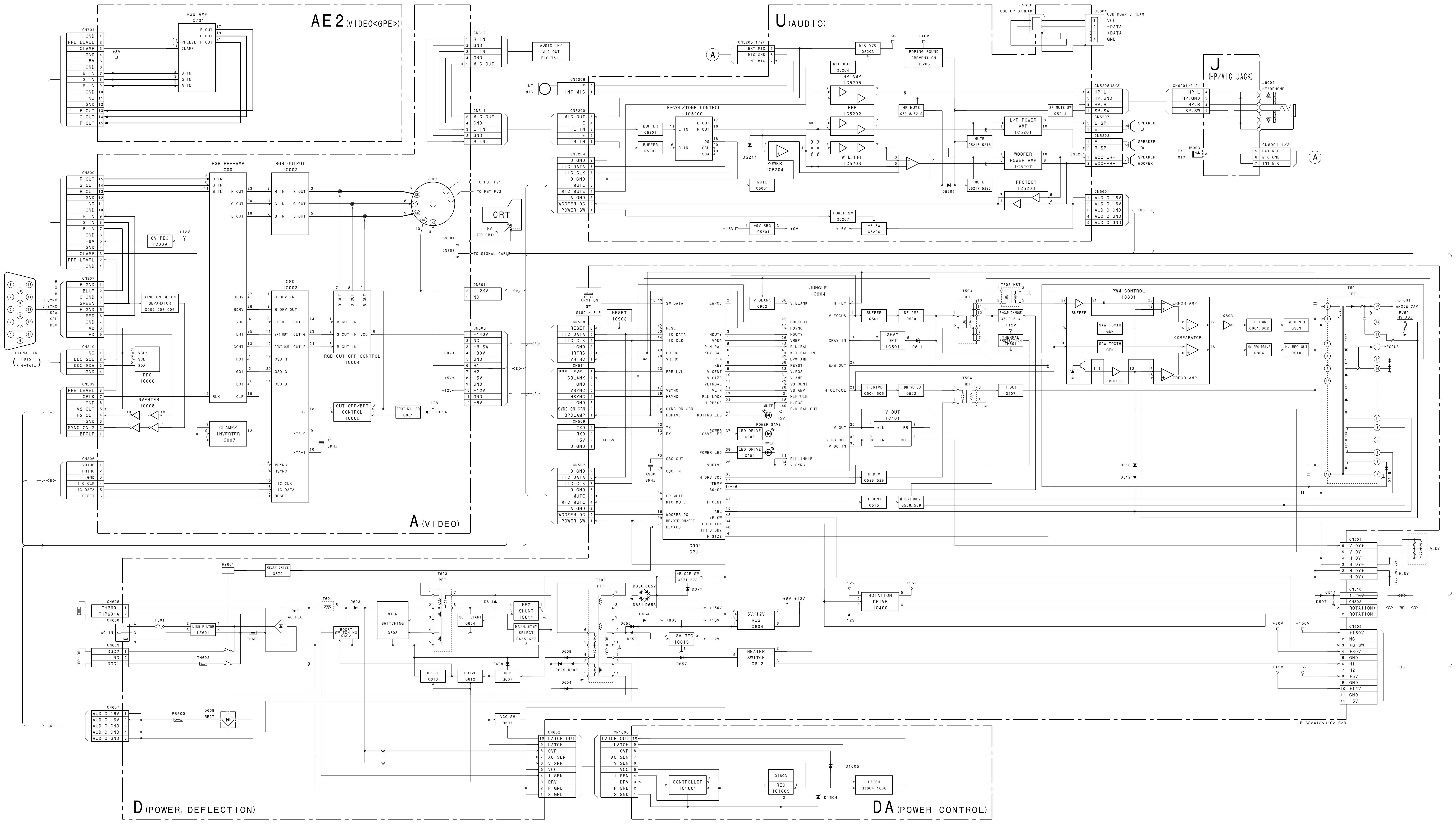
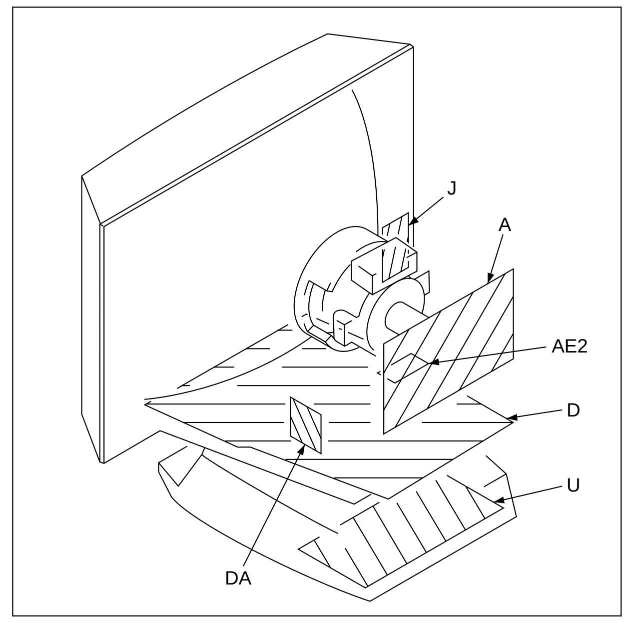
SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAMS (with FRAME SCHEMATIC DIAGRAM)



