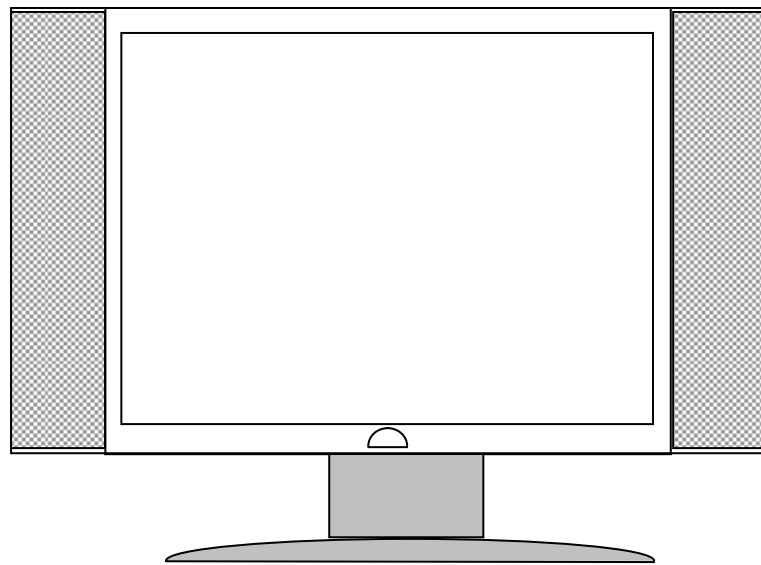


SERVICE MANUAL

FOR BSV-2055



(Version 0.8)

Digital Department

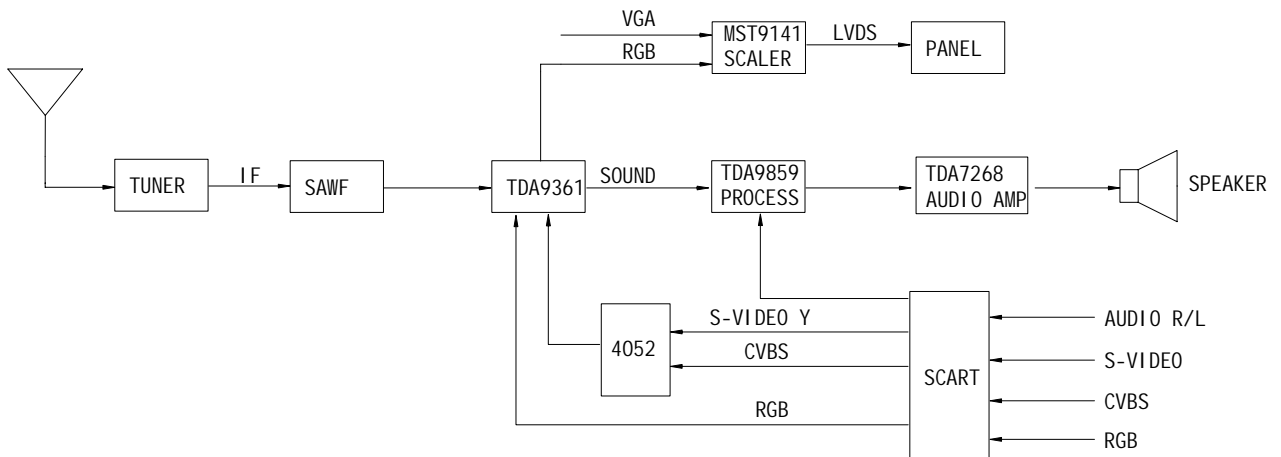
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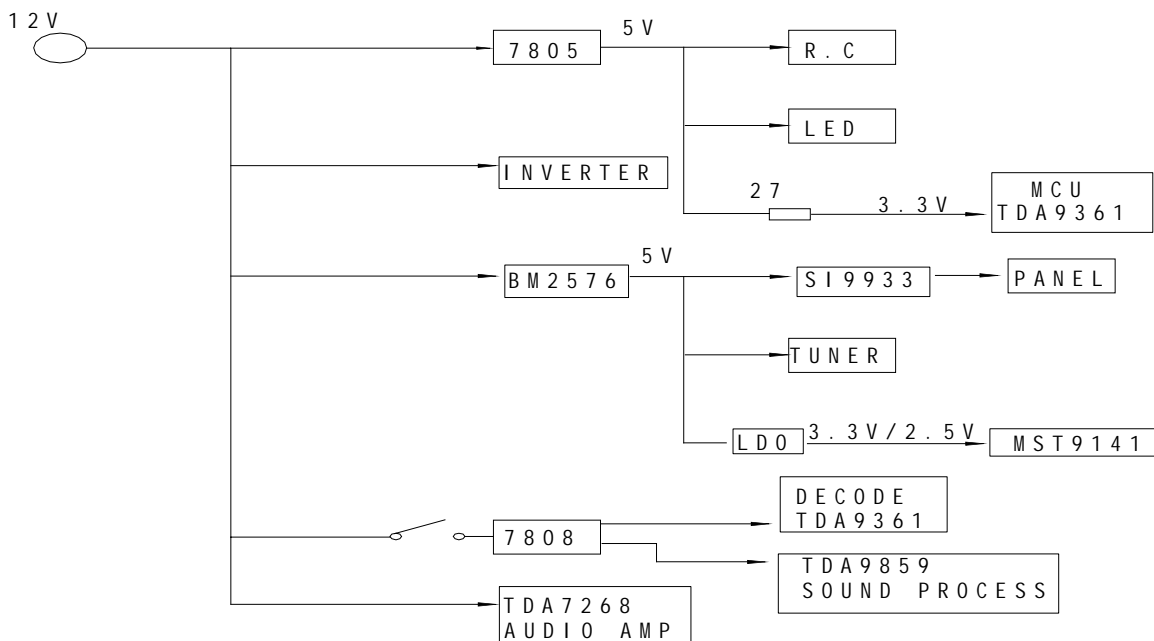
1. LM12A Chassis Circuit Working Principle Explanation

