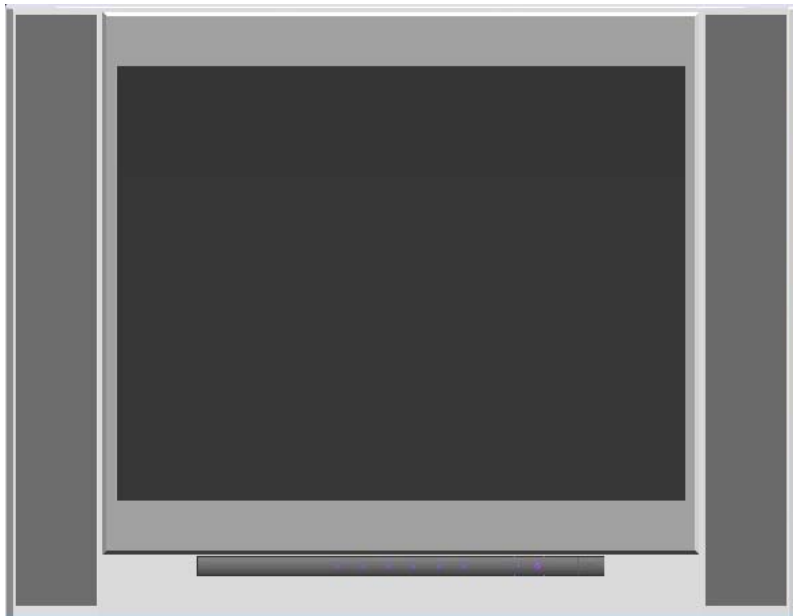


DAEWOO(T011-21’’) COLOUR TELEVISION SERVICE MANUAL



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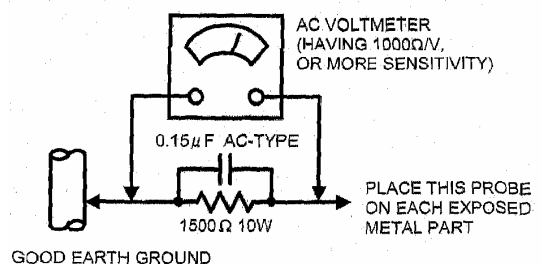
1. SAFETY PRECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. Electrical components having such features are identified by shading on the schematics and by (!) on the parts list in Service manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards
4. Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing. Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE: (⚡) side GND, ISOLATED (NEUTRAL) : (⊥) side GND and EARTH : (⊕) side GND. Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time. If above note will not be kept, a fuse or any parts will be broken.
5. If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).
6. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
7. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.
8. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the
 9. manufacturer's replacement components.
 10. Isolation Check
(Safety for Electrical Shock Hazard)
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
 11. The surface of the TV screen is coated with a thin film which can easily be damaged. Be very careful with it when handle the TV. Should the TV screen become soiled, wipe it with a soft dry cloth. Never rub it forcefully. Never use any cleaner or detergent on it.

(1) Dielectric Strength Test
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second.
(...Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a periode of one second.)
This method of test requires a test equipment not generally found in the service trade.

(2) Leakage Current Check
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

•Alternate Check Method
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.).
This corresponds to 0.2mA AC (r.m.s.)

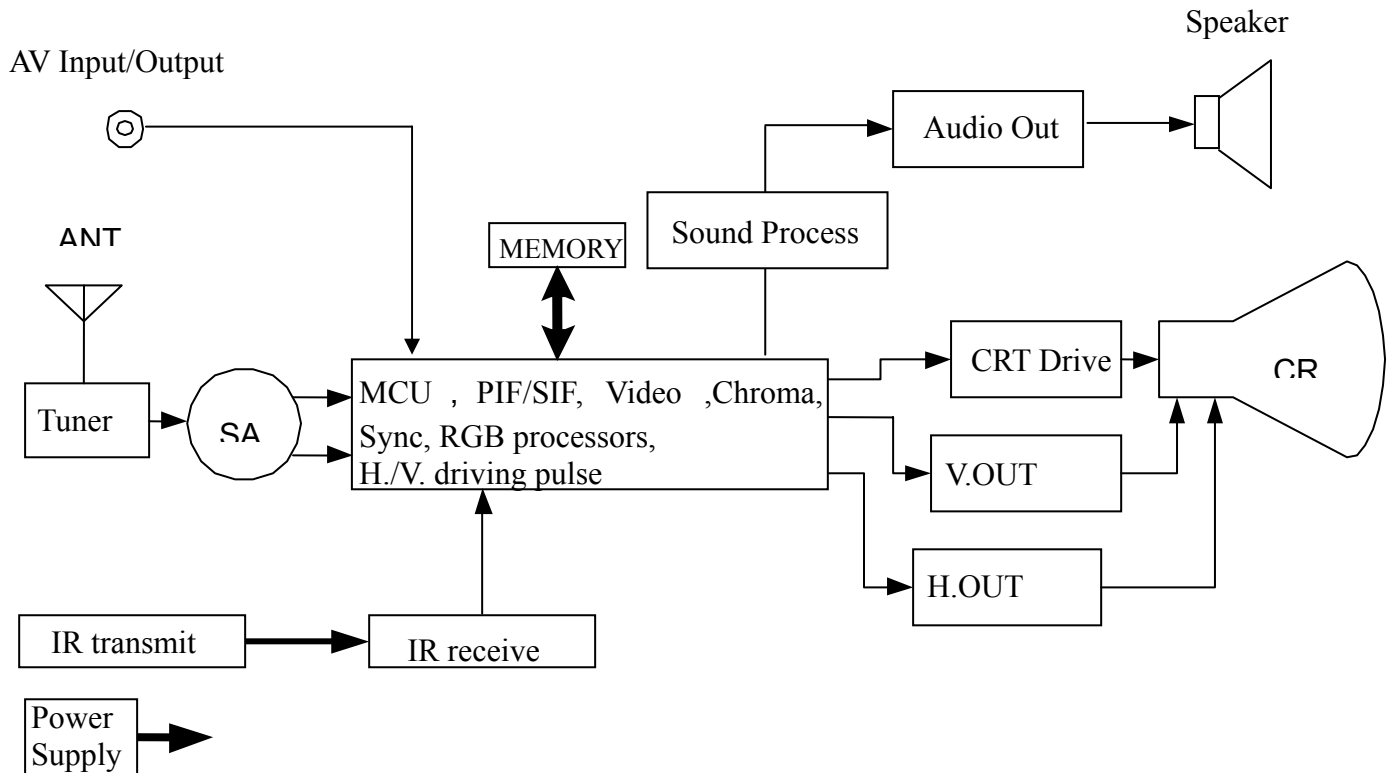


2.MCU and signal processor for a PAL/NTSC TV

The A8899CPCNG6VU9 is an integrated circuit for a PAL/NTSC TV. A MCU and a TV signal processor 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 and the Closed Caption decoder. The TV signal processor contains PIF, SIF, Video, multi-standard chroma, Sync, RGB processors.

- ◆ A8899CPCNG6VU9 MCU+OSD+CCD+ TV Processor controller with Software inside.
- ◆ 24C08 Non Volatile memory(EEPROM)
- ◆ STV9325 Vertical deflection system output circuit.
- ◆ TDA7263 Audio Output
- ◆ SC6122 Remote Controlled Transmitter.

