

# AK19PRO CHASSIS MANUAL ADJUSTMENTS PROCEDURE

In order to enter the service menu, first enter the installation menu and then press the digits 4, 7, 2 and 5 respectively.

For ADJUST settings:

Select **Adjust** using  $\nabla$  or  $\triangle$  button and press  $\triangleright$  or  $\triangleleft$  button to enter it. To select different adjust parameters, use  $\nabla$  or  $\triangle$  button. To change the selected parameter, use  $\triangleright$  or  $\triangleleft$  button.

## WHITE BALANCE ADJUSTMENT:

The following three parameters are used to make white balance adjustment. To do this, use a ColourAnalyser. Using white point RED, white point GREEN and white point BLUE parameters, insert the + sign in the square which is in the middle of the screen.

**ADJUST 00** = White Point RED

**ADJUST 01** = White Point GREEN

**ADJUST 02** = White Point BLUE

## AGC ADJUSTMENT:

In order to do AGC adjustment, enter a 60dBmV RF signal level from channel C-12.

Connect a digital voltmeter to pin 1 of the tuner. Change the AGC parameter until you see 3.70VDC on voltmeter display. Check that picture is normal at 90dBmV signal level.

**ADJUST 03** = AGC

## IF-PLL NEGATIVE ADJUSTMENT (Only with PLL tuner):

Connect 38.9 MHz test pattern for PAL B/G, PAL-SECAM B/G, 39.5 MHz test pattern for PAL I or 45.75 MHz test pattern for PAL M/N, NTSC M model to Z401 SAW filter input terminals. Change the IF-PLL Negative parameter until you see IN, DOWN below. If you cannot catch IN, DOWN position this way, using a screwdriver rotate the VIF-COIL LT401 left or right until you see IN, DOWN.

**ADJUST 04** = IF-PLL Negative

## IF-PLL POSITIVE ADJUSTMENT (Only with PLL tuner):

Connect 33.9 MHz test pattern for SECAM L' model to Z401 SAW filter input terminals. Change the IF-PLL Positive parameter until you see IN, DOWN below. If you cannot catch IN, DOWN position this way, using a screwdriver rotate the VIF-COIL LT401 left or right until you see IN, DOWN.

**ADJUST 05** = IF-PLL Positive

## LUMINANCE DELAY ADJUSTMENT (with only TDA 8844 video processor):

**ADJUST 06** = Y-Delay PAL

Enter a PAL B/G colour and black-white bar test pattern via RF. Adjust Y-Delay PAL till the colour transients on the colour bar of the pattern become as sharper and colours between transients do not mix with each other as possible.

**Note:** If the SAW filter is one of the G1965M, J1951M, J3950M, K2958M, K2962M, G3957M, K6256K, K6259K or M1963M, there is constant group delay distortion, so for an equal delay of the luminance and chrominance signal the delay must be set at a value of 160nS. This means the adjustment must be set to the maximum value.

**ADJUST 07** = Y-Delay SECAM

Enter a SECAM B/G colour and black-white bar test pattern via RF. Adjust Y-Delay SECAM till the colour transients on the colour bar of the pattern become as sharper and colours between transients do not mix with each other as possible.

**Note:** If the SAW filter is one of the G1965M, K2958M, K2962M, G3957M, K6256K or K6259K, there is constant group delay distortion, so for an equal delay of the luminance and chrominance signal the delay must be set at a value of 160nS. This means the adjustment must be set to the maximum value.

**ADJUST 08** = Y-Delay NTSC

Enter an NTSC colour and black-white bar test pattern via RF. Adjust Y-Delay NTSC till the colour transients on the colour bar of the pattern become as sharper and colours between transients do not mix with each other as possible.

**Note:** If the SAW filter is M1963M, there is constant group delay distortion, so for an equal delay of the luminance and chrominance signal the delay must be set at a value of 160nS. This means the adjustment must be set to the maximum value.

**ADJUST 09** = Y-Delay Other

In case of other colour systems, enter this system with colour and black-white bar test pattern via RF. Adjust Y-Delay Other till the colour transients on the colour bar of the pattern become as sharper and colours between transients do not mix with each other as possible. Normally for an equal delay of the luminance and chrominance signal the delay must be set at a value of 160nS.

This means the adjustment must be set to the maximum value.

**VERTICAL ZOOM ADJUSTMENT (only for 110ø picture tubes):**

**ADJUST 10 (4:3 PICTURE MODE), ADJUST 21 (16:9 PICTURE MODE), ADJUST 32 (CINEMA PICTURE MODE), ADJUST 43 (SUBTITLE PICTURE MODE), ADJUST 54 (SUPER ZOOM PICTURE MODE) = Vertical Zoom**

Enter a PAL B/G circle test pattern via RF. Change vertical zoom till you see the upper and lower limit of the circle as close to the upper and lower limit of the picture tube as possible.

**VERTICAL SCROLL ADJUSTMENT (only for 110ø picture tubes):**

**ADJUST 11 (4:3 PICTURE MODE), ADJUST 22 (16:9 PICTURE MODE), ADJUST 33 (CINEMA PICTURE MODE), ADJUST 44 (SUBTITLE PICTURE MODE), ADJUST 55 (SUPER ZOOM PICTURE MODE) = Vertical Scroll**

Enter a PAL B/G circle test pattern via RF. Change vertical scroll till you see the circle exactly in the middle of the screen.

**4:3 HORIZONTAL SHIFT ADJUSTMENT:**

**ADJUST 12 (4:3 PICTURE MODE), ADJUST 23 (16:9 PICTURE MODE), ADJUST 34 (CINEMA PICTURE MODE), ADJUST 45 (SUBTITLE PICTURE MODE), ADJUST 56 (SUPER ZOOM PICTURE MODE) = Horizontal Shift**

Enter a RED PURITY test pattern via RF. Change horizontal shift till the picture is horizontally centred. Check whether this adjustment is correct after completing Service Mode Adjustment.

**VERTICAL SLOPE ADJUSTMENT:**

**ADJUST 13 (4:3 PICTURE MODE), ADJUST 24 (16:9 PICTURE MODE), ADJUST 35 (CINEMA PICTURE MODE), ADJUST 46 (SUBTITLE PICTURE MODE), ADJUST 57 (SUPER ZOOM PICTURE MODE) = Vertical Slope**

Enter a CROSS-HATCH B/G test pattern via RF. Change vertical slope till the size of squares on both the upper and lower part of test pattern become equal to the squares laying on the vertical centre of the test pattern. Check and readjust VERTICAL SLOPE item if the adjustment becomes improper after some other geometric adjustments are done.

**VERTICAL AMPLITUDE ADJUSTMENT:**

**ADJUST 14 (4:3 PICTURE MODE), ADJUST 25 (16:9 PICTURE MODE), ADJUST 36 (CINEMA PICTURE MODE), ADJUST 47 (SUBTITLE PICTURE MODE), ADJUST 58 (SUPER ZOOM PICTURE MODE) = Vertical Amplitude**

Enter a PAL B/G test pattern via RF. Change vertical slope till horizontal black lines on both the upper and lower part of the test pattern become very close to the upper and lower horizontal sides of picture tube and nearly about to disappear. Check and readjust VERTICAL AMPLITUDE item if the adjustment becomes improper after some other geometric adjustments are done.

**S-CORRECTION ADJUSTMENT:**

**ADJUST 15 (4:3 PICTURE MODE), ADJUST 26 (16:9 PICTURE MODE), ADJUST 37 (CINEMA PICTURE MODE), ADJUST 48 (SUBTITLE PICTURE MODE), ADJUST 59 (SUPER ZOOM PICTURE MODE) = S-Correction**

Enter a PAL B/G circle test pattern via RF. Change S-correction till the middle part of the circle is as round as possible.

**VERTICAL SHIFT ADJUSTMENT:**

**ADJUST 16 (4:3 PICTURE MODE), ADJUST 27 (16:9 PICTURE MODE), ADJUST 38 (CINEMA PICTURE MODE), ADJUST 49 (SUBTITLE PICTURE MODE), ADJUST 60 (SUPER ZOOM PICTURE MODE) = Vertical Shift**

Enter a PAL B/G test pattern via RF. Change Vertical Shift till the test pattern is vertically centred, i.e. horizontal line at the centre pattern is in equal distance both to upper and lower side of the picture tube. Check and readjust Vertical Shift item if the adjustment becomes improper after some other geometric adjustments are done.

**EW WIDTH ADJUSTMENT (only for 110ø picture tubes):**

**ADJUST 17 (4:3 PICTURE MODE), ADJUST 28 (16:9 PICTURE MODE), ADJUST 39 (CINEMA PICTURE MODE), ADJUST 50 (SUBTITLE PICTURE MODE), ADJUST 61 (SUPER ZOOM PICTURE MODE) = EW Width**

Enter a PAL B/G test pattern via RF. Change EW Width till the vertical black and white bars on both left and right side of the pattern exactly disappear.

**EW PARABOLA WIDTH ADJUSTMENT (only for 110ø picture tubes):**

**ADJUST 18 (4:3 PICTURE MODE), ADJUST 29 (16:9 PICTURE MODE), ADJUST 40 (CINEMA PICTURE MODE), ADJUST 51 (SUBTITLE PICTURE MODE), ADJUST 62 (SUPER ZOOM PICTURE MODE) = EW Parabola Width**

Enter a PAL B/G test pattern via RF. Change EW Parabola Width till vertical lines close to the both sides of the picture frame become parallel to vertical sides of picture tube. Check and readjust EW Parabola Width item if the adjustment becomes improper after some other geometric adjustments are done.

**EW CORNER PARABOLA ADJUSTMENT (only for 110ø picture tubes):**

**ADJUST 19 (4:3 PICTURE MODE), ADJUST 30 (16:9 PICTURE MODE), ADJUST 41 (CINEMA PICTURE MODE), ADJUST 52 (SUBTITLE PICTURE MODE), ADJUST 63 (SUPER ZOOM PICTURE MODE) = EW Corner Parabola**

Enter a PAL B/G test pattern via RF. Change EW Corner Parabola till vertical lines at the corners of both sides of picture frame become vertical and parallel to vertical corner sides of picture tube. Check and readjust EW Corner Parabola item if the adjustment becomes improper after some other geometric adjustments are done.

**EW TRAPEZIUM ADJUSTMENT (only for 110ø picture tubes):**

**ADJUST 20 (4:3 PICTURE MODE), ADJUST 31 (16:9 PICTURE MODE), ADJUST 42 (CINEMA PICTURE MODE), ADJUST 53 (SUBTITLE PICTURE MODE), ADJUST 64 (SUPER ZOOM PICTURE MODE) = EW Trapezium**

Enter a PAL B/G test pattern via RF. Change EW Trapezium till vertical lines, especially lines at the sides of the picture frame become parallel to the both sides of picture tube as close as possible. Check and readjust EW Trapezium item if the adjustment becomes improper after some other geometric adjustments are done.

**ADJUST 65 OSD position**

Determines the horizontal position of the OSD's.

### For OPTION settings:

Select **OPTION** using  $\nabla$  or  $\triangle$  button and press  $\triangleright$  or  $\triangleleft$  button to enter it. To select different option bytes, use  $\nabla$  or  $\triangle$  button. Use  $\triangleright$  or  $\triangleleft$  button select the bit you want to set and then set it pressing 0 or 1 button.

#### Option 0. Video Processor Crystal indication

B7:	Ina	=	x
B6:	Inb	=	x
B5:	Inc	=	x
B4:	Akb	=	0 ((0x 02) Hue B6 (Black current stabilisation))
B3:	Foa	=	x
B2:	Fob	=	x
B1:	Xa	=	note1 (Crystal indication)
B0:	Xb	=	note1 (Crystal indication)

#### note 1:

Xa,Xb

0,1	:	Pal M, Pal N, Ntsc M Pin 34 : 3.58 (1, 2 or 3 crystals) Pin 35 : No crystal
1,0	:	Pal BG, Pal DK, Pal I/I+, Secam BG, Secam DK, Secam L/L', Secam K1 Pin 34 : No crystal Pin 35 : 4.43 (1 crystal)
1,1	:	Pal BG, Pal DK, Pal I/I+, Secam BG, Secam DK, Secam L/L', Secam K1, Pal M, Pal N, Ntsc M Pin 34 : 3.58 (1, 2 or 3 crystals) Pin 35 : 4.43 (1 crystal)

#### Option 01 (0x01) Video Processor Decoder Mode Register

B7 :	Forf	=	1 (Forced fiel frequency auto (50Hz when line not synchronized))
B6 :	Fors	=	1 (Forced fiel frequency auto (50Hz when line not synchronized))
B5 :	DI	=	x
B4 :	Stb	=	x (Stand-by)
B3 :	Poc	=	x
B2 :	Cm2	=	x
B1 :	Cm1	=	x
B0 :	Cm0	=	x

#### Option 02 (0x18) Video Processor Blanking Control

B7 :	Oso	=	0 (Switch-off in vertical overscan)
B6 :	Vsd	=	0 (Vertical scan disable)
B5 :	Cb	=	0 (Chroma bandpass center frequency)
B4 :	Bls	=	0 (Blue Stretch)
B3 :	Bks	=	0 (Black Stretch)
B2 :	Ie1	=	x
B1 :	Afw	=	x
B0 :	Bb	=	0 (Blue back when no video signal is identified)

#### Option 03 (0x 19) Video Processor Cathode Drive Level

B7 :	Hob	=	x note 1
B6 :	Bps	=	0 (Bypass of chroma base-band delay line)
B5 :	Acl	=	x
B4 :	Cmb	=	note 2 (Enable external comb filter)
B3 :	Ast	=	x
B2 :	Cl2	=	1 (Cathode drive level) +57%
B1 :	Cl1	=	0 (Cathode drive level) +57%
B0 :	Cl0	=	0 (Cathode drive level) +57%

#### note 1:

0	=	Pal+ helper output blanking disabled
1	=	Pal+ helper output blanking enabled

#### note 2:

0	=	Comb filter disabled
1	=	Comb filter enabled

#### Option 04

B7 :	Ifs	=	x
B6 :	Mod	=	x
B5 :	Vsw	=	x
B4 :	Sm	=	x
B3 :	Ds	=	0 ((0x1A) LuminanceDelay (Dynamic skin control on/off ))
B2 :	Dsa	=	0 ((0x1A) LuminanceDelay (Dynamic skin control angle))
B1 :	Fav	=	0 ((0x14) (VolumeControl B6 (Fixed Audio Volume )))
B0 :	Lfa	=	x

**Option 05****CTI Available**

B7 : Hbl = 0 ((0x02) Hue (RGB blanking mode (TDA8844/47/54/57)))  
 B6 : Lbm = 0 ((0x09) Vertical Amplitude (Long blanking mode))  
 B5 : Vim = x  
 B4 : Gai = note 1 ((0x03) Horizontal Shift B6 (Gain of luminance channel))  
 B3 : Nci = x  
 B2 : Stm = x  
 B1 : Vid = x  
 B0 : ... = x

**note 1:**

0 = CTI disabled  
 1 = CTI available

**Option 06**

B7 : Hco = x  
 B6 : Evg = 1((0x0A) S-Correction ( Enable vertical guard (RGB blanking)))  
 B5 : Sbl = 1((0x0B) Vertical Shift B7 (Service Blanking))  
 B4 : Prd = x  
 B3 : Mat = note 1 ((0x 0E White Point Blue B7(PAL-SECAM/NTSC matrix(TDA8841/42/44/54)))  
 B2 : Rbl = x  
 B1 : Cor = x  
 B0 : ... = x

**Option 07****Country Value, PLL\_VST, PIP Zoom Mode, PIP Position**

B7 : C3 = note 1  
 B6 : C2 = note 1  
 B5 : C1 = note 1  
 B4 : C0 = note 1  
 B3 : PV = note 2  
 B2 : PZM = note 3  
 B1 : PP1 = note 4  
 B0 : PP0 = note 4

**note 1:**

C3,C2,C1,C0 = Country  
 0,0,0,0 = ? Not allowed  
 0,0,0,1 = D Germany  
 0,0,1,0 = A Austria  
 0,0,1,1 = CH Switzerland  
 0,1,0,0 = I Italy  
 0,1,0,1 = F France  
 0,1,1,0 = B Belgium  
 0,1,1,1 = DK Denmark  
 1,0,0,0 = S Sweden  
 1,0,0,1 = N Norway  
 1,0,1,0 = SF Finland  
 1,0,1,1 = GB Great Britain  
 1,1,0,0 = NL Netherlands  
 1,1,0,1 = P Portugal  
 1,1,1,0 = E Spain  
 1,1,1,1 = TR Turkey

**note 2:****PV : PLL / VST bit**

1 : = VST Tuner  
 0 : = PLL Tuner

**note 3:****PZM : PIP zoom mode**

1 : = 16 : 9  
 0 : = 4:3

**note 4:****PP1, PP0 : PIP position**

00 : = LEFT-TOP  
 01 : = LEFT-BOTTOM  
 10 : = RIGHT-BOTTOM  
 11 : = RIGHT-TOP

**Option 08****Tube Size, Default Zoom mode, IF Frequency**

B7 : Tub = note 1  
 B6 : Z.Def = note 2  
 B5 : IfI = note 3  
 B4 : IfD = note 4  
 B3 : IfM = note 5  
 B2 : Aps = note 6  
 B1 : Hp = note 7  
 B0 : Hue = note 8

**note 1:**

Tub : Tube size  
 0 = 16:9 Tube size  
 1 = 4:3 Tube size

**note 2:**

Z.Def : Zoom Default Mode  
 0 = 16:9 mode default  
 1 = 4:3 mode default

**note 3:**

lfl  
 0 = IF I 39.5 MHz Great Britain I, Only UHF Tuner  
 1 = IF I 38.9 MHz Ireland I+, Standard Tuner

**note 4:**

lfd  
 0 = IF DK 38.0 MHz  
 1 = IF DK 38.9 MHz

**note 5:**

lfm  
 0 = IF M,N 45.75 MHz S&N American Models, Tuner UV1336 (Only Pal M/N, Ntsc M)  
 1 = IF M,N 38.9 MHz Euro M,N Models, Standard Tuner

**Note 6:**

Aps ( Only for PLL )  
 0 = A.P.S. done  
 1 = A.P.S. set

**note 7:**

Hp : Headphone available  
 0 = No headphone  
 1 = Headphone available

**note 8:**

Hue : Hue Available  
 0 = No hue  
 1 = Hue available

**Option 09 Standard Available**

B7 : NM = note 1  
 B6 : PN = note 1  
 B5 : PM = note 1  
 B4 : K1 = note 1  
 B3 : L = note 1  
 B2 : I = note 1  
 B1 : DK = note 1  
 B0 : BG = note 1

**note 1:**

0 = Standard not supported  
 1 = Standard available

**Option 10 Scart, Combfilter, Teletext Language**

B7 : TXL2 = note 1  
 B6 : TXL1 = note 1  
 B5 : TXL0 = note 1  
 B4 : Com = note 2  
 B3 : Svh = note 3  
 B2 : Fro = note 4  
 B1 : Sc2 = note 5  
 B0 : .. = x

**note 1:**

TXL2, TXL1, TXL0: Primary Language  
 000 = WEST, {{ENGLISH}, {FRENCH}, {SCAND}, {CZECH }, {GERMAN}, {SPANISH}, {ITALIAN}, {ENGLISH }}  
 001 = WEST-EAST{{POLISH}, {FRENCH}, {SCAND}, {CZECH}, {GERMAN}, {SERBIAN}, {ITALIAN}, {RUMANIAN}}  
 010 = WEST-TR{{ENGLISH}, {FRENCH}, {SCAND}, {TURKISH}, {GERMAN}, {SPANISH}, {ITALIAN}, {GREEK}}  
 011 = EAST (Cyrillic) {{ENGLISH}, {RUSSIAN}, {HUNGARIAN}, {CZECH}, {GERMAN}, {UKRAINIAN}, {LETTISH}, {RUMANIAN}}  
 100 = ARABIC{{ENGLISH}, {FRENCH}, {ENGLISH}, {ENGLISH}, {ENGLISH}, {HEBREW}, {ENGLISH}, {ARABIC}}

**note 2:**

0 = Comb filter not supported  
 1 = Comb filter available

**note 3:**

0 = S-VHS not supported  
 1 = S-VHS available

**note 4:**

0 = Front/Back AV (AV-3) not supported  
 1 = Front/Back AV (AV-3) available

**note 5:**

0 = Scart 2 not supported  
 1 = Scart 2 available

**Option 11 PII tuner control 1 byte**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

PII tuner control 1 byte

		<b>b7 b6 b5 b4 b3 b2 b1 b0</b>
Philips	UV1316MK2	1 0 0 0 1 1 1 0
Alps	TELE9X062A	1 0 0 0 1 1 1 0
Samsung	TEXX2949PG28A	1 0 0 0 1 1 1 0
Siel	PT060	1 0 0 0 1 1 1 0
Temic	5001PH5-3X0003	1 0 0 0 1 1 1 0
Thomson	CTT5020	1 0 0 0 1 1 1 0

**Option 12 PII tuner control 2 low byte**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

PII tuner control 2 low byte

		<b>b7 b6 b5 b4 b3 b2 b1 b0</b>
Philips	UV1316MK2	1 0 1 0 0 0 0 1
Alps	TELE9X062A	0 0 0 0 0 0 0 1
Samsung	TEXX2949PG28A	0 0 0 0 0 0 0 1
Siel	PT060	0 1 1 0 0 0 0 0
Temic	5001PH5-3X0003	0 0 0 0 0 0 1 0
Thomson	CTT5020	0 0 0 0 0 0 1 1

**Option 13 PII tuner control 2 mid byte**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

PII tuner control 2 mid byte

		<b>b7 b6 b5 b4 b3 b2 b1 b0</b>
Philips	UV1316MK2	1 0 0 1 0 0 1 0
Alps	TELE9X062A	0 0 0 0 0 0 1 0
Samsung	TEXX2949PG28A	0 0 0 0 0 0 1 0
Siel	PT060	0 1 0 1 0 0 0 0
Temic	5001PH5-3X0003	0 0 0 0 0 1 0 0
Thomson	CTT5020	0 0 0 0 0 1 1 0

**Option 14 PII tuner control 2 high byte**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

PLL tuner control 2 high byte

		<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>
Philips	UV1316MK2	0	0	1	1	0	1	0	0
Alps	TELE9X062A	0	0	0	0	1	0	0	0
Samsung	TEXX2949PG28A	0	0	0	0	1	0	0	0
Siel	PT060	0	0	1	1	0	0	0	0
Temic	5001PH5-3X0003	0	0	0	0	0	0	0	1
Thomson	CTT5020	1	0	0	0	0	1	0	1

**Option 15 PLL tuner VHF LOW - VHF HIGH crossover low byte**

B7 :	b7	=	note 1
B6 :	b6	=	note 1
B5 :	b5	=	note 1
B4 :	b4	=	note 1
B3 :	b3	=	note 1
B2 :	b2	=	note 1
B1 :	b1	=	note 1
B0 :	b0	=	note 1

**note 1 :**

PLL tuner VHF LOW - VHF HIGH crossover low byte

		<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>	
Philips	UV1316MK2	0	0	0	0	1	0	1	0	(0A hex)
Alps	TELE9X062A	0	0	0	0	0	0	0	0	
Samsung	TEXX2949PG28A	0	0	0	0	1	0	0	0	
Siel	PT060	0	0	0	0	0	0	0	0	
Temic	5001PH5-3X0003	0	0	0	0	0	0	0	0	
Thomson	CTT5020	1	0	1	0	1	0	1	0	(AA hex)

**Option 16 PLL tuner VHF LOW - VHF HIGH crossover high byte**

B7 :	b7	=	note 1
B6 :	b6	=	note 1
B5 :	b5	=	note 1
B4 :	b4	=	note 1
B3 :	b3	=	note 1
B2 :	b2	=	note 1
B1 :	b1	=	note 1
B0 :	b0	=	note 1

**note 1 :**

PLL tuner VHF LOW - VHF HIGH crossover high byte

		<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>	
Philips	UV1316MK2	0	0	0	0	1	1	0	0	(0C hex)
Alps	TELE9X062A	0	0	0	0	0	0	0	0	
Samsung	TEXX2949PG28A	0	0	0	0	1	1	0	1	
Siel	PT060	0	0	0	0	0	0	0	0	
Temic	5001PH5-3X0003	0	0	0	0	0	0	0	0	
Thomson	CTT5020	0	0	0	0	1	0	0	1	(09 hex)

**Option 17 PLL tuner VHF HIGH - UHF crossover low byte**

B7 :	b7	=	note 1
B6 :	b6	=	note 1
B5 :	b5	=	note 1
B4 :	b4	=	note 1
B3 :	b3	=	note 1
B2 :	b2	=	note 1
B1 :	b1	=	note 1
B0 :	b0	=	note 1

**note 1 :**

PLL tuner VHF HIGH - UHF crossover low byte

		<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>	
Philips	UV1316MK2	1	1	1	0	0	0	1	0	(E2 hex)
Alps	TELE9X062A	0	0	0	0	0	0	0	0	
Samsung	TEXX2949PG28A	1	0	1	0	0	0	1	0	
Siel	PT060	0	0	0	0	0	0	0	0	
Temic	5001PH5-3X0003	0	0	0	0	0	0	0	0	
Thomson	CTT5020	1	0	1	0	0	0	1	0	(A2 hex)

**Option 18. PII tuner VHF HIGH - UHF crossover high byte**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

PII tuner VHF HIGH - UHF crossover high byte

		<b>b7 b6 b5 b4 b3 b2 b1 b0</b>	
Philips	UV1316MK2	0 0 0 1 1 1 1 0	(1D hex)
Alps	TELE9X062A	0 0 0 0 0 0 0 0	
Samsung	TEXX2949PG28A	0 0 0 1 1 1 1 0	
Siel	PT060	0 0 0 0 0 0 0 0	
Temic	5001PH5-3X0003	0 0 0 0 0 0 0 0	
Thomson	CTT5020	0 0 0 1 1 0 1 1	(1B hex)

**Option 19 PIP PII tuner control 1 byte**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

PII tuner control 1 byte

		<b>b7 b6 b5 b4 b3 b2 b1 b0</b>
Philips	UV1316MK2	1 0 0 0 1 1 1 0
Alps	TELE9X062A	1 0 0 0 1 1 1 0
Samsung	TEXX2949PG28A	1 0 0 0 1 1 1 0
Siel	PT060	1 0 0 0 1 1 1 0
Temic	5001PH5-3X0003	1 0 0 0 1 1 1 0
Thomson	CTT5020	1 0 0 0 1 1 1 0

**Option 20 PIP PII tuner control 2 low byte**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

PII tuner control 2 low byte

		<b>b7 b6 b5 b4 b3 b2 b1 b0</b>
Philips	UV1316MK2	1 0 1 0 0 0 0 1
Alps	TELE9X062A	0 0 0 0 0 0 0 1
Samsung	TEXX2949PG28A	0 0 0 0 0 0 0 1
Siel	PT060	0 1 1 0 0 0 0 0
Temic	5001PH5-3X0003	0 0 0 0 0 0 1 0
Thomson	CTT5020	0 0 0 0 0 0 1 1

**Option 21 PIP PII tuner control 2 mid byte**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1



**note 1 :**

PII tuner control 2 mid byte

		<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>
Philips	UV1316MK2	1	0	0	1	0	0	1	0
Alps	TELE9X062A	0	0	0	0	0	0	1	0
Samsung	TEXX2949PG28A	0	0	0	0	0	0	1	0
Siel	PT060	0	1	0	1	0	0	0	0
Temic	5001PH5-3X0003	0	0	0	0	0	1	0	0
Thomson	CTT5020	0	0	0	0	0	1	1	0

**Option 22 PIP PII tuner control 2 high byte**

B7 :	b7	=	note 1
B6 :	b6	=	note 1
B5 :	b5	=	note 1
B4 :	b4	=	note 1
B3 :	b3	=	note 1
B2 :	b2	=	note 1
B1 :	b1	=	note 1
B0 :	b0	=	note 1

**note 1 :**

PII tuner control 2 high byte

		<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>
Philips	UV1316MK2	0	0	1	1	0	1	0	0
Alps	TELE9X062A	0	0	0	0	1	0	0	0
Samsung	TEXX2949PG28A	0	0	0	0	1	0	0	0
Siel	PT060	0	0	1	1	0	0	0	0
Temic	5001PH5-3X0003	0	0	0	0	0	0	0	1
Thomson	CTT5020	1	0	0	0	0	1	0	1

**Option 23 PIP PII tuner VHF LOW - VHF HIGH crossover low byte**

B7 :	b7	=	note 1
B6 :	b6	=	note 1
B5 :	b5	=	note 1
B4 :	b4	=	note 1
B3 :	b3	=	note 1
B2 :	b2	=	note 1
B1 :	b1	=	note 1
B0 :	b0	=	note 1

**note 1 :**

PII tuner VHF LOW - VHF HIGH crossover low byte

		<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>	
Philips	UV1316MK2	0	0	0	0	1	0	1	0	(0A hex)
Alps	TELE9X062A	0	0	0	0	0	0	0	0	
Samsung	TEXX2949PG28A	0	0	0	0	1	0	0	0	
Siel	PT060	0	0	0	0	0	0	0	0	
Temic	5001PH5-3X0003	0	0	0	0	0	0	0	0	
Thomson	CTT5020	1	0	1	0	1	0	1	0	(AA hex)

**Option 24 PIP PII tuner VHF LOW - VHF HIGH crossover high byte**

B7 :	b7	=	note 1
B6 :	b6	=	note 1
B5 :	b5	=	note 1
B4 :	b4	=	note 1
B3 :	b3	=	note 1
B2 :	b2	=	note 1
B1 :	b1	=	note 1
B0 :	b0	=	note 1

**note 1 :**

PII tuner VHF LOW - VHF HIGH crossover high byte

		<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>	
Philips	UV1316MK2	0	0	0	0	1	1	0	0	(0C hex)
Alps	TELE9X062A	0	0	0	0	0	0	0	0	
Samsung	TEXX2949PG28A	0	0	0	0	1	1	0	1	
Siel	PT060	0	0	0	0	0	0	0	0	
Temic	5001PH5-3X0003	0	0	0	0	0	0	0	0	
Thomson	CTT5020	0	0	0	0	1	0	0	1	(09 hex)

**Option 25 PIP PII tuner VHF HIGH - UHF crossover low byte**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

PII tuner VHF HIGH - UHF crossover low byte

		<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>	
Philips	UV1316MK2	1	1	1	0	0	0	1	0	(E2 hex)
Alps	TELE9X062A	0	0	0	0	0	0	0	0	
Samsung	TEXX2949PG28A	1	0	1	0	0	0	1	0	
Siel	PT060	0	0	0	0	0	0	0	0	
Temic	5001PH5-3X0003	0	0	0	0	0	0	0	0	
Thomson	CTT5020	1	0	1	0	0	0	1	0	(A2 hex)

**Option 26 PIP PII tuner VHF HIGH - UHF crossover high byte**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

PII tuner VHF HIGH - UHF crossover high byte

		<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>	
Philips	UV1316MK2	0	0	0	1	1	1	1	0	(1D hex)
Alps	TELE9X062A	0	0	0	0	0	0	0	0	
Samsung	TEXX2949PG28A	0	0	0	1	1	1	1	0	
Siel	PT060	0	0	0	0	0	0	0	0	
Temic	5001PH5-3X0003	0	0	0	0	0	0	0	0	
Thomson	CTT5020	0	0	0	1	1	0	1	1	(1B hex)

**Option 27 LANGUAGE AVAILABLE 1**

B7 : L7 = DANISH  
 B6 : L6 = SWEDISH  
 B5 : L5 = ITALIAN  
 B4 : L4 = PORTUGUESE  
 B3 : L3 = SPANISH  
 B2 : L2 = FRENCH  
 B1 : L1 = GERMAN  
 B0 : L0 = ENGLISH

1 : Language available

0 : Language not available

**Option 28 LANGUAGE AVAILABLE 2**

B7 : L15 = RUSSIA  
 B6 : L14 = BULGARIAN  
 B5 : L13 = RUMANIAN  
 B4 : L12 = HRVATSKI  
 B3 : L11 = POLISH  
 B2 : L10 = CZECH  
 B1 : L9 = HUNGARY  
 B0 : L8 = TURKEY

1 : Language available

0 : Language not available

**Option 29 LANGUAGE AVAILABLE 3 and Zoom Mode Available**

B7 : ZSP = SUPER ZOOM MODE  
 B6 : ZSB = SUBTITLE ZOOM MODE  
 B5 : ZCN = CINEMA ZOOM MODE  
 B4 : PMK = note 1  
 B3 : L19 = Not used  
 B2 : L18 = Not used  
 B1 : L17 = ARABIC  
 B0 : L16 = HEBREW

1 : Available  
 0 : Not available

**note 1 :**

PMK : Picture mode key  
 0 : Not available picture mode key from RC  
 1 : available picture mode key from RC

**OPTION 38. TV TELETEXT MODE SELECTION, Child Lock, Equalizer, Country**

B7 : B7 = x  
 B6 : C = note 2  
 B5 : LM = 0  
 B4 : EQ = 0  
 B3 : ... = x  
 B2 : CL = note 1  
 B1 : T1 = x  
 B0 : T0 = x

**note 1 :**

CL = Child Lock  
 0 = Off  
 1 = On (Active)

**note 2 :**

C = Country Line available / Aps available or not  
 0 = Country Line not available / Aps not available  
 1 = Country Line available / Aps available

**OPTION 50. FM PRESCALE**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

FM PRESCALE **b7 b6 b5 b4 b3 b2 b1 b0**  
 0 0 0 0 1 1 0 0

**OPTION 51. NICAM PRESCALE**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

NICAM PRESCALE **b7 b6 b5 b4 b3 b2 b1 b0**  
 0 0 1 0 1 1 0 1

**OPTION 52. SCART PRESCALE and AVL Bit**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

SCART PRESCALE **b7 b6 b5 b4 b3 b2 b1 b0**  
 0 0 0 1 0 1 1 0

**OPTION 53. I2S PRESCALE**

B7 : b7 = note 1  
 B6 : b6 = note 1  
 B5 : b5 = note 1  
 B4 : b4 = note 1  
 B3 : b3 = note 1  
 B2 : b2 = note 1  
 B1 : b1 = note 1  
 B0 : b0 = note 1

**note 1 :**

**b7 b6 b5 b4 b3 b2 b1 b0**

I2S PRESCALE                    0 0 0 0 0 1 1 0

**OPTION 54. MSP SCART OUTPUT VOLUME**

B7:b7 = note 1  
 B6:b6 = note 1  
 B5:b5 = note 1  
 B4:b4 = note 1  
 B3:b3 = note 1  
 B2:b2 = note 1  
 B1:b1 = note 1  
 B0:b0 = note 1

**note 1 :**

**b7 b6 b5 b4 b3 b2 b1 b0**

MSP SCART OUTPUT VOLUME    1 0 0 0 0 0 0 0

**OPTION 55. SPEAKER SETUP**

B7:b7 = note 1  
 B6:b6 = note 1  
 B5:b5 = note 1  
 B4:b4 = note 1  
 B3:b3 = note 1  
 B2:b2 = note 1  
 B1:b1 = note 1  
 B0:b0 = note 1

**note 1 :**

**b7 b6 b5 b4 b3 b2 b1 b0**

SPEAKER SETUP (L/R, L/C/R, L/R/S, L/C/R/S)    0 0 0 0 0 0 0 0

**OPTION 56. AUDIO OPTIONS AVAILABLE OR NOT**

B7 : nicam = x  
 B6 : b6 = x  
 B5 : SRS = note 1  
 B4 : ... = x  
 B3 : ... = x  
 B2 : Bbe = note 2  
 B1 : Spa = note 3  
 B0 : Avl = note 4

**note 1 :**

SRS = TruSurround , TruBass , BBE  
 0 = SRS not available  
 1 = SRS available

**note 2 :**

Bbe = BBE (Analog BBE)  
 0 = BBE not available  
 1 = BBE available

**note 3 :**

Spa = Spatial Effect available  
 0 = Spatial Effect not available  
 1 = Spatial Effect available

**note 4 :**

Avl = Automatic volume level available  
 0 = Automatic volume level not available  
 1 = Automatic volume level available

**OPTION 57. STEREO THRESHOLD**

B7 : b7 = note 1  
B6 : b6 = note 1  
B5 : b5 = note 1  
B4 : b4 = note 1  
B3 : b3 = note 1  
B2 : b2 = note 1  
B1 : b1 = note 1  
B0 : b0 = note 1

Remark :

-Threshold for all FM A2 signals to switch from MONO to STEREO.  
-For first check after programme change half value is changed (0Ch) 19h/2  
-For switching from STEREO back to MONO: 19h/4 \*3

**note 1 :**

MSP STEREO/MONO THRESHOLD                    **b7 b6 b5 b4 b3 b2 b1 b0**  
0 0 0 1 1 0 0 1

**OPTION 58. MSP AUDIO FLAGS**

B7 : b7 = x  
B6 : b6 = x  
B5 : b5 = x  
B4 : Trs = note 1  
B3 : Trb = note 1  
B2 : Bbe = note 1  
B1 : Spa = note 1  
B0 : Avl = note 1

**note 1 :**

Defines whether the feature is toggled ON or OFF in the menu and stored.  
0 :OFF  
1 :ON

**OPTION 59. Nicam Threshold**

B7 : b7 = note 1  
B6 : b6 = note 1  
B5 : b5 = note 1  
B4 : b4 = note 1  
B3 : b3 = note 1  
B2 : b2 = note 1  
B1 : b1 = note 1  
B0 : b0 = note 1

**note 1 :**

MSP NICAM THRESHOLD                    **b7 b6 b5 b4 b3 b2 b1 b0**  
0 1 1 0 0 1 0 0

**OPTION 60. Power Delay Time**

B7 : L7 = note 1  
B6 : L6 = note 1  
B5 : L5 = note 1  
B4 : L4 = note 1  
B3 : L3 = note 1  
B2 : L2 = note 1  
B1 : L1 = note 1  
B0 : L0 = note 1

Note 1:

Default Value :                    **L7 L6 L5 L4 L3 L2 L1 L0**  
0    0    1    1    0    0    0    0

## AK19PRO CHASSIS ADJUST SETTING

### ADJUST 00-65

ADJUST 00	=	White Point RED
ADJUST 01	=	White Point GREEN
ADJUST 02	=	White Point BLUE
ADJUST 03	=	AGC
ADJUST 04	=	IF-PLL Negative
ADJUST 05	=	IF-PLL Positive
ADJUST 06	=	Y-Delay PAL
ADJUST 07	=	Y-Delay SECAM
ADJUST 08	=	Y-Delay NTSC
ADJUST 09	=	Y-Delay OTHER
ADJUST 10	=	4:3 Vertical Zoom
ADJUST 11	=	4:3 Vertical Scroll
ADJUST 12	=	4:3 Horizontal Shift
ADJUST 13	=	4:3 Vertical Slope
ADJUST 14	=	4:3 Vertical Amplitude
ADJUST 15	=	4:3 S-correction
ADJUST 16	=	4:3 Vertical Shift
ADJUST 17	=	4:3 EW Width
ADJUST 18	=	4:3 EW Parabola Width
ADJUST 19	=	4:3 EW Corner Parabola
ADJUST 20	=	4:3 EW Trapezium
ADJUST 21	=	16:9 Vertical Zoom
ADJUST 22	=	16:9 Vertical Scroll
ADJUST 23	=	16:9 Horizontal Shift
ADJUST 24	=	16:9 Vertical Slope
ADJUST 25	=	16:9 Vertical Amplitude
ADJUST 26	=	16:9 S-correction
ADJUST 27	=	16:9 Vertical Shift
ADJUST 28	=	16:9 EW Width
ADJUST 29	=	16:9 EW Parabola Width
ADJUST 30	=	16:9 EW Corner Parabola
ADJUST 31	=	16:9 EW Trapezium
ADJUST 32	=	Cinema Vertical Zoom
ADJUST 33	=	Cinema Vertical Scroll
ADJUST 34	=	Cinema Horizontal Shift
ADJUST 35	=	Cinema Vertical Slope
ADJUST 36	=	Cinema Vertical Amplitude
ADJUST 37	=	Cinema S-correction
ADJUST 38	=	Cinema Vertical Shift
ADJUST 39	=	Cinema EW Width
ADJUST 40	=	Cinema EW Parabola Width
ADJUST 41	=	Cinema EW Corner Parabola
ADJUST 42	=	Cinema EW Trapezium
ADJUST 43	=	Subtitle Vertical Zoom
ADJUST 44	=	Subtitle Vertical Scroll
ADJUST 45	=	Subtitle Horizontal Shift
ADJUST 46	=	Subtitle Vertical Slope
ADJUST 47	=	Subtitle Vertical Amplitude
ADJUST 48	=	Subtitle S-correction
ADJUST 49	=	Subtitle Vertical Shift
ADJUST 50	=	Subtitle EW Width
ADJUST 51	=	Subtitle EW Parabola Width
ADJUST 52	=	Subtitle EW Corner Parabola
ADJUST 53	=	Subtitle EW Trapezium
ADJUST 54	=	Super Zoom Vertical Zoom
ADJUST 55	=	Super Zoom Vertical Scroll
ADJUST 56	=	Super Zoom Horizontal Shift
ADJUST 57	=	Super Zoom Vertical Slope
ADJUST 58	=	Super Zoom Vertical Amplitude
ADJUST 59	=	Super Zoom S-correction
ADJUST 60	=	Super Zoom Vertical Shift
ADJUST 61	=	Super Zoom EW Width
ADJUST 62	=	Super Zoom EW Parabola Width
ADJUST 63	=	Super Zoom EW Corner Parabola
ADJUST 64	=	Super Zoom EW Trapezium
ADJUST 65	=	OSD position