Service
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Service Manual

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CLASS 1
LASER PRODUCT

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GB 3141 785 30360

Version 1.0

PHILIPS

KEY / VIDEO / SENSOR / PHONE / VOL / VU BOARD

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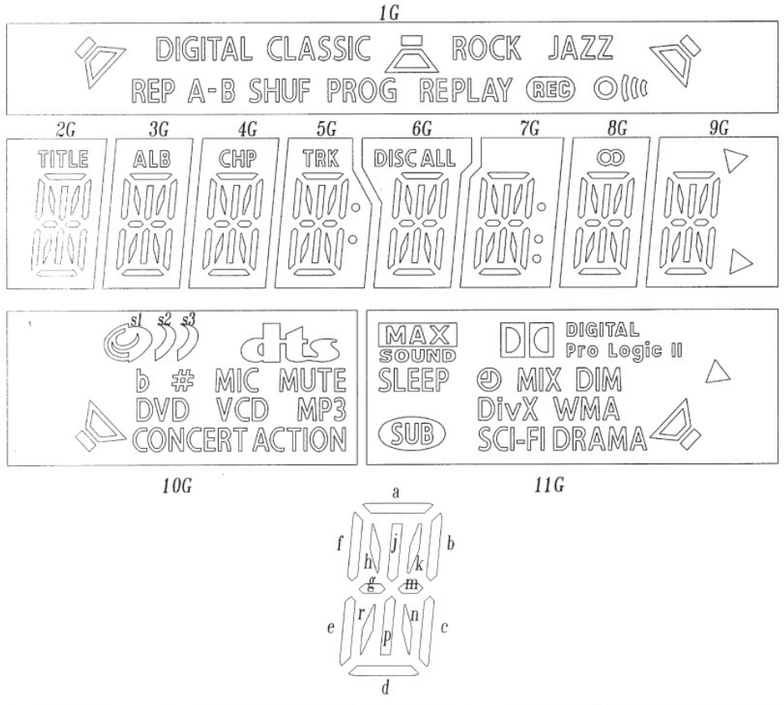
FTD DISPLAY PIN ASSIGNMENT



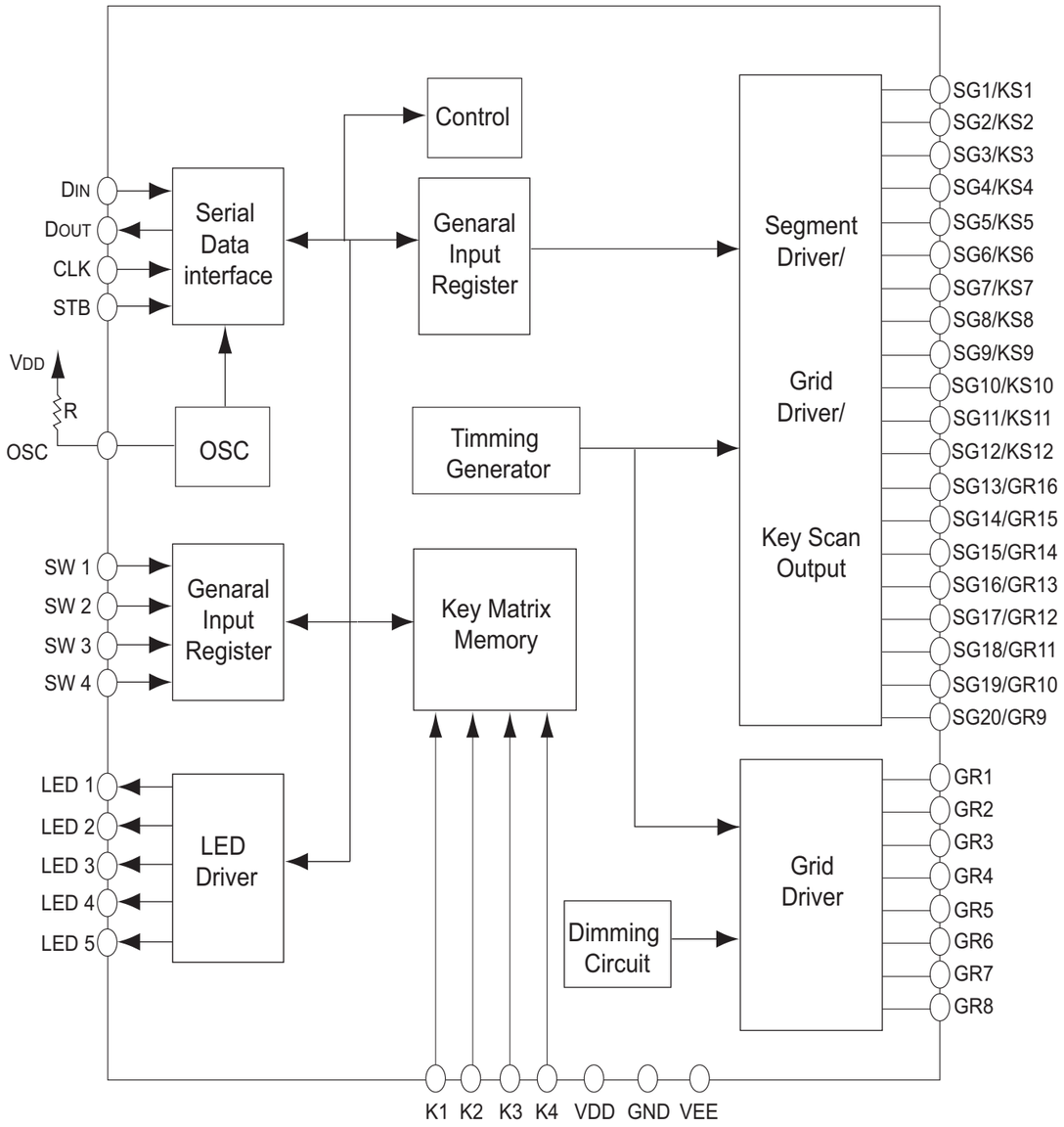
	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G
P1		a	a	a	a	a	a	a	a	s1	
P2	DIGITAL	b	b	b	b	b	b	b	b	s2	DIGITAL
P3	CLASSIC	h	h	h	h	h	h	h	h	s3	Pro Logic
P4		j	j	j	j	j	j	j	j	dts	II
P5	ROCK	k	k	k	k	k	k	k	k	b	MAX SOUND
P6	JAZZ	f	f	f	f	f	f	f	f	#	
P7		g	g	g	g	g	g	g	g	MIC	SLEEP
P8	REP	m	m	m	m	m	m	m	m	MUTE	
P9	A	c	c	c	c	c	c	c	c	DVD	MIX
P10	-B	r	r	r	r	r	r	r	r	V	DIM
P11	SHUF	p	p	p	p	p	p	p	p	CD	DivX
P12	PROG	n	n	n	n	n	n	n	n	MP3	WMA
P13	RE	e	e	e	e	e	e	e	e		SUB
P14	PLAY	d	d	d	d	d	d	d	d	CONCERT	SCI-FI
P15	REC	TITLE	ALB	CHP	TRK	DISC	Col			ACTION	DRAMA
P16					Col	ALL	Dp				

PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
CONNECTION	F1	NP	F1	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	NX	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	F2	NP	F2						

Note
1. Fn: Filament pin
2. nG : Grid pin
3. Pn : Anode pin
4. NP : No Pin
5. NC : No Connection pin

INTERNAL BLOCK DIAGRAM
VFD CONTROLLER - IC TP6311QH



PIN DESCRIPTION
VFD CONTROLLER - IC TP6311QH

Pin Name	I/O	Description
SW1 to SW4	I	General Purpose Input Pins
DOUT	O	Data Output Pin (N-Channel, Open-Drain) This pin outputs serial data at the falling edge of the shift clock (starting from the lower bit).
DIN	I	Data Input Pin This pin inputs serial data at the rising edge of the shift clock (starting from the lower bit)
NC	-	No Connection
CLK	I	Clock Input Pin This pin reads serial data at the rising edge and outputs data at the falling edge.
STB	I	Serial Interface Strobe Pin The data input after the STB has fallen is processed as a command. When this pin is "HIGH", CLK is ignored.
K1 to K4	I	Key Data Input Pins The data inputted to these pins are latched at the end of the display cycle.
VDD	-	Logic Power Supply
SG1/KS1 to SG12/KS12	O	High-Voltage Segment Output Pins Also acts as the Key Source
SG20/GR9 to SG19/GR10 SG18/GR11 to SG13/GR16	O	High Voltage Segment/ Grid Output Pins
VEE	-	Pull-Down Level
GR1 to GR8	O	High-Voltage Grid Output Pins
LED1 to LED5	O	LED Output Pin
GND	-	Ground Pin
OSC	I	Oscillator Input Pin A resistor is connected to this pin to determine the oscillation frequency

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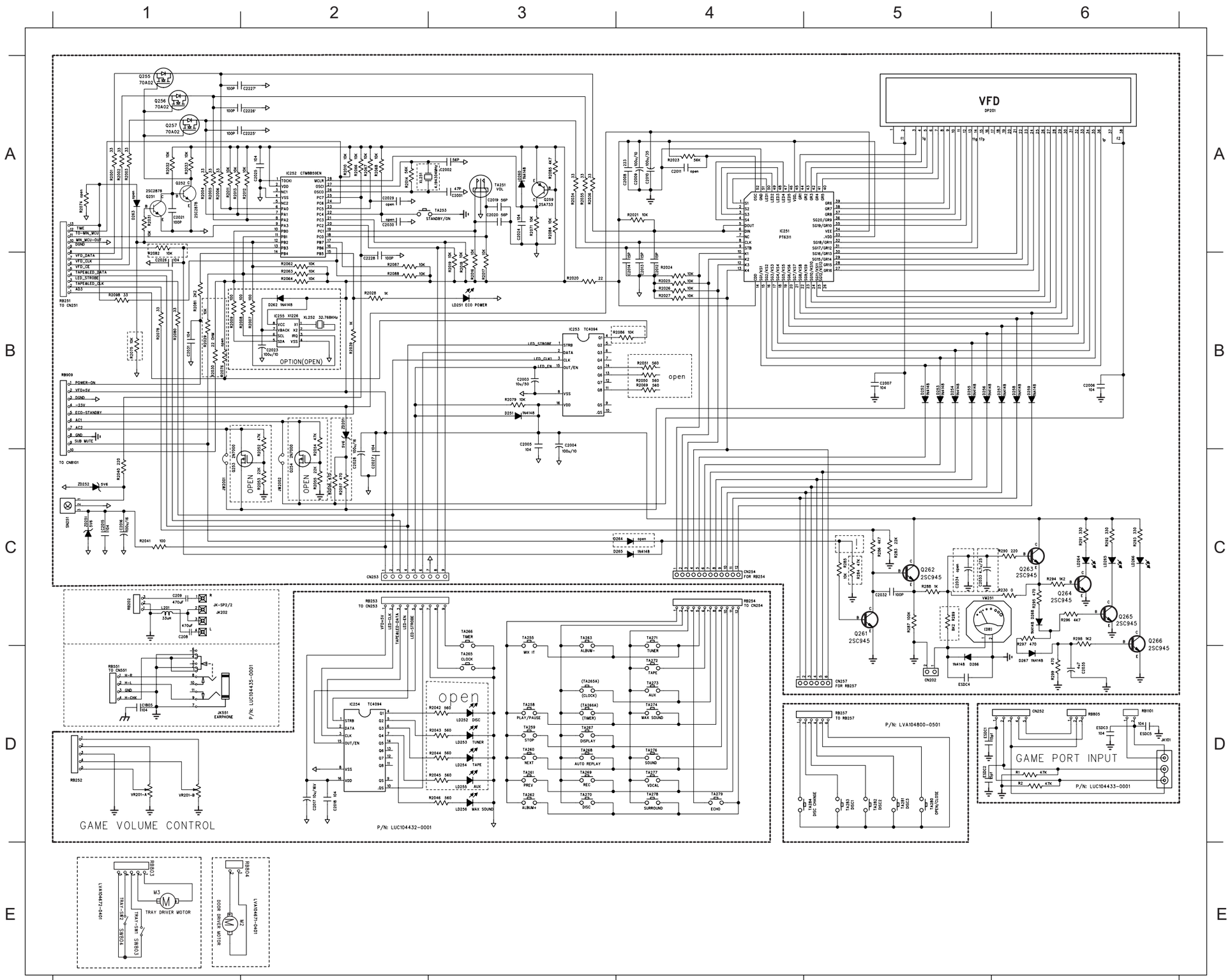
CIRCUIT DIAGRAM - KEY BOARD