TOSHIBA G8 chassis color TV block diagram



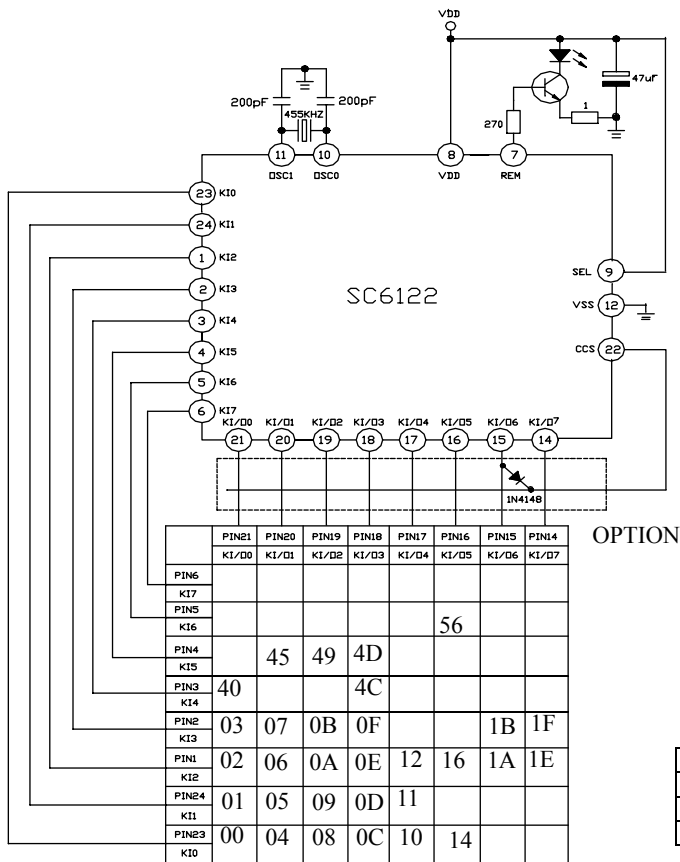
3. Definition of A8899CPCNG6VU9 Pin

NO.	Pin name	I/O	Function
1	X-ray	I/O	X-ray
2	Thermal resistance	Out	Thermal resistance
3	KEY	I/O	Key input
4	VSS	-	GND connection
5	RESET	I/O	Reset signal input
6	XOUT	Out	8 MHz oscillator connecting
7	XIN	In	8 MHz oscillator connecting
8	TEST	In	GND connection
9	VDD	-	5V power supply
10	VSS	-	GND connection
11	TV DEF AGND	-	GND yerminal for TV DEF block
12	FBP in	In	Input terminal for FBP
13	H out	Out	Output terminal for Horizontal driving pulse
14	HAFC 1	-	Terminal to be connected capacitor for H AFC filter
15	V saw	-	Terminal to be connected capacitor to generate Vsaw signal
16	V out	Out	Output terminal for Vertical driving pulse
17	AVcc(8V)	-	Vcc terminal for DEF,RGB,Audio out and PIF out circuit
18	TV A GND	-	GND terminal for TV block
19	Cb in	In	Input terminal for Cb signal
20	EW out	Out	output terminal for EWsignal
21	Cr in	In	Input terminal for Cr signal
22	Ext AU1 in	In	Input terminal for Audio1 signal 1
23	C/V3 in	In	Input terminal for Chroma or Video signal
24	Y/V2 in	In	Input terminal for Video signal2 or Y signal
25	ALC Filter	In	Terminal to be connected capacitor for ALC(Audio Level Control)
26	V1 in	In	Input terminal for Video signal.(Input leave = 1 Vp-p)
27	ABCL	In	Input terminal for ABL/ACL control
28	AU out1(ATT)	Out	Output terminal 1 for Audio signal
29	AU out2(ATT)	Out	Output terminal 2 for Audio signal
30	TV out/FM radio	Out	Output terminal for detected PIF signal or FM radio
31	SIF out	Out	Output terminal for 1bit DAC, detected SIF signal or audio monitor out 2.
32	Ext AU2 in	In	Input terminal for External Audio signal 1
33	H correct/SIF in	In	Input terminal for H correction and 2nd SIF
34	DC NF	Out	Terminal to be connected capacitor for DC Negative Feedback from SIF Det output
35	PIF PLL	-	Terminal to be connected with loop filter for PIF PLL.This terminal voltage is controlled PIF VCO frequency.
36	IF Vcc 5V	-	Vcc terminal for IF circuit. Supply 5V.
37	Reg Fil	-	Terminal to be connected capacitor for stabilizing internal bias.
38	AU monitor out1		Output terminal for External Audio signal or TV audio signal selected by BUS(Audio SW)
39	IF AGC	-	Terminal to be connected with IF AGC filter.
40	IF GND	-	GND terminal for IF circuit.
41	IF in	In	Input terminals for IF signals.
42	IF in	In	Input terminals for IF signals.
43	RF AGC		Output terminal for RF AGC control level.
44	Black Det	-	Terminal to be connected with Black Det filter for black stretch.
45	SVM/Monitor		Output terminal for monitor function. Also output terminal for SVM signal selectable through IIC bus.
46	APC Filter		Terminal to be connected with APC filter for chroma demodulation.
47	YC Vcc 5V		Vcc terminal for Y/C circuit
48	EHT in	In	EHT input
49	DVCC		Vcc terminal for digital block
50	R out	Out	Output terminal for R signal.
51	G out	Out	Output terminal for G signal.

52	B out	Out	Output terminal for B signal.
53	TV DGND	-	GND terminal for digital block.
54	up AGND	-	GND for Oscillator circuit
55	up AVDD	-	Vdd for Oscillator circuit Supply 5V
56	VIDEO1/2	Out	TV=0,AV1=OPEN , AV2=5V
57	SDA1	I/O	IIC-BUS SDA1
58	SCL1	I/O	IIC-BUS SCL1
59	50/60Hz control	I/O	50/60Hz
60	PWM	I/O	PWM
61	MUTE	I/O	MUTE
62	H.SYNC	I/O	Horizontal sync signal input
63	REMOTE	I/O	Remote controller signal input
64	POWER	I/O	Power control & Check, On=Hi-Z(input),Off=L(output)

4. Remote Control Circuit Diagram and Function

A. User Remote

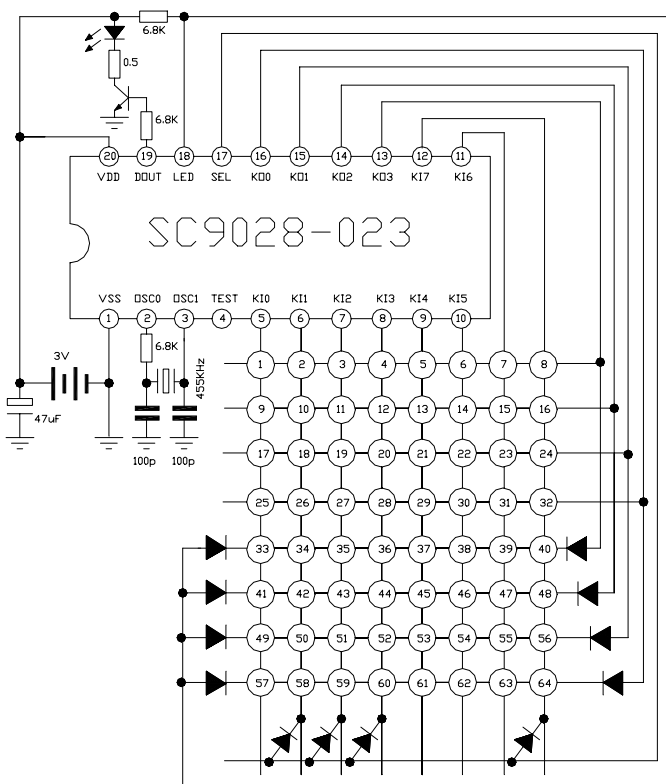


	User Remote
CUSL	40
CUSH	BF
Diode	Pin15

NO.	Code	Name	TV Mode
01	00	0	0
02	01	1	1
03	02	2	2
04	03	3	3
05	04	4	4
06	05	5	5
07	06	6	6
08	07	7	7
09	08	8	8
10	09	9	9
11	0A	CCD	CCD
12	0B	-/--	1--
13	0C	MENU	Menu switch
14	0D	SYS	System
15	0E	QV	Quick View
16	0F	→ P ←	Video PP

