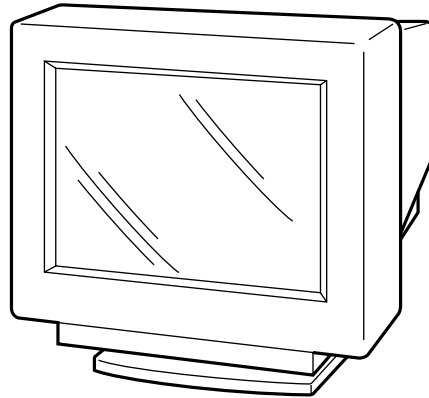


MCM 21T1

SERVICE MANUAL

AEP Model

Chassis No. SCC-L04S-A



N3 CHASSIS

SPECIFICATIONS

Dimensions and weight

CRT:	50 cm (21")
Visible diagonals:	50 cm
Dot pitch:	0.25-0.27 mm
Maximal resolution:	1600 x 1200 pixels
Preset display area:	388 mm x 291 mm
Dimensions (W x H x D):	498 mm x 505 mm x 474 mm
Weight:	31 kg
Accessories:	power cable (1.8 m) data cable (1.8 m)
Storable display modes:	24 (9 of which are preset)

Electrical data

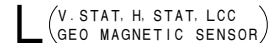
Video:	analog, positive, 0.7 V _{pp} , 75 Ohm
Synchronization:	separate sync. TTL composite sync. TTL/ sync. on green
Line frequency:	30 kHz 107 kHz (multi-scanning)
Refresh rate:	48 Hz 160 Hz
Maximum pixel rate:	229 MHz
Power supply:	switches automatically 90 V - 132 V, 50 Hz - 60 Hz ± 3 Hz, < 2 A typ. at 110 V 180 V - 264 V, 50 Hz - 60 Hz ± 3 Hz, < 1 A typ. at 220 V
Power consumption:	< 160 W (ON, Normal mode)
(see power management):	< 100 W (Standby mode) < 15 W (Suspend mode) < 5 W (OFF mode)