5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in μF unless otherwise noted. (pF: μμF) Capacitors without voltage indication are all 50 V.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm Rating electrical power 1/4 W (CHIP : 1/10 W)

- All resistors are in ohms.
- : nonflammable resistor.
- : fusible resistor.
- △ : internal component.
- : panel designation, and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : earth-ground.
- : earth-chassis.
- The components identified by ⧓ in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation.
  Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪, make the necessary adjustments indicated. (See page 14)
- When replacing the part in below table, be sure to perform the related adjustment.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

	Part replaced (⧓)
HV ADJ	RV501

	Part replaced (◪)	
HV Regulator Circuit	D board	IC801, C509, C533, C542, C548, C802, C814, C815, R506, R508, R538, R539, R540, R541, R807, R822, R823, R824, RV501, T501 (FBT)
HV Hold-Down Circuit	D board	IC501, IC801, IC904, D511, D515, D516, C515, C516, C517, C525, R532, R533, R534, R535, R557, R558, R996, T501 (FBT) • Mounted D board
Beam Current Protector Circuit	D board	IC901, D596, C519, C528, C549, C904, R542, R543, R544, R545, R939 • Mounted D board

- All voltages are in V.
- Readings are taken with a 10 M digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- ∗ : Can not be measured.
- Circled numbers are waveform references.
- : B + bus.
- : B – bus.

Terminal name of semiconductors in silk screen printed circuit (∗)

	Device	Printed symbol	Terminal name	Circuit
①	Transistor		Collector / Base / Emitter	
②	Transistor		Collector / Base / Emitter	
③	Diode		Cathode / Anode	
④	Diode		Cathode / Anode / (NC)	
⑤	Diode		Cathode / Anode / (NC)	
⑥	Diode		Common / Anode / Cathode	
⑦	Diode		Common / Anode / Cathode	
⑧	Diode		Common / Anode / Anode	
⑨	Diode		Common / Anode / Anode	
⑩	Diode		Common / Cathode / Cathode	
⑪	Diode		Common / Cathode / Cathode	
⑫	Transistor (FET)		Drain / Source / Gate	
⑬	Transistor (FET)		Drain / Source / Gate	
⑭	Transistor (FET)		Source / Drain / Gate	
⑮	Transistor		Emitter / Collector / Base	
–	Discrete semiconductot			