17	10	MUTE	Mute/unmute
18	11	EyeCare	EyeCare
19	12	POWER	Power on/off
20	14	TV/AV	TV/AV
21	16	DISPLAY	Status Recall
22	1A	V+	Volume +/Menu Item adjust(increase) and confirm
23	1B	P+	Channel +/Menu Item select
24	1E	V-	Volume -/Menu Item adjust(decrease)
25	1F	P-	Channel -/Menu Item select
26	40	Service	Service in
27	45	SLEEP	Sleep
28	49	CALE	Calendar
29	4C	ZOOM	Screen zoom/wide
30	4D	MSG	Message
31	56	LOCK	Lock

B.Service Remote



	Service Remote
CUSL	8E
CUSH	8E
Diode	Pin6,7,8,12



NO.	Code	Name	TV Mode
01	00	G-DRV	G DRIVE
02	01	B-DRV	B DRIVE
11	0A	MUTE3	To set the screen into a horizontal line.
12	0B	MENU	MENU
13	0C	↑	ITEM SELECT UP
14	0D	↓	ITEM SELECT DOWN
15	0E	←	Menu Item adjust(decrease)
16	0F	→	Menu Item adjust(increase)
17	10	EWP	60HZ EW-parabola adjustment
18	11	EWPS	50HZ EW-parabola adjustment
19	12	EWT	60HZ EW T-Distortion
20	13	EWTS	50HZ EW T adjustment
21	14	POWER	Power / Stand-by

24	17	HPOS	60Hz HORIZONTAL PHASE
25	18	OSD	OSD POSITION ADJUSTMENT
26	19	M-MODE ON	M-MODE ON
27	1A	EWCT	60HZ EW Top-corner
28	1B	WIDS	50HZ WIDS
29	1C	VPOS	60Hz VERTICAL PHASE
30	1D	HIT	60Hz VERTICAL AMPLITUDE
31	1E	HPS	50Hz HORIZONTAL PHASE
32	1F	VPS	50Hz VERTICAL PHASE
33	20	RCUT -	R CUT adjust(decrease)
34	21	RCUT +	R CUT adjust(increase)
35	22	GCUT -	G CUT adjust(decrease)
36	23	GCUT +	G CUT adjust(increase)
37	24	BCUT -	B CUT adjust(decrease)
38	25	BCUT +	B CUT adjust(increase)
39	26	HITS	50Hz VERTICAL AMPLITUDE
40	27	VLIN	60Hz VERTICAL-LINEARILTY
42	29	EWCB	60HZ EW bottom-corner
44	2B	BRTS	Sub Bright
45	2C	D-Mode ON/OFF	D-Mode ON/OFF switch
46	2D	VCEN	Vertical Centering
48	2F	POS UP	Position Up
49	30	POS DOWN	Position Down
50	31	Shopout	Shop-out
51	32	S-PVOC	LOGO ADDRESS
58	39	BUS OFF	BUS OFF
60	3B	VSC	60Hz VERTICAL-S CORRECTION
61	3C	VLIS	50Hz VERTICAL-LINEARILTY
62	3D	AGC	RF-AGC
63	3E	TV IC ADJUST	White balance automatic adjustment

5. Service Controlled Function



The Service mode is entered by pressing the “D-MODE ON/OFF” key when the TV is in ON condition, “D” is displayed on the screen.. Press the “POWER” key to exit Service mode.

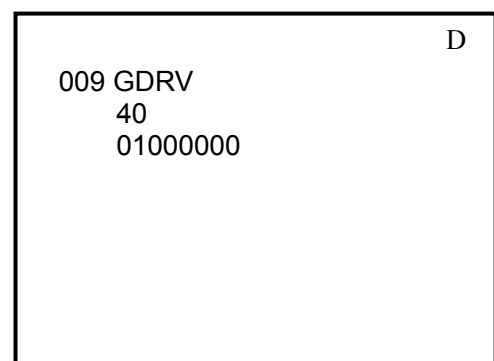
Note: How to use user remote enter Service mode?

Press “MENU” → “ 6 ” → “ 4 ” → “ 8 ” → “ 3 ” key

(1) White balance adjustment

The items within the White Balance mode can be accessed using “Item up” (↑) / “Item down” (↓) keys and the selected item value is modified using “Value+” (→) / “Value-” (←) keys. The parameters controlled in the White Balance menu are:

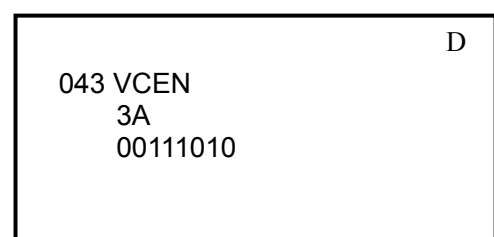
- a) Press the  key to set the screen into a horizontal line
- b) RCUT + : Red cut-off value increase
- c) RCUT - : Red cut-off value decrease
- d) GCUT +: Green cut-off value increase
- e) GCUT -: Green cut-off value decrease
- f) BCUT +: Green cut-off value increase
- g) BCUT -: Green cut-off value decrease
- h) Press the  key again to return to the normal picture.
- i) GDRV -: Green drive
- j) → : value increase
- k) ← : value decrease
- l) BDRV +: Blue drive
- m) → : value increase
- n) ← : value decrease



(2) Picture and AGC service adjustment

The items within the Picture mode can be accessed using “Item up” (↑) / “Item down” (↓) keys and the selected item value is modified using “Value+” (→) / “Value-” (←) keys. The parameters controlled in the Picture menu are:

- a) VCEN: 60Hz VERTICAL PHASE
- b) HPOS: 60Hz HORIZONTAL PHASE
- c) VPOS: 60Hz VERTICAL PHASE fine adjustment



- d) HIT: 60Hz VERTICAL AMPLITUDE
- e) HITZ: 60Hz ZOOM VERTICAL AMPLITUDE
- f) HITW: 60Hz WIDE VERTICAL AMPLITUDE
- g) VLIN: 60Hz VERTICAL-LINEARILTY
- h) VSC: 60Hz VERTICAL-S CORRECTION
- i) EWP: 60Hz Parabola Adjustment
- j) EWPZ: 60Hz ZOOM Parabola Adjustment
- k) EWPW: 60Hz WIDE Parabola Adjustment
- l) EWT: 60Hz T-Adjustment
- m) EWCT: 60Hz Top-corner Adjustment
- n) EWCB: 60Hz bottom-corner Adjustment
- o) WID: 60Hz HORIZONTAL SIZE
- p) HPS: 50Hz HORIZONTAL PHASE
- q) VPS: 50Hz VERTICAL PHASE
- r) HITS: 50Hz VERTICAL AMPLITUDE
- s) VLIS: 50Hz VERTICAL-LINEARILTY
- t) VSS: 50Hz VERTICAL-S CORRECTION
- u) EWPS: 50Hz Parabola Adjustment
- v) EWTS: 50Hz T-Adjustment
- w) WIDS: 50Hz HORIZONTAL SIZE
- x) RAGC:Tuner AGC.

