

**SAMSUNG**

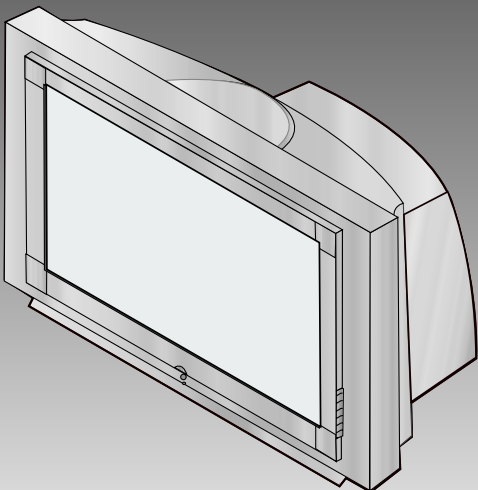
# COLOR TELEVISION RECEIVER

Chassis : K55A(P)

Model : WS32Z46VSGXEC  
WS32Z46VSGXXEU

# **SERVICE** *Manual*

## COLOR TELEVISION RECEIVER



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## 4. Alignment and Adjustments

### 4-1 Adjustments

#### 4-1-1 General Alignment Instructions

Usually, a color TV needs only slight touch-up adjustment upon installation. Check the basic characteristics such as vertical size, horizontal size, and focus. Observe the picture and check for good black and white details. There must be no objectionable color shading: If color shading is present, demagnetize the receiver. If color shading persists, re-do purity and convergence adjustments.

**Note :**

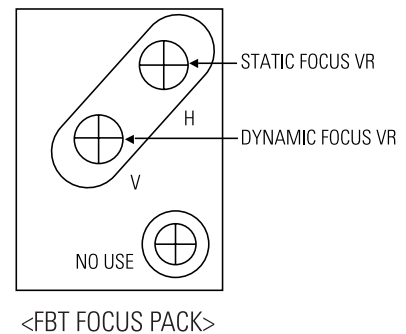
1. This '4. Alignment and Adjustments' applies to K55A chassis applications.
2. AC Power Supply: 160~300V or 100~240V, 50Hz
3. This service manual has been written on the basis of domestic remote-control model adopting K55A chassis. Depending on sales location and product specifications, some of specifications herein may be changed.

#### 4-1-2 Focus Adjustment

K55A contains a dynamic focus circuit. When CRT PCB, FBT or CRT is replaced, be sure to adjust in the following sequence:

##### Dynamic Focus Adjustment

1. Input a crosshatch pattern.
2. Select "Standard" from the menu,
3. Turn the Static Focus VR clockwise to set it to its maximum.
4. Turn the Dynamic Focus VR counter clockwise to set it to its maximum.
5. Turn the Static Focus VR counter clockwise slowly for the clearest center vertical line.



6. Turn the Dynamic Focus VR clockwise slowly for the clearest third line.



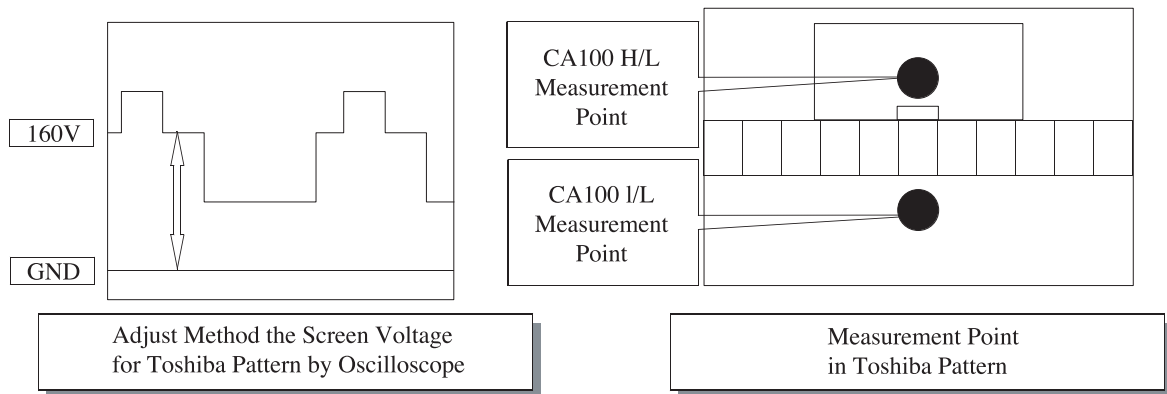
7. Check for the FOCUS of entire screen. If necessary, re-do adjustments 3~6.

### 4-1-3 Screen Voltage Adjustment

1. Input a Toshiba pattern.
2. Use an oscilloscope to identify RK, BK, GK. And then adjust FBT Screen VR so that the voltage of pedestal level doesn't exceed 160V.  
 If a Toshiba pattern is not available, cancel the blue screen and input "No Signal" to AV IN so the voltage of pedestal level doesn't exceed 175V.  
 If an oscilloscope is not available, use a DC multi-meter in No Signal (black screen) to adjust RK, BK, GK so that the highest voltage becomes 160Vp-p.

### 4-1-4 White Balance Adjustment

1. Warm up the TV set for at least 30 minutes.
2. Enter the Service Mode by pressing the remote control keys in the following sequence:  
 Power Off → Display → Menu → Mute → Power On
3. Initialize all set data.
4. Input a Toshiba pattern.
5. Using a probe(CA100), do the White Balance adjustments.
  - (1) Adjust Low-Light.
    - Adjust Sub Brightness to set Y.
    - Adjust B Cutoff to set y.
    - Adjust R Cutoff to set x.
  - (2) Adjust High-Light.
    - Adjust Sub Contrast to set Y.
    - Adjust B Drive to set y.
    - Adjust R Drive to set x.
  - (3) Check the value of Low-Light. If necessary, readjust Low-Light.
  - (4) Check the value of High-Light. If necessary, readjust High-Light.15



#### **4-1-5 When adjusting Screen Voltage and White Balance**

1. Screen Voltage and White Balance are related each other. Make sure both adjustments are correct.
2. Adjust Screen Voltage before White Balance Adjustments. Make sure Screen Voltage is correct.
3. If White Balance has been readjusted, re-check Screen Voltage.
4. After adjustments are complete, check the following.
  - If spots appear on the screen after pressing the Power On/Off key, readjust Screen Voltage.
  - If flyback lines appear on the screen, readjust Screen Voltage.

## 4-2 MICOM PORT

| PIN         | FUNCTION | FIRST STATE | ASSIGNMENT  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
|-------------|----------|-------------|---|-------------|-----------|---------|------|-----|-----|-------------|------------|----------|--------|----------|----------|----------|-----------|
| 1           | W-PORT   | HIGH        | RESET Control jack during E <sup>2</sup> PROM latch UP(Function:Low)SERIAL H  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 2           | ROM SDA  | SERIAL H    | E <sup>2</sup> PROM only SDA LINE   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 3           | ROM SCL  | SERIAL H    | E <sup>2</sup> PROM only SDA LINE   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 4           | BUS-STOP | HIGH        | Automation and after-sales service related BUS STOP(STOP : LOW)   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 5           | MAIN SDA | SERIAL H    | CXA2165 /CXA2151Q/VSP940X/BA7654F/MSP34XX/TUNER Control jack  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 6           | MAIN SCL | SERIAL H    | CXA2165 /CXA2151Q/VSP940X/BA7654F/MSP34XX/TUNER Control jack  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 7           | S-RESET  | HIGH        | Reset when MSP34XX IC(SOUND PROCESS IC)has an error(Active : LOW)   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 8           | V-RESET  | HIGH        | Reset when VSP940X IC(1-chip IC)has an error  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 9           | VDD 2.5V | HIGH        |   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 10          | GND      |             | Analog GND  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 11          | VDD3.3V  | HIGH        |   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 12          | CVBS IN  | IV p-p      | TTX and USA Caption Input source line(1V p-p)   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 13          | VDD2.5V  | HIGH        |   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 14          | GND      |             |   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 15          | AFT      |             | Main AFT Control jack(0 ~ 3.3V)   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 16          | SC1-ID   |             | <table border="1"> <thead> <tr> <th></th> <th>TV MODE</th> <th colspan="2">AV MODE</th> </tr> <tr> <th></th> <th></th> <th>16 : 9 MODE</th> <th>4 : 3 MODE</th> </tr> </thead> <tbody> <tr> <td>17</td> <td>SC2-ID</td> <td>RANGE</td> <td>0 ~ 2V</td> <td>4.5 ~ 7V</td> <td>9.5 ~ 12V</td> </tr> </tbody> </table> |             | TV MODE   | AV MODE |      |     |     | 16 : 9 MODE | 4 : 3 MODE | 17       | SC2-ID | RANGE    | 0 ~ 2V   | 4.5 ~ 7V | 9.5 ~ 12V |
|             | TV MODE  | AV MODE     |   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
|             |          | 16 : 9 MODE | 4 : 3 MODE  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 17          | SC2-ID   | RANGE       | 0 ~ 2V  | 4.5 ~ 7V    | 9.5 ~ 12V |         |      |     |     |             |            |          |        |          |          |          |           |
| 18          | KEY-1    | HIGH        | <table border="1"> <thead> <tr> <th>16 : 9 MODE</th> <th>MEMU</th> <th>VOL-</th> <th>VOL+</th> <th>CH-</th> <th>CH+</th> </tr> </thead> <tbody> <tr> <td>0 ~ 2V</td> <td>0~0.1V</td> <td>0.1~0.7V</td> <td>07~13V</td> <td>1.3~1.9V</td> <td>0.9~2.4V</td> </tr> </tbody> </table>                                  | 16 : 9 MODE | MEMU      | VOL-    | VOL+ | CH- | CH+ | 0 ~ 2V      | 0~0.1V     | 0.1~0.7V | 07~13V | 1.3~1.9V | 0.9~2.4V |          |           |
| 16 : 9 MODE | MEMU     | VOL-        | VOL+  | CH-         | CH+       |         |      |     |     |             |            |          |        |          |          |          |           |
| 0 ~ 2V      | 0~0.1V   | 0.1~0.7V    | 07~13V  | 1.3~1.9V    | 0.9~2.4V  |         |      |     |     |             |            |          |        |          |          |          |           |
| 19          | H-SYNC   | POSITIVE    | MICOM "H-SYNC" Input, POSITIVE Input(3.3V p-p)  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 20          | V-SYNC   | POSITIVE    | MICOM "V-SYNC" Input, POSITIVE Input(3.3V p-p)  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 21          | KEY-3    | HIGH        | OPEN  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 22          | KEY-2    | HIGH        | TV/VIDEO switching control jack   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 23          | X-RAY    | HIGH        | Function : LOW  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 24          | IR-IN    |             | Remote Control Input Jack   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 25          | STD-LED  | HIGH        | STAND BY : Hight, OFF : LOW   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 26          | TIM-LED  | LOW         | TIME ON : H      TIME OFF : L   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 27          | RELAY    |             | DEGAUSSIGN COIL CONTROL:Based on standard specifications  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 28          | SW1      | HIGH        | H : IN1, L : IN2(BA7657F) PIN(#16) Control jack   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 29          | GND      |             |   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 30          | VDD 3.3V | HIGH        |   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 33          | RESET    | LOW         |   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 34          | X-IN     |             | Reset active : HIGH   |             |           |         |      |     |     |             |            |          |        |          |          |          |           |
| 35          | X-OUT    |             | Crystal oscillation input jack  |             |           |         |      |     |     |             |            |          |        |          |          |          |           |

| PIN | FUNCTION | FIRST STATE         | ASSIGNMENT  |    |    |    |   |   |                     |   |   |                  |
|-----|----------|---------------------|---|----|----|----|---|---|---------------------|---|---|------------------|
| 36  | GND      |                     |   |    |    |    |   |   |                     |   |   |                  |
| 37  | VDD 2.5V | HIGH                |   |    |    |    |   |   |                     |   |   |                  |
| 38  | OSD-R    | 1.2V p-p            | OSD R-OUT Output jack (0.38V p-p), half tone : 0.9V p-p   |    |    |    |   |   |                     |   |   |                  |
| 39  | OSD-G    | 1.2V p-p            | OSD G-OUT Output jack (0.38V p-p), half tone : 0.9V p-p   |    |    |    |   |   |                     |   |   |                  |
| 40  | OSD-B    | 1.2V p-p            | OSD B-OUT Output jack (0.38V p-p), half tone : 0.9V p-p   |    |    |    |   |   |                     |   |   |                  |
| 41  | CPRE     | 0.9V p-p            | OSD F/B-OUT Output jack (Clamped at STAND PULSE, Half Tone : LOW)   |    |    |    |   |   |                     |   |   |                  |
| 42  | VDD 2.5V | HIGH                |   |    |    |    |   |   |                     |   |   |                  |
| 43  | GND      |                     |   |    |    |    |   |   |                     |   |   |                  |
| 44  | VDD 3.3V | HIGH                |   |    |    |    |   |   |                     |   |   |                  |
| 45  | PX, Y    | HIGH                |   |    |    |    |   |   |                     |   |   |                  |
| 46  | PX, Y    | HIGH                |   |    |    |    |   |   |                     |   |   |                  |
| 47  | SW3      | H                   | <table border="1"> <thead> <tr> <th>F1</th> <th>F0</th> <th>fH</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>M</td> <td>1.75KHz (480i/480P)</td> </tr> <tr> <td>M</td> <td>L</td> <td>33.75KHz (1080i)</td> </tr> </tbody> </table> | F1 | F0 | fH | L | M | 1.75KHz (480i/480P) | M | L | 33.75KHz (1080i) |
| F1  | F0       | fH                  |   |    |    |    |   |   |                     |   |   |                  |
| L   | M        | 1.75KHz (480i/480P) |   |    |    |    |   |   |                     |   |   |                  |
| M   | L        | 33.75KHz (1080i)    |   |    |    |    |   |   |                     |   |   |                  |
| 48  | SW2      | L                   | <p>LOW : GNDHIGH : OPEN STATUS</p> <p>Initially, these pins select an input source at LOW state</p>   |    |    |    |   |   |                     |   |   |                  |
| 49  | S-MUTE   |                     | System (NTSC/PAL) MUST be separated   |    |    |    |   |   |                     |   |   |                  |
| 50  | POWER    |                     | Active "LOW"  |    |    |    |   |   |                     |   |   |                  |
| 51  | H,P-ID   |                     | 1080i control jack : 1080i (LOW), RF (Hight)  |    |    |    |   |   |                     |   |   |                  |
| 52  | TILT     | HIGH                | Magnetic field control  |    |    |    |   |   |                     |   |   |                  |

## 4-3 Factory Adjustment

### 4-3-1 Factory Adjustment values

|  |
|--|
| SERVICE<br>Deflection<br>480P Offset<br>1080i Offset<br>Video Adjust1<br>Video Adjust2<br>Video Adjust3<br>Option<br>YC Delay<br>EEPROM<br>Reset |
|--|

### 4-3-2 EUROPE & CIS Factory Data

#### DEFLECTION : PAL

|              | 50                 | 45                 | 50                 | 37                 | 37                 | H/L : 285/285 29" CIS, EU W/B COORDINATE |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--|
|              | 2.5                | 2                  | 2.5                | 1.8                | 1.5                | L/L : 285/285                            |
| ITEMS        | 29" CIS<br>SDI CRT | 32" CIS<br>SDI CRT | 34" CIS<br>TOS CRT | 29" EUR<br>SDI CRT | 32" EUR<br>PHI CRT | REMARK                                   |
| V-AMP        | 33                 | 33                 | 26                 | 33                 | 41                 | Vertical AMP adj(Gain Control)           |
| V-SHIFT      | 28                 | 28                 | 24                 | 28                 | 26                 | Vertical Position adj(DC bias adj)       |
| H-EW         | 26                 | 32                 | 17                 | 26                 | 36                 | Horizontal AMP adj(Gain Control)         |
| H-SHIFT      | 0                  | 0                  | 26                 | 0                  | 21                 | Horizontal Position adj(DC bias adj)     |
| V-LIN(Fix)   | 9                  | 9                  | 9                  | 9                  | 11                 | Vertical Linearity adj(Top/Bottom adj)   |
| UP-LIN(Fix)  | 9                  | 9                  | 9                  | 9                  | 9                  | Vertical Linearity adj(Top adj)          |
| LOW-LIN(Fix) | 4                  | 3                  | 2                  | 4                  | 1                  | Vertical Linearity adj(Bottom adj)       |
| V-SC(Fix)    | 3                  | 1                  | 3                  | 3                  | 0                  | Vertical S correction adj                |
| H-PAR        | 38                 | 38                 | 51                 | 38                 | 19                 | Horizontal pin distortion adj            |
| UP-COR       | 25                 | 25                 | 35                 | 25                 | 33                 | Horizontal pin distortion up adj         |
| LOW-COR      | 31                 | 31                 | 36                 | 31                 | 33                 | Horizontal pin distortion low adj        |
| H-TRA        | 18                 | 18                 | 42                 | 18                 | 43                 | Horizontal Tapezium distortion adj       |
| BOW          | 33                 | 33                 | 31                 | 33                 | 33                 | Vertical line slope adj(parabola)        |
| ANGLE        | 28                 | 28                 | 30                 | 28                 | 28                 | Vertical Linearity adj(sawtooth)         |
| V-POSI(Fix)  | 35 -> 40           | 40                 | 40                 | 35 -> 40           | 40                 | V-Position adj as to CRT inch            |


**DEFLECTION : NTSC**

| ITEMS   | 29" CIS<br>SDI CRT | 32" CIS<br>SDI CRT | 34" CIS<br>TOS CRT | 29" EUR<br>SDI CRT | 32" EUR<br>PHI CRT | REMARK                                 |
|---------|--------------------|--------------------|--------------------|--------------------|--------------------|--|
| V-AMP   | -7                 | -7                 | -7                 | -7                 | 0                  | Vertical AMP adj(Gain Control)         |
| V-SHIFT | -4                 | -4                 | -4                 | -4                 | -1                 | Vertical Position adj(DC bias adj)     |
| H-EW    | 5                  | 5                  | 5                  | 5                  | 1                  | Horizontal AMP adj(Gain Control)       |
| H-SHIFT | 30                 | 30                 | 30                 | 30                 | 3                  | Horizontal Position adj(DC bias adj)   |
| V-LIN   | -4                 | -4                 | -4                 | -4                 | -4                 | Vertical Linearity adj(Top/Bottom adj) |
| UP-LIN  | -1                 | -1                 | -1                 | -1                 | -1                 | Vertical Linearity adj(Top adj)        |
| LOW-LIN | 3                  | 3                  | 3                  | 3                  | 3                  | Vertical Linearity adj(Bottom adj)     |
| V-SC    | 0                  | 0                  | 0                  | 0                  | 0                  | Vertical S correction adj              |
| H-PAR   | 8                  | 8                  | 8                  | 8                  | 1                  | Horizontal pin distortion adj          |
| UP-COR  | 7                  | 7                  | 7                  | 7                  | 2                  | Horizontal pin distortion up adj       |
| LOW-COR | 3                  | 3                  | 3                  | 3                  | -1                 | Horizontal pin distortion low adj      |
| H-TRA   | 7                  | 7                  | 7                  | 7                  | 0                  | Horizontal Tapezium distortion adj     |
| BOW     | -1                 | -1                 | -1                 | -1                 | 0                  | Vertical line slope adj(parabola)      |
| ANGLE   | -1                 | -1                 | -1                 | -1                 | 0                  | Vertical Linearity adj(sawtooth)       |
| V-POSI  | 0                  | 0                  | 0                  | 0                  | 0                  | V-Position adj as to CRT inch          |



 **Video Adjust 1**

| ITEMS              | 29" CIS<br>SDI CRT | 32" CIS<br>SDI CRT | 34" CIS<br>TOS CRT | 29" EUR<br>SDI CRT | 32" EUR<br>PHI CRT | REMARK                                 |
|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--|
| R-Cutoff           | 41                 | 41                 | 46                 | 41                 | 41                 | R-cutoff control adj                   |
| G-Cutoff(Fix)      | 25                 | 25                 | 32                 | 32                 | 32                 | G-cutoff control adj                   |
| B-Cutoff           | 28                 | 28                 | 18                 | 28                 | 38                 | B-cutoff control adj                   |
| Color on/off       | 1                  | 1                  | 1                  | 1                  | 1                  | initial : "0" -> 1                     |
| CR offset          | 32                 | 32                 | 32                 | 32                 | 32                 | DC-offset canceling adjust             |
| CB offset          | 32                 | 32                 | 32                 | 32                 | 32                 | DC-offset canceling adjust             |
| R-Drive            | 37                 | 37                 | 46                 | 37                 | 40                 | R-Drive control adj                    |
| G-Drive(Fix)       | 32                 | 32                 | 32                 | 32                 | 32                 | G-Drive control adj                    |
| B-Drive            | 32                 | 32                 | 26                 | 32                 | 38                 | B-Drive control adj                    |
| Sub-Bright         | 32                 | 32                 | 40                 | 32                 | 47                 | Sub-Bright control                     |
| Sub-Contrast       | 7                  | 7                  | 7                  | 7                  | 7                  | Sub-Contrast control                   |
| Sub-Color(Fix)     | 15                 | 15                 | 10                 | 15                 | 15                 | color gain control(PAL SETTING AGAIN)  |
| Sub-TInt(Fix)      | 28                 | 28                 | 28                 | 28                 | 28                 | HUE control                            |
| CTI-Level(Fix)     | 1                  | 1                  | 1                  | 1                  | 1                  | Chrominance Transient Improvement      |
| COL AXIS(Fix)      | 1                  | 1                  | 1                  | 1                  | 1                  | color detection axis setting(NTSC/USA) |
| LTI-Level(Fix)     | 1                  | 1                  | 1                  | 1                  | 1                  | Luminance Transient Improvement        |
| VSU(Fix)           | 2                  | 2                  | 2                  | 2                  | 2                  | vertical osd position                  |
| Merody Volume(Fix) | 7                  | 7                  | 7                  | 7                  | 7                  | Volume gain control                    |


**Video Adjust 2**

| ITEMS      | 29" CIS<br>SDI CRT | 32" CIS<br>SDI CRT | 34" CIS<br>TOS CRT | 29" EUR<br>SDI CRT | 32" EUR<br>PHI CRT | REMARK                                    |
|------------|--------------------|--------------------|--------------------|--------------------|--------------------|---|
| ABL Mode   | 3                  | 3                  | 3                  | 3                  | 3                  | Rpicture/bright ABL gain control          |
| Gamma      | 2                  | 2                  | 2                  | 2                  | 2                  | RGB output correction control             |
| DPIC Level | 3                  | 3                  | 3                  | 3                  | 3                  | Dynamic picture black expansion control   |
| DC Trans   | 3                  | 3                  | 3                  | 3                  | 3                  | Y-System DC transmission ratio            |
| ABL-TH     | 14                 | 15                 | 14                 | 14                 | 14                 | Threshold voltage adj ABL-IN              |
| VM-Level   | 1                  | 1                  | 1                  | 1                  | 1                  | VM-OUT Level control                      |
| VM-Coring  | 2                  | 2                  | 2                  | 2                  | 2                  | VM-OUT coring control                     |
| VM-f0      | 2                  | 2                  | 2                  | 2                  | 2                  | VM-f0 control                             |
| VM-Limit   | 2                  | 2                  | 2                  | 2                  | 2                  | VM-Limit level control                    |
| VM-Delay   | 3                  | 3                  | 3                  | 3                  | 3                  | VM-OUT phase control(reference to R-OUT)  |
| SHP CD     | 1                  | 1                  | 1                  | 1                  | 1                  | Sharpness gain control(color saturation)  |
| SHP f0     | 0                  | 0                  | 0                  | 0                  | 0                  | Sharpness f0 control (3Mhz)               |
| SHP f1&p/o | 8                  | 8                  | 8                  | 8                  | 8                  | Sharpness gain control(PAL SETTING AGAIN) |
| AKB Time   | 13                 | 13                 | 13                 | 13                 | 13                 | AKB Bch reference pulse time control      |
| Bandpass   | 17h                | 17h                | 17h                | 17h                | 17h                | VSP9407B Band pass filter                 |
| Highpass   | 23h                | 23h                | 23h                | 23h                | 23h                | VSP9407B High pass filter                 |


**Video Adjust 3**

| ITEMS      | 29" CIS<br>SDI CRT | 32" CIS<br>SDI CRT | 34" CIS<br>TOS CRT | 29" EUR<br>SDI CRT | 32" EUR<br>PHI CRT | REMARK  |
|------------|--------------------|--------------------|--------------------|--------------------|--------------------|---|
| H comp     | 7                  | 8                  | 4                  | 7                  | 6                  | H-EHT compensation setting(PAL SETTING AGAIN)   |
| V comp     | 4                  | 5                  | 4                  | 4                  | 4                  | V-EHT compensation setting(PAL SETTING AGAIN)   |
| PIN comp   | 2                  | 2                  | 7                  | 7                  | 2                  | PIN-EHT compensation setting(PAL SETTING AGAIN) |
| AFC comp   | 0                  | 0                  | 0                  | 0                  | 0                  | AFC-EHT compensation                            |
| sync phase | 0                  | 0                  | 0                  | 0                  | 0                  | WHEN USED 74HC123                               |
| NR Value   | 6                  | 6                  | 6                  | 6                  | 6                  | PAL SETTING AGAIN                               |

 **Option Byte(CIS Model)**

| ITEMS             | 29" CIS<br>SDI CRT | 32" CIS<br>SDI CRT | 34" CIS<br>TOS CRT | 29" EUR<br>SDI CRT | 32" EUR<br>PHI CRT | REMARK                                |
|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------------------------|
| Language          | CIS                | CIS                | CIS                | NON                | NON                | CIS/ARAB                              |
| SOUND             | V-DOLBY            | V-DOLBY            | V-DOLBY            | V-DOLBY            | V-DOLBY            | V-DOLBY/A2-NICAM                      |
| CRT               | 4:3                | WIDE               | 4:3                | WIDE               | WIDE               |                                       |
| AV JACK           | SCART              | SCART              | SCART              | SCART              | SCART              | SCART(CIS,EUROPE)/RCA(ASIA,AUSTRALIA) |
| AUTO FM           | ON                 | ON                 | ON                 | ON                 | ON                 | ON/OFF                                |
| PIP               | ON                 | ON                 | ON                 | ON                 | ON                 | ON/OFF(W/O PIP MODEL)                 |
| TXT LANGUAGE      | ON                 | ON                 | ON                 | WESTERN<br>EUROPE  | WESTERN<br>EUROPE  | OPTION                                |
| LNA               | ON                 | ON                 | OFF                | ON                 | ON                 | ON/OFF(1 TUNER)                       |
| HIGH DEVIATION    | OFF                | OFF                | OFF                | OFF                | OFF                | OFF/ON(INDIA)                         |
| AV BY CH KEY      | OFF                | OFF                | OFF                | OFF                | OFF                | OFF/ON                                |
| DTV               | OFF                | OFF                | OFF                | OFF                | OFF                | OFF/ON                                |
| VGA               | OFF                | OFF                | OFF                | OFF                | OFF                | OFF/OFF                               |
| AGC               | OFF                | OFF                | OFF                | OFF                | OFF                | OFF/ON                                |
| WOOFER            | OFF                | OFF                | NON                | OFF                | OFF                | OFF/ON                                |
| SPEAKER           | NON                | NON                | NON                | DOME SPK           | DOME SPK           | EQ CURVE(DOME/NON DOME SPK)           |
| TTX TOP           | NON                | NON                | NON                | OFF                | OFF                | OFF/ON                                |
| HELP              | NON                | NON                | NON                | OFF                | OFF                | OFF/ON                                |
| TTX ON/OFF        | NON                | NON                | NON                | ON                 | ON                 | OFF/ON                                |
| TTX LIST PRIORITY | NON                | NON                | NON                | NON                | NON                | OFF/ON                                |

 **YC Delay**

| ITEMS          | 29" CIS<br>SDI CRT | 32" CIS<br>SDI CRT | 34" CIS<br>TOS CRT | 29" EUR<br>SDI CRT | 32" EUR<br>PHI CRT | REMARK |
|----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------|
| P.YC(AV) DELAY | 1                  | 1                  | 1                  | 2                  | 2                  |        |
| S.YC(AV) DELAY | -5                 | -5                 | -5                 | -5                 | -5                 |        |
| N.YC(AV) DELAY | 2                  | 2                  | 2                  | 4                  | 4                  |        |
| P.BG.YC DELAY  | 0                  | 0                  | 0                  | 4                  | 4                  |        |
| P.DK.YC DELAY  | -2                 | -2                 | -2                 | 2                  | 2                  |        |
| P.I.YC DELAY   | -1                 | -1                 | -1                 | 1                  | 1                  |        |
| P.M.YC DELAY   | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| P.L.YC DELAY   | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| S.BG.YC DELAY  | -6                 | -6                 | -6                 | -2                 | -2                 |        |
| S.DK.YC DELAY  | -9                 | -9                 | -9                 | -7                 | -7                 |        |
| S.I.YC DELAY   | -9                 | -9                 | -9                 | -9                 | -9                 |        |
| S.L.YC DELAY   | 0                  | 0                  | 0                  | -5                 | -5                 |        |
| N.M.YC DELAY   | 0                  | 0                  | 0                  | 0                  | 0                  |        |


**EUROPE & CIS EEPROM Data**

| F-No | Factory Control Name            | Range | 29" CIS<br>SDI CRT | 32" CIS<br>SDI CRT | 34" CIS<br>TOS CRT | 29" EUR<br>SDI CRT | 32" EUR<br>PHI CRT | REMARK |
|------|---------------------------------|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------|
| 0    | UP-UCG(up corner semi control)  | 0~3   | 1                  | 0                  | 0                  | 0                  | 0                  |        |
| 1    | LO-UCG(low corner semi control) | 0~3   | 1                  | 0                  | 0                  | 0                  | 0                  |        |
| 2    | LTI Mode                        | 0~3   | 2                  | 2                  | 2                  | 1                  | 1                  |        |
| 3    | System                          | 0~3   | 1                  | 1                  | 1                  | 2                  | 2                  |        |
| 4    | 50 Hz Progressive Trapezium     | 0~255 | 6                  | 5                  | 13                 | 6                  | 5                  |        |
| 5    | 60 Hz Progressive Trapezium     | 0~255 | 7                  | 7                  | 11                 | 7                  | 7                  |        |
| 6    | Dynamic Contrast                | 0~100 | 70                 | 70                 | 100                | 70                 | 100                |        |
| 7    | Dynamic Brightness              | 0~100 | 40                 | 40                 | 40                 | 50                 | 50                 |        |
| 8    | Dynamic Sharpness               | 0~100 | 60                 | 60                 | 60                 | 40                 | 40                 |        |
| 9    | Dynamic Color                   | 0~100 | 60                 | 70                 | 60                 | 60                 | 60                 |        |
| 10   | Dynamic ColorTone               | 0~100 | 50                 | 50                 | 50                 | 50                 | 50                 |        |
| 11   | Dynamic Tint                    | 0~100 | 50                 | 50                 | 50                 | 50                 | 50                 |        |
| 12   | Standard Contrast               | 0~100 | 40                 | 50                 | 60                 | 50                 | 80                 |        |
| 13   | Standard Brightness             | 0~100 | 40                 | 40                 | 42                 | 45                 | 50                 |        |
| 14   | Standard Sharpness              | 0~100 | 50                 | 50                 | 50                 | 40                 | 40                 |        |
| 15   | Standard Color                  | 0~100 | 50                 | 60                 | 50                 | 50                 | 50                 |        |
| 16   | Standard ColorTone              | 0~100 | 50                 | 50                 | 50                 | 50                 | 50                 |        |
| 17   | Standard Tint                   | 0~100 | 50                 | 50                 | 50                 | 50                 | 50                 |        |
| 18   | Movie Contrast                  | 0~100 | 30                 | 35                 | 40                 | 40                 | 60                 |        |
| 19   | Movie Brightness                | 0~100 | 40                 | 40                 | 40                 | 45                 | 50                 |        |
| 20   | Movie Sharpness                 | 0~100 | 50                 | 50                 | 50                 | 40                 | 40                 |        |
| 21   | Movie Color                     | 0~100 | 45                 | 55                 | 45                 | 45                 | 45                 |        |
| 22   | Movie ColorTone                 | 0~100 | 50                 | 50                 | 50                 | 50                 | 50                 |        |
| 23   | Movie Tint                      | 0~100 | 50                 | 50                 | 50                 | 50                 | 50                 |        |
| 24   | PROGRESSIVE TTX V-POSITION      | 0~255 | 76                 | 78                 | 76                 | 76                 | 76                 |        |
| 25   | PROGRESSIVE TTX H-POSITION      | 0~255 | 186                | 187                | 184                | 186                | 190                |        |
| 26   |                                 | 0~100 | 255                | 255                | 255                | 255                | 255                |        |
| 27   |                                 | 0~100 | 255                | 255                | 255                | 255                | 255                |        |
| 28   |                                 | 0~100 | 255                | 255                | 255                | 255                | 255                |        |
| 29   |                                 | 0~100 | 255                | 255                | 255                | 255                | 255                |        |
| 30   | Brightness(RGB/DVD)             | 0~255 | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 31   | Contrast(RGB/DVD)               | 0~255 | 124                | 124                | 124                | 124                | 124                |        |
| 32   | U Saturation(RGB/DVD)           | 0~255 | 125                | 125                | 125                | 125                | 125                |        |

| F-No | Factory Control Name                | Range | 29" CIS<br>SDI CRT | 32" CIS<br>SDI CRT | 34" CIS<br>TOS CRT | 29" EUR<br>SDI CRT | 32" EUR<br>PHI CRT | REMARK |
|------|-------------------------------------|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------|
| 33   | V saturation(RGB/DVD)               | 0~255 | 248                | 248                | 248                | 248                | 248                |        |
| 34   | 9407 Y Gain                         | 0~255 | 93                 | 93                 | 93                 | 80                 | 80                 |        |
| 35   | 9407 U Gain                         | 0~255 | 83                 | 83                 | 83                 | 71                 | 71                 |        |
| 36   | Luminance Delay(Fixed Value)        | 0~255 | 8                  | 8                  | 8                  | 8                  | 8                  |        |
| 37   | 9407 V Gain                         | 0~255 | 82                 | 82                 | 82                 | 70                 | 70                 |        |
| 38   | Start Value of Lum LUT(Main)-NR_ON  | 0~255 | 255                | 255                | 255                | 255                | 255                |        |
| 39   | Noise Reduction(Main)-NR_ON         | 0~255 | 102                | 102                | 102                | 102                | 102                |        |
| 40   | Start Value of Lum LUT(PIP)-NR_ON   | 0~255 | 255                | 255                | 255                | 255                | 255                |        |
| 41   | Noise Reduction(PIP)-NR_ON          | 0~255 | 102                | 102                | 102                | 102                | 102                |        |
| 42   | Vertical End of Clamping Pulse      | 0~255 | 28                 | 28                 | 28                 | 28                 | 28                 |        |
| 43   | SECAM Color Sensitivity(Main)       | 0~255 | 28                 | 28                 | 28                 | 28                 | 28                 |        |
| 44   | Vertical End of Clamping Pulse      | 0~255 | 28                 | 28                 | 28                 | 28                 | 28                 |        |
| 45   | SECAM Color Sensitivity(PIP)        | 0~255 | 28                 | 28                 | 28                 | 28                 | 28                 |        |
| 46   | Left Blanking                       | 0~255 | 147                | 147                | 147                | 147                | 147                |        |
| 47   | Right Blanking                      | 0~255 | 153                | 153                | 153                | 153                | 153                |        |
| 48   | S-ABL                               | 0~255 | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 49   | P-ABL                               | 0~255 | 48                 | 64                 | 48                 | 48                 | 48                 |        |
| 50   | Start Value of Lum LUT(Main)-NR_OFF | 0~255 | 255                | 255                | 255                | 255                | 255                |        |
| 51   | Noise Reduction(Main)-NR_OFF        | 0~255 | 255                | 255                | 255                | 255                | 255                |        |
| 52   | Start Value of Lum LUT(PIP)-NR_OFF  | 0~255 | 255                | 255                | 255                | 255                | 255                |        |
| 53   | Noise Reduction(PIP)-NR_OFF         | 0~255 | 255                | 255                | 255                | 255                | 255                |        |
| 54   | Picture Limit Level                 | 0~3   | 3                  | 3                  | 3                  | 3                  | 3                  |        |
| 55   | OSD LEVEL(LRGB2_LEV)                | 0~15  | 7                  | 7                  | 10                 | 7                  | 7                  |        |
| 56   | TTX LEVEL(LRGB2_LEV)                | 0~15  | 0                  | 0                  | 0                  | 5                  | 5                  |        |
| 57   | Left Blanking (480p)                | 0~255 | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 58   | Right Blanking (480p)               | 0~255 | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 59   | Left Blanking (1080i)               | 0~255 | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 60   | Right Blanking (1080i)              | 0~255 | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 61   | System (480p)                       | 0~3   | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 62   | System (1080i)                      | 0~3   | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 63   | CrCb Gain (480p)                    | 0~255 | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 64   | CrCb Gain (1080i)                   | 0~255 | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 65   | LTI Mode (480p)                     | 0~3   | 0                  | 0                  | 0                  | 0                  | 0                  |        |

Alignment and Adjustments

| F-No | Factory Control Name        | Range | 29" CIS<br>SDI CRT | 32" CIS<br>SDI CRT | 34" CIS<br>TOS CRT | 29" EUR<br>SDI CRT | 32" EUR<br>PHI CRT | REMARK |
|------|-----------------------------|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------|
| 66   | LTI Mode (1080i)            | 0~3   | 0                  | 0                  | 0                  | 0                  | 0                  |        |
| 67   | TTX V Position              | 0~255 | 37                 | 37                 | 37                 | 37                 | 38                 |        |
| 68   | TTX H Position              | 0~255 | 186                | 188                | 185                | 186                | 190                |        |
| 69   | 16 PIP UPPER CORNER OFF SET | 0~255 | 2                  | 4                  | 3                  | 2                  | 4                  |        |
| 70   | 16 PIP LOWER CORNER OFF SET | 0~255 | 1                  | 0                  | 3                  | 1                  | 0                  |        |
| 71   | 4:3 Normal Parabola         | 0~255 | 0                  | 0                  | 0                  | 0                  | 0                  |        |

### 4-3-3 AISA Factory Data

#### DEFLECTION : PAL

| ITEMS   | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK                                 |
|---------|---------------------|-------------------------|--------------------------|--|
| V-AMP   | 35                  | 24                      | 39                       | Vertical AMP adj(Gain Control)         |
| V-SHIFT | 22                  | 27                      | 27                       | Vertical Position adj(DC bias adj)     |
| H- EW   | 40                  | 34                      | 31                       | Horizontal AMP adj(Gain Control)       |
| H-SHIFT | 22                  | 21                      | 17                       | Horizontal Position adj(DC bias adj)   |
| V-LIN   | 7                   | 9                       | 9                        | Vertical Linearity adj(Top/Bottom adj) |
| UP-LIN  | 9                   | 9                       | 9                        | Vertical Linearity adj(Top adj)        |
| LOW-LIN | 4                   | 3                       | 4                        | Vertical Linearity adj(Bottom adj)     |
| V-SC    | 1                   | 1                       | 3                        | Vertical S correction adj              |
| H-PAR   | 33                  | 20                      | 39                       | Horizontal pin distortion adj          |
| UP-COR  | 18                  | 32                      | 31                       | Horizontal pin distortion up adj       |
| LOW-COR | 27                  | 35                      | 32                       | Horizontal pin distortion low adj      |
| H-TRA   | 24                  | 32                      | 36                       | Horizontal Tapezium distortion adj     |
| BOW     | 33                  | 32                      | 35                       | Vertical line slope adj(parabola)      |
| ANGLE   | 31                  | 30                      | 26                       | Vertical Linearity adj(sawtooth)       |
| V-POSI  | 40                  | 40                      | 40                       | V-Position adj as to CRT inch          |



**DEFLECTION : NTSC**

| ITEMS   | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK                                 |
|---------|---------------------|-------------------------|--------------------------|--|
| V-AMP   | 1                   | 2                       | 1                        | Vertical AMP adj( Gain Control)        |
| V-SHIFT | 0                   | -2                      | -2                       | Vertical Position adj (DC bias adj)    |
| H- EW   | -2                  | 0                       | -1                       | Horizontal AMP adj(Gain Control)       |
| H-SHIFT | 10                  | 8                       | 9                        | Horizontal Position adj (DC bias adj)  |
| V-LIN   | -4                  | -4                      | -4                       | Vertical Linearity adj(TOP/Bottom adj) |
| UP-LIN  | -1                  | -1                      | -1                       | Vertical Linearity adj(TOP adj)        |
| LOW-LIN | 2                   | 3                       | 2                        | Vertical Linearity adj(Bottom adj)     |
| V-SC    | 0                   | 0                       | 0                        | Vertical S correction adj              |
| H-PAR   | 1                   | 0                       | 2                        | Horizontal pin distortion adj          |
| UP-COR  | 4                   | 1                       | 2                        | Horizontal pin distortion up adj       |
| LOW-COR | -3                  | -3                      | -3                       | Horizontal pin distortion low adj      |
| H-TRA   | 4                   | 0                       | 4                        | Horizontal Trapezium distortion adj    |
| BOW     | 0                   | 0                       | 1                        | Vertical line slope adj(parabola)      |
| ANGLE   | 0                   | 0                       | -1                       | Vertical Linearity adj(sawtooth)       |
| V-POSI  | 0                   | 0                       | 0                        | V-POSITION ADJ as to CRT INCH          |

**480p Offset**

| ITEMS   | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK                                 |
|---------|---------------------|-------------------------|--------------------------|--|
| V-AMP   | -1                  | 2                       | -8                       | Vertical AMP adj( Gain Control)        |
| V-SHIFT | 1                   | -3                      | 2                        | Vertical Position adj (DC bias adj)    |
| H- EW   | 8                   | 4                       | 3                        | Horizontal AMP adj(Gain Control)       |
| H-SHIFT | -9                  | -7                      | -9                       | Horizontal Position adj (DC bias adj)  |
| V-LIN   | 0                   | -4                      | 0                        | Vertical Linearity adj(TOP/Bottom adj) |
| UP-LIN  | 0                   | -1                      | -1                       | Vertical Linearity adj(TOP adj)        |
| LOW-LIN | 0                   | 3                       | -3                       | Vertical Linearity adj(Bottom adj)     |
| V-SC    | 0                   | 0                       | 2                        | Vertical S correction adj              |
| H-PAR   | 0                   | -4                      | 1                        | Horizontal pin distortion adj          |
| UP-COR  | 0                   | 3                       | -1                       | Horizontal pin distortion up adj       |
| LOW-COR | 0                   | -3                      | -1                       | Horizontal pin distortion low adj      |
| H-TRA   | -7                  | 4                       | 3                        | Horizontal Trapezium distortion adj    |
| BOW     | 0                   | 0                       | 2                        | Vertical line slope adj(parabola)      |
| ANGLE   | 0                   | 1                       | 0                        | Vertical Linearity adj(sawtooth)       |
| V-POSI  | 0                   | 0                       | 0                        | V-POSITION ADJ as to CRT INCH          |


**1080i Offset**

| ITEMS   | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK                                 |
|---------|---------------------|-------------------------|--------------------------|--|
| V-AMP   | -14                 | -1                      | -4                       | Vertical AMP adj( Gain Control)        |
| V-SHIFT | 2                   | -2                      | -1                       | Vertical Position adj (DC bias adj)    |
| H- EW   | 6                   | -10                     | 2                        | Horizontal AMP adj(Gain Control)       |
| H-SHIFT | 4                   | 11                      | 10                       | Horizontal Position adj (DC bias adj)  |
| V-LIN   | 0                   | 0                       | -1                       | Vertical Linearity adj(TOP/Bottom adj) |
| UP-LIN  | 0                   | 0                       | 0                        | Vertical Linearity adj(TOP adj)        |
| LOW-LIN | 0                   | 0                       | -1                       | Vertical Linearity adj(Bottom adj)     |
| V-SC    | 0                   | 0                       | 0                        | Vertical S correction adj              |
| H-PAR   | 0                   | 3                       | -1                       | Horizontal pin distortion adj          |
| UP-COR  | 0                   | 5                       | 0                        | Horizontal pin distortion up adj       |
| LOW-COR | 0                   | 3                       | 1                        | Horizontal pin distortion low adj      |
| H-TRA   | 0                   | 2                       | -3                       | Horizontal Trapezium distortion adj    |
| BOW     | 0                   | -1                      | 1                        | Vertical line slope adj(parabola)      |
| ANGLE   | 0                   | 1                       | 2                        | Vertical Linearity adj(sawtooth)       |
| V-POSI  | 0                   | 0                       | 0                        | V-POSITION ADJ as to CRT INCH          |

 **Video Adjust 1**

| ITEMS         | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK                                 |
|---------------|---------------------|-------------------------|--------------------------|--|
| R-Cutoff      | 41                  | 31                      | 41                       | R-cutoff control adj                   |
| G-Cutoff      | 32                  | 32                      | 32                       | G-cutoff control adj                   |
| B-Cutoff      | 28                  | 43                      | 28                       | B-cutoff control adj                   |
| Color on/off  | 1                   | 1                       | 1                        | Fixed : "0"--> 1                       |
| CR offset     | 32                  | 32                      | 32                       | DC-offset canceling adjust             |
| CB offset     | 32                  | 32                      | 32                       | DC-offset canceling adjust             |
| R-Drive       | 37                  | 37                      | 37                       | R-Drive control adj                    |
| G-Drive       | 32                  | 32                      | 32                       | G-Drive control adj                    |
| B-Drive       | 32                  | 43                      | 32                       | B-Drive control adj                    |
| Sub-Bright    | 32                  | 33                      | 32                       | Sub-Bright control                     |
| Sub-Contrast  | 7                   | 7                       | 7                        | Sub-Contrast control                   |
| Sub-Color     | 15                  | 15                      | 15                       | color gain control(PAL SETTING AGAIN)  |
| Sub-Tint      | 28                  | 28                      | 28                       | HUE control                            |
| CTI-Level     | 1                   | 1                       | 1                        | Chrominance Transient Improvement      |
| COL AXIS      | 1                   | 1                       | 1                        | color detection axis setting(NTSC/USA) |
| LTI-Level     | 1                   | 1                       | 1                        | Luminance Transient Improvement        |
| VSU           | 2                   | 2                       | 2                        | vertical osd position                  |
| Merody Volume | 4                   | 4                       | 4                        | Volume gain control                    |


**Video Adjust 2**

| ITEMS      | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK                                    |
|------------|---------------------|-------------------------|--------------------------|---|
| ABL Mode   | 3                   | 3                       | 3                        | picture/bright ABL gain control           |
| Gamma      | 2                   | 2                       | 2                        | RGB output correction control             |
| DPIC Level | 3                   | 3                       | 3                        | Dynamic picture black expansion control   |
| DC Trans   | 3                   | 3                       | 3                        | Y-System DC transmission ratio            |
| ABL-TH     | 14                  | 15                      | 14                       | Threshold voltage adj ABL-IN              |
| VM-Level   | 1                   | 1                       | 1                        | VM-OUT Level control                      |
| VM-Coring  | 2                   | 2                       | 2                        | VM-OUT coring control                     |
| VM-f0      | 2                   | 2                       | 2                        | VM-f0 control                             |
| VM-Limit   | 2                   | 2                       | 2                        | VM-Limit level control                    |
| VM-Delay   | 3                   | 3                       | 3                        | VM-OUT phase control(reference to R-OUT)  |
| SHP CD     | 1                   | 1                       | 1                        | Sharpness gain control(color saturation)  |
| SHP f0     | 0                   | 0                       | 0                        | Sharpness f0 control (3Mhz)               |
| SHP f1&p/o | 8                   | 8                       | 8                        | Sharpness gain control(PAL SETTING AGAIN) |
| AKB Time   | 13                  | 13                      | 13                       | AKB Bch reference pulse time control      |
| Bandpass   | 17                  | 17                      | 17                       | VSP9407B Band pass filter                 |
| Highpass   | 23                  | 23                      | 23                       | VSP9407B High pass filter                 |


**Video Adjust 3**

| ITEMS             | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK  |
|-------------------|---------------------|-------------------------|--------------------------|---|
| H comp            | 7                   | 6                       | 7                        | H-EHT compensation setting(PAL SETTING AGAIN)   |
| V comp            | 4                   | 4                       | 4                        | V-EHT compensation setting(PAL SETTING AGAIN)   |
| PIN comp          | 2                   | 2                       | 2                        | PIN-EHT compensation setting(PAL SETTING AGAIN) |
| AFC comp          | 0                   | 0                       | 0                        | AFC-EHT compensation                            |
| sync phase        | 0                   | 0                       | 0                        | WHEN USED 74HC123                               |
| NR Value          | 6                   | 6                       | 6                        | PAL SETTING AGAIN                               |
| sync phase(480p)  | 1                   | 1                       | 1                        | WHEN USED 74HC123                               |
| sync phase(1080i) | 0                   | 0                       | 0                        | WHEN USED 74HC123                               |

 **DTV Adjust (480p/1080i)**

| ITEMS        | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK |
|--------------|---------------------|-------------------------|--------------------------|--------|
| Sub-Bright   | 19                  | 38                      | 19                       |        |
| Sub-Contrast | 7                   | 7                       | 7                        |        |
| Sub-Color    | 15                  | 15                      | 15                       |        |
| Sub-Tint     | 28                  | 28                      | 28                       |        |
| COL AXIS     | 1                   | 1                       | 1                        |        |
| LTI-Level    | 2                   | 2                       | 1                        |        |
| VM-Level     | 1                   | 1                       | 1                        |        |
| VM-Coring    | 2                   | 2                       | 2                        |        |
| VM-f0        | 2                   | 2                       | 2                        |        |
| VM-Limit     | 2                   | 2                       | 2                        |        |
| VM-Delay     | 3                   | 3                       | 3                        |        |
| SHP CD       | 1                   | 1                       | 1                        |        |
| SHP f0       | 0                   | 0                       | 0                        |        |
| SHP f1 & p/o | 8                   | 8                       | 8                        |        |

 **Option Byte(ASIA Model)**

| ITEMS          | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK   |
|----------------|---------------------|-------------------------|--------------------------|--|
| Language       | Asia                | ASIA                    | ASIA                     | CIS/ARAB   |
| SOUND          | V-DOLBY             | V-DOLBY                 | V-DOLBY                  | V-DOLBY/A2-NICAM   |
| CRT            | 4:3                 | WIDE                    | 4:3                      |  |
| AV JACK        | RCA                 | RCA                     | RCA                      | SCART(CIS,EUROPE)/RCA(ASIA,AUSTRALIA)                                    |
| AUTO FM        | ON                  | ON                      | ON                       | ON/OFF   |
| PIP            | ON                  | ON                      | ON                       | ON/OFF(W/O PIP MODEL)  |
| TXT LANGUAGE   | ON                  | ON                      | ON                       | RUSSIA/GREEK-TURKEY/ARABIC/FARSI/<br>ARAB-HEBREW/WEST EUROPE/EAST EUROPE |
| LNA            | ON                  | ON                      | ON                       | ON/OFF(1 TUNER)  |
| HIGH DEVIATION | OFF                 | OFF                     | OFF                      | OFF/ON(INDIA)  |
| AV BY CH KEY   | OFF                 | OFF                     | OFF                      | OFF/ON   |
| DTV            | ON                  | ON                      | ON                       | OFF/ON   |
| VGA            | OFF                 | OFF                     | OFF                      | OFF/OFF  |
| AGC            | OFF                 | OFF                     | OFF                      | OFF/ON   |
| WOOFER         | OFF                 | OFF                     | OFF                      | OFF/ON (Z7PART : ON, OTHERS : OFF)                                       |

 **YC Delay**

| ITEMS          | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK |
|----------------|---------------------|-------------------------|--------------------------|--------|
| P.YC(AV) DELAY | 1                   | 1                       | 1                        |        |
| S.YC(AV) DELAY | -5                  | -5                      | -5                       |        |
| N.YC(AV) DELAY | 2                   | 2                       | 2                        |        |
| P.BG.YC DELAY  | 0                   | 0                       | 0                        |        |
| P.DK.YC DELAY  | -2                  | -2                      | -2                       |        |
| P.I.YC DELAY   | -1                  | -1                      | -1                       |        |
| P.M.YC DELAY   | 0                   | 0                       | 0                        |        |
| P.L.YC DELAY   | 0                   | 0                       | 0                        |        |
| S.BG.YC DELAY  | -6                  | -6                      | -6                       |        |
| S.DK.YC DELAY  | -9                  | -9                      | -9                       |        |
| S.I.YC DELAY   | -9                  | -9                      | -9                       |        |
| S.M.YC DELAY   | 0                   | 0                       | 0                        |        |
| S.L.YC DELAY   | 0                   | 0                       | 0                        |        |
| N.M.YC DELAY   | 0                   | 0                       | 0                        |        |

|                  |  |         |         |                         |
|------------------|--|---------|---------|-------------------------|
| High Voltage(kV) |  | 30.64kV | 31.62kV | Lion-head(Dynamic mode) |
|                  |  | 33.8kV  | 33.97kV |                         |
| Beam Current(mA) |  | 1.833mA | 1.82mA  |                         |


**ASIA EEPROM Data**

| F-No | Factory Control Name            | Range | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK |
|------|---------------------------------|-------|---------------------|-------------------------|--------------------------|--------|
| 0    | UP-UCG(up corner semi control)  | 0~3   | 1                   | 0                       | 1                        |        |
| 1    | LO-UCG(low corner semi control) | 0~3   | 1                   | 0                       | 1                        |        |
| 2    | LTI Mode                        | 0~3   | 2                   | 2                       | 2                        |        |
| 3    | System                          | 0~3   | 1                   | 1                       | 1                        |        |
| 4    | 50 Hz Progressive Trapezium     | 0~63  | 6                   | 7                       | 6                        |        |
| 5    | 60 Hz Progressive Trapezium     | 0~63  | 7                   | 7                       | 7                        |        |
| 6    | Dynamic Contrast                | 0~100 | 90                  | 100                     | 90                       |        |
| 7    | Dynamic Brightness              | 0~100 | 50                  | 50                      | 50                       |        |
| 8    | Dynamic Sharpness               | 0~100 | 50                  | 50                      | 50                       |        |
| 9    | Dynamic Color                   | 0~100 | 60                  | 60                      | 60                       |        |
| 10   | Dynamic ColorTone               | 0~100 | 50                  | 50                      | 50                       |        |
| 11   | Dynamic Tint                    | 0~100 | 50                  | 50                      | 50                       |        |
| 12   | Standard Contrast               | 0~100 | 70                  | 80                      | 70                       |        |
| 13   | Standard Brightness             | 0~100 | 50                  | 50                      | 50                       |        |
| 14   | Standard Sharpness              | 0~100 | 50                  | 40                      | 50                       |        |
| 15   | Standard Color                  | 0~100 | 50                  | 50                      | 50                       |        |
| 16   | Standard ColorTone              | 0~100 | 50                  | 50                      | 50                       |        |
| 17   | Standard Tint                   | 0~100 | 50                  | 50                      | 50                       |        |
| 18   | Movie Contrast                  | 0~100 | 50                  | 60                      | 50                       |        |
| 19   | Movie Brightness                | 0~100 | 50                  | 50                      | 50                       |        |
| 20   | Movie Sharpness                 | 0~100 | 50                  | 40                      | 50                       |        |
| 21   | Movie Color                     | 0~100 | 45                  | 50                      | 45                       |        |
| 22   | Movie ColorTone                 | 0~100 | 50                  | 50                      | 50                       |        |
| 23   | Movie Tint                      | 0~100 | 50                  | 50                      | 50                       |        |
| 24   | PROGRESSIVE TTX V-POSITION      | 0~255 | 76                  | 78                      | 76                       |        |
| 25   | PROGRESSIVE TTX H-POSITION      | 0~255 | 186                 | 187                     | 186                      |        |
| 26   | 1080i 50Hz OSD V-POSITION       | 0~255 | 32                  | 32                      | 32                       |        |
| 27   | 1080i 50Hz OSD H-POSITION       | 0~255 | 255                 | 255                     | 255                      |        |
| 28   | 1080i 60Hz OSD V-POSITION       | 0~255 | 32                  | 32                      | 32                       |        |
| 29   | 1080i 60Hz OSD H-POSITION       | 0~255 | 184                 | 184                     | 184                      |        |
| 30   | Brightness(RGB/DVD)             | 0~255 | 0                   | 0                       | 0                        |        |
| 31   | Contrast(RGB/DVD)               | 0~255 | 124                 | 124                     | 124                      |        |
| 32   | U Saturation(RGB/DVD)           | 0~255 | 125                 | 125                     | 125                      |        |

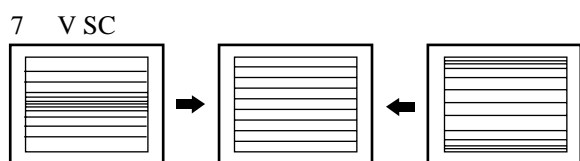
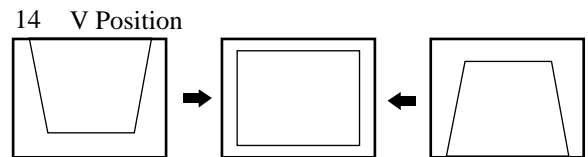
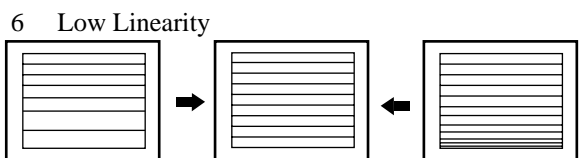
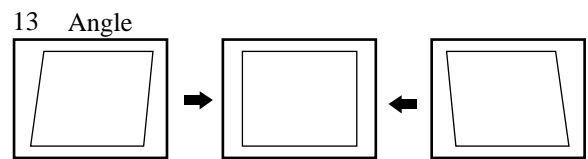
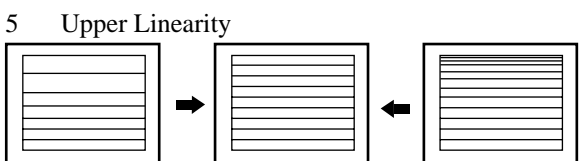
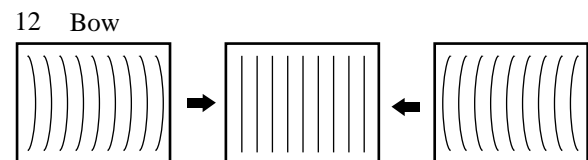
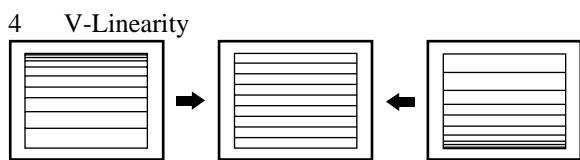
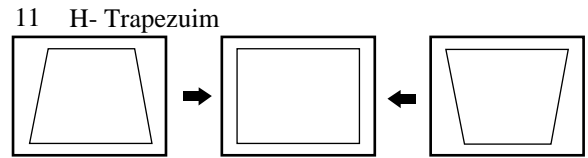
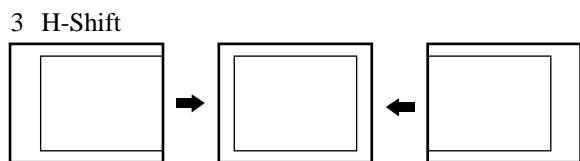
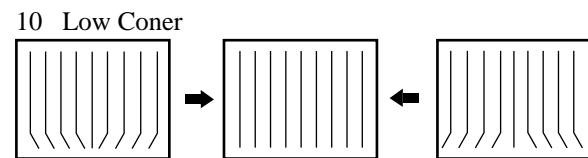
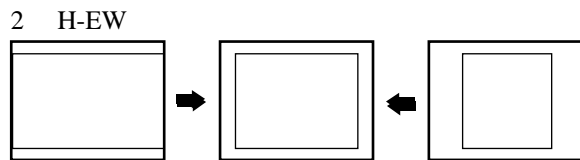
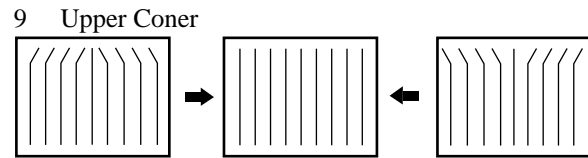
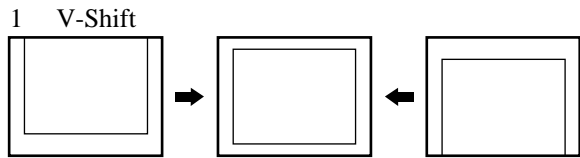
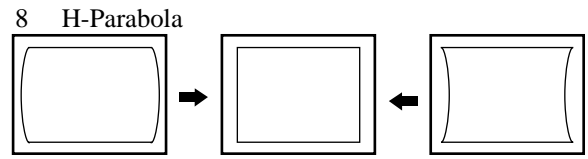
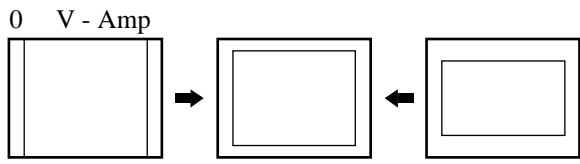
| F-No | Factory Control Name                | Range | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK |
|------|-------------------------------------|-------|---------------------|-------------------------|--------------------------|--------|
| 33   | V saturation(RGB/DVD)               | 0~255 | 248                 | 248                     | 248                      |        |
| 34   | 9407 Y Gain                         | 0~255 | 93                  | 93                      | 93                       |        |
| 35   | 9407 U Gain                         | 0~255 | 83                  | 83                      | 83                       |        |
| 36   | Luminance Delay(FIX)                | 0~255 | 8                   | 8                       | 8                        |        |
| 37   | 9407 V Gain                         | 0~255 | 82                  | 82                      | 82                       |        |
| 38   | Start Value of Lum LUT(Main)-NR_ON  | 0~255 | 255                 | 255                     | 255                      |        |
| 39   | Noise Reduction(Main)-NR_ON         | 0~255 | 102                 | 102                     | 102                      |        |
| 40   | Start Value of Lum LUT(PIP)-NR_ON   | 0~255 | 255                 | 255                     | 255                      |        |
| 41   | Noise Reduction(PIP)-NR_ON          | 0~255 | 102                 | 102                     | 102                      |        |
| 42   | Vertical End of Clamping Pulse      | 0~255 | 28                  | 28                      | 28                       |        |
| 43   | SECAM Color Sensitivity(Main)       | 0~255 | 28                  | 28                      | 28                       |        |
| 44   | Vertical End of Clamping Pulse      | 0~255 | 28                  | 28                      | 28                       |        |
| 45   | SECAM Color Sensitivity(PIP)        | 0~255 | 28                  | 28                      | 28                       |        |
| 46   | Left Blanking                       | 0~255 | 147                 | 147                     | 147                      |        |
| 47   | Right Blanking                      | 0~255 | 153                 | 153                     | 153                      |        |
| 48   | S-ABL                               | 0~255 | 0                   | 0                       | 0                        |        |
| 49   | P-ABL                               | 0~255 | 48                  | 48                      | 48                       |        |
| 50   | Start Value of Lum LUT(Main)-NR_OFF | 0~255 | 255                 | 255                     | 255                      |        |
| 51   | Noise Reduction(Main)-NR_OFF        | 0~255 | 255                 | 255                     | 255                      |        |
| 52   | Start Value of Lum LUT(PIP)-NR_OFF  | 0~255 | 255                 | 255                     | 255                      |        |
| 53   | Noise Reduction(PIP)-NR_OFF         | 0~255 | 255                 | 255                     | 255                      |        |
| 54   | Picture Limit Level                 | 0~3   | 3                   | 3                       | 3                        |        |
| 55   | OSD LEVEL(LRGB2_LEV)                | 0~15  | 12                  | 12                      | 12                       |        |
| 56   | TTX LEVEL(LRGB2_LEV)                | 0~15  | 5                   | 5                       | 5                        |        |
| 57   | Left Blanking (480p)                | 0~255 | 195                 | 195                     | 195                      |        |
| 58   | Right Blanking (480p)               | 0~255 | 165                 | 165                     | 165                      |        |
| 59   | Left Blanking (1080i)               | 0~255 | 167                 | 167                     | 167                      |        |
| 60   | Right Blanking (1080i)              | 0~255 | 125                 | 125                     | 125                      |        |
| 61   | System (480p)                       | 0~3   | 1                   | 1                       | 1                        |        |
| 62   | System (1080i)                      | 0~3   | 1                   | 1                       | 1                        |        |
| 63   | CrCb Gain (480p)                    | 0~255 | 119                 | 119                     | 119                      |        |
| 64   | CrCb Gain (1080i)                   | 0~255 | 119                 | 119                     | 119                      |        |
| 65   | LTI Mode (480p)                     | 0~3   | 1                   | 1                       | 1                        |        |



Alignment and Adjustments

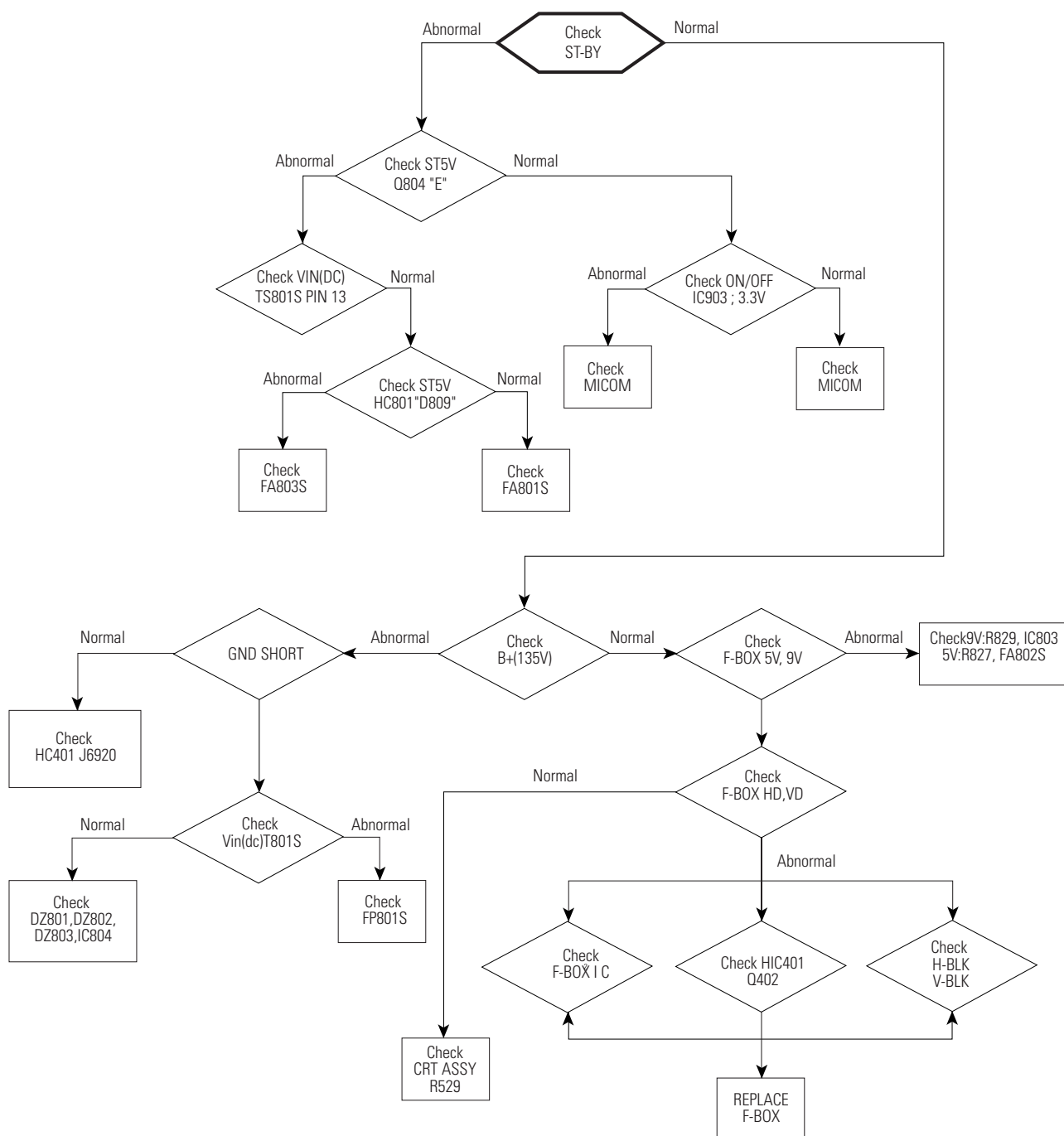
| F-No | Factory Control Name        | Range | 29" AISA<br>SDI CRT | 32" Australia<br>LG CRT | 29" Australia<br>SDI CRT | REMARK |
|------|-----------------------------|-------|---------------------|-------------------------|--------------------------|--------|
| 66   | LTI Mode (1080i)            | 0~3   | 1                   | 1                       | 1                        |        |
| 67   | TTX V Position              | 0~255 | 38                  | 38                      | 38                       |        |
| 68   | TTX H Position              | 0~255 | 186                 | 188                     | 186                      |        |
| 69   | 16PIP UPPER CORNER OFF SET  | 0~255 | 4                   | 0                       | 4                        |        |
| 70   | 16 PIP LOWER CORNER OFF SET | 0~255 | 1                   | 0                       | 1                        |        |
| 71   | 4:3 Normal Parabola         | 0~255 | 0                   | 0                       | 0                        |        |

### 4-4 Screen Change(I<sup>2</sup>C Bus Geometric Adjustment)

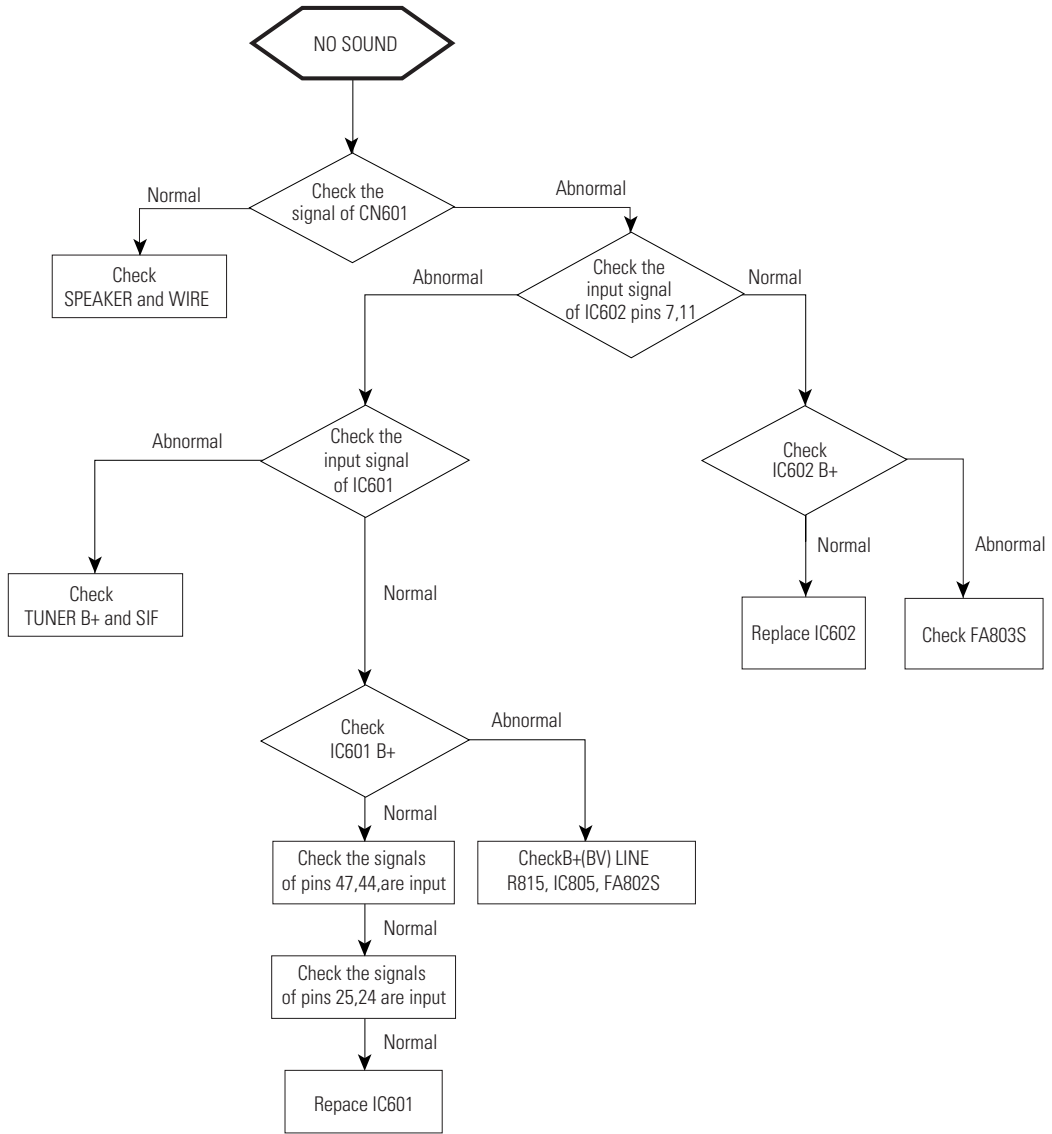


## 5. Troubleshooting

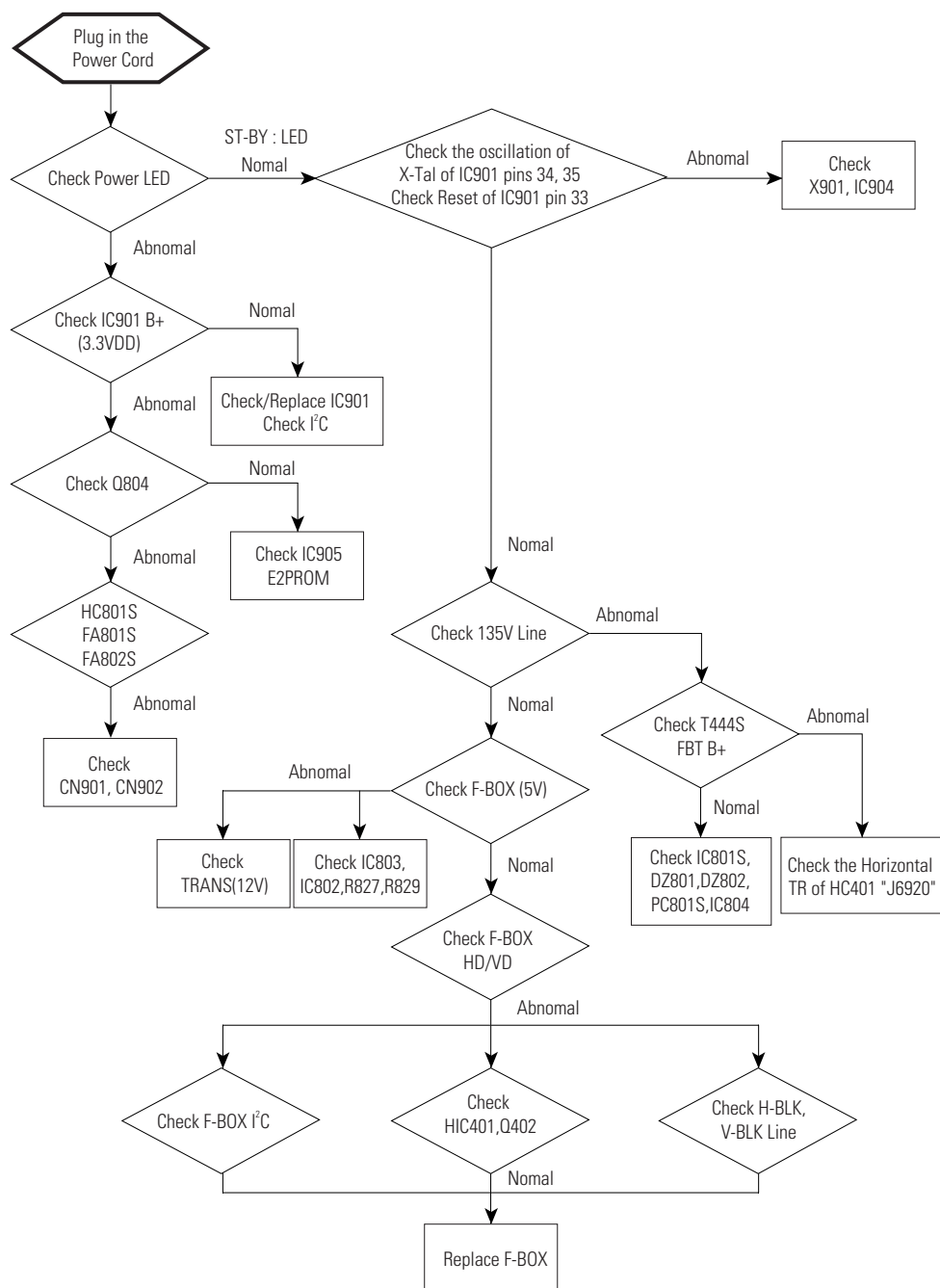
### 5-1 No Raster



## 5-2 No Sound

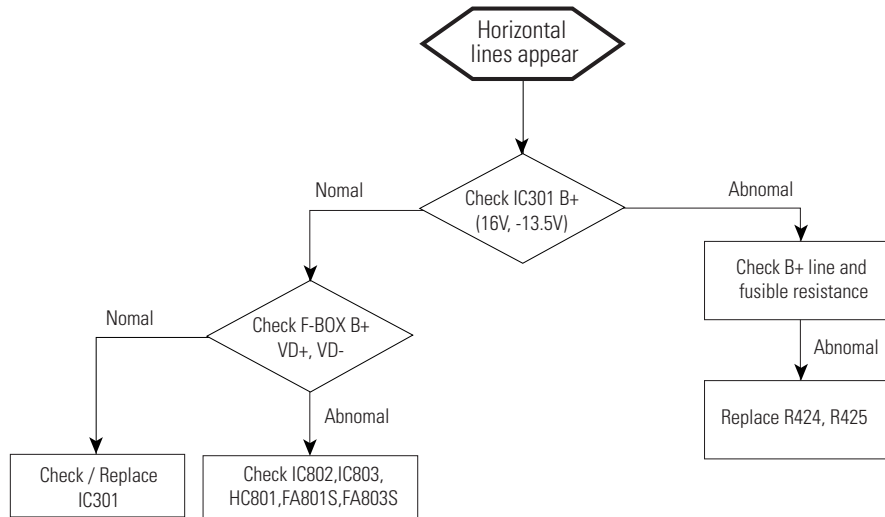


## 5-3 No Power



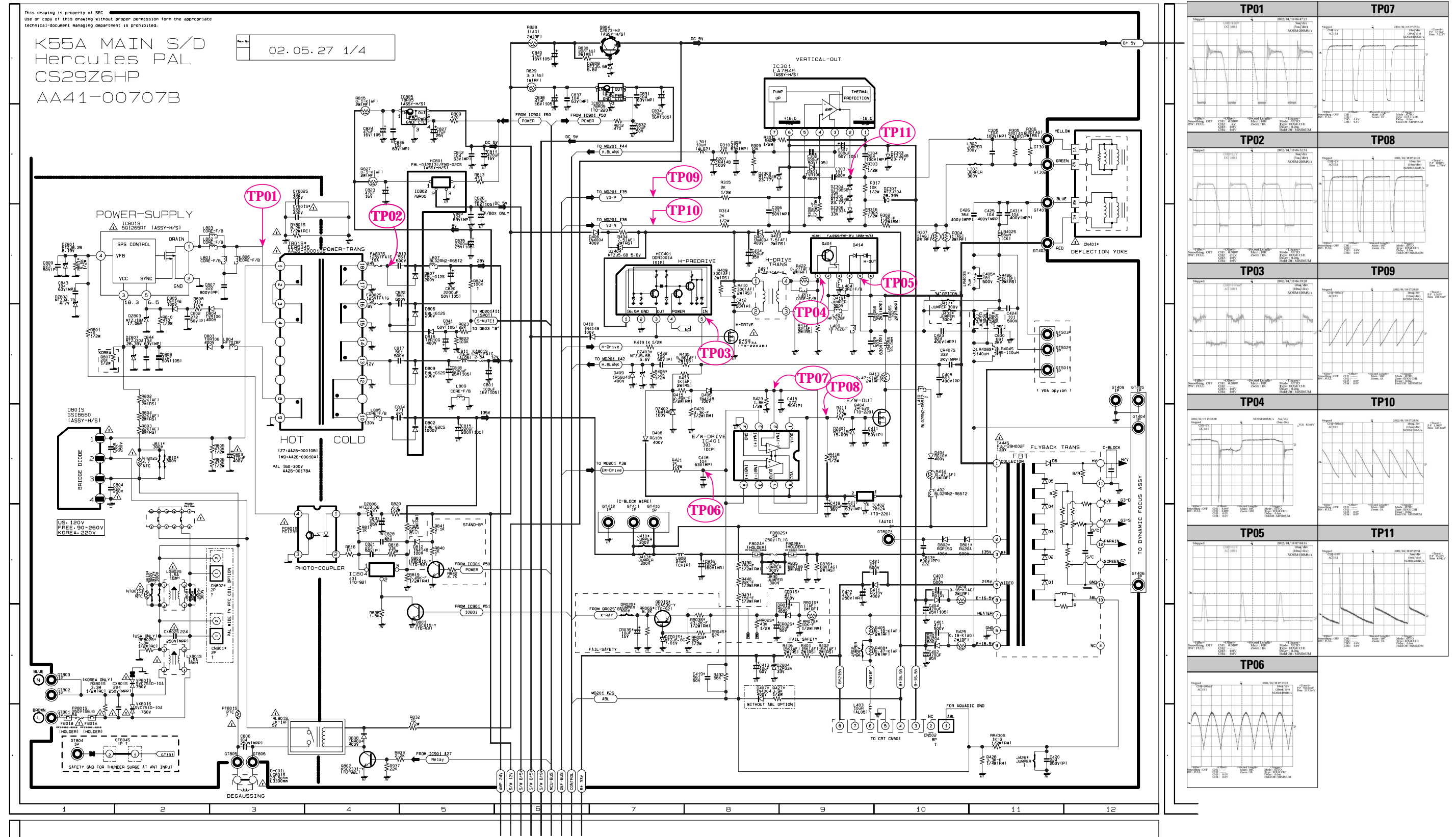
## 5-4 Horizontal Lines Appear

---

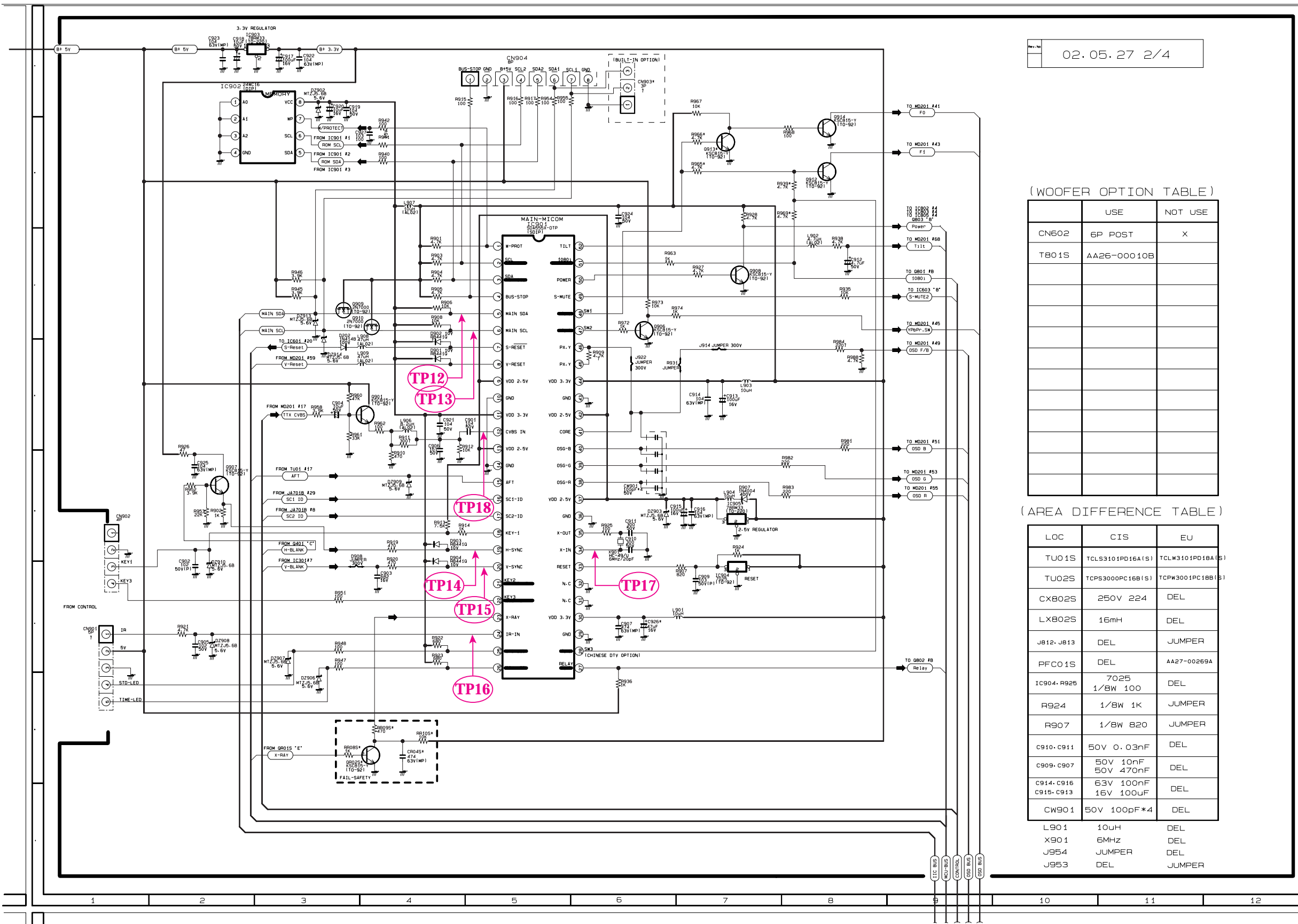


# 9. Schematic Diagrams

## 9-1 MAIN 1



9-2 MAIN 2



02.05.27 2/4

(WOOFER OPTION TABLE)

|       | USE         | NOT USE |
|-------|-------------|---------|
| CN602 | 6P POST     | X       |
| T801S | AA26-00010B |         |

(AREA DIFFERENCE TABLE)

| LOC        | CIS                    | EU               |
|------------|------------------------|------------------|
| TU01S      | TCL9310PD16A(S)        | TCLW310PD18A(S)  |
| TU02S      | TCPS3000PC16B(S)       | TCPW3001PC18B(S) |
| CX802S     | 250V 224               | DEL              |
| LX802S     | 16mH                   | DEL              |
| J812-J813  | DEL                    | JUMPER           |
| PFC01S     | DEL                    | AA27-00269A      |
| IC904-R925 | 7025<br>1/BW 100       | DEL              |
| R924       | 1/BW 1K                | JUMPER           |
| R907       | 1/BW 820               | JUMPER           |
| C910-C911  | 50V 0.03nF             | DEL              |
| C909-C907  | 50V 10nF<br>50V 470nF  | DEL              |
| C914-C913  | 63V 100nF<br>16V 100uF | DEL              |
| CW901      | 50V 100pF*4            | DEL              |
| L901       | 10uH                   | DEL              |
| X901       | 6MHZ                   | DEL              |
| J954       | JUMPER                 | DEL              |
| J953       | DEL                    | JUMPER           |

**TP12**

**TP13**

**TP14**

**TP15**

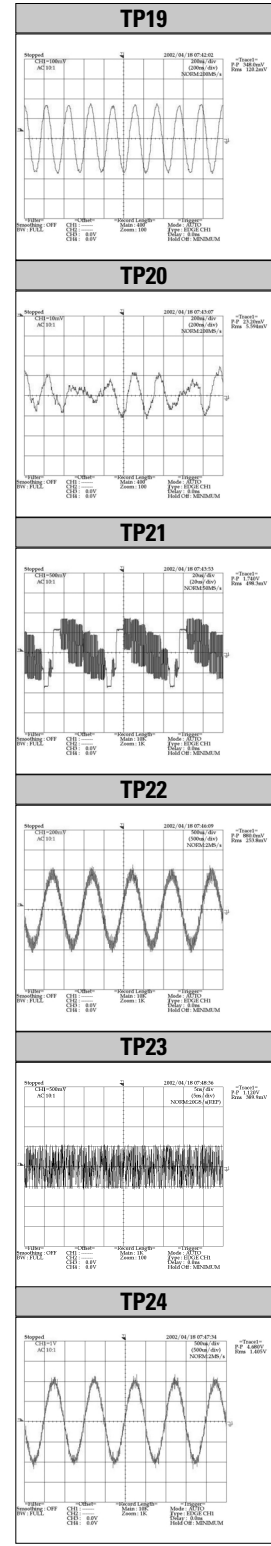
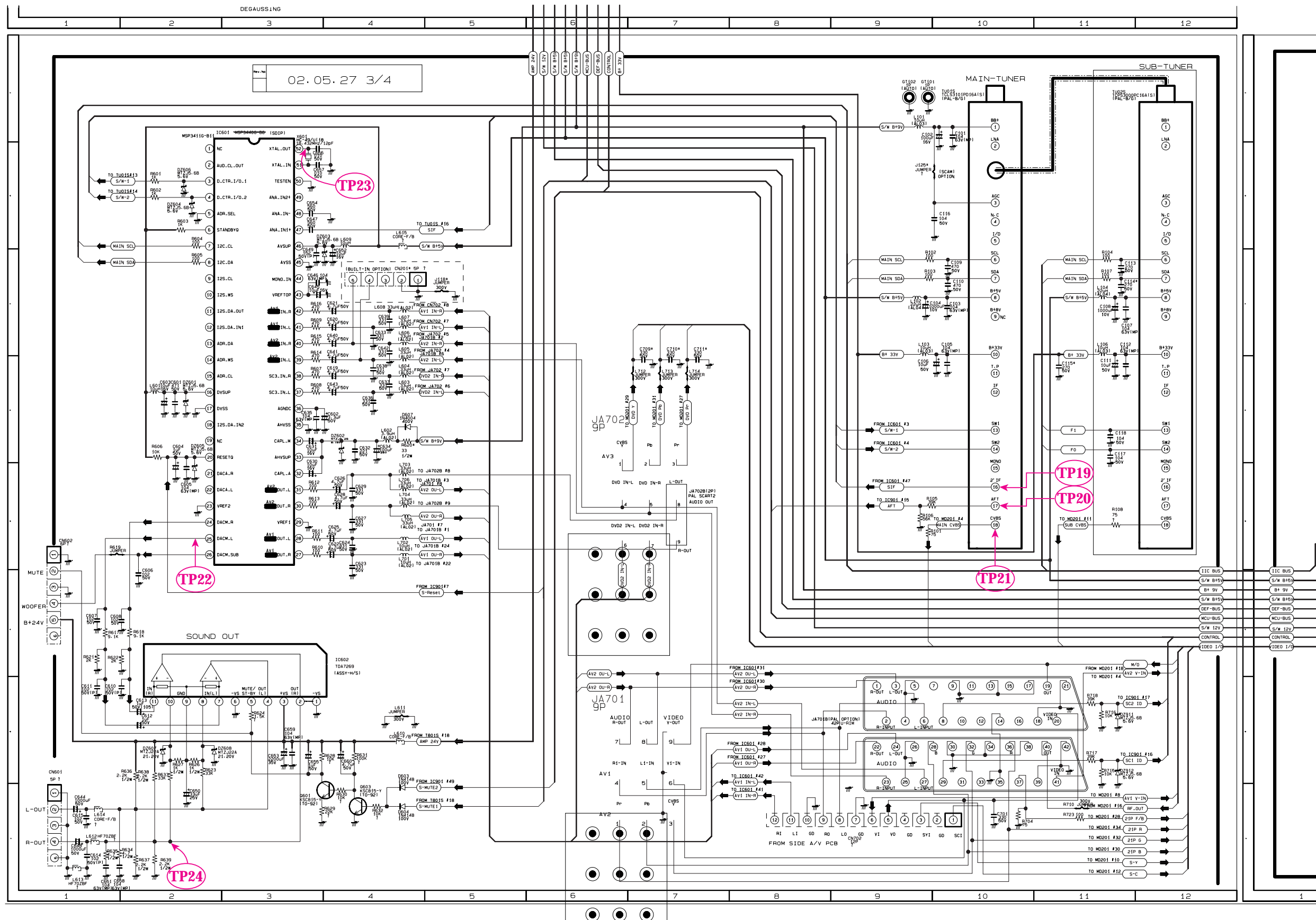
**TP16**

**TP17**

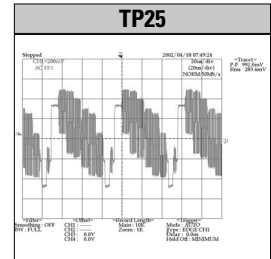
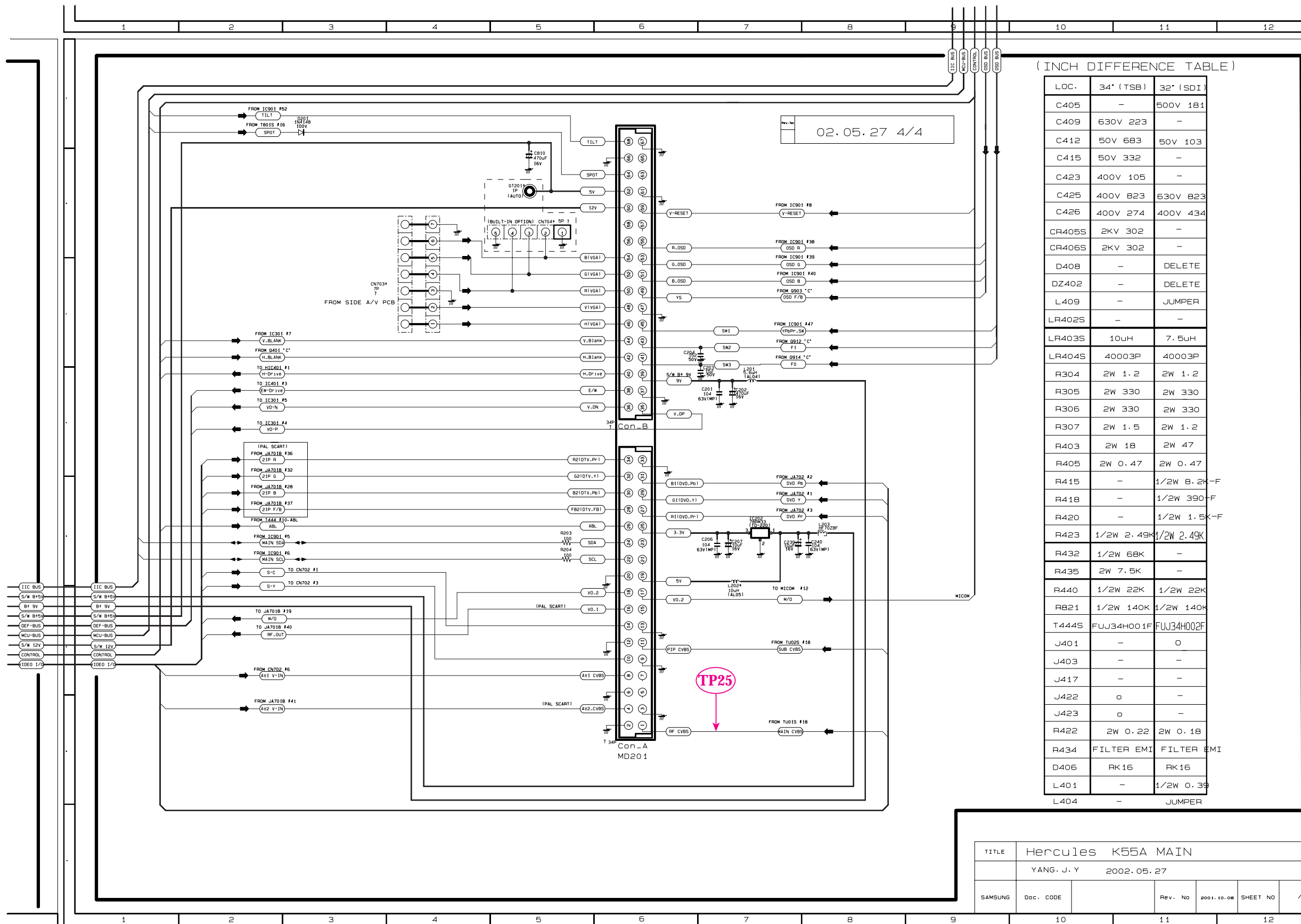
**TP18**



9-3 MAIN 3



9-4 MAIN 4



(INCH DIFFERENCE TABLE)

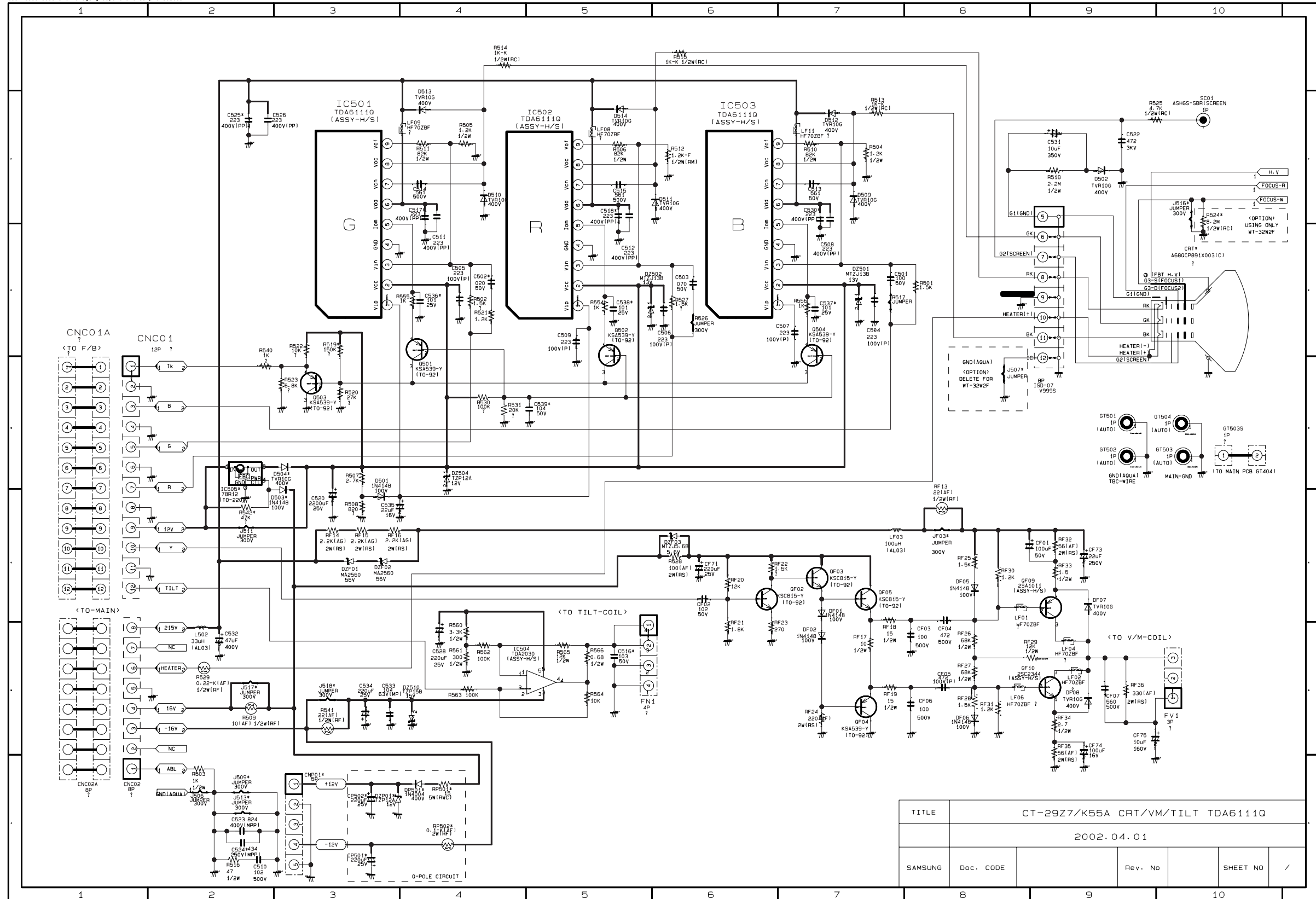
| LOC.   | 34" (TSB)  | 32" (SDI)   |
|--------|------------|-------------|
| C405   | -          | 500V 181    |
| C409   | 630V 223   | -           |
| C412   | 50V 683    | 50V 103     |
| C415   | 50V 332    | -           |
| C423   | 400V 105   | -           |
| C425   | 400V 823   | 630V 823    |
| C426   | 400V 274   | 400V 434    |
| CR405S | 2KV 302    | -           |
| CR406S | 2KV 302    | -           |
| D408   | -          | DELETE      |
| DZ402  | -          | DELETE      |
| L409   | -          | JUMPER      |
| LR402S | -          | -           |
| LR403S | 10uH       | 7.5uH       |
| LR404S | 40003P     | 40003P      |
| R304   | 2W 1.2     | 2W 1.2      |
| R305   | 2W 330     | 2W 330      |
| R306   | 2W 330     | 2W 330      |
| R307   | 2W 1.5     | 2W 1.2      |
| R403   | 2W 18      | 2W 47       |
| R405   | 2W 0.47    | 2W 0.47     |
| R415   | -          | 1/2W 8.2K-F |
| R418   | -          | 1/2W 390-F  |
| R420   | -          | 1/2W 1.5K-F |
| R423   | 1/2W 2.49K | 1/2W 2.49K  |
| R432   | 1/2W 68K   | -           |
| R435   | 2W 7.5K    | -           |
| R440   | 1/2W 22K   | 1/2W 22K    |
| R821   | 1/2W 140K  | 1/2W 140K   |
| T444S  | FUJ34H001F | FUJ34H002F  |
| J401   | -          | 0           |
| J403   | -          | -           |
| J422   | 0          | -           |
| J423   | 0          | -           |
| R422   | 2W 0.22    | 2W 0.18     |
| R434   | FILTER EMI | FILTER EMI  |
| D406   | RK16       | RK16        |
| L401   | -          | 1/2W 0.39   |
| L404   | -          | JUMPER      |

|         |                       |  |         |            |            |
|---------|-----------------------|--|---------|------------|------------|
| TITLE   | Hercules K55A MAIN    |  |         |            |            |
|         | YANG, J. Y 2002.05.27 |  |         |            |            |
| SAMSUNG | Doc. CODE             |  | Rev. No | 2001.10.08 | SHEET NO / |

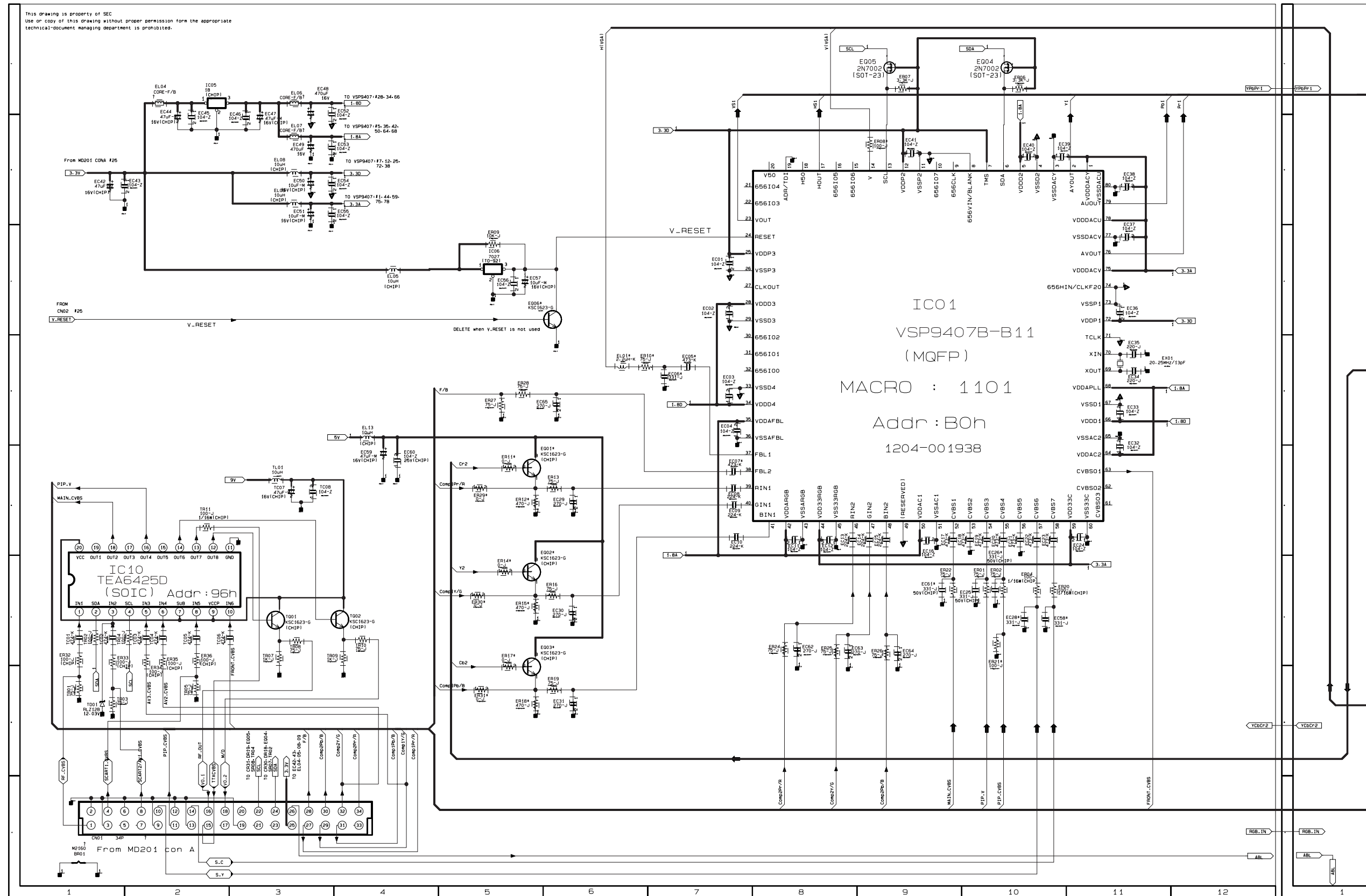


9-6 CRT

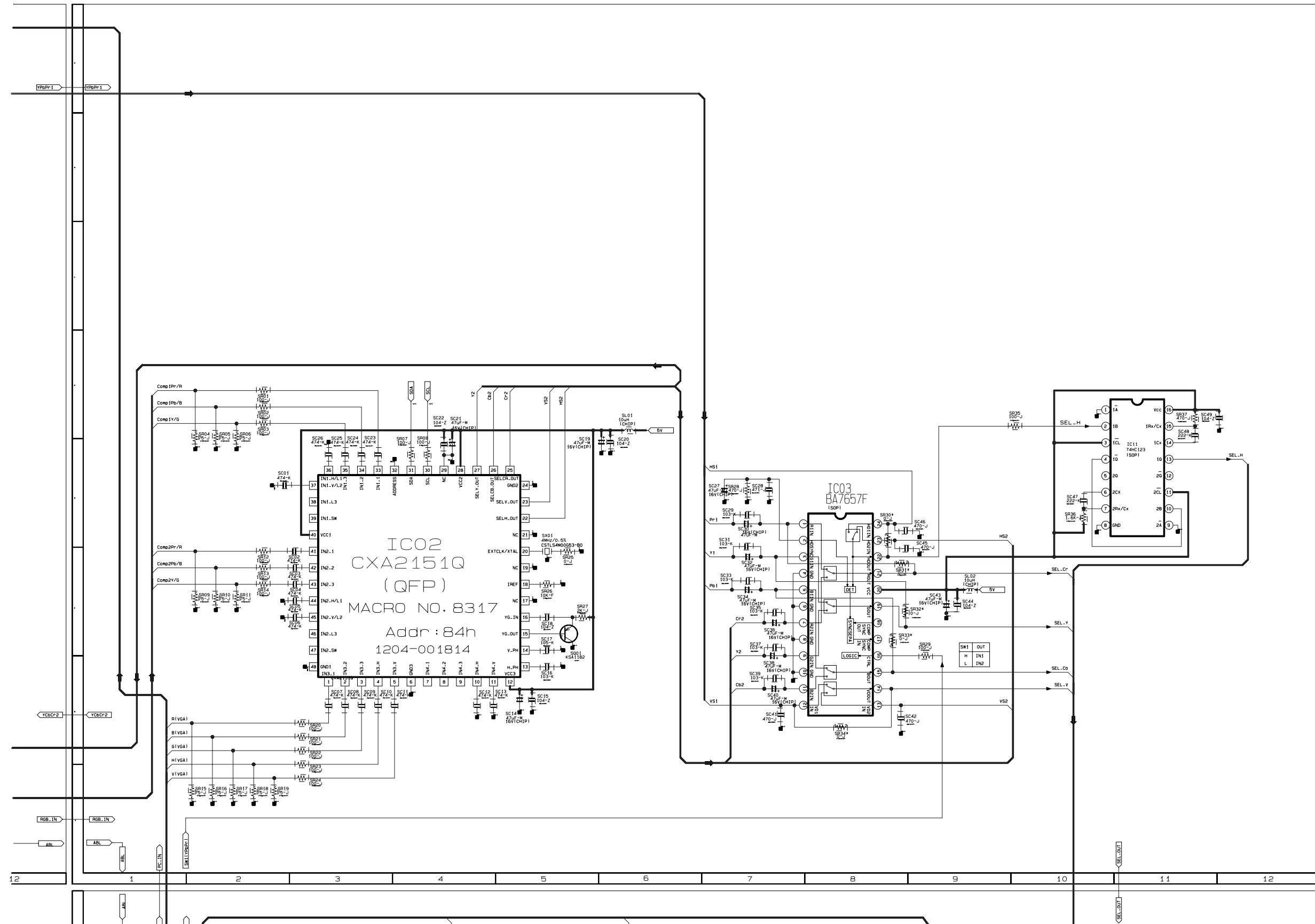
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9-7 F-BOX 1

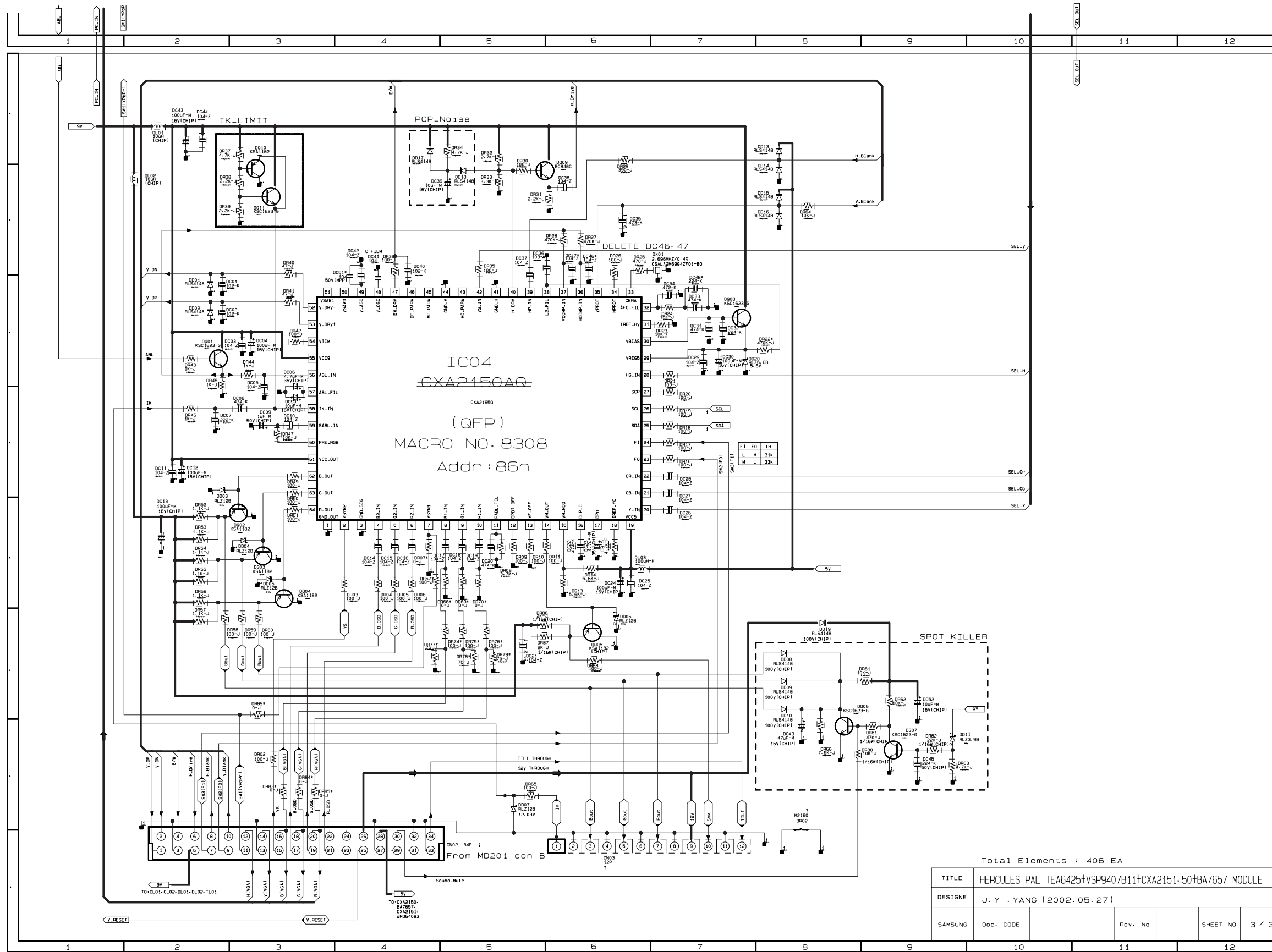


9-8 F-BOX 2



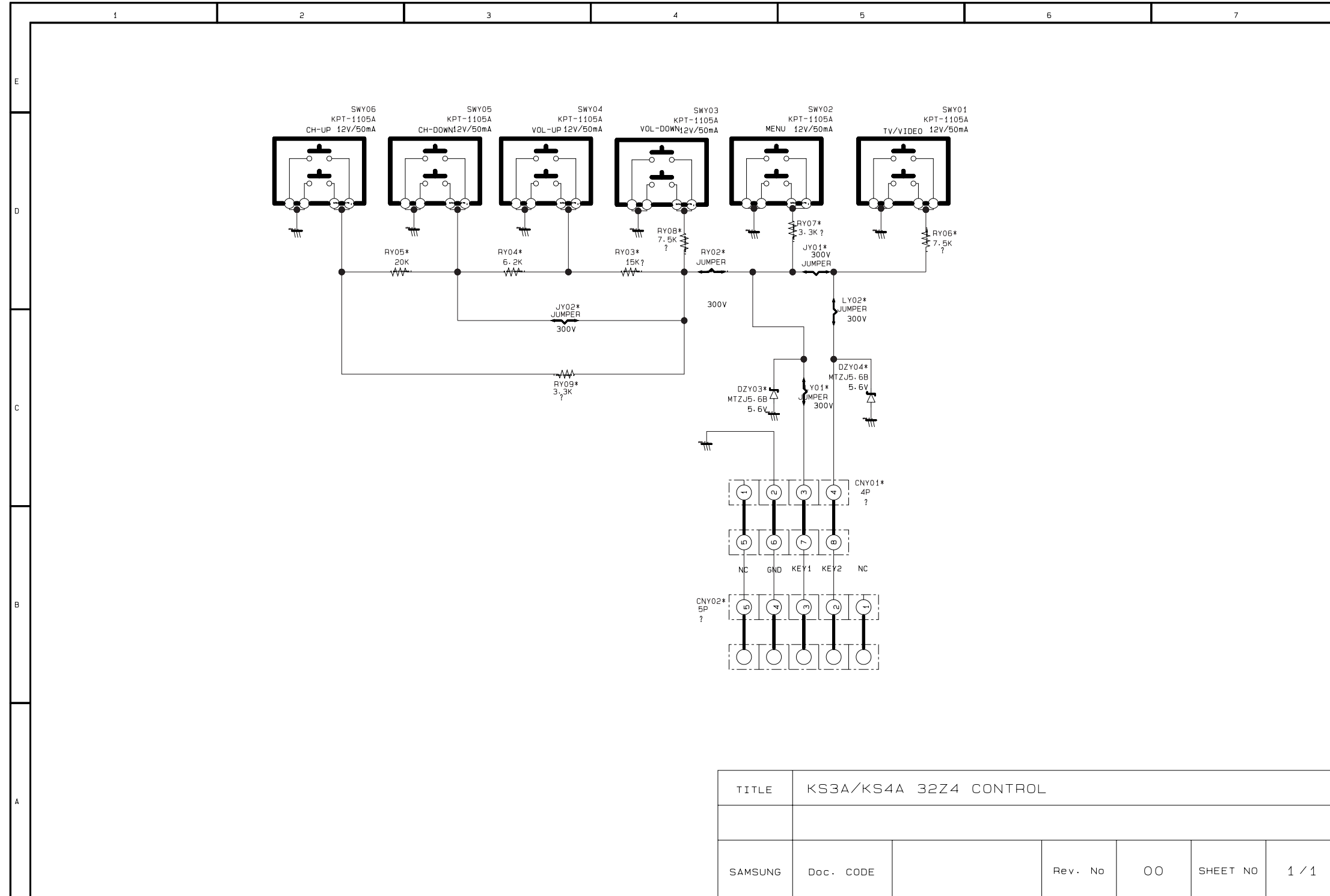


9-9 F-BOX 3



# 9-10 CONTROL

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9-11 A/V SIDE

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