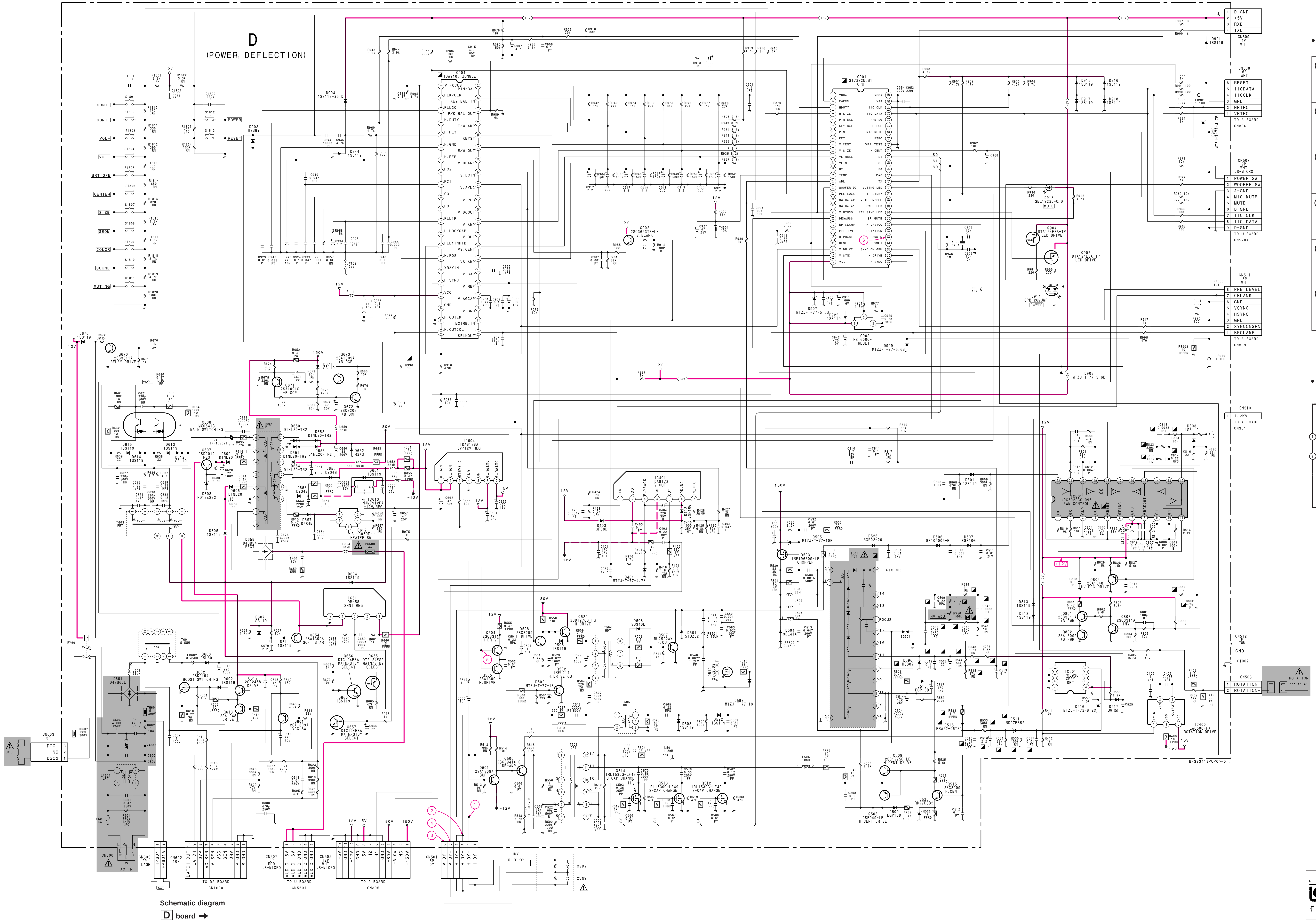
(Chip semiconductors that are not actually used are included.)