(3)Option set

1)OPT

	Bit	Function	Status " 0"	Status " 1"
OPT	Bit7	The algorithm of ASM	ASM doesn't judge IFLOCK with case 4	ASM judge IF LOCK with case 4
	Bit6	The algorithm of ASM	ASM doesn't judge AFT area with case 4	ASM judge AFT area with case 4
	Bit5	VT Down of AFT when No Signal	no use	use
	Bit4	Fjp_bb_v_freq	C_BB_V_FREQ_313H	C_BB_V_FREQ_312_5H
	Bit3	Fjp_digital_aft	no use	use
	Bit2	V MUTE V-MuteOn/Off when CH changes	Off	On
	Bit1	Fvmute_type During POS change	Y-MUTE	RGB-CUT Off DC
	Bit0	Fjp_menu_background	no use	use

2)OPT1

	Bit	Function	Status " 0"	Status " 1"
OPT1	Bit7	Fjp_calendar	no use	use
	Bit6	Fjp_eyecare	no use	use
	Bit5	Fjp_tint	normal	inverse
	Bit4	Fjp_screen	no use	use
	Bit3	Fjp_rf_pwron	AV status memory	only TV while power on
	Bit2	Fjp_ntsc358	multi color system	only358ntsc
	Bit1	Fjp_uhf	p3	p2
	Bit0	Fjp_message	no use	use

3)OPT2

	Bit	Function	Status " 0"	Status " 1"
OPT2	Bit7	Fjp_mute_process	no special process	add special process for mute
	Bit6	Fjp_refresh_tuner	no refresh	refresh the registers of FS tuner at the interval of 256ms
	Bit5	Fjp_pwr_delay	nouse	1S delay power on
	Bit4	Fjp_power_option	stand by status	must use remote control to open TV
	Bit3	Fjp_woofer	no use	use
	Bit2	Fjp_ta1343n	no use	use
	Bit1	Fav_chg_mute	not mute	mute
	Bit0	Fslice_level(use to control the seventh bitof2in1 0x1e register)	40%(set bit6 of register 0x1e of 2in1 to 0)	35%(set bit6 of register 0x1e of 2in1 to 1)

4)OPT3

	Bit	Function	Status " 0"	Status " 1"
OPT3	Bit7	6:9/4:3Display	no use	use
	Bit6	VPOS range	00~07	00~0F

	Bit5	Fjp_pos_av_option	no use	using local pos key to enter AV while no local TV/AV key
	Bit4	Fjp_mute_exmute	no use	use
	Bit3	Fjp_50_60hz_control	no use	use
	Bit2	Fjp_panel_power	panel power key is permitted while panel lock	panel power key is forbidden while panel lock
	Bit1	Exmute while pos change	exmute output	no exmute
	Bit0	Extend mode attenuation	according to effect1	-5db

5)AOPT

	Bit	Function	Status " 0"	Status " 1"
AOPT	Bit7-6	No use		
	Bit5	Fjp_dvd_output	following AV1	following AV2(pin56 or pin61)
	Bit4	Fjp_av_stereo	AV mono	AV stereo
	Bit3	Fjp_fm	no FM	use FM
	Bit2	Fjp_video2	no VIDEO2	use VIDEO2
	Bit1	Fjp_dvd	no DVD	use DVD
	Bit0	Fjp_S-video	no S-video	use S-video

6)EFF1

	Bit	Function	Status " 0"	Status " 1"
EFF1	Bit7	No use	This bit must be zero	
	Bit6	ALS SW for ta1343	off	on
	Bit5-4	ALS start point	00:220[mv] 01:380[mv] 10:525[mv]	11:770[mv]
	Bit3	No use	This bit must be zero	
	Bit2	Input attenuation	0dB	-5dB
	Bit1-0	No use		

7)EFF2

	Bit	Function	Status " 0"	Status " 1"
EFF2	Bit7	Bass boost	off	on
	Bit6	No use	This bit must be zero	on
	Bit5-4	Woofer LPF	00:100[hz] 01:125[hz] 10:170[hz]	11:210[hz]
	Bit3	No use		
	Bit2-0	Surround effect level	000:off 001:1 111:7	

8)CCOR

	Bit	Function	Status " 0"	Status " 1"
CCOR	Bit7	No use	No use	
	Bit6	Italic enable specification register	normal	italic
	Bit5-4	No use	No use	
	Bit3-0	Set menu character's color	0:BLACK 1:BLUE 2:GREEN 3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE 8:BLACK 9: DARK BLUE 10:DARK GREEN and so on	

9)TCOR

	Bit	Function	Status " 0"	Status " 1"
TCOR	Bit7	No use	No use	
	Bit6	Italic enable specification register	normal	italic
	Bit5	Underline enable specification register	normal	underline
	Bit4	No use	No use	
	Bit3-0	Set menu top character's color	0:BLACK 1:BLUE 2:GREEN 3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE 8:BLACK 9: DARK BLUE 10:DARK GREEN and so on	

10)SCOR

	Bit	Function	Status " 0"	Status " 1"
SCOR	Bit7	No use	No use	
	Bit6	Italic enable specification register	0:normal 1: italic	
	Bit5-4	No use	No use	

	Bit3-0	Set menu selected character's color	0:BLACK 1:BLUE 2:GREEN 3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE
--	--------	-------------------------------------	--

11)ACOR

	Bit	Function	Status " 0"	Status " 1"
ACOR	Bit7	Transparency enable register for the menu area	not assign half transparency	assign half transparency
	Bit6-4	Color select for the menu area	0:BLACK 1:BLUE 2:GREEN 3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	
	Bit3	Transparency enable register for the highlight menu area	not assign half transparency	assign half transparency
	Bit2-0	Color select for the highlight menu area	0:BLACK 1:BLUE 2:GREEN 3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	

12)CALB

	Bit	Function	Status " 0"	Status " 1"
CALB	Bit7	Transparency enable register for calendar area	not assign half transparency	assign half transparency
	Bit6-4	Background color for the calendar area	0:BLACK 1:BLUE 2:GREEN3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	
	Bit3	Transparency enable register for week area	not assign half transparency	assign half transparency
	Bit2-0	Background color for the week area	0:BLACK 1:BLUE 2:GREEN3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	

13)CALC

	Bit	Function	Status " 0"	Status " 1"
CALB	Bit7-3	No use		
	Bit2-0	Set the character color of calendar	0:BLACK 1:BLUE 2:GREEN3:CYAN 4:RED 5: MAGENDA 6:YELLOW 7:WHITE	

14)LOGO

	Bit	Function	Status " 0"	Status " 1"
LOGO	Bit7	No use		
	Bit6	Fjp_logv_plus	up	down
	Bit5	Fjp_logo_size	middle	large
	Bit4	Fjp_logo_tvon	no use	logo display while switching on TV set
	Bit3	Fjp_logo_nosignal	no use	logo display while no signal
	Bit2-0	Set logo color	000: black 001:blue 010: green 011: cyan 100: red 101: magenda 110: yellow 111: white	

