

PHILIPS TECHNICAL TRAINING

L05HD TRAINING MANUAL



PHILIPS CONSUMER ELECTRONICS
64 PERIMETER CENTER EAST
PO BOX 467300
ATLANTA, GA 31146-7300

MM032205

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Introduction

The L05HD TV chassis is designed for the model year 2005. This set is High Definition ready with an NTSC tuning system. To receive the ATSC channels a set top box is required.

This design is used in large screen sizes of 27 and 30 inch with the 27-inch having a 4:3 aspect ratio and the 30 inch version having a 16:9 aspect ratio. There are three types of CRTs used which are the 100 degrees, 110 degrees, and wide screen version.

The standard architecture consists of a Main panel (called the family board), a Picture Tube panel, a Side I/O panel, a HDMI panel, a HD panel, and a Top Control panel. The panels consists primarily of conventional components with some surface mounted devices.

The functions for 1fH video and audio processing is performed in one IC (TDA1200xx, IC 7200), the Hercules chip. This chip is located on the solder side of the main panel.

The functions for the HD signals and 1fH to 2fH conversion is performed on the HD panel. Except for switching, OSD, Closed Caption, Text, and A/D conversion, the bulk of the processing is performed by the Trident chip, IC 7201.

The L05HD chassis has two signal processing sections, one for the 1fH (NTSC), and one for 2fH (HD) processing. Whatever signal is applied to the set, it is displayed on the CRT in a 1080i format.

The NTSC tuning system features 181 channels with on-screen display. The main tuning system uses a tuner, a microcomputer, and a memory IC mounted on the main panel. The microcomputer communicates with the memory IC, Remote Receiver, Tuner, Signal processing IC, and HD processing section. The Memory IC retains the settings for favorite stations, customer-preferred settings, and circuit settings. The circuit settings can be accessed by the service technician via the Service Alignment mode.

The On-screen graphics and Closed Caption decoding are done within IC 7206 located on the HD panel. They are added to the main signal in the Display Processor, 7221, located on the HD panel.

Customer Operation

The L05 customer menu is similar to the L04 customer menu. The L05HD does not have Picture-in-Picture.

Press the Menu button to make a selection. Press the Cursor up-down buttons on the remote to highlight the desired selection. Press the right Cursor button to make the selection.

Press the Menu button on the remote and press the Cursor up-down button to obtain the following screens.

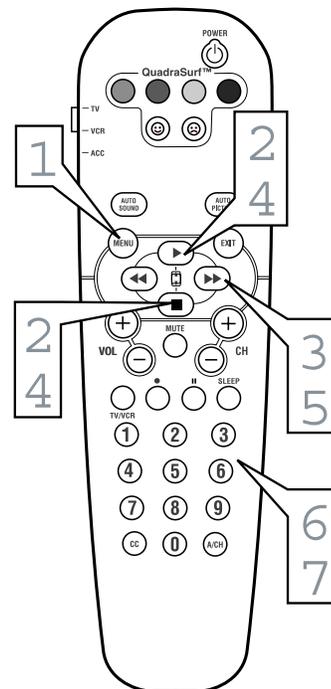
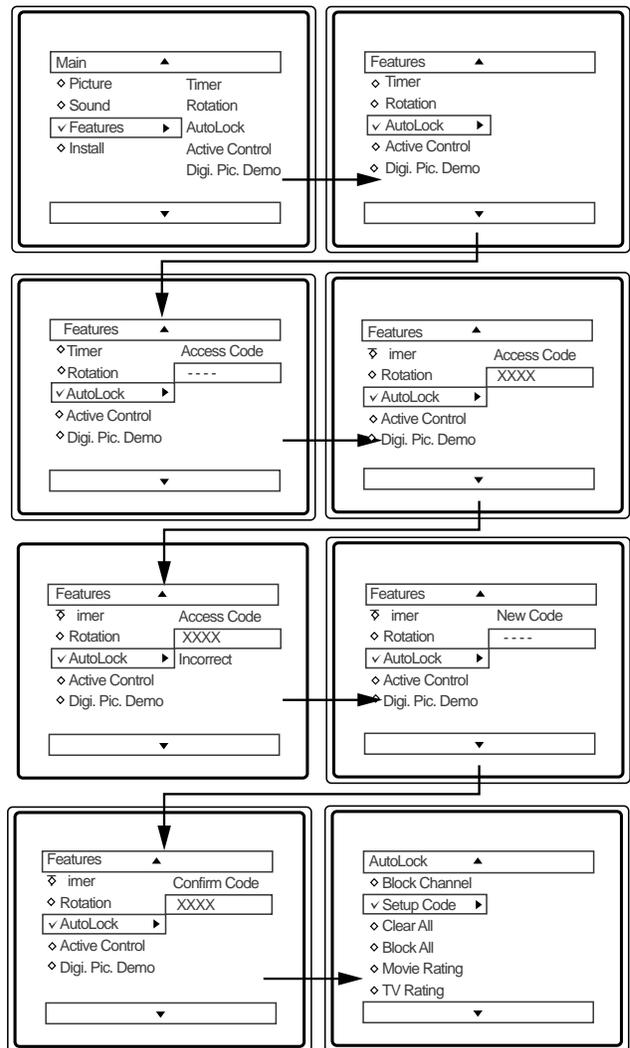


Setting up the access code.