C1805	D1	R284	C5	SW803	E1
C2001	A3	R285	C5	SW804	E1
C2002	A3	R286	C5	TA251	A3
C2003	B3	R287	C5	TA253	A3
C2004	B3	R288	C5	TA255	C3
C2005	B3	R289	C5	TA258	D3
C2006	B6	R291	C6	TA259	D3
C2007	B5	R292	C6	TA260	D3
C2008	A4	R293	C6	TA261	D3
C2009	A4	R294	C6	TA262	D3
C2010	A4	R295	C6	TA263	C3
C2012	B4	R296	C6	TA265	D3
C2013	B4	R297	C6	TA265A	D3
C2014	B4	R298	C6	TA266	C3
C2015	C1	R299	D6	TA266A	D3
C2016	C1	R2001	A1	TA267	D3
C2017	D2	R2002	A1	TA268	D3
C2018	D2	R2003	A1	TA269	D3
C2019	A3	R2004	A1	TA270	D3
C2020	A3	R2005	A1	TA271	C4
C2021	A1	R2006	A1	TA272	D4
C2024	A3	R2010	A2	TA273	D4
C2025	A2	R2011	A1	TA274	D4
C2026	B1	R2012	A2	TA276	D4
C2027	C2	R2013	A1	TA277	D4
C2028	C2	R2014	A2	TA278	D4
C2031	B1	R2016	B3	TA279	D4
C2032	C5	R2017	B3	TA280	D5
C2033	C5	R2018	B3	TA281	D5
C2035	D6	R2019	B3	TA282	D5
C2225	A2	R2020	B3	TA283	D5
C2226	A2	R2021	A4	TA284	D5
C2227	A2	R2023	A4	VM251	C5
C2228	B2	R2024	B4	VR201-A	D1
CN202	D5	R2025	B4	VR201-B	D1
CN252	D6	R2026	B4	XL251	A2
CN253	C2	R2027	B4	ZD201	B2
CN254	C4	R2028	B2	ZD251	C1
CN257	D5	R2029	B1	ZD252	C1
D251	B3	R2030	B1		
D252	B5	R2031	A1		
D253	B5	R2032	A1		
D254	B5	R2033	A1		
D255	B5	R2034	A3		
D256	B5	R2035	A3		
D257	B6	R2036	A3		
D258	B6	R2039	B2		
D259	B6	R2040	C1		
D260	A3	R2041	C1		
D265	C4	R2046	D3		
D266	D5	R2056	C2		
D267	D6	R2057	C2		
D268	C6	R2062	B2		
DP201	A6	R2063	B2		
ESDC2	D5	R2064	B2		
ESDC5	D6	R2066	A2		
IC251	A4	R2067	A2		
IC252	A2	R2068	A2		
IC253	B3	R2071	A3		
IC254	D2	R2075	B1		
JK101	D6	R2078	B1		
JK551	D1	R2079	B3		
JW2001	C1	R2080	B1		
JW2002	C2	R2081	B1		
LD251	B3	R2082	B1		
LD256	D3	R2084	A3		
LD264	C6	R2085	A3		
LD265	C6	R2086	B4		
LD266	C6	R2087	B2		
M2	E2	R2088	B2		
M3	E1	R2098	B1		
Q251	A1	RB1101	D6		
Q252	A1	RB202	C1		
Q255	A1	RB251	B1		
Q256	A1	RB252	D1		
Q257	A1	RB253	C2		
Q259	A3	RB254	C4		
Q261	C5	RB257	D5		
Q262	C5	RB551	D1		
Q263	C6	RB803	E1		
Q264	C6	RB804	E2		
Q265	C6	RB805	D6		
Q266	C6	RB909	B1		
R230	C6	SN251	C1		

TUNER BOARD (9940 000 00873)

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TUNER ADJUSTMENT TABLE

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (50kHz grid)			108MHz	check		7.5V± 1V
			87.5MHz	check		1.4V ± 0.2V
MW 531-1602kHz (10kHz grid) (21L / 21L / 37S)			1602KHz	check		7.2V± 1V
			531KHz	T005		1.1V± 0.2V
FM - RF						
FM	108MHz	mod=1kHz Δf=±22.5kHz	106MHz	VC001	MAX	MAX
	87.5MHz		90.1MHz	L001		
AM IF						
AM	450kHz Connect pin 6 of IC001 (AM Osc.) with short wire to ground (pin 4)	Δf = ±15kHz V_{RF} = 3mV	IC001 24 100nF R220	T001 T002	MAX	max. f_o symmetric
AM AFC **MW**		ΔV=mV		T003		
AM RF 3)						
MW	1404kHz		1404kHz	VC001	MAX	max. f_o symmetric
	612kHz		612kHz	T006		

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

2) RC network serves for damping the IF-filter while adjusting the other one.

3) For AM RF adjustments the original frame antenna has to be used!

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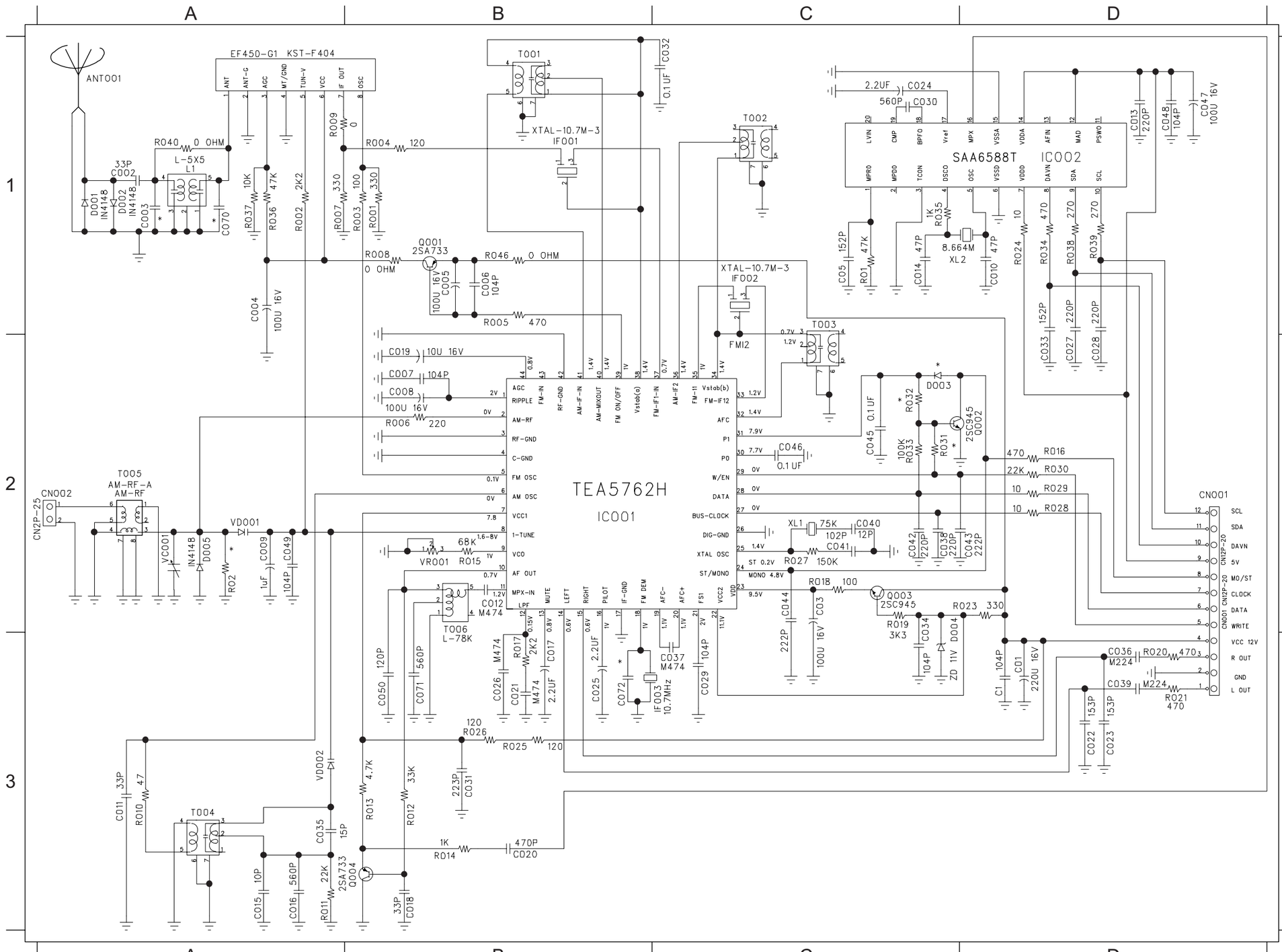
TUNER ADJUSTMENT TABLE



ANT001	A1	R01	C1
C1	D3	R001	B1
C01	D3	R002	A1
C03	C2	R003	B1
C05	C1	R004	B1
C002	A1	R005	B1
C004	A1	R006	B2
C005	B1	R007	A1
C006	B1	R008	B1
C007	B2	R009	A1
C008	B2	R010	A3
C009	A2	R011	A3
C010	D1	R012	B3
C011	A3	R013	B3
C012	B2	R014	B3
C013	D1	R015	B2
C014	C1	R016	D2
C015	A3	R017	B3
C016	A3	R018	C2
C017	B3	R019	C2
C018	B3	R020	D3
C019	B2	R021	D3
C020	B3	R023	D2
C021	B3	R024	D1
C022	D3	R025	B3
C023	D3	R026	B3
C024	C1	R027	C2
C025	B3	R028	D2
C026	B3	R029	D2
C027	D2	R030	D2
C028	D2	R033	C2
C029	C3	R034	D1
C030	C1	R035	C1
C031	B3	R036	A1
C032	B3	R037	A1
C033	D2	R038	D1
C034	C2	R039	D1
C035	A3	R040	A1
C036	D3	R046	B1
C037	C3	T001	B1
C038	C2	T002	C1
C039	D3	T003	C1
C040	C2	T004	A3
C041	C2	T005	A2
C042	C2	T006	B2
C043	D2	VC001	A2
C044	C2	VD001	A2
C045	C2	VD002	A3
C046	C2	VR01	B2
C047	D1	XL1	C2
C048	D1	XL2	C1
C049	A2		
C050	B3		
C071	B3		
CN001	D2		
CN002	A2		
D001	A1		
D002	A1		
D004	C2		
D005	A2		
EF450-G1	A1		
IC001	B2		
IC002	D1		
IF001	B1		
IF002	C1		
IF003	C3		
Q001	B1		
Q002	D2		
Q003	C2		
Q004	B3		

MAIN BOARD

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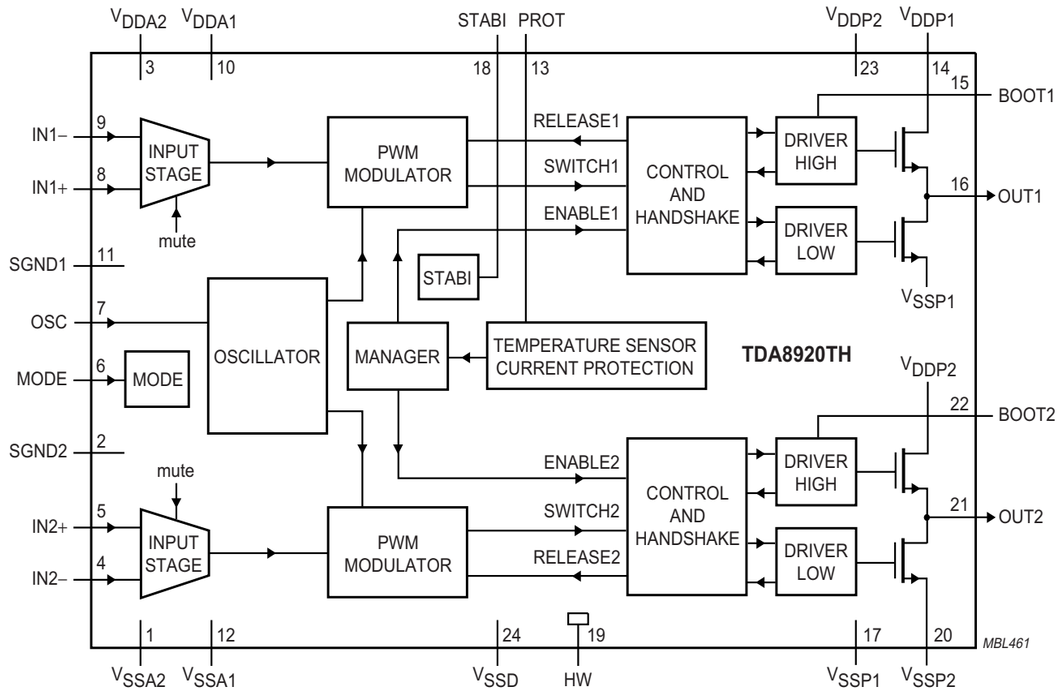
TDA8920 INTERNAL IC DIAGRAM