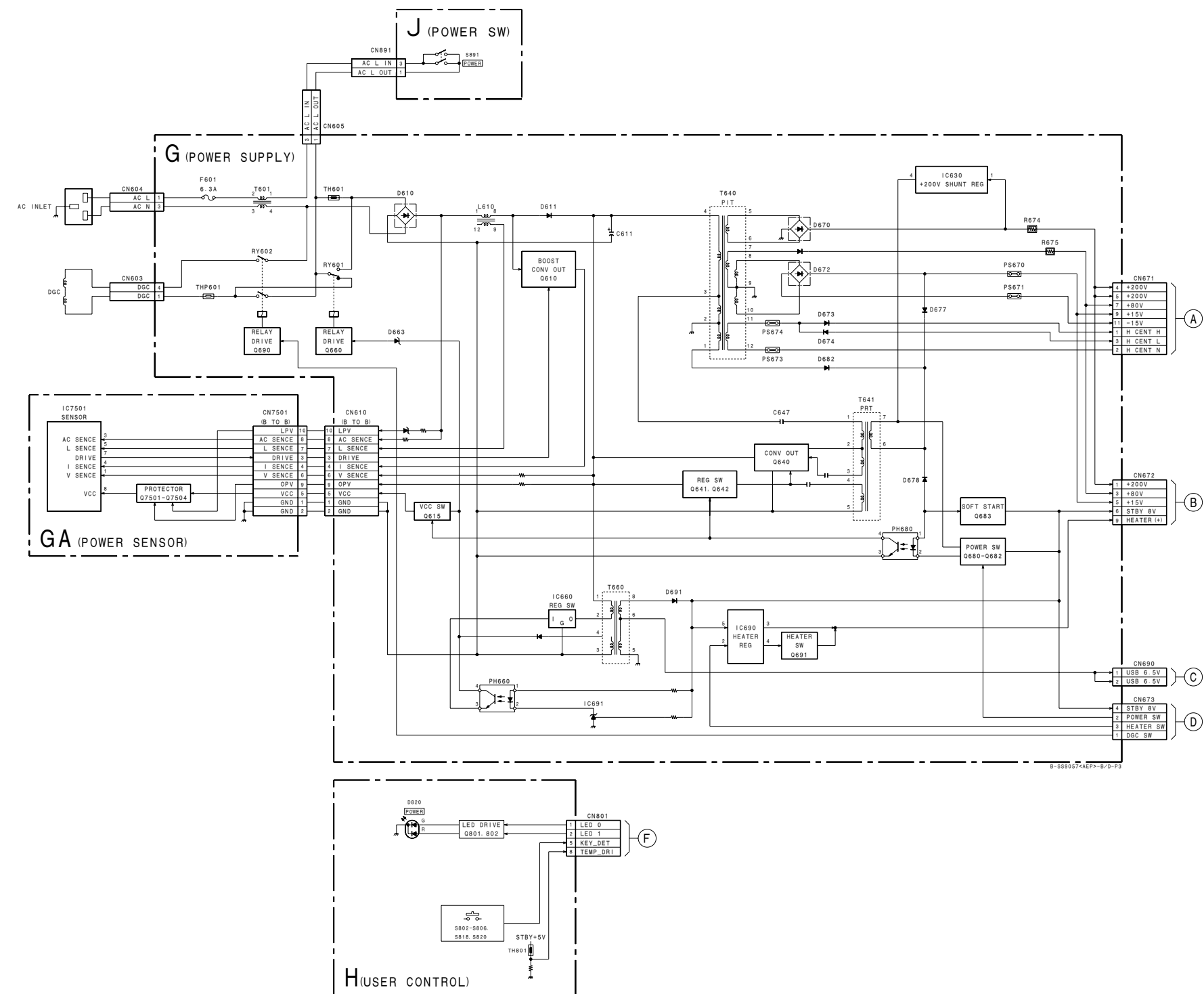
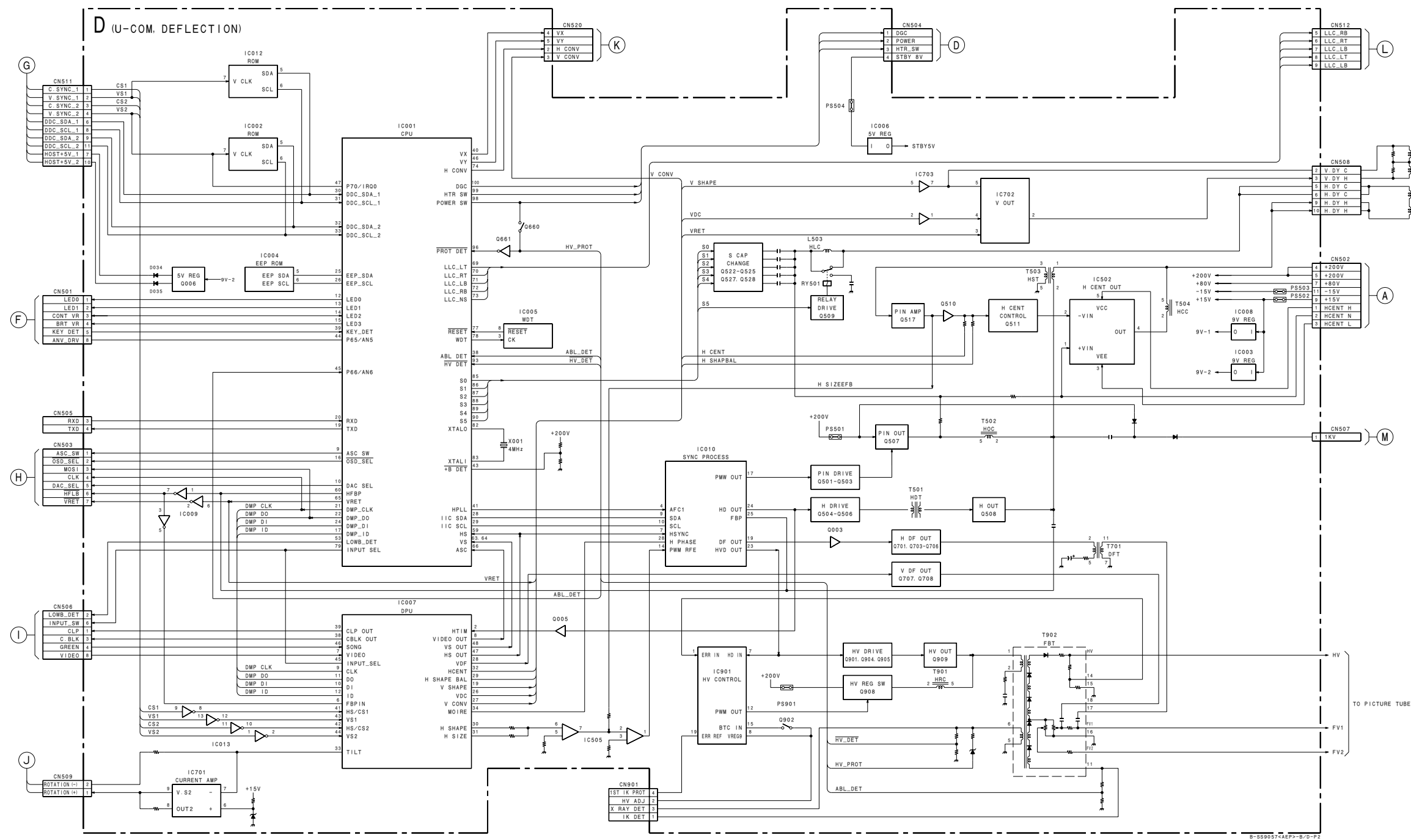
Environmental conditions

Environment class 3K2, IEC 721	
Rated range of operation:	15 °C 35 °C
Humidity:	20 % 85 %
Limit range of operation:	5 °C 40 °C
Humidity:	20 % 85 %
Condensation must be avoided.	

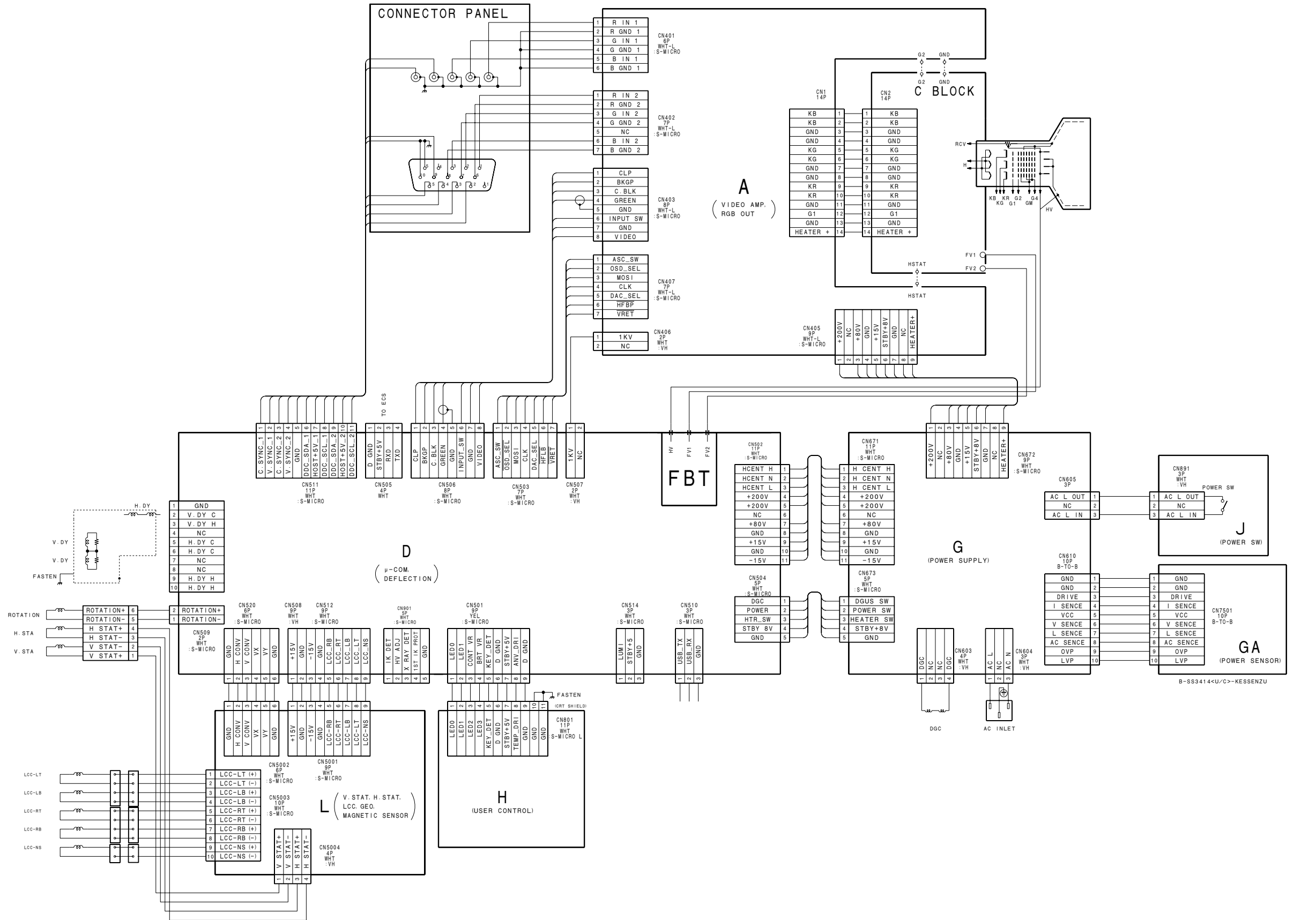
COLOR Monitor
SIEMENS
NIXDORF

5-1. BLOCK DIAGRAMS

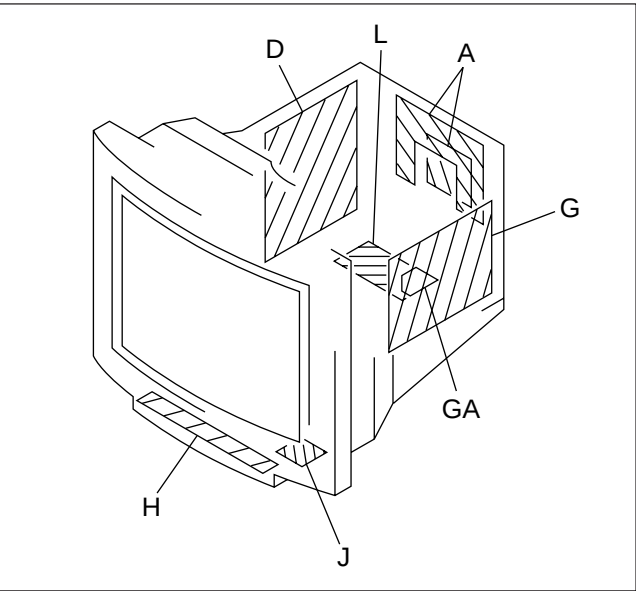




5-2. FRAME SCHEMATIC DIAGRAM



5-3. CIRCUIT BOARDS LOCATION



5-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

- Note:**
- All capacitors are in μF unless otherwise noted. (pF : μF)
 - 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 3-1)
 - When replacing the part in below table, be sure to perform the related adjustment.

	Part replaced ()	
HV Regulator Circuit Check	D Board	IC901, T902 • Mounted D board
HV Protector Circuit Check	D Board	Q660, Q661, D916, D935, C924, R665, R667, R940, R980, T902 • Mounted D board
	G Board	PH680, Q680, Q683, D680, R680, R685, R686, R687, R688, R689 • Mounted G board
Beam Current Protector Circuit Check	D Board	IC901, D904, D907, D908, R011, R908, R909, R921, R925, R926, R929, R930, T902 • Mounted D board

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

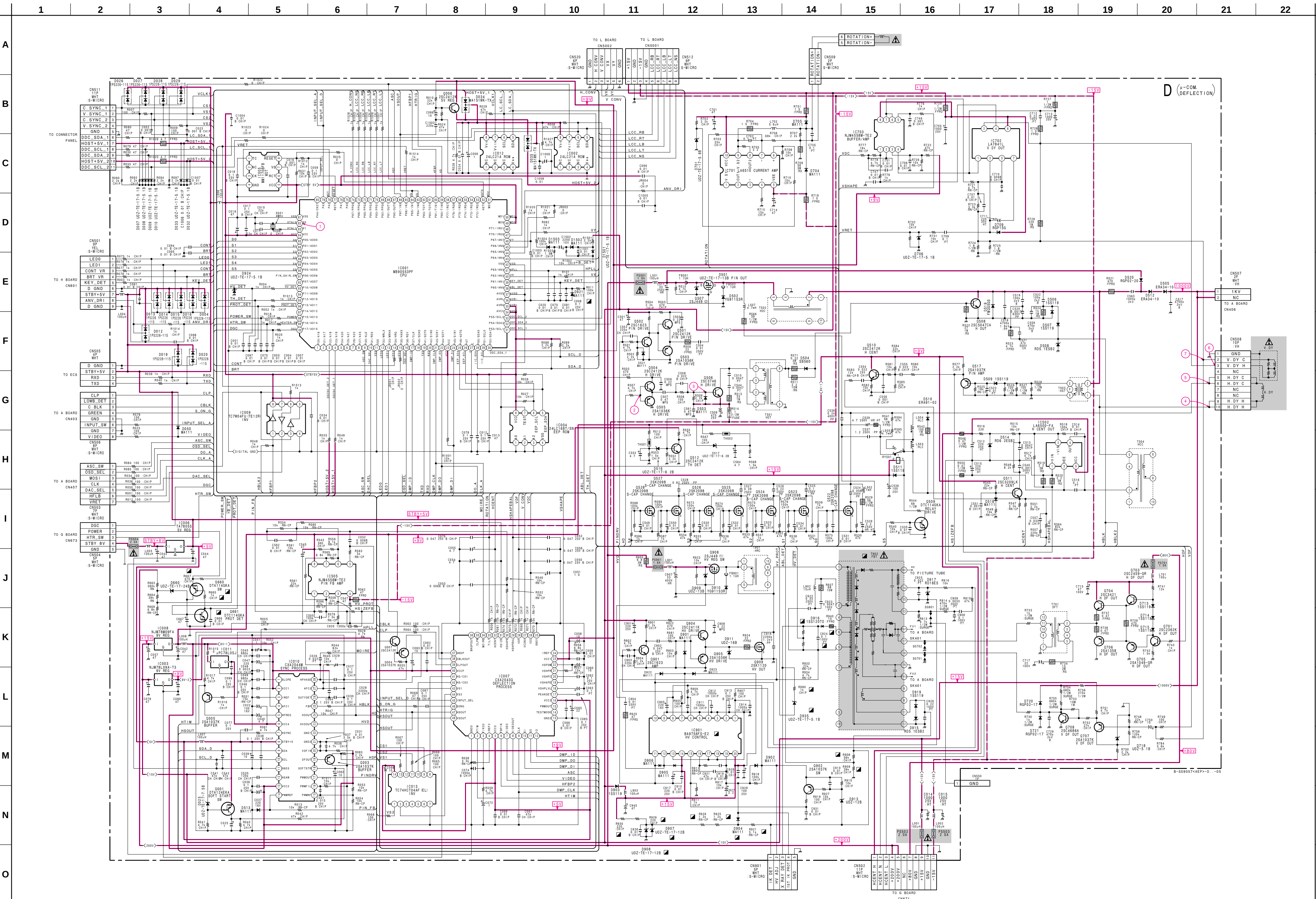
- All voltages are in V.
- Readings are taken with a 10 M digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- * : Can not be measured.
- Circled numbers are waveform references.
- : B + bus.
- : B - bus.

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

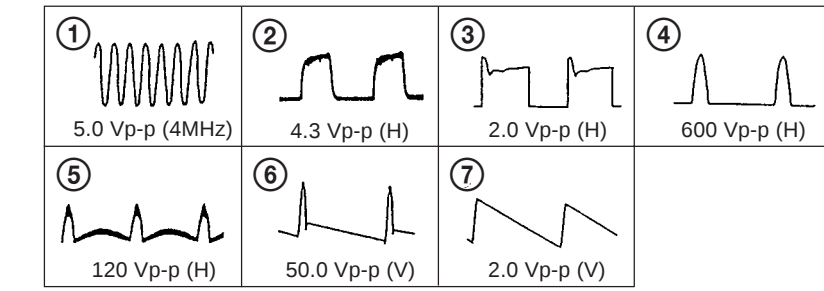
	Device	Printed symbol	Terminal name	Circuit
①	Transistor		Collector Base Emitter	
②	Transistor		Collector Base Emitter	
③	Diode		Cathode Anode	
④	Diode		Cathode Anode (NC)	
⑤	Diode		Cathode Anode (NC)	
⑥	Diode		Common Anode Cathode	
⑦	Diode		Common Anode Cathode	
⑧	Diode		Common Anode Anode	
⑨	Diode		Common Anode Anode	
⑩	Diode		Common Cathode Cathode	
⑪	Diode		Common Cathode Cathode	
⑫	Diode		Anode Anode Cathode	
⑬	Transistor (FET)		Drain Gate	
⑭	Transistor (FET)		Drain Source Gate	
⑮	Transistor (FET)		Source Drain Gate	
⑯	Transistor		Emitter Collector Base	
—	Discrete semiconductor			

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

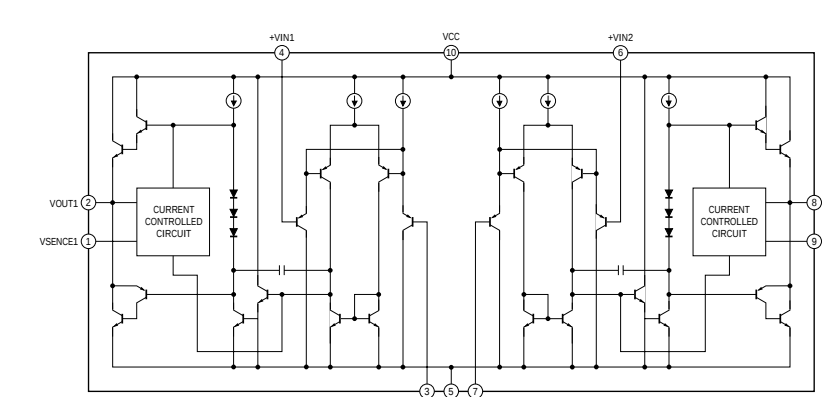
(1) Schematic Diagram of D Board



• D BOARD WAVEFORMS

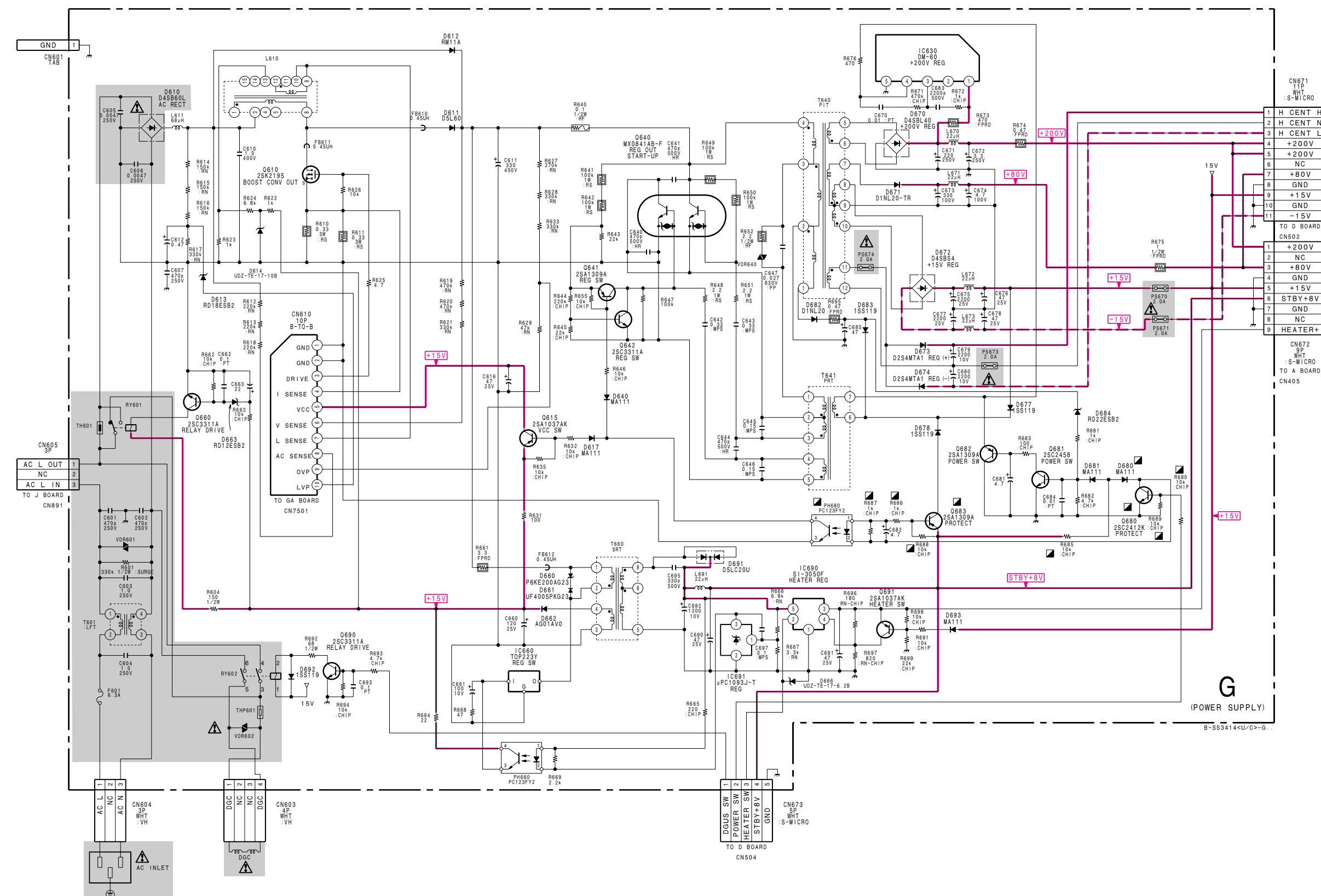
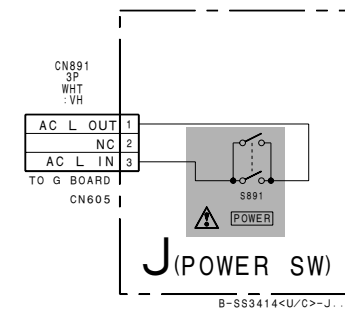
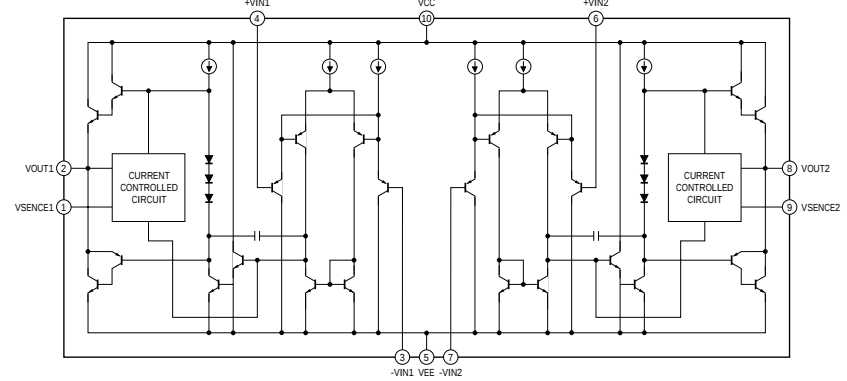
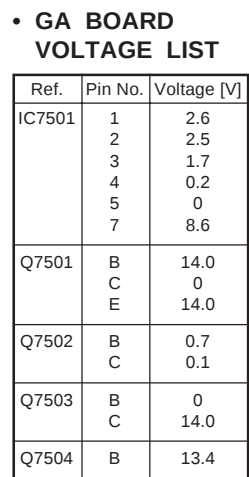


• D BOARD IC701 LA6510



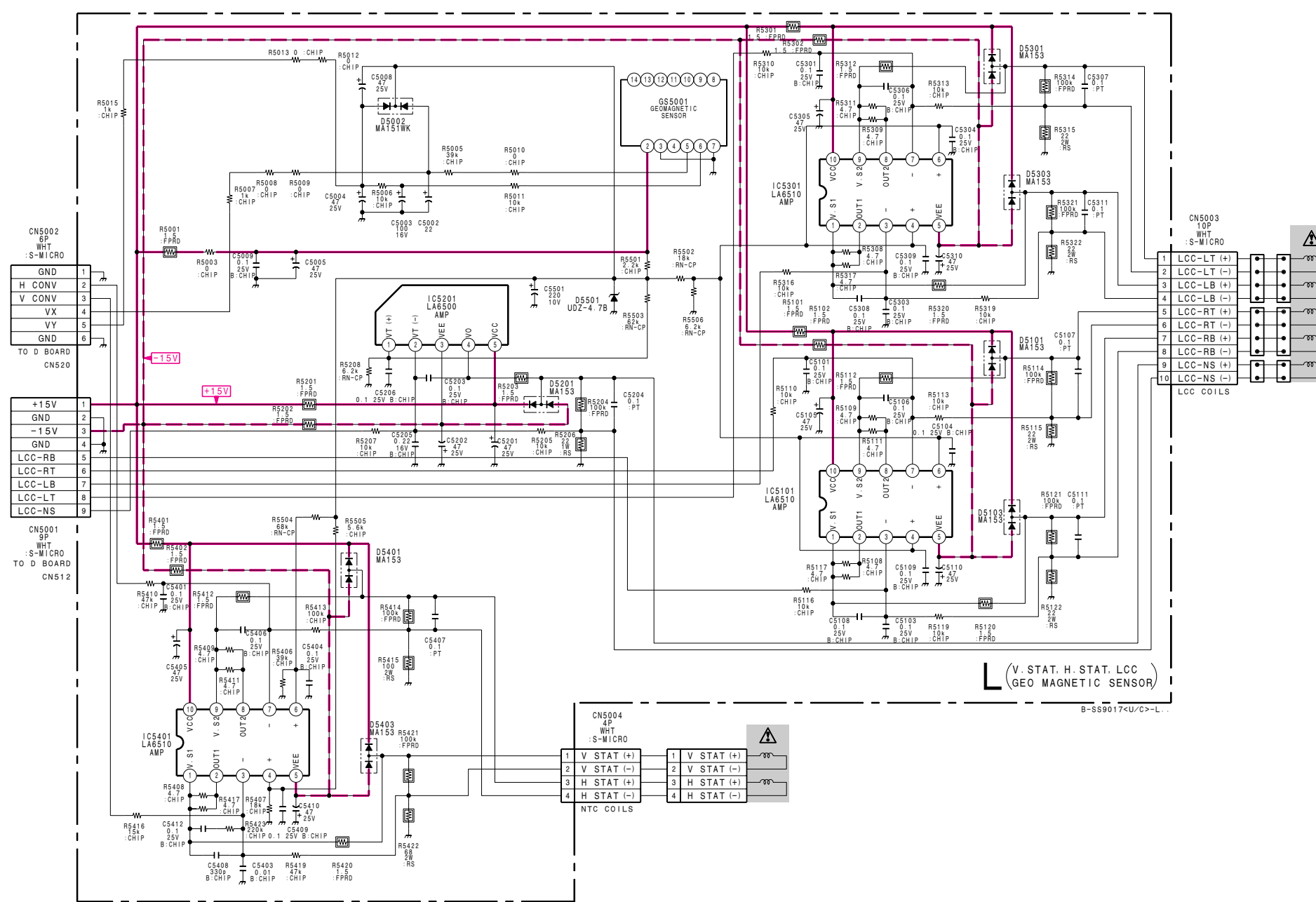
• D BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC002	5	1.1		11	0
	6	4.2		12	11.2
	7	0		15	0
IC004	5	4.8		16	8.4
	6	0		19	9.2
IC005	1	0.4	Q003	B	5.1
	3	0		C	0
	7	1.5		E	5.7
	8	4.8	Q005	B	2.5
IC009	1	-0.1		C	0
	2	4.7		E	3.1
	3	0.3	Q501	B	11.2
	5	0.3		C	13.8
	6	0.3		E	10.8
	7	4.5	Q502	B	0.2
IC010	1	4.0		C	11.2
	3	3.0	Q503	B	11.2
	4	2.8		E	10.9
	6	2.6	Q504	B	2.5
	7	0.6		C	12.0
	9	4.8		E	2.5
	10	4.8	Q505	B	2.5
	12	5.4		E	2.4
	14	4.5	Q506	B	-14.0
	15	4.5		C	-0.2
	16	5.4		E	-14.0
	17	1.0	Q507	G	197.4
	18	0		D	41.8
	19	5.1	Q508	B	-14.0
	20	3.7		C	41.0
	23	4.0	Q509	B	0
	24	-0.1		C	14.1
	26	4.0			
	27	4.0			
	28	4.0			
IC012	5	0.6	Q510	B	4.5
	8	3.9		E	3.9
	9	4.1	Q511	B	3.2
IC013	1	0		C	2.6
	2	4.9	Q517	B	4.6
	8	0.6		E	5.1
	9	3.6	Q522	G	0
	10	4.9		D	15.2
	11	0			
	13	5.7			
IC014	1	3.5	Q523	G	4.7
	3	3.5		D	0
	5	2.7	Q524	G	4.7
	9	0		D	0
	10	0.1	Q525	G	4.7
	12	4.9		D	0
	13	4.9	Q527	G	4.7
	14	3.2		D	0
	15	3.9	Q528	G	4.7
IC015	1	0.5		D	0
	2	4.2	Q529	G	4.7
	3	0.5		D	0
	4	0.5	Q660	B	4.2
	5	0		C	0
	6	0		E	4.2
	9	0	Q661	B	0
	13	0		C	4.2
IC502	1	41.4	Q701	B	5.7
	2	41.4		C	36.0
	3	33.7		E	5.1
	4	42.3	Q703	B	37.9
	5	48.3		E	37.4
IC505	1	4.5	Q704	B	37.4
	2	0		E	37.0
	3	0	Q705	B	36.0
	5	0		E	36.6
	6	-10.0			
IC701	1	14.2	Q706	B	36.6
	2	14.2		E	37.0
	3	0	Q707	B	-0.6
	4	3.6		C	-5.0
	6	3.0		E	0
	7	3.0	Q708	B	0.6
	9	-0.7		C	477.0
IC702	2	0.4	Q901	B	0.1
	3	13.5		C	9.9
	4	1.2	Q902	B	9.0
	5	1.2		C	0
	7	-13.0		E	9.0
IC703	1	1.2	Q904	B	8.6
	2	1.6		C	13.0
	3	2.8		E	8.4
	5	2.8	Q905	B	8.6
	6	2.8		E	8.4
	7	2.8			
IC901	1	9.3	Q908	G	196.6
	2	5.0		D	40.1
	4	5.6			
	5	1.1	Q909	G	8.4
	7	0.9		D	40.4
	8	9.3			
	10	0			