1. Press the Menu button on the remote to display the on-screen menu.
2. Press the Cursor up or down buttons until the word features are highlighted.
3. Press the Cursor right button to display the features menu options.
4. Press the Cursor up or down buttons until the words autolock are highlighted.
5. Press the Cursor right button. The screen will read, "Access Code ----"
6. Using the number buttons, enter 0, 7, 1, 1. XXXX will appear as you press the buttons.

Incorrect code will appear on the screen.
Enter 0711 again.

7. The screen will ask you to enter a new code. Enter any 4 digit code.

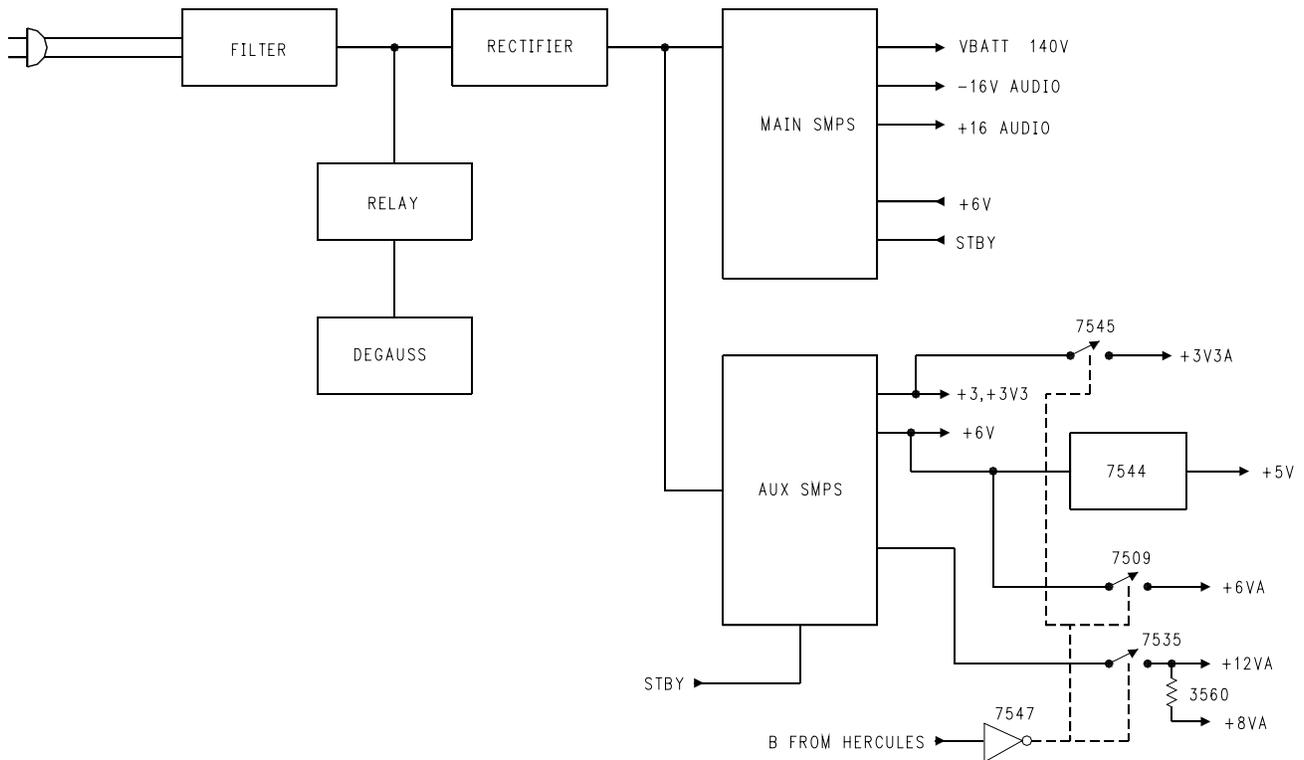


Power Supply Block (Figure 1)

The Power supplies are both located on the Family board. The supplies are divided into two sections, the Auxiliary and Main section. A single filter and rectifier circuit supplies both sections. The Auxiliary supply operates in a low power mode when the load is reduced. In the standby mode, the 3.3 and 6 volt supplies are operating. The 3.3 volt supply provides power to the processor section of the Hercules. The 6 volt supply provides power to the IR receiver. The Main supply is switched Off via the Standby line.

When the set is turned On, the "B" line from the Hercules processor goes High switching 7547 which turns 7535, 7509, and 7545 On. The +3V3A, +6VA, +12VA, and +8VA supplies are then switched On. The load placed on the Aux Power supply will cause it to switch to the full power mode. At the same time, the STBY line switches Low turning the Main SMPS supply On. The supply produces a +6 volt, +140 volt, -16 volt, and +16 volt supplies.

The +Vaudio (+16 volt) supply switches on the degauss relay.



Auxiliary Power Supply (Figure 2)

IC 7510 is the heart of the Auxiliary Power supply. In the Standby mode, VIA the current sensing and Control circuits, a low power condition is detected by the IC. The IC then goes into a Burst Mode operation to reduce the power used by the circuit. In the Burst Mode, the supply will operate at approximately 25 kHz. In full power operation the frequency will be approximately 66 kHz.

When power is first applied to the set, Start up is supplied to the IC by the internal Start-Up current through Pin 14. Startup voltage is also applied to the IC to Pin 2 by the AC_IN line which is tied to the neutral side of the AC line. During normal operation, power is supplied to the IC by the HOT windings, Pins 1 and 2, of transformer 5504. Output drive from Pin 11 is applied to the Gate of Transistor 7525. Voltage developed across the current sensing resistors in the Source of 7525 provides current sense information to the IC. When 7525 is switched Off, the voltage on Pin 1 of 5504 goes High. This winding supplies the operating voltage the power supply circuit. It also turns Transistor 7567 On causing the Gate of 7525 to stay Low as long as Pin 1 of 5504 is High. This prevents 7525 from turning On until the field of 5504 has collapsed.

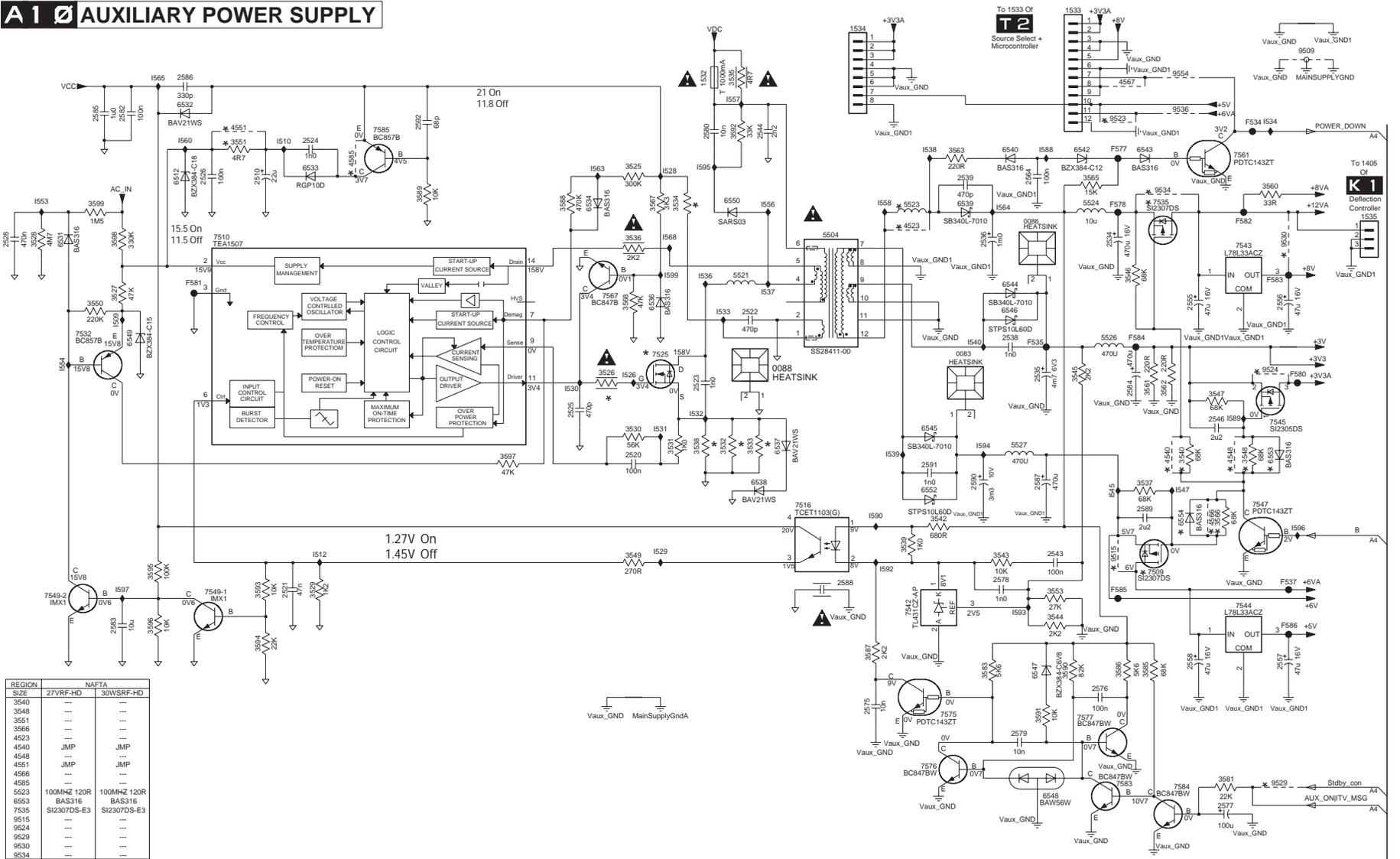
Regulation is accomplished by monitoring the +3 volt supply. This voltage is fed to Shunt regulator 7542 which controls the current through opto-isolator 7516. Shunt Regulator 7542 begins conducting when Pin 3 of the IC reaches 2.5 volts. At this point current flows through the opto-isolator, 7516. The transistor inside 7516 turns On applying a control voltage to Pin 6 of 7510. If a problem should develop in the feedback circuit causing an excessive voltage on Pin 6, Transistor 7549-2 will turn On, switching Transistor 7532 On. This will a voltage to the Demag circuit on Pin 7 causing the IC to latch Off. The IC will stay latched until power is removed and reapplied to the set.

In the Standby mode, the "B" control line from the Hercules Processor is Low. Only the +3, +3V3, and +6 volt supplies are present. When the set is turned On, the "B" line will go High, turning Transistors 7509, 7545, and 7535 On. This will switch On the +8VA, +12VA, +8V, +3V3A, +6VA, and +5V supplies.

In normal operation, voltage from Pin 12 of 5504 is rectified by 6540 to produce a negative voltage which prevents Transistor 7561 from turning On. If AC is removed from the set, this negative voltage will disappear. The voltage across the filter capacitors on the +3V line will turn 7561 On. The Power Down line will then go Low signaling the processor to shut the set down.

A 1 Ø AUXILIARY POWER SUPPLY

FIGURE 2 - AUXILIARY POWER SUPPLY



REGION	NAFTA
SIZE	SIZE
3540	27VRF-HD
3548	30WSRF-HD
3551	...
3566	...
4523	...
4540	JMP
4548	JMP
4551	JMP
4566	...
4585	...
5523	100MHZ 120R
6553	100MHZ 120R
7535	BAS316
9515	SI2307DS-E3
9524	...
9529	...
9530	...
9534	...

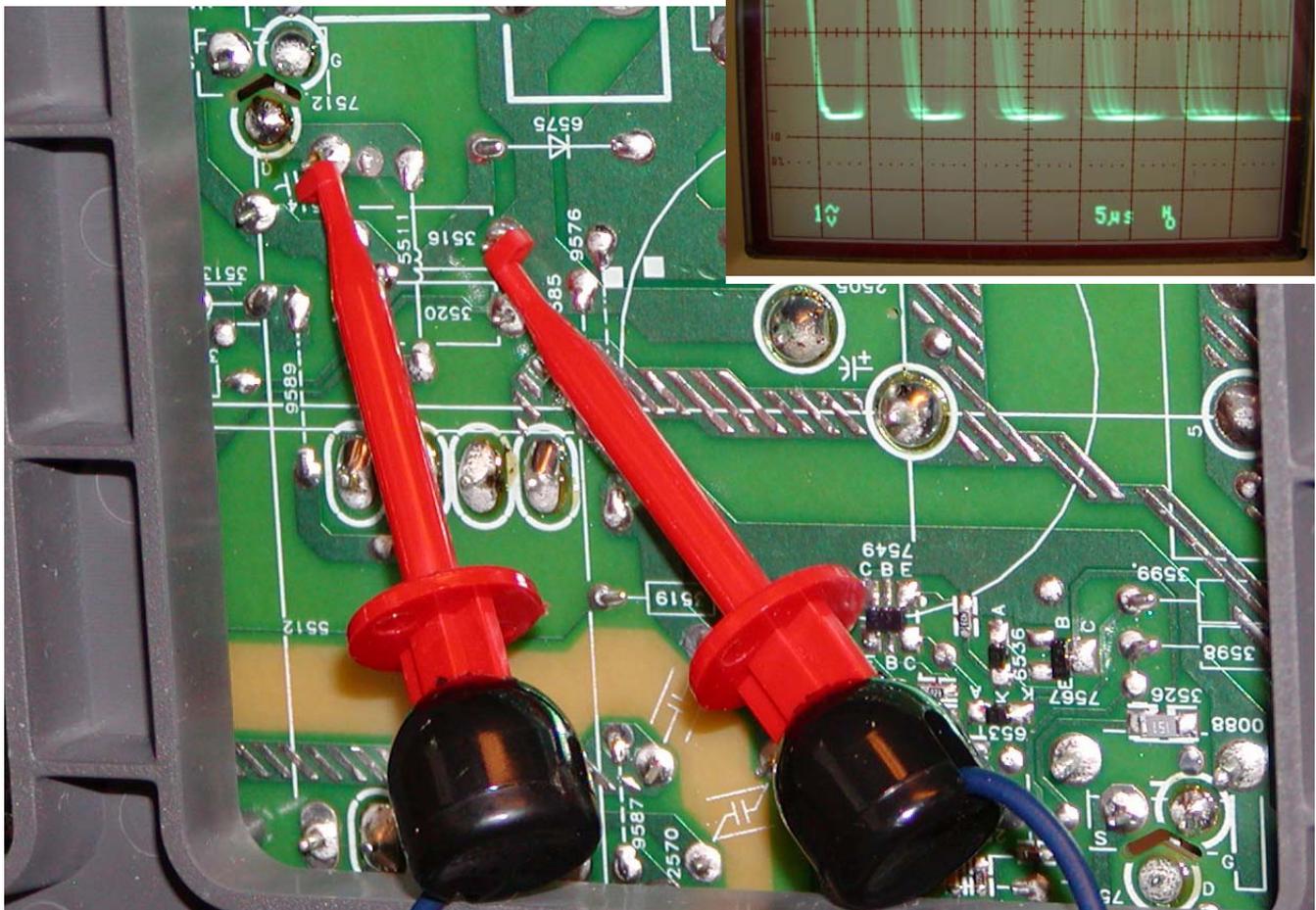
Main power supply (Figure 3)

The Main Power supply provides the VBAT (141 volt), and Audio voltage supplies. This supply is switched Off during the Standby mode. During Standby the STBY_Con line is High which turns Transistor 7573 On. This causes the opto-isolator 7513 to turn On hard. This places a higher voltage on the control Pin of IC 7511 causing the IC to shut down. The operating voltage from the Auxiliary supply keeps a small voltage on Pin 2 of 7511 to prevent it from cycling On and Off. Output from Pin 11 of 7511 drives FET 7512 which drives Transformer 5512. When Pin 2 of 5512 goes High, Transistor 7514 is switched On turning 7512 Off. This is to prevent 5512 from becoming saturated.

