# SERVICE MANUAL

# AA-2U CHASSIS

| MODEL NAME | REMOTE COMMANDER | DESTINATION | CHASSIS NO. |
|---|---|---|---|
| *KV-32FV27* | RM-Y182 | US | SCC-S44KA |
| *KV-32FV27* | RM-Y182 | CND | SCC-S45GA |
| *KV-36FS13* | RM-Y180 | US | SCC-S44HA |
| *KV-36FS13* | RM-Y180 | CND | SCC-S45EA |
| *KV-36FS13H* | RM-Y180 | HAWAII | SCC-S46FA |
| *KV-36FS17* | RM-Y181 | US | SCC-S44GA |
| *KV-36FS17H* | RM-Y181 | HAWAII | SCC-S46EA |
| *KV-36FV27* | RM-Y182 | US | SCC-S44JA |
| *KV-36FV27* | RM-Y182 | CND | SCC-S45FA |
| *KV-36FV27H* | RM-Y182 | HAWAII | SCC-S46GA |
| *KV-38FS17* | RM-Y181 | E | SCC-S50EA |

KV-36FV27

RM-Y182

# TRINITRON® COLOR TELEVISION

# SONY®

9-965-901-01

# SECTION 4:  CIRCUIT ADJUSTMENTS

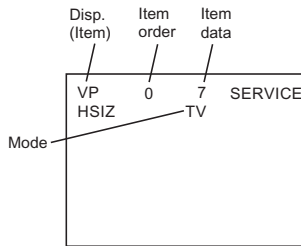## ELECTRICAL ADJUSTMENTS BY REMOTE COMMANDER

Use the Remote Commander (RM-Y180, RM-Y181, RM-Y182) to perform the circuit adjustments in this section.

**Test Equipment Required:**  1. Pattern generator  2. Frequency counter  3. Digital multimeter  4. Audio oscillator
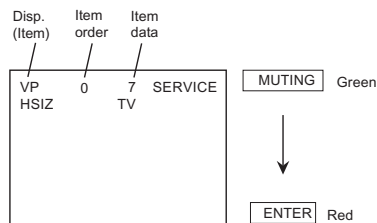
## 4-1. SETTING THE SERVICE ADJUSTMENT MODE

1. Standby mode (Power off).
2. Press Display ➡ Channel ⑤ ➡ Sound Volume ＋ ➡ Power

## SERVICE ADJUSTMENT MODE ON

```
        Disp.    Item    Item
        (Item)   order   data

        VP      0      7     SERVICE
        HSIZ           TV
Mode
```
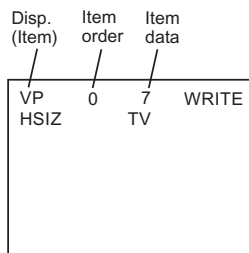
3. The CRT displays the item being adjusted.
4. Press ① or ② on the Remote Commander to select the item.
5. Press ③ or ⑥ on the Remote Commander to change the data.
6. Press MUTING then ENTER to write into memory.

## SERVICE  ADJUSTMENT MODE MEMORY

```
     Disp.    Item    Item
     (Item)   order   data

     VP      0      7     SERVICE       MUTING   Green
     HSIZ           TV
                                          ↓

                                        ENTER   Red
```

7. Press ⑧ then ENTER on the Remote Commander to initialize.

```
     Disp.    Item    Item
     (Item)   order   data

     VP      0      7     WRITE
     HSIZ           TV
                              Carry out step 7 when adjusting
                              IDs 0 to 7 and when replacing and
                              adjusting IC002.
```
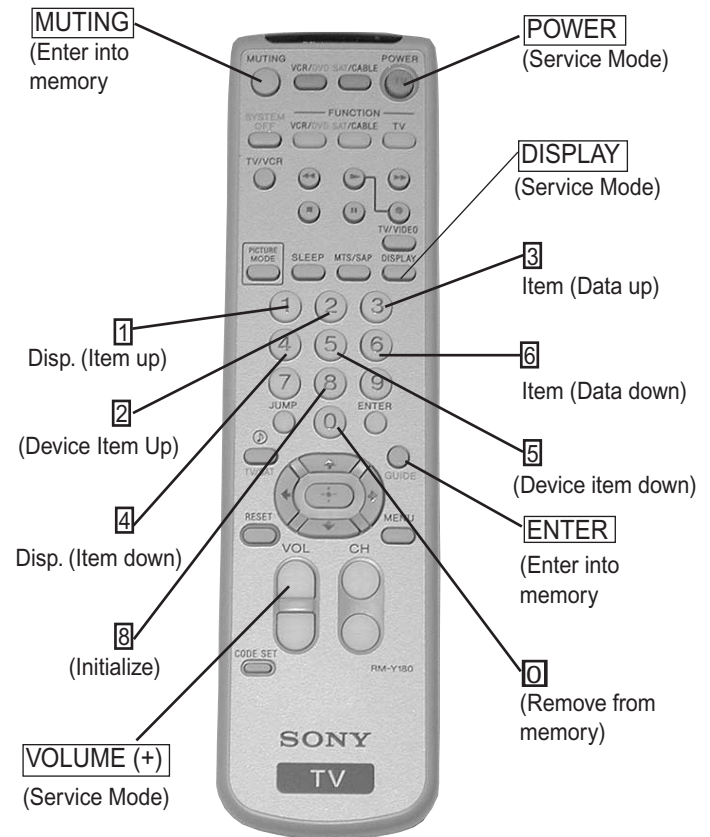
8. DO NOT turn off set until SERVICE appears.

## 4-2. MEMORY WRITE CONFIRMATION METHOD

1. After adjustment, pull out the plug from the AC outlet, then replace the plug in the AC outlet again.
2. Turn the power switch ON and set to Service Mode.
3. Call the adjusted items again to confirm they were adjusted.

## 4-3. REMOTE ADJUSTMENT BUTTONS AND INDICATORS



MUTING (Enter into memory)

POWER (Service Mode)

DISPLAY (Service Mode)

③ Item (Data up)

⑥ Item (Data down)

⑤ (Device item down)

ENTER (Enter into memory)

⓪ (Remove from memory)

① Disp. (Item up)

② (Device Item Up)

④ Disp. (Item down)

⑧ (Initialize)

VOLUME (+) (Service Mode)

**RM-Y182**

| # | Register Name | | Description | Data Range | Adj/Fix | Initial Data | 32" FV | 36"/38" FS | 36"/38" FV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | HPOS | | H-Position | 0-63 | Adj | 7 | 7 | 7 | | 0: 2ms delay, 63: 2ms advance |
| 1 | HSIZ | | H-Size | 0-63 | Adj | 10 | 10 | 10 | | EW DC bias, 0: -0.5V, 31: 0V, 63: +0.5V |
| 2 | VBOW | | AFC Bow | 0-15 | Adj | 6 | 6 | 6 | | 0: top/bottom delay 900ns, 7: center, 15: top/bottom advance 900ns |
| 3 | VANG | | AFC Angle | 0-15 | Adj | 5 | 5 | 5 | | 0: top delay/bottom advance 650ns, 7: center, 15: top advance/bottom delay 650ns |
| 4 | TRAP | | Trapezium Adjustment | 0-15 | Adj | 6 | 6 | 6 | | 0: 1.5ms advance, 15: 1.5ms delay |
| 5 | PAMP | | Pin Compensation | 0-63 | Adj | 32 | 32 | 32 | | 0: 0.15Vpp, 31: 0.7Vpp, 63: 1.3Vpp |
| 6 | UCPN | | Upper Corner Pin | 0-63 | Adj | 36 | 36 | 36 | | 0: -0.4V, 63: +0.4V |
| 7 | LCPN | | Lower Corner Pin | 0-63 | Adj | 36 | 36 | 36 | | 0: -0.4V, 63: +0.4V |
| 8 | VSIZ | | V-Size | 0-63 | Adj | 0 | 0 | 0 | | 0: -15%, 31: 0%, 63: +15% |
| 9 | VPOS | | V-Position | 0-63 | Adj | 31 | 31 | 31 | | 0: -0.1V, 31: 0V, 63: +0.1V |
| 10 | VLIN | | V-Linearity | 0-15 | Adj | 7 | 7 | 7 | | 0: 85% top enlarged, 7: 100% top normal, 15: 115% top compressed |
| 11 | VSCO | | S-Correction | 0-15 | Adj | 7 | 7 | 7 | | 0: 0V added to VD, 15: 100mVpp added to VD |
| 12 | VZOM | | 16:9 CRT Zoom Mode On/Off | 0,1 | FIX | 0 | 0 | | | 0: Zoom Off, 1: Zoom On (top/bottom cut by 25% when ASPECT=31, RGB blanked in this interval) |
| 13 | EHT | | Vertical Size High Voltage Correction | 0-15 | FIX | 4 | 4 | | | 0: Picture adjusted 0%, 15: Picture Adjusted -5% |
| 14 | ASP | | Aspect Ration Control 4:3 Mode | 0-63 | FIX | 47 | 47 | | | 0: 75%(16x9 CRT Full), 31: 100%(4x3 CRT Full), 63: 110% |
| 15 | ASP1 | | Aspect Ration Control 16:9 Mode | 0-63 | FIX | 47 | 47 | | | 0: 75%(16x9 CRT Full), 31: 100%(4x3 CRT Full), 63: 110% |
| 16 | SCRL | | 16:9 Vertical Scroll During Zoom | 0-63 | FIX | 31 | 31 | | | 0: Scrolled toward top 32H, 63: Scrolled toward bottom 32H |
| 17 | HBSW | | H Blanking Switch | 0,1 | FIX | 1 | 1 | | | 0: OFF, 1: ON |
| 18 | LBLK | | Left Blanking | 0-15 | FIX | 15 | 15 | | | 0: +1.2ms, 7: Center, 15: -1.2ms |
| 19 | RBLK | | Right Blanking | 0-15 | FIX | 0 | 0 | | | 0: +1.2ms, 7: Center, 15: -1.2ms |
| 20 | HDW | | H Drive Pulse Width | 0,1 | FIX | 1 | 1 | | | 0: Normal Mode (25ms), 1: Narrow Pulse Width |
| 21 | EWDC | | EW/DC Display 4x3 on 16x9 CRT | 0,1 | FIX | 0 | 0 | | | 0: OFF, 1: ON |
| 22 | LVLN | VP CXA2131AS | Picture Bottom Lin Adjust | 0-15 | Adj | 0 | 0 | | | 0: 100%, 15: 85% Picture top compressed |
| 23 | UVLN | | Picture Top Lin Adjust | 0-15 | Adj | 0 | 0 | | | 0: 100%, 15: 85% Picture bottom compressed |
| 24 | RDRV | | Red Drive | 0-63 | Adj | 31 | 31 | 48 | 54 | 0: 1.5Vpp, 63: 3.0Vpp Red Signal Output |
| 25 | GDRV | | Green Drive | 0-63 | Adj | 31 | 31 | | | 0: 1.5Vpp, 63: 3.0Vpp Greem Signal Output |
| 26 | BDRV | | Blue Drive | 0-63 | Adj | 31 | 31 | | | 0: 1.5Vpp, 63: 3.0Vpp Blue Signal Output |
| 27 | RCUT | | Red Cutoff | 0-15 | FIX | 7 | 14 | | | 0: 3.5mA IK, 7: 13mA IK, 15: 22.7mA IK |
| 28 | GCUT | | Green Cutoff | 0-15 | Adj | 7 | 7 | | | 0: 3.5mA IK, 7: 13mA IK, 15: 22.7mA IK |
| 29 | BCUT | | Blue Cutoff | 0-15 | Adj | 7 | 7 | | | 0: 3.5mA IK, 7: 13mA IK, 15: 22.7mA IK |
| 30 | RDR4 | | Video 4 Red Drive | 0-63 | Adj | 31 | 31 | 54 | | 0: 1.5Vpp, 63: 3.0Vpp Red Signal Output |
| 31 | GDR4 | | Video 4 Green Drive | 0-63 | Adj | 31 | 31 | | | 0: 1.5Vpp, 63: 3.0Vpp Greem Signal Output |
| 32 | BDR4 | | Video 4 Blue Drive | 0-63 | Adj | 31 | 31 | | | 0: 1.5Vpp, 63: 3.0Vpp Blue Signal Output |
| 33 | RCU4 | | Video 4 Red Cutoff | 0-15 | FIX | 7 | 14 | | | 0: 3.5mA IK, 7: 13mA IK, 15: 22.7mA IK |
| 34 | GCU4 | | Video 4 Green Cutoff | 0-15 | Adj | 7 | 7 | | | 0: 3.5mA IK, 7: 13mA IK, 15: 22.7mA IK |
| 35 | BCU4 | | Video 4 Blue Cutoff | 0-15 | Adj | 7 | 7 | | | 0: 3.5mA IK, 7: 13mA IK, 15: 22.7mA IK |
| 36 | SBRT | | Sub Brightness | 0-31 | Adj | 15 | adjust to IRE cutoff | adjust to IRE cutoff | | Sub Brightness |
| 37 | RON | | Red Off | 0,1 | FIX | 1 | 1 | | | 0:OFF, 1:ON |
| 38 | GON | | Green Off | 0,1 | FIX | 1 | 1 | | | 0:OFF, 1:ON |
| 39 | BON | | Blue Off | 0,1 | FIX | 1 | 1 | | | 0:OFF, 1:ON |
| 40 | AXPL | | Axis PAL | 0,1 | FIX | 0 | 0 | | | 0: Normal Axis, 1: Forced PAL Asix |
| 41 | CBPF | | Chroma BPF On/Off | 0,1 | FIX | 1 | 1 | | | 0: BPF OFF, 1: BPF ON |
| 42 | COFF | | Color On/Off | 0,1 | FIX | 0 | 0 | | | 0: Chroma OFF, 1: Chroma ON |
| 43 | TSSP | | Sub Sharpness for TV Input | 0-15 | Fix by model | 6 | 6 | 5 | 6 | 0=-12dB, 7=+3.5dB, 15=+9dB |
| 44 | TSPF | | Sharpness fo for TV Input | 0,1 | FIX | 1 | 1 | | | 0=2.5MHZ, 1=3.0MHz |
| 45 | VSSP | | Sub Sharpness for Video Input | 0-15 | Fix by model | 7 | 7 | 5 | 7 | 0=-12dB, 7=+3.5dB, 15=+9dB |
| 46 | VSPF | | Sharpness fo for Video Input | 0,1 | FIX | 1 | 1 | | | 0=2.5MHZ, 1=3.0MHz |
| 47 | YSSP | | Sub Sharpness for YUV Input | 0-15 | Fix by model | 7 | 7 | 6 | 7 | 0=-12dB, 7=+3.5dB, 15=+9dB |

| # | Register Name | | Description | Data Range | Adj/Fix | Initial Data | 32" FV | 36"/38" FS | 36"/38" FV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 48 | YSPF | | Sharpness fo for YUV Input | 0,1 | FIX | 1 | | 1 | | 0=2.5MHZ, 1=3.0MHz |
| 49 | AXNT | | Axis NTSC | 0,1 | FIX | 0 | | 0 | | 0: Japan Axis, 1: US Axis |
| 50 | PREL | | Pre/Overshoot Ratio | 0,1 | FIX | 1 | | 1 | | 0: 1:1, 1: 2:1 |
| 51 | DCT | | DC Transmission Ratio | 0,1 | FIX | 1 | | 1 | | 0:100%, 1:85% |
| 52 | ABLM | | ABL Mode | 0,1 | FIX | 1 | | 1 | | 0:Picture ABL, 1:Picture/Brightness ABL |
| 53 | FSC | | FSC Output On/Off | 0,1 | FIX | 1 | | 1 | | 0: FSC output OFF, 1: FSC output ON |
| 54 | HOSC | VP CXA2131AS | H VCO Frequency Adjustment | 0-15 | FIX | 12 | | 12 | | 0: Low, 15: High (40 Hz Steps) |
| 55 | VSS | | Vsync Slice Level | 0,1 | FIX | 0 | | 1 | | 0: 1/3 from sync tip, 1: 1/4 from sync tip |
| 56 | HSS | | Hsync Slice Level | 0,1 | FIX | 0 | | 1 | | 0: 1/3 from sync tip, 1: 1/4 from sync tip |
| 57 | HMSK | | Macrovision Countermeasure | 0,1 | FIX | 1 | | 1 | | 0: Off, 1: ON |
| 58 | VTMS | | Select Signal VTIM Pin | 0-3 | FIX | 0 | | 0 | | 0: V retrace timing, 1: Hsync signal, 2: Vsync signal, 3: don't use |
| 59 | AFC | | AFC | 0-3 | FIX | 0 | | 0 | | 0: High Gain, 1: Medium Gain, 2: don't use, 3: Extremely low gain |
| 60 | REFP | | REFP | 0,1 | FIX | 0 | | 0 | | 0: R=20H/G=21H/B=22H, 1: R=23H/G=24H/B=25H |
| 61 | VBSW | | VBLK Width Control | 0-3 | FIX | 0 | | 0 | | 0: 9H from B, 1: 10H from B, 2: 11H from B, 3:12H from B (When JUMP SW=1) |
| 62 | BKOF | | ABL Signal Detection Level | 0,1 | FIX | 0 | | 0 | | 0: VTH=3V, 1: VTH=1V |
| 63 | AGN2 | | Aging Mode 2 - Black Output Mode | 0,1 | FIX | 0 | | 0 | | 0: Black Output Mode OFF, 1: Black Output Mode ON |
| 0 | SREF | | Surround Effect | 0-15 | FIX | 7 | | 7 | | 0: Min, 15: Max (8-15 LOOP=1) |
| 1 | BBLP | | BBE Low PAss | 0-15 | FIX | 5 | | 5 | | 0: 0.5dB, 15: 10dB |
| 2 | BBHP | AP BH3868 | BBE High Pass | 0-15 | FIX | 3 | | 3 | | 0: 0.5dB, 15: 10dB |
| 3 | SVOL | | Sub Volume | 0-15 | FIX | 7 | | 7 | | 0:-0 volume steps, 15:-15 volume steps |
| 4 | SBAL | | Sub Balance | 0-15 | FIX | 7 | | 7 | | 0: +Right, 15:+Left |
| 5 | SBAS | | Sub Bass | 0-15 | Fix by model | 5 | 5 | 8 | 5 | 0:-7 steps, 15: +8 steps |
| 6 | STRE | | Sub Treble | 0-15 | Fix by model | 3 | 5 | 8 | 5 | 0:-7 steps, 15: +8 steps |
| 0 | SPCA | | SRS Space Attenuation | 0-63 | FIX | 0 | | 0 | | 0: 0dB, 63: -31db (1dB steps) |
| 1 | CENA | SRS TDA7464 | SRS Center Attenuation | 0-63 | FIX | 0 | | 0 | | 0: 0dB, 63: -31db (1dB steps) |
| 2 | INPA | | Input Attenuation | 0-127 | FIX | 3 | | 3 | | 0: 0dB, 127: -31.5dB (0.5dB steps) |
| 0 | COUT | | Chroma Signal Gain / BPF | 0-3 | FIX | 3 | | 3 | | Input/Output gain=1 / BPF ON |
| 1 | YAPS | | Y V-Compensation/Peaking | 0-3 | FIX | 3 | | 3 | | Correctin enabled for digital/analog inputs |
| 2 | NSDS | | Standard/Non-Standard Processing | 0-3 | FIX | 0 | | 0 | | Standard adaptive processing |
| 3 | MSS | | Inter-frame/Inter-line Mode | 0-3 | FIX | 0 | | 0 | | Adaptive Processing |
| 4 | EXAD | | External ADC Insert | 0,1 | FIX | 0 | | 0 | | Internal Y-ADC |
| 5 | PECS | | Pedestal Error Correction | 0-3 | FIX | 0 | | 0 | | Standard |
| 6 | EXCS | | C sync Input | 0-3 | FIX | 1 | | 1 | | Use CSI |
| 7 | CPP | | Y ADC Amplitude/Clamp Method | 0-3 | FIX | 0 | | 0 | | Y-ADC & C-ADC Vtb=1.25V |
| 8 | HDP | | H Phase Fine Adjustment | 0-7 | FIX | 3 | | 3 | | Phase +/- 0msec |
| 9 | CDL | | C Output Delay Fine Adjustment | 0-7 | FIX | 5 | | 5 | | Y/C Delay +/- 0msec |
| 10 | DYCO | | Y Moving Coring Level | 0-15 | FIX | 2 | | 2 | | 0: Close to moving pictures, 15: Close to still pictures |
| 11 | DYGA | 3D COMB uPD64082 | Y Moving Coring Gain | 0-15 | FIX | 10 | | 10 | | 0: Close to still Pictures, 15: Close to still pictures |
| 12 | DCCO | | C Moving Coring Level | 0-15 | FIX | 2 | | 2 | | 0: Close to moving pictures, 15: Close to still pictures |
| 13 | DCGA | | C Moving Coring Gain | 0-15 | FIX | 9 | | 9 | | 0: Close to still Pictures, 15: Close to moving Pictures |
| 14 | YNRK | | YNR Non-linear Filter Gain | 0,1 | FIX | 1 | | 1 | | x7/8 large noise reduction and large after image |
| 15 | YNRI | | YNR Non-linear Filter Convergence | 0,1 | FIX | 0 | | 0 | | 6LSB small noise reduction and small after image |
| 16 | YNRL | | YNR Non-linear Filter Limit Level | 0-3 | FIX | 1 | | 1 | | 0: YNR Off , 3: 3LSB large noise reduction |
| 17 | CNRK | | CNR Non-linear Filter Gain | 0,1 | FIX | 1 | | 1 | | x7/8 large noise reduction and large after image |
| 18 | CNRI | | CNR Non-linear Filter Convergence | 0,1 | FIX | 0 | | 0 | | 6LSB small noise reduction and small after image |
| 19 | CNRL | | CNR Non-linear Filter Limit Level | 0-3 | FIX | 1 | | 1 | | 0: CNR OFF , 3: 3LSB large noise reduction |
| 20 | ID1O | | ID-1 Superimpose Signal | 0,1 | FIX | 0 | | 0 | | Through, no superimposition |
| 21 | ID1W | | Specifies bit A1 of Word 0 | 0,1 | FIX | 0 | | 0 | | 0: 4x3, 1: 16x9 |
| 22 | ID1N | | Spedifies bit A2 of Word 0 | 0,1 | FIX | 0 | | 0 | | 0: normal, 1:letterbox |
| 23 | CLK | | CLK8 Pin Output | 0,1 | FIX | 1 | | 1 | | 0: Output 8fsc, 1: Output OFF |

| | Register Name | | Description | Data Range | Adj/Fix | Initial Data | 32" FV | 36"/38" FS | 36"/38" FV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 24 | ST0S | | Select ST0 Pin Output Signal | 0-3 | FIX | 1 | | 1 | | External Y-ADC clamp pulse |
| 25 | WSC | | Noise Detection Coring | 0-3 | FIX | 1 | | 1 | | 1LSB coring for noise detection circuit |
| 26 | VTRH | | H-sync Non-Standard Detection Hysteresis | 0-3 | FIX | 1 | | 1 | | Low hysteresis (2 clock pulses) |
| 27 | VTRR | | H-sync Non-Standard Detection Sensitivity | 0-3 | FIX | 1 | | 1 | | Medium sensativity (+/- 8 clock pulses) |
| 28 | LDSR | | Frame Sync Non-Std Detection Sensativity | 0-3 | FIX | 2 | | 2 | | Low sensativity (1.5 clock pulses) |
| 29 | PWRE | 3D COMB uPD64082 | Internal ADC Input Range | 0,1 | FIX | 0 | | 0 | | Same input range on Y-ADC and C-ADC |
| 30 | VAPG | | Vertical Aperture Compensation Gain | 0-7 | FIX | 4 | | 4 | | 0: Correction OFF, 7: Max Correction |
| 31 | VAPI | | Vertical Aperture Comp Convergence | 0-31 | FIX | 12 | | 12 | | 0: Correction OFF, 31: Max Correction |
| 32 | TEST | | Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 33 | YPFT | | Y Peaking Filter Center Frequency | 0-3 | FIX | 3 | | 3 | | 4.22 MHz |
| 34 | YPFG | | Y Peaking Filter Gain | 0-15 | FIX | 7 | | 6 | | 0: -1 gain, 15: 0.875 gain |
| 35 | V1PS | | Horizontal Dot Supression Level | 0-3 | FIX | 2 | | 2 | | Medium suppression |
| 36 | VEGS | | Vertical Dot Supression Level | 0-3 | FIX | 2 | | 2 | | Medium supression |
| 37 | CC3N | | Line Comb C Separation Filter | 0,1 | FIX | 0 | | 0 | | Narrow bandwidth |
| 38 | C0HS | | C Signal Delay Time at NR | 0,1 | FIX | 0 | | 0 | | 1H Delay |
| 39 | CLPH | | Y-ADC Clamp Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 40 | SEL2 | | DC Detection High Freq Sensativity | 0,1 | FIX | 0 | | 0 | | Low sensativity, Close to still pictures |
| 41 | SEL1 | | DY detection Low Freq Sensativity | 0,1 | FIX | 0 | | 0 | | Low sensativity, Close to still pictures |
| 42 | YHCO | | Y High Freq Coring | 0-3 | FIX | 1 | | 0 | | Small Amount of coring (+/- 1LSB) |
| 43 | YHCG | | Y High Freq Coring Gain | 0,1 | FIX | 0 | | 0 | | Gain = 1 |
| 44 | OVST | | Non Standard Detection Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 45 | CSHD | | H/V counter Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 46 | KCTT | | H/V counter Test Bit | 0-3 | FIX | 0 | | 0 | | Normal Mode |
| 47 | SHT | | Non Standard Detection Test Bits | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 48 | VCT | | H/V counter Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 49 | OTT | | H/V counter Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 50 | CL2D | | Clock Generator Test Bit | 0,1 | FIX | 1 | | 1 | | Normal Mode |
| 51 | CGGT | | Clock Generator Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 52 | CLEB | | Clock Generator Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 53 | CGT | | Clock Generator Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 54 | HPLL | | Horizontal PLL Filter | 0,1 | FIX | 1 | | 1 | | Quick convergence |
| 55 | BPLL | | Burst PLL Filter | 0,1 | FIX | 1 | | 1 | | Quick convergence |
| 56 | FSCF | | Burst Extraction Gain | 0,1 | FIX | 0 | | 0 | | High gain |
| 57 | PLLF | | PLL Loop Gain | 0,1 | FIX | 1 | | 1 | | High gain, quick convergence |
| 58 | KILR | | Killer Detection Reference | 0-15 | FIX | 3 | | 3 | | 0: Detection off, 15: High detection sensativity |
| 59 | HSSL | | Horizontal Sync Slice Level | 0-15 | FIX | 12 | | 12 | | 0: 4LSB, 15: 19LSB |
| 60 | VSSL | | Vertical Sync Slice Level | 0-15 | FIX | 8 | | 8 | | 0: HSSL + 0LSB, 15: HSSL + 15LSB |
| 61 | BGPS | | Burst Gate Start Position | 0-15 | FIX | 5 | | 5 | | 0: Hsync center + 2ms, 15: Hsync center +5.75ms |
| 62 | BGPW | | Internal Burst Gate Pulse Width | 0-15 | FIX | 10 | | 10 | | 0: 0.5ms, 15: 4.25ms |
| 63 | ADCL | | ADC Clock Delay | 0-3 | FIX | 3 | | 3 | | 0: 0ns, 3: 20.5ns (typical) |
| 64 | ADPD | | ADC Power Down | 0,1 | FIX | 1 | | 1 | | Stop ADC when not in use |
| 65 | NSDW | | Non Standard Detection Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 66 | CNRF | | CNR Section Test Bit | 0,1 | FIX | 0 | | 0 | | Normal Mode |
| 0 | SHPR | PIC IMP TA1226N | Controls both DL APACON and SRT | 0-127 | Fix by Model | 52 | 52 | 59 | 52 | 0: Minimum, 127: Maximum |
| 1 | BLAD | | Black Area Detect | 0-3 | FIX | 0 | | 0 | | 0: 10IRE, 1: 20IRE, 2: 30IRE, 3: 40IRE |
| 2 | SRTS | | SRT Start Amplitude | 0-3 | FIX | 3 | | 3 | | 0: 7IRE, 1: 10IRE, 2: 14IRE, 3: 28IRE |
| 3 | YNR | | Controls YNR ON/OFF | 0,1 | FIX | 1 | | 1 | | YNR ON |
| 4 | GIRE | | Gamma Correction Start Point | 0-3 | FIX | 3 | | 3 | | 0: 70IRE, 1: 80IRE, 2: 90IRE, 3: OFF |
| 5 | DAC1 | | 1 bit DAC Output | 0,1 | FIX | 0 | | 0 | | Open |
| 6 | DAC2 | | 1 bit DAC Output | 0,1 | FIX | 0 | | 0 | | Open |

| | Register Name | | Description | Data Range | Adj/Fix | Initial Data | 32" FV | 36"38" FS | 36"38" FV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | GCUR | **PIC IMP TA1226N** | Controls Curve of Gamma Correction | 0,1 | FIX | 0 | | 0 | | 0: -2.4dB, -1.6dB |
| 8 | BLKC | | Black Conpensation | 0,1 | FIX | 1 | | 1 | | OFF |
| 9 | TEST | | Test Bit | 0-3 | FIX | 3 | | 3 | | Pin 20 Output: 0=RS, 1=SHR, 2=RTC, 3=TEST3 |
| 10 | RS | | Gain of DL APACON at 8MHz Peak | 0-7 | FIX | 0 | | 0 | | 0: 0dB, 7: +6dB |
| 11 | RTC | | Compensation Ratio of SRT and DL APACON | 0-7 | FIX | 4 | | 4 | | 0: Min, 7: Max |
| 12 | VMLO | | Gain for Menu VM=LOW | 0-2 | FIX | 1 | | 1 | | 0=off, 1=-6dB, 2=-3dB, 3=0dB |
| 0 | PIPH | **PIP SDA9588X** | PIP H-position | 0-127 | FIX | 34 | | 36 | | 0:Right, 127:Left |
| 1 | PIPV | | PIP V-position | 0-63 | FIX | 22 | | 22 | | 0:Up, 63:Down |
| 2 | POFV | | Position Ofset Vertical | 0-15 | FIX | 4 | | 4 | | Vertical PiP Offset from Center |
| 3 | POFH | | Position Ofset Horizontal | 0-31 | FIX | 17 | | 18 | | Horizontal PiP Offset from Center |
| 4 | VACQ | | PiP V-Acquisition Window | 0-15 | FIX | 8 | | 8 | | 0: -8 lines up, 8: Center, 15: +7 pixels down |
| 5 | HACQ | | PiP H-Acquisition Window | 0-15 | FIX | 8 | | 8 | | 0: -16 pixels right, 8: Center, 15: +14 pixels left |
| 6 | PVID | | PiP Vsync Delay | 0-31 | FIX | 0 | | 0 | | Step size 3.56ms< 1 step < 6.4ms |
| 7 | VERB | | Vertical Blanking | 0,1 | FIX | 0 | | 0 | | 0: DAC Blanking during line blanking interval, 1: DAC Blanking during line AND field intervals |
| 8 | PSEL | | SELDOWN Bit Control | 0,1 | FIX | 1 | | 1 | | 0:Open out, 1:TTL out |
| 9 | SELD | | Select PYS Delay | 0-15 | FIX | 8 | | 8 | | 0: -8 clock cycles, 8: NO delay, 15: +7 clock cycles |
| 10 | 4SLD | | Select PYS Delay YUV Input | 0-15 | FIX | 8 | | 8 | | 0: -8 clock cycles, 8: NO delay, 15: +7 clock cycles |
| 11 | PCOR | | Position Correction | 0,1 | FIX | 1 | | 1 | | 0: OFF, 1: ON (Position correction during varying parent frequency) |
| 12 | AGCR | | AGC Gain Control Reset | 0,1 | FIX | 1 | | 1 | | 0: Normal, 1: Reset (transition of 0-->1 resets AGC) |
| 13 | AGCM | | AGC Mode | 0-3 | FIX | 0 | | 3 | | 0: Sync height & ADC Overflow, 1: sync height, 2: ADC overflow, 3: AGC Fixed |
| 14 | AGCV | | ADC Value | 0-15 | FIX | 11 | | 12 | | 0: Input valtage 0.5Vpp, 15: Input Voltage is 1.5Vpp |
| 15 | CLMD | | Clamp Pulse Duration | 0-3 | FIX | 0 | | 0 | | 0: 0.5ms, 1: 0.9ms, 2: 1.2ms, 3: 1.5ms |
| 16 | CLMS | | Clamp Pulse Start | 0-3 | FIX | 2 | | 2 | | 0: 1.0ms, 1: 1.5ms, 2: 2.0ms, 3: 2.5ms |
| 17 | LMOF | | Luminance Offset | 0-3 | FIX | 3 | | 3 | | 0: NO OFFSET, 1: +16LSB, 2: -8LSB, 3: -16LSB |
| 18 | PYDL | | Y/C Delay | 0-15 | FIX | 8 | | 2 | | 0: -8 pixels, 15: +7 pixels |
| 19 | FRMY | | Frame Y Level | 0-15 | Fix by Model | 6 | 4 | 5 | | Adjusts 4 MSB of Frame Y Signal |
| 20 | FRSL | | Frame Type Select | 0,1 | FIX | 1 | | 1 | | 0: Normal frame, 1: 3D frame |
| 21 | FRWH | | Frame Width Horizontal | 0-7 | FIX | 4 | | 4 | | 0: No frame, 7: 7 pixels |
| 22 | FRWV | | Frame Width Vertical | 0-3 | FIX | 1 | | 1 | | 0: No frame, 3: 3 lines |
| 23 | PBSW | | PiP Block Selection (PIPBG vs PIPBLK) | 0,1 | FIX | 0 | | 1 | | Blocking Type: 0= PIPBG(gray), 1=PIPBLK(black) |
| 0 | CKIL | **PIP-YC SDA9588X** | Color Killer Threshold | 0-3 | FIX | 0 | | 0 | | 0: -30dB, 1: -18dB, 2: -24dB, 3: color always off |
| 1 | COLO | | Color Killer Off | 0,1 | FIX | 0 | | 0 | | 0: Color killer active, 1: Color always on |
| 2 | PSHU | | PiP Sub Hue | 0-15 | FIX | 7 | | 7 | | PiP sub hue |
| 3 | 4PSU | | PiP Sub Hue YUV Input | 0-15 | FIX | 7 | | 7 | | PiP sub hue |
| 4 | CPLL | | Chroma PLL Off | 0,1 | FIX | 0 | | 0 | | 0: Chroma PLL active, 1: Chroma PLL free running |
| 5 | SCAD | | Sub Carrier Freq Fine Adjustment | 0-31 | FIX | 6 | | 6 | | 0: -150 PPM, 7: default, 31: +310 PPM |
| 6 | PCON | | PiP Contrast | 0-15 | FIX | 0 | | 0 | | 0: nominal, 15: +30% increase |
| 7 | 4PCN | | PiP Contrast YUV Input | 0-15 | FIX | 0 | | 0 | | 0: nominal, 15: +30% increase |
| 8 | PBRT | | PiP Brightness | 0-15 | FIX | 2 | | 2 | | 0: nominal, 15: +20% increase |
| 9 | 4PBR | | PiP Brightness YUV Input | 0-15 | FIX | 2 | | 2 | | 0: nominal, 15: +20% increase |
| 10 | IPER | | V Pedestal | 0-15 | FIX | 0 | | 0 | | 0: nominal, 15: +15LSB offset |
| 11 | 4IPR | | V Pedestal YUV Input | 0-15 | FIX | 4 | | 0 | | 0: nominal, 15: +15LSB offset |
| 12 | IPEG | | Y Pedestal | 0-15 | FIX | 0 | | 0 | | 0: nominal, 15: +15LSB offset |
| 13 | 4IPG | | Y Pedestal YUV Input | 0-15 | FIX | 0 | | 0 | | 0: nominal, 15: +15LSB offset |
| 14 | IPEB | | U Pedestal | 0-15 | FIX | 1 | | 1 | | 0: nominal, 15: +15LSB offset |
| 15 | 4IPB | | U Pedestal YUV Input | 0-15 | FIX | 1 | | 1 | | 0: nominal, 15: +15LSB offset |
| 16 | BLKR | | Invert V Pedestal | 0,1 | FIX | 1 | | 0 | | 0: Offset add during blanking, 1: Offset add during active |
| 17 | BLKB | | Invert U Pedestal | 0,1 | FIX | 0 | | 1 | | 0: Offset add during blanking, 1: Offset add during active |
| 18 | PVGA | | Peak Level V Output | 0-255 | FIX | 84 | | 84 | | 0: 0.3Vpp, 192: 1.0Vpp, 255: 1.2Vpp |
| 19 | 4PVG | | Peak Level V Output YUV Input | 0-255 | FIX | 69 | | 69 | | 0: 0.3Vpp, 192: 1.0Vpp, 255: 1.2Vpp |

| | Register Name | | Description | Data Range | Adj/Fix | Initial Data | 32" FV | 36"/38" FS | 36"/38" FV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 20 | PUGA | PIP-YC SDA9588X | Peak Level U Output | 0-255 | FIX | 52 | | 52 | | 0: 0.3Vpp, 192: 1.0Vpp, 255: 1.2Vpp |
| 21 | 4PUG | | Peak Level U Output YUV Input | 0-255 | FIX | 36 | | 36 | | 0: 0.3Vpp, 192: 1.0Vpp, 255: 1.2Vpp |
| 22 | PYGA | | Peak Level Y Output | 0-255 | Fix by Model | 104 | 25 | 35 | | 0: 0.3Vpp, 192: 1.0Vpp, 255: 1.2Vpp |
| 23 | 4PYG | | Peak Level Y Output YUV Input | 0-255 | Fix by Model | 129 | 27 | 37 | | 0: 0.3Vpp, 192: 1.0Vpp, 255: 1.2Vpp |
| 24 | CHRO | | UV Output Polarity | 0,1 | FIX | 0 | | 0 | | 0: +U/+V output, 1: -U/-V output |
| 25 | SATA | | Color Saturation Adjustment | 0-15 | FIX | 8 | | 9 | | 0: No color, 8: nominal saturation, 15: nominal x 1.875 |
| 26 | YPKG | | Y Peaking Adjustment | 0-7 | FIX | 7 | | 7 | | 0: No peaking, 7: Strongest Peaking |
| 27 | 4YPK | | Y Peaking Adjustment YUV Input | 0-7 | FIX | 7 | | 7 | | 0: No peaking, 7: Strongest Peaking |
| 28 | YCOR | | Y Coring Enable | 0,1 | FIX | 1 | | 1 | | 0: OFF, 1: ON |
| 29 | CLPL | | Clamp Pulse Length | 0-3 | FIX | 0 | | 0 | | 0=5ms, 1=3.75ms, 2=2.5ms, 3=1.25ms |
| 0 | RTCO | DAC CXA1315 | Rotation Coil | 0-63 | FIX | 31 | | 31 | | Rotation coil adjustment for nominal value |
| 1 | T2CO | | Sub Color TV Input | 0-7 | Adj | 120 | 120 | 111 | 106 | TV Sub Color Adjustment (CXA2039 YUV Models AT DAC) |
| 2 | V2CO | | Sub Color Video Input | 0-7 | Adj | 120 | 120 | 122 | 114 | VIDEO1-3 Sub Color Adjustment (CXA2039 YUV Models at DAC) |
| 3 | 4COL | | Sub Color YUV Input | 0-7 | Adj | 120 | 120 | 117 | | YUV Sub Color Adjustment (CXA2039 YUV Models at DAC) |
| 4 | T2HU | | Sub Hue TV Input | 0-7 | Adj | 15 | 15 | 16 | | TV Sub HUE Adjustment (CXA2039 YUV Models at DAC) |
| 5 | V2HU | | Sub Hue Video Input | 0-7 | Adj | 15 | 15 | 18 | | VIDEO1-3 Sub HUE Adjustment (CXA2039 YUV Models at DAC) |
| 6 | 4SHU | | Sub Hue YUV Input | 0-7 | Adj | 15 | 15 | 16 | | YUV Sub HUE Adjustment (CXA2039 YUV Models at DAC) |
| 0 | XJGL | ID1 CXD2085 | Decoding Result Held For VCR Scanning | 0,1 | FIX | 0 | | 0 | | Hold data during VCR variable speed playback |
| 1 | LNJ1 | | ID-1 Signal Location | 0,1 | FIX | 0 | | 0 | | Search for ID-1 data +/- one line in VBI |
| 0 | DUM1 | CCD | CCD Dummy Register | | | | | | | Used to display CC data in Service Mode |
| 1 | VOSD | | VChip OSD Test Register | 0,1 | FIX | 0 | | 0 | | Used to display VChip data in Service Mode |
| 0 | DISP | OP M306V5 | OSD Position | 0-63 | Adj | 15 | | 15 | | OSD horizontal position |
| 1 | RAMW | | OSD RAM Window | 0,1 | FIX | 0 | | 0 | | |
| 2 | ICMP | | OSD Non-interlace Threshold | 0-15 | FIX | 4 | | 4 | | 0: 0 fields, 15: 15 fields |
| 3 | IPOR | | OSD Non-interlace Even/Odd Display | 0-3 | Fix | 1 | | 1 | | 0=Even OSD display, 1= Odd OSD display, 2&3=N/A |
| 4 | FAWD | | Factory AutoWide Mode | 0,1 | Fix | 0 | | 0 | | 0= No Autowide in RF mode, 1= Autowide in RF Mode |
| 5 | TILT | | Tilt Correction Spec | 0,1 | Fix | 0 | | 2 | | 0= New Tilt Spec for AA2U (less VANG offset), 1= AA2W/AA2H Tilt Spec |

| | Register Name | | PROGRAM FOR EACH PALETTE MODE → | Data Range | Adj/Fix | Initial Data | VIVID | STD | MOVIE | SPORTS | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | VPIC | PROGRAM PALETTE | Set Current Program Pallette PICTURE Reset Level | 0-63 | FIX by Palette | 50 | 63 | 50 | 38 | 63 | 0=MIN, 63=MAX |
| 1 | VBRT | | Set Current Program Pallette BRIGHTNESS Reset Level | 0-63 | FIX by Palette | 31 | 31 | 31 | 31 | 31 | 0=MIN, 63=MAX |
| 2 | VCOL | | Set Current Program Pallette COLOR Reset Level | 0-63 | FIX by Palette | 31 | 38 | 31 | 31 | 38 | 0=MIN, 63=MAX |
| 3 | VSHP | | Set Current Program Pallette SHARPNESS Reset Level | 0-63 | FIX by Palette | 31 | 31 | 31 | 31 | 31 | 0=MIN, 63=MAX |
| 4 | VVM | | Set Current Program Pallette VM Reset Level | 0-3 | FIX by Palette | 1 | 2 | 1 | 0 | 2 | 0=OFF, 1=LOW, 2=HIGH, 3=N/A |
| 5 | VTRI | | Set Current Program Pallette Color Temp Reset Setting | 0-3 | FIX by Palette | 1 | 0 | 1 | 2 | 0 | 0=COOL, 1=NEUTRAL, 2=WARM, 3=N/A |
| 6 | VGMA | | Set Current Program Pallette YC/J GAMMA | 0-3 | FIX by Palette | 2 | 3 | 2 | 2 | 2 | 0=GAMMA CORRECTION OFF, 3=+12 IRE CORRECTION @ 40 IRE INPUT |
| 7 | VBLK | | Set Current Program Pallette Black Stretch | 0,1 | FIX by Palette | 1 | 1 | 1 | 1 | 1 | 0=BLACK STRETCH OFF, 1=BLACK STRETCH ON |
| 8 | VAPA | | Set Current Program Pallette APACON | 0,1 | FIX by Palette | 1 | 0 | 1 | 1 | 1 | 0=APACON OFF, 1=APACON ON |
| 9 | VSRT | | Set Current Program Pallette SRT | 0,1 | FIX by Palette | 0 | 1 | 0 | 0 | 0 | 0=SRT OFF, 1=SRT ON |
| 10 | VNRM | | Set Current Program Pallette NRMD | 0,1 | FIX by Palette | 0 | 0 | 0 | 0 | 1 | 0=3D YCS, 1=2D YCS |

| | Register Name | | Description | Data Range | Adj/Fix | Initial Data | 32" FV | 36"/38" FS | 36"/38" FV | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | RDOF | WARM COLOR TEMP OFFSET | Red Drive offset for WARM | 0-63 | FIX | 0 | | 0 | | Red Drive MOVIE=RDRV(RDR4)-RDOF |
| 1 | GDOF | | Green Drive offset for WARM | 0-63 | FIX | 4 | | 4 | | Green Drive MOVIE=GDRV(GDR4)-GDOF |
| 2 | BDOF | | Blue Drive offset for WARM | 0-63 | FIX | 15 | | 15 | | Blue Drive MOVIE=BDRV(BDR4)-BDOF |
| 3 | RCOF | | Red Cutoff offset for WARM | 0-31 | FIX | 0 | | 0 | | Red Cutoff MOVIE=RCUT(RCU4)-RCOF |
| 4 | GCOF | | Green Cutoff offset for WARM | 0-31 | FIX | 2 | | 2 | | GREEN Cutoff MOVIE=GCUT(GCU4-GCOF) |
| 5 | BCOF | | Blue Cutoff offset for WARM | 0-31 | FIX | 7 | | 7 | | BLUE Cutoff MOVIE=BCUT(BCU4)-BCOF |
| 6 | DCOF | | Dynamic Color setting for WARM | 0,1 | FIX | 0 | | 0 | | 0=OFF, 1=ON |
| 0 | ID-0 | ID MAP | ID-0 (Language/Color Systems) | 0-255 | Fix by model | 89 | | | | See ID map |
| 1 | ID-1 | | ID-1 (Input/Output Conifguration) | 0-255 | Fix by model | 63 | | | | See ID map |
| 2 | ID-2 | | ID-2 (Audio) | 0-255 | Fix by model | 239 | | | | See ID map |
| 3 | ID-3 | | ID-3 (OSD/Timer/V-chip/Ch Fix) | 0-255 | Fix by model | 99 | | refer to NVM ID Chart | | See ID map |
| 4 | ID-4 | | ID-4 (CC/Spot Killer/etc) | 0-255 | Fix by model | 139 | | | | See ID map |
| 5 | ID-5 | | ID-5 (V-series Features/etc) | 0-255 | Fix by model | 181 | | | | See ID map |
| 6 | ID-6 | | ID-6 (PiP/Ant Sw related) | 0-255 | Fix by model | 6 | | | | See ID map |
| 7 | ID-7 | | ID-7 (Special Models/etc) | 0-255 | Fix by model | 24 | | | | See ID map |

**VALUE** = Not Used for AA-2U

**VALUE** = Fixed Item For AA-2U

## 4-5. FEATURE ID MAP

```
ID        7    24      SERVICE
ID7            TV      00011000




M306V5ME-1015P          NVM:G
VERSION: 1.0__
```

Note: Check to be sure NVM is good (NVM: G)

| Model | Destination | ID-0 | ID-1 | ID-2 | ID-3 | ID-4 | ID-5 | ID-6 | ID-7 |
|---|---|---|---|---|---|---|---|---|---|
| KV-32FV27 | US | 89 | 63 | 239 | 99 | 139 | 177 | 6 | 24 |
| KV-32FV27 | CND | 89 | 63 | 239 | 83 | 139 | 177 | 6 | 24 |
| KV-36FS13 | US | 89 | 31 | 95 | 99 | 139 | 177 | 0 | 17 |
| KV-36FS13 | CND | 89 | 31 | 95 | 83 | 139 | 177 | 0 | 17 |
| KV-36FS13 | HAWAII | 89 | 31 | 95 | 99 | 139 | 177 | 0 | 17 |
| KV-36FS17 | US | 89 | 31 | 95 | 99 | 139 | 177 | 6 | 17 |
| KV-36FS17 | HAWAII | 89 | 31 | 95 | 99 | 139 | 177 | 6 | 17 |
| KV-36FV27 | US | 89 | 63 | 239 | 99 | 139 | 177 | 6 | 24 |
| KV-36FV27 | CND | 89 | 63 | 239 | 83 | 139 | 177 | 6 | 24 |
| KV-36FV27 | HAWAII | 89 | 63 | 239 | 99 | 139 | 177 | 6 | 24 |
| KV-38FS17 | E | 25 | 31 | 95 | 195 | 155 | 177 | 6 | 81 |

## 4-6. PROGRAM PALETTE SETTINGS

| | | Vivid | Standard | Movie | Sports |
|---|---|---|---|---|---|
| Picture | (VPIC) | 63 | 50 | 38 | 63 |
| Brightnness | (VBRT) | 31 | 31 | 31 | 31 |
| Color | (VCOL) | 38 | 31 | 31 | 38 |
| Sharpness | (VSHP) | 31 | 31 | 31 | 31 |
| VM[1] | (VVM) | 2 | 1 | 0 | 2 |
| C Temp[1] | (VTRI) | 2 | 1 | 0 | 2 |
| Gamma | (VGMA) | 3 | 2 | 2 | 2 |
| Blk Comp | (VBLK) | 1 | 1 | 1 | 1 |
| V Apa Comp | (VAPA) | 0 | 1 | 1 | 1 |
| SRT ON/OFF | (VSRT) | 1 | 0 | 0 | 0 |
| NRMD | (VNRM) | 0 | 0 | 0 | 1 |

[1] Setting of 3 is invalid for these registers

## TO PROGRAM PROGRAM PALETTE RESET LEVELS

1. Switch to Program Palette to edit.
2. Enter Service Mode.
3. Set desired values for current Program Palette settings.
4. Write into memory by pressing MUTING then ENTER.
5. Repeat steps 1-4 for each palette.

**Example**
To Set RESET Level of Standard Mode to 60%
1. Switch to STANDARD Palette.
2. Enter Service Mode.
3. Change value of VPIC to 38 (38/63 = 60%)
4. Write into memory by pressing MUTING then ENTER .
5. Enter Video Menu and press RESET .
6. Reset level of picture for STANDARD PALETTE ONLY is now 38 steps.

## 4-7. A BOARD ADJUSTMENTS

## SUB CONTRAST ADJUSTMENT (RDRV, RDR4)

1. Input a 75% color-bar signal.
2. Set to: VIDEO mode = Standard, COLOR = Minimum, PICTURE = 100%, GON = 0 (OFF), BON = 0 (OFF)
3. Set to Service Adjustment Mode and connect an oscilloscope to pin ① of CN351 on the A Board.
4. Set RDRV with 1 and 4 .
5. Adjust with 3 and 6 for: 1.85 ± 0.05 Vp-p (KV-32FV27 ONLY), 1.95 ± 0.05 Vp-p (ALL EXCEPT KV-32FV27).
6. Write into memory by pressing MUTING then ENTER .
7. Repeat steps 1-6 for RDR4 using Video 4 input.
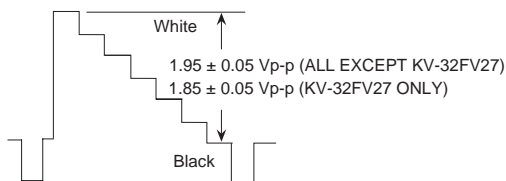


## SUB BRIGHT ADJUSTMENT (SBRT)

1. Set to Service Adjustment Mode.
2. Input a gray scale pattern signal.
3. Set the PICTURE to minimum, and BRIGHT to normal.
4. Select SBRT with 1 and 4 .
5. Adjust SUB BRIGHT level with 3 and 5 so that the stripe second from the right is faintly visible.
6. Write into the memory by pressing MUTING then ENTER .
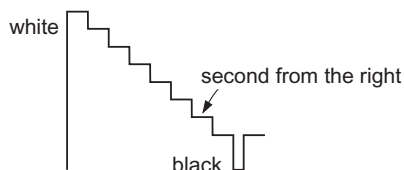


## SUB HUE, SUB COLOR ADJUSTMENT (T2HU, T2CO, V2HU, V2CO, 4SHU, 4COL)

**Note:** T2HU and T2CO are for Tuner inputs.
V2HU and V2CO are for all other Video inputs.
4SHU and 4COL are for Video 4 input.

1. Input a 75% color-bar signal.
2. Set to Service Adjustment Mode and set: VIDEO mode = Standard, PICTURE = 100%, COLOR = 50%, HUE = 50%.
3. Connect an oscilloscope to Pin ③ of CN351 on the A Board.
4. Select T2HU and T2CO with 1 and 4 .
5. Adjust with 3 and 6 for a flat ± 50mV.
6. Write into memory by MUTING then ENTER .
7. Repeat steps 1-6 for V2HU & V2C0 and 4SHU & 4COL.
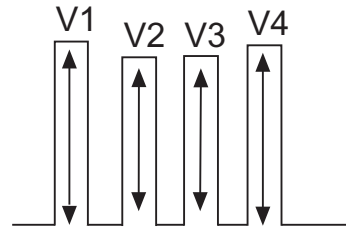


## V. SIZE ADJUSTMENT (VSIZ)

1. Input a cross-hatch signal.
2. Set to Service Adjustment Mode.
3. Select VSIZ with 1 and 4.
4. Adjust with 3 and 6 for the best vertical size.
5. Write into the memory by pressing MUTING then ENTER.
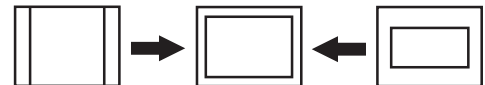


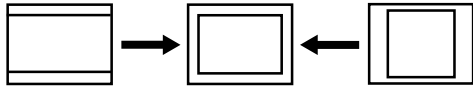## V. POSITION ADJUSTMENT (VPOS)

1. Input a cross-hatch signal.
2. Set to Service Adjustment Mode.
3. Select VPOS with 1 and 4 .
4. Adjust with 3 and 6 for the best vertical center.
5. Write into the memory by pressing MUTING then ENTER.
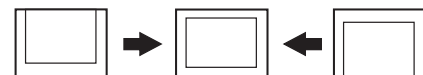
## H. SIZE ADJUSTMENT (HSIZ)
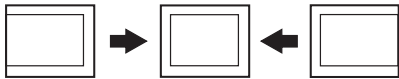
1. Input a monoscope signal.
2. Set to Service Adjustment Mode.
3. Select HSIZ with ☐1 and ☐4 .
4. Adjust with ☐3 and ☐6 for the best vertical size.
5. Write into the memory by pressing ☐MUTING☐ then ☐ENTER☐ .
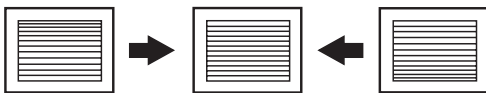
## H. POSITION ADJUSTMENT (HPOS)

HPOS Range is from 0~15.
1. Input a monoscope signal.
2. Set the Service Adjustment Mode.
3. Select HPOS with ☐1 and ☐4 .
4. Adjust with ☐3 and ☐6 for the best horizontal center.
5. Write into the memory by pressing ☐MUTING☐ then ☐ENTER☐ .

## V LINEARITY (VLIN), V CORRECTION (VSCO), PIN AMP (PAMP) AND PIN PHASE (PPHA) ADJUSTMENTS

1. Input a cross-hatch signal.
2. Set to Service Adjustment Mode.
3. Select VLIN, VSCO, PAMP, and PPHA with ☐1 and ☐4 .
4. Adjust with ☐3 and ☐6 for the best picture.
5. Write the memory by pressing ☐MUTING☐ then ☐ENTER☐ .

V LINEARITY(VLIN)

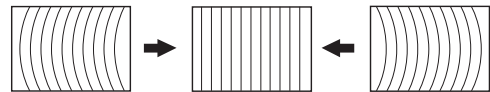VS CORRECTION (VSCO)
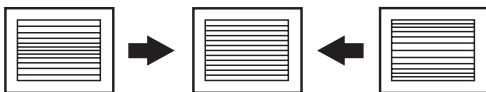
PIN AMP (PAMP)

PIN PHASE (PPHA)
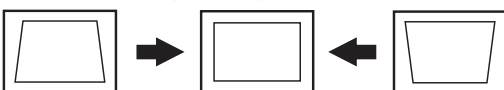
## V ANGLE (VANG), V BOW (VBOW), UPPER PIN (UPIN) AND LOW PIN (LPIN) ADJUSTMENTS

1. Input a monoscope signal.
2. Set to Service Adjustment Mode.
3. Select VANG, VBOW, UPIN, and LPIN with ☐1 and ☐4 .
4. Adjust with ☐3 and ☐6 for the best picture.
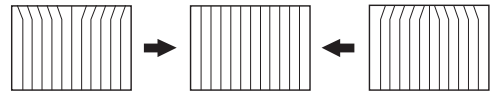5. Write the memory by pressing ☐MUTING☐ then ☐ENTER☐ .
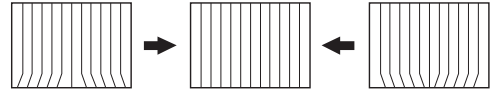
V ANGLE (VANG)
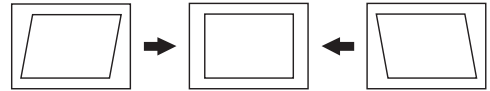
V BOW (VBOW)

UPPER PIN (UPIN)

LOW PIN (LPIN)

## OSD POSITION ADJUSTMENT (DISP)

1. Input a color-bar signal.
2. Set to Service Adjustment Mode.
3. Select DISP with ☐1 and ☐4 .
4. Adjust with ☐3 and ☐6 for adjustment of characters to center.
5. Write the memory by pressing ☐MUTING☐ then ☐ENTER☐ .

| OP | 0 | 16 | Service |
|----|---|----|---------|
| DISP | | TV | |

## ROTATION COIL ADJUSTMENT

1. Input a monoscope signal.
2. Push the Menu button on the Remote.
3. Select the "Set-up" mode.
4. Select "Tilt Correction". Confirm that number (0) color changes to red.
5. Push ↑ (+) on the Remote. Confirm that the number increases up to +5 and the picture rotates clockwise.
6. Push ↓ (-) on the Remote. Confirm that the number decreases down to -5 and the picture rotates counter-clockwise.
7. Push ↑ (+) on the Remote. Return the value to 0.

## SET-UP

+5

☐ Channel Set-up

☐ Favorite Channel

☐ Video Label          0

☐ Language: English

☒ Tilt Correction:
   ↺ Menu

-5