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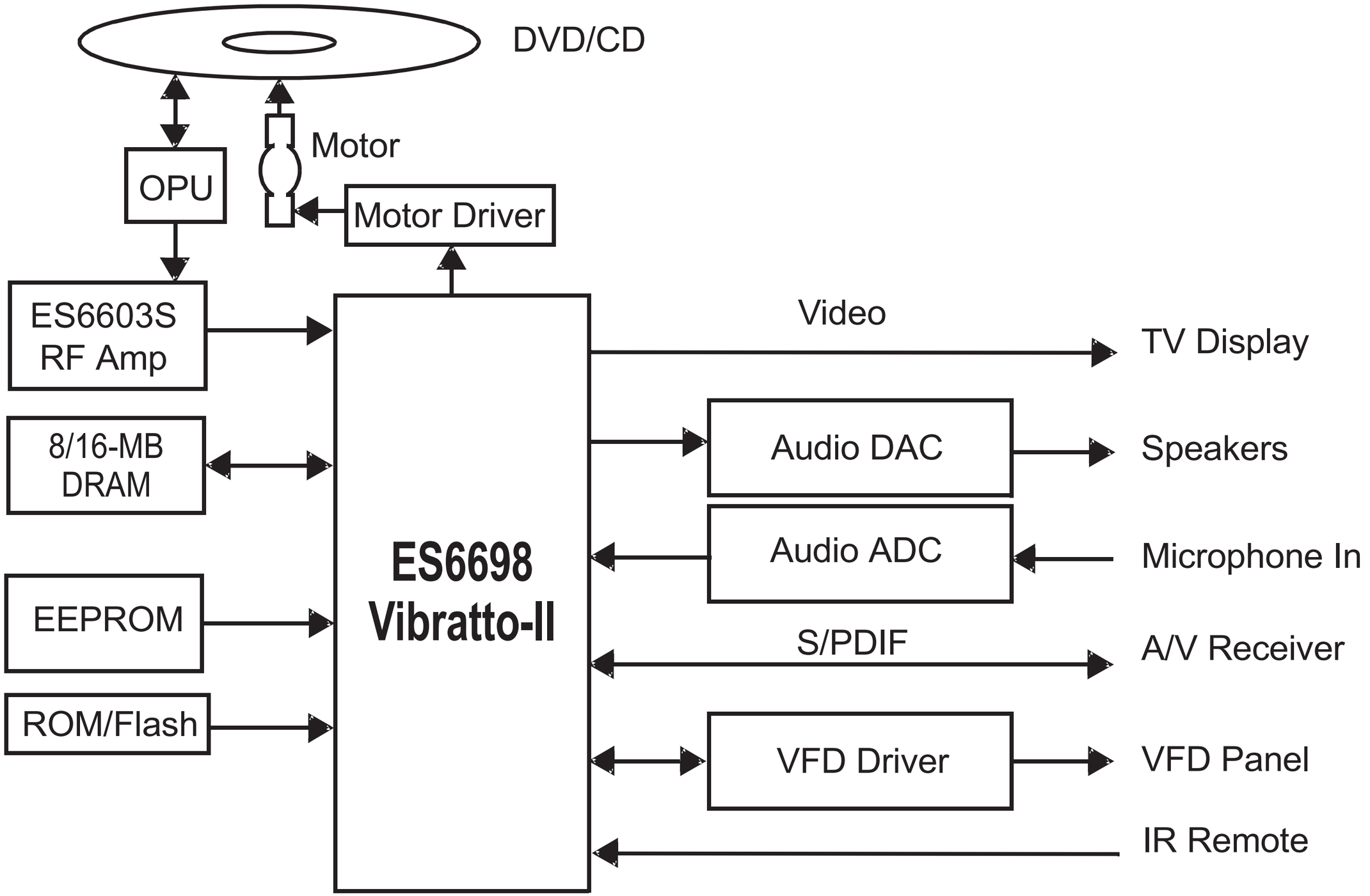
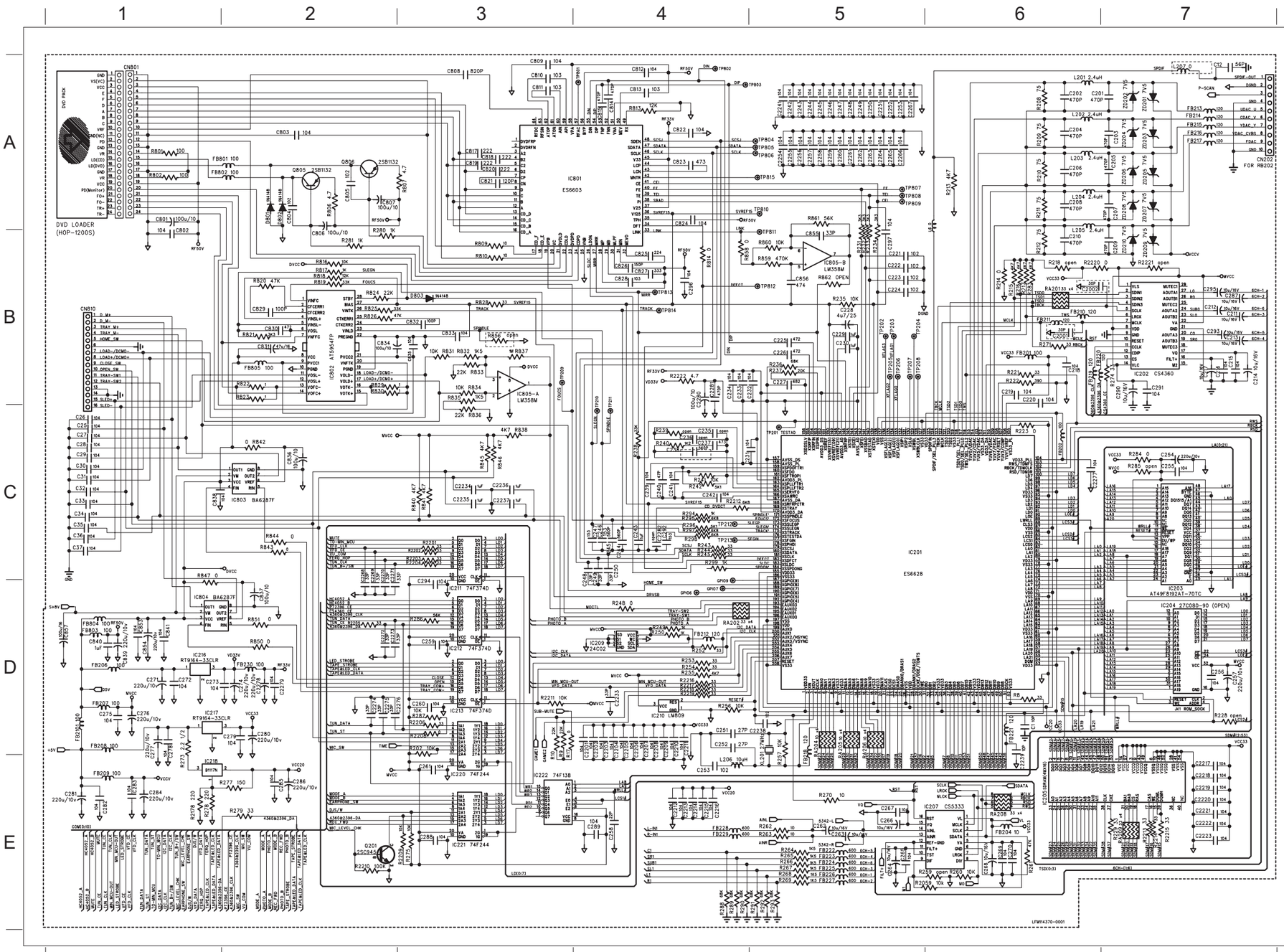
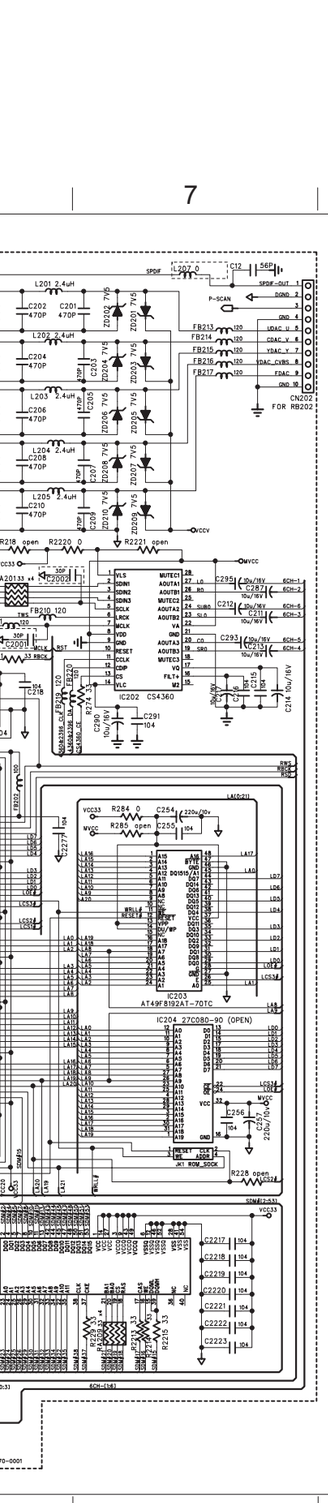
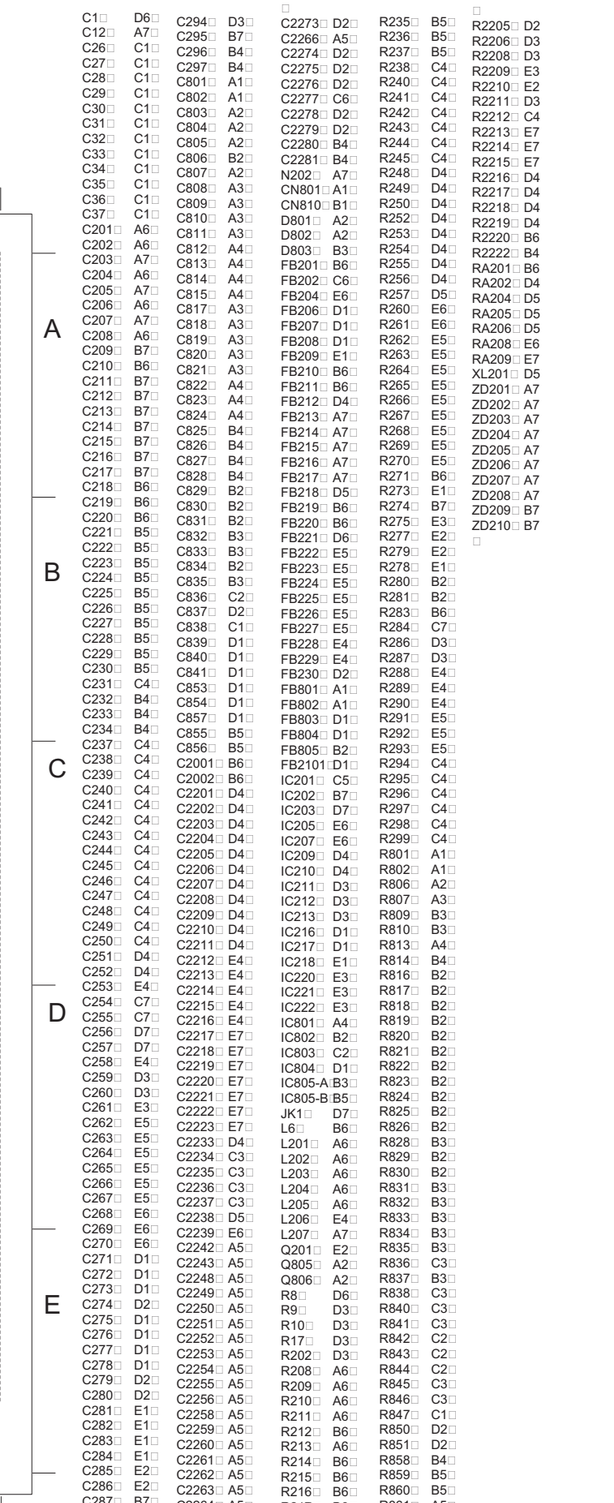
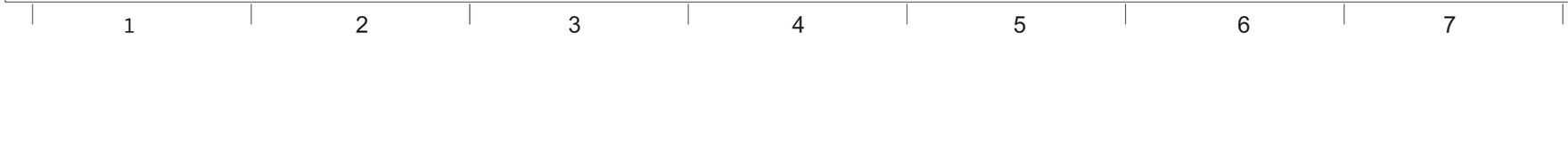
BLOCK DIAGRAM - MAIN BOARD