LM12A Chassis is composed of power managing circuit, tuner, de-code circuit, scaler circuit, sound processing circuit and input/output signal circuit. The function of TDA9361 is MCU, demodulation of CVBS, decoded RGB signal and Teletext. The function of MST9141 is scaler.

Processing of signal as follows:



Process of power managing circuit as follows:



In standby mode, there are only 12V voltage existing and 5V voltage at KA7805, and other powers are all not working. In PC standby mode, all powers are working except the power for inveter and panel.

2. REPLACEMENT OF MEMORY IC

1. MEMORY IC.

This LCD TV uses memory IC. In the memory IC are memorized data for correctly operating the video and sound circuits. When replacing memory IC, be sure to use IC written with the initial value of data.

2. PROCEDURE FOR REPLACING MEMORY IC

(1) Power off

Unplug the +12V power plug from +12V power socket.

(2) Replace IC

Be sure to use memory IC written with the initial data values or blank memory IC.

(3) Power On

Plug the +12V power plug into +12V power socket. (If memory IC is blank, the program will take 25s to initial memory IC.)

(4) Check and set SYSTEM default value:

- 1) Press "Menu" key into "SOUND" menu, then press digital key "6", "4", "8", "3" on the Remote control unit continuously for factory used.
- 2) The "M" will be displayed on the screen.
- 3) Press digital key, (Mkey) and corresponding on-screen display will be appeared.
- 4) Check the setting value of the SYSTEM default value of Table below. If the vale is different, select items by [CH+]/[CH-] keys and set value by [VOL+]/[VOL-] keys.
- 5) Press "STANDBY" key again and return to the normal screen.

3. BUS CONTROL ADJUSTMENT

To enter BUS control mode, Press "Menu" key into "SOUND" menu, then press digital key "6", "4", "8", "3" on the Remote control unit continuously for factory used. Press "0" to "9" key, (Mkey) and corresponding on-screen display will be appeared. On TV screen "M" will be indicated, this means entered bus control mode. And press following key, each function will be available.

M1	M2	M3
1	2	3
4	5	6
7	8	9
	0	

[M1] menu

Receive PAL standard Complete pattern signal.

Adjustment steps

- a) Adjust V. SLOPE, to the center horizontal line just appear from half bottom shadow. And to avoid the field jitter.
- b) Adjust V. SIZE, to avoid the field jitter.
- c) Adjust H.SHIFT, to get the picture horizontal center correspond to the panel horizontal center.
- d) Adjust OSD.V.POS, to get the OSD vertical position correspond to the panel .
- e) Adjust OSD.H.POS, to get the OSD horizontal position correspond to the panel .
- f) Adjust MS.V.POS, to get the picture vertical position correspond to the panel.
- g) Adjust MS.H.Shift, to get the interlaced mode line shift ,and to to avoid horizontal line jitter.
- h) the other is fixed.

Receive NTSC signal and repeat above adjustment.

[M2] menu

AGC Adjustment

- a) Receive 60dB μ (1mV) V_H colour bar pattern signal, adjust AGC value,(voltage from high to low), to noise reduce gradually and just disappeared point.
- b) the other is fixed.

[M4] menu

- a) Sub Brightness adjustment.
- b) Sub Contrast adjustment.
- c) Sub Colour adjustment.
- d) Sub Sharpness adjustment.
- e) Sub Tint adjustment.
- f) Adjust MS B Delimiter, to get the value correspond to the brightness, below the value, adjustable brightness from UOC, otherwise adjustable brightness from the scaller.
- g) Adjust MS B MAX, to limit the maximum adjustable brightness for the scaller.
- h) Adjust MS B MIN, to limit the minimum adjustable brightness for the scaller.
- i) Adjust MS C Delimiter, to get the value correspond to the contrast, below the value, adjustable contrast from UOC, otherwise adjustable contrast from the scaller.
- j) Adjust MS C MAX, to limit the maximum adjustable contrast for the scaller.
- k) Adjust MS C MIN, to limit the minimum adjustable contrast for the scaller.
- l) White balance adjustment
Adjust BR COEF, BG COEF,BB COEF, to adjust dim area in white balance.
Adjust CR COEF, CG COEF,CB COEF, to adjust bright area in white balance.

[M7] menu

- a) Adjust Standard BRI, Standard BRI, Standard COL, to get state correspond to the standard picture mode.
- b) Adjust Sharp BRI, Sharp BRI, Sharp COL, to get state correspond to the dynamic picture mode.
- c) Adjust Soft BRI, Soft BRI, Soft COL, to get state correspond to the soft picture mode.

ICs Default Settings

MI	ITEM	DATA		MI	ITEM	DATA
M1		50Hz	60Hz		Key4	P+
	V.SLOPE	32	32		Key5	P-
	V.SHIFT	32	32		Key6	V+
	V.SIZE	20	20		Key7	V-
	V.SC	32	32	M6	OSO	0
	H.SHIFT	42	44		AGC SPEED	0
	OSD.V.POS	16	8		FFI	0
	OSD.H.POS	28	25		FSL	0
	MS.H.SHIFT	1	1		FMWS	1
	MS.V.POS	53	50		PH2	0
	RGB.H.SHIFT	32			RPO	1
	PROGRAM NO.	0			NTSC MATRIX	USA
M2	AGC	26		M7	LOGO OPTION	0
	WIDE	20			LOGO SIZE	0
	ZOOM	63			LOGO Position	0
	SEARCH SPEED	0			LOGO COLOUR	0
	SHIPPING	0			LOGO	-----
	Reset eeprom	0			Standard BRI	60
	VOL Point1	8			Standard CON	70
	VOL Point2	46			Standard COL	50
	VOL Point3	52			SHARP BRI	65
	VOL Point4	58			SHARP CON	75
M3	BT	60			SHARP COL	65
	CT	70			SOFT BRI	55
	SC	0			SOFT CON	55
	RB	32			SOFT COL	40
	GB	32			COOL BD	32
	RD	32			WARM RD	32
	GD	32		M8	AV CONFIG	0
	BD	32			YD PAL	12
M4	SUB Brightness	26			YD NTSC	8
	SUB CONTRAST	22			YD SECAM	8
	SUB COLOUR	50			YD AV	8
	SUB Sharpness	45			SC Brightness	32

	SUB TINT		31		CATHDEL		8
	MS B Delimiter		70		UOC VOLUME		44
	MS B MAX		165		BAND MODE		0
	MS B MIN		90		START ON		2
	MS C Delimiter		70		HEADPHONE		0
	MS C MAX		180		SRS		0
	MS C MIN		90		START TIME		10
	BR COEF		122	M9	TXTDEF		0
	BG COEF		127		SPANISH BIT		0
	BB COEF		115		NOT0		1
	CR COEF		118		NOT1		1
	CG COEF		127		NOT2		1
	CB COEF		115		NOT3		1
	BKLT ADJ Mode		1		NOT4		1
M5	IF		38.9MHz		NOT5		1
	DK		1		ENGLISH		1
	I		0		FRENCH		1
	BG		1		RUSSIAN		1
	M		0		TURKISH		1
	SIF Priority		BG		FARSI		1
	PIN5		RGB		ARABIC		1
	Video Out		CVBS		ITALIAN		1
	DUAL OUT		0		DEUTCH		1
	AUTO SOUND		0		POLISH		1
	TDA9874 AVL		0		DUTCH		1
	Key1		Power		POTUGUESE		1
	Key2		TVAV		SPANISH		1
	Key3		MENU		GREEK		0

4. ICs functional description

TDA93XX

Function: TV signal processor with embedded μ -Controller

SYMBOL	PIN	DESCRIPTION
P1.3	1	3 Wires serial bus chip select, active high
SCL	2	I ² C-bus clock line
SDA	3	I ² C-bus data line
P2.0	4	Audio mute
SCART_DET	5	SCART SW input, active high
KEY	6	Control keys input *3
P3.2	7	Panel power supply control, active high

P3.3	8	Standby output, active high
VSSC/P	9	Digit ground for μ -controller core and periphery
P0.5	10	Red LED input
P0.6	11	Blue LED input
VSSA	12	Analog ground of teletext decoder and digital ground of TV-processor
SECPLL	13	SECAM PLL decoupling
VP2	14	2 nd supply voltage TV-processor(+8V)
DECDIG	15	decoupling digital supply of TV-processor
PH2LF	16	Phase-2 filter
PH1LF	17	Phase-1 filter
GND3	18	Ground 3 for TV-processor
DECBG	19	Band gap decoupling
AVL	20	Automatic volume leveling
VDRB	21	Vertical drive B output
VDRA	22	Vertical drive A output
IFIN1	23	IF input 1
IFIN2	24	IF input 2
IREF	25	Reference current input
VSC	26	Vertical sawtooth capacitor
TUNER AGC	27	Tuner AGC output
AUDEEM	28	Audio deemphasis
DECSDEM	29	Decoupling sound demodulator or SIF input 2
GND2	30	Ground 2 for TV processor
SNDPLL	31	Narrow band PLL filter
REF0	32	Subcarrier reference output
HOUT	33	Horizontal output
FBISO	34	flyback input/sandcastle output

AUDEXT	35	NC
EHTO	36	EHT/overvoltage protection input
PLL IF	37	IF-PLL loop filter
IFVO/SVO	38	IF video output / selected CVBS output
VP1	39	supply voltage TV processor
CVBS INT	40	internal CVBS input
GND1	41	ground for TV processor
CVBS/Y	42	CVBS/Y input
CHROMA	43	C input
AUDOUT/AMOUT *1	44	audio output /AM audio output (volume controlled)
INSSW2	45	2 nd RGB / YUV insertion input

R2/VIN	46	2nd R input / V (R-Y) input / P _R input
G2/YIN	47	2nd G input / Y input
B2/UIIN	48	2nd B input / U (B-Y) input / P _B input
BCLIN	49	beam current limiter input
BLKIN	50	black current input / V-guard input
RO	51	Red output
GO	52	Green output
BO	53	Blue output
VDDA	54	digital supply of TV-processor (3.3 V)
VPE	55	OTP Programming Voltage
VDDC	56	digital supply to core (3.3 V)
OSCGND	57	oscillator ground supply
XTALIN	58	crystal oscillator input
XTALOUT	59	crystal oscillator output
RESET	60	reset
VDDP	61	digital supply to periphery (+3.3 V)
P1.0	62	3 Wires serial bus clock
P1.1	63	3 Wires serial bus data
IRIN	64	Remote control signal input.

VHC4052

Function: Video switch

Symbol	Pin	Function	Symbol	Pin	Function
Y0	1	C input for S-video	AV1R	16	VCC (5V)
Y2	2	Not used	P2	15	CVBS input
Y	3	C output	AV2R	14	Y/CVBS input for SCART
Y3	4	Not used	CPS1	13	Y/CVBS output
Y1	5	C input for SCART	AV2L	12	Y input for S-video
INH	6	GND	X3	11	Not used
VEE	7	GND	A	10	VIDEO SET1
GND	8	GND	B	9	VIDEO SET2

VHC4052 truth table

Input		"ON" CHANNEL	
B	A	X	Y
L	L	0X	0Y
L	H	1X	1Y
H	L	2X	2Y
H	H	3X	3Y

TDA9859

Function: Universal Sound processor

Symbol	Pin	Function	Symbol	Pin	Function
AV1L	1	AV1 Audio Left input	AV1R	32	AV1 Audio input Right
P1	2	Not used	P2	31	Not used
MAINL	3	Main Audio Left input	AV2R	30	AV2 Audio input Right
CSMO	4	Smoothing Capacitor	CPS1	29	Pseudo stereo Cap. 1
MAINR	5	Main Audio Right input	AV2L	28	AV2 Audio input Left
VP	6	Power Supply	CPS2	27	Pseudo stereo Cap. 2
OUT R	7	Right Output	OUT L	26	Left Output
GND	8	Ground	MAD	25	Not used (GND)
LINOR	9	Line Output Right	LINOL	24	Line Output Left
LINIR	10	Line Input Right	LINIL	23	Line Input Left
CBR1	11	Bass Cap. Right 1	CBL1	22	Bass Cap. Left 1
CBR2	12	Bass Cap. Right 2	CBL2	21	Bass Cap. Left 2
Headphone R	13	Headphone-R output	Headphone L	20	Headphone-L output
CTR	14	Treble Cap. Right	CTL	19	Treble Cap. Left
MAINOR	15	Main Audio out Right	MAINOL	18	Main Audio out Left
SCL	16	I2C Bus clock	SDA	17	I2C Bus data

74HC153D

Function: VSYNC&HSYNC Signal Switch

Symbol	Pin	Function	Symbol	Pin	Function
1E	1	Source1 Out Put Enable	Vcc	16	Power Supply
S ₁	2	SYNC Select Inputs	2E	15	GND
1l ₀	3	HSYNC of PC Input	S ₀	14	SYNC Select Inputs
1l ₁	4	NC	2l ₃	13	VSYNC of PC Input
1l ₂	5	NC	2l ₂	12	NC
1l ₃	6	HSYNC of TV Input	2l ₁	11	NC
1Y	7	HSYNC Output	2l ₀	10	VSYNC of TV Inputs
GND	8	GND	2Y	9	VSYNC Output

74HC153D truth table

Input		"ON" CHANNEL	
S ₀	S ₁	1Y	2Y
L	L	1l ₀	2l ₀
H	H	1l ₃	2l ₃

FSAV330

Function: RGB Switch

Symbol	Pin	Function	Symbol	Pin	Function
S	1	Select Input	Vcc	16	Power Supply
1B ₁	2	Input R of TV	OE	15	GND
1B ₂	3	Input R of PC	4B ₁	14	GND
1A	4	Output R	4B ₂	13	GND
2B ₁	5	Input G of TV	4A	12	NC
2B ₂	6	Input G of PC	3B ₁	11	Input B of TV
2A	7	Output G	3B ₂	10	Input B of PC
GND	8	Grond	3A	9	Output B

FSAV330 truth table

Input	"ON" CHANEL
S	A
L	B ₁
H	B ₂

5. IC Voltages

TDA93XX

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	1.0	3.8	3.6	0	0	3.3	3.3	3.3	0	3.5	0	0	2.3	7.9	5	2
PIN	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
V	3.9	0	3.9	2.8	2.1	2.2	1.8	1.8	3.8	3.8	1.9	3.1	2.2	0	2.2	0.2
PIN	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
V	2.8	0.8	3.6	1.2	2.4	3.2	8	3.8	0	3.3	1.5	3.2	0.1	2.5	2.5	2.5
PIN	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
V	3.6	3.1	3.5	3.5	3.4	3.3	0	3.3	0.1	1.9	1.8	0	3.5	4.9	4.9	5

TDA9859

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
V	4.0	0	4.0	8.0	4.0	8.0	4.0	0	4.0	4.0	4.0	4.0	4.0	4.0
PIN	15	16	17	18	19	20	21	22	23	24	25	26	27	28
V	4.0	4.5	4.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	4.0	4.0
PIN	29	30	31	32										
V	4.0	4.0	0	4.0										