15)LOGH

adjust the horizontal display position of lo

16)LOGV

adjust the vertical display position of logo

17)UVBK

	Bit	Function	Status " 0"	Status " 1"
LOGO	Bit7-4	U BLK ADJ	0: -22mV, Input DC 8: 0mV	F: 19mV, 2.75mV/dev
	Bit3-0	V BLK ADJ	0: -22mV, Input DC 8: 0mV	F: 19mV, 2.75mV/dev

18) ABCL

	Bit	Function	Status " 0"	Status " 1"
ABCL	Bit7	Fjp_rf_agc	IF isn't mute while AV	IF mute while AV
	Bit6	Y Peak Limiter	Y peak limiter on,105IRE	Y peak limiter off
	Bit5-4	ACL STATR POINT	0:0V 01:-0.2V 10:-0.3V	11:-1.0V ACL OFF
	Bit3	ABL START POINT	00: 0V 01: -0.2V 10: -0.30V	11: -0.4V
	Bit2			
	Bit1 Bit0	ABL GAIN	00: -0.2V 01: -0.35V 10: -0.5V	11: -0.65V

19)DCBS

	Bit	Function	Status " 0"	Status " 1"
DCBS	Bit7	C Trap Q_Y	Low	High
	Bit6	Blanking switch	H,V blanking on	H,V blanking off
	Bit5	No use		
	Bit4	Black stretch SW	Off	On
	Bit3-2	Y GAMMA	00:off 01:Y gamma point 78IRE,gain-6db	10:68 IRE 11:58 IRE
	Bit1-0	Black stretch start point and gain	00:30IRE,gain high 01:40IRE,gain high	10:50IRE,gain low 11:75IRE,gain low

20)CLTM

	Bit	Function	Status " 0"	Status " 1"
CLTM	Bit7	P/N ID	PAL/NTSC killer sensitivity, Normal	LOW
	Bit6	Killer off	Normal	Always killer off
	Bit5	N COMB	Off	Color comb filter for NTSC. On
	Bit4-3	Demodulation Phase	00:PAL 01:NTSC1 10:NTSC2 11:DVD	
	Bit2-0	Y Delay Time	000:0ns 001: 40ns 010: 80ns 011: 120ns 100: 160ns 101: 200ns 110: 240ns 111: 280ns	

21)HAFC

	Bit	Function	Status " 0"	Status " 1"
CLTM	Bit7-6	AFC GAIN (TV mode, weak signal and Nois_Bit4=0)	Data Description Blanking Blanking period Picture period	
	Bit5-4	AFC GAIN (TV mode, strong signal and Nois_Bit4=0)	00: 1 1	
	Bit3-2	AFC GAIN (AV mode)	01: 4/3 1/3	
	Bit1-0	AFC GAIN (TV mode, and Nois_Bit4=1)	10: 2 1	11: OFF OFF

22)FLG0

	Bit	Function	Status " 0"	Status " 1"
FLG0	Bit7	vco adjust when position select	enable	disable
	Bit6-5	Select f0 of chroma BPF	0: BPF (AV) 01: TOF1(F0=5MHZ)RF 10: TOF2(F0=6MHZ)RF 11: TOF3(F0=7MHZ)RF	
	Bit4	BPF-SW	Normal, CVBS signal passes along BPF	By pass, CVBS signal doesn't pass along BPF
	Bit3	Fvcd_spot_killer	off	If BB=1, RGB out is 110 IRE
	Bit2	Nyquist Buzz cancel	Nyquist Buzz cancel	off
	Bit1	No use		
	Bit0	Over mode	Normal	PIF over modulation switch on

23)FLG1

	Bit	Function	Status " 0"	Status " 1"
FLG1	Bit7	OSD ABL	ABCL active for OSD	inactive
	Bit6	No use (don't use it)		
	Bit5-4	OSD CONTRAST	00: 95 IRE 01: 60 IRE 10: 70 IRE 11: 80 IRE	
	Bit3	Horizontal side blanking	OFF	On, 92% (FBP BLK off, then internal BLK only)
	Bit2	Fvcd_fm_band	Normal	Wide
	Bit1	V ramp bias	power from Y/C VCC	power from IC
Bit0	CW SW	Off	On	

24)SVM

	Bit	Function	Status " 0"	Status " 1"
SVM	Bit7-5	No use		
	Bit4	MON/SVM	Pin45 SVM out	Monitor out

	Bit3-2	SVM delay	00:off 01:-120ns 10:-100ns 11:-80ns
	Bit1-0	SVM gain	00: -7dB 01:-1Db 10:+5dB 11:+11dB

25)UCOM

	Bit	Function	Status " 0"	Status " 1"
UCOM	Bit7-5	No use		
	Bit4-3	C APC DATA	00: data 1-normal for black &white &NTSC 01: Data 2 10: Data 3 for PAL 11: the same as 10	
	Bit2	Set chroma APC	disable	enable use Bit 3,4 data
	Bit1-0	Internal ADC	00:GND 01: R output 10: B output 11: Monitor RF AGC via ADC	

26)SSM

	Bit	Function	Status " 0"	Status " 1"
SSM	Bit7-6	No use		
	Bit5-4	S Trap Frequency response Control HP/LP For M	00:OFF 01:1dB HPF 10:-3dB LPF 11:-2dB LPF	
	Bit3-2	S Trap Q. for M	00: Q = 3 01:Q = 5 10:Q = 7 (Recommended) 11:Q = 9	
	Bit1-0	S Trap Group Delay Control for M	00:off 01:60ns 10:90ns 11:120ns	

27)SYNC

	Bit	Function	Status " 0"	Status " 1"
SYNC	Bit7-2	No use		
	Bit1	Fvcd_sync separation level	40%	50%
	Bit0	Sync slice level for weak signal	normal	low

28)SYBN

	Bit	Function	Status " 0"	Status " 1"
SYBN (Sync detecti on setting for BB On)	Bit7	No use		
	Bit6	Reg.19H bit7 SY-DET-1 for 889x	Select the input IF signal level of Sync Lock detection. 00010: 0dB 00011: 0dB 10010: 0dB 10011: 0dB 10001:-4dB 10000:-8dB weak signal others:Do not use	
	Bit5	Reg.19H bit6 SY-DET-4 for 889x		
	Bit4	Reg.19H bit5 0 for 889x		
	Bit3	Reg.21H bit1 SY-DET-2 for 889x		
	Bit2	Reg.21H bit0 SY-DET-3 for 889x		
Bit1-0	Sel sync check mode for BB on	00:checking H-LOCK-1 flag(bit3 of r0) 01:checking H-LOCK-2 flag(bit4 of r1) 1x:checking VLOCK flag (bit7 of r1)		

29)SYBF

	Bit	Function	Status " 0"	Status " 1"
SYNB (Sync detecti on setting for BB Off)	Bit7	No use		
	Bit6	Reg.19H bit7 SY-DET-1 for 889x	Select the input IF signal level of Sync Lock detection. 00010: 0dB 00011: 0dB 10010: 0dB 10011: 0dB 10001:-4dB 10000:-8dB weak signal others:Do not use	
	Bit5	Reg.19H bit6 SY-DET-4 for 889x		
	Bit4	Reg.19H bit5 0 for 889x		
	Bit3	Reg.21H bit1 SY-DET-2 for 889x		
	Bit2	Reg.21H bit0 SY-DET-3 for 889x		
Bit1-0	Sel sync check mode for BB off	00:checking H-LOCK-1 flag(bit3 of r0) 01:checking H-LOCK-2 flag(bit4 of r1) 1x:checking VLOCK flag (bit7 of r1)		

