Self Diagnosis
Supported model

SERVICE MANUAL BX1S CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-BT21M50	RM-W101	GE	SCC-V04A-A
KV-BT21M80	RM-W101	ME	SCC-U90M-A
KV-BT21M81	RM-W100	ME	SCC-U90J-A

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RM-W101 RM-W100

TRINITRON® COLOR TV

SONY®

SELF DIAGNOSTIC FUNCTION

The units in this manual contain a self diagnostic function. If an error occurs, the STANDBY (⏻) indicator will automatically begin to flash. A description of the self-diagnosis function is explained in the instruction manual. The number of times the STANDBY (⏻) indicator flashes translates to a probable source of the problem. If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

1. DIAGNOSTIC TEST INDICATORS

When an errors occurs, the STANDBY (⏻) indicator will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the indicator will identify the first of the problem areas.

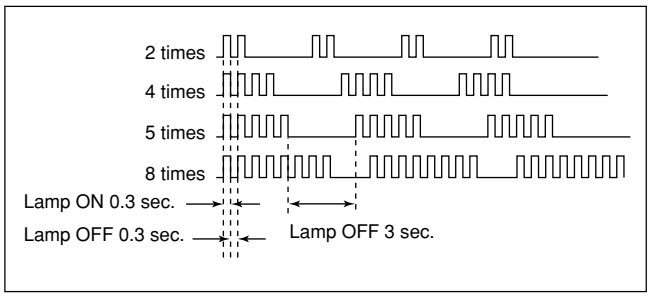
Result for all of the following diagnosis items are displayed on screen. No error has occured if the screen displays a “0”.

Diagnosis Item Description	No. of timer STANDBY (⏻) indicator flashes	Self-Diagnostic display/ Diagnosis result	Probable Cause Location	Detected Symptoms
Power does not turn on	Does not light	–	• Power cord is not plugged in. • Fuse is burned out (F600) A board.	• Power does not turn on. • No power is supplied on TV. • AC Power supply is faulty.
+B overcurrent (OCP)*	2 times	2:0 or 2:1 ~ 255	• H OUT (Q805) is shorted. (A board) • IC751 is shorted. (C board)	• Power does not come on. • Load on power line is shorted.
V-Protect	4 times	4:0 or 4:1 ~ 255	• +13V is not supplied. (A board) • IC804 is faulty. (A board)	• Has entered standby state after horizontal raster. • Vertical deflection pulse is stopped. • Power line is shorted or power supply is shorted.
IK (AKB)	5 times	5:0 or 5:1 ~ 255	• Video OUT (IC1545) is faulty. (A board) • IC001 is faulty. (A board) • Screen (G2) is improperly adjusted.**	• No raster is generated. • CRT Cathode current detection reference pulse output is small.
Power supply NG (+5V) for Video Processor	8 times	8:0 or 8:1 ~ 255	• IC604 faulty. • IC602 faulty.	• No power supply to CRT ANODE. • No RASTER is generated.

* If a +B overcurrent is detected, stoppage of the vertical deflection is detected simultaneously. The symptom that is diagnosed first by the mirco controller is displayed on the screen.

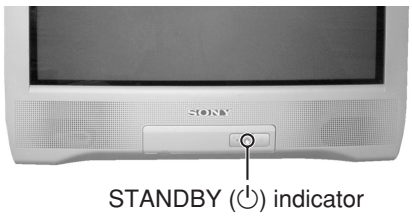
** Refer to Screen (G2) Adjustment in this manual.

2. DISPLAY OF STANDBY (⏻) INDICATOR FLASH COUNT



Diagnostic Item	Flash Count*
+B overcurrent	2 times
V-Protect	4 times
IK (AKB)	5 times
Power Supply NG (+5V) for Video processor	8 times

* One flash count is not used for self-diagnosis.



3. STOPPING THE STANDBY (⏻) INDICATOR FLASH

Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY (⏻) indicator from flashing.

4. SELF-DIAGNOSTIC SCREEN DISPLAY

For errors with symptoms such as "power sometimes shuts off" or "screen sometimes goes off" that cannot be confirmed, it is possible to bring up past occurrences of failure on the screen for confirmation.

[To Bring Up Screen Test]

In standby mode, press buttons on the remote commander sequentially in rapid succession as shown below:

Display ➡ Channel 5 ➡ Volume − ➡ Power / TV

⇧

Note that this differs from entering the service mode (volume +).

The following screen will be displayed indicating the error count.

SELF DIAGNOSTIC	
2 :	0
3 :	N/A
4 :	0
5 :	1
8 :	0
101 :	N/A

Numeral "0" means that no fault was detected.
Numeral "1" means the number of a fault occurrence (1 ~ 255).

5. HANDLING OF SELF-DIAGNOSTIC SCREEN DISPLAY

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to “0”.

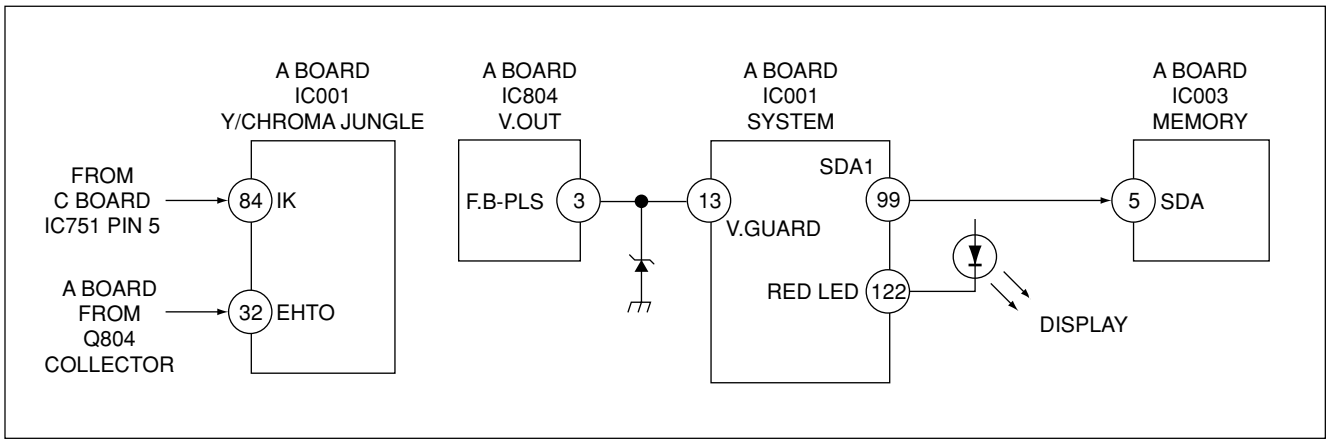
Unless the result display is cleared to “0”, the self-diagnosis function will not be able to detect subsequent faults after completion of the repairs.

[Clearing the result display]
To clear the result display to “0”, press buttons on the remote commander subsequent as shown below when the self-diagnostic screen is being displayed.

[8] ➡ [0]

[Quitting Self-diagnostic screen]
To quit the entire self-diagnostic screen, turn off the power switch on the remote commander or the main unit.

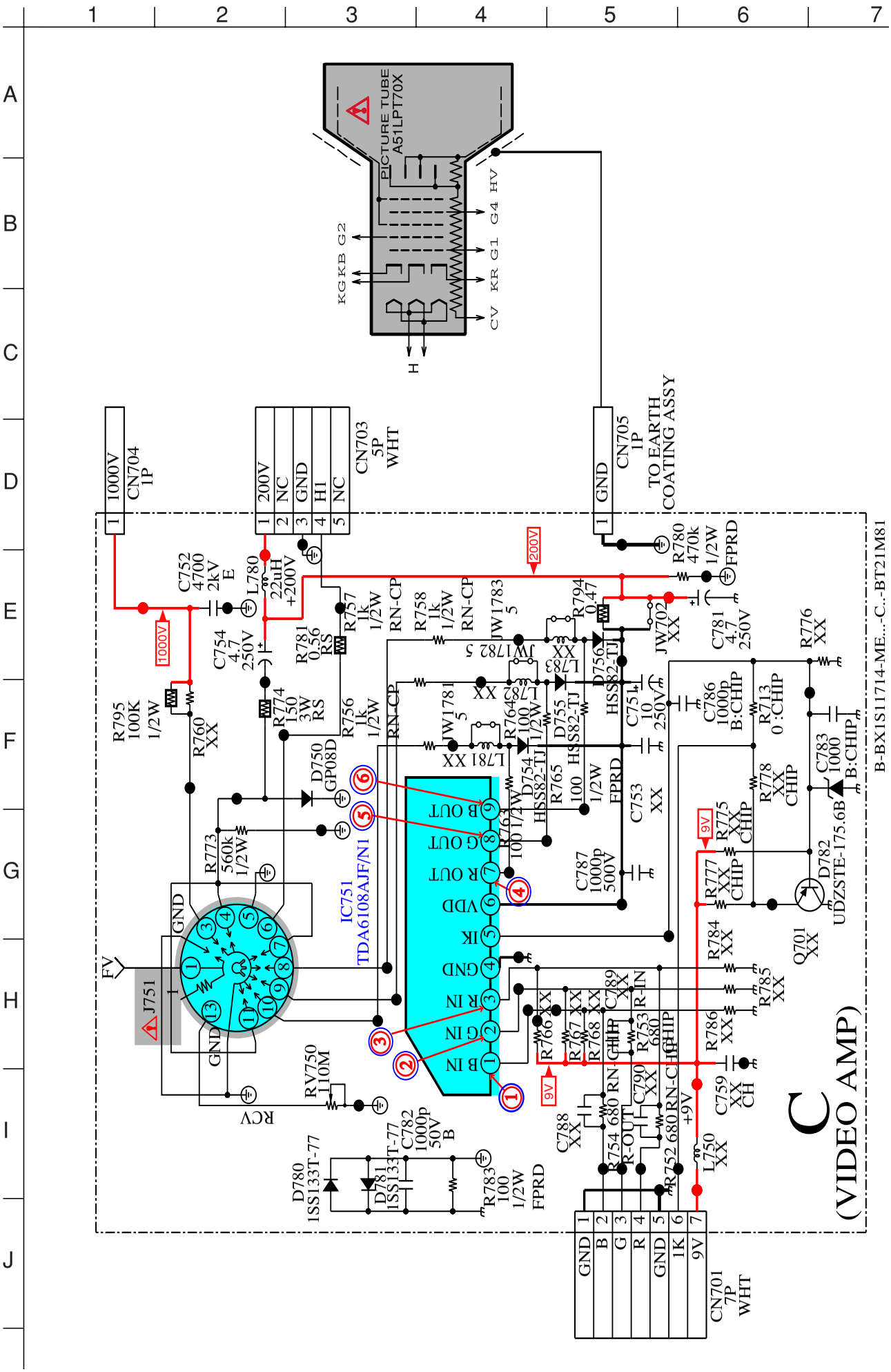
6. SELF-DIAGNOSTIC CIRCUIT



[+B overcurrent (OCP)]	Occurs when an overcurrent on the +B(135V) line is detected by pin 32 of IC001 (A board). If the voltage of pin 32 of IC001 (A board) is more than 4V, the unit will automatically go to standby.
[V-PROTECT]	Occurs when an absence of the vertical deflection pulse is detected by pin 13 of IC001 (A board).
[IK (AKB)]	If the RGB levels* do not balance within 15 sec after the power is turned on, this error will be detected by IC001 (A board). TV will stay on, but there will be 5 times LED blinking.
[POWER SUPPLY NG (+5V) for VIDEO PROCESSOR]	Occurs when IC001 internal HV protect detects an abnormal H-Pulse (frequency) due to improper power supply to IC001. TV cuts off high voltage power of anode CRT. No picture will be detected. eg: IC602, IC604 go faulty.

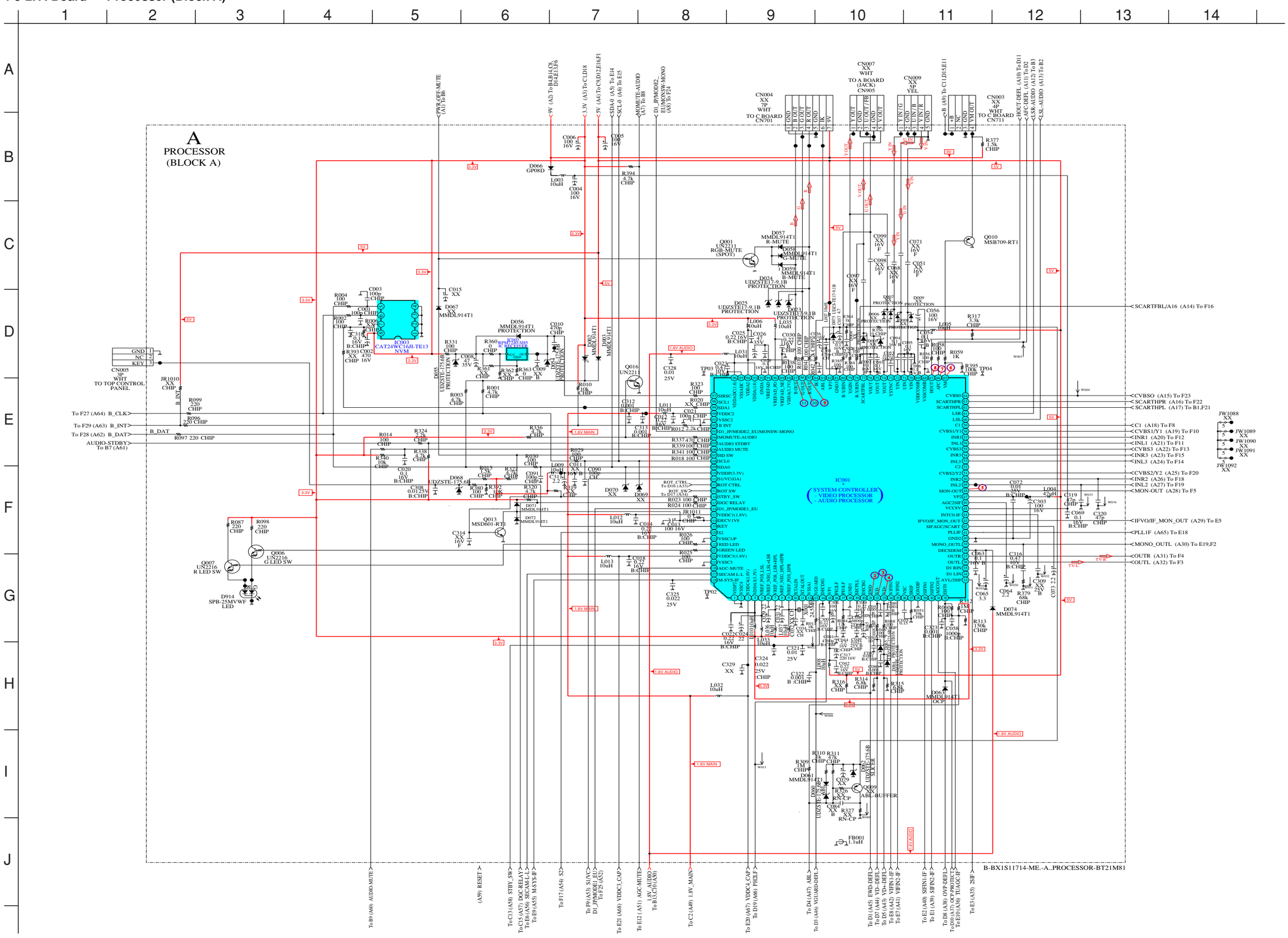
* (Refers to the RGB levels of the AKB detection Ref pulse that detects IK.)

4-3-1. C Board Schematic Diagram



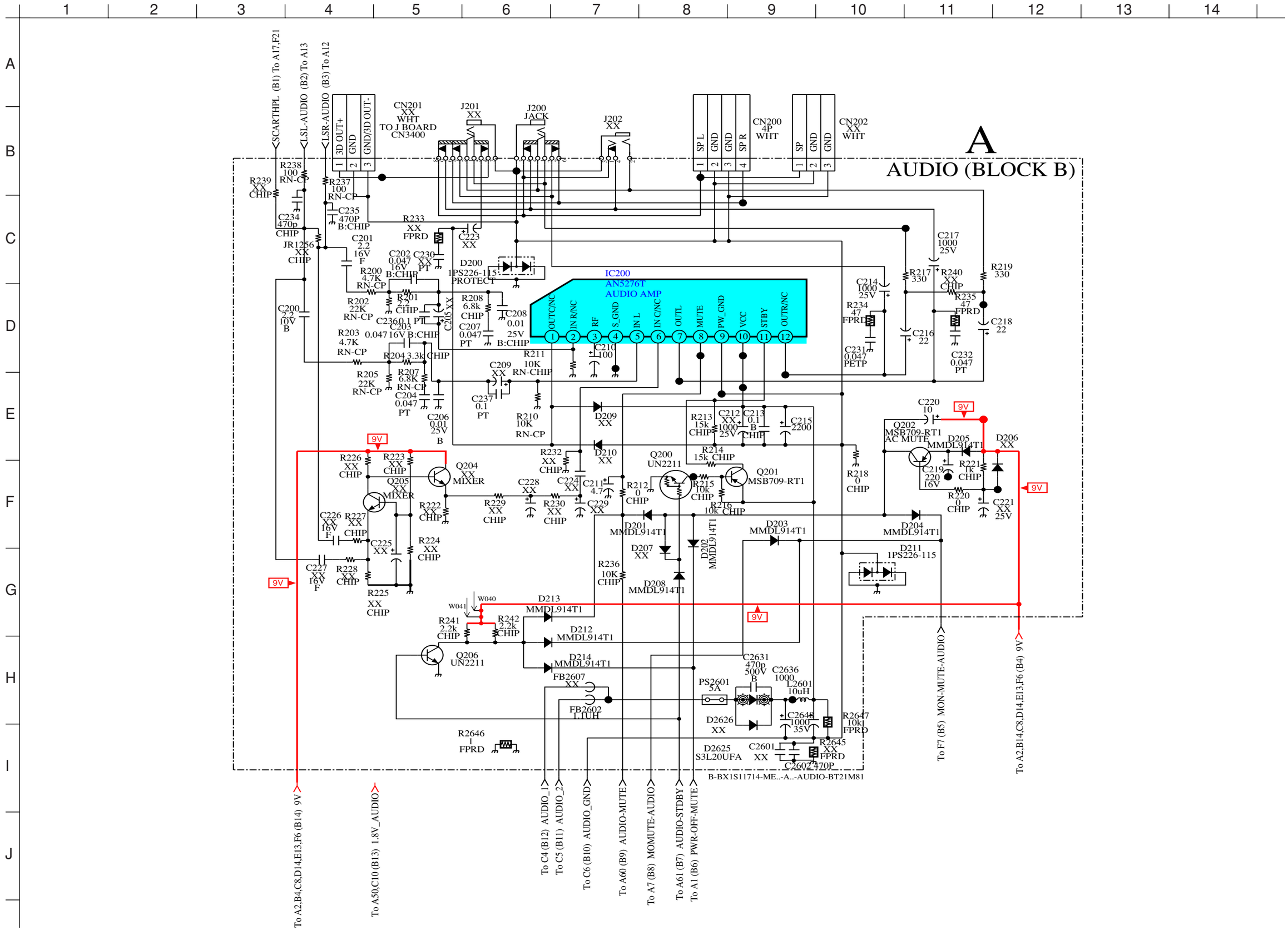
KV-BT21M50/BT21M80/BT21M81 RM-W101 RM-W100

4-3-2. A Board — Processer (Block A)

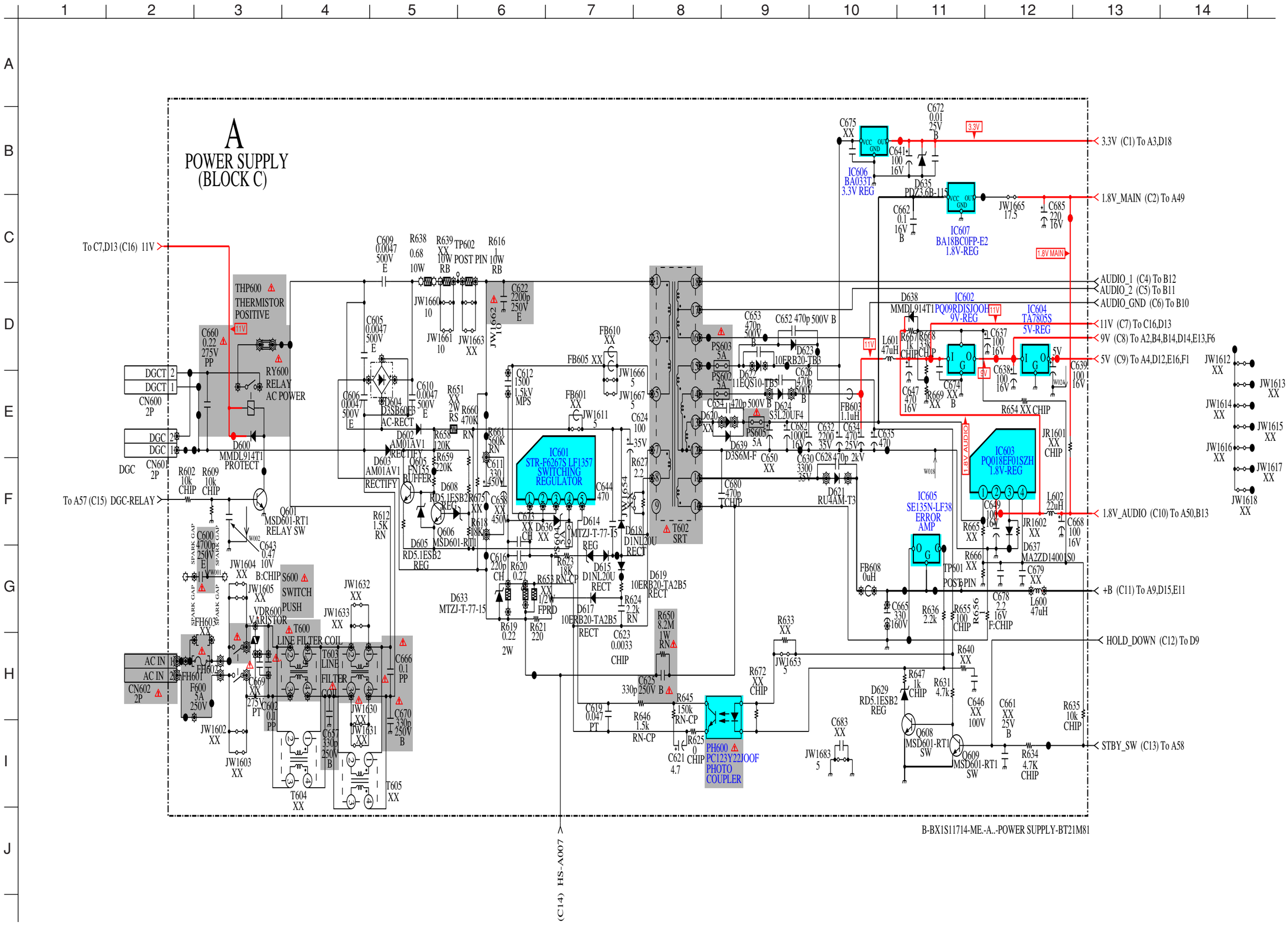


KV-BT21M50/BT21M80/BT21M81 RM-W101 RM-W100

4-3-3. A Board — Audio (Block B)

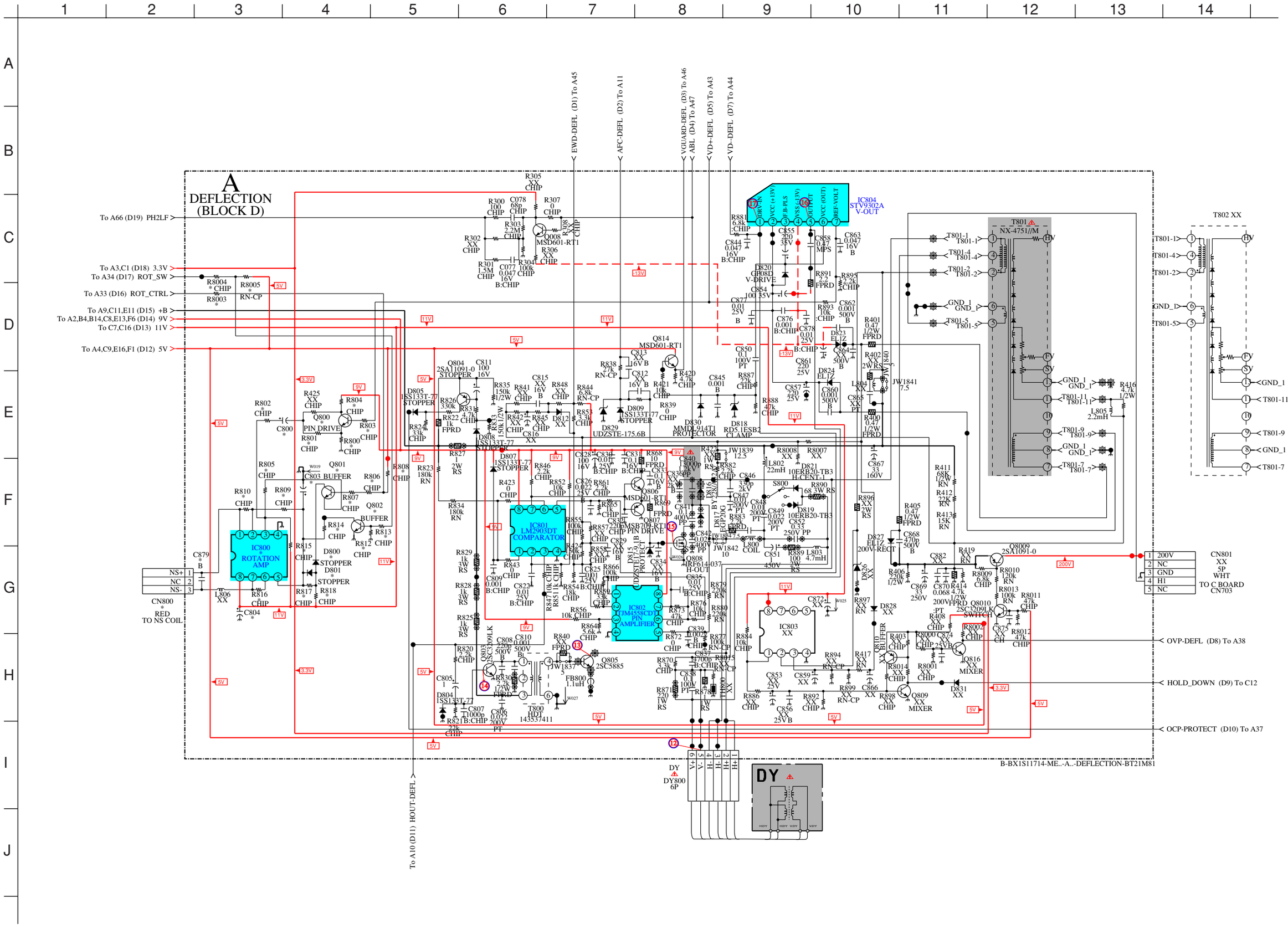


4-3-4. A Board — Power Supply (Block C)

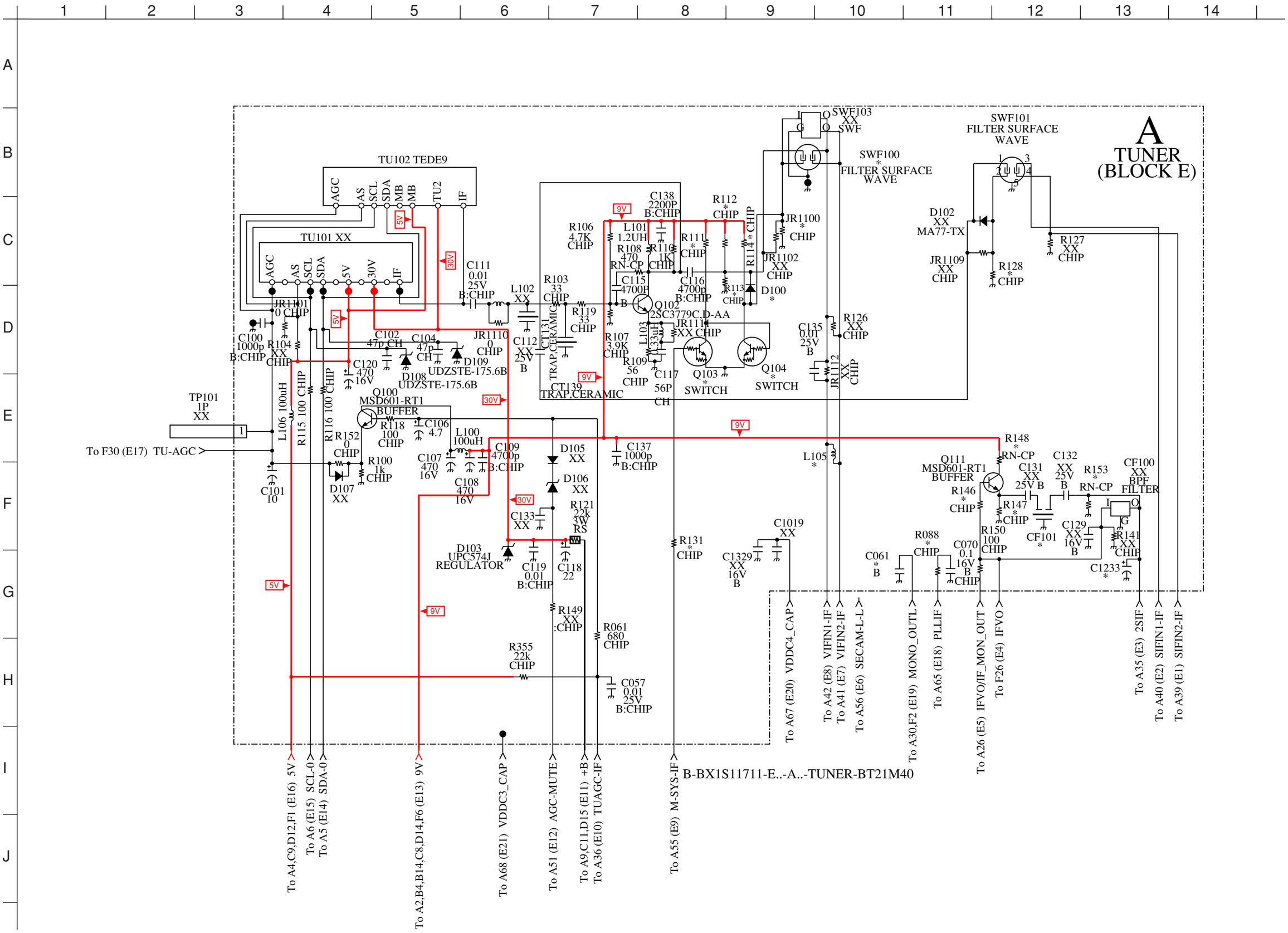


KV-BT21M50/BT21M80/BT21M81 RM-W101 RM-W100

4-3-5. A Board — Deflection (Block D)

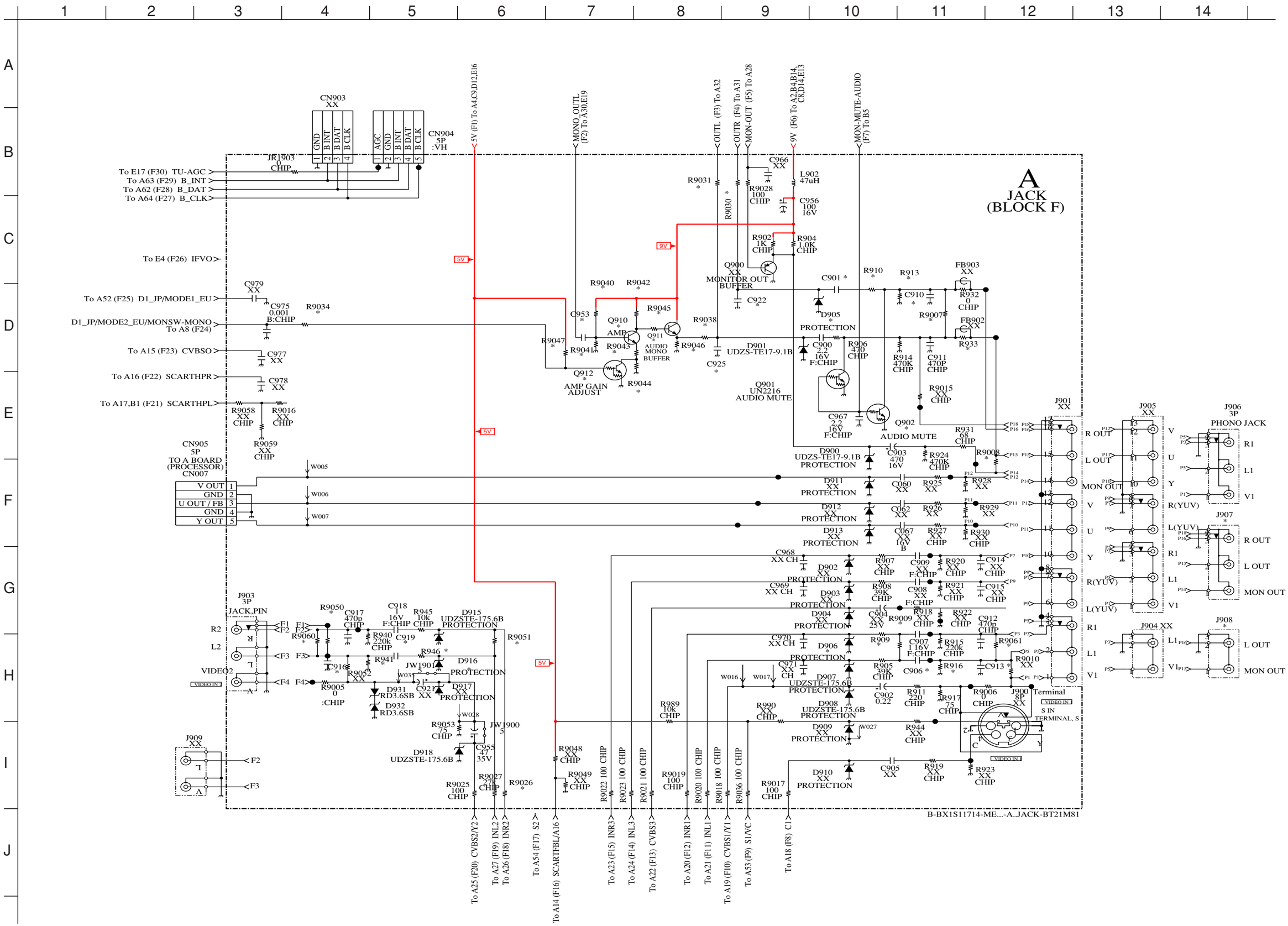


4-3-6. A Board — Tuner (Block E)



KV-BT21M50/BT21M80/BT21M81 RM-W101 RM-W100

4-3-7. A Board — Jack (Block F)



A BOARD ✻ MARK LIST

	KV-BT21M50	KVBT21M80	KV-BT21M81
C800	XX	XX	4.7
C803	XX	XX	47 35V
C804	XX	XX	10
C879	XX	XX	0.001 :CHIP
CN800	XX	XX	Plug, Connector 3P
C901	2.2 16V	XX	2.2 16V
C906	1 16V	XX	1 16V
C910	470P	XX	470P
C913	470P	XX	470P
C916	470P	XX	470P
C919	1 16V	XX	1 16V
C922	470P	XX	470P
C925	470P	XX	470P
C953	XX	0.1 16V	XX
D800	XX	XX	MMDL914T1
D801	XX	XX	MMDL914T1
D905	UDZSTE-179.1B	XX	UDZSTE-179.1B
D906	UDZSTE-175.6B	XX	UDZSTE-175.6B
D916	UDZSTE-175.6B	XX	UDZSTE-175.6B
IC001	TDA12067H/N1A0B0A	TDA12067H/N1A0B0A	TDA12077H/N1A0B0Q
IC800	XX	XX	NJM4556AD
J907	Jack	XX	Jack
J908	XX	Jack	XX
JR1012	XX	0: CHIP	XX
L806	XX	XX	10UH
Q800	XX	XX	MSD601-RT1
Q801	XX	XX	MSD601-RT1
Q802	XX	XX	MSD601-RT1
Q902	UN2216	XX	UN2216
Q910	XX	MSD601-RT1	XX
Q911	XX	MSD601-RT1	XX
Q912	XX	UN2211	XX
R800	XX	XX	2.2K :RN-CP
R801	XX	XX	0 :CHIP
R802	XX	XX	0 :CHIP
R803	XX	XX	10K :RN-CP
R804	XX	XX	0 :CHIP
R805	XX	XX	22K :RN-CP
R806	XX	XX	0 :CHIP
R807	XX	XX	680 :RN-CP
R808	XX	XX	10K :RN-CP
R809	XX	XX	10K :RN-CP
R810	XX	XX	10K :RN-CP
R812	XX	XX	22K :RN-CP
R813	XX	XX	22K :RN-CP
R814	XX	XX	100 :RN-CP
R815	XX	XX	22K :RN-CP
R816	XX	XX	0 :CHIP
R817	XX	XX	10K :RN-CP
R818	XX	XX	10K :RN-CP
R909	39K :CHIP	XX	39K :CHIP
R910	470 :CHIP	XX	470 :CHIP
R913	470K :CHIP	XX	470K :CHIP
R916	220K :CHIP	XX	220K :CHIP
R933	0 :CHIP	XX	0 :CHIP
R941	220K :CHIP	XX	220K :CHIP
R946	10K :CHIP	XX	10K :CHIP
R8003	XX	XX	100 :RN-CP
R8004	XX	XX	100 :RN-CP
R8005	XX	XX	10K :RN-CP
R9007	XX	0 :CHIP	XX
R9008	XX	0 :CHIP	XX
R9009	XX	0 :CHIP	XX
R9026	27K :CHIP	XX	27K :CHIP
R9030	100 :CHIP	XX	100 :CHIP
R9031	100 :CHIP	XX	100 :CHIP
R9034	XX	100 :CHIP	XX
R9038	XX	0 :CHIP	XX
R9040	XX	1M	XX
R9041	XX	1M	XX
R9042	XX	3.3K	XX
R9043	XX	1K	XX

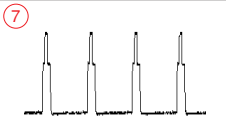
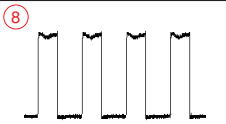
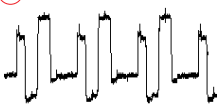
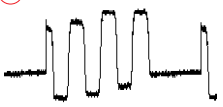
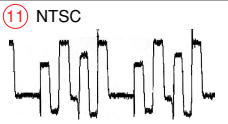
A BOARD ✻ MARK LIST

	KV-BT21M50	KVBT21M80	KV-BT21M81
R9044	XX	470	XX
R9045	XX	100	XX
R9046	XX	2.2K	XX
R9047	XX	10K	XX
R9050	0 :CHIP	XX	0 :CHIP
R9051	XX	0 :CHIP	XX
R9060	XX	0 :CHIP	XX

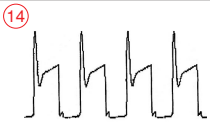
Note: The parts indicated as "XX" in this circuit diagram are not listed here, as they are not used for these models.

4-4. VOLTAGE LIST AND WAVEFORM

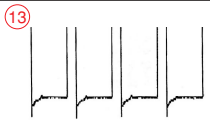
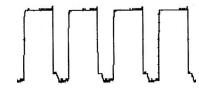
A BOARD VOLTAGE LIST AND WAVEFORM

Ref	Pin No.	Voltage[v]
IC001	1	0
	2	0
	3	1.7
	4	3.3
	5	3.3
	6	0
	7	3.3
	8	0
	9	(3.4)[3.3]
	10	*
	11	*
	12	(0)[1.7]
	13	(1.3)[2.5]
	14	(2.5)[5.0]
	15	(4.2)[2.0]
	16	2.0
	17	2.3
	18	(0)[1.9]
	19	2.3
	20	2.3
	21	(3.4)[4.0]
	② PAL 880.0mVp-p	
	② NTSC 1.0Vp-p	
	22	1.6
	③ 1.92Vp-p	
	23	2.0
	④ 2.0Vp-p	
	24	(2.0)[1.1]
	25	2.0
	26	2.4
	27	2.0
	28	(0.5)[0]
	29	(2.0)[0.2]
	30	0.2
	31	3.0
	32	0.4
	33	(1.1)[0]
	34	2.2
	35	2.2
	36	(2.1)[3.3]
	37	3.3
	38	(2.3)[0]
	39	2.5
	40	0
	41	(0)[2.0]
	42	(0)[2.0]
	43	(0.4)[1.6]
	44	(1.0)[0]
	45	(1.1)[8.4]
	46	0
	47	(1.3)[4.2]
	48	(1.2)[1.3]
	⑤ PAL 2.24Vp-p	
	⑤ NTSC 2.00Vp-p	
	49	(1.2)[2.2]
	50	(1.2)[2.2]
	51	(1.2)[1.3]
	52	0
	53	1.5
	54	2.0
	55	1.4
	56	(0)[2.2]
	57	2.1
	58	2.1
	59	1.5
	60	(7.4)[6.4]
	61	(7.5)[6.4]
	62	3.3
	63	3.3
	64	(1.4)[1.3]
	65	(3.3)[3.4]
	66	0.4
	⑦  5.52Vp-p	
	67	(0.4)[1.4]
	⑧  3.10Vp-p	
	68	0
	69	5.0
	70	(1.2)[1.3]
	71	(0)[1.3]
	72	1.3
	73	2.0
	74	1.7
	75	1.2
	76	0
	77	(1.3)[4.2]
	78	1.3
	79	1.3
	80	1.3
	81	0
	82	(4.2)[5.0]
	83	2.1
	84	(2.0)[3.1]
	85	1.6
	⑨ PAL  2.6Vp-p	
	⑨ NTSC 3.0Vp-p	
	86	(1.2)[1.3]
	⑩ 2.0Vp-p	
	87	2.0
	⑪ PAL  2.4Vp-p	
	⑪ NTSC  2.6Vp-p	
	88	3.3
	89	0
	90	3.3
	91	1.6
	92	0
	93	1.7
	94	3.3
	95	0
	96	(0.6)[1.7]
	97	3.1
	98	(0.7)[0.4]
	99	(3.3)[0.3]
	100	(1.4)[1.7]
	101	0
	102	3.3
	103	0.2
	104	(2.3)[2.4]
	105	2.7
	106	(0.7)[0.2]
	107	3.3
	108	(3.1)[4.2]
	109	4.0
	110	3.3
	111	4.2
	112	0.6
	113	(0.5)[0.2]
	114	0.4
	115	0.3
	116	(0.6)[0.3]
	117	2.0
	118	0
	119	(0.1)[0.4]
	120	4.1
	121	0
	122	0
	123	3.3

A BOARD VOLTAGE LIST AND WAVEFORM

Ref	Pin No.	Voltage[v]
	124	1.7
	125	0
	126	3.3
	127	(0.5)[3.1]
	128	(0)[3.2]
IC002	VCC	3.3
	OUT	3.1
	GRN	0
IC003	1	0
	2	0
	3	0
	4	0
	5	4.0
	6	4.2
	7	0
	8	3.3
IC200	1	2.0
	2	(1.3)[1.5]
	3	2.0
	4	0.0
	5	0.0
	6	(0.5)[1.6]
	7	10.1
	8	0.7
	9	0
	10	21.0
	11	10.5
	12	*
IC601	1	0.5
	2	0.5
	3	(294)[284]
	4	(3.2)[20.7]
	5	1.0
IC602	I	10.3
	G	9.1
	O	0
IC603	I	3.3
	G	0
	O	1.7
IC604	I	9.1
	G	0
	O	5.0
IC605	1	134
	2	21.2
	3	0
IC606	I	2.4
	G	0
	O	3.3
IC607	1	3.3
	2	0
	3	(3.3)[0]
	4	1.7
	5	(1.3)[0.2]
IC800	1	5.7
	2	5.0
	3	5.0
	4	0
	5	4.6
	6	4.6
	7	4.6
	8	10.3
IC801	1	2.3
	2	0.8
	3	1.5
	4	0
	5	2.7
	6	2.3
	7	6.0
	8	9.0
IC802	1	3.5
	2	3.2
	3	3.2
	4	0
	5	4.0
	6	4.0
	7	(0.5)[4.0]
	8	9.1
IC803	1	0
	2	0
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
IC804	1	0.4
	(17) PAL 664.0mVp-p	
	(17) NTSC 744.0mVp-p	
	2	13.6
	3	-12.0
	4	-13.0
	5	(0.2)[-14.1]
	(16) 51.2Vp-p	
	6	14.01
	7	0.4
PH600	1	24.0
	2	22.5
	3	0.4
	4	2.9
Q001	B	0
	C	(3.4)[1.7]
	E	0
Q006	B	3.3
	C	(1.0)[2.0]
	E	2.0
Q007	B	0
	C	3.3
	E	0.2
Q008	B	(-1.6)[-1.7]
	C	-0.3
	E	1.7
Q009	B	(1.3)[*]
	C	(1.4)[*]
	E	2.1
Q010	B	3.4
	C	0
	E	4.1
Q012	B	0.6
	C	(0.2)[0.13]
	E	0
Q013	B	0.5
	C	1.7
	E	0.1
Q014	B	0
	C	0
	E	0
Q016	B	0
	C	0
	E	0
Q100	B	3.01
	C	9.0
	E	(2.0)[2.2]
Q101	B	0
	C	9.0
	E	0.5
Q102	B	3.06
	C	(2.3)[2.1]
	E	9.0
Q103	B	3.3
	C	(3.2)[0.1]
	E	0
Q104	B	(1.3)[0.1]
	C	0
	E	0
Q105	B	(9.0)[2.0]
	C	(0.4)[1.7]
	E	0
Q106	B	*
	C	*
	E	*
Q111	B	(0.5)[-1.8]
	C	(0.7)[-1.7]
	E	(0.9)[-3.3]
Q200	B	1.9
	C	0.6
	E	0
Q201	B	20.2
	C	20.6
	E	20.6
Q202	B	9.0
	C	0.1
	E	8.9
Q204	B	0
	C	(0)[9.0]
	E	0
Q205	B	1.4
	C	*
	E	1.4
Q601	B	0.4
	C	10.3
	E	0
Q605	B	24.1
	C	(20.0)[199.0]
	E	24.0
Q606	B	*
	C	24.1
	E	21.0
Q608	B	0.2
	C	20.2
	E	0
Q609	B	0.7
	C	0.3
	E	0
Q800	B	(1.7)[0.3]
	C	(8.2)[9.0]
	E	1.1
Q801	B	0.5
	C	1.4
	E	0
Q802	B	0.3
	C	4.2
	E	0
Q803	B	(-0.4)[-4.0]
	C	5.4
	(14)  164.0Vp-p	
	E	-0.5
Q804	B	134
	C	0
	E	134

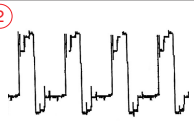
A BOARD VOLTAGE LIST AND WAVEFORM

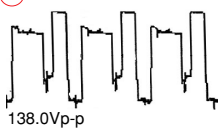
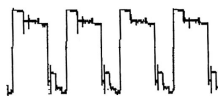
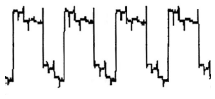
Ref	Pin No.	Voltage[v]
Q805	B	-9.2
	⑬  334.0Vp-p	
	C	134
	E	0.1
Q806	B	6.0
	C	9.0
	E	6.0
Q807	B	6.0
	C	0
	E	(5.0)[6.1]
Q808	S	0
	⑮  9.20Vp-p	
	G	6.0
	D	(13.2)[14.4]
Q809	B	*
	C	*
	E	*
Q810	B	(2.0)[0.6]
	C	(2.0)[0.5]
	E	(1.7)[1.9]

Ref	Pin No.	Voltage[v]
Q814	B	0.7
	C	5.0
	E	2.0
Q816	B	*
	C	(-6.0)[-2.5]
	E	0
Q900	B	1.3
	C	(0)[1.2]
	E	(0)[2.1]
Q901	B	-0.5
	C	(-4.2)[1.5]
	E	0
Q902	B	0
	C	-1.7
	E	0
Q903	B	0
	C	0
	E	0
Q904	B	0
	C	0
	E	0
Q905	B	0
	C	0
	E	0
Q906	B	0
	C	0
	E	0
Q907	B	0
	C	0
	E	0

Ref	Pin No.	Voltage[v]
Q908	B	0
	C	0
	E	0
Q909	B	0
	C	0
	E	0
Q910	B	2.26
	C	(4.3)[5.1]
	E	1.7
Q911	B	5.1
	C	(9.0)[4.9]
	E	4.5
Q912	B	0.1
	C	0.5
	E	0
Q8009	B	196
	C	199
	E	197
Q8010	B	0.5
	C	0.9
	E	0.3
DY800		
	⑩ 2.0Vp-p	

C BOARD VOLTAGE LIST AND WAVEFORM

Ref	Pin No.	Voltage[v]
IC751	1	1.8
	① PAL 1.88Vp-p	
	① NTSC 2.0Vp-p	
	2	1.7
	②  1.55Vp-p	
	3	1.8
	③ 2.0Vp-p	

Ref	Pin No.	Voltage[v]
	4	0
	5	5.1
	6	(196)[195]
	7	(137)[133]
	④ PAL  138.0Vp-p	
	④ NTSC 152.0Vp-p	
	8	152
	⑤ PAL  106.0Vp-p	
	⑤ NTSC  94.0Vp-p	

Ref	Pin No.	Voltage[v]
	9	(138)[136]
	⑥ PAL 126.0Vp-p	
	⑥ NTSC 142.0Vp-p	
Q701	B	(5.0)[6.0]
	C	0
	E	1.2
J751	G1-1	0.6
	G1-2	0.6
	G1-3	0
	G2	(288)[285]
	H1	0
	H2	0
	KB	(138)[137]
	KG	151.3
	KR	(137)[133]