



# Colour TV Service Manual





**CHASSIS: TB1238**

**MODEL:  
29HCS3Yn**

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## TB 1238 SERIES I<sup>2</sup>C BUS CONTROL INSTRUCTION

3. The way go into the factory mode  
*Step 1.* Press the numeric keys, switch to the position 12  
*Step 2.* Press the numeric keys again, switch to the position 38  
*Step 3.* Press the MENU key to call up the **POS.LOCK** menu  
*Step4.* Press the **MUTE** key  
*Step5.* Press the numeric key to input the password **1, 2, 3, 8**. Then the TV will enter into the factory mode while the "M" displayed on the top of the screen.
4. Under adjusting mode, you can select the item you want by pressing the “” keys and you can adjust the value of the items when you press the “” keys.
5. If the adjusting is default, please restore the data as previous or adjust according the table as follows.

No	Item	Value	Meaning	No	Item	Value	Meaning
1	RCUT	20*	Red cut-off	35	VP 60	01	60Hz vertical center
2	GCUT	38*	Green cut-off	36	HITS	FD	50Hz/60Hz vertical size
3	BCUT	44*	Blue cut-off	37	VLIN	0A	Vertical linearity
4	GDRV	40*	Green drive	38	VSC	06	Vertical S correction
5	BDRV	40*	Blue drive	39	VLIS	FF	50Hz/60Hz vertical linearity
6	CNTX	3F	Contrast maximum	40	DPC	00	50Hz pillow distortion correction
7	BRTC	30	Brighter center	41	DPCS	00	50/60Hz pillow distortion correction
8	COLC	50	Color center	42	KEY	00	50Hz keystone distortion
9	TNTC	40	Tint center	43	KEYS	00	50/60Hz keystone distortion
10	COLP	10	Color center of PAL	44	WID	00	50Hz horizontal size
11	COLS	40	Color center of SECAM	45	WIDS	00	50/60Hz horizontal size
12	SCNT	0F	Sub-contrast	46	VCP	00	Vertical compensation
13	CNTC	20	Sub-contrast center	47	CNR	00	Coner correction
14	CNTN	08	Sub-contrast minimum	48	HCP	00	Horizontal compensation
15	BRTX	20	Sub-bright maximum	49	SBY	08	SECAM B-Y
16	BRTN	20	Sub-bright minimum	50	SRY	08	SECAM R-Y
17	COLX	7F	Sub-color maximum	51	RAGC	16	R.F. AGC
18	COLN	00	Sub-color minimum	52	AFT	40*	Auto frequency tune
19	TNTX	35	Sub-tint maximum	53	HAFC	00	AFC Gain
20	TNTN	28	Sub-tint minimum	54	V25	55	25 percent Volume
21	ST 3	3F	TV-3.58 sharpness	55	V50	6F	50 percent Volume
22	SV 3	3F	AV-3.58 sharpness	56	BRTS	00	Sub-bright
23	ST 4	20	TV-4.43 sharpness	57	VM 2	30	(CTS-763A)
24	SV 4	3F	AV-4.43 sharpness	58	MOD0	21	Mode 0
25	SHPX	30	Sharpness maximum	59	MOD1	06	For 14 and 21 inches
						17	For 25 and 29 inches
26	SHPN	1A	Sharpness minimum	60	MOD2	0C	Mode 2
27	TXCX	36	OSD contrast maximum	61	SELF VCO	7G*	Self-diagnosis VCO

No	Item	Value	Meaning	No	Item	Value	Meaning
28	RGCN	16	OSD contrast minimum	62	SELF AGC	69*	Self-diagnosis AGC
29	VMO	7C	VCD data 0	63	SELF BRTC	75*	Self-diagnosis bright center
30	VM 1	00	VCD data 1	64	SELF CNTC	00*	Self-diagnosis contrast center
31	HPOS	0B	Horizontal position	65	SELF TNTC	32*	Self-diagnosis tint center
32	VP 50	04	50 Hz vertical center	66	SELF COL	23*	Self-diagnosis color center
33	HIT	19	50 Hz vertical size	67	OSD	00	OSD width adjustment
34	HPS	02	50/60Hz horizontal center	68	OPT	27	Option
69	MOD3	07	Language	70	ZOOM IN HIT	3F	Zoom in height
71	ZOOM OUT HIT	0b	Zoom out height				

Note:

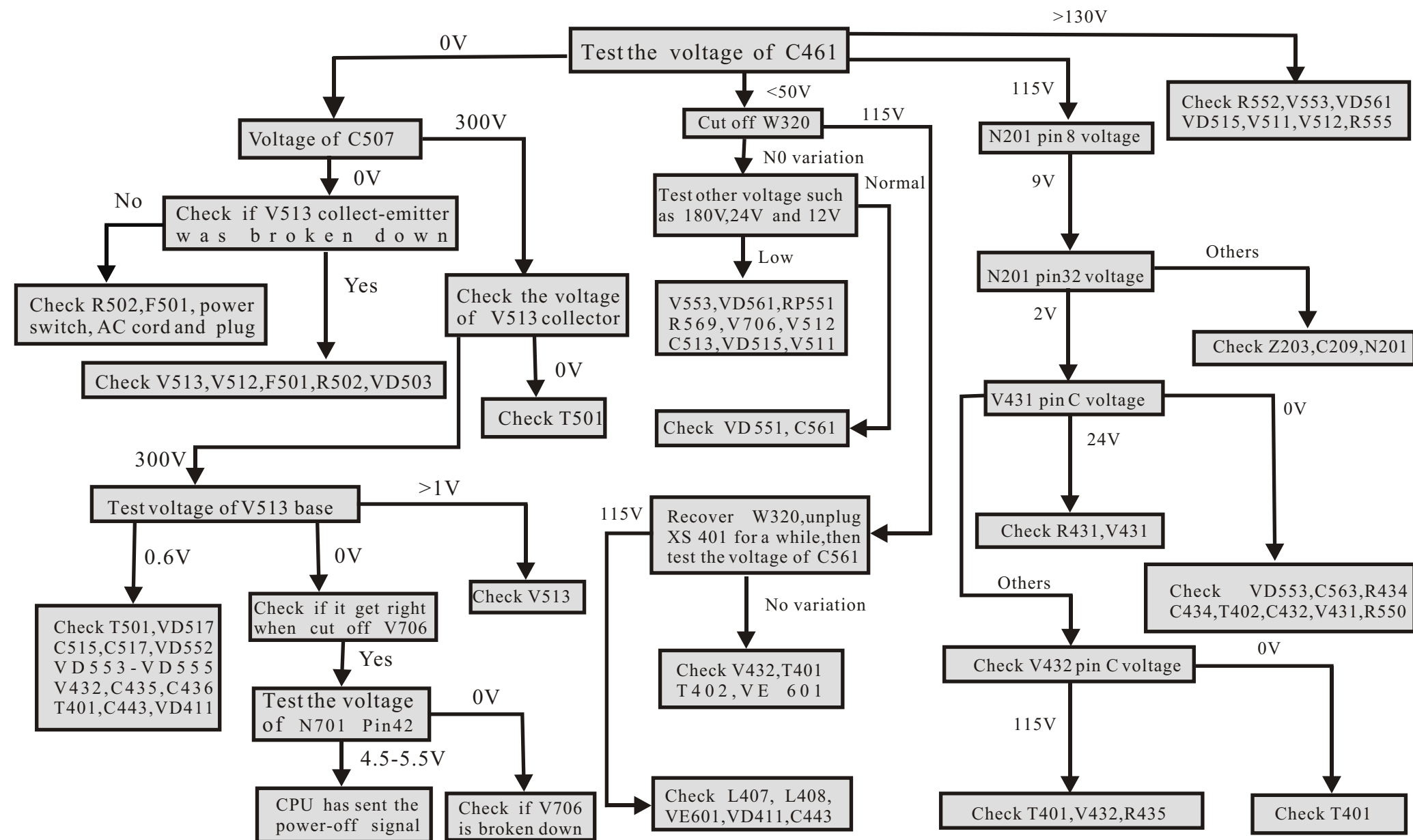
1. The items with \* in value are very special, do not adjust them at random. The items(1-5) are used to debug white-black-balance of set.
2. The general secret code is 2175.
3. If you find the threadlike disturbance on the top of picture, please adjust the VM 2 in the items and make its value come to 34.
4. When E PROM does not work, please exchange the same model chip with data that the manufacture has already input. 2

## TYPICAL FAILURE ANALYSE

1. Three-None (no raster, no picture, no sound)

This failure is mainly caused by big-power circuit such as power supply, horizontal scanning, vertical scanning.

The detail checking and repairing steps are as follow.



2. Two-None (no picture, no sound)

The failure shows that the set does not display the picture but it has noise wave or blue background or OSD on the screen. This means that the circuits of power supply, horizontal scanning, vertical scanning and video amplification are normal and they are not considered in the repairing. The failures are mainly in the small signal processing circuits.

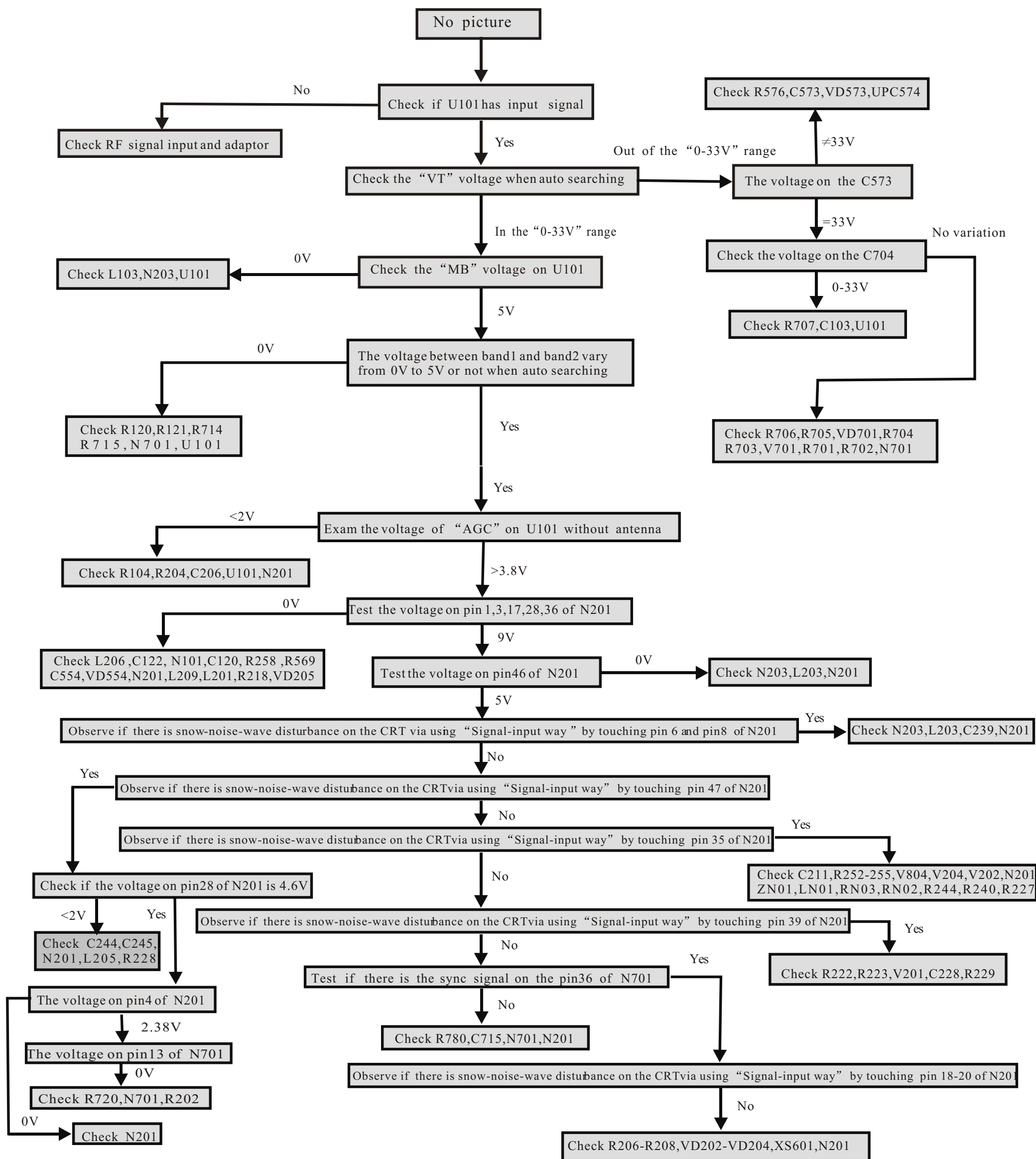
Before checking these circuits, a kind of practical test method is introduced .It is called Signal-input way .The detail is described as follow:

We can use the resistance function of an analog multimeter, connect the red pole (negative in ohm scope) on the circuit board ground, then touch softly the test point with another pole (black pole) in ohm scope meanwhile observe the reactivity on the output device.

Note: In the TV test, we mainly observe the noise wave on the CRT and listen to the noise voice liking as Ka....Ka from the loudspeakers.

a. No picture



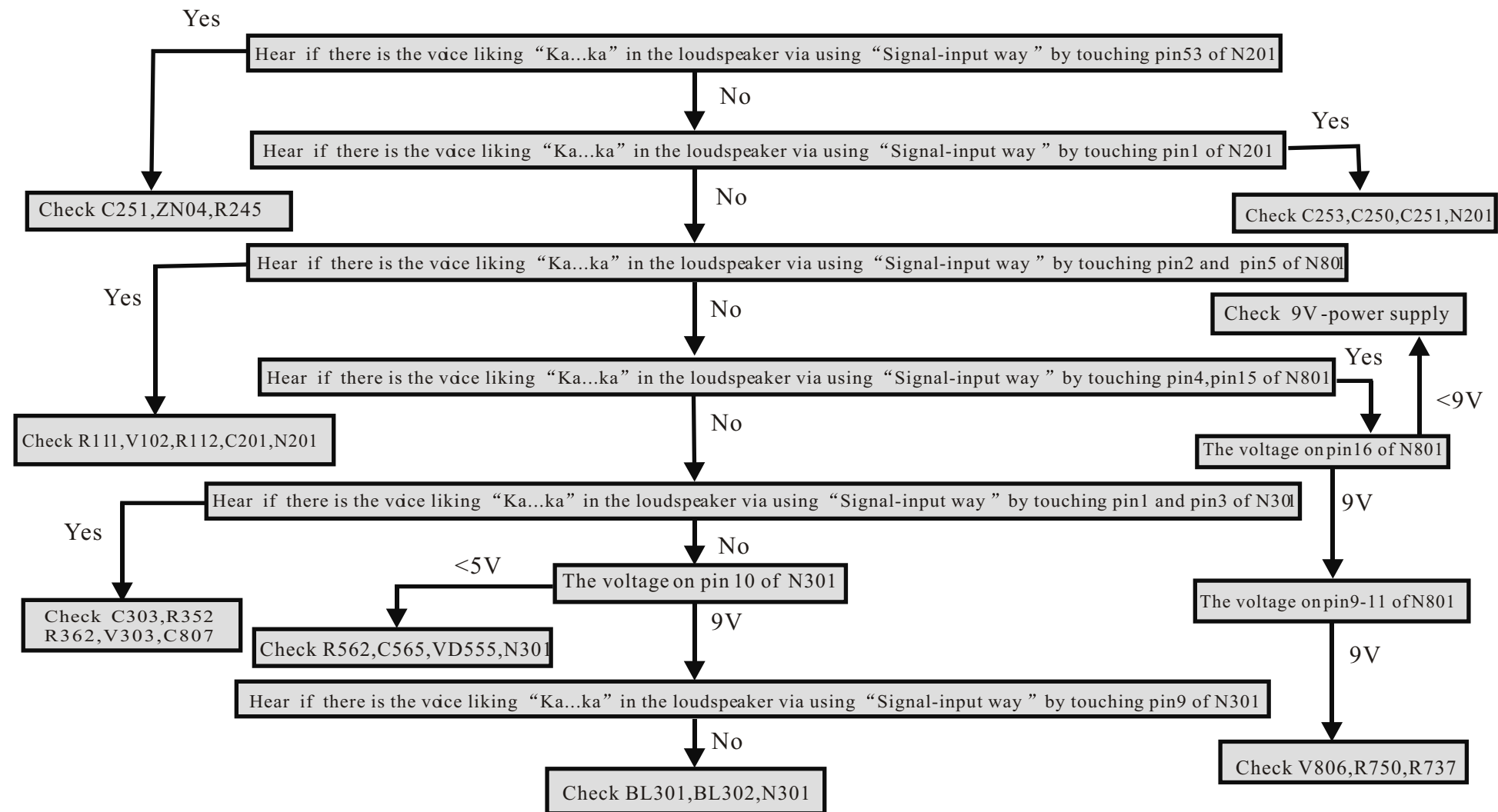


b. No sound

In this kind of failure, first of all we should observe if there is the picture on the CRT . It proves the small signal circuit to work correctly with the picture on the CRT and we only check the sound signal processing and sound amplification circuit. The repairing method (B1) may be referred without picture. The detail checking and repairing steps are as follow.

Note:

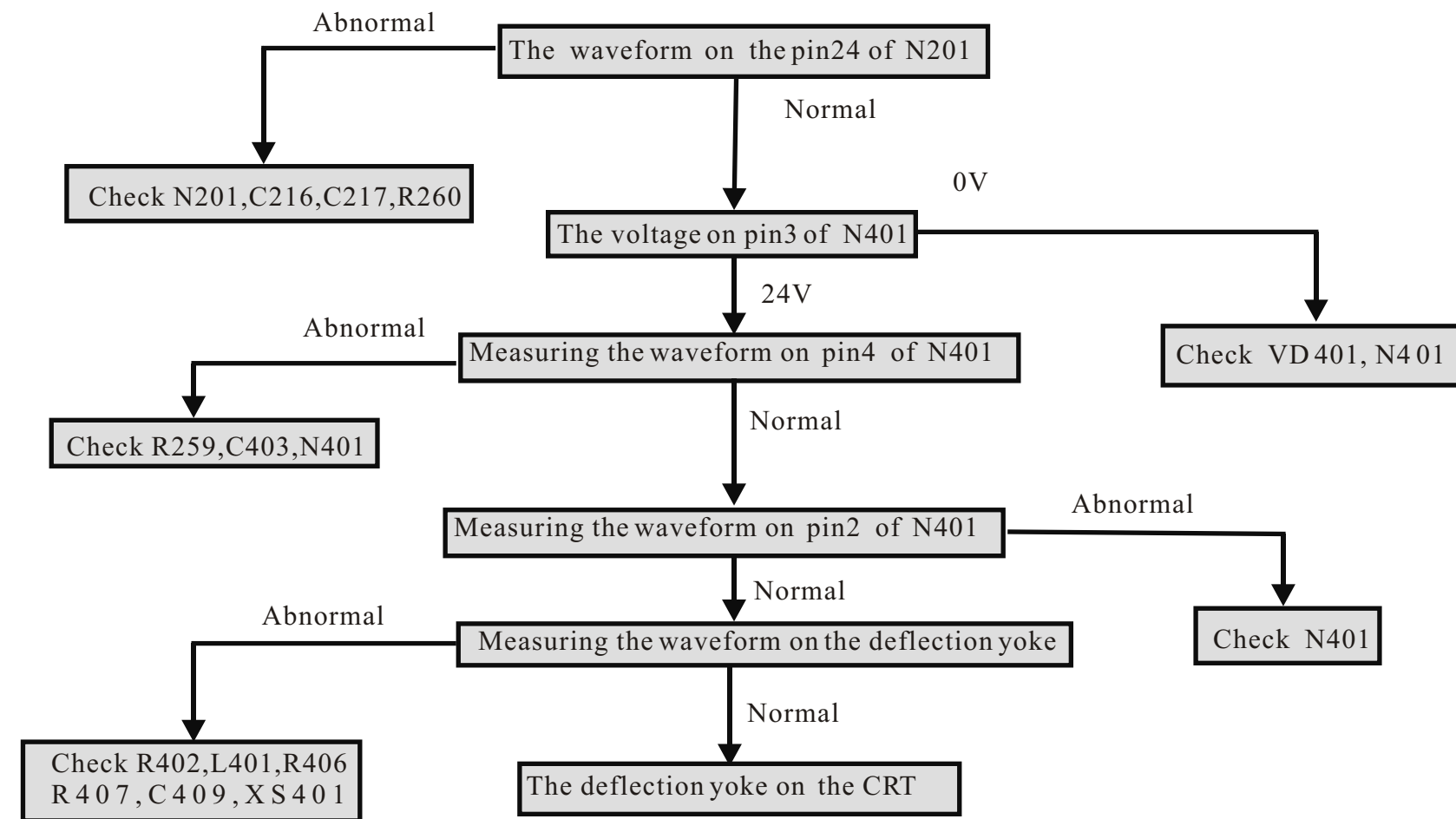
Before repairing, assure that the volume is on and the state of set is in TV.



3. Only horizontal line in the middle of the screen

If vertical deflection circuit does not work, this kind of failure will happen. In deflection yoke, there only has horizontal sweeping. The electron beam in the CRT only moves in the horizontal orientation so form this failure.

(While checking horizontal and vertical deflection circuit s failure, we have better to use an oscilloscope.)

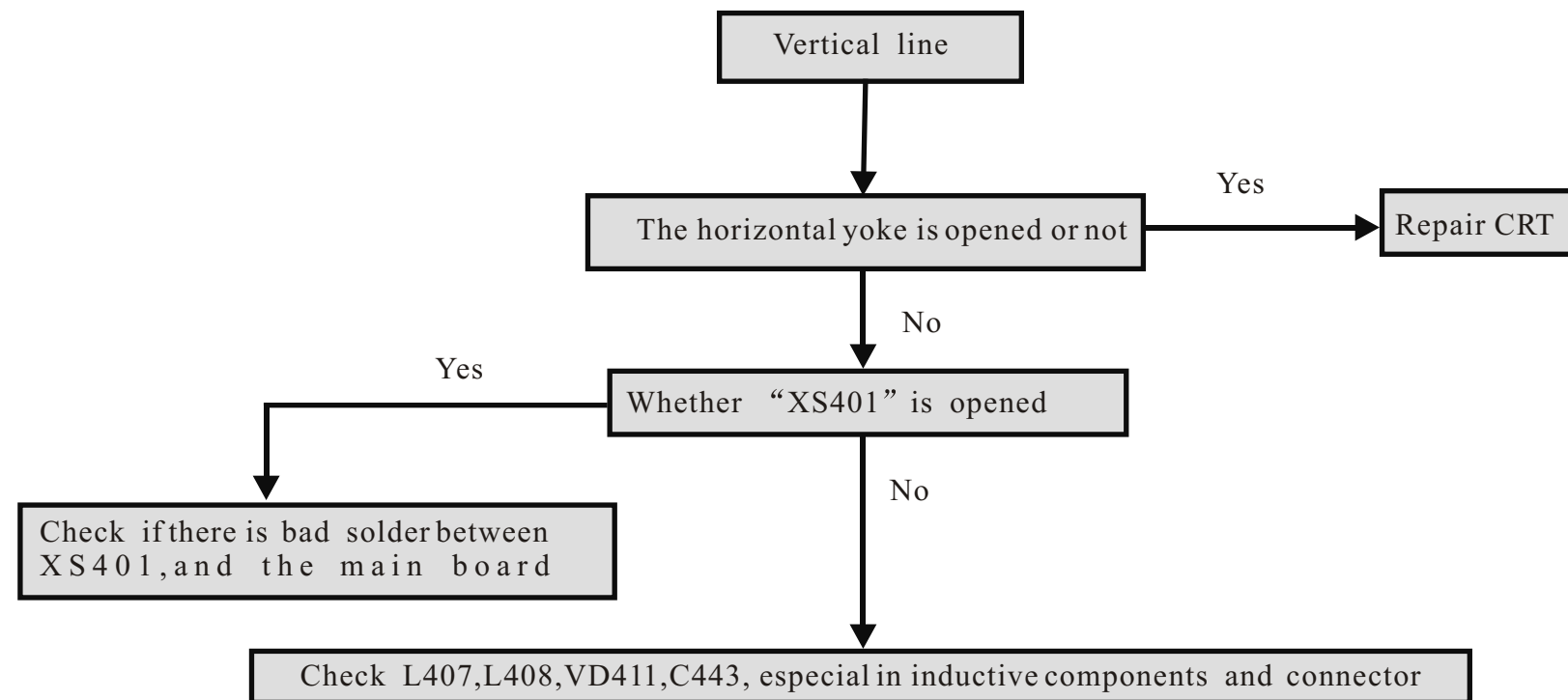


4. Only vertical line in the middle of the screen

This is a dangerous failure. It probable causes flashover and smoking inside the set. Don t let your TV work for a long time as this failure appears.

Because the electron beam can not move in the horizontal orientation, the failure should be in the horizontal deflection circuit. We mainly check the open-circuit fault in horizontal deflection circuit.

The detail checking and repairing steps are as follow:



#### 5. CPU does not work

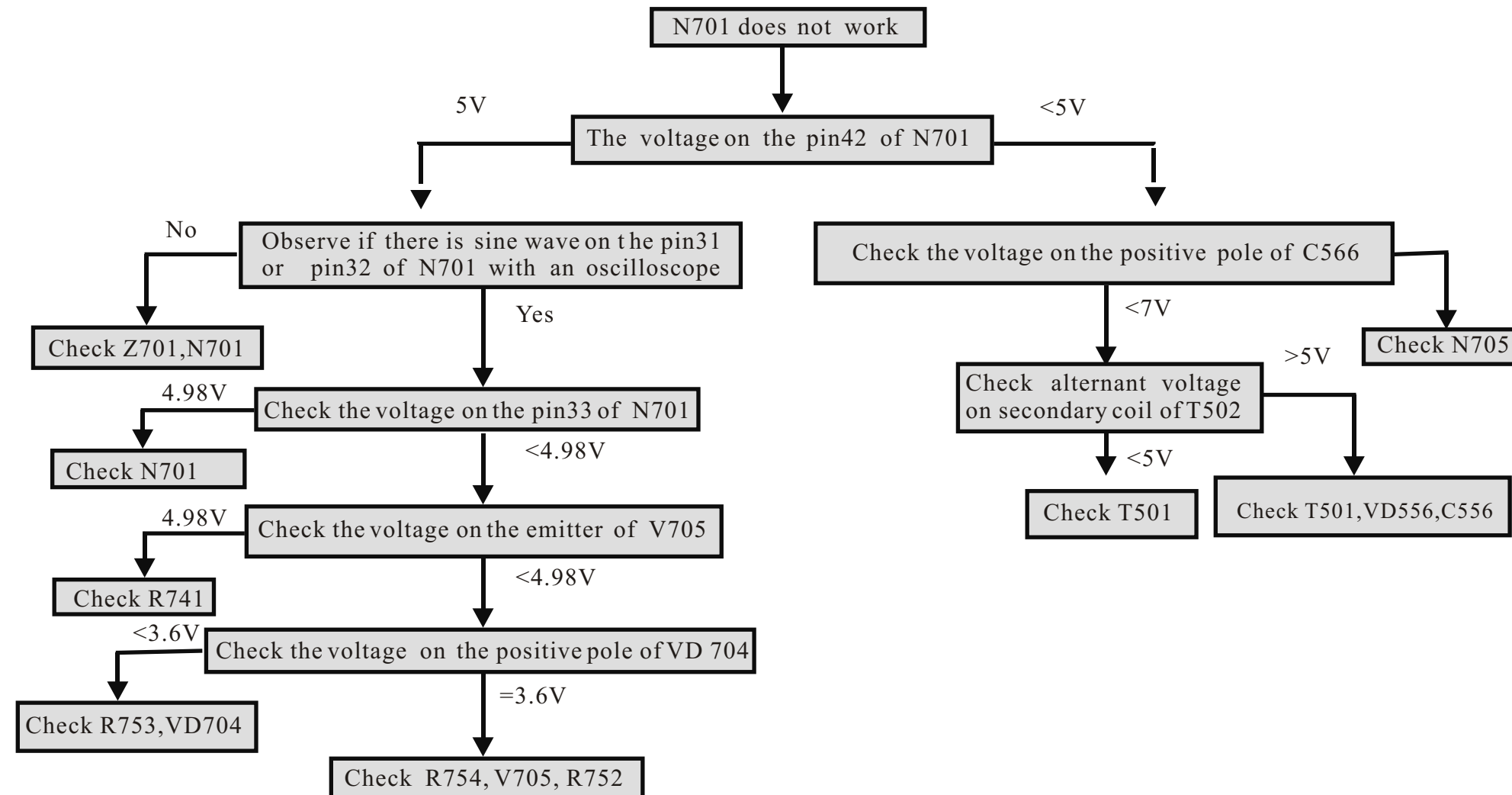
In television, remote-control system is similar with the computer system. In theory, it can work if it holds two conditions as follow:

- 1) The power supply: In general, it is 5V, the error is not above 10% and the disturbance pulse is as small as possible.
- 2) The clock pulse: In TB 1238 circuit, the clock pulse is generated by pin31/ pin32 of N701 and a 8M crystal oscillator.

Television s remote-control system also needs reset circuit that can preset the values in internal register. The circuit around pin33 of N701 is called auto-reset circuit. If CPU detects errors in resetting, it will come to the state of programme protected.

The detail checking and repairing steps are as follow:



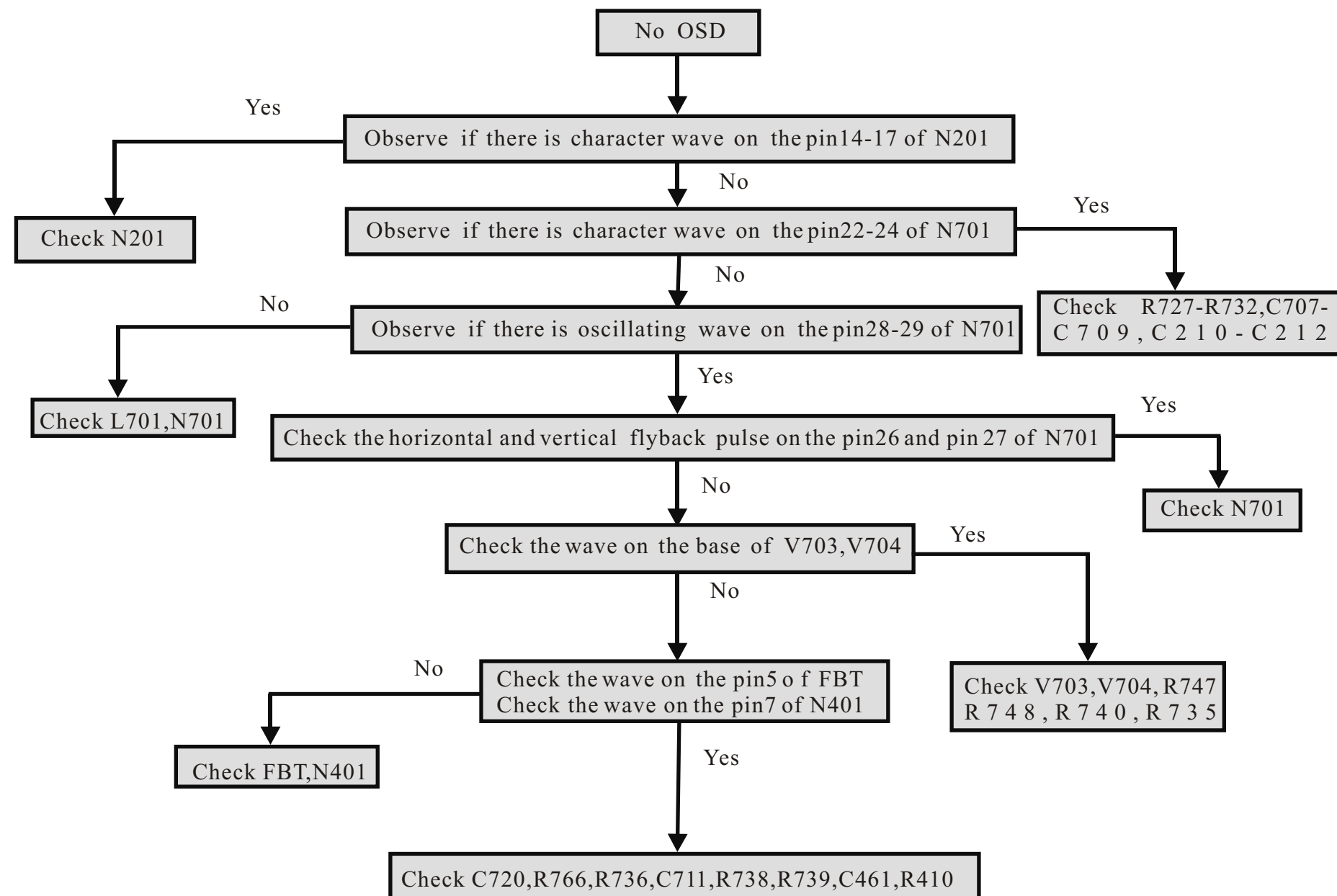


#### 6. No OSD (On Screen Display)

This failure is usually caused by the circuit of character generated and located. Most of the reasons are that the horizontal and vertical flyback pulse signals do not come to CPU.

We can judge this failure by measuring the wave of the character in an oscilloscope.

The detail checking and repairing steps are as follows:



## VARIOUS PARAMETERS OF INTEGRATED CIRCUIT

### A. Pin voltage of N201

<b>PIN</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
VOL.	4.9V	3.5V	4.1V	2.4V	0V	2V	2V	1.2V	4.2V
FUNC.	DE EMP	A- OUT	IF VCC	AFT GND	IF GND	IF IN 1	IF IN 2	RF- AGC	IF AGC
<b>PIN</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
VOL.	2.4V	3.8V	0V	0V	3V	3V	3V	9.1V	2.5V
FUNC.	APC	XCO	Y/C GND	FB	R IN	G IN	B IN	RGB VCC	R OUT
<b>PIN</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>
VOL.	2.4V	2.5V	6.1V	4.6V	5.3V	1V	1.8V	3.9V	4.1V
FUNC.	G OUT	B OUT	ABL	V RAMP	V FB	V OUT	V AGC	SCL	SDA
<b>PIN</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	<b>32</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>
VOL.	9.3V	3.8V	0.4V	4V	2V	0V	1.3V	5.3V	3V
FUNC.	H VCC	ID CW	FBP IN	SYNC OUT	H OUT	DEF GND	SCP	CVBS OUT	DIG VCC
<b>PIN</b>	<b>37</b>	<b>38</b>	<b>39</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>
VOL.	2.5V	2.5V	3.1V	7.3V	1.6V	0V	3.2V	2.3V	2.8V
FUNC.	B-Y IN	R-Y IN	Y IN	H AFC	EXT Y IN	DIG GND	TV Y IN	BLA CK DET	C IN
<b>PIN</b>	<b>46</b>	<b>47</b>	<b>48</b>	<b>49</b>	<b>50</b>	<b>51</b>	<b>52</b>	<b>53</b>	<b>54</b>
VOL.	5.4V	3.8V	4.6V	0V	8.2V	8.2V	9.1V	4.7V	5.6V
FUNC.	Y/C VCC	IF DET	LOOP FIL	VCD GND	VC 01	Vc02	VCO VCC	SIF IN	REG
<b>PIN</b>	<b>55</b>	<b>56</b>							
VOL.	4.3V	3.5V							
FUNC.	EXT A IN	FM DET							

## B. Pin voltage of N701

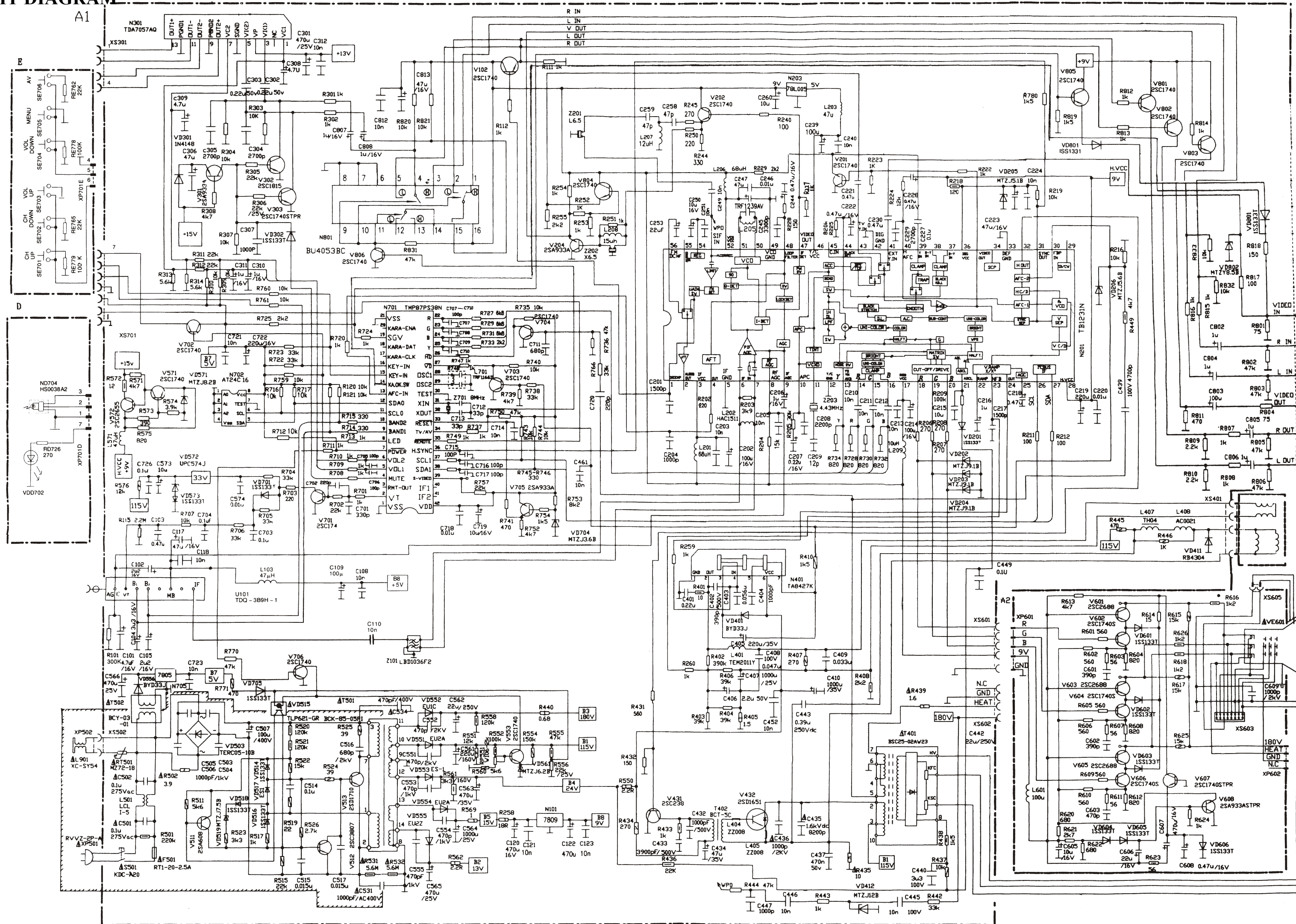
PIN	1	2	3	4	5	6	7	8	9
VOL.	0V	4.8V	5V	0V	3.8V	3.8V	0V	5V	5V
FUNC.	GND	VT	RMT OUT	MUTE	VOL1	VOL2	POWER	LED	BAND1
PIN	10	11	12	13	14	15	16	17	18
VOL.	0V	5V	5V	2.4V	0V	4.8V	4.9V	0V	0V
FUNC.	BAND2	SCL0	SDA0	AFC IN	KARA SW	KEY IN 1	KEY IN 2	KARA CLK	KARA DATA
PIN	19	20	21	22	23	24	25	26	27
VOL.	0V	0V	0V	0V	0V	0V	0V	4.4V	4.8V
FUNC.	SGV	KARA ENA	GND	OSD R	OSD G	OSD B	OSD Y	HD	VD
PIN	28	29	30	31	32	33	34	35	36
VOL.	5V	5V	0V	1.4V	2.2V	5V	0.6V	4.5V	4.8V
FUNC.	OSC1	OSC2	TEST	X IN	X OUT	RESET	TV/AV	REMOTE	H SYNC
PIN	37	38	39	40	41	42			
VOL.	3.8V	4V	0.2V	0.2V	0V	5V			
FUNC.	SCL1	SDA1	S VIDEO	IF 1	IF 1	VCC			

## C. Pin voltage of N401 (TA8427)

PIN	1	2	3	4	5	6	7
VOL.	0V	14.1V	27.2V	0.93V	0.83V	26.8V	1.33V
FUNC.	GND	V OUT	PUMP POWER	INPUT	PHASE COMPEN.	POWER SUPPLY	PULSE OUT



## CIRCUIT DIAGRAM



Notice:

1. All resistance values are in ohms. k represents  $k\Omega$ . M represents  $M\Omega$ .  $k=10^3$ .  $M=10^6$ .
2. The rated power of all resistance is 1/6W unless otherwise noted.
3. All capacitance values without unit are in pF. m represents mF, n represents nF.  $m=10^6$ ,  $n=10^3$ .
4. The rated voltage of all capacitances is 50V unless otherwise noted.
5. Product safety should be considered when a component replacement is made in any area of a receiver.

The values of the components indicated by a mark  $\triangle$  in this circuit diagram have special Significance to product safety. It is particularly recommended that only the parts specified in service Manual be used for components replacement pointed out by the mark.

6. This circuit diagram covers a basic or representative chassis by only. The re may be some components or partial circuit differences between the actual chassis and the circuit diagram.

## Pin Voltage of N701(Unit:V)

pin2	pin4	pin7	pin8	pin9	pin10	pin11	pin12	pin13	pin15	pin16
4.90	4.92	0.02	4.98	0.04	0.04	4.99	4.99	2.79	4.97	4.97

pin19	pin26	pin27	pin28	pin29	pin31	pin32	pin33	pin34	pin35	pin36
0.03	4.37	4.78	4.98	4.98	2.05	2.30	4.98	0.63	4.93	3.94

pin37	pin38	pin39	pin42
3.90	4.10	0.36	4.99

## Pin Voltage of N201(Unit:V)

pin1	pin3	pin4	pin6	pin7	pin8	pin9	pin10	pin11	pin14	pin15
4.94	9.08	2.38	1.94	1.94	1.23	4.19	2.38	3.81	3.01	2.99

pin16	pin17	pin18	pin19	pin20	pin21	pin22	pin23	pin24	pin25	pin26
3.01	9.13	2.54	2.42	2.50	6.10	4.55	5.29	0.92	1.81	3.93

pin27	pin28	pin30	pin31	pin32	pin35	pin36	pin39	pin40	pin41	pin43
4.13	9.34	0.39	3.93	1.98	2.84	5.25	3.05	7.29	1.57	3.19

pin44	pin46	pin47	pin48	pin50	pin51	pin52	pin53	pin54
2.33	5.43	3.75	4.59	8.23	8.23	9.06	4.71	5.81

## Pin Voltage of N401(Unit:V)

pin1	pin2	pin3	pin4	pin5	pin6	pin7
0	14.10	27.2	0.93	0.83	26.8	1.33

## EXPLODED VIEW