30)SYSR

	Bit	Function	Status " 0"	Status " 1"
SYNB (Sync detect ion settin	Bit7	No use		
	Bit6	Reg.19H bit7 SY-DET-1 for 889x	Select the input IF signal level of Sync Lock detection. 00010: 0dB 00011: 0dB 10010: 0dB 10011: 0dB 10001:-4dB 10000:-8dB weak signal others:Do not use	
	Bit5	Reg.19H bit6 SY-DET-4 for 889x		
	Bit4	Reg.19H bit5 0 for 889x		
Bit3	Reg.21H bit1 SY-DET-2 for 889x			

g for search/tuning)	Bit2	Reg.21H bit0 SY-DET-3 for 889x	
	Bit1-0	Sel sync check mode for search/tuning	00:checking H-LOCK-1 flag(bit3 of r0) 01:checking H-LOCK-2 flag(bit4 of r1) 1x:checking VLOCK flag (bit7 of r1)

31)VCD0

	Bit	Function	Status " 0"	Status " 1"
VCD0	Bit7-6	Audio Monitor Out	00:depend on Audio SW 01:TV 1X:mute	
	Bit5-4	C Trap MD	00: interlocking video SW 01: as 00 10: not interlocking C-trap off 11: not interlock C-trap on	
	Bit3	Half-tone Gain	Main:OSD 30%: 70%	Main:OSD 50%: 50%
	Bit2	U/V Switch	Cb/Cr, Cr input(#21)gain up ₂ +3Db	U/V
	Bit1	Sharpness f0 frequency	2.75MHz	4MHz
	Bit0	Sync. skew switch	OFF	sync skew detection on

32)VCD1

	Bit	Function	Status " 0"	Status " 1"
VCD1	Bit7-4	No use		
	Bit3-2	PIF detected output level trimming	00: 1.05Vp-p 01:do not use 10: 2.2Vp-p 11:do not use	
	Bit1-0	FM BPF	00: internal BPF mode 01: not use 10: not use 11: external BPF mode	

33)CATVM

00=STD
01=IRC
02=HRC

34)LOGO address

280-28F logo display while switching on TV set
290-29F logo display while no signal

Use No.5 Service Remote press " S-PVOC " key into LOGO address, then use No.1 Service Remote press " ↑ / ↓ " key to select LOGO address and press " ← / → " key to adjustment data.

1)A~Z

alphabet	A	B	C	D	E	F	G	H	I	J	K	L	M
data	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D

alphabet	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
data	4E	4F	50	51	52	53	54	55	56	57	58	59	5A

2) a~z

alphabet	a	b	c	d	e	f	g	h	i	j	k	l	m
data	61	62	63	64	65	66	67	68	69	6A	6B	6C	6D

alphabet	n	o	p	q	r	s	t	u	v	w	x	y	z
data	6E	6F	70	71	72	73	74	75	76	77	78	79	7A

3) 0~9

number	0	1	2	3	4	5	6	7	8	9
data	30	31	32	33	34	35	36	37	38	39

4) Other

Other	:	;	.	=	>	?	/	()	@	<	&	_
data	3A	3B	2E	3D	3E	3F	2F	28	29	40	3C	26	2D
Other	,	!	"	#	\$	%							
data	2C	21	22	23	24	25							

5) Spacing and End

Spacing/End	Spacing	End
data	20	00

35) PVHH/PVHL/PUHH/PUHL

FS Tuner band set

For example: Some Tuner band specification is:

L : 55.25-127.25 MHz(C2-B)/M:133.25-361.25 MHz(C - W+11)/H:367.25-801.25 MHz(W+13 -C69)

PVHH/PVHL

{[(127.25+133.25)+2+45.75]x16-48} =2768(algorithm), change to hex is 0AD0 , so PVHH=0A , PVHL=D0

PUHH/PUHL

{[(361.25+367.25)+2+45.75]x16-48}=6512(algorithm), change to hex is 1970 , so PVHH=19 , PVHL=70

PVHH=OA
 PVHL=D0
 PUHH=19
 PUHL=70

6. Service and Design Data

Model:T011 CRT:21 SLIM A51QGV991X231 Data : 2008-11-18							
NO.	ITEM	DATA	REMARK	NO.	ITEM	DATA	REMARK
006	RCUT	20	R CUT OFF	075	HAFC	86	AFC GAIN
007	GCUT	20	G CUT OFF	076	NOIS	0F	NOISE
008	BCUT	20	B CUT OFF	077	NDTC	1F	NOISE DET count (Weak -> Normal)
009	GDRV	40	G DRIVE	078	V1	09	TV VOLUME 1%
010	BDRV	40	B DRIVE	079	V25	40	TV VOLUME 25%
011	CNTX	7F	SUB CONTRAST MAX	080	V50	57	TV VOLUME 50%
012	BRTS	00	SUB BRIGHNESS	081	V100	70	TV VOLUME 100%
013	BRTC	48	SUB BRIGHT CENTER	082	AV25	42	AV VOLUME 25%
014	COLC	40	SUB COLOR for NTSC	083	AV50	5A	AV VOLUME 50%
015	TNTC	40	SUB TINT CENTER	084	AV100	77	AV VOLUME 100%
016	COLP	00	SUB COLOR for PAL	085	ATTV	68	To set the register of audio ATT while using ta1343n at TV or FM mode
017	SCNT	0A	SUB CONTRAST	086	ATAV	68	To set the register of audio ATT while using ta1343n at VIDEO or DVD mode
018	CNTC	58	SUB CONTRAST CENTER	087	BASC	40	BASS CENTER VALUE
019	CNTN	00	SUB CONTRAST MIN	088	TREC	40	TREBLE CENTER VALUE
020	BRTX	35	SUB BRIGHT MAX	089	BALC	3F	BALANCE CENTER VALUE
021	BRTN	25	SUB BRIGHT MIN	090	WOFX	39	WOFFER CENTER VALUE
022	COLX	35	SUB COLOR MAX	091	BASX	72	BASS MAX VALUE
023	COLN	0B	SUB COLOR MIN	092	TREX	72	TREBLE CENTER VALUE
024	TNTX	35	SUB TINT MAX	093	WOFX	72	WOFFER CENTER VALUE
025	TNTN	28	SUB TINT MIN	094	EFF1	40	SOUND EFFECT1
026	ST3	20	TV—3.58 SHARP	095	EFF2	17	SOUND EFFECT2
027	SV3	25	AV—3.58 SHARP	096	FLG0	46	FLAGS
028	ST4	18	TV—4.43 SHARP	097	FLG1	20	FLAGS
029	SV4	25	AV—4.43 SHARP	098	SVM	10	SVM
030	SVD	25	DVD SHARP CENTER	099	UCOM	10	Miciom Control
031	ASSH	07	ASYMMETRY SHARP	100	AUSTP	04	AUDIO STEP
032	SHPX	35	SUB SHARP MAX	101	STM	07	S Trap f0 For M
033	SHPN	10	SUB SHARP MIN	102	SSM	07	S Select For M
034	UVBK	88	U/V BLK ADJ	103	SYNC	02	SYNC
035	ABCL	E7	ABL SYSTEM	104	SYBN	44	Sync detection setting for BB On
036	DCBS	17	A part of Video data in detail	105	SYBF	44	Sync detection setting for BB Off
037	CLTM	B7	The data when TV mode&SOUND SYS=M	106	YSR	44	Sync detection setting for search/tuning
038	CLVO	B7	The data when YUV mode&SOUND SYS!=M	107	BBCT	04	Blue back hysteresis counter (BUS H sync detection)
039	CLVD	98	The data when YUV mode&SOUND SYS=M	108	VCD0	0E	VCD0 data
040	HBST	00	H. BLK Start	109	VCD1	08	VCD1 data
041	HBSP	00	H. BLK Stop	110	CCOR	43	Set menu character's color
042	VBLK	00	V BLK Start/Stop	111	TCOR	65	Set menu top character's color
043	VCEN	34	V CENTERING	112	SCOR	06	Set menu selected character's color
044	HPOS	12	60Hz HORIZONTAL PHASE	113	ACOR	88	Set menu's background color
045	VPOS	03	60Hz VERTICAL PHASE	114	CALB	FD	Menu color option
046	HIT	32	60Hz VERTICAL AMPLITUDE	115	CALC	00	SET CALENDAR BACKGROUND COLOR
047	HITZ	08	Zoom VERTICAL AMPLITUDE	116	CCD OSD	30	CCD OSD POSITION ADJUSTMENT