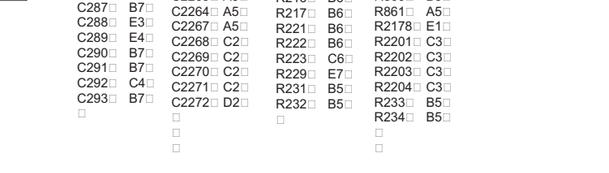










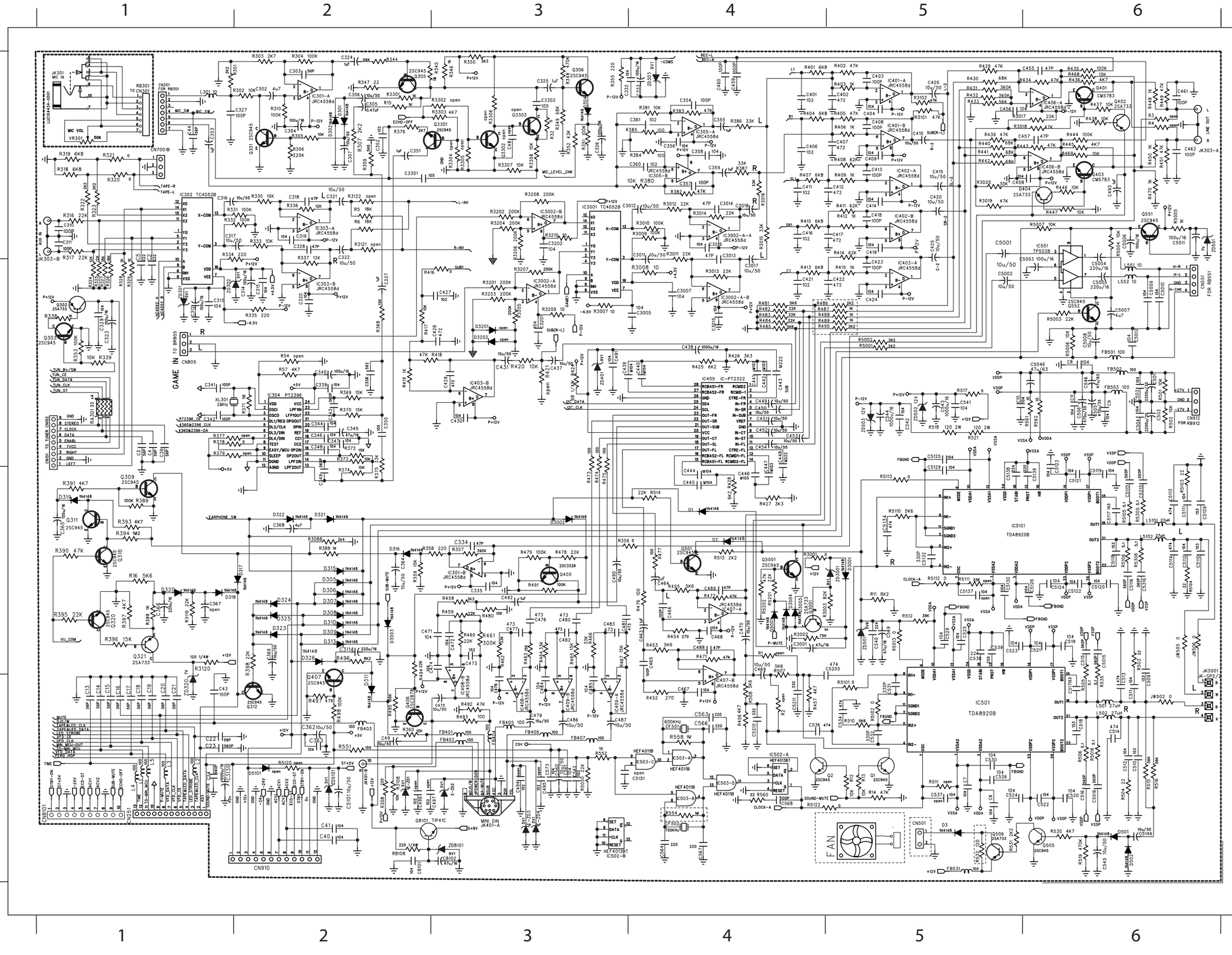


CIRCUIT DIAGRAM - MAIN BOARD
SERVO PART

C1	D6
C12	A7
C26	C1
C27	C1
C28	C1
C29	C1
C30	C1
C31	C1
C32	C1
C33	C1
C34	C1
C35	C1
C36	C1
C37	C1
C201	A6
C202	A6
C203	A7
C204	A6
C205	A7
C206	A6
C207	A7
C208	A6
C209	B7
C210	B6
C211	B7
C212	B7
C213	B7
C214	B7
C215	B7
C216	B7
C217	B7
C218	B6
C219	B6
C220	B6
C221	B5
C222	B5
C223	B5
C224	B5
C225	B5
C226	B5
C227	B5
C228	B5
C229	B5
C230	B5
C231	C4
C232	B4
C233	B4
C234	B4
C237	C4
C238	C4
C239	C4
C240	C4
C241	C4
C242	C4
C243	C4
C244	C4
C245	C4
C246	C4
C247	C4
C248	C4
C249	C4
C250	C4
C251	D4
C252	D4
C253	E4
C254	C7
C255	C7
C256	D7
C257	D7
C258	E4
C259	D3
C260	D3
C261	E3
C262	E5
C263	E5
C264	E5
C265	E5
C266	E5
C267	E5
C268	E6
C269	E6
C270	E6
C271	D1
C272	D1
C273	D1
C274	D2
C275	D1
C276	D1
C277	D1
C278	D1
C279	D2
C280	D2
C281	E1
C282	E1
C283	E1
C284	E1
C285	E2
C286	E2
C287	B7
C288	E3
C289	E4
C290	B7
C291	B7
C292	C4
C293	B7
C294	D3
C295	B7
C296	B4
C297	B4
C801	A1
C802	A1
C803	A2
C804	A2
C805	A2
C806	B2
C807	A2
C808	A3
C809	A3
C810	A3
C811	A3
C812	A4
C813	A4
C814	A4
C815	A4
C817	A3
C818	A3
C819	A3
C820	A3
C821	A3
C822	A4
C823	A4
C824	A4
C825	B4
C826	B4
C827	B4
C828	B4
C829	B2
C830	B2
C831	B2
C832	B3
C833	B3
C834	B2
C835	B3
C836	C2
C837	D2
C838	C1
C839	D1
C840	D1
C841	D1
C853	D1
C854	D1
C857	D1
C855	B5
C856	B5
C2001	B6
C2002	B6
C2201	D4
C2202	D4
C2203	D4
C2204	D4
C2205	D4
C2206	D4
C2207	D4
C2208	D4
C2209	D4
C2210	D4
C2211	D4
C2212	E4
C2213	E4
C2214	E4
C2215	E4
C2216	E4
C2217	E7
C2218	E7
C2219	E7
C2220	E7
C2221	E7
C2222	E7
C2223	E7
C2233	D4
C2234	C3
C2235	C3
C2236	C3
C2237	C3
C2238	D5
C2239	E6
C2242	A5
C2243	A5
C2248	A5
C2249	A5
C2250	A5
C2251	A5
C2252	A5
C2253	A5
C2254	A5
C2255	A5
C2256	A5
C2258	A5
C2259	A5
C2260	A5
C2261	A5
C2262	A5
C2263	A5
C2264	A5
C2267	A5
C2268	C2
C2269	C2
C2270	C2
C2271	C2
C2272	D2
C2273	D2
C2266	A5
C2274	D2
C2275	D2
C2276	D2
C2277	C6
C2278	D2
C2279	D2
C2280	B4
C2281	B4
N202	A7
CN801	A1
CN810	B1
D801	A2
D802	A2
D803	B3
FB201	B6
FB202	C6
FB204	E6
FB206	D1
FB207	D1
FB208	D1
FB209	E1
FB210	B6
FB211	B6
FB212	D4
FB213	A7
FB214	A7
FB215	A7
FB216	A7
FB217	A7
FB218	D5
FB219	B6
FB220	B6
FB221	D6
FB222	E5
FB223	E5
FB224	E5
FB225	E5
FB226	E5
FB227	E5
FB228	E4
FB229	E4
FB230	D2
FB801	A1
FB802	A1
FB803	D1
FB804	D1
FB805	B2
FB2101	D1
IC201	C5
IC202	B7
IC203	D7
IC205	E6
IC207	E6
IC209	D4
IC210	D4
IC211	D3
IC212	D3
IC213	D3
IC216	D1
IC217	D1
IC218	E1
IC220	E3
IC221	E3
IC222	E3
IC801	A4
IC802	B2
IC803	C2
IC804	D1
IC805-A	B3
IC805-B	B5
JK1	D7
L6	B6
L201	A6
L202	A6
L203	A6
L204	A6
L205	A6
L206	E4
L207	A7
Q201	E2
Q805	A2
Q806	A2
R8	D6
R9	D3
R10	D3
R17	D3
R202	D3
R208	A6
R209	A6
R210	A6
R211	A6
R212	B6
R213	A6
R214	B6
R215	B6
R216	B6
R217	B6
R221	B6
R222	B6
R223	C6
R229	E7
R231	B5
R232	B5
R235	B5
R236	B5
R237	B5
R238	C4
R240	C4
R241	C4
R242	C4
R243	C4
R244	C4
R245	C4
R248	D4
R249	D4
R250	D4
R252	D4
R253	D4
R254	D4
R255	D4
R256	D4
R257	D5
R260	E6
R261	E6
R262	E5
R263	E5
R264	E5
R265	E5
R266	E5
R267	E5
R268	E5
R269	E5
R270	E5
R271	B6
R273	E1
R274	B7
R275	E3
R277	E2
R279	E2
R278	E1
R280	B2
R281	B2
R283	B6
R284	C7
R286	D3
R287	D3
R288	E4
R289	E4
R290	E4
R291	E5
R292	E5
R293	E5
R294	C4
R295	C4
R296	C4
R297	C4
R298	C4
R299	C4
R801	A1
R802	A1
R806	A2
R807	A3
R809	B3
R810	B3
R813	A4
R814	B4
R816	B2
R817	B2
R818	B2
R819	B2
R820	B2
R821	B2
R822	B2
R823	B2
R824	B2
R825	B2
R826	B2
R828	B3
R829	B2
R830	B2
R831	B3
R832	B3
R833	B3
R834	B3
R835	B3
R836	C3
R837	B3
R838	C3
R840	C3
R841	C3
R842	C2
R843	C2
R844	C2
R845	C3
R846	C3
R847	C1
R850	D2
R851	D2
R858	B4
R859	B5
R860	B5
R861	A5
R2178	E1
R2201	C3
R2202	C3
R2203	C3
R2204	C3
R233	B5
R234	B5
R2205	D2
R2206	D3
R2208	D3
R2209	E3
R2210	E2
R2211	D3
R2212	C4
R2213	E7
R2214	E7
R2215	E7
R2216	D4
R2217	D4
R2218	D4
R2219	D4
R2220	B6
R2222	B4
RA201	B6
RA202	D4
RA204	D5
RA205	D5
RA206	D5
RA208	E6
RA209	E7
XL201	D5
ZD201	A7
ZD202	A7
ZD203	A7
ZD204	A7
ZD205	A7
ZD206	A7
ZD207	A7
ZD208	A7
ZD209	B7
ZD210	B7

7-4

CIRCUIT DIAGRAM - MAIN BOARD


1
2
3
4
5
6
A
B
C
D
IC5101
TDA8920B
IC501
TDA8920B
IC405 IC-PT2322
IC302 TC4052B
IC3001 TC4052B
IC304 PT2396
XL301 2MHz
IC551 TP5228
IC1551 TP5228
IC401-A JRC4558d
IC401-B JRC4558d
IC402-A JRC4558d
IC402-B JRC4558d
IC403-A JRC4558d
IC403-B JRC4558d
IC406-A JRC4558d
IC406-B JRC4558d
IC407-A JRC4558d
IC407-B JRC4558d
IC301-A JRC4558d
IC301-B JRC4558d
IC303-A JRC4558d
IC303-B JRC4558d
IC3002-A JRC4558d
IC3002-B JRC4558d
IC3002-A-A JRC4558d
IC3002-A-B JRC4558d
IC305-A JRC4558d
IC305-B JRC4558d
IC408-A JRC4558d
IC408-B JRC4558d
IC502-A HEF4013BT
IC502-B HEF4013BT
IC503-A HEF4011B
IC503-B HEF4011B
IC503-C HEF4011B
IC503-D HEF4011B
Q401 CM5783
Q402 2SA733
Q403 CM5783
Q404 2SA733
Q551 2SC945
Q552 2SC945
Q1 2SC945
Q2 2SC945
Q505 2SC945
Q506 DTA733
Q501 2SC945
Q5001 2SC945
Q3001 2SC945
Q301 2SC945
Q303 2SC945
Q305 2SC945
Q306 2SC945
Q307 2SC945
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Q311 2SC945
Q312 2SC945
Q320 2SC945
Q321 2SA733
Q407 2SC945
Q3302 2SC945
Q3303 2SC945
Q8101 TIP41C
JK301 MIC IN
JK303-A LINE OUT
JK303-B AUX IN
JK5001 SP2
CN700IB
CN805 GAME IN
CN801 TO TUNER
CN910
CN912 FOR RB912
CN501
CN551 FOR RB551
RB301 TO CN301
RB305 TO CN305
RB605 TO BR605
FAN
MIC VOL VR301 50K
MIC_SW
TAPE-R
TAPE-L
MIC_LEVEL_CHK
ECHO-OFF
-COMS
REC-L
REC-R
SUB(R-L)
SUB-MUTE
P-MUTE
SOUND-MUTE
CLOCK-A
L-IN1
R-IN1
SUB1
GAME
MUTE
DIS/V/H
TAPE&LED_CLK
TAPE&LED_DATA
LED_STROBE
VFD_CS
VFD_CLK
MIN_MCU-OUT
VFD_DIN_MCU
VFD_HOP
TIME
STBY-ON
5V+SW
9V+SW
24V+SW
DOS-ST
ACV1
ACV2
ECO-ST
STBY-LED
5V
GND
-24V
ACV3
ACV4
ECO-SW
STBY-KEY
+8V
+12V
+5V
-4.5V
P+12V
P-12V
VDDP
VSSP
VDDA
VSSA
VSSA1
VSSA2
VDDA1
VDDA2
VDDP1
VDDP2
VSSP1
VSSP2
FBGND
SUB(R-L)
R-2
SR-2
L-2
SL-2
C5001
C5002
C5003
C5004
C5005
C5006
C5007
C5008
C5009
C5010
C5011
C5012
C5013
C5014
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C5029
C5030
C5031
C5032
C5033
C5034
C5035
C5036
C5037
C5038
C5039
C5040

