

1. ELECTRICAL ADJUSTMENTS

1.1. Supply Voltage Adjustment

Connect a digital voltmeter to the cathode of diode D611 at the AV1 mode of the TV and set the screen voltage to the minimum with the screen potentiometer. Adjust the main supply voltage (B+) with P601 potentiometer to the following value (after adjustment, readjust Screen voltage).

21" Pure Flat	: 132 VDC
25"	: 145 VDC
28"	: 145 VDC (147 VDC for A66EAK071X11)
28" Pure Flat 16/9	: 140 VDC
28" Super Flat 16/9	: 140 VDC
29" Pure Flat	: 125 VDC
29" Super Flat	: 125 VDC
32" Pure Flat 16/9	: 140 VDC
32" Super Flat 16/9	: 131 VDC
33"	: 158 VDC

2. SERVICE ADJUSTMENTS

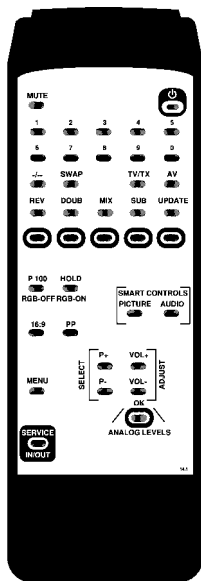
You need the special service remote control to enter and exit the service menu of the TV (you can order it from the manufacturer). All buttons of the Service RC are same with the user remote control, only service menu In / Out is added to it (please see the picture below).

Navigation

Service In/Out : Enters to / exits from the Service Menu

P+ / P- : Moves upward / downward inside the menu

V+ / V- : Changes the values or options



2.1. AGC Adjustment

- Apply an RF signal with amplitude 70 ± 1 dBuV to the antenna input of TV with a pattern generator (switch sound carrier to Off and switch "Video Ext" to On).
- Switch on the Service Menu with the Service RC and find the AGC with P+ / P- buttons. Measure the 38.9 MHz signal on pin 11 (IF) of Tuner with an oscilloscope.
- Adjust "AGC" to get following values:
 - PAL BG, PAL SECAM BG, PAL SECAM BG-DK, PAL I versions : 840 ± 20 mVpp
 - PAL SECAM BG-LL version : 600 ± 20 mVpp
 - PAL BG MONO, PAL SECAM BG MONO : 750 ± 20 mVpp
 - PAL I MONO : 900 ± 20 mVpp
- Subtract 5 from "AGC" value and change "TEST" to this value.
- Exit from the service menu with the Service RC.

2.2. Screen Adjustment

Adjustment is change according to SW versions. New SW versions start from SB8643_A05, SB8643_B04, SB8643_C04, SB8643_D04, SB8645_A05, SB8645_B04, SB8645_C03 and SB8645_D04.

- If CRT brand is Philips and SW is old version, then Set Brightness value to "00" in the Picture menu and store.
- Enter the Service Menu with the Service RC and select "SCRN" option with P+ / P- buttons and switch to ON with V+ / V- button.
For new SW versions (or Philips CRT) "BRI 00" is shown on the screen.
For old SW versions "BRI 32" is shown on the screen.
- Adjust the screen potentiometer to the level where the screen is just black.
- By pressing one of V+ / V- buttons, get the picture (SCRN is switched to Off).
- Exit from the Service menu.
- If CRT brand is Philips and SW is old version, Set Brightness value to "32" in the Picture menu and store.

2.3. Geometry Adjustments

- Apply a Cross Hatch Test pattern.
- Enter Service Menu with Service RC and select "VSLP" option with P+ / P- buttons (In this option, the upper half part of the pattern is shown and lower half part is blanked).
- Adjust VSLP such that middle line of the pattern is cut.
- For 16/9 sets, adjust VZOM to 25. On 4/3 sets, when VZOM is selected, set switches to 16/9 mode. In this case, adjust the circle of the pattern just touches to the upper and lower edges. Re adjust the VSLP if required.
- Adjust vertical position with VSHT, vertical linearity with SCOR and vertical height with VAMP.
- For 4/3 sets, adjust the horizontal amplitude with EWW.
For 16/9 sets, adjust the 16/9 horizontal amplitude with EWW1 and 4/3 horizontal amplitude with EWW (EWW value is 21 lower than EWW1 value).
- For 16/9 sets, find the VZM1 option and adjust such that second lines from top and bottom just touches to the edges.
- Adjust horizontal centering with HSHT, parabola with EWPW and trapezium with EWT.
- For 4/3 sets, adjust the 16/9 general parabola with EWP1.
- Adjust the upper corner parabola with EWCU and lower corner parabola with EWCL, vertical parallelogram with HPAR, horizontal bow with HBOW.

For PIP versions : Select "PIP PRESS OK" and press "OK" button in the service menu. Adjust "HORPOS0" for horizontal shift of PIP window, "VERPOS0" for vertical shift of PIP window (press "POS" button to place PIP to the left-top corner), "HORPOS1" for 12-window PIP horizontal shift, "HORPOS2" for 11-window PIP horizontal shift, "HORPOS4" for right PIP horizontal shift.

2.4. White Balance Adjustment

- Enter the Service Menu with the Service RC and select "GRN" option with P+ / P- buttons and adjust it to "32" V+ / V- button.
- Adjust RED and BLUE for white balance. If white balance can not be adjusted properly change GRN value.
- Adjust BLOR and BLOG for red and green cut off.
- Exit from the Service menu.

2.5. Feature Options

Tuner	: Panasonic, Phillips, Sharp, Temic
STD	: STBY-On (Default, Automatic switch off is active), STBY-Off (can be used during repair)
Head	: Yes (Headphone available), No
SCRN	: Off, On (used for screen adjustment)
AV	: 01 (1 Scart), 03 (2 Scarts), 04 (2 Scarts + Front AV), 05 (2 Scarts + Front AV+ SVHS)
SSTD	: BG only, I only, BG+DK, BG + LL', All SYS
STYP	: NICAM On (available), NICAM Off
Toptext	: Yes (available), No
Fasttext	: Yes (available), No

TXT table : West (West Europe), East (East Europe), Cyrillic, Arabic, Hebrew, Greek
A type SW includes East, West, Greek. B type SW includes East, West, Cyrillic, Arabic.
C type SW includes East, West, Cyrillic, Hebrew. D type SW includes East, West, Cyrillic.

Hotel : On (Hotel Mode), Off (TV Mode)

Subwoofer : Yes (available), No

CRT : 4/3, 16/9

Peak1 : Yes (16/9 sets), No (4/3 sets)

AVV : Yes (Auto AV switching is active), No (Deactive).

PAL : Yes (PAL only versions), No (Other versions)

SAWF ¹⁾ : 01 (PAL BG, PAL-SECAM BG, PAL I or PAL-SECAM BG-DK without FTZ)
02 (SECAM LL' or PAL-SECAM BG-DK with FTZ)

¹⁾ Available in only SW versions of Mono versions.

2.6. Factory Settings for Service Mode

1. Values given in Table 1 are typical values and can vary according to the CRT type.
2. PF means Pure Flat and SF means Super Flat.
3. The values in the table are decimal and shown in paranthesis on the OSD of TV.

		21" PF	25" 28" 16/9	28" 16/9 PF	28" 16/9 SF	29" PF	29" SF	32" 16/9 PF	32" 16/9 SF	33"
AGC	Automatic gain control	14	14	14	14	14	14	14	14	14
EEPE	Reset the eeprom, all values lost	00	00	00	00	00	00	00	00	00
PEAK	Peaking	32	32	32	32	32	32	32	32	32
GRN	Green level	32	32	32	32	32	32	32	32	32
RED	Red level	40	40	35	35	32	35	40	40	42
BLUE	Blue level	34	34	32	33	26	33	34	34	34
BLOG	Black level offset green	32	30	28	30	25	30	31	31	27
BLOR	Black level offset red	40	36	41	40	33	40	41	41	37
YDLY	Luminance delay	04	04	04	04	04	04	04	04	04
SAT	Saturation	20	20	20	20	20	20	20	20	20
HUE	Sharpness	32	32	32	32	32	32	32	32	32
CON	Contrast	40	40	40	40	40	40	40	40	40
CDR	Cathode Drive Level	04	05	04	04	05	05	04	04	05
BRI	Brightness	32	32	32	32	32	32	32	32	32
EWT	East West Trapezium	28	28	17	24	28	27	24	24	26
EWCU	EW upper corner	40	32	22	14	32	39	07	07	27
EWCL	EW lower corner	55	32	48	38	38	42	22	22	37
EWPW	EW parabola width	04	17	08	08	14	12	12	12	20
HSHT	Horizontal shift	38	35	35	40	31	29	29	29	35
EWV	East West Width	60	60	37	36	55	57	39	39	62
VAMP	Vertical amplitude	48	46	42	42	43	45	45	45	48
SCOR	S correction	30	25	25	17	31	25	17	17	25
VSHT	Vertical shift	24	29	27	28	28	26	31	31	25
VSLP	Vertical slope	27	32	32	32	34	29	35	35	32
RGB ¹⁾	OSD brightness level	01	01	10	10	01	01	10	10	01
VZOM	Vertical zoom	39	39	39	39	39	39	39	39	39
PWLT	Peak white limiting	06	11	06	06	11	11	06	06	11
IFOF	Offset IF demodulator	32	32	32	32	32	32	32	32	32
HPAR	Horizontal parallelogram	48	32	32	32	32	32	32	32	32
HBOW	Horizontal bow	32	32	32	32	32	32	32	32	32
TEST	Added for EMC purposes (=AGC-5)	09	09	09	09	09	09	09	09	09
EWPI	16/9 EW parabola width (for only 4/3 sets)	02	08	05	05	09	09	05	05	13
EWV1	East West Width (for only 16/9 sets)	-	-	58	57	-	-	60	60	-
VZM1	Vertical Zoom (for only 16/9 sets)	-	-	58	59	-	-	59	59	-

Table 1

¹⁾ For old SW versions (see section 2.2) RGB value is "01". For new SW, RGB is "01" for 4/3 and "10" for 16/9 sets.

2.7 Software Versions

During exit from service menu, the software version and feature options (hexadecimal number) are shown on the screen. For example: SB8643_X05, C697H.

Stereo software versions of 14.2 are named as follows:

SB8643_X.. for TDA9563 (intercarrier)

SB8645_X.. for TDA9565 (QSS)

Mono Software versions are named as follows:

SC3325-X.. for TDA9555H (only QSS)

PIP Software versions are named as follows:

SB8963_X.. for TDA9563 (intercarrier)

SB8965_X.. for TDA9565 (QSS)

".." shows version number (for example 05).

"X" shows OSD language group.

OSD Languages per group are given below:

	<u>GROUP A</u>	<u>GROUP B</u>	<u>GROUP C</u>	<u>GROUP D</u>
1.	ENGLISH	ENGLISH	ENGLISH	ENGLISH
2.	GERMAN	FRENCH	GERMAN	RUSSIAN
3.	FRENCH	POLISH	TURKISH	SERBIAN
4.	ITALIAN	HUNGARY	SWISS	BULGARIAN
5.	SPANISH	SLOVAK	DANISH	ROMANIAN
6.	PORTUGAL	CZECH	NORWEGIAN	MACEDONIAN
7.	DUTCH	IRAN	FINNISH	CROATIAN
8.	GREEK	ARABIAN	HEBREW	SLOVENIAN