048	HITW	15	Wide VERTICAL AMPLITUDE
049	VLIN	0F	60Hz VERTICAL-LINEARILTY
050	VSC	18	60Hz VERTICAL-S CORRECTION
051	HBOW	04	H. BOW
052	HPAR	04	H. PAR
053	EWP	51	60Hz Parabola A
054	EWPZ	15	60Hz ZOOM Parabola
055	EWPW	23	60Hz WIDE Parabola
056	EWT	17	60Hz T- Distortion
057	EWCT	07	60Hz Top-corner
058	EWCB	08	60Hz bottom-corner
059	HEHT	00	HORIZONTAL EHT
060	VEHT	04	VERTICAL EHT
061	WID	39	60Hz HORIZONTAL SIZE
062	WIDM	08	16:9 CRT HORIZONTAL SIZE
063	EWPM	06	16:9 CRT Parabola
064	OV60	05	OSD Vertical position for 60Hz
065	HPS	FD	50Hz HORIZONTAL PHASE
066	VPS	02	50Hz VERTICAL PHASE
067	HITS	01	50Hz VERTICAL AMPLITUDE
068	VLIS	FF	50Hz VERTICAL-LINEARILTY
069	VSS	01	50Hz VERTICAL-S CORRECTION
070	EWPS	01	OSD Vertical position for 50Hz
071	EWTS	00	50Hz T- Distortion
072	WIDS	01	50Hz HORIZONTAL SIZE
073	OV50	00	
074	RAGC	25	RF AGC

117	CCD OSDF	59	CCD OSD WIDTH
118	OSDF	51	OSD WIDTH
119	OSD	10	OSD POSITION ADJUSTMENT
120	CUSL	40	To set remote controller's custom code(low byte)
121	CUSH	BF	To set remote controller's custom code(high byte)
122	FSAD	C0	FS tuner address
123	VPL	C1	Be used to adjust the xray protect voltage
124	VADJ	00	Be used to adjust the base input voltage of eyecare
125	SADJ	07	Be used to adjust the check speed of eyecare
126	LOGH	00	LOGO HORIZONTAL POSITION
127	LOGV	0F	LOGO VERTICAL POSITION
128	LOGO	45	LOGO select
129	ERAS	A3	Be used to adjust the time of thermal resistance control
130	CATVM	00	CATV select
131	WTON	7D	Turn on delay set
132	WOTF	EF	Turn off delay set
133	PVHH	0A	Be used to set the start frequency of VHFH band of FS tuner(high byte)
134	PVHL	D0	Be used to set the start frequency of VHFH band of FS tuner(low byte)
135	PUHH	19	Be used to set the start frequency of UHF band of FS tuner(high byte)
136	PUHL	70	Be used to set the start frequency of UHF band of FS tuner(low byte)
137	SOSP	10	Position OSD adjustment
138	HPSD	03	DVD HORIZONTAL PHASE
001	OTP	17	OPTION
002	OTP1	9D	OPTION1
003	OTP2	B2	OPTION2
004	OTP3	13	OPTION3
005	AOTP	16	AV OPTION

7 . ICs Functional Description

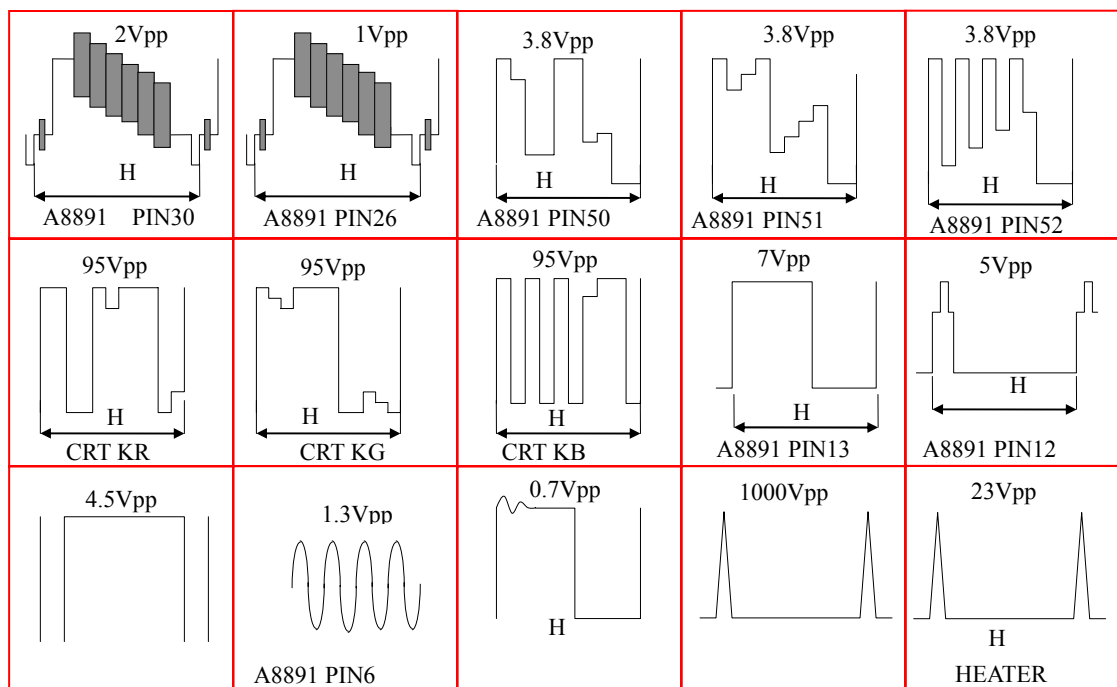
STV9325 Function : Vertical Output

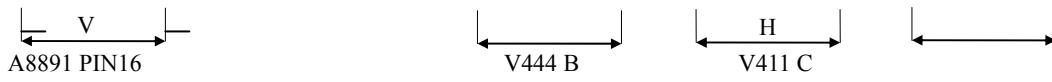
PIN	PIN CONNECTIONS	PIN	PIN CONNECTIONS
1	Input	5	V. OUT
2	Supply Voltage	6	Output Stage Vcc
3	Flyback Generator	7	NON. INV. IN
4	Negative Supply		