7-5

CIRCUIT DIAGRAM MAPPING - MAIN BOARD
SERVO PART

C2	A1	C49	D2	C325	A3	C350	B2	C404	A5	C427	B3	C454	B4	C476	C3	C504	B6	C532	D5	C3001	C4	C5006	A6	C5123	C6	CN912	B6	D322	C2	FB503	B6	IC409-A	D3	JW505	C6
C6	D5	C302	A2	C326	A3	C351	A2	C405	A5	C428	B3	C455	A6	C477	C3	C505	B6	C534	D5	C3005	B4	C5007	B6	C5124	C6	CN7001B	A1	D323	C2	FB531	D5	IC409-B	D3	JW506	C6
C7	D5	C303	A2	C327	A2	C352	A2	C406	A4	C429	B3	C456	A5	C478	D3	C506	B6	C536	D4	C3007	B4	C5008	B6	C5125	B5	CN8101	D1	D324	C2	IC301-A	A2	IC501	D5	L1	D1
C8	B6	C304	A2	C328	A2	C353	A1	C407	A5	C430	B3	C457	A5	C479	D3	C509	D6	C538	C5	C3011	A4	C5009	B6	C5126	C6	D1	C4	D325	C2	IC301-B	C3	IC502-A	D4	L2	D1
C9	B6	C305	A2	C329	B1	C354	A4	C408	A5	C431	B3	C458	A5	C480	C3	C510	D6	C539	C5	C3012	A4	C5012	B6	C5129	C5	D2	C4	D326	C2	IC302	A1	IC502-B	D3	L3	D1
C10	B5	C306	A2	C332	A3	C355	A4	C409	A5	C437	B3	C459	A4	C481	C3	C512	D6	C540	C5	C3013	A4	C5015	C6	C5130	C5	D3	D5	D501	D6	IC303-A	A2	IC503-A	D4	L4	D1
C11	B6	C307	A2	C333	A4	C356	A4	C410	A5	C438	B4	C460	A4	C482	C3	C511	D6	C541	B5	C3014	A4	C5046	B6	C5132	C5	D301	A2	D502	D6	IC303-B	B2	IC503-B	D4	L5	D1
C13	D1	C310	A1	C334	C3	C357	A4	C411	A4	C439	B3	C461	A6	C483	C3	C513	D6	C542	B5	C3015	B4	C5101	D2	C5134	C5	D302	A2	D3001	C5	IC304	B2	IC503-C	D4	L301	A1
C14	D1	C311	A1	C335	C3	C358	A4	C412	A5	C440	B4	C462	A6	C484	D3	C514	D6	C543	B5	C3016	A4	C5109	C6	C5138	C5	D304	A3	D3002	C3	IC305-A	A4	IC503-D	D4	L501	D6
C15	D1	C312	B1	C337	B2	C359	A4	C413	A5	C441	B4	C463	C4	C485	D3	C515	C6	C544	B5	C3017	B4	C5110	C6	C5139	C6	D305	C2	D3003	C2	IC305-B	A4	IC551	A6	L502	D6
C17	D1	C313	B1	C338	B2	C360	A4	C414	A5	C442	B4	C464	C4	C486	D3	C516	D6	C545	D6	C3018	A4	C5111	C6	C5146	D6	D306	C2	D3004	C4	IC403-A	B5	IC3001	A3	L551	B6
C18	D1	C314	B2	C339	B2	C361	A4	C415	A5	C443	B4	C465	C4	C487	D3	C518	D6	C546	B6	C3114	C2	C5112	C6	C5215	C6	D307	C2	D3005	C4	IC403-B	B3	IC3002-A-A	A4	L552	B6
C19	D1	C315	B2	C340	B2	C362	D2	C416	A4	C444	C4	C466	C4	C488	C4	C519	C6	C560	D3	C3130	D1	C5113	C6	C5316	C6	D308	C2	D5001	C4	IC401-A	A5	IC3002-A-B	B4	L5101	C6
C20	D1	C316	A1	C341	B1	C363	D2	C417	A5	C445	C4	C467	D4	C489	C4	C520	D6	C561	D3	C3201	B3	C5114	C6	C8101	D2	D309	C2	FB401	D3	IC401-B	A5	IC3002-A	B3	L5102	C6
C21	D1	C317	A1	C342	B1	C364	C2	C418	A5	C446	C4	C468	C4	C490	C3	C521	C6	C562	D3	C3202	A3	C5115	C6	C8102	D3	D310	C2	FB402	D3	IC402-A	A5	IC3002-B	A3	Q1	D5
C22	D1	C318	A2	C343	B2	C365	C1	C419	A5	C447	B4	C469	C4	C491	B3	C522	D6	C563	D4	C3301	A2	C5116	C6	CF501	D4	D311	D2	FB403	D2	IC402-B	A5	IC5101	C5	Q2	D5
C23	D1	C319	A2	C344	B2	C366	C1	C420	A5	C448	B4	C470	C4	C492	C3	C523	C5	C564	D4	C3302	A3	C5117	C6	CF502	D4	D313	C2	FB404	D3	IC405	B4	JK301	A1	Q301	A2
C24	D1	C320	B2	C345	B2	C368	C2	C421	B4	C449	B4	C471	C2	C493	A6	C524	D5	C566	D4	C5001	A5	C5118	C6	CN301	A1	D316	C2	FB405	D3	IC406-A	A6	JK303-A	A6	Q302	B1
C39	B1	C321	A2	C346	B2	C369	C2	C422	B5	C450	B4	C472	C3	C497	D3	C525	C5	C567	D4	C5002	B5	C5119	C6	CN501	D5	D318	C1	FB406	D3	IC406-B	A6	JK303-B	A1	Q303	B1
C40	D2	C322	A2	C347	B2	C401	A4	C423	B5	C451	B4	C473	C3	C501	B6	C526	D5	C568	D4	C5003	A6	C5120	C6	CN551	B6	D319	C1	FB407	D3	IC407-B	D4	JK401-A	D3	Q305	A2
C41	D2	C323	B1	C348	B2	C402	A5	C424	B5	C452	B4	C474	C3	C502	B6	C529	C5	C569	C5	C5004	B6	C5121	C6	CN805	B1	D320	C1	FB501	B6	IC408-A	D3	JK5001	C6	Q306	A3
C43	D1	C324	A2	C349	C2	C403	A5	C425	A5	C453	B4	C475	D3	C503	B6	C530	D5	C573	D3	C5005	B6	C5122	C6	CN910	D2	D321	C2	FB502	B6	IC408-B	D3	JW502	D6	Q309	C1

Q310	C1	R6	A2	R320	A1	R346	A3	R376	A2	R402	A5	R428	C4	R450	A6	R472	C4	R494	C2	R531	D5	R3016	A4	R3307	A3	R5202	C4								
Q311	C1	R11	C5	R321	A1	R347	A2	R378	B1	R403	A5	R429	A5	R451	A6	R473	C3	R495	D2	R535	D6	R3017	A5	R3308	A3	R5305	C6								
Q312	D2	R12	D5	R322	A1	R348	A3	R380	A4	R404	A4	R430	A5	R452	D4	R474	C3	R496	C2	R551	D2	R3018	A5	R5001	B5	R5306	C6								
Q320	C1	R13	D5	R323	A1	R349	A3	R381	A4	R405	A5	R431	A5	R453	C4	R475	C3	R497	D2	R552	D3	R3019	A5	R5002	B5	R8108	D2								
Q321	C1	R14	D5	R324	B1	R350	A3	R382	A4	R406	A5	R432	A5	R454	C4	R476	C4	R498	D2	R554	D4	R3020	A5	R5003	B6	XL301	B1								
Q401	A6	R15	A2	R325	B1	R351	A3	R383	A4	R407	A4	R433	A5	R455	C4	R477	C4	R501	B6	R558	D4	R3088	C2	R5004	A6	ZD301	B1								
Q402	A6	R57	B2	R326	B1	R352	A3	R384	A4	R408	A5	R434	A5	R456	D4	R478	C3	R502	B6	R560	D4	R3101	A5	R5005	A6	ZD302	B1								
Q403	A6	RA301	B1	R327	B1	R353	B1	R385	A4	R409	A5	R435	A6	R457	D4	R479	C3	R503	C6	R561	B6	R3102	A5	R5006	B6	ZD303	A4								
Q404	A5	R301	A1	R328	B1	R355	A3	R386	A4	R410	A4	R436	A6	R458	C3	R480	C3	R504	D6	R562	B6	R3119	C1	R5007	A6	ZD320	D1								
Q405	C3	R302	A2	R329	B1	R356	C3	R387	A4	R411	A5	R437	A6	R459	C3	R481	B4	R505	D6	R3108	D2	R3120	C1	R5013	C5	ZD401	B3								
Q406	D2	R303	A2	R330	A2	R357	C3	R388	C2	R412	A5	R438	A6	R460	C3	R482	B4	R506	D6	R3001	C4	R3201	B3	R5016	D6	ZD501	C5								
Q407	D2	R304	A2	R331	A1	R358	C2	R389	C1	R413	B4	R439	A5	R461	C3	R483	B4	R507	C4	R3002	C4	R3202	A3	R5101	D5	ZD502	B5								
Q501	C4	R305	A2	R332	A1	R359	C2	R390	C1	R414	A5	R440	A5	R462	C3	R484	B4	R508	D4	R3003	C4	R3203	B3	R5102	D5	ZD503	B5								
Q505	D6	R306	A2	R333	A2	R360	D2	R391	C1	R415	B5	R441	A5	R463	C3	R485	B4	R510	D5	R3007	B3	R3204	A3	R5103	C6	ZD551	A6								
Q506	D5	R307	A2	R334	A1	R368	B2	R393	C1	R416	B2	R442	A5	R464	C3	R486	B4	R513	C4	R3008	B4	R3205	B3	R5104	C6	ZD3001	C5								
Q551	A6	R308	D2	R335	B2	R369	B2	R394	C1	R417	B2	R443	A5	R465	C3	R487	B4	R514	C4	R3009	A4	R3206	A3	R5105	C6	ZD5101	D2								
Q552	B6	R309	A2	R336	A2	R370	B2	R395	C1	R418	B3	R444	A6	R466	C3	R488	B4	R515	D6	R3010	A4	R3207	B3	R5106	C6	ZD8101	D3								
Q3301	A3	R310	A2	R337	A2	R371	B2	R396	C1	R419	B2	R445	A6	R467	C3	R489	B4	R516	D6	R3011	A4	R3208	A3	R5110	C5										
Q5001	C4	R316	A1	R338	B1	R372	B2	R397	C1	R420	B3	R446	A6	R468	A6	R490	B4	R518	B5	R3012	A4	R3209	B3	R5112	C5										
Q5002	C4	R317	A1	R339	B1	R373	B2	R398	C2	R425	B4	R447	A6	R469	A6	R491	C3	R519	D6	R3013	B4	R3210	A3	R5113	C5										
Q5003	C4	R318	A1	R344	A2	R374	C2	R399	C1	R426	B4	R448	A6	R470	A6	R492	D3	R521	B5	R3014	A4	R3301	A2	R5122	D4										
Q8101	D2	R319	A1	R345	A3	R375	C2	R401	A4	R427	C4	R449	A6	R471	C4	R493	D3	R530	D6	R3015	A4	R3303	A3	R5201	C4										
R5	A2																																		