Ver.1.4

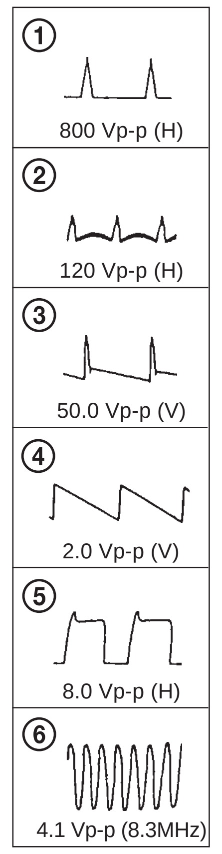
(1) Schematic Diagram of D Board

• D BOARD VOLTAGE LIST

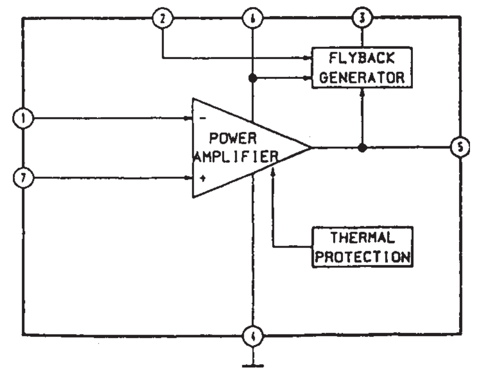
Ref.	Pin No.	Voltage [V]
IC400	1 2 4	1.1 1.1 –0.2
IC401	1 3 5 6 7	1.1 –11.8 0.3 13.4 1.1
IC604	3	4.1
IC611	1 3 4	134.9 2.4 11.4
IC612	2 3 4 5	5.1 6.4 5.1 7.3
IC801	1 2 4 5 6 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	6.0 9.0 6.6 0.7 4.9 7.0 4.1 5.1 5.9 6.0 6.0 6.8 6.0 7.9 2.5 4.6 5.3 4.6 5.0 5.0
IC901	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 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 49 50 51 52 53 54	8.1 2.0 1.9 3.1 3.3 2.9 3.2 2.7 2.5 2.7 2.7 2.6 5.1 1.9 4.2 1.0 5.1 5.0 5.0 –0.4 0 5.1 0 3.4 5.1 0.1 4.4 4.5 0.7 0.7 1.9 2.4 2.6 1.4 0.1 5.1 0 4.1 5.1 3.9 5.1 0.7 5.1 5.1 5.1 1.3 1.0 0 0 0 4.7 4.6
IC903	2	5.1
IC904	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 21 22 24 25 26 27 28 29 30 31 32 33 34 35 36	5.5 5.1 3.4 2.0 0.3 0 8.0 1.6 6.4 4.0 2.8 2.8 8.0 0.1 4.2 5.7 0.6 4.8 4.6 0 5.1 8.1 3.5 3.7 3.8 3.5 4.0 3.5 4.1 0.1 3.5 0.1
	37 38 39 40 41 42	2.9 3.7 4.1 4.1 3.9 4.2
Q500	B C E	1.7 71.5 1.2
Q501	B E	1.1 1.7
Q502	B C	–0.2 70.4
Q503	G D	147.1 48.9
Q504	B E	4.8 4.9
Q505	B E	4.8 5.0
Q507	B C	–0.5 49.0
Q508	B C E	52.9 38.3 51.7
Q509	B C E	52.8 57.1 51.7
Q510	G D	7.9 8.3
Q512	G D	5.1 0
Q513	G D	5.1 0
Q514	G D	5.1 0
Q515	B C E	1.3 52.8 0.7
Q528	B C E	1.3 72.1 0.8
Q529	B E	72.1 70.9
Q601	B E	14.2 14.9
Q602	G D S	9.4 92.9 0.1
Q607	B C E	18.0 29.1 17.4
Q608	1(C1) 2(B1) 4(C2) 5(B2) 6(E2)	186.8 –1.3 186.8 185.5 376.0
Q612	B C E	9.7 17.4 9.4
Q613	B C E	9.6 0 9.5
Q654	B E	11.0 11.4
Q655	B C E	13.9 2.5 13.9
Q656	B C	0 13.9
Q657	B C	4.1 0
Q670	B C	0 12.1
Q671	B C E	148.6 0 149.1
Q672	B C	0 4.1
Q673	B C E	4.1 0 4.1
Q801	B E	8.0 7.9
Q802	B E	8.0 7.9
Q803	B C	0.3 8.1
Q804	B E	7.9 7.8
Q901	B C	* *
Q902	B E	–0.4 0.1
Q904	B C	0.1 5.0
Q905	B C	5.1 –0.6