TDA7263(Stereo IC) Function : Audio Output

PIN	PIN CONNECTIONS	PIN	PIN CONNECTIONS
1	NON INVERTING INPUT(1)	7	NC
2	INVERTING INPUT(1)	8	OUTPUT(2)
3	SVR/MUTING	9	+Vs
4	INVERTING INPUT(2)	10	OUTPUT(1)
5	NON INVERTING INPUT(2)	11	NC
6	GND		

8 . Test Point Waveforms





9. IC Voltages

A8899CPCNG-6VU9

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Voltage	2.7	0.1	5.1	0.0	5.1	2.3	2.1	0.0	5.1	0.0	0.0	1.1	2.1	5.5	4.1	4.9	7.9	0.0	1.9
Pin	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Voltage	1.9	2.0	3.9	2.4	2.5	0.7	2.7	4.4	3.1	3.2	3.0	3.2	3.9	2.9	2.2	2.4	5.0	2.1	3.1
Pin	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	53	55	56	57
Pin	3.0	0.0	2.0	2.0	2.0	1.9	2.8	2.3	5.0	2.0	3.3	2.6	2.6	2.6	0.0	0.0	5.1	0.0	5.1
Pin	58	59	60	61	62	63	64												
Voltage	5.1	5.1	5.1	0.1	0.6	5.1	3.4												

STV9325

Pin	1	2	3	4	5	6	7
Voltage	2.0	13.8	-12.7	-13.7	0	14	2.0

TDA7263(Stereo)

Pin	1	2	3	4	5	6	7	8	9	10	11
Voltage	1.7	1.8	12.6	1.8	1.7	0	0	11	23	11	0

AC supply : 110~240V 50/60Hz

10. Other

1) Binary code change to hex

Binary code	Hex
0 0 0 0	0
0 0 0 1	1
0 0 1 0	2
0 0 1 1	3
0 1 0 0	4
0 1 0 1	5
0 1 1 0	6
0 1 1 1	7
1 0 0 0	8
1 0 0 1	9
1 0 1 0	A

1 0 1 1	B
1 1 0 0	C
1 1 0 1	D
1 1 1 0	E
1 1 1 1	F

2) Some skills of factory adjustment:

a)How to use Service Remote enter service mode?

Pressing the “D MODE ON/OFF” key. Press “D MODE ON/OFF” key again to exit service mode.

b)How to use User remote enter Service mode?

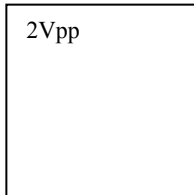
Press “MENU”→ “ 6” → “ 4” → “ 8” → “ 3” key(within 6s).

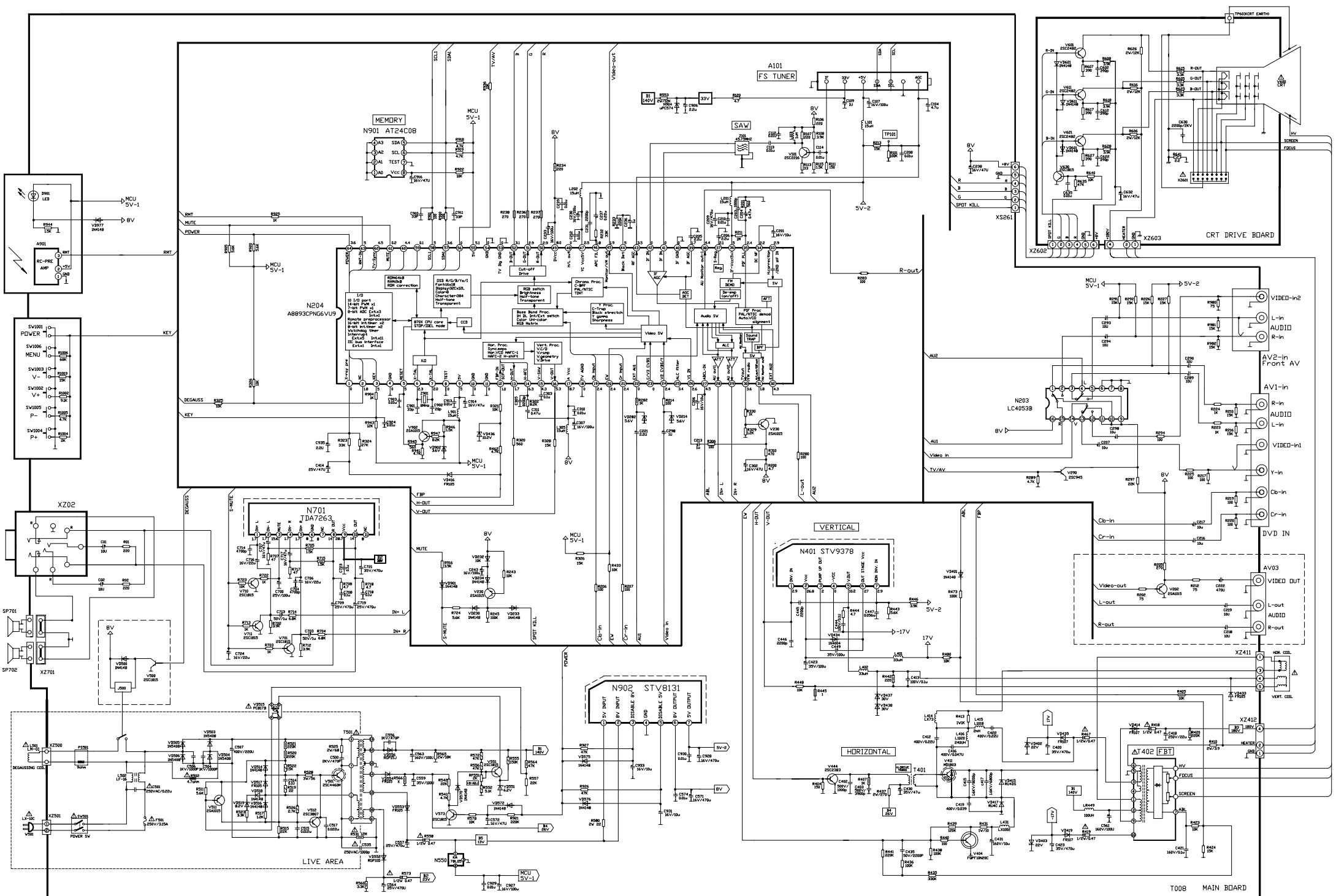
c)How to unlock V-CHIP if you forgot password?

Press V-” key on the set to “ 00” keep then press MENU” key on the User Remote. Into V-CHIP menu, set V-CHIP password again.

3)Keyboard input:

Key In	Key Pressed
0.0-0.3V	POWER
0.3-1.0V	Program+
1.0-1.7V	Program-
1.7-2.4V	Volume+
2.4-3.1V	Volume-
3.1-3.8V	TV/AV
3.8-4.5V	Menu





NOTICE
 SINCE THIS IS A BASIC CIRCUIT DIAGRAM THE VALUE OF COMPONENTS ARE SUBJECT TO BE CHANGED FOR IMPROVEMENT.
 CAUTION
 THE COMPONENTS WITH '▲' IN THE SCHEMATIC DIAGRAM WHICH HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY SHOULD BE REPLACED ONLY WITH TYPE IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT.