



SONY Service Mode

NTSC Version

Compiled by [Anthony W. Haukap](#)

Most SONY televisions have electronic service adjustments. This means that adjustments like picture geometry, white balance, and color presets are adjusted via on screen displays, using the remote control. This is the NTSC version of this document.

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The current version of this FAQ document can always be found on my website at:

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SERVICE MODE

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Most SONY televisions have electronic service adjustments. This means that adjustments like picture geometry, white balance, and color presets are adjusted via on screen displays, using the remote control. For complete details, you need a service manual, available from the manufacture.

Any television or monitor will require professional calibration for it to meet true NTSC standards - or see my [How to Calibrate a Television FAQ](#) for do it yourself calibration.

There is also a [PAL version](#) of this document available on my [HomePage](#). This document only supports SONY Televisions manufactured for the NTSC markets.

If you're attempting to adjust color or geometry errors, you'll need the [Video Essentials DVD](#), Laser Disc or some other source of test material.

PLEASE NOTE:

SERVICE MODE WARNING:

Without proper documentation and training, you can probably do quite a good job of messing up your television set, perhaps even damaging it.

Don't mess around with the service mode adjustments unless you know what you're doing and have the service manual to guide you.

Once you enter service mode the first thing you should do is record all the original values **BEFORE** you change anything! - This is the only way to restore the television to it's original (*factory default*) state should it become necessary to do so.

Your results with these procedures may vary and can **NOT**

be guaranteed to work on your particular television set
USE THEM AT YOUR OWN RISK.

ORDERING THE SERVICE MANUAL:

Sony Electronics Inc.

World Repair Parts Center

8281 N.W. 107th

Terrace Kansas City, MO 64153 USA

(800) 488-7669 (USA Only) -or- (800) 345-7669

(816) 891-7550

(816) 891-2580 (Fax)

44-1-71-911-8700 (UK)

HOW TO ENTER SERVICE MODE

[Read the SERVICE MODE WARNING before proceeding.](#)

Service switch - small, round opening in the rear cabinet near the Video inputs or the antenna jack (typically early-90's), push and hold while turning the power on - or if there is no service switch on the rear of the TV use the remote control and press within one second (*timing is very important*) of each other:

[PWR OFF] - [DISP], [5], [VOL+], [PWR ON]

-or-

[PWR OFF] - [DISP], [5], [PWR ON]

The TV will turn on in service mode and the screen will look something like this:



NAVIGATE IN SERVICE MODE

[1] = Moves to Previous Menu Item

[4] = Moves to Next Menu Item

[3] = Adjusts Value Up

[6] = Adjusts Value Down

[MTS] = Toggles Stereo/Mono Audio

SAVE NEW SETTING

[MUTE] followed by [ENTER]= stores NEW service mode settings to NVRAM

RESTORE USER SETTINGS

[8] followed by [ENTER]= Restores All *USER* settings to factory defaults

RESET VALUES

[0] followed by [ENTER]= Read Default service mode value from stored settings. (*service mode reset*)

LEAVE SERVICE MODE

[PWR OFF]= Leave Service Mode any settings not written will be in effect until TV is unplugged or a Reset is performed.

RETURN TO DEFAULT SETTINGS:

- BEFORE storing NEW settings - unplug TV from wall, wait a few seconds, then plug back in, turn TV set on - All settings not written will have been lost.
- AFTER storing NEW settings - restore original value from list you made of original values before adjustments and store in NVRAM.

PLEASE NOTE:

RECORD ALL ORIGINAL VALUES BEFORE
MAKING ANY ADJUSTMENTS.

XBR250 COLOR BANDING PROBLEM

If you have a XBR250 and you're experiencing horizontal blue, green or red banding across the screen with a component video connection, you will need to enter service mode and adjust the HOSC parameter. Initially HOSC is set to 7 (factory default), you'll need to change it to about 11 - this will eliminate the color banding in the picture.

ITEM	TYPICAL	RANGE	DESCRIPTION
AFC	0	0-3	AFC Loop Gain
HFRE	42	0-127	Horizontal Frequency
VFRE	11	0-31	Vertical Frequency
VPOS	16	0-31	Vertical Picture Position
VSIZ	18	0-63	Vertical Picture Size
VLIN	6	0-15	Vertical Picture Linearity
VSCO	10	0-15	Vertical Correction
HPOS	6	0-15	Horizontal Picture Position
HSIZ	11	0-31	Horizontal Picture Size
PAMP	18	0-31	Pincushion Amp.
CPIN	4	0-7	Corner Pincushion
PPHA	7	0-15	Pincushion Phase
UPIN	10	0-31	Pincushion upper ends, vertical lines
LPIN	10	0-31	Pincushion lower ends, vertical lines
PPHA	7	0-15	Keystone correction vertical lines
HKEY	6	0-15	Keystone distortion, horizontal lines
HTRP	8	0-15	Keystone correction, horizontal lines
VCOM	2	0-7	Vertical Compensation
VUSN	0	0,1	Shrinks Vertical Height to 16x9 Area
VZOM	0	0,1	Places Bars on Picture to give 16x9 Area
EHT	15		Adjust Height of VZOM
ASP	47		Vertical Picture Size - Aspect
SCRL	31		Vertical Picture Position
HBLK	1	0,1	Horizontal Blanking (on/off)
LBLK	15		Left Blanking
RBLK	3		Right Blanking
GAMP	18	0-31	Green Amp.
BAMP	14	0-31	Blue Amp.
GDRV	18	0-31	Green Driver
BDRV	14	0-31	Blue Driver
RCUT	15		Red Cutoff - (lower level)
GCUT	4	0-15	Green Cutoff - (lower level)
BCUT	1	0-15	Blue Cutoff - (lower level)
RDRV	21		Red Amp. - (upper level)
GDRV	18		Green Amp. - (upper level)
BDRV	14		Blue Amp. - (upper level)
DCOL	1	0,1	Color Temperature
COFF	0	0,1	Color On/Off - B/W Picture
Y-DC	0	0-15	BLACK background level retention
R-YR	15	0-15	Sets the amount of RED
R-YB	15	0-15	Sets the amount of RED
G-YG	11	0-15	Sets the amount of GREEN

G-YB	9	0-15	Sets the amount of GREEN
AXIS	0	0-15	Cleans up the red & oranginess in yellow
DPIX	0	0-3	Dynamic Picture
CROM	28	0-63	Chroma Trap
SPIX	30	0-63	Sub-Picture Contrast (Picture)
SCON	30	0-63	Sub-Picture Contrast (Picture)
SHUE	23	0-63	Sub-Picture Hue
SCOL	26	0-63	Sub-Picture Color
SBRT	22	0-63	Sub-Picture Brightness (Black Level)
RGBP	10	0-63	RGB Picture
SHAP	6	0-15	Sub-Picture Sharpness
SHPF	3	0-15	This helps with the S-Video sharpness
NRLV	0	0-3	Find the value that gives the best resolution
VSMO	1	0,1	Vertical Pull In Range (1 allows PAL in B&W)
REF	2	0-3	Reference Line
ROFF	1	0,1	Red Gun ON(1)/OFF(0)
GOFF	1	0,1	Green Gun ON(1)/OFF(0)
BOFF	1	0,1	Blue Gun ON(1)/OFF(0)
RON	1*	0,1	Red Gun ON(1)/OFF(0)
GON	1*	0,1	Green Gun ON(1)/OFF(0)
BON	1*	0,1	Blue Gun ON(1)/OFF(0)
AXPL	0	0,1	Cleans up Reds/Yellows
ABLM	0	0,1	Automatic Background or Brightness Limiter
NOTC	1	0,1	Notch Filter ON(1)/OFF(0)
VMLV	0	0,1	Scanning Velocity Modulation ON(1)/OFF(0)
VAPI	0	0,1	Sets vert resolution for 3-d comb filter
VAPG	0	0,1	Sets vert resolution for 3-d comb filter
DRGB	0	0,1	On-Screen Display (OSD) Intensity
DISP	35	0-63	On-Screen Display (OSD) Menu Placement (L/R)
VTMS	0	0-3	On Screen Display (OSD) - On/Off
DPDV	1	0-3	Lumipon
MPIC	8	0-63	Lumipon (depth)
SVOL	0	0-15	Sub-Volume (0=Max,15=Min.)
SBAL	7	0-15	Sub-Balance (0=Left,15=Right)
BASS	8	0-15	Sub-Bass (0=Min., 15=Max.)
TRE	7	0-15	Sub-Treble (0=Mix., 15=Max.)
MPX	-	0-15	Audio ATT
FILO	-	0-15	Audio I1
DEEM	-	0-15	Audio I2
STEV	-	0-15	Audio OSC1
SAPV	-	0-15	Audio OSC2
PILO	-	0-15	Audio PILOT
SEP	-	0-15	Audio WIDE BAND
VD	-	0-15	Audio SPECTRAL
LVOL	-	0-15	Audio VOLUME-L
RVOL	-	0-15	Audio VOLUME-R
PADJ	63	0-255	Hor/Vert Picture Adjustment (total picture)
UYBO	32	0-63	Upper Y Bow (B/R Top)

LYBO	27	0-63	Lower Y Bow (B/R Bottom)
HAMP	34	0-63	Horizontal Amp. (B/R OuterLines)
HTIL	32	0-63	Horizontal Tilt (R/R)
UCBO	39	0-63	Upper C Bow (B/R Corners Only)
UTIL	37	0-63	Upper Tilt (Top Corners)
LCBO	41	0-63	Lower C Bow (B/R Corners Only)
LTIL	40	0-63	Lower Tilt (Bottom Corners)
DCSH	36	0-63	DC Shift (Static Convergence All Vertical)
VBOV	30	0-63	Bow distortion correction vertical lines
VANG	30	0-63	Skew correction, vertical lines
RTCO	-	0-63	Raster Rotation
PHPO	79	0-127	Picture In Picture (PIP) Horizontal Position
PHUE	0	0-31	Picture In Picture (PIP) Hue
MSHU	-	0-31	Main PIP hue
MSCOL	-	0-31	Main PIP color
SSHU	-	0-31	Small PIP Hue
SSCO	-	0-31	Small PIP Color
GV SKEW	-	0-63	convergence service item
GH SKEW	-	0-63	convergence service item
GH BOW	-	0-63	convergence service item
RV SKEW	-	0-63	convergence service item
BV SKEW	-	0-63	convergence service item
GH PIN	-	0-63	convergence service item
GH CENT	-	0-63	convergence service item
GV CENT	-	0-63	convergence service item
RH CENT	-	0-63	convergence service item
RV CENT	-	0-63	convergence service item
BH CENT	-	0-63	convergence service item
BV CENT	-	0-63	convergence service item
ID0	88	0-127	Model ID
ID1	127	0-127	Model ID
ID2	104	0-127	Model ID
ID3	64	0-127	Model ID
ID4	19	0-127	Model ID
ID5	1	0-127	Model ID

NOTE:

1. Not all ITEMS appear on all televisions models.
2. Provisions for convergence adjustments are not enabled on 27" or smaller Sony direct view television sets.
3. Typical settings may not apply to your particular model and are shown only for reference purposes.

SONY "XBR" SERIES

TRINITONE: NTSC STD - controls color temperature - basically how greys will appear on the monitor. The "High" and "Medium" settings make everything look too blue.

NR: OFF - filters out high-frequency noise, at a slight loss of detail. Turn it OFF and the picture quality improves. It also tends to degrade fine picture detail.

DYNAMIC PICTURE: OFF - when turned ON it whitens light areas and darkens shadow areas of the picture, creating a high contrast although less accurate picture. Leave it OFF.

COLOR CORRECTION: OFF - when turned ON it tries to correct fleshtones but has a tendency to mix up certain colors and make them look like a prosthetic beige.

PROGRAM PALETTE: MOVIE: ON - only the movie mode allows the television set to run with flat and wide video bandwidth. It also shuts OFF scanning velocity modulation (SVM), when VMLV is run down to zero it will shut OFF SVM for the other modes. Each mode (Movie, Sports, etc.) has a separate adjustment memory.

SERVICE MODE ITEMS:

AXIS	0	Cleans up the red push & oranginess in the yellows
VAPI	0	Sets vert resolution for 3-d comb filter (do this for all modes)
VAPG	0	Sets vert resolution for 3-d comb filter (do this for all modes)
NRLV	0~3	Find the value 0-3 that gives the best resolution
VMLV	0	Scanning Velocity Modulation (SVM) OFF=0/ON=1 (do this for all modes)
Y-DC	0	Improves BLACK background level retention
DCOL	0,1	Color Temperature - Select either 0 or 1 whichever turns off the "blue tinted" whites.
DPIX	0	Dynamic Picture
AXPL	0	Cleans up Reds/Yellows
GDRV	18	(GAMP) Green Amp. - (upper level)
BDRV	14	(BAMP) Blue Amp. - (upper level)
GCUT	4	Green Cutoff - (lower level)
BCUT	1	Blue Cutoff - (lower level)
R-YR	15	Sets the amount of RED
R-YB	15	Sets the amount of RED
G-YR	11	Sets the amount of GREEN
G-YB	9	Sets the amount of GREEN (8 or 10 may be closer)
SHPF	3	This helps with the sharpness (S-Video)

Setting R-YR and R-YB to 15 will greatly improve color accuracy and tone down the reds. Also, when Y-DC is changed from 1 to 0, DC restoration (black level retention) becomes almost perfect.

Sometimes setting items G-YR to 11 and G-YB to 9 may need some more fine tuning using the SMPTE color bars w/gray reference [split bar pattern] (Frame VE-46673, AVS-14415 - NOTE: VE 46673 is mis-calibrated, use AVS-14415) See the section on [Setting Tint & Color Level: Matching Gray Reference](#) in the [How to Calibrate a Television FAQ](#) for the procedure on how to adjust these two settings.

WEGA SERVICE MODE ITEMS:

4BCT	7	input4 (component) Blue Cutoff (BCUT -1)
4BDR	30	input4 (component) Blue Amp (BDRV +1)
4GCT	5	input4 (component) Green Cutoff (GCUT +0)
4GDR	36	input4 (component) Green Amp ((GDRV +2)
BCUT	10	Blue Cutoff
BDRV	29	Blue Amp
GCUT	10	Green Cutoff
GDRV	34	Green Amp
DPIX	0	Dynamic Picture
Y-DC	0	Improves BLACK background level retention
HOSC	11	Fixes problem with color banding on component input

SONY "MODEL-ID" SETTINGS

These ID setting are different for every chassis - in general here's what they control:

ID-0	Controls number of active video jacks.
ID-1	This controls video features. Allows notch filter (NOTC) to be turned off outside of service mode.
ID-2	This sets up user interface features. Enables Spanish language menus. Allows naming of video inputs.
ID-3	Enables / disables Picture-In-Picture (PIP) support.
ID-4	Enables / disables Lumisponder option.

When IC 102 is replaced, these ID values must be reset. The values varies with model and chassis version.

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CORRECTIONS / ADDITIONS

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Any comments, corrections or additions should be mailed to at the email address listed below.

Comments of any kind are appreciated. Messages concerning errors of fact, formatting errors, and/or typos will receive prompt attention and will be included in future releases of this FAQ. I want the information contained here to be as accurate and accessible as possible.

I'm always looking for more information! Credit will be given where appropriate, unless contributors ask to be anonymous.



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