• D BOARD WAVEFORMS



• D BOARD IC401 TDA8172



• D BOARD SEMICONDUCTOR LOCATION

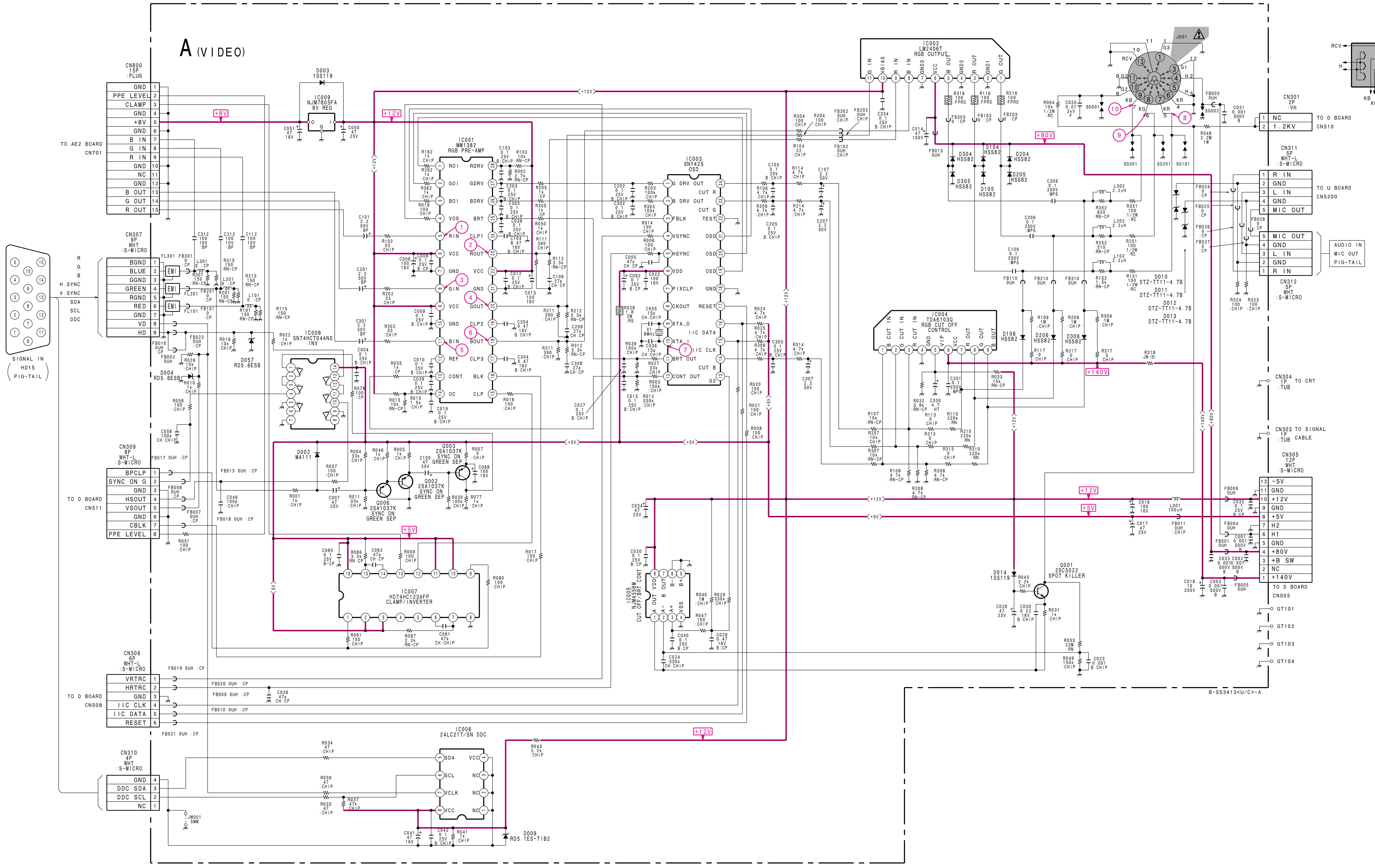
IC	
IC400	B-3
IC401	B-4
IC501	A-3
IC604	C-3
IC611	E-1
IC612	D-2
IC613	C-4
IC801	A-2
IC901	C-2
IC903	B-1
IC904	B-1
TRANSISTOR	
Q500	A-4
Q501	A-4
Q502	C-6
Q503	C-7
Q504	A-2
Q505	A-2
Q507	B-5
Q508	A-7
Q509	A-7
Q510	B-5
Q512	A-4
Q513	A-3
Q514	A-3
Q515	A-7
Q528	C-5
Q529	C-5
Q601	D-4
Q602	E-5
Q607	E-3
Q608	E-4
Q612	D-4
Q613	D-4
Q654	E-2
Q655	E-2
Q656	E-2
Q657	E-2
Q670	C-6
Q671	C-4
Q672	C-3
Q673	C-3
Q801	A-2
Q802	A-2
Q803	A-2
Q804	A-3
Q902	B-2
Q904	E-1
Q905	E-1
DIODE	
D401	B-3
D402	B-4
D403	C-3
D501	C-5
D502	C-6
D503	B-4
D504	C-7
D505	C-7
D506	B-6
D507	C-6
D508	C-6
D509	B-7
D510	B-7
D511	A-5
D512	A-3
D513	A-3
D515	B-7
D516	A-3
D520	A-7
D522	B-4
D526	B-6
D595	C-5
D596	B-5
D597	B-5
D601	D-6
D602	D-5
D603	E-5
D604	E-2
D605	E-2
D606	E-3
D607	E-2
D608	E-3
D609	E-3
D611	E-2
D612	E-4
D613	E-4
D614	E-4
D615	E-4
D650	D-4
D651	D-4
D652	D-3
D653	D-3
D654	D-3
D655	D-3
D656	D-3
D657	D-2
D658	D-2
D660	E-2
D661	C-4
D662	D-3
D670	D-6
D671	C-5
D801	A-1
D803	A-2
D903	B-2
D904	A-2
D907	B-1
D908	E-1
D909	D-1
D913	A-1
D914	E-1
D915	D-1
D916	D-1
D917	E-2
D918	E-2
D920	D-2
D921	D-1
D922	B-1
D944	B-2
VARIABLE RESISTOR	
RV501	A-7
CRYSTAL	
X900	C-1

NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

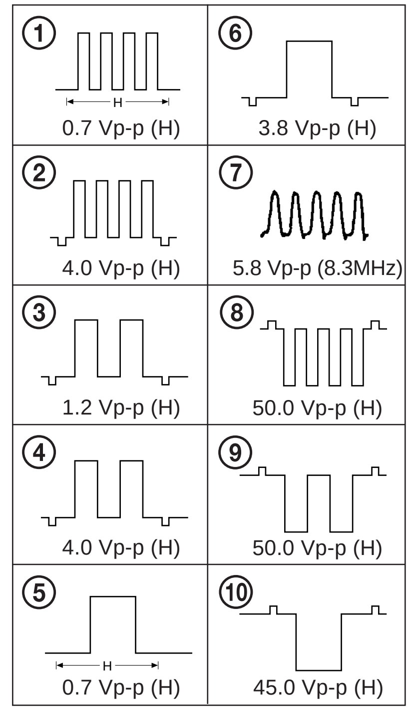
CPD-120AS

CPD-12OAS

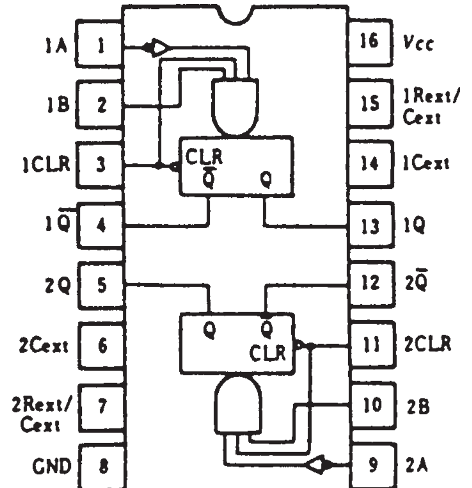
(2) Schematic Diagrams of A and AE2 Boards