- G BOARD
VOLTAGE LIST

Ref.	Pin No.	Voltage [V]
IC30	3 4	2.5 11.6
IC60	IN OUT	6.1 410.0
IC90	2 3	5.0 6.7
PH60	1 2 3 4	4.5 3.3 6.1 16.7
PH80	1 2 3 4	1.3 0.1 0 0.1
Q10	D G	8.7 102.4
Q12	G	0.2
Q615	B C	13.6 14.2
Q640	B1 C1 B2 C2 E2	-2.0 199.2 196.8 408.0 199.2
Q641	B C E	1.1 -2.0 2.0
Q642	B C	-1.8 -2.0
Q660	B C	0.9 0.3
Q680	B C	0.8 0
Q681	B C	0.3 0
Q682	B E	11.7 11.7
Q683	B C	7.5 8.3
Q690	B C	0 15.0
Q691	B C E	8.6 5.3 6.7



- L BOARD VOLTAGE

Ref.	Pin No.	Voltage [V]
GS5001	5	2.8
	6	2.8
IC5101	1	1.0
	2	1.0
	3	1.2
	4	1.2
	6	1.2
	7	1.2
	8	-0.2
IC5201	9	-0.2
	1	1.2
	2	1.2
IC5301	4	1.1
	1	-0.2
	3	1.2
	4	1.2
	6	1.2
	7	1.2
	8	0.4
IC5401	9	0.4
	1	0.6
	2	0.6
	3	3.4
	4	3.4
	6	1.8
	7	1.8
	8	0.4
	9	0.4

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
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