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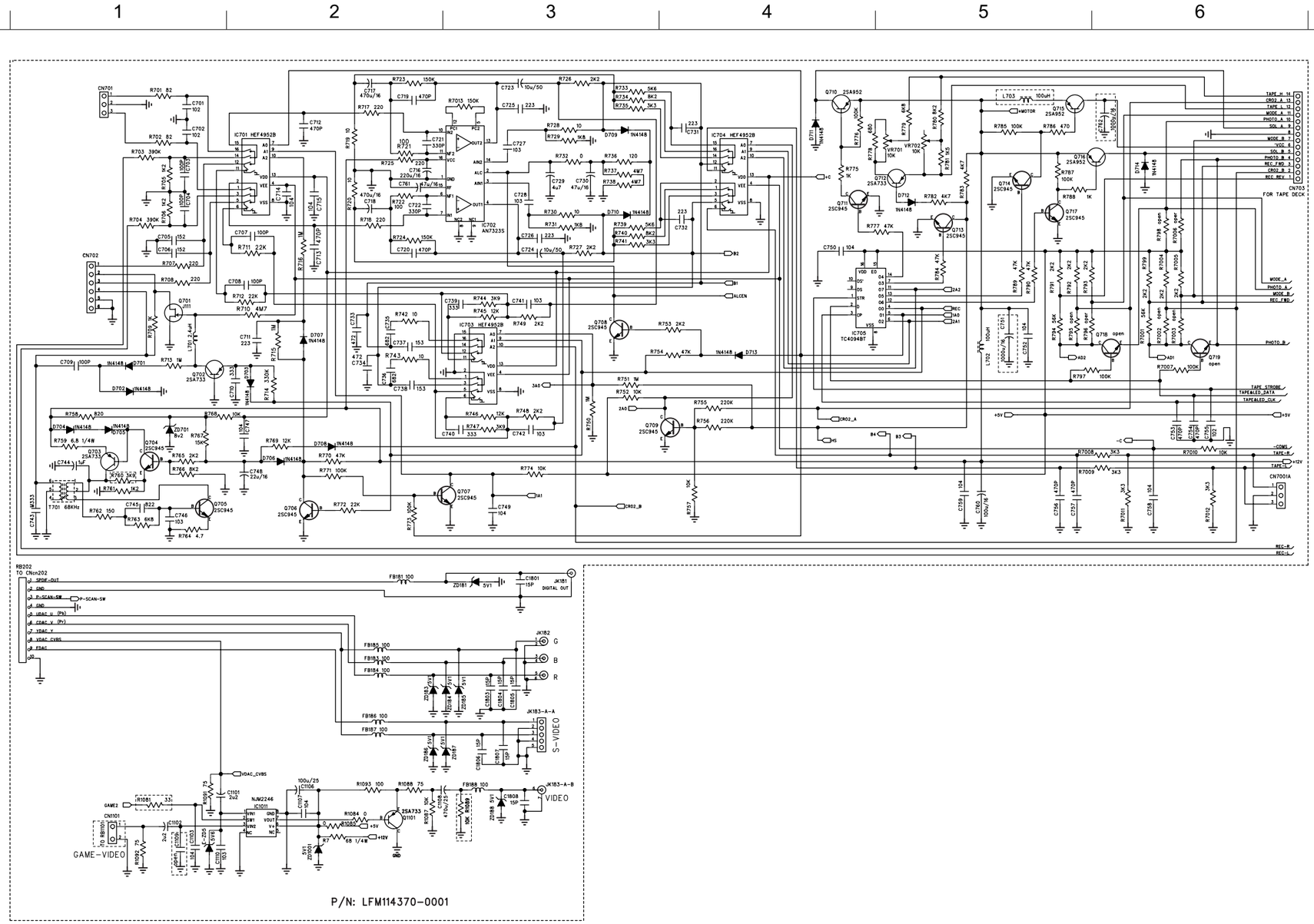
CIRCUIT DIAGRAM - TAPE PART



C701	A1	D701	B1	R726	A3	R7001	A6
C702	A1	D702	B1	R727	A3	R7004	A6
C703	A1	D703	B2	R728	A3	R7005	A6
C704	A1	D704	B1	R729	A3	R7007	B6
C705	A1	D705	B1	R730	A3	R7008	B5
C706	A1	D706	B2	R731	A3	R7009	B5
C707	A2	D707	A2	R732	A3	R7010	B6
C708	A2	D708	B2	R733	A3	R7011	B6
C709	B1	D709	A3	R734	A3	R7012	B6
C710	B2	D710	A3	R735	A3	R7013	A3
C711	A2	D711	A4	R736	A3	RB202	B1
C713	A2	D712	A5	R737	A3	T701	B1
C714	A2	D713	B4	R738	A3	VR701	A5
C715	A2	D714	A6	R739	A3	VR702	A5
C716	A2	E-ZD05	C1	R740	A3	ZD181	B3
C717	A2	FB181	B2	R741	A3	ZD183	C2
C718	A2	FB183	C2	R742	A2	ZD184	C3
C719	A2	FB184	C2	R743	B2	ZD185	C3
C720	A2	FB185	C2	R744	A3	ZD186	C2
C721	A2	FB186	C2	R745	A3	ZD187	C3
C722	A2	FB187	C2	R746	B3	ZD188	C3
C723	A3	FB188	C3	R747	B3	ZD701	B1
C724	A3	IC1011	C2	R748	B3	ZD1001	C2
C725	A3	IC701	A2	R749	A3		
C726	A3	IC702	A3	R750	B3		
C727	A3	IC703	A3	R751	B3		
C728	A3	IC704	A4	R752	B3		
C729	A3	IC705	A4	R753	A4		
C730	A3	JK181	B3	R754	B4		
C731	A4	JK182	C3	R755	B4		
C732	A4	JK183-A-A	C3	R756	B4		
C733	A2	JK183-A-B	C3	R757	B4		
C734	B2	L701	A1	R758	B1		
C735	A2	L702	B5	R759	B1		
C736	B2	L703	A5	R760	B1		
C737	A2	Q701	A1	R761	B1		
C738	B2	Q702	B1	R762	B1		
C739	A3	Q703	B1	R763	B1		
C740	B3	Q704	B1	R764	B1		
C741	A3	Q705	B1	R765	B1		
C742	B3	Q706	B2	R766	B1		
C743	B1	Q707	B3	R767	B1		
C744	B1	Q708	A3	R768	B1		
C745	B1	Q709	B3	R769	B2		
C746	B1	Q710	A4	R770	B2		
C747	B2	Q711	A4	R771	B2		
C748	B2	Q712	A5	R772	B2		
C749	B3	Q713	A5	R773	B2		
C750	A4	Q714	A5	R774	B3		
C751	B5	Q715	A5	R775	A4		
C752	B5	Q716	A5	R776	A4		
C753	B6	Q717	A5	R777	A4		
C754	B6	Q1101	C2	R778	A4		
C755	B6	R7	C2	R779	A5		
C756	B5	R701	A1	R780	A5		
C757	B5	R702	A1	R781	A5		
C758	B6	R703	A1	R782	A5		
C759	B5	R704	A1	R783	A5		
C760	B5	R705	A1	R784	A5		
C761	A2	R706	A1	R785	A5		
C762	A6	R707	A1	R786	A5		
C1101	C2	R708	A1	R787	A5		
C1102	C1	R709	A1	R788	A5		
C1103	C1	R710	A2	R789	A5		
C1106	C2	R711	A2	R790	A5		
C1107	C2	R712	A2	R791	A5		
C1108	C2	R713	B1	R792	A5		
C1801	B3	R714	B2	R793	A5		
C1803	C3	R715	B2	R794	A5		
C1804	C3	R716	A2	R797	B5		
C1805	C3	R717	A2	R799	A6		
C1806	C3	R718	A2	R1081	C1		
C1807	C3	R719	A2	R1084	C2		
C1808	C3	R720	A2	R1087	C2		
CN701	A1	R721	A2	R1088	C2		
CN702	A1	R722	A2	R1089	C3		
CN703	A6	R723	A2	R1091	C1		
CN1101	C1	R724	A2	R1092	C1		
CN7001A	B6	R725	A2	R1093	C2		

POWER BOARD

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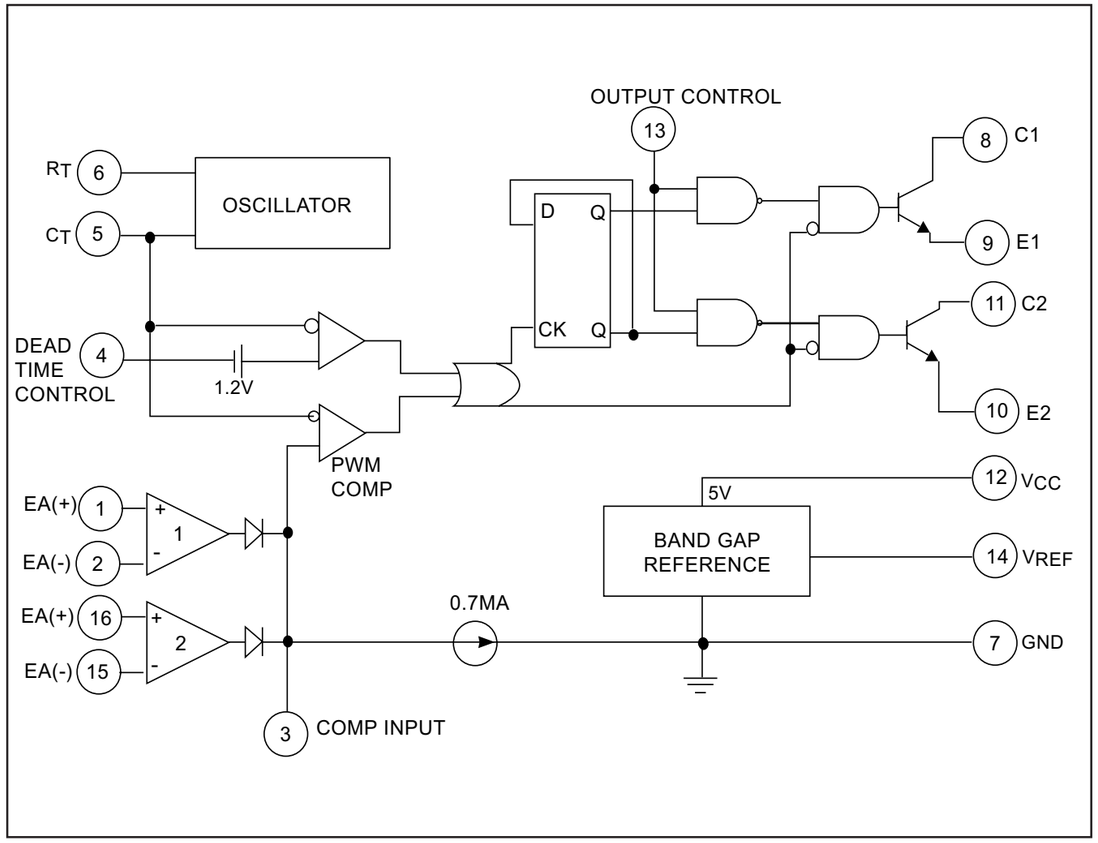
KA5M02659RN INTERNAL BLOCK DIAGRAM



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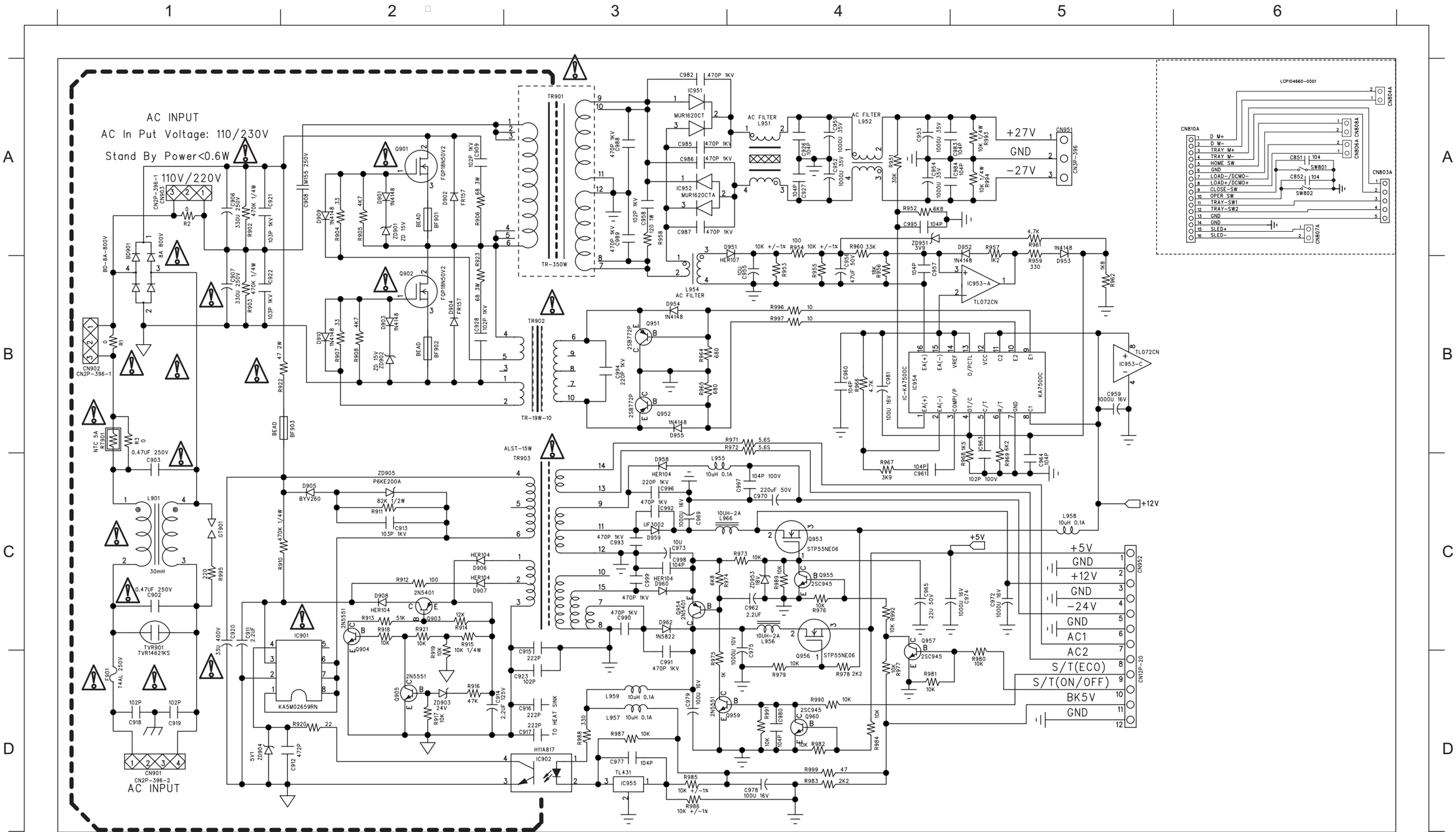
CIRCUIT DIAGRAM - POWER BOARD



SUBWOOFER MAIN BOARD

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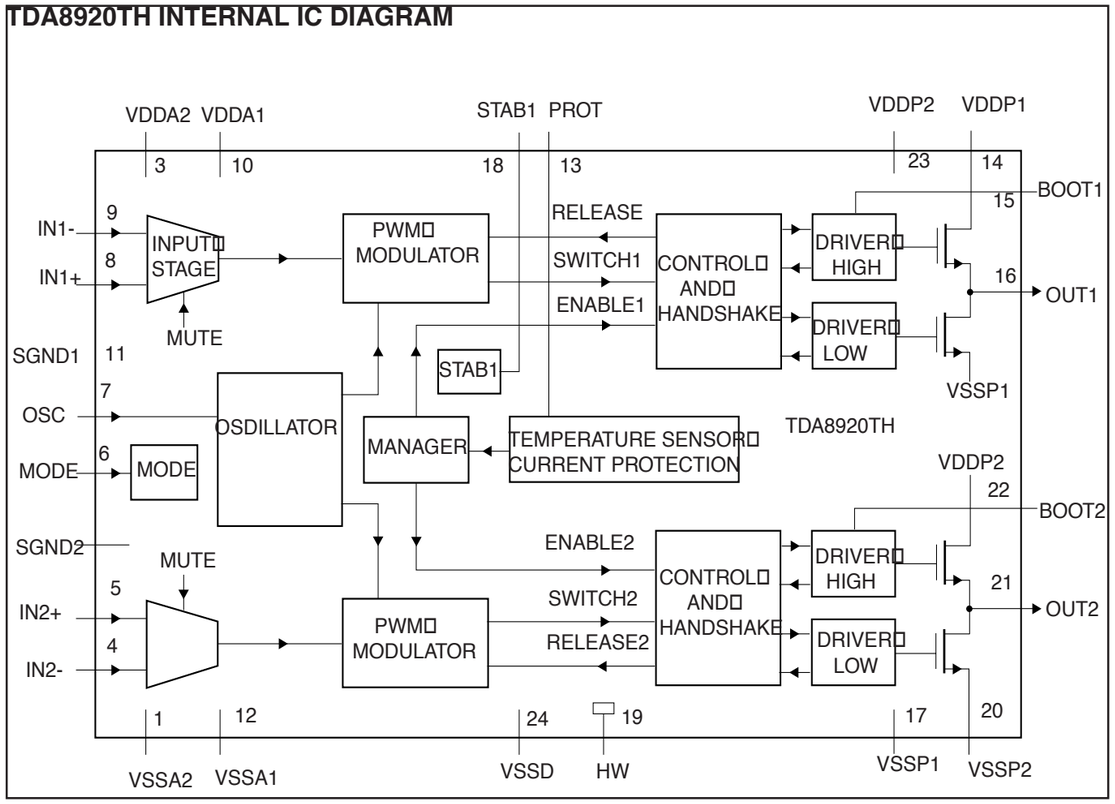
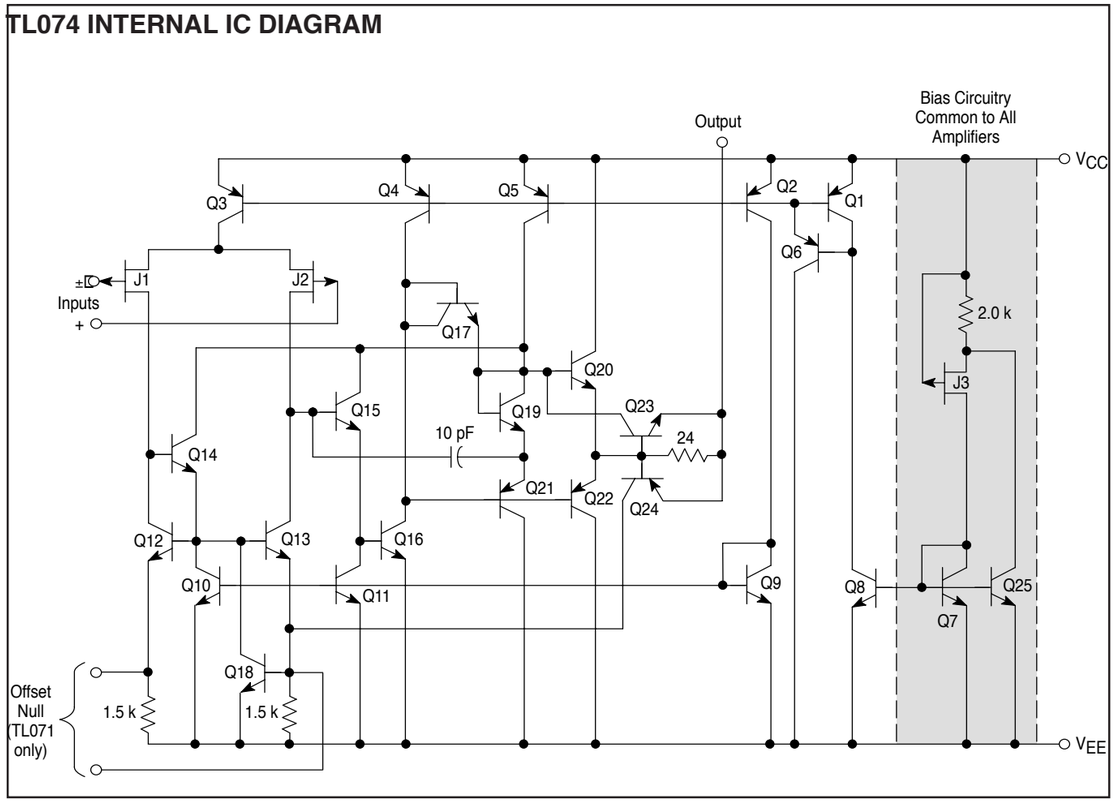
TDA8920TH INTERNAL IC DIAGRAM



TL074 INTERNAL IC DIAGRAM



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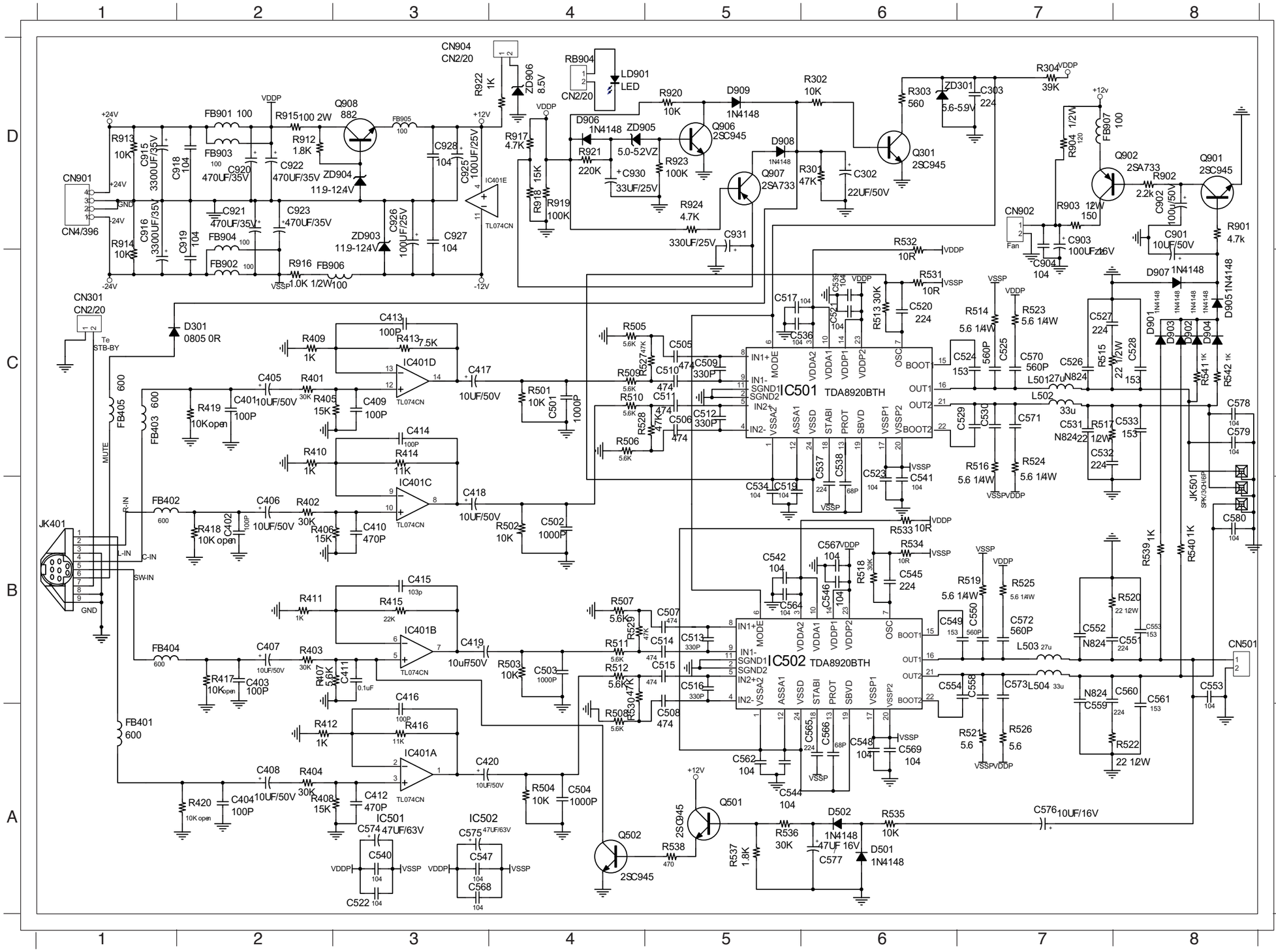
CIRCUIT DIAGRAM - MAIN BOARD



C302 D6	C576 A7	R409 C2	
C303 D7	C577 A6	R410 C2	
C401 C2	C578 C8	R411 B2	
C403 B2	C579 C8	R412 A2	
C404 A2	C580 B8	R413 C3	
C405 C2	C901 D8	R414 C3	
C406 B2	C902 D8	R415 B3	
C407 B2	C903 D7	R416 A3	
C408 A2	C904 C7	R912 D2	
C409 C3	C915 D1	R501 C4	
C410 B3	C916 D1	R502 B4	
C411 B3	C918 D2	R503 B4	
C412 A3	C919 D2	R504 A4	
C413 C3	C920 D2	R505 C4	
C414 C3	C921 D2	R506 C4	
C415 B3	C922 D2	R507 B4	
C416 B3	C923 D2	R508 A4	
C501 C4	C925 D3	R509 C4	
C502 B4	C926 D3	R510 C4	
C503 B4	C927 D3	R511 B4	
C504 A4	C928 D3	R512 B4	
C505 C5	C930 D4	R513 C6	
C506 C5	C931 D5	R514 C7	
C507 B5	CN301 C1	R515 C7	
C508 A5	CN501 B8	R516 C7	
C509 C5	CN901 D1	R517 C7	
C510 C5	CN902 D7	R518 B6	
C511 C5	CN904 D3	R519 B7	
C512 C5	D301 C2	R520 B8	
C513 B5	D501 A6	R521 A7	
C514 B5	D502 A6	R522 A8	
C515 B5	D901 C8	R523 C7	
C516 B5	D902 C8	R524 C7	
C517 C5	D903 C8	R525 B7	
C519 B5	D904 C8	R526 A7	
C520 C6	D905 C8	R527 C4	
C521 C6	D906 D4	R528 C4	
C522 A3	D907 C8	R529 B4	
C523 B6	D908 D5	R530 B4	
C524 C7	D909 D5	R531 C6	
C525 C7	FB401 A1	R532 D6	
C526 C7	FB402 B1	R533 B6	
C527 C7	FB403 C1	R534 B6	
C528 C8	FB404 B1	R535 A6	
C529 C7	FB405 C1	R536 A5	
C530 C7	FB901 D2	R537 A5	
C531 C7	FB902 C2	R538 A5	
C532 C7	FB903 D2	R539 B8	
C533 C8	FB904 D2	R540 B8	
C534 B5	FB905 D3	R541 C8	
C536 C5	FB906 C2	R542 C8	
C537 B6	FB907 D7	R901 D8	
C538 B6	IC401A A3	R902 D8	
C539 C6	IC401B B3	R903 D7	
C540 A3	IC401C B3	R904 D7	
C541 B6	IC401D B3	R913 D1	
C542 B5	IC401E D4	R914 D1	
C544 A5	IC501 C5	R915 D2	
C545 B6	IC502 A3	R916 C2	
C546 B6	JK401 B1	R917 D4	
C547 A3	JK501 B8	R918 D4	
C548 A6	L501 C7	R919 D4	
C549 B7	L502 C7	R920 D5	
C550 B7	L503 B7	R921 D4	
C551 B8	L504 B7	R922 D3	
C552 B7	Q301 D6	R923 D5	
C553 B8	Q501 A5	R924 D5	
C554 B7	Q502 A4	ZD301 D6	
C558 B7	Q901 D8	ZD903 D3	
C559 B7	Q902 D8	ZD904 D3	
C560 B8	Q906 D5	ZD905 D4	
C561 B8	Q907 D5	ZD906 D4	
C562 A5	Q908 D3		
C564 B5	R301 D6		
C565 A6	R302 D6		
C566 A6	R303 D6		
C567 B6	R304 D7		
C568 A3	R401 C2		
C569 A6	R402 B2		
C570 C7	R403 B2		
C571 C7	R404 A2		
C572 B7	R405 C2		
C573 B7	R406 B2		
C574 A3	R407 B2		
C575 A3	R408 A2		