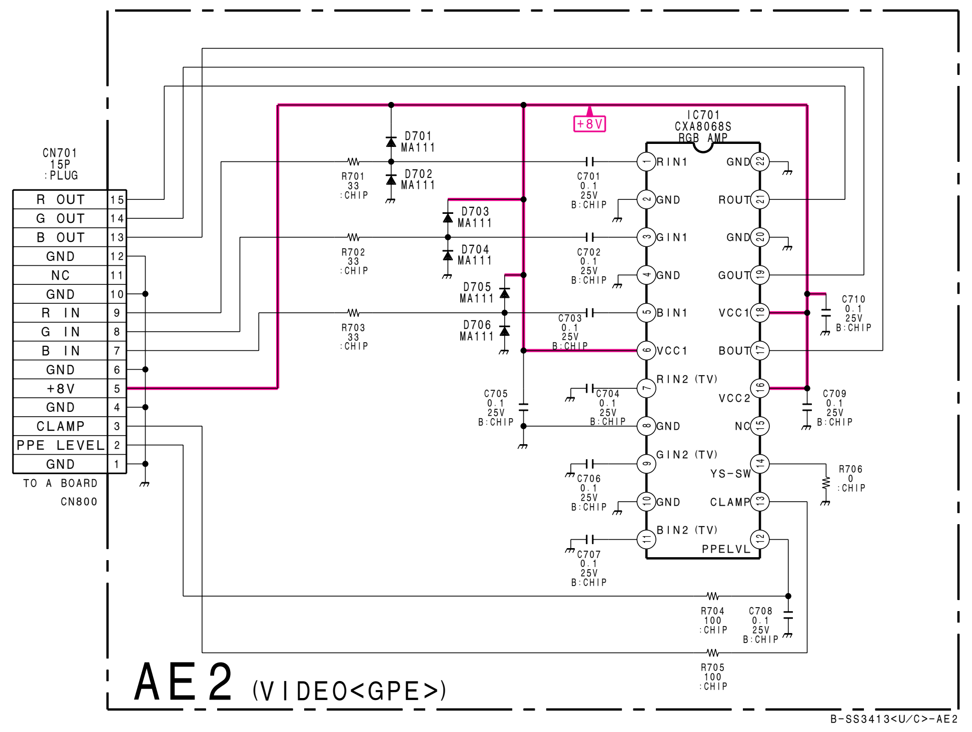


• A BOARD WAVEFORMS



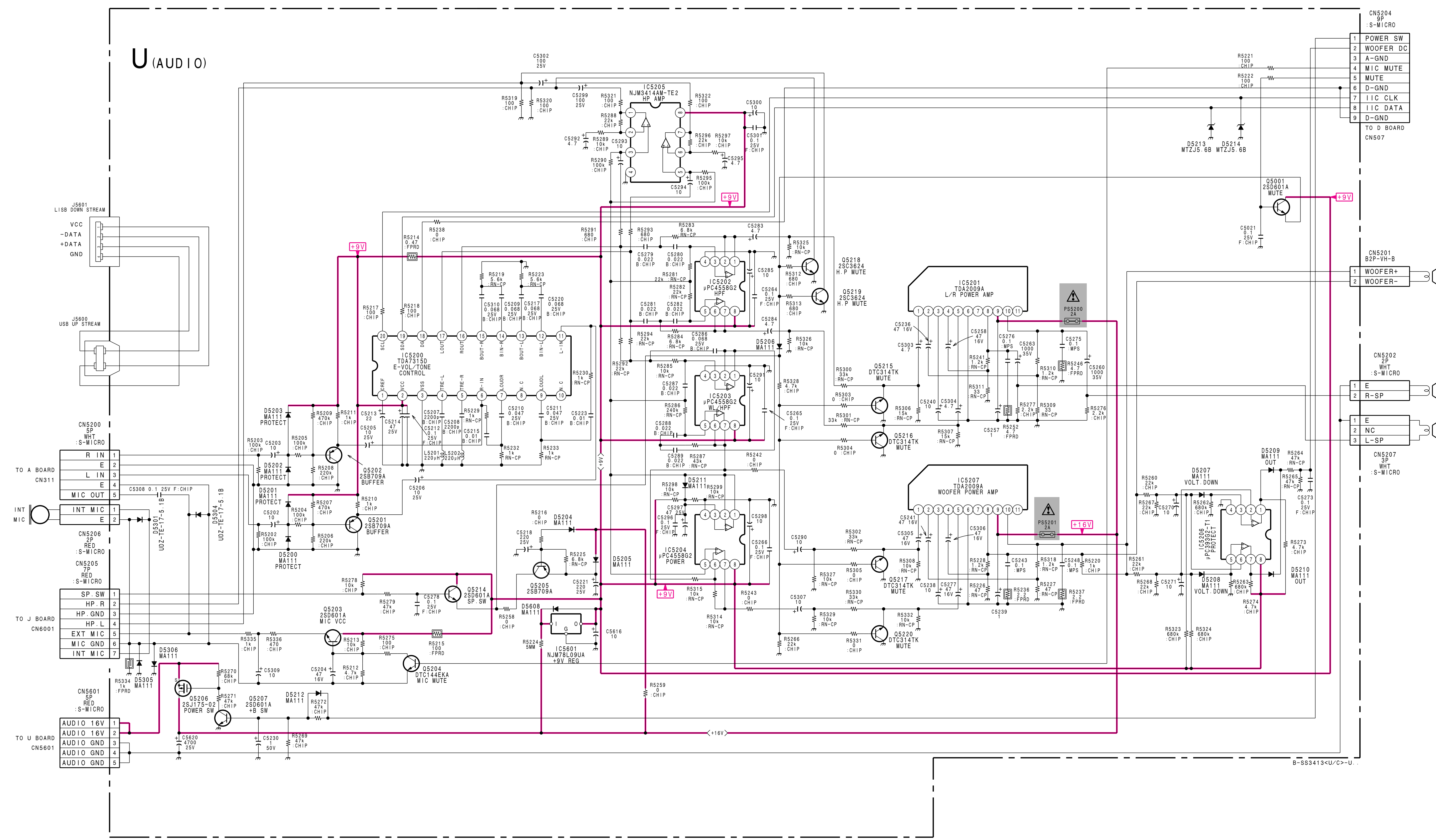
• A BOARD
IC007 HD74HC123AFP

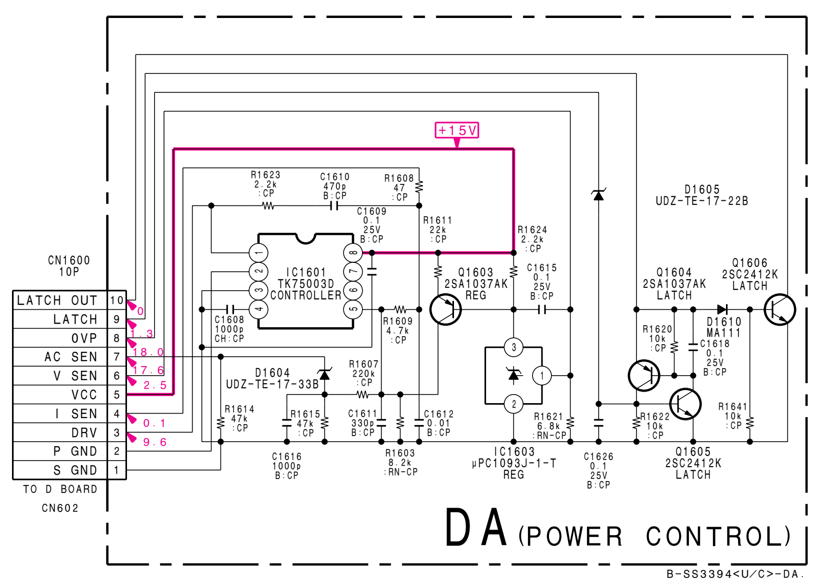


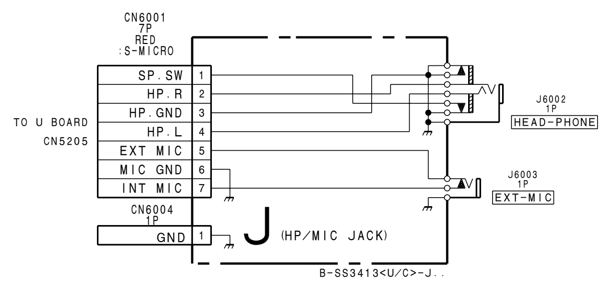


• A BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]
IC001	1	0
	2	0
	3	0
	4	0
	5	2.2
	8	2.2
	11	2.2
	12	2.0
	13	2.3
	14	1.5
	15	5.1
	16	4.6
	17	6.5
	18	2.0
	19	6.5
	20	1.9
	23	2.1
	24	6.4
	25	0.9
	26	2.3
	27	2.3
	28	2.6
IC002	1	58.3
	3	56.4
	5	57.6
	8	1.9
	9	2.1
	11	1.9
IC003	1	2.3
	2	2.3
	3	0
	4	–0.4
	5	1.0
	9	2.4
	10	2.1
	11	1.3
	12	3.4
	13	1.9
	14	3.7
	15	4.6
	16	4.7
	17	5.1
	19	0
	20	0
	21	0
	23	3.4
	24	2.0
IC004	1	1.2
	2	1.2
	3	1.2
	5	1.1
	7	87.7
	8	77.5
	9	75.6
IC005	1	10.7
	2	2.8
	3	2.8
IC006	5	*
	6	3.6
	7	4.2
	8	3.7
IC007	1	0.7
	6	0
	9	0.6
	12	5.1
	13	0.1
	14	0
	15	5.1
IC008	1	0.7
	2	4.5
	3	4.5
	4	0.7
	6	5.1
	8	5.1
	10	4.5
	11	0.6
	12	0.6
	13	3.7
Q001	B	11.5
	C	410.0
	E	11.0
Q002	B	3.3
	E	3.9
Q003	B	4.9
	C	0.7
Q006	B	2.7
	E	3.3
J001	KR	67.1
	KG	58.5
	KB	56.1
	G2	409.0
	H1	6.3


U (AUDIO)


DA (POWER CONTROL)


J (HP/MIC JACK)