SERVICE ADJUSTMENT

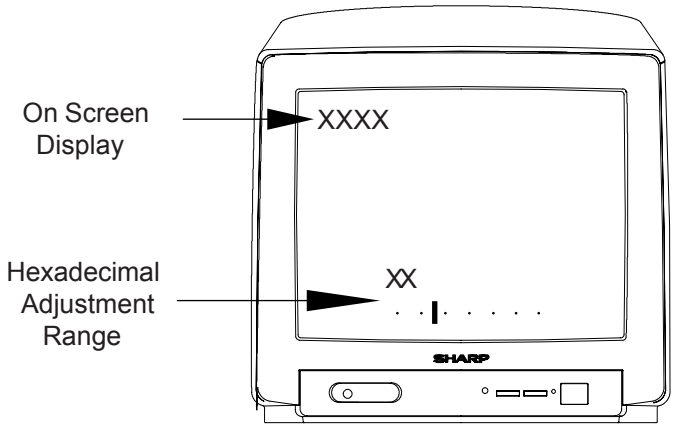
•SERVICE MODE FUNCTION

1. Connect a test pattern to the antenna terminal.
2. Tune the receiver to this signal.
3. Turn the receiver off using the mains switch.
4. Press the volume down and channel up buttons on the front of the receiver at the same time.
5. Keeping these buttons pressed, turn the mains on.
6. When the set starts up it will be in service mode.
7. Release the two buttons.

- Use the channel up and down buttons to move between the options.
- Use the volume control buttons to change the data.
- The data is stored automatically when the service mode is exited or at switch off.
- To exit the service mode, press the standby or menu button on the remote control.

On Screen Display	Hexadecimal Adjustment Range	Function
-SERV-		Indicates operative Service Mode
AGC	00~ 3F	Auto Gain Control
AFT	00 ~ 7F	Auto Frequency Control
H-SHIFT	00 ~ 3F	Horizontal Shift
V-SHIFT	00 ~ 3F	Vertical Shift
V-AMPL	00 ~ 3F	Vertical Amplitude
V- SLOP	00 ~ 3F	Vertical Symmetry
S-CORR	00 ~ 3F	S Correction
Y-DLY	00 ~ 3F	Luminance/Chrominance Delay
GAIN R	00 ~ 3F	Red Gain
GAIN G	00 ~ 3F	Green Gain
GAIN B	00 ~ 3F	Blue Gain
NVM	00 ~ FF	NVM Data Change

To ensure correct operation of the AFT, this must be adjusted to 40.



Adjustment of Data within the NVM memory

To access the NVM memory, press the channel up button on the remote control until the NVM setting is reached. Note that the NVM address is shown in green and the NVM value is shown in red.
Each of the NVM values are stored as a hexadecimal code, each code comprises of two hexadecimal numbers. Each of these numbers will break down into a four bit binary code as in the example below.

Hex code	A	5
Binary code	1010	0101
Button on remote to toggle Bit	7654	3210

In the example given above, the hexadecimal code is A5, the binary equivalent is 1010 0101. The remote control button to toggle each bit on or off (1 or a 0) is shown below the binary code. Therefore to change this to A6, remote control buttons 1 then 0 would have to be pressed.

NVM LIST DESCRIPTION

PAGE	ADDRESS	DESCRIPTION	VALUE
0	00	RTEMP: TEMPERATURE RED	15
	01	GTEMP: TEMPERATURE GREEN	11
	02	BTEMP: TEMPERATURE BLUE	09
	03	VSHIFT: VERTICAL SHIFT	3B
	04	HSHIFT: HORIZONTAL SHIFT	1E
	05	VTAMP: VERTICAL AMPLITUDE	28
	06	VSLOPE: VERTICAL SLOPE	14
	07	Y_DELAY: LUMA DELAY	08
	08	Y_DELAY_S: LUMA DELAY SECAM	08
	09	S_CORR: S-CORRECTION	02
	0A	E_CAG : CAG ADJUSTEMENT VALUE	0F
	0B	EA_OPT: TV OPTIONS 0: FP: SYSTEM B/G (0)- B/G+L, MESSAGE RECHERCHE 1: AV FRONTAL: NOT INCLUDED(0), INCLUDED(1) 2: TUNING LOCK (HOTEL): LOCKED+SWITCH-ON PR1(1) NO LOCKED (0) 3: UHF-ONLY: BAND UHF(1) ALL BANDS(0) 4: PAL ONLY(1), PAL+ SECAM(0) 5: CHILD LOCK: CHILD LOCK ACTIVE(1) CHILD LOCK NO ACT(0) 6: AUTO FIRST: TUNING FIRST MENU: AUTO (1) MANUAL (0) 7: ING_OSD: OSD_ENGLISH(1) OSD-SYMBOL(0)	70
	0C	EAFT: AFT ADJ FOR B/G & L SYSTEMS	40
	0D	EAFT_: AFT ADJ FOR L' SYSTEMS	1F
	0E	EVOLMAX: MAX. VOLUME LIMIT	FF
	0F	CHECKSUM: SIGNATURE	A5
	10	RTEMP2: TEMPERATURE RED	15
	11	GTEMP2: TEMPERATURE GREEN	11
	12	BTEMP2: TEMPERATURE BLUE	09
	13	VSHIFT2: VERTICAL SHIFT	3B
	14	HSHIFT2: HORIZONTAL SHIFT	1E
	15	VTAMP2: VERTICAL AMPLITUDE	28
	16	VSLOPE2: VERTICAL SLOPE	14
	17	Y_DELAY2: LUMA DELAY	08
	18	Y_DELAY_S2: LUMA DELAY SECAM	08

PAGE	ADDRESS	DESCRIPTION	VALUE
0	19	S_CORR2: S-CORRECTION	02
	1A	E_CAG2: CAG ADJUSTEMENT VALUE	0F
	1B	EA_OPT2: TV OPTIONS 0: FP: SYSTEM B/G (0)- B/G+L, MESSAGE RECHERCHE 1: AV FRONTAL: NOT INCLUDED(0), INCLUDED(1) 2: TUNING LOCK (HOTEL): LOCKED+SWITCH-ON PR1(1) NO LOCKED (0) 3: UHF-ONLY: BAND UHF(1) ALL BANDS(0) 4: PAL ONLY(1), PAL+ SECAM(0) 5: CHILD LOCK: CHILD LOCK ACTIVE(1) CHILD LOCK NO ACT(0) 6: AUTO FIRST: TUNING FIRST MENU: AUTO (1) MANUAL (0) 7: ING_OSD: OSD_ENGLISH(1) OSD-SYMBOL(0)	70
	1C	EAFT2: AFT ADJ FOR B/G & L SYSTEMS	40
	1D	EAFT2_L: AFT ADJ FOR L' SYSTEMS	1F
	1E	EVOLMAX2: MAX. VOLUME LIMIT	FF
	1F	CHECKSUM: SIGNATURE	A5
	20	RTEMP3: TEMPERATURE RED	15
	21	GTEMP3: TEMPERATURE GREEN	11
	22	BTEMP3: TEMPERATURE BLUE	09
	23	VSHIFT3: VERTICAL SHIFT	3B
	24	HSHIFT3: HORIZONTAL SHIFT	1E
	25	VTAMP3: VERTICAL AMPLITUDE	28
	26	VSLOPE3: VERTICAL SLOPE	14
	27	Y_DELAY3: LUMA DELAY PAL	08
	28	Y_DELAY_S3: LUMA DELAY SECAM	08
	29	S_CORR3: S-CORRECTION	00
	2A	E_CAG3: CAG ADJUSTEMENT VALUE	00
	2B	EA_OPT3: TV OPTIONS 0: FP: SYSTEM B/G (0)- B/G+L, MESSAGE RECHERCHE 1: AV FRONTAL: NOT INCLUDED(0), INCLUDED(1) 2: TUNING LOCK (HOTEL): LOCKED+SWITCH-ON PR1(1) NO LOCKED (0) 3: UHF-ONLY: BAND UHF(1) ALL BANDS(0) 4: PAL ONLY(1), PAL+ SECAM(0) 5: CHILD LOCK: CHILD LOCK ACTIVE(1) CHILD LOCK NO ACT(0) 6: AUTO FIRST: TUNING FIRST MENU: AUTO (1) MANUAL (0) 7: ING_OSD: OSD_ENGLISH(1) OSD-SYMBOL(0)	F8
	2C	EAFT3: AFT ADJ FOR B/G & L SYSTEMS	40
	2D	EAFT3_L: AFT ADJ FOR L' SYSTEMS	1F
	2E	EVOLMAX3: LMAX. VOLUME LIMIT	FF
	2F	CHECKSUM: SIGNATURE	A5
	30	FT1_I_NVM-T1_I_NVM-1: LENGTH TABLE	FF
	31	CHECKSUM: SIGNATURE 1	A5
	32	EAGING,AGING_ON (AGING MODE)	FF
	33	VOLOFFSET: VOLUME OFFSET	05
	34	EAVOL: VOLUME VALUE (DECIMAL)	14
	35	CONT: CONTRAST	33
	36	COLOR: COLOR SATURATION	17
	37	BRIGHT: BRIGHTNESS	1F
	38	LUPK: 0,0,P5,P4,P3,P2,P1,P0 LUMA PEAKING VALUE LUPK	22
	39	E_P_ACT: CURRENT PROGRAMME	01
	3A	E_START: TV STATUS	00

PAGE	ADDRESS	DESCRIPTION	VALUE
0	3B	N_HUE: HUE CORRECTION	07
	3C	CONT2: CONTRAST	33
	3D	COLOR2: COLOR SATURATION	17
	3E	BRIGHT: BRIGHTNESS	1F
	3F	LUPK2: 0,0,0,0,0,P2,P1,P3 LUMA PEAKING VALUE LUPK	22
	40	DK_OPTION: OPTION FOR DK SYSTEM [X X X X X X X DK_S]	00
	41	HCR1_NVM: END OF HORIZONTAL CLAMP PULSE	13
	42	OSD_WORD: OSD STATUS (1=RT/0=OT,1=NO WHITE BARS IN MENU CLOCK-D.C.-,PIN OPTION,R830-D.C.-, FRONT LOCK,AV LOCK, E_NORMALIZADO PICTURE)	09
	43	OP_TXT_SYS: TELETEX SYSTEMS OPTIONS (X X X X X X FLOF TOP)	02
	44	HCR0_NVM: BEGINING OF HORIZONTAL CLAMP PULSE.	00
	45	EVTH_L: L-L' VOLTAGE	1F
	46	EVTL_L: L-L' VOLTAGE	1F
	47	SDV0_TXT: VERTICAL SYNC DELAY FOR TXT.	1E
	48	S_SPEED: SEARCH SPEED FOR ALL BANDS	0F
	49	SU_SPEED: SEARCH SPEED FOR UHF	5 A
	4 A	SVL_SPEED: SEARCH SPEED FOR VHL	0F
	4B	SVH_SPEED: SEARCH SPEED FOR VHH	3C
	4C	L_RANGE: RESERVED	2F
	4D	EPSW: PASSWORD ACTIV	00
	4E	EPSW1: PASSWORD 1R DIGIT	00
	4F	EPSW2: PASSWORD 2§ DIGIT	00
	50	EPSW3: PASSWORD 3R DIGIT	00
	51	EPSW4: PASSWORD 4§ DIGIT	00
	52	LANGUAGE: CHARACTER SET (FOR TXT)	00
	53	OSD_WORD1: bit 0: SIZE OSD PROG: 0=14", 1=21" bit 1: TIMING FOR OSD ON SCREEN bit 2: CHARACTER SET FOR TXT ENABLED (MENU)	00
	54	HOTEL: FOR HOTEL MODE 2 : FRONTAL BUTTONS DISABLED, SWITCH ON WITH SSW PULSE	00
	55	IFS_SCRT: CONTROL FOR IFS IN SCART MODE.	01
	56	HOTEL2: HOTEL MODE FOR S.E.I.S. VCR CONSTANT FOR ALL PROGRAMS	00
	57	B_CONTROL2: OSO,VSD,CB,BLS,BKS,CS1,CS0,BB	9 A
	58	B_CONTROL3: HOB,BPS,ACL,CMB,AST,CL2,CL1,CL0	24
	59	V_ZOOM: VERTICAL ZOOM	0D
	5 A	V_SCROLL: VERTICAL SCROLL	20
	5B	B_CONTROL0: INA,INB,INC,CCC_D,FOA,FOB,XA,XB	1 A
	5C	B_CONTROL1: FORF,FORS,DL,STB,POC,CM2,CM1,CM0	C0
	5D	B_CONTROL5: EVG,HCO,LBM,VID,STM,NCIN,VIM,AKB	26
	5E	B_CONTROL6: IFS,AFW,IE_1,COR,RBL,MAT,PRD,SBL	3C
	5F	B_CONTROL7: 0,0,0,HBL,GAI,IE_2,DS,DSA	00
	60	V_SCCON: SANDCASTLE CONTROL REGISTER	00
	61~ FF	RESERVED	---
1	00 ~ 9F	RESERVED	---
	A0	PAGE MEMORY FOR LIST MODE PROGRAM 0	10
	A1		02
	A2		00
	A3		30
	A4		04
	A5		00

PAGE	ADDRESS	DESCRIPTION	VALUE
1	A6	PAGE MEMORY FOR LIST MODE PROGRAM 1	10
	A7		02
	A8		00
	A9		30
	AA		04
	AB		00
	AC	PAGE MEMORY FOR LIST MODE PROGRAM 2	10
	AD		02
	AE		00
	AF		30
	B0		04
	B1		00
	B2	PAGE MEMORY FOR LIST MODE PROGRAM 3	10
	B3		02
	B4		00
	B5		30
	B6		04
	B7		00
	B8	PAGE MEMORY FOR LIST MODE PROGRAM 4	10
	B9		02
	BA		00
	BB		30
	BC		04
	BD		00
	BE	PAGE MEMORY FOR LIST MODE PROGRAM 5	10
	BF		02
	C0		00
	C1		30
	C2		04
	C3		00
	C4	PAGE MEMORY FOR LIST MODE PROGRAM 6	10
	C5		02
	C6		00
	C7		30
	C8		04
	C9		00
	CA	PAGE MEMORY FOR LIST MODE PROGRAM 7	10
	CB		02
	CC		00
	CD		30
	CE		04
	CF		00
	D0 ~ FF	RESERVED	FF

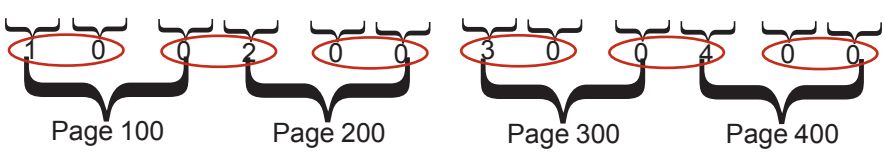
DEFAULT LIST MODE PAGES MEMORIZATION NOTE:

In page memory for LIST MODE, every digit is written in one nibble (4 bits).
The default values for programs 0~7 are as follows: 100, 200, 300, 400.

Example: Program 0

NVM Position: A0 A1 A2 A3 A4 A5

NVM Value:



•PIF/AGC Adjustment

1. AFT Adjustment

AFT must be adjusted to a fixed value of 40.

2. RF-AGC Cut-In Adjustment (I2C BUS)

1. Receive the «COLOUR BAR» signal (Channel E-12). Signal strength: 53 dBμV.
2. Enter into Service Mode.
3. Push CH ∧ until AGC appears on screen.
4. Push ○┬┐ key of R/C.Setting is made automatically. During this setting the colour bar shall go from red to yellow. When setting is finished, colour bar disappears and B-STOP (bus stop)is shown on screen.
5. Switch set OFF and ON again, setting is now memorized.

•Screen Adjustment

3. Focus Adjustment

1. Apply mains voltage of 220V AC/50HZ to TV.
2. Receive Philips pattern signal to a level between 60 and 80 dBμV.
3. Set contrast to 10/10, brightness to 5/10 and colour 0/10.
4. Adjust focus potentiometer to obtain maximum definition.

4. G2 Adjustment

1. Apply mains voltage of 220V AC/50HZ to TV.
2. Receive the «MONOSCOPE» pattern signal to a level between 60 and 80 dBμV.
3. Enter into Service Mode. Press the TEXT key of R/C and set to level.
4. Set to the point where the raster disappears on the screen VR of FBT.
5. Check BKGD. If it is necessary adjust BKGD according to instructions detailed in the next page.

•GEOMETRY ADJUSTMENT PROCEDURE

1. HOR SHIFT

a) Receive Philips pattern signal.

b) When ◿ ∧ button is pressed, picture moves to the left.

c) When ∨ ◿ button is pressed, picture moves to the right.

d) Adjust the horizontal location to obtain picture centering (Fig.1).

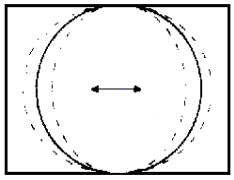


Fig. 1

2. VERT SHIFT

a) Receive Philips pattern signal.

b) When ◿ ∧ button is pressed, picture moves up.

c) When ∨ ◿ button is pressed, picture moves down.

d) Adjust the vertical location to obtain picture centering (Fig.2).

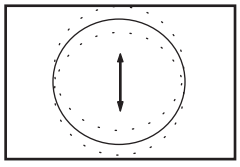


Fig. 2

3. VERT AM

a) Receive Philips pattern signal.

b) When ◿ ∧ button is pressed, vertical size of picture increases.

c) When ∨ ◿ button is pressed, vertical size of picture decreases.

d) Adjust the vertical size to obtain picture overscan (Fig.3).

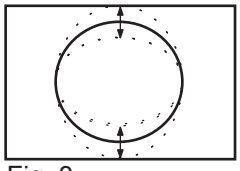


Fig. 3

4. VERT SLOP

a) Receive Philips pattern signal.

b) When ◿ ∧ button is pressed, upper picture scanning decreases and lower picture scanning increases.

c) When ◿ ∨ button is pressed, upper picture scanning increases and lower picture scanning decreases.

d) Adjust the vertical symmetry to obtain symmetrical scanning between upper and lower picture (Fig.4).

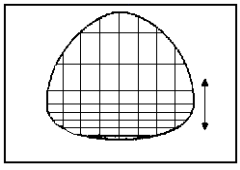


Fig. 4

•COLOUR ADJUSTMENT PROCEDURES

1. Y-DLY

a) Receive Philips pattern signal.

b) When ◿ ∧ button is pressed, luma phase delays.

c) When ∨ ◿ button is pressed, chroma phase delays.

d) Adjust the chroma-luma delay.

2. «B-GAIN», «G-GAIN», «R-GAIN»

a) Adjust G2.

b) Tune a white pattern

c) Adjust colour to minimum.

d) Position colourmeter in the center of screen.

e) Using brightness and contrast buttons, select a luminance of ≈120 nits.

f) Operate again in Service Mode and select location R-GAIN and B-GAIN to obtain colour coordinates:

$X = 0.290 \pm 0.015$

$Y = 0.300 \pm 0.015$

g) Exit Service Mode and check colour coordinates «X» and «Y» at 20 and 120 nits. It may be necessary to repeat the same procedure or re-adjust the cuts as show the be below one.

NOTE: Locations «R» alter «X» coordinates; «G» alter «Y» coordinates; «B» alter «X» and «Y» coordinates.

MEMO