

made / R88
**TV CHASSIS SERVICE
MANUAL**

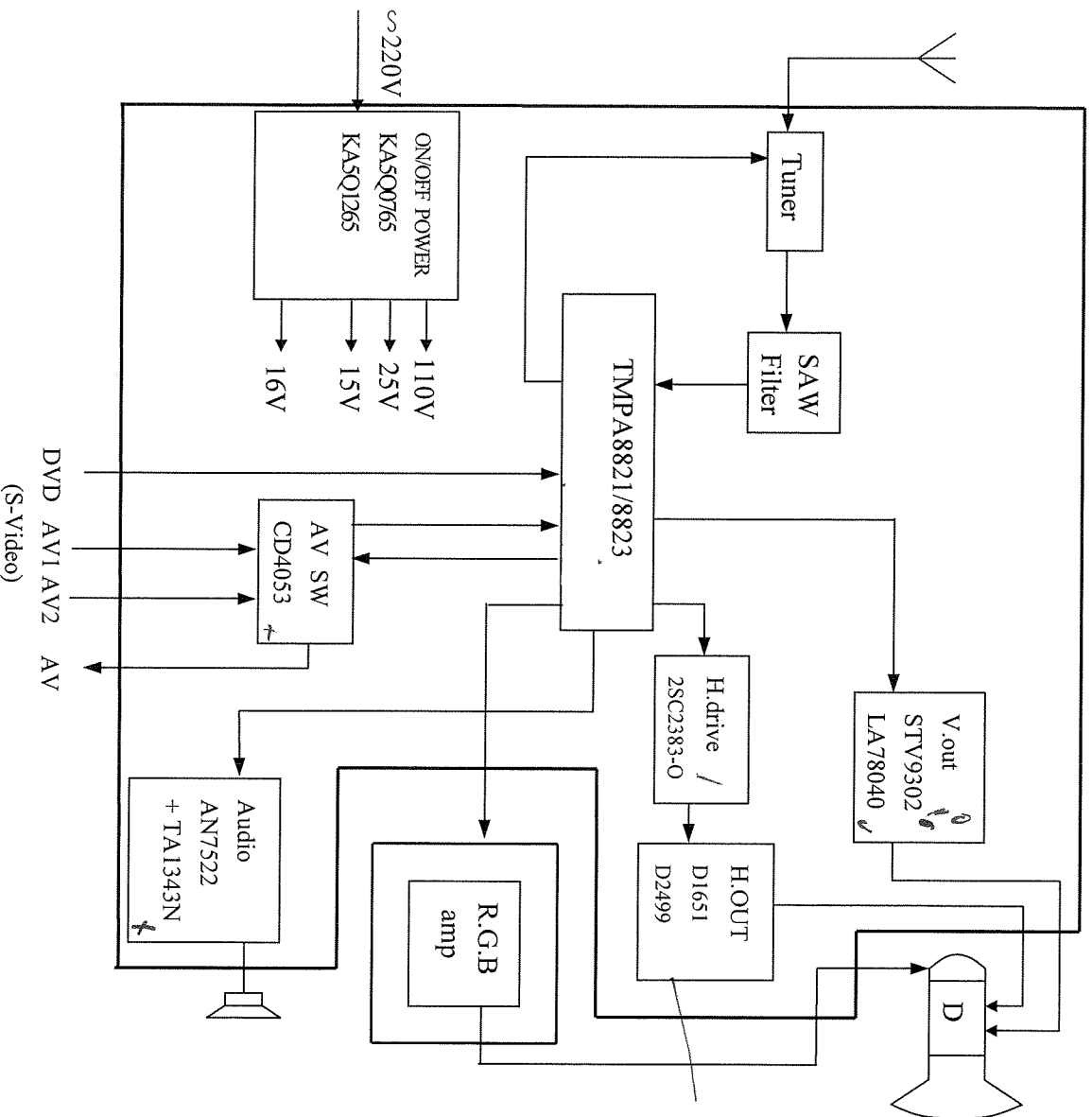
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(1) General

This chassis is consists of main IC TMPA8823, AT24C08A, LA78040(STV9302A/LA78041/TDA8177), CD4053. TMPA8823 is an integrated circuit for a PAL-BG/I TV. A MCU and a TV signal processor (SP) are integrated in a 64 pin shrink DIP package. The MCU contains 8-bit CPU, ROM, RAM, I/O ports, timer/counters, A/D converters, an on-screen display controller, remote control interfaces, IIC bus interfaces. The TV signal processor contains PIF, SIF, Video, multi-standard chroma, Sync, RGB processors.

(2) Frame Chart (see fig.1)



(3) IC Function Introduction

TMPA8823

consists of two pieces of IC chip in one package using Multi-Chip-Package(MCU) technology. One is a micro controller (MCU) and the other one is a signal processor (SP) for a colour TV.

3.1 N201 TMPA8823 Function: MCU and SP

NO.	Icon	Description
1	SCL	IIC bus serial clock input/output
2	SDA	IIC bus serial data input/output
3	KEY	Key on wake up input
4	UP DVSS	Power Supply GND
5	RESET	Reset signal input
6	XOUT	8 MHz oscillator connecting pins
7	XIN	8 MHz oscillator connecting pins
8	TEST	GND connection
9	UP DVDD(5V)	Power supply 5V
10	UP VVSS	GND connection
11	TV AGND	GND terminal for Analog block
12	FBP IN	Input terminal for FBP
13	H.OUT	Output terminal for Horizontal driving pulse
14	H.AFC1	H AFC filter connection
15	V.SAW	Terminal to be connected capacitor to generate V saw signal
16	V.OUT	Output terminal for Vertical driving pulse
17	H.Vcc(9V)	Vcc terminal for DEF circuit
18	NC	
19	Cb in	Input terminal for Cb signal
20	Y in	Input terminal for Y signal
21	Cr in	Input terminal for Cr signal
22	TV DGND	GND terminal for Digital block
23	C in	Input terminal for Chroma signal
24	V2 in	Input terminal for ext Video signal
25	TV DVCC	Vcc terminal for Digital block
26	TV IN(V in)	Input terminal for video signal
27	ABCL in	Input terminal for ABL/ACL control
28	AU OUT	Output terminal for Audio singal
29	IF VCC(9V)	Vcc terminal for IF circuit
30	TV OUT	Output terminal for detected PIF signal
31	SIF OUT	Output terminal for detected SIF signal
32	EXT AU IN	Input terminal for external audio signal
33	SIF IN	Input terminal for 2nd SIF
34	DC NF	Terminal to be connected capacitor for DC Negative Feedback
35	PIF PLL	Terminal to be connected with loop filter for PIF PLL
36	IF VCC(5V)	Vcc terminal for IF circuit
37	REG FIL	Terminal to be connected capacitor for stabilizing internal bias
38	DEEMPHA	Terminal to be connected capacitor for SIF Det De-Emphasis
39	IF AGC	Terminal to be connected IF AGC filter
40	IF GND	GND terminal for IF circuit
41	IF IN	Input terminal for IF signals
42	IF IN	Input terminal for IF signals
43	RF AGC	Output terminal for RF AGC control level output
44	YC VCC(5V)	Vcc terminal for TV Y/C circuit
45	BUS VIDEO SW	Output terminal for CVBS or Y signal selected by BUS (Video SW)

	MONITOR OUT	Monitor output terminal
46	Black DET	Terminal to be connected with Black Det filter for black stretch
47	APC FIL	Terminal to be connected with APC filter for Chroma demodulation
48	IK IN	Input terminal to Sense ACB cathode current
49	R.G.B. Vcc(9V)	Vcc terminal for RGB circuit
50	R OUT	Output terminal for R signal
51	G OUT	Output terminal for G signal
52	B OUT	Output terminal for B signal
53	TV AGND	GND terminal for Analog block
54	UP A GND	GND for Oscillator circuit
55	UP A VDD(5V)	VDD for Oscillator circuit
56	MUTE(MONO)	Output terminal for Mute
	AV SW(STEREO))	AV1/AV2 switch
57	SDA1	IIC bus serial data input/output
58	SCL1	IIC bus serial clock input/output
59	NC(MONO)	
	VOL(STEREO)	VOL controller
60	NC	
61	AV SW(MONO)	AV1/AV2 switch
	MUTE(STEREO)	Output terminal for Mute
62	H.SYNC	Horizontal and vertical sync signal input
63	REMOTE	Remote control signal preprocessor input
64	POWER SW	Power control (On=Hi. Off=L)

3.2 N702 AN7522 Function: Audio power amplifier(STEREO)

NO.	Symbol	Function
1	Vcc	This is the power supply pin.
2	OUT1	Audio signal output 1.
3	Pre-GND	GND terminal.
4	OUT1	Audio signal output 1.
5	STANDBY	Standby control terminal.
6	IN1	Audio signal input 1.
7	GND	GND terminal.
8	IN2	Audio signal input 2.
9	VOL	VOL controller
10	OUT2	Audio signal output2.
11	Pre-GND	GND terminal.
12	OUT2	Audio signal output2.

3.3 N740 TAI343N Function:TV sound processor(STEREO)

NO.	Name	Function
1	Offset canceling filter	DC offset canceling filter for bass boost.
2-5	ϕ 4- ϕ 1	Terminals for capacitors of the phase shift blocks.
6	Lch input	Audio input terminal.
7	GND	GND terminal.
8	Rch input	Audio input terminal.
9	Bias filter	Filter for noise rejection of the bias.
10	Bass LPF(R)	LPF for bass control circuits.
11	Treble HPF(R)	HPF for treble control circuits.
12	Wch output	Woofer audio output terminal.
13	Rch output	Right audio output terminal.
14	Treble HPF(L)	HPF for treble control circuits.
15	Bass LPF(L)	LPF for bass control circuits.
16	Lch output	Left audio output terminal.
17	Woofer LPF1	LPF for bass boost circuit.
18	Woofer LPF2	LPF for bass boost circuit.
19	Woofer LPF3	LPF for bass boost circuit.
20	Vcc	This is the power supply pin. Apply 9V to this pin.
21	Volume filter	Smoothering filter for volume control
22	Woofer LPF	Smoothering filter for bass boost control
23	SCL	This is an IIC bus clock input pin.
24	SDA	This is an IIC bus data input/output pin.

NOTE: The IC (TAI343N) only using TV of sound processor

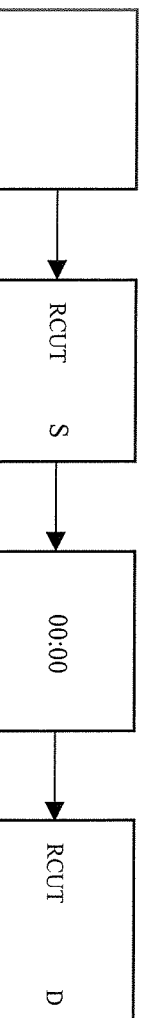
3.4 N401A LA78040(STV9302A /LA78041/TDA8177) Function: V-scan output

NO.	Symbol	FUNCTION
1	V.INPUT	Inverting input
2	VCC1(25V)	Power supply 25V
3	FG	Flyback Generator
4	GND	GND connection
5	V.OUT	V-scan output
6	VCC2	Output stage supply
7	INUT INV	Non- Inverting input

(4) I²C Bus Control

4.1 Factory Menu Entry

Pressing the TV set “V-” button , to decrease volume to 0 , at the same time presses remote controller “DISPLAY” button, the letter “S” will be displayed at the upper right corner ; Again pressing the TV set “V-” button , at same time presses remote controller “DISPLAY” button, the letter “D” will be displayed at the upper right corner and the adjusting items will be displayed at the upper left corner. Press the channel +/- to select the preferred item; press the volume +/- to adjust the value of each item.



4.2 TMPA8823 BUS DATA

ITEM	DATA	
OSD	21	OSD Horizontal Position
OPT	CE	Optional Setting
*RCUT	40	R CUT OFF
*GCUT	40	G CUT OFF
*BCUT	40	B CUT OFF
*RDRV	40	G DRIVE
*BDRV	40	B DRIVE
*CNTX	7F	SUB CONTRAST MAX
*BRTC	45	SUB BRIGHT CENTER
*COLC	45	SUB COLOR CENTER for NTSC
*TNTC	40	SUB TINT CENTER
*COLP	00	SUB COLOR CENTER for PAL(DIFFERENCE)
*COLS	45	SUB COLOR CENTER for SECAM
*DCOL	45	DVD COLOR
*SCOL	04	SUB COLOR CENTER for DVD
*SCNT	0B	Y-SUB CONTRAST
*CNTC	70	SUB CONTRAST CENTER
*CNTN	08	SUB CONTRAST MINIMUM
*BRTX	20	SUB BRIGHT MAX(DIFFERENCE)
*BRTN	30	SUB BRIGHT MINIMUM(DIFFERENCE)
*COLX	3F	SUB COLOR MAX(DIFFERENCE)
*COLN	00	SUB COLOR MINIMUM
*TNTX	28	SUB TINT MAX(DIFFERENCE)
TNTN	28	SUB TINT MINIMUM(DIFFERENCE)
ST3	19	SUB SHARP CENTER NTSC3.58 in TV
SV3	28	SUB SHARP CENTER NTSC3.58 in VIDEO
ST4	28	SUB SHARP CENTER other color system in TV
SV4	28	SUB SHARP CENTER other color system in VIDEO
SVD	28	SUB SHARP CENTER in DVD
ASSH	07	ASYMMETRY-SHARPNESS
SHPX	2F	SUB SHARPNESS MAX points from Center value
SHPN	1F	SUB SHARPNESS MIN points from Center value
TXCX	1F	RGB Contrast data at MAX data of user contrast
RGCN	00	RGB Contrast data at MIN data of user contrast
ABL	26	ABL data in detail;Bit5: RGB ABCL Bit4:WPS;Bit3,2: ABL Start Point Bit1,0: ABL Gain
DCBS	2A	A part of Video data in detail;Bit7: Blanking SW;Bit5,4: OSD Contrast;Bit3,2: Y Gamma;Bit1,0: Black Stretch
CLTO	5D	The data when TV mode & SOUND SYS=M;Bit7: F-ID;Bit6: P/N ID Sens;Bit5: color-g;Bit4,3: N Phase;Bit2-0: Y D.L.
CLTM	5C	The data when TV mode & SOUND SYS=M;Bit7: F-ID;Bit6: P/N ID Sens;Bit5: color-g;Bit4,3: N Phase;Bit2-0: Y D.L.
CLVO	4C	The data when YUV mode & SOUND SYS=M;Bit7: F-ID;Bit6: P/N ID Sens;Bit5: color-g;Bit4,3: N Phase;Bit2-0: Y D.L.
CLVD	5C	The data when YUV mode & SOUND SYS=M;Bit7: F-ID;Bit6: P/N ID Sens;Bit5: color-g;Bit4,3: N Phase;Bit2-0: Y D.L.
DEF	01	A part of DEF COMP data in detail;Bit0: V Ramp Ref
AKB	00	AKB data in detail;Bit1-0: AKB MODE
SECD	14	SECAM MODE data in detail;Bit7-5: Nouse;Bit4,3: S-GP Phase;Bit2:S-ID Mode;Bit1: Bell fo;Bit0:S-ID Sens
HPOS	0E	50Hz Horizontal Phase
VP50	03	50Hz Vertical Phase

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*HIT	2B	50Hz Vertical Amplitude
*HPS	0E	Shift data of 50Hz/60Hz Horizontal Phase
*V/P60	0E	60Hz Vertical Phase
*HITS	FF	Shift data of 50Hz /60Hz Vertical67 Amplitude
*VLIN	0B	V Linearity
*VSC	0B	VS Correction
*VLIS	FF	Shift data of 50Hz/60Hz V Linearity
VSS	FF	Shift data of 50Hz/60Hz VS Correction
DPC	8A	calendar box color
DPCS	83	Menu up box color
KEY	8B	Menu down box color
KEYS	83	Bar box color
WID	28	Game box color
WIDS	00	Tint box color
ECCT	02	Volume front box color
ECCB	09	Sys box color
VEHT	06	nouse
HEHT	01	nouse
SBY	0A	SECAM B-Y
SRY	07	SECAM R-Y
BRTS	05	SUB Brightness(DIFFERENCE)
RFAGC	25	RF AGC adjustment
HAFC	09	1/2 AFC data adjustment
V01	05	Volume output data at 1%
V25	26	Volume output data at 25%
V50	35	Volume output data at 50%
V100	60	Volume output data at 100%
MUTT	00	Nouse
STAT	00	CONTRAST UP FOR SOFT START
FLG0	3E	FLAGS for IF;
FLG1	42	FLAGS:
REFP	00	REF Pulse Position
RSNS	00	R SENS
GSNS	00	G SENS
BSNS	00	B SENS
MOD	00	Bit1,0: Cutoff Gain×10;Bit6-4: P1F-FRQ
STBY	00	Bit3,2:VCD STANDBY;Bit1,0: IF STANDBY
SVM	06	Bit4:CO MAX;Bit3,2: SVM DL;Bit1,0: SVM GAIN
SVM1	06	Bit4:CO MAX;Bit3,2: SVM DL;Bit1,0: SVM GAIN
SVM2	06	Bit4:CO MAX;Bit3,2: SVM DL;Bit1,0: SVM GAIN
SVM3	06	Bit4:CO MAX;Bit3,2: SVM DL;Bit1,0: SVM GAIN
VBLK	00	V BLK Start / Stop
VCEN	18	V Centering
UCOM	00	Bit5-3: Chroma APC Setting;Bit2: SWELL KILLER;Bit1,0:INTERNAL ADC
VTST	83	TEST nouse
PYNX	28	H.SYNC MAX in normal condition
PYNN	18	H.SYNC MIN in normal condition
PYXS	22	H.SYNC MAX in search
PYNS	1E	H.SYNC MIN in search
WCTL	40	for A-PRO data setting
SUR1	06	Surround data (MONO)
SUR2	05	Surround data (STEREO1)
SUR3	0A	Surround data (STEREO2)
BASC	40	BASS CENTER
BASX	60	BASS MAX
TREC	42	TREBLE CENTER
BALC	40	BALANCE CENTER
WOFC	40	WOOFER CENTER

BAS1	CB	SOUND MEMORY1 BASS data
BAS2	3C	SOUND MEMORY2 BASS data
BAS3	CB	SOUND MEMORY 3 BASS data
TRE1	55	SOUND MEMORY1 TREBLE data
TRE2	37	SOUND MEMORY2 TREBLE data
TRE3	A8	SOUND MEMORY 3 TREBLE data
WFL1	CB	SOUND MEMORY 1 WOOFER data
WFL2	99	SOUND MEMORY 2 WOOFER data
WFL3	E4	SOUND MEMORY 3 WOOFER data
WON1	02	Comb nouse
WON2	09	Comb nouse
WOFF	00	R CUT OFF (shift data of YUV)
COM1	04	G CUT OFF (shift data of YUV)
COM2	35	B CUT OFF (shift data of YUV)
MODE0	F0	
MODE1	89	
MODE2	F4	
RCUTS	00	R CUT OFF (shift data of YUV)
GCUTS	03	G CUT OFF (shift data of YUV)
BCUTS	03	B CUT OFF (shift data of YUV)
GDRVS	01	G DRIVE (shift data of YUV)
BDRVS	02	B DRIVE (shift data of YUV)
NOIS	01	HAFC Control, Bit2: Use; 0, 1: Nouse
01AUATT	56	TC90L01 audio att nouse
01FLAG	02	TC90L01 flag (alc gain) nouse
PDOPT0	D0	
PDOPT1	98	
*WAIT_TIME	06	Wait Time Before Open Screen
CUR_CEN	A2	Open Screen Center Position
CUR_STEP	03	Open Screen Step Wide
PDSL1	0F	screen saver left limit
PDSL2	D0	screen saver right limit
PDSL3	25	screen saver top limit
PDSL4	28	screen saver bottom limit
OSDF	65	
OSDA	1E	
OSDM	2C	orthsl_menu
OSDMA	22	orthsl_menu_arabic
CLTSE	48	clt_secam
CLVSE	47	clv_secam

Note: 1、Bus data for your reference;

2、Please don't adjust except item of “*” ;

(5) IC voltage
MONO CHASSIS IC voltage

N201 TMPA8823													
NO.	1	2	3	4	5	6	7	8	9	10	11	12	13
Voltage	4.8	4.8	5.1	0	5.1	2.3	2.1	0	5.2	0	0	1.2	1.9
NO.	14	15	16	17	18	19	20	21	22	23	24	25	26
Voltage	7.4	4.1	4.9	9.8	1.9	2.3	2.3	2.3	0	0	2.3	3.4	2.5
NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
Voltage	4.2	3.5	8.7	3.6	1.8	4.3	3.2	2.4	2.4	4.8	2.1	4.4	1.9
NO.	40	41	42	43	44	45	46	47	48	49	50	51	52
Voltage	0	0.5	0.5	3.7	4.7	1.9	2.4	2.4	0	8.7	2.4	2.4	2.3
NO.	53	54	55	56	57	58	59	60	61	62	63	64	
Voltage	0	0	5.2	0	5.2	5.2	0	/	0	4.6	5.1	2.9	

N401A LA78040/STV9302A/LA78041/TDA8177						
NO.	1	2	3	4	5	6
Voltage	3.1	26	1.1	0	11.6	26.2
						3.0

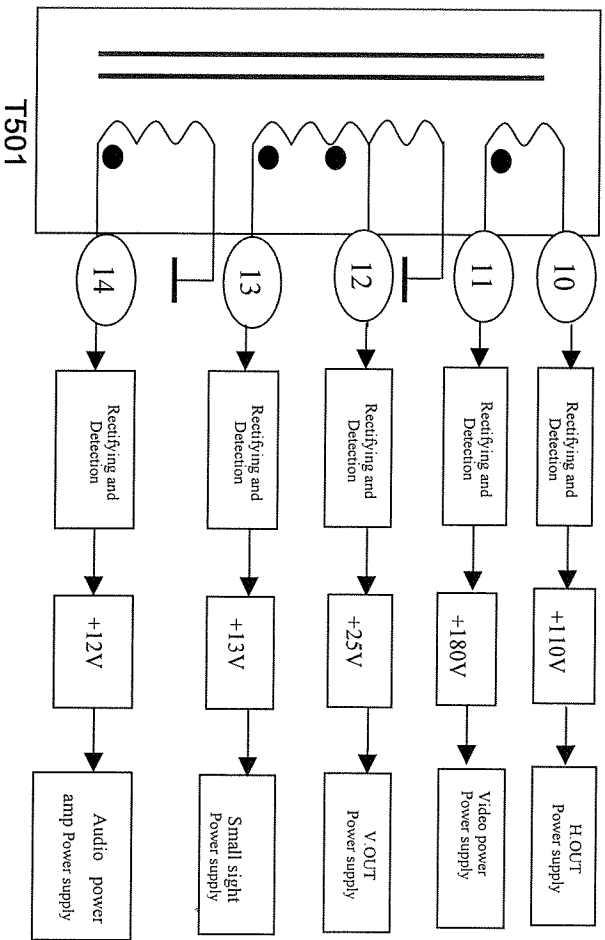
STEREO CHASSIS IC VOLTAGE

N201 TMPA8823													
NO.	1	2	3	4	5	6	7	8	9	10	11	12	13
Voltage	4.8	4.8	5.0	0	5.0	2.2	2.0	0	4.9	0	0	1.0	1.8
NO.	14	15	16	17	18	19	20	21	22	23	24	25	26
Voltage	6.7	4.2	5.6	9.2	2.0	2.4	2.4	2.4	0	0	2.4	3.4	2.7
NO.	27	28	29	30	31	32	33	34	35	36	37	38	39
Voltage	4.8	3.5	8.9	3.6	1.8	4.3	3.0	2.2	2.5	4.9	2.2	4.3	1.8
NO.	40	41	42	43	44	45	46	47	48	49	50	51	52
Voltage	0	0	0	1.9	4.9	2.0	2.7	2.5	0	8.9	2.5	2.5	2.5
NO.	53	54	55	56	57	58	59	60	61	62	63	64	
Voltage	0	0	5.0	0	5.0	5.0	0	/	0	4.4	5.0	2.8	

N702 AN7522											
NO.	1	2	3	4	5	6	7	8	9	10	11
Voltage	11.4	0	0	0	3.6	1.4	0	1.4	0.3	0	0.3

N740 TA1343											
NO.	1	2	3	4	5	6	7	8	9	10	11
Voltage	4.4	4.5	4.5	4.5	4.5	0	0	4.5	5.8	4.5	4.4
PIN	13	14	15	16	17	18	19	20	21	22	23
Voltage	4.4	4.5	4.5	4.4	5.2	5.1	5.1	8.5	0	1.5	4.1
											4.2

N401A LA78040 (STV9302A/LA78041/TDA8177)						
NO.	1	2	3	4	5	6
Voltage	3.3	27.7	1.6	0	14.4	27.4
						3.3



Power supply outline

(6). Trouble shooting

6.1 No signal, can not receive program.

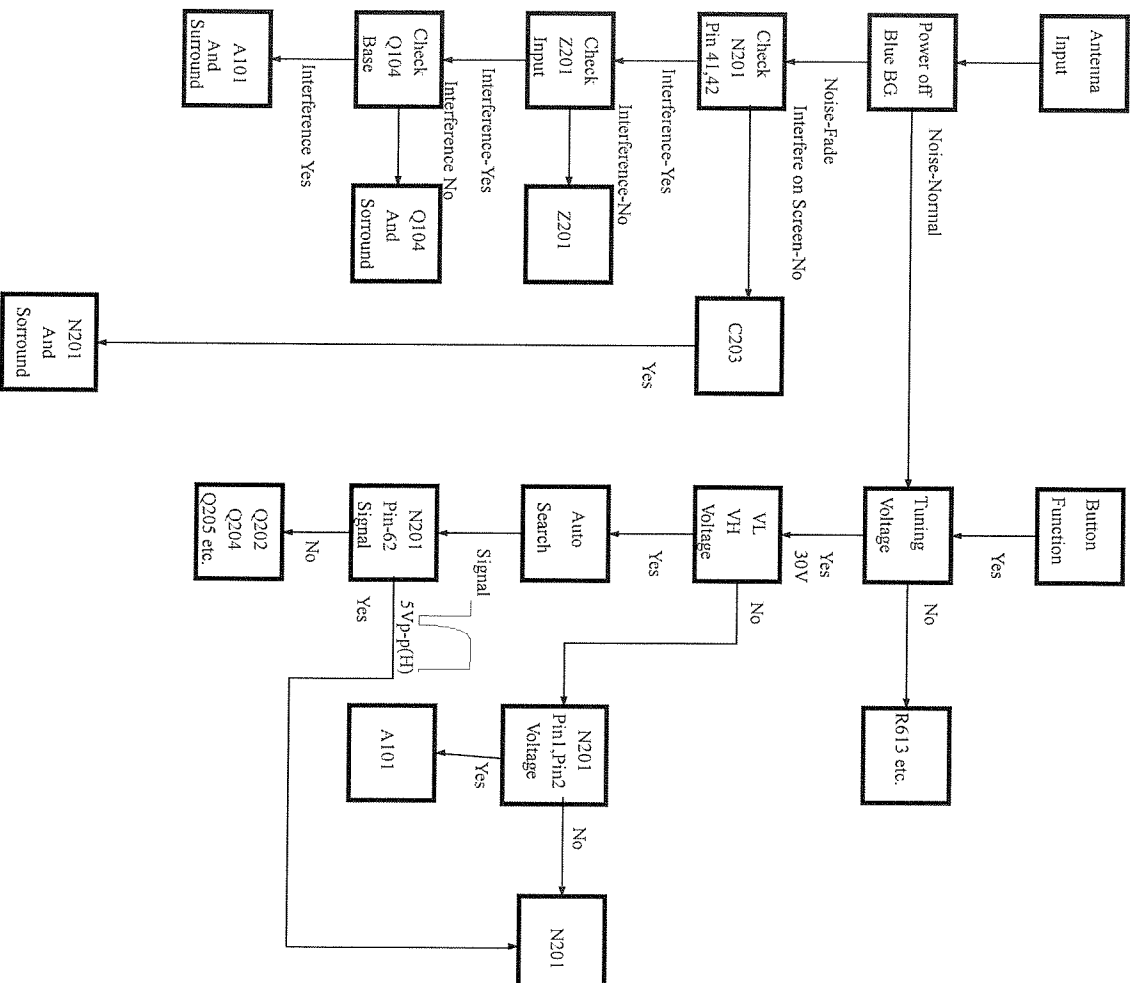


CHART A

6.2 Picture distortion.

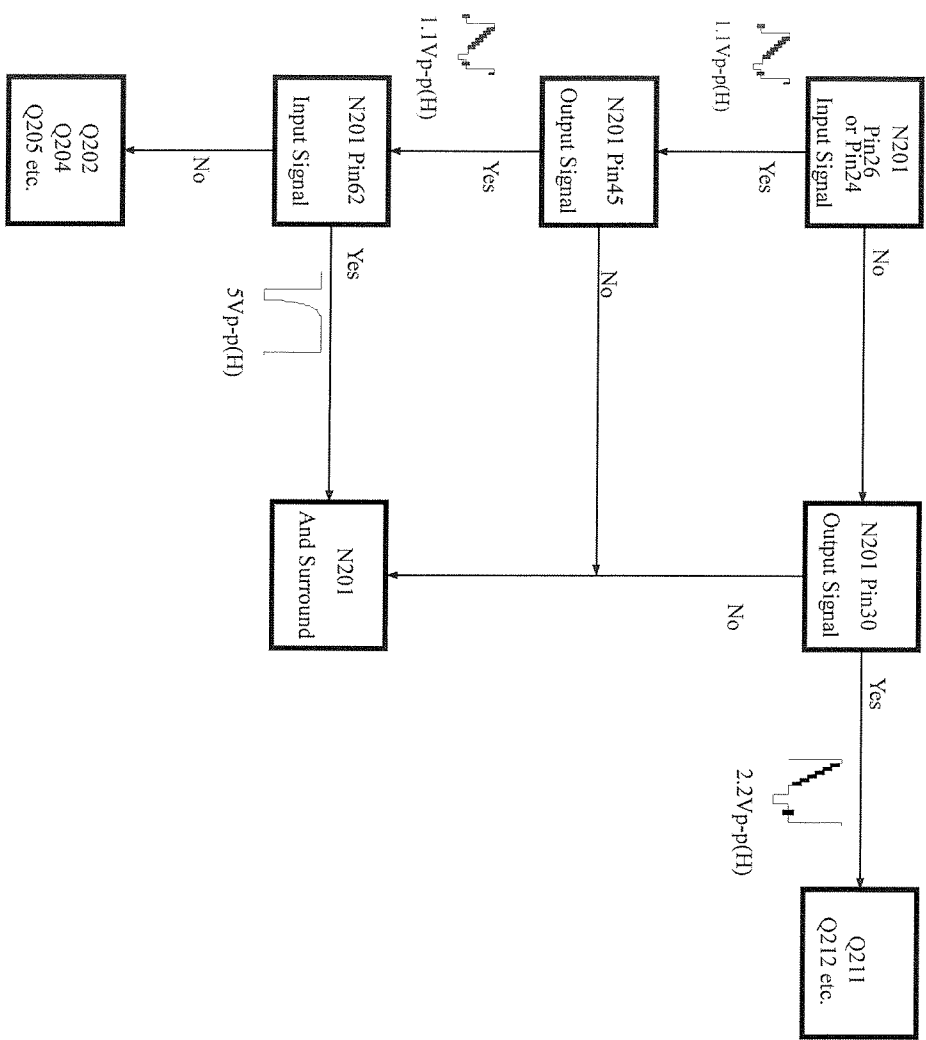


CHART B

6.3 Pictrue no color.

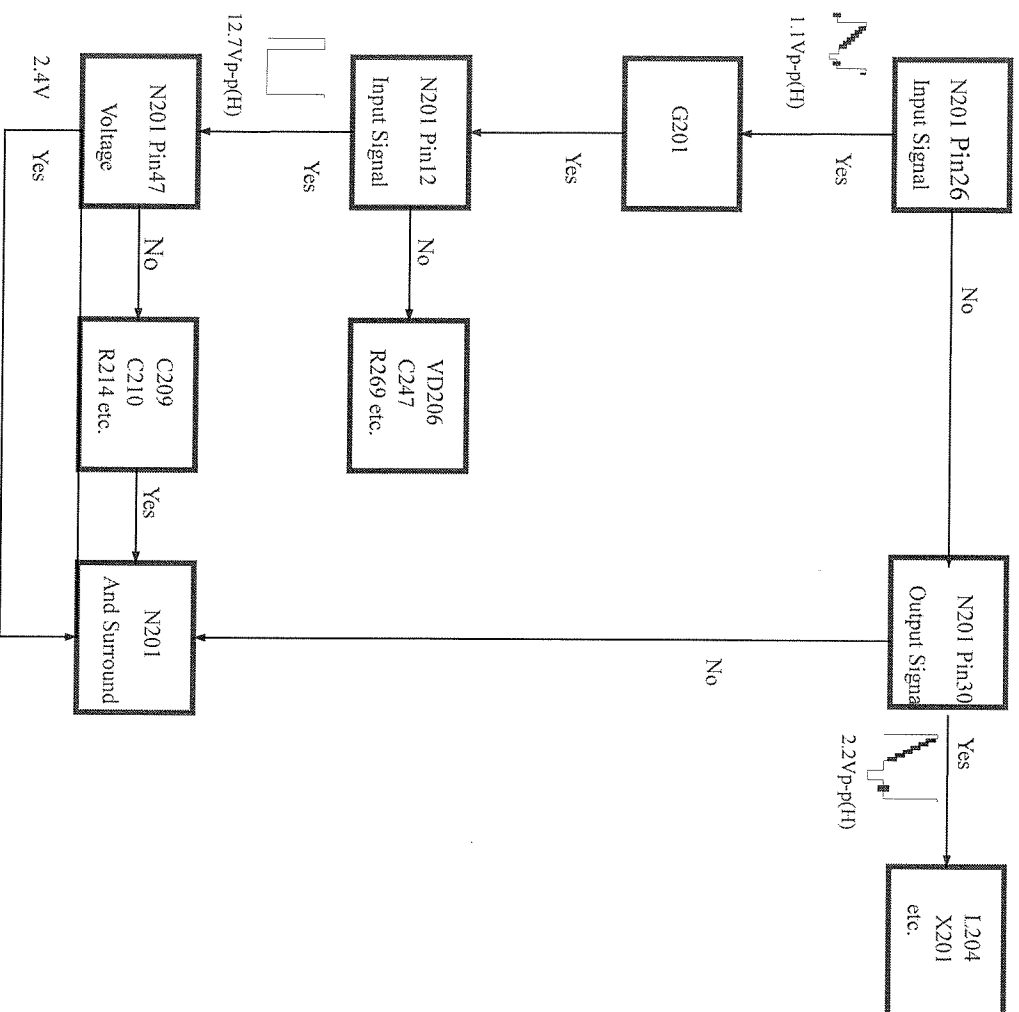


CHART C

6.4 Unusual AV picture.

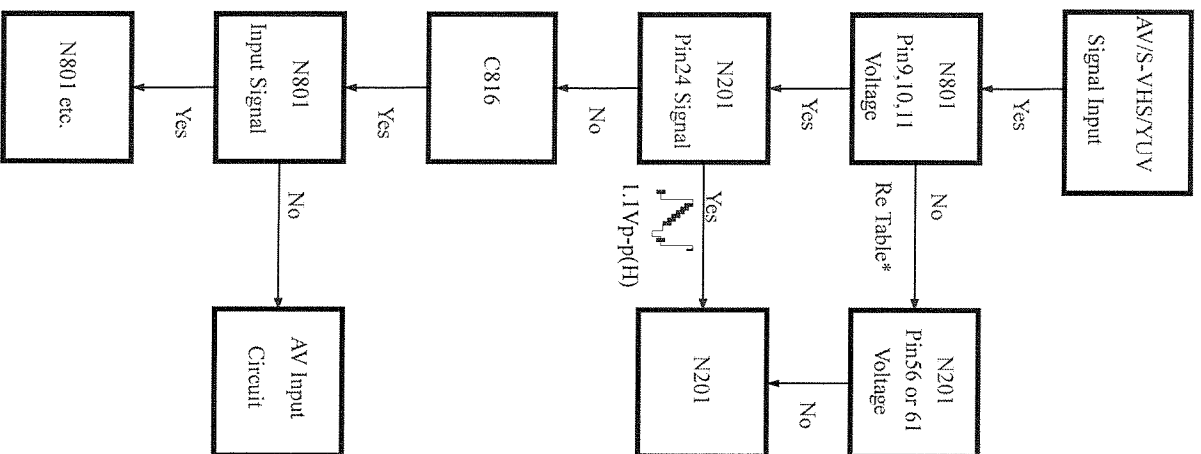


CHART D

6.5 Keyboard failure caused by CPU failure.

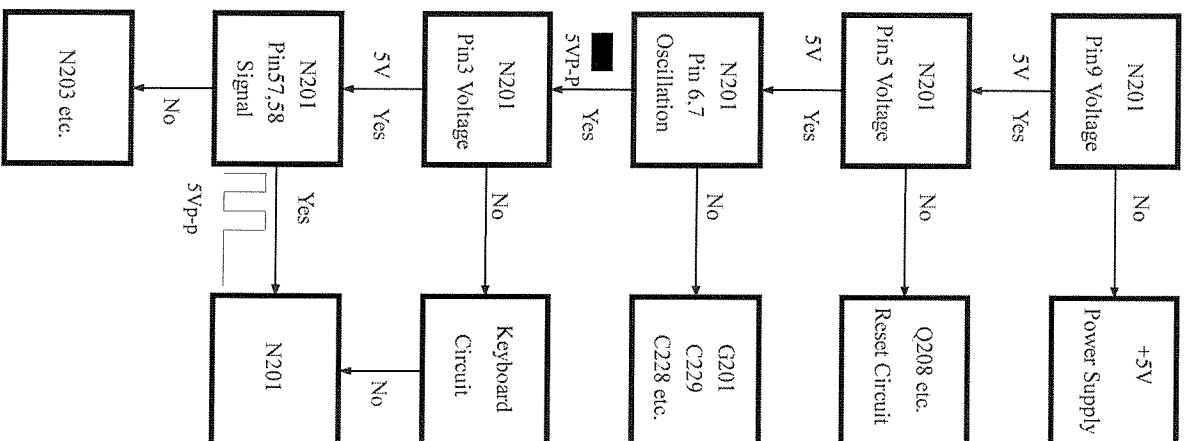


CHART E

6.6 One horizontal line.

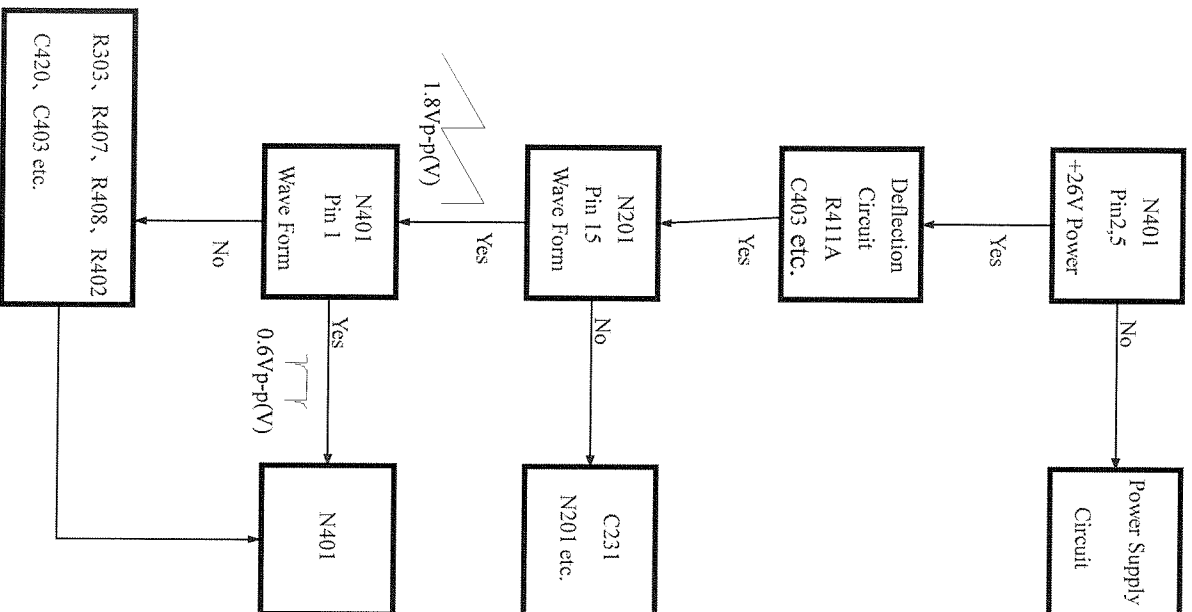


CHART F

6.7 No audio sound.

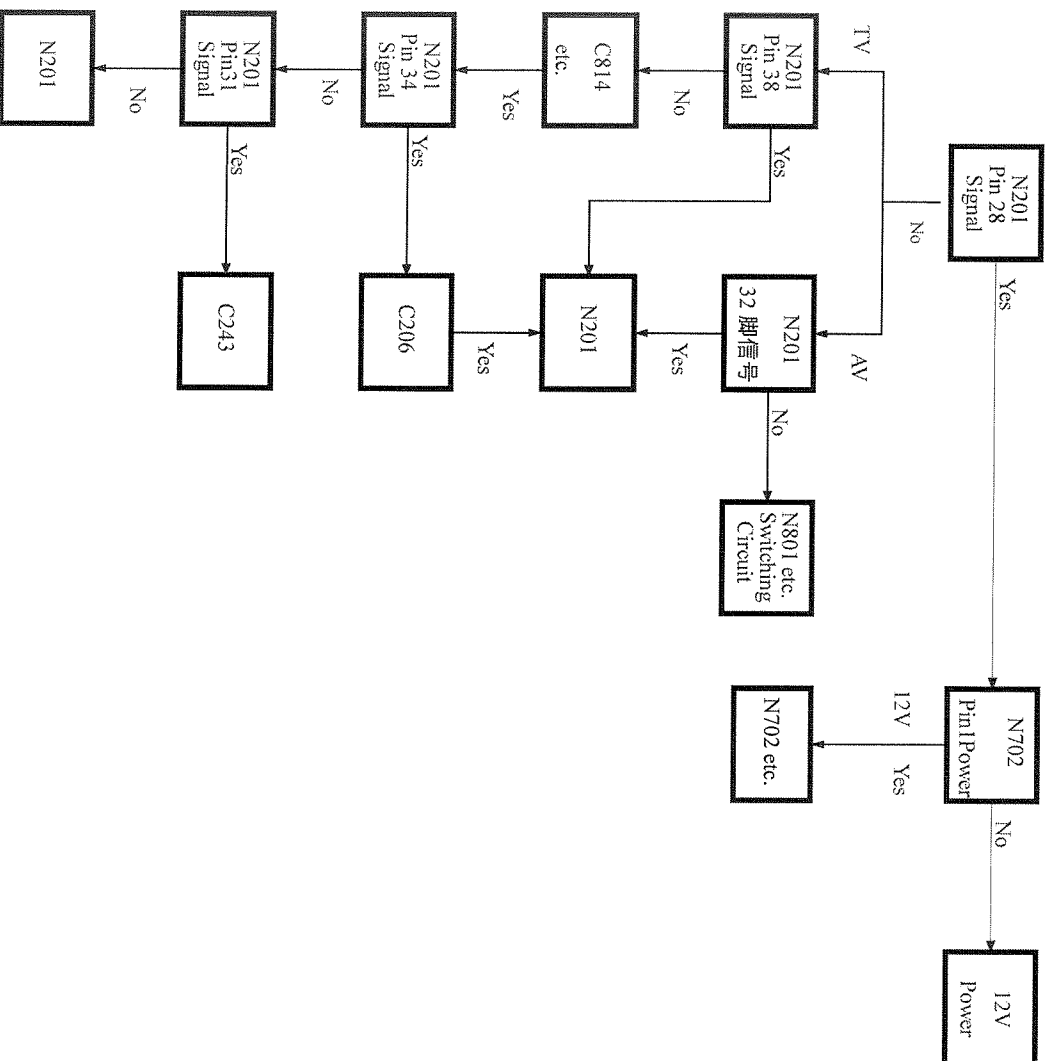


CHART G

6.8 No picture and sound.

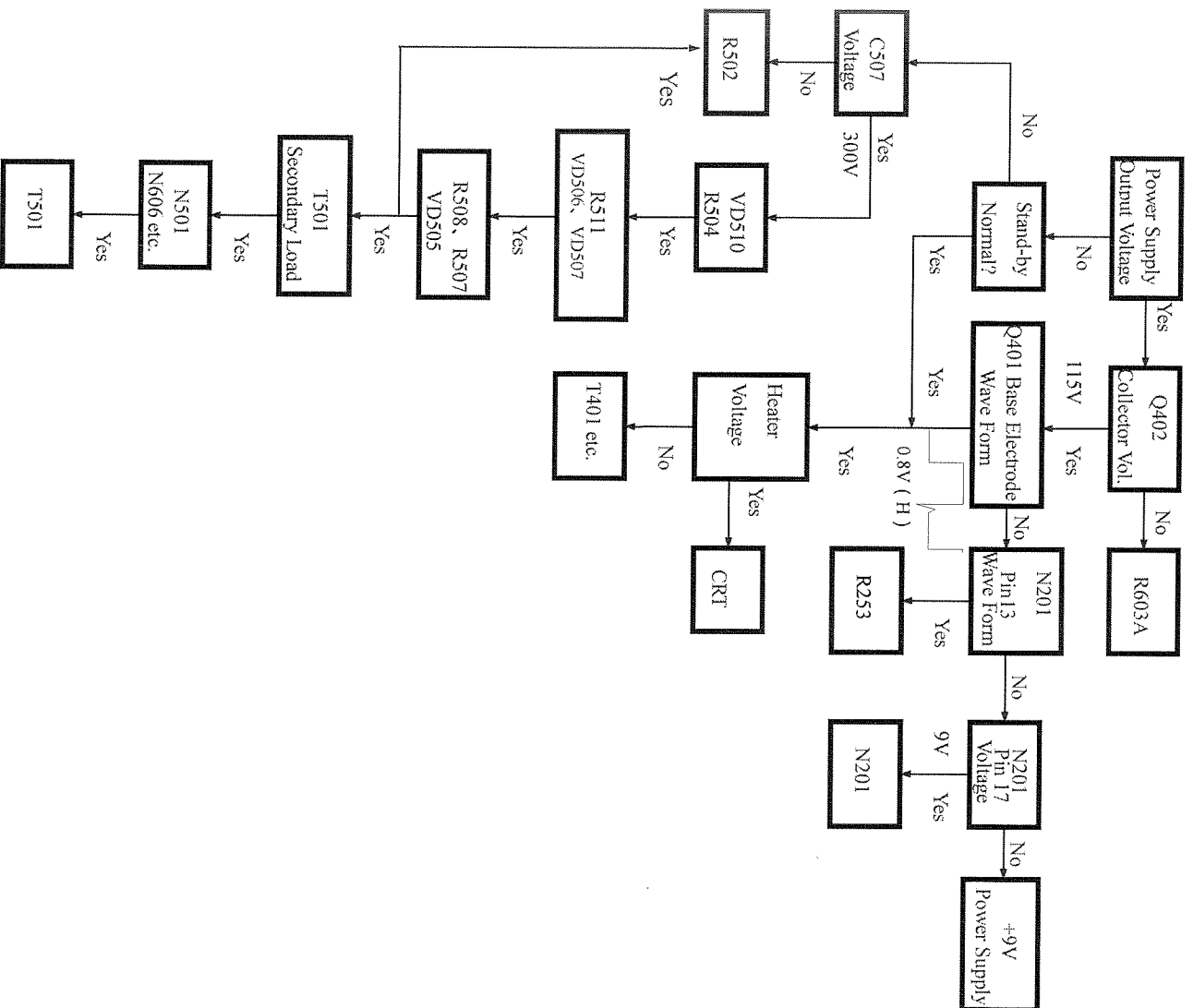


CHART H