12V
7 = 12V
8 = 0V
9 = 3.9V 3.7V
10 = 2.5V
11 = 2.5V
12 = 3.2V
13
14 = 1.5V
15 = 1.5V
16
17 = 0V
18 = 2.5V 1.1V
19 = 1.5V
20 = 0V 11.3V
21 = 3.9V 3.7V
22 = 3.9V 3.7V
23 = 3.4V 3.7V
24 = 2.8V 2.3V
T2
S
D
G = PD1
T3
E = 0V
B
C
IC 1
1 = 2.9V
2 = CE
3 = DI
4 = CL
5 = DO
6
7 = IN0
8 = IN1
9 = 0V 12V
10 = OUT1
11 = OUT2
12 = 12V 0V 12V
13 = 12V 12V 0V
14 = 9V 9V MONO 0V STEREO
15 = 0V
16 = 0V
17 = OUT6
18 = 0V 3V
19 = 3V 0V
20 = 6V
21 = PD1
22
23 = 0V
24 = 2.9V

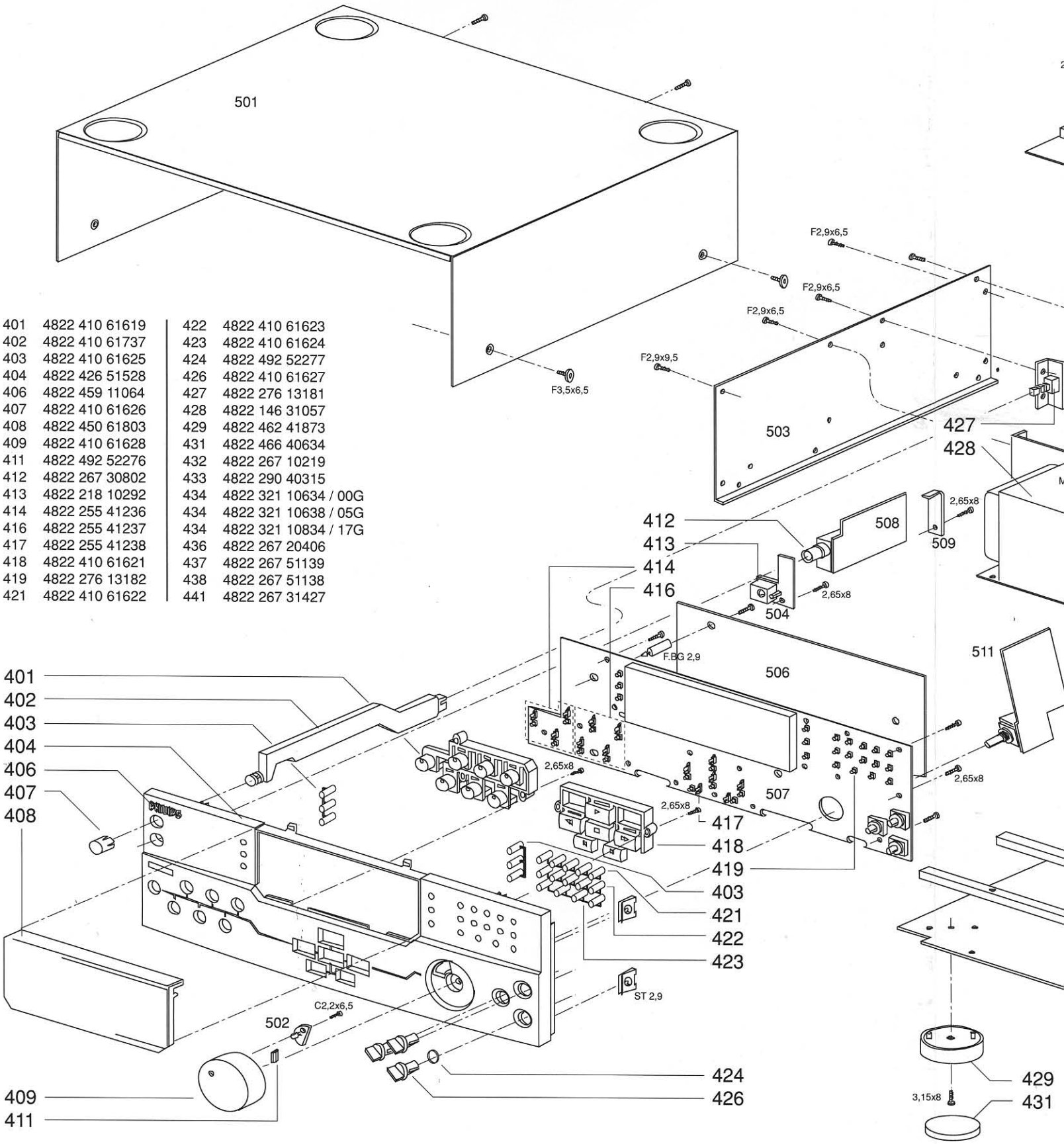
onent side



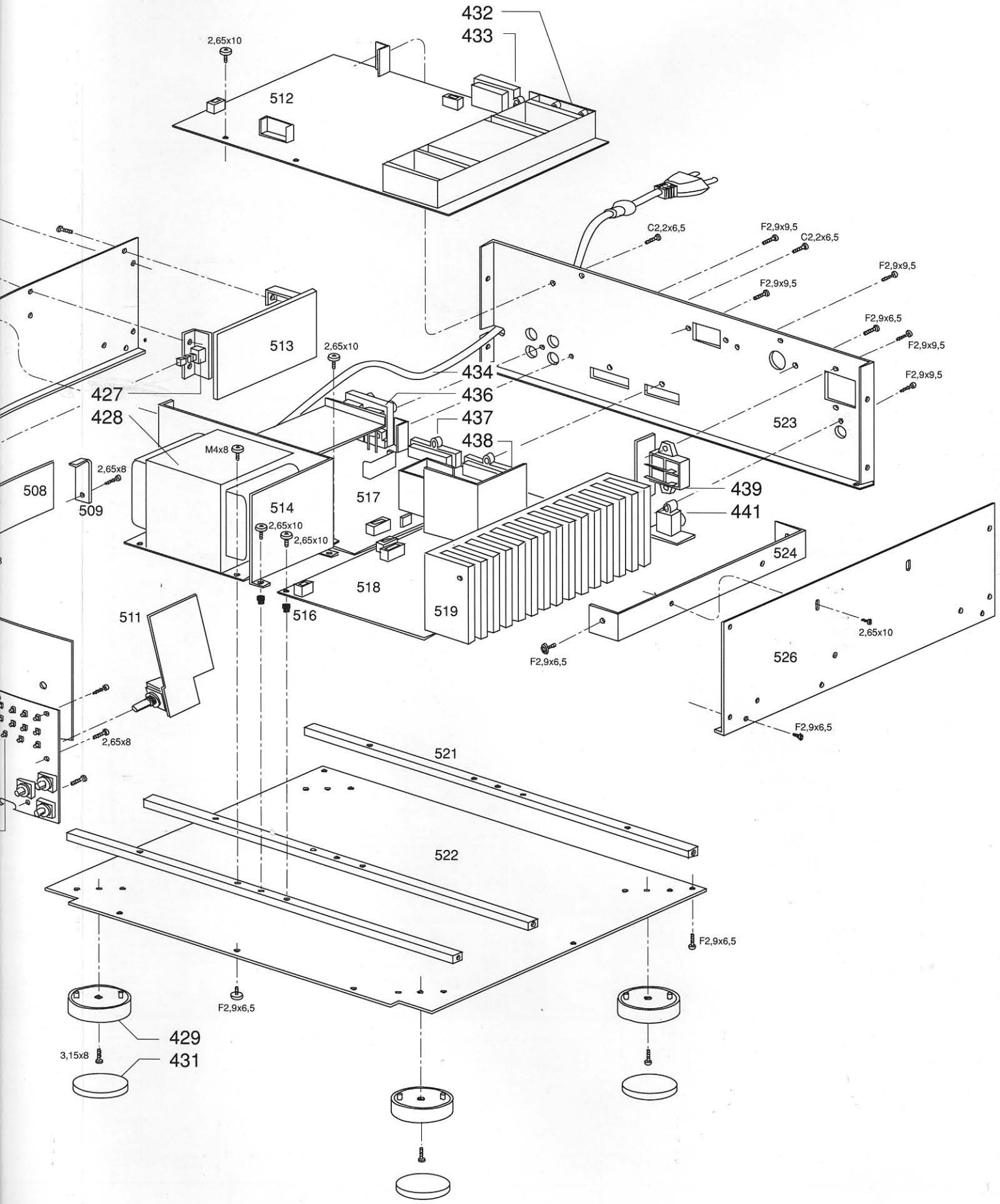
2 A	B 1	C 329	B 8	R 063	B 5
4 A	B 3	C 331	C 8	R 064	C 4
6 A	F 5	C 332	B 8	R 065	C 4
7 A	D 3	C 333	B 8	R 066	B 3
C 001	E 6	C 334	B 8	R 068	E 2
C 002	E 6	C 335	B 8	R 069	D 3
C 005	E 6	C 336	B 7	R 071	E 3
C 006	E 6	C 337	B 7	R 073	E 3
C 007	E 6	D 001	E 6	R 074	D 2
C 008	E 6	D 002	E 6	R 075	E 3
C 009	E 5	D 003	E 6	R 076	E 3
C 010	E 5	D 004	E 6	R 078	E 3
C 011	E 5	D 005	D 3	R 079	E 3
C 012	B 4	D 006	D 4	R 080	F 4
C 013	A 4	D 007	D 6	R 081	B 1
C 014	B 5	D 008	D 6	R 084	B 1
C 015	A 3	D 009	D 6	R 086	E 2
C 016	A 3	D 012	E 4	R 087	E 2
C 017	A 7	D 014	E 4	R 088	E 4
C 018	A 7	D 014	E 4	R 089	E 4
C 019	A 5	D 017	A 7	R 090	E 4
C 022	D 4	D 018	A 6	R 091	E 3
C 023	D 4	D 019	A 6	R 092	E 3
C 024	D 4	D 020	A 6	R 094	F 5
C 025	D 4	D 307	D 7	R 095	F 4
C 026	D 4	D 309	C 7	R 097	F 5
C 032	B 5	D 311	C 8	R 098	F 5
C 033	C 4	F 002	B 7	R 100	E 2
C 034	C 4	F 003	B 7	R 103	D 2
C 035	C 4	F 008	C 6	R 104	D 3
C 036	C 5	F 009	C 4	R 107	C 1
C 037	B 4	F 012	E 5	R 120	E 5
C 038	C 6	F 013	E 4	R 130	E 5
C 039	D 5	F 015	D 2	R 142	B 6
C 041	D 5	IC 001	B 5	R 143	B 7
C 042	C 5	IC 002	E 2	R 144	B 6
C 043	C 4	IC 003	C 5	R 145	B 7
C 044	B 6	IC 004	A 1	R 146	B 7
C 045	B 5	L 001	F 6	R 308	D 7
C 046	B 5	L 002	F 6	R 309	A 8
C 047	B 4	L 003	D 4	R 311	A 7
C 048	B 4	L 004	D 4	R 312	D 7
C 049	B 6	L 005	C 5	R 316	D 8
C 050	D 2	L 305	D 8	R 317	A 8
C 051	B 4	L 306	A 7	R 318	D 7
C 052	D 2	L 307	D 8	R 319	A 8
C 053	D 2	L 308	C 8	R 320	A 7
C 054	D 3	L 309	C 8	R 321	A 8
C 055	D 2	L 311	B 8	R 323	C 8
C 056	D 2	P 301	D 8	R 324	C 7
C 057	E 1	P 302	A 8	R 325	A 8
C 058	E 2	Q 001	A 4	R 326	A 8
C 059	D 3	Q 002	E 2	R 327	A 7
C 062	E 3	R 001	F 5	R 328	C 7
C 063	E 2	R 002	E 6	R 329	C 7
C 067	E 2	R 003	E 6	R 331	A 8
C 068	E 3	R 004	E 6	R 332	B 7
C 069	E 3	R 005	E 6	R 332	C 7
C 070	F 4	R 006	B 4	R 333	A 8
C 071	E 3	R 007	B 4	R 334	B 8
C 072	E 4	R 008	B 4	R 335	B 8
C 074	E 3	R 009	B 4	R 336	B 8
C 094	A 2	R 011	B 4	R 337	B 8
C 096	A 1	R 012	A 4	R 338	B 8
C 104	F 2	R 013	A 4	R 339	B 8
C 140	B 7	R 014	A 5	R 341	B 7
C 303	E 8	R 015	A 5	R 342	B 7
C 304	E 8	R 016	A 3	R 343	B 8
C 305	E 7	R 017	A 4	T 001	F 6
C 306	A 7	R 018	A 4	T 002	A 4
C 307	D 7	R 019	B 6	T 003	A 4
C 308	A 8	R 021	D 4	T 006	E 6
C 308	D 8	R 022	D 4	T 007	E 6
C 309	A 7	R 023	B 6	T 008	B 6
C 311	A 8	R 024	E 6	T 011	C 4
C 312	A 8	R 025	B 5	T 012	D 4
C 315	A 8	R 026	E 6	T 015	E 4
C 316	A 8	R 027	B 5	T 016	E 3
C 318	D 8	R 028	B 6	T 017	E 3
C 319	C 8	R 041	D 4	T 023	C 1
C 320	D 7	R 042	B 4	T 024	F 4
C 321	A 8	R 043	D 5	T 141	B 6
C 322	A 8	R 054	C 4	T 301	A 7
C 323	A 8	R 056	C 5	T 302	D 8
C 324	C 7	R 057	C 5	T 303	A 8
C 325	C 7	R 058	B 5	T 304	A 8
C 326	A 8	R 059	B 5	T 305	B 8
C 327	C 8	R 061	B 4	T 306	B 7
C 328	B 8	R 062	B 5		

EXPLODED VIEW, LIST OF MECHANICAL PARTS

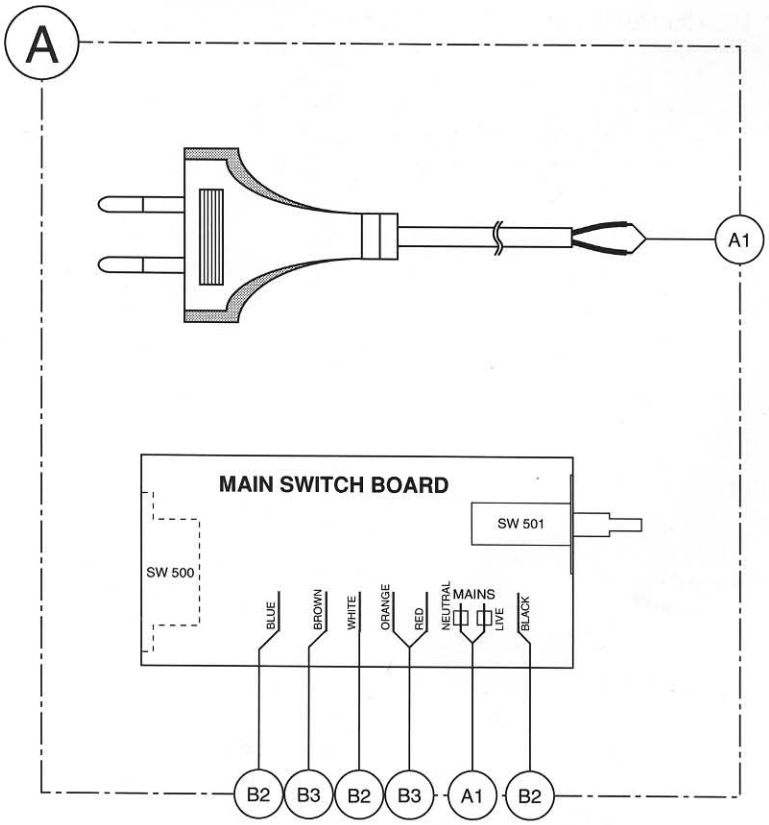
401	4822 410 61619	422	4822 410 61623
402	4822 410 61737	423	4822 410 61624
403	4822 410 61625	424	4822 492 52277
404	4822 426 51528	426	4822 410 61627
406	4822 459 11064	427	4822 276 13181
407	4822 410 61626	428	4822 146 31057
408	4822 450 61803	429	4822 462 41873
409	4822 410 61628	431	4822 466 40634
411	4822 492 52276	432	4822 267 10219
412	4822 267 30802	433	4822 290 40315
413	4822 218 10292	434	4822 321 10634 / 00G
414	4822 255 41236	434	4822 321 10638 / 05G
416	4822 255 41237	434	4822 321 10834 / 17G
417	4822 255 41238	436	4822 267 20406
418	4822 410 61621	437	4822 267 51139
419	4822 276 13182	438	4822 267 51138
421	4822 410 61622	441	4822 267 31427

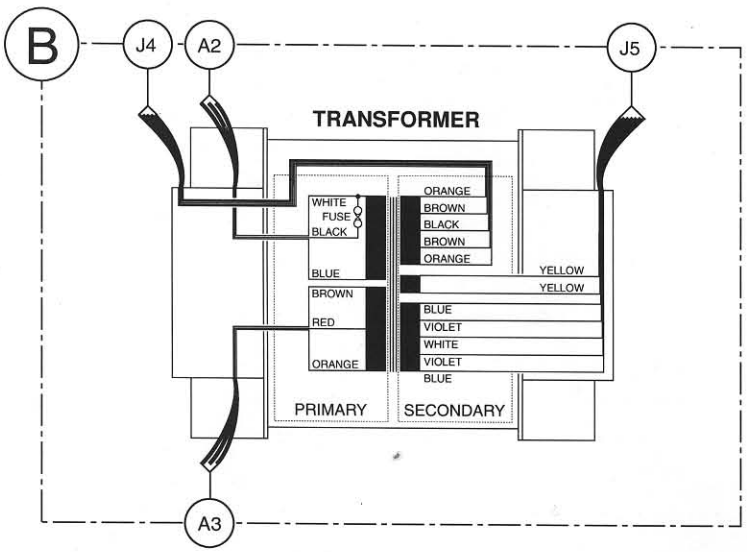


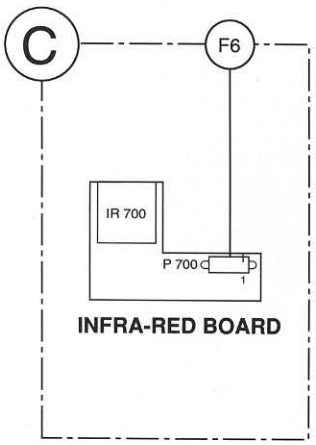
IR-TRANSMITTER 4822 218 10443

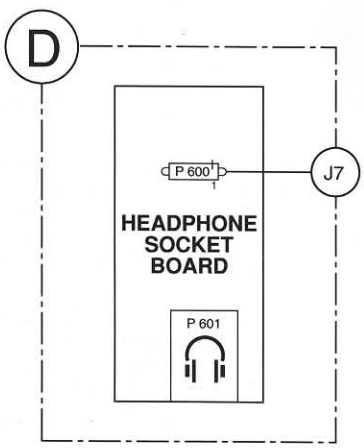

432
433
2,65x10
512
C2,2x6,5
F2,9x9,5
C2,2x6,5
F2,9x9,5
F2,9x9,5
F2,9x6,5
F2,9x9,5
F2,9x9,5
513
2,65x10
434
436
437
438
427
428
523
M4x8
2,65x8
508
509
514
517
439
441
2,65x10
2,65x10
524
518
519
511
516
F2,9x6,5
2,65x10
526
F2,9x6,5
2,65x8
521
522
F2,9x6,5
F2,9x6,5
429
3,15x8
431

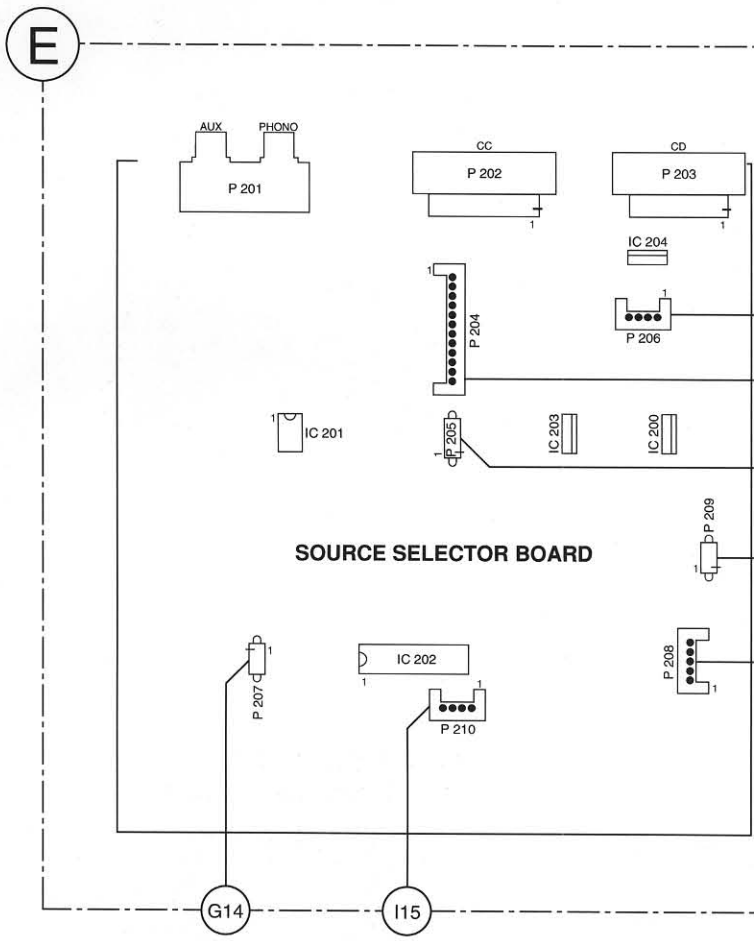
WIRING DIAGRAM

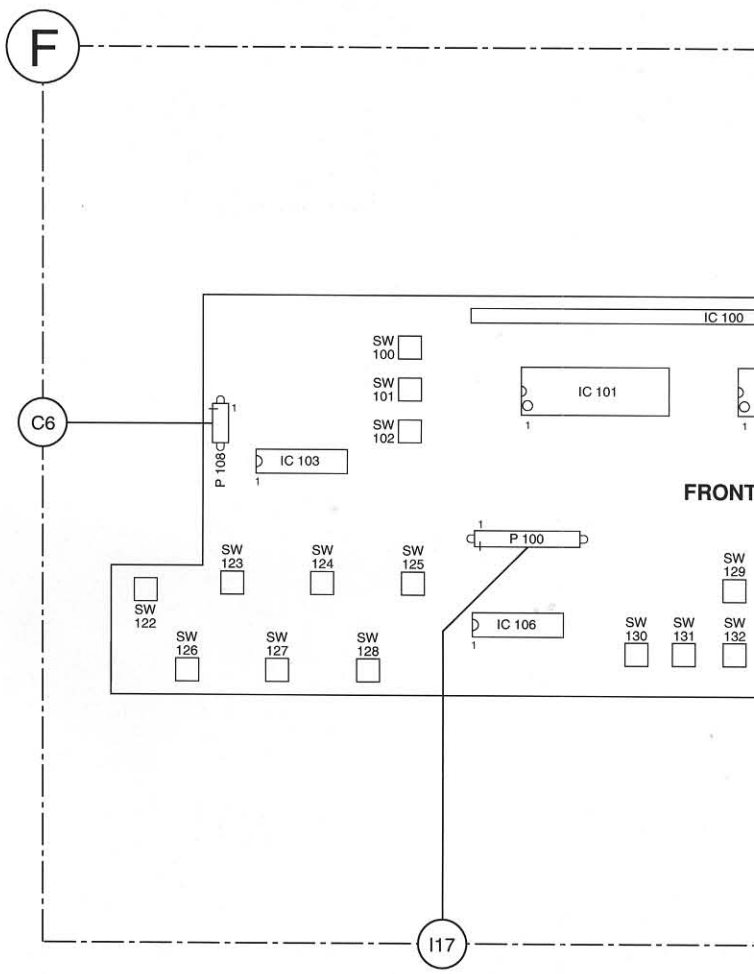


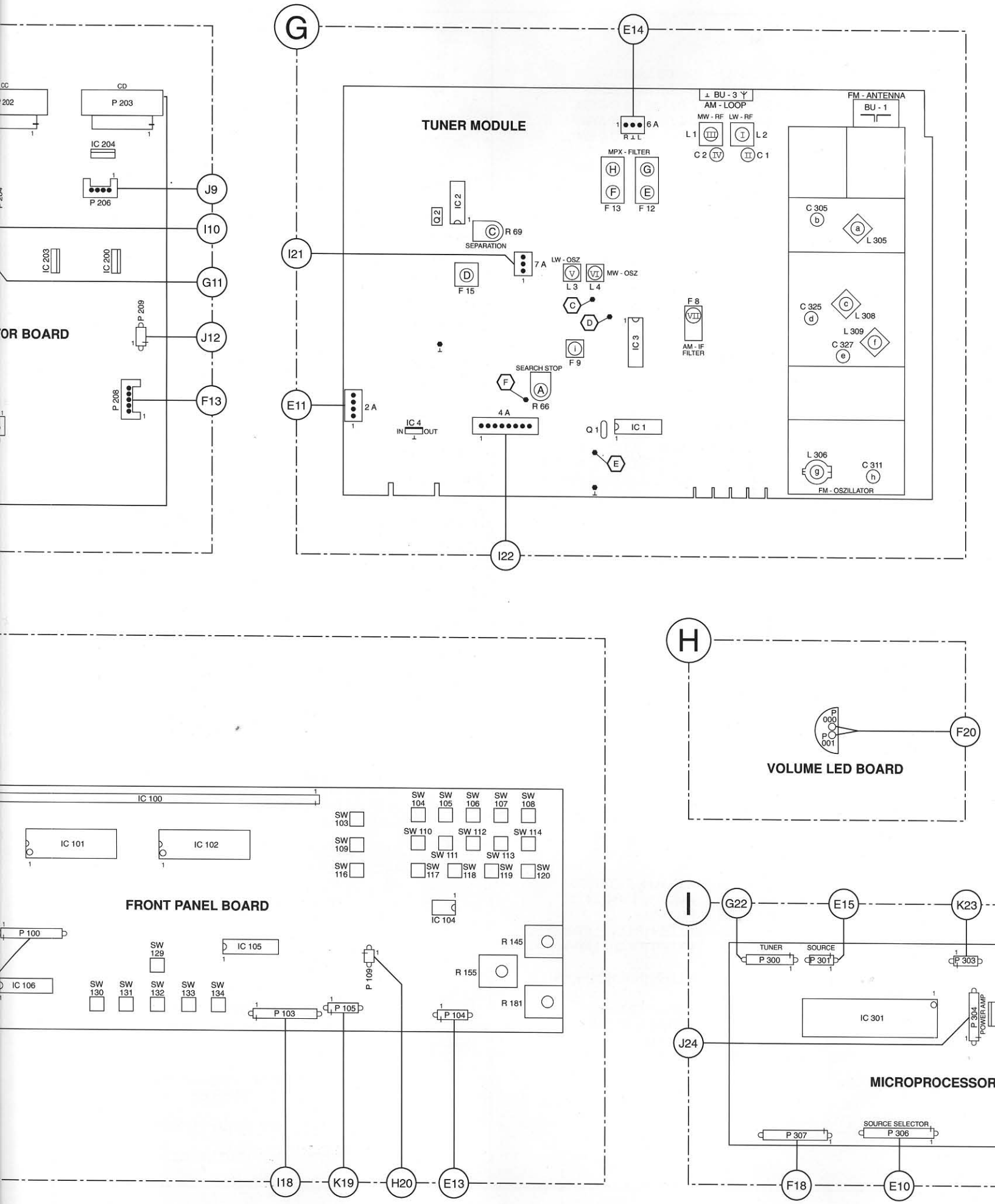


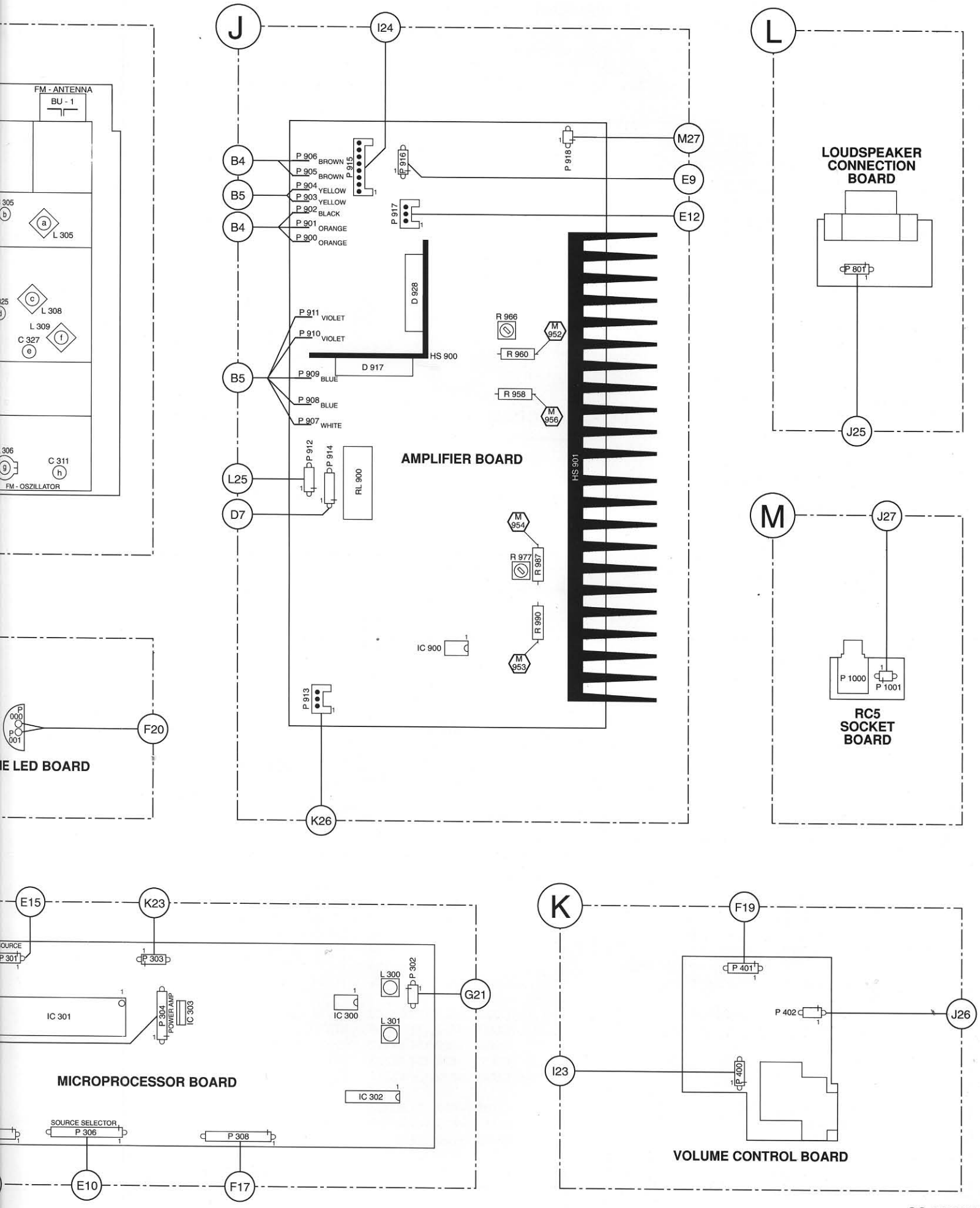








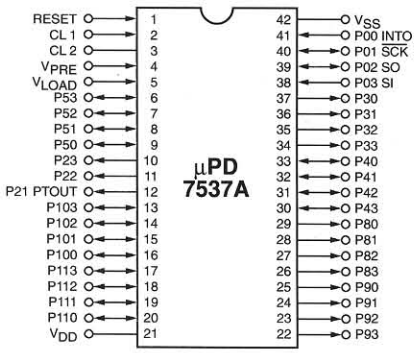

G
E14
TUNER MODULE
BU - 3
AM - LOOP
FM - ANTENNA
BU - 1
MW - RF
LW - RF
L 1
L 2
C 2
C 1
6 A
MPX - FILTER
F 13
F 12
IC 2
Q 2
R 69
SEPARATION
7 A
LW - OSZ
MW - OSZ
L 3
L 4
F 15
F 8
AM - IF FILTER
IC 3
F 9
C 305
L 305
C 325
L 308
L 309
C 327
SEARCH STOP
R 66
2 A
4 A
IC 4
IN
OUT
Q 1
IC 1
L 306
C 311
FM - OSZILLATOR
I21
E11
I22
J9
I10
G11
J12
F13
P 203
P 206
IC 204
IC 203
IC 200
P 209
P 208
OR BOARD
H
P 000
P 001
F20
VOLUME LED BOARD
IC 100
IC 101
IC 102
SW 103
SW 109
SW 116
SW 104
SW 105
SW 106
SW 107
SW 108
SW 110
SW 112
SW 114
SW 111
SW 113
SW 117
SW 118
SW 119
SW 120
FRONT PANEL BOARD
IC 104
P 100
IC 106
SW 129
IC 105
SW 130
SW 131
SW 132
SW 133
SW 134
P 109
R 145
R 155
R 181
P 103
P 105
P 104
I18
K19
H20
E13
I
G22
E15
K23
TUNER
SOURCE
P 300
P 301
P 303
IC 301
P 304
POWER AMP
J24
MICROPROCESSOR
P 307
SOURCE SELECTOR
P 306
F18
E10


FM - ANTENNA
BU - 1
L 305
L 308
L 309
C 327
C 311
FM - OSZILLATOR
J
I24
B4
B5
B4
P 906 BROWN
P 905 BROWN
P 915
P 904 YELLOW
P 903 YELLOW
P 902 BLACK
P 901 ORANGE
P 900 ORANGE
P 916
P 917
P 918
M27
E9
E12
D 928
HS 900
D 917
P 911 VIOLET
P 910 VIOLET
P 909 BLUE
P 908 BLUE
P 907 WHITE
R 966
M 952
R 960
R 958
M 956
AMPLIFIER BOARD
HS 901
L25
D7
P 912
P 914
RL 900
M 954
R 977
R 987
R 990
M 953
IC 900
P 913
K26
L
LOUDSPEAKER CONNECTION BOARD
P 801
J25
M
J27
P 1000
P 1001
RC5 SOCKET BOARD
P 000
P 001
F20
E LED BOARD
E15
K23
P 301
P 303
IC 301
P 304 POWER AMP
IC 303
L 300
P 302
IC 300
L 301
G21
IC 302
MICROPROCESSOR BOARD
SOURCE SELECTOR
P 306
P 308
E10
F17
K
F19
P 401
P 402
J26
I23
P 400
VOLUME CONTROL BOARD

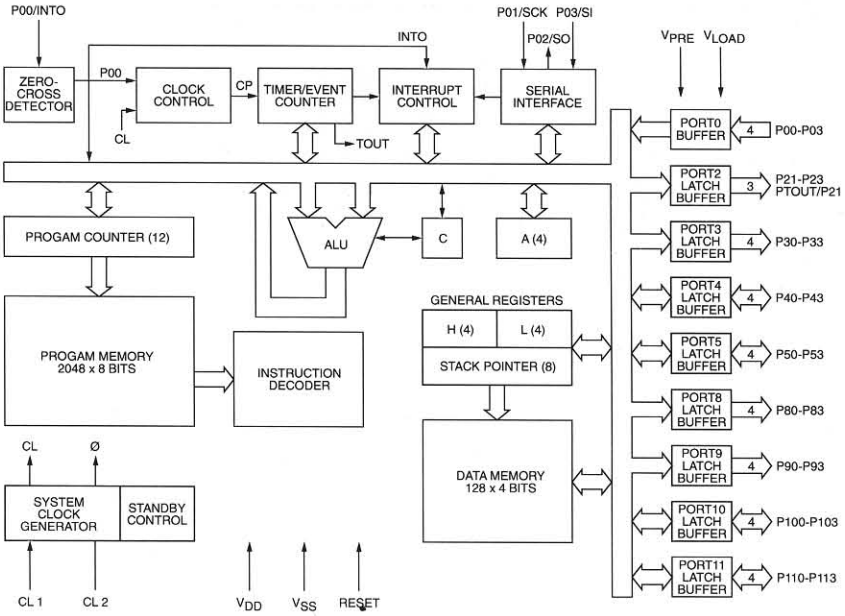
CS 33 085

COMPONENTS

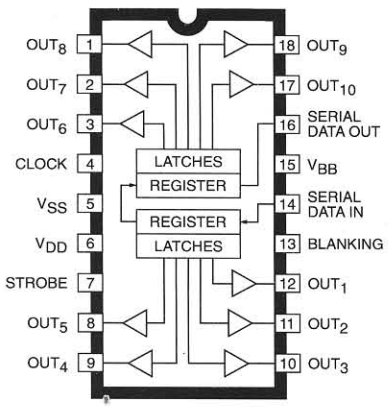
PIN CONFIGURATION IC 101, 102 µPD7537A



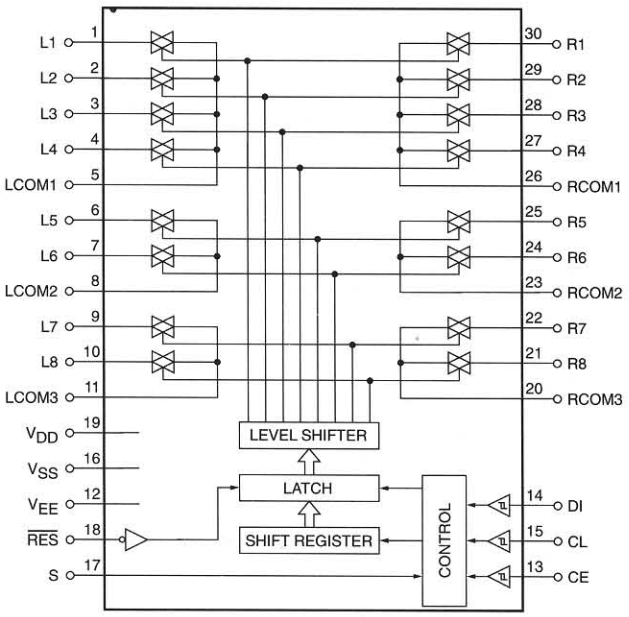
BLOCK DIAGRAM IC 101, 102 µPD7537A



BLOCK DIAGRAM IC 103, 105, 106 UCN-5810A



BLOCK DIAGRAM IC 202 LC7821



LIST OF ELECTRICAL PARTS

4822 209 73435	LC 7217 SNYO	
4822 209 73434	LA 3401 SNYO	
4822 209 71785	LA 1266 SNYO	
5322 130 42221	7812 3 % FAI/NEC/SGS	
4822 209 30671	UPD 7537 ACU-225	
5322 209 83423	UCN 5810 A	
4822 209 62435	RC 4560 N / NJM 4560 D	
4822 209 63277	78 M 05 MOT	
4822 209 73452	LM 833 N / ELDB 793 NSC	
4822 209 72748	LC 7821 SANYO	
4822 209 30672	TMP 68 HC 11 E9N TOS	
4822 209 62433	LA 2231 B DIP/24S	

C001	4822 125 50332	TR.15 7,5/50PF VCT 56
C002	4822 125 50329	TR.13 4,5/20PF VCT 56
C305	4822 125 50329	TR.13 4,5/20PF VCT 56
C311	4822 125 50386	TR.12 3/10PF VCT 56
C325	4822 125 50329	TR.13 4,5/20PF VCT 56
C327	4822 125 50329	TR.13 4,5/20PF VCT 56
C500	4822 122 33556	KERKO.B-SG 3300 PF 20%
C905	4822 124 42328	ELKO CB 1000 UF 50V
C907	4822 124 42328	ELKO CB 1000 UF 50V
C908	4822 124 42327	ELKO 4700 UF 20% 80V
C920	4822 124 42327	ELKO 4700 UF 20% 80V
C926	4822 124 42326	ELKO 2200 UF 50V
C928	4822 124 23506	ELKO CB 4700 UF 16V
C931	4822 124 42326	ELKO 2200 UF 50V
C942	4822 124 40214	ELKO CB 1000 UF 25V

L001
L002
L003
L004
L005

L300
L301
L305
L306
L307

L308
L309
L311
L400
L401

L900
L901

F002
F008
F009
F012
F013

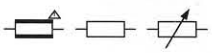
F015

Q001
Q002
Q100
Q101
Q300

Q301
Q312

	5322 130 34052	DIODE 1N4151
	4822 130 81002	DIODE SVC 321 SP-ABCD
	4822 130 30862	Z DIODE 9,1 C 0,5W
	4822 130 30621	DIODE 1N4148 WW.
	4822 130 81006	Z DIODE 6,2 C 0,5W
	5322 130 32849	Z DIODE 4,7 C 0,5W
	4822 130 81003	DIODE KV 1310
	5322 130 82122	Z DIODE 10 C 0,5W
	5322 130 30684	DIODE 1N4002-GA
	4822 130 31438	DIODE 1N4001-GA
	4822 130 82078	GLR.D 5S BA 20
	5322 130 32184	DIODE BYV 27-50
	4822 130 82854	GLR.D 3S BA 20
	4822 130 82856	Z DIODE 20 C 0,5W
	4822 130 32213	DIODE BYV 28-50
	4822 130 30842	DIODE BAV 21 ITT
	4822 130 80515	Z DIODE 5,1 C 0,5W
	4822 130 81615	Z DIODE 12 C 0,5W
	4822 130 82855	Z DIODE 2,7 C 0,5W
	4822 130 33785	Z DIODE 16 C 0,5W
	4822 130 81781	Z DIODE 3,3 C 0,5W
	4822 130 32636	DIODE TLG 226 TOS
	4822 130 82843	DIODE GL-5 ED44 SHARP

L001	4822 156 11094	MW-VORKR.
L002	4822 156 11095	LW-VORKR.
L003	4822 156 11091	SPULE (LW OSZ.)
L004	4822 156 11089	SPULE (MW-OSZ.)
L005	4822 157 53632	DROSSEL 39 MH 5%
L300	4822 157 62294	SPULE 7X7
L301	4822 157 62294	SPULE 7X7
L305	4822 156 11099	UKW-SPULE 7/115/A
L306	4822 156 11096	UKW-SPULE 1/3/A
L307	4822 157 60206	HF-DROSSEL
L308	4822 156 11098	UKW-SPULE 7/113/A
L309	4822 156 11097	UKW-SPULE 7/114/A
L311	4822 157 53631	DR AX 0309-GA 1,5 UH
L400	4822 157 63646	SPULE IND 68 MH TOKO
L401	4822 157 63646	SPULE IND 68 MH TOKO
L900	4822 157 63645	SPULE 1 UH 10%
L901	4822 157 63645	SPULE 1 UH 10%
F002	4822 157 62739	KERAMIK-FILTER 70
F008	4822 242 72289	AM-ZF SFL 450 J3
F009	4822 156 11092	FM-DEM.I
F012	4822 156 11104	FILTER (PILOT) LPF-V20
F013	4822 156 11104	FILTER (PILOT) LPF-V20
F015	4822 214 51727	FILTER (NACHBARKANAL)
Q001	4822 242 72294	QUARZ 7,2 MHZ
Q002	4822 242 72295	KER.RES. 10 CSB 456 F11
Q100	4822 242 73605	KER.RES. 68/3 640 KHZ
Q101	4822 242 73605	KER.RES. 68/3 640 KHZ
Q300	4822 242 73862	KER.RES. 104 CSA 8,0 MT
Q301	4822 242 73604	KER.RES. 11 CSB 456 F15
Q312	4822 242 72294	QUARZ 7,2 MHZ



R066	4822 100 20694	ESTR.SK10-A 100 KOHM LIN
R069	4822 100 20694	ESTR.SK10-A 100 KOHM LIN
R145	4822 101 30766	POTENTIOMETER
R155	4822 101 30767	POTENTIOMETER
R181	4822 101 30766	POTENTIOMETER
R323	4822 116 53666	KSW SIA 47 OHM 5%-GA
R327	4822 116 53666	KSW SIA 47 OHM 5%-GA
R332	4822 052 10129	KSW SIA 12 OHM 5%-GA
R409	4822 101 21173	POTENTIOMETER EUW-MU6
R7010	4822 116 90787	FOTOWDST. MKY-54 C 459 M
R903	4822 111 70183	KSW SIB 1 OHM 5%-GA
R915	4822 116 83526	KSW SIA 22 OHM 5%-GA
R926	4822 116 83525	KSW SIA 10 OHM 5%-GA
R936	4822 116 53668	KSW SIB 4,7 OHM 5%-GA
R938	4822 116 53668	KSW SIB 4,7 OHM 5%-GA
R947	4822 116 83527	KSW SIA 680 OHM 5%-GA
R951	4822 116 83522	MOW AX 0922-GA 1,5 KOHM
R959	4822 116 83521	MOW AX 0411-GA 1,5 KOHM
R965	4822 116 83523	MOW AX 0922-GA 2,2 KOHM
R966	4822 101 11158	ESTR.S6 470 OHM LIN
R974	4822 116 83527	KSW SIA 680 OHM 5%-GA
R975	4822 116 83522	MOW AX 0922-GA 1,5 KOHM
R977	4822 101 11158	ESTR.S6 470 OHM LIN
R979	4822 116 83524	MOW LI 0411 3 KOHM 5%
R982	4822 116 83521	MOW AX 0411-GA 1,5 KOHM
R984	4822 116 53666	KSW SIA 47O HM 5%-GA
R988	4822 116 83523	MOW AX 0922-GA 2,2 KOHM
R998	4822 116 81858	KSW SIB 10 OHM 5%-GA

5322 130 44647	BC 368
4822 130 42121	2 SK 30 A-TM-Y
4822 130 44196	BC 548 C
4822 130 44197	BC 558 B
4822 130 40937	BC 548 B
4822 130 62919	ZTX 450 S
4822 130 40902	BF 240
4822 130 41096	BC 550 C
4822 130 61755	BC 560 C
4822 130 61298	2 SK 544 E
4822 130 62488	BF 987 E7715SI
4822 130 40988	BC 328-25 PHI/IT
4822 130 44121	BC 338
4822 130 40959	BC 547 B
4822 130 41691	BC 556 B
4822 130 62918	BD 826-16B
4822 130 62268	BDT 64
4822 130 62269	BDT 65 C
5322 130 61575	BDT 64 C
4822 130 62917	BD 645 F

MISCELLANEOUS

	4822 218 10443	IR REMOTE CONTROL TRANSMITTER
IC100	4822 130 91047	VF-DISPLAY FUTABA
RL900	4822 280 70371	RELAIS VB 36 MBU (-UL)