POWER + LED BOARDS

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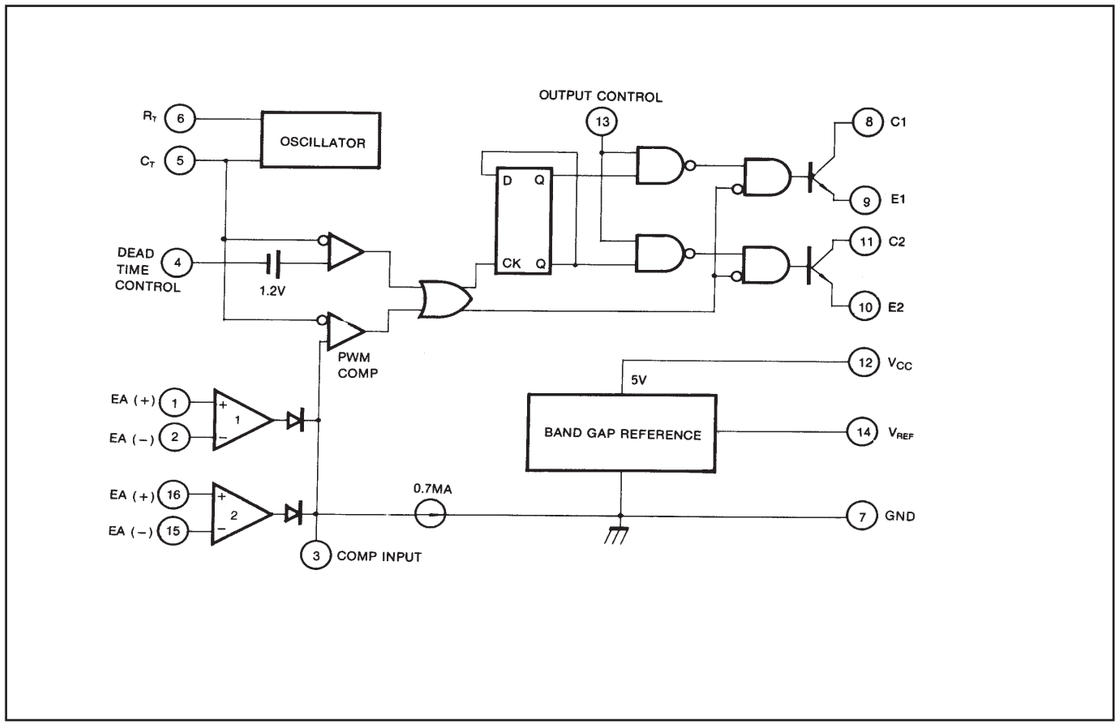
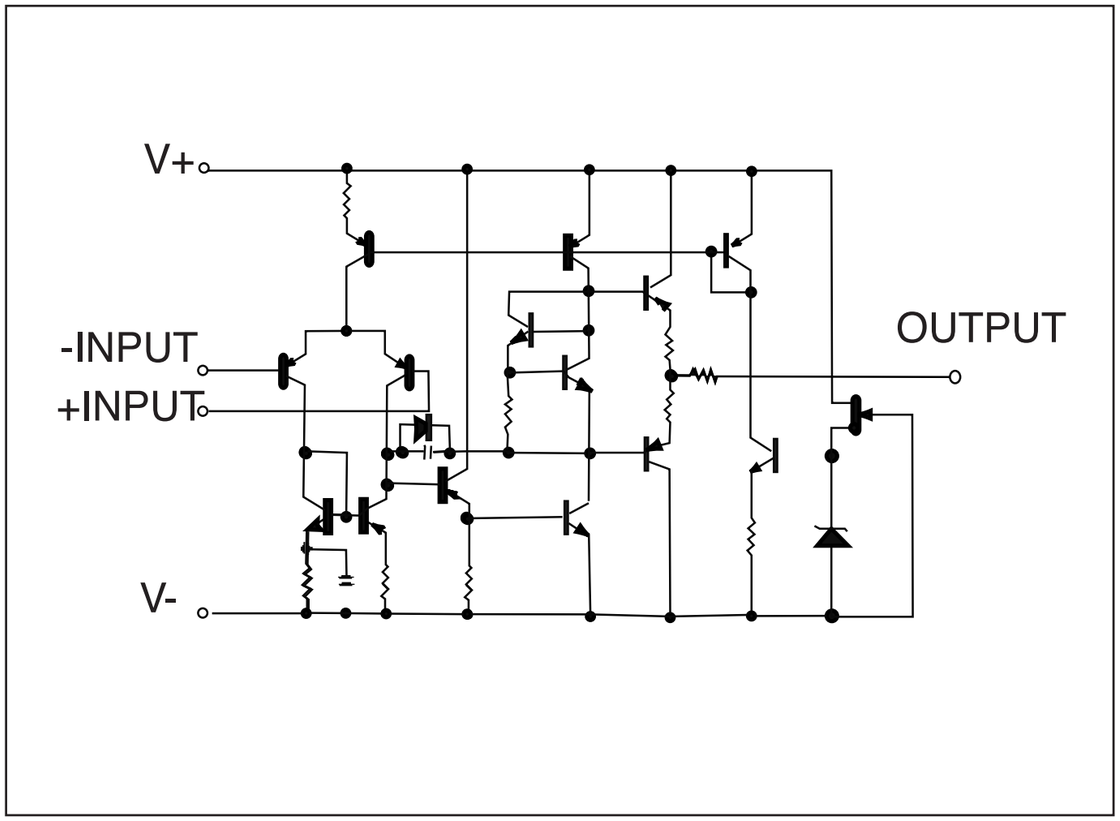
IC-KA7500C INTERNAL IC DIAGRAM



IC-BA4558D INTERNAL IC DIAGRAM



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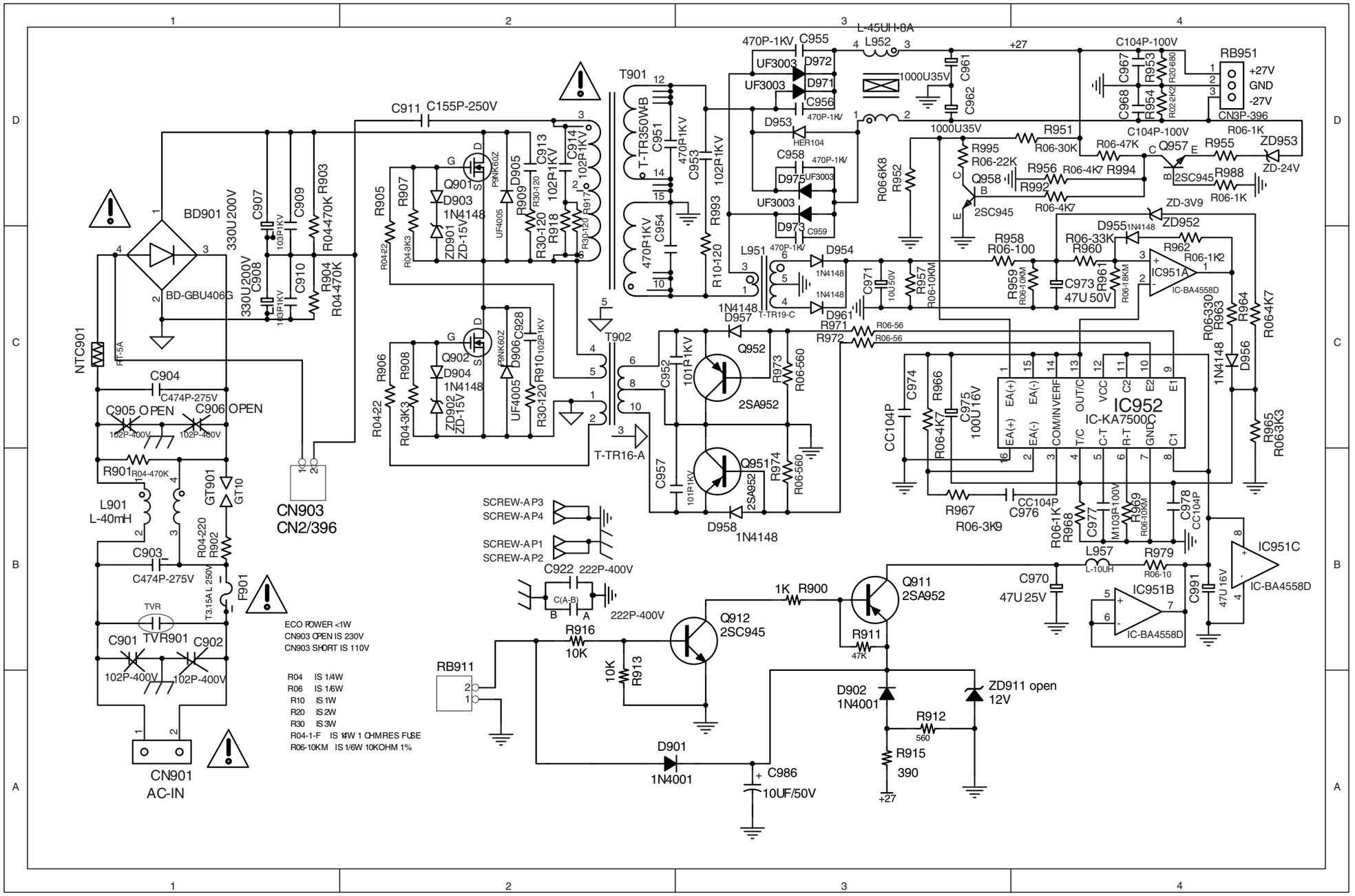
CIRCUIT DIRGRAM - POWER BOARD



BD901	D1	NTC901	C1
C901	B1	Q901	D2
C902	B1	Q902	C2
C903	B1	Q911	B3
C904	C1	Q912	B3
C907	D1	Q951	B3
C908	C1	Q952	C3
C909	D1	Q957	D4
C910	C1	Q958	D3
C911	D2	R900	B3
C913	D2	R901	B1
C914	D2	R902	B1
C922	B2	R903	D1
C928	C2	R904	C1
C951	D2	R905	D2
C952	C2	R906	C2
C953	D3	R907	D2
C954	C2	R908	C2
C955	D3	R909	D2
C958	D3	R910	C2
C961	D3	R911	B3
C962	D3	R912	A3
C967	D4	R913	A2
C968	D4	R915	A3
C970	B4	R916	B2
C971	C3	R917	D2
C973	C4	R918	D2
C974	C3	R951	D4
C975	C3	R952	D3
C976	B4	R953	D4
C977	B4	R954	D4
C978	B4	R955	D4
C991	B4	R956	D4
CN901	A1	R957	C3
CN903	B1	R958	C3
D901	A2	R959	C4
D902	A3	R960	C4
D903	D2	R961	C4
D904	C2	R962	C4
D905	D2	R963	C4
D906	C2	R964	C4
D953	D3	R965	C4
D954	C3	R966	C3
D955	C4	R967	B3
D956	C4	R968	B4
D957	C3	R969	B4
D958	B3	R971	C3
D961	C3	R972	C3
D971	D3	R973	C3
D972	D3	R974	B3
D973	D3	R979	B4
D975	D3	R988	D4
F901	B1	R992	D4
GT901	B1	R993	D3
IC951A	C4	R994	D4
IC951B	B4	R995	D3
IC951C	B4	RB911	A2
IC952	C4	RB951	D4
L901	B1	T901	D2
L951	C3	T902	C2
L952	D3	TVR901	B1
L957	B4	ZD901	C2
		ZD902	C2
		ZD952	D4
		ZD953	D4