When the set is turned On, the STBY_Con line goes Low switching 7573 Off. The VBAT supply is the reference voltage for regulation. Since this voltage is missing during startup, the Shunt Regulator 7571 is turned Off. The voltage on Pin 6 of 7511 goes Low, which turns the drive from the IC On. When the set is On during normal operation, the supply voltage on Pin 2 of the IC is supplied by Pin 2 of Transformer 5512. When the VBAT supply reaches the correct voltage, Pin 3 of the Shunt Regulator 7571 reaches 2.5 volts switching it On. This switches the opto-isolator On to provide a regulation feedback path.

Transistor 6551 provides a power on ramping of the VBAT supply.

7512 drive test points.



TV Signal Processor (Figure 5)

Red, Green, and Blue from the Trident IC is input on Pins 30, 31, and 32 of 7221, TV Display Processor. The RGB/YUV matrix changes the signal to a YUV signal before feeding it to a Color level control circuit. The signal is fed to the RGB insertion circuits where the OSD is inserted. The signal is then fed to a White Point and Brightness Control circuit and then to the CRT panel. The White Point and Output Amplifier have the Drive controls and Cutoff controls. Input from the ABL line on Pin 43 makes adjustments in the brightness levels to adjust for changes in beam current. The Cutoff pulses from the CRTs are fed to Pin 44 to the Cathode Calibration circuit. The Cathode Calibration circuit adjusts the cutoff levels of the CRT to maintain the correct gray scale tracking. When the set is first turned On, a calibration pulse is output on the RGB lines. The Cathode Calibration circuit monitors this pulse on the Cutoff line to set the Black level and the maximum drive voltage for the cathode. Once the Calibration has taken place, the Output Amplifier switches to the RGB drive signal as the output. Horizontal and Vertical Sync is fed to 7600 on Pins 23 and 24. IC 7600 processes the sync to provide the geometry for the picture. Horizontal drive is output to the sweep circuit on Pin 8. Vertical drive is output on Pins 1 and 2. East West drive is output on Pin 3. Sandcastle (SCO) is output on Pin 9. Horizontal Feedback (HFB) from the sweep circuit is fed into the Phase Loop to phase correct the Horizontal drive. IC 7221 is controlled by the Hercules Processor on the Family Board via the I2C buss on Pins 10 and 11. Transistors 7226 and 7227 levels shifts the I2C buss level between 5 and 3.3 volts. Geometry and Drive settings are stored in the Memory IC located on the Family Board.

Deflection (Figure 6)

Horizontal drive from 7221 is fed to Transistor 7404 located on the Family board. This drive circuit has two power sources. During startup, it is powered by the +6 volt supply. Once the High Voltage circuit is running, it is powered by Pin 9 of the IFT. 7404 drives Transformer 5402 which drives the HOT (Horizontal Output Transistor). The HOT drives the IFT and the Horizontal Deflection Coil. The IFT is powered by the VBAT (141 volt) supply.

The IFT produces High voltage, Focus voltage and G2 voltage to drive the CRT. In addition, a 200 volt supply is produced to drive the CRT panel, a +14 and -14 volt supply for the Vertical output, Filament voltage, +200 volt VideoSupply, and a +12V_lot supply.

Transistor 7408 monitors the IFT secondary to sense the presence of over voltage. If the High Voltage goes High, the voltage on Pin 6 of the IFT will go High. When the voltage on diode 6480 exceeds 15 volts, transistor 7408 will turn On. If 7408 turns On, it will turn 7407 On causing the x_ray protect line to go Low. The Processor will then shut the set down. In addition the EW_DRIVE circuit is monitored. If the EW_DRIVE fails, transistor 7406 will turn On constantly placing a dc voltage on the source. This will turn 7407 On.

IC 7451 is the Vertical Output IC. It is powered by the +14 and -14 volt supply from the IFT. The Vertical pulse is rectified by 6458, keeping the V_PROTN line High. If the vertical output should fail, the V_PROTN line will go Low. The Hercules processor will then shut the set down.

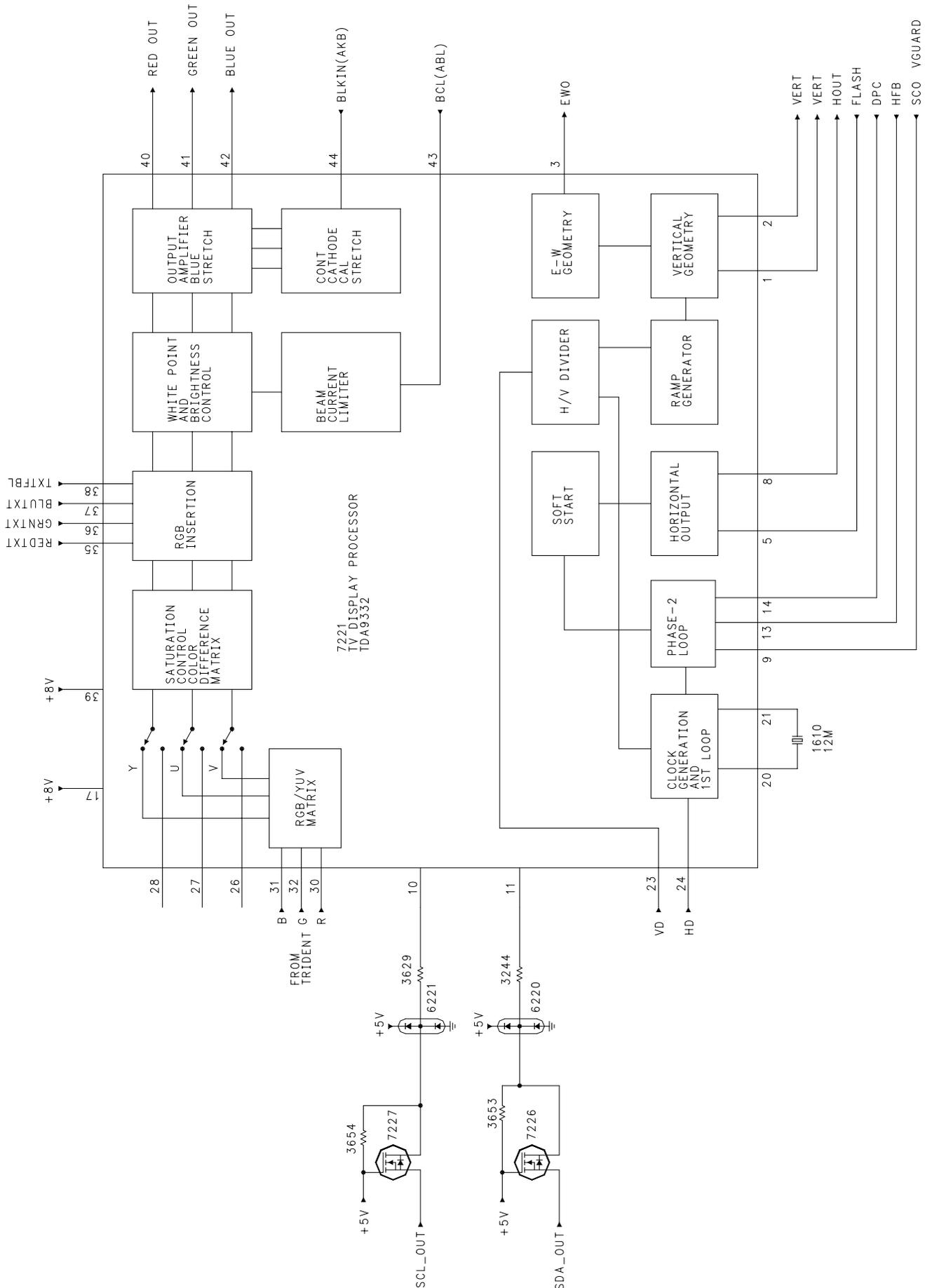
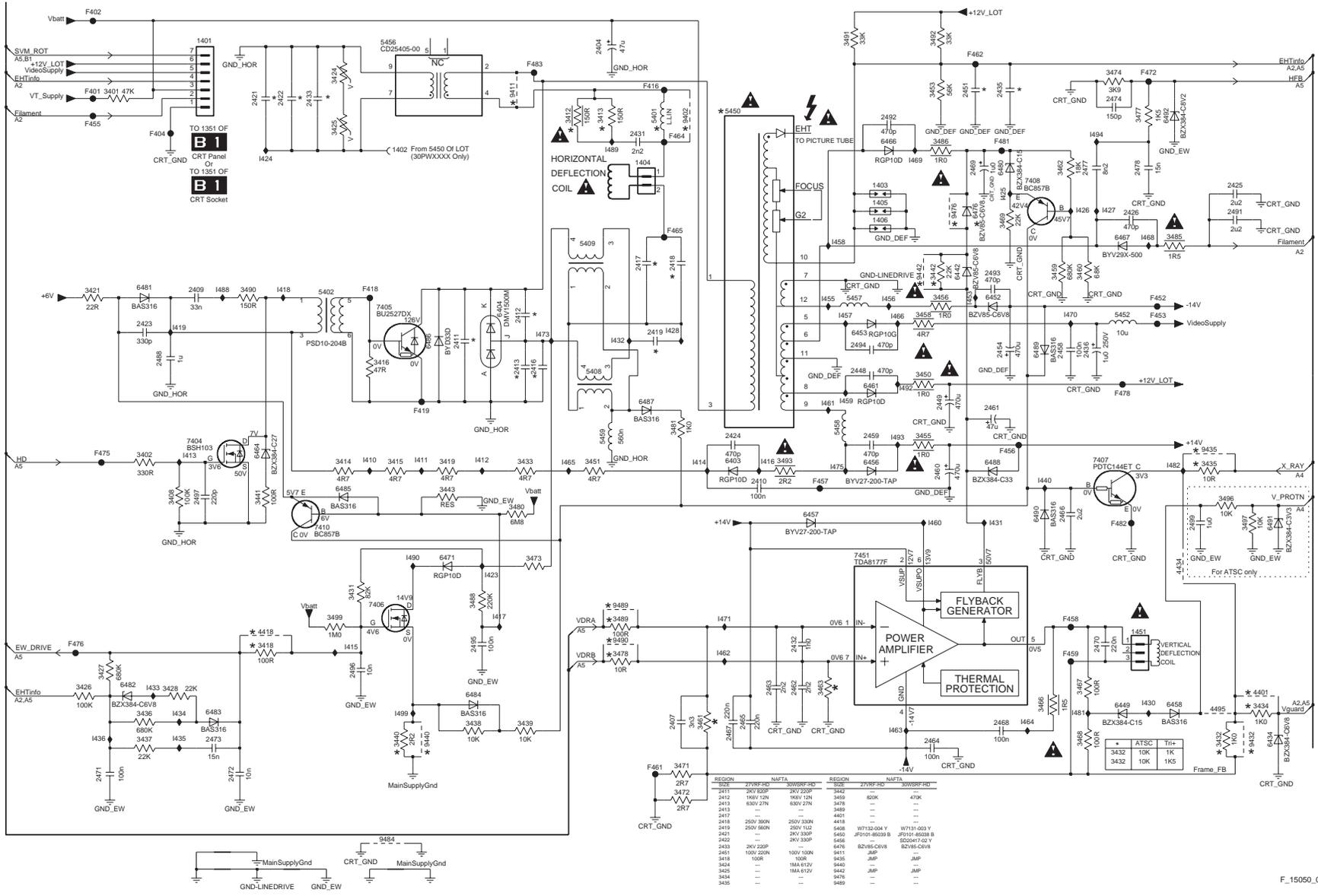


FIGURE 5 - TV SIGNAL PROCESSOR

A2 LINE + FRAME DEFLECTION

FIGURE 6 - DEFLECTION



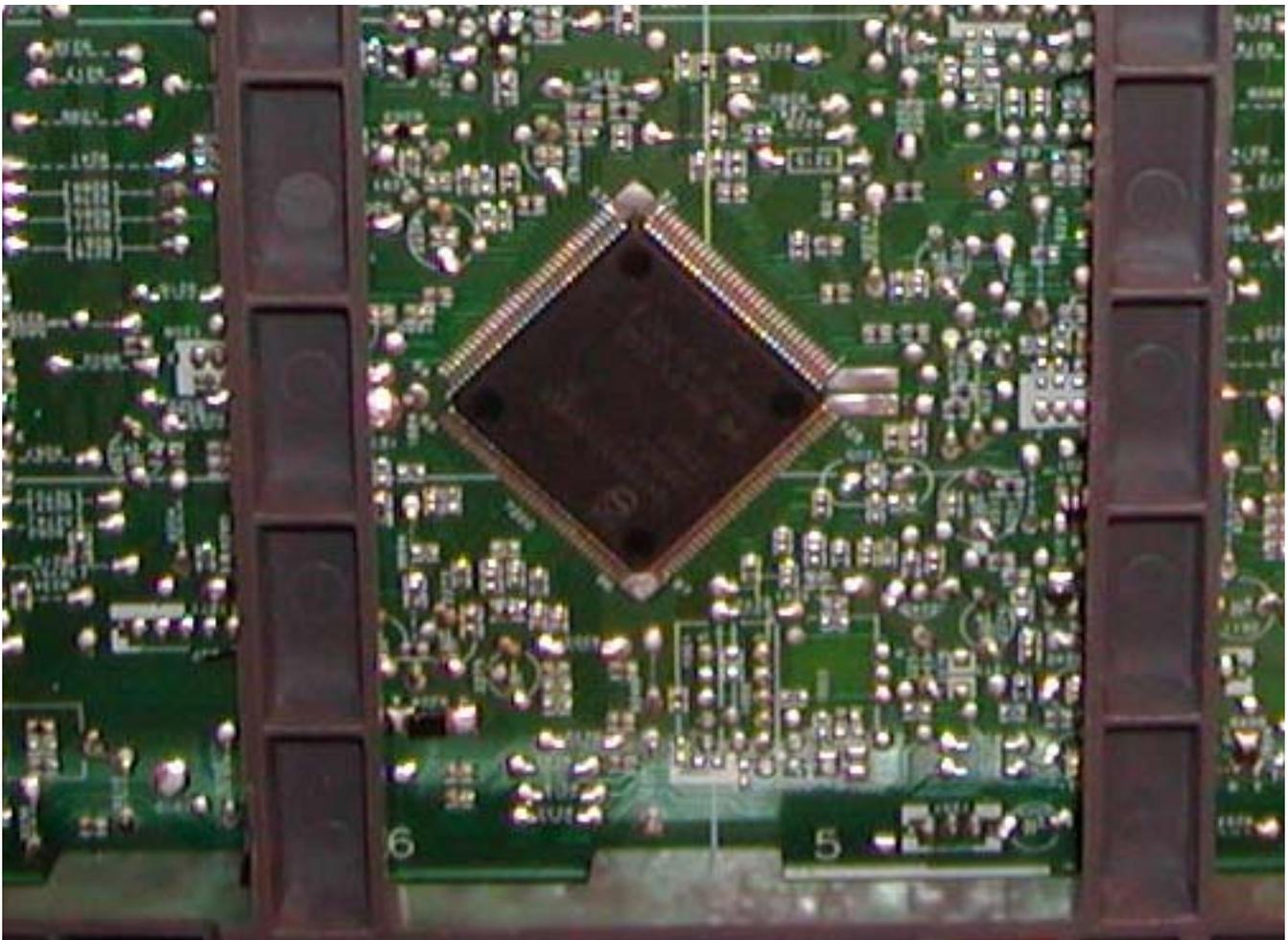
REGION	277WF-10	NAFTA	REGION	277WF-10	NAFTA
2411	2K7 E2BP	2K7 Z2BP	3432	10K	10K
2412	100K 100K	100K 100K	3433	10K	10K
2413	630V 27N	630V 27N	3434	10K	10K
2414	100K 100K	100K 100K	3435	10K	10K
2415	100K 100K	100K 100K	3436	10K	10K
2416	100K 100K	100K 100K	3437	10K	10K
2417	100K 100K	100K 100K	3438	10K	10K
2418	250V 300N	250V 300N	3439	10K	10K
2419	250V 560N	250V 112	3440	10K	10K
2420	100K 100K	100K 100K	3441	10K	10K
2421	100K 100K	100K 100K	3442	10K	10K
2422	100K 100K	100K 100K	3443	10K	10K
2423	2K7 Z2BP	2K7 Z2BP	3444	10K	10K
2424	100K 100K	100K 100K	3445	10K	10K
2425	100K 100K	100K 100K	3446	10K	10K
2426	100K 100K	100K 100K	3447	10K	10K
2427	100K 100K	100K 100K	3448	10K	10K
2428	100K 100K	100K 100K	3449	10K	10K
2429	100K 100K	100K 100K	3450	10K	10K
2430	100K 100K	100K 100K	3451	10K	10K
2431	100K 100K	100K 100K	3452	10K	10K
2432	100K 100K	100K 100K	3453	10K	10K
2433	100K 100K	100K 100K	3454	10K	10K
2434	100K 100K	100K 100K	3455	10K	10K
2435	100K 100K	100K 100K	3456	10K	10K
2436	100K 100K	100K 100K	3457	10K	10K
2437	100K 100K	100K 100K	3458	10K	10K
2438	100K 100K	100K 100K	3459	10K	10K
2439	100K 100K	100K 100K	3460	10K	10K
2440	100K 100K	100K 100K	3461	10K	10K
2441	100K 100K	100K 100K	3462	10K	10K
2442	100K 100K	100K 100K	3463	10K	10K
2443	100K 100K	100K 100K	3464	10K	10K
2444	100K 100K	100K 100K	3465	10K	10K
2445	100K 100K	100K 100K	3466	10K	10K
2446	100K 100K	100K 100K	3467	10K	10K
2447	100K 100K	100K 100K	3468	10K	10K
2448	100K 100K	100K 100K	3469	10K	10K
2449	100K 100K	100K 100K	3470	10K	10K
2450	100K 100K	100K 100K	3471	10K	10K
2451	100K 100K	100K 100K	3472	10K	10K
2452	100K 100K	100K 100K	3473	10K	10K
2453	100K 100K	100K 100K	3474	10K	10K
2454	100K 100K	100K 100K	3475	10K	10K
2455	100K 100K	100K 100K	3476	10K	10K
2456	100K 100K	100K 100K	3477	10K	10K
2457	100K 100K	100K 100K	3478	10K	10K
2458	100K 100K	100K 100K	3479	10K	10K
2459	100K 100K	100K 100K	3480	10K	10K
2460	100K 100K	100K 100K	3481	10K	10K
2461	100K 100K	100K 100K	3482	10K	10K
2462	100K 100K	100K 100K	3483	10K	10K
2463	100K 100K	100K 100K	3484	10K	10K
2464	100K 100K	100K 100K	3485	10K	10K
2465	100K 100K	100K 100K	3486	10K	10K
2466	100K 100K	100K 100K	3487	10K	10K
2467	100K 100K	100K 100K	3488	10K	10K
2468	100K 100K	100K 100K	3489	10K	10K
2469	100K 100K	100K 100K	3490	10K	10K
2470	100K 100K	100K 100K	3491	10K	10K
2471	100K 100K	100K 100K	3492	10K	10K
2472	100K 100K	100K 100K	3493	10K	10K
2473	100K 100K	100K 100K	3494	10K	10K
2474	100K 100K	100K 100K	3495	10K	10K
2475	100K 100K	100K 100K	3496	10K	10K
2476	100K 100K	100K 100K	3497	10K	10K
2477	100K 100K	100K 100K	3498	10K	10K
2478	100K 100K	100K 100K	3499	10K	10K
2479	100K 100K	100K 100K	3500	10K	10K

F_15050_017.eps

Set Control (Figure 7)

The L05HD has two microprocessors, The Hercules located on the Family board and the TV Controller located on the Trident board.

The Hercules, 7200, provides control for the entire set. During standby, the Hercules and the Remote sensor are powered by the 3.3 volt supply. The customer communicates with the Hercules via the Remote sensor and Power switch located on the Front Control panel. The power supplies are switched On via the STBY-CONT and B lines. The TV Controller is reset by the C control line. The I2C bus communicates with the EEPROM 7601, Tuner 1000, TV Controller 7206, Trident 7201, A/D 7210, TV Display Processor, 7221, and HDMI panel.



HERCULES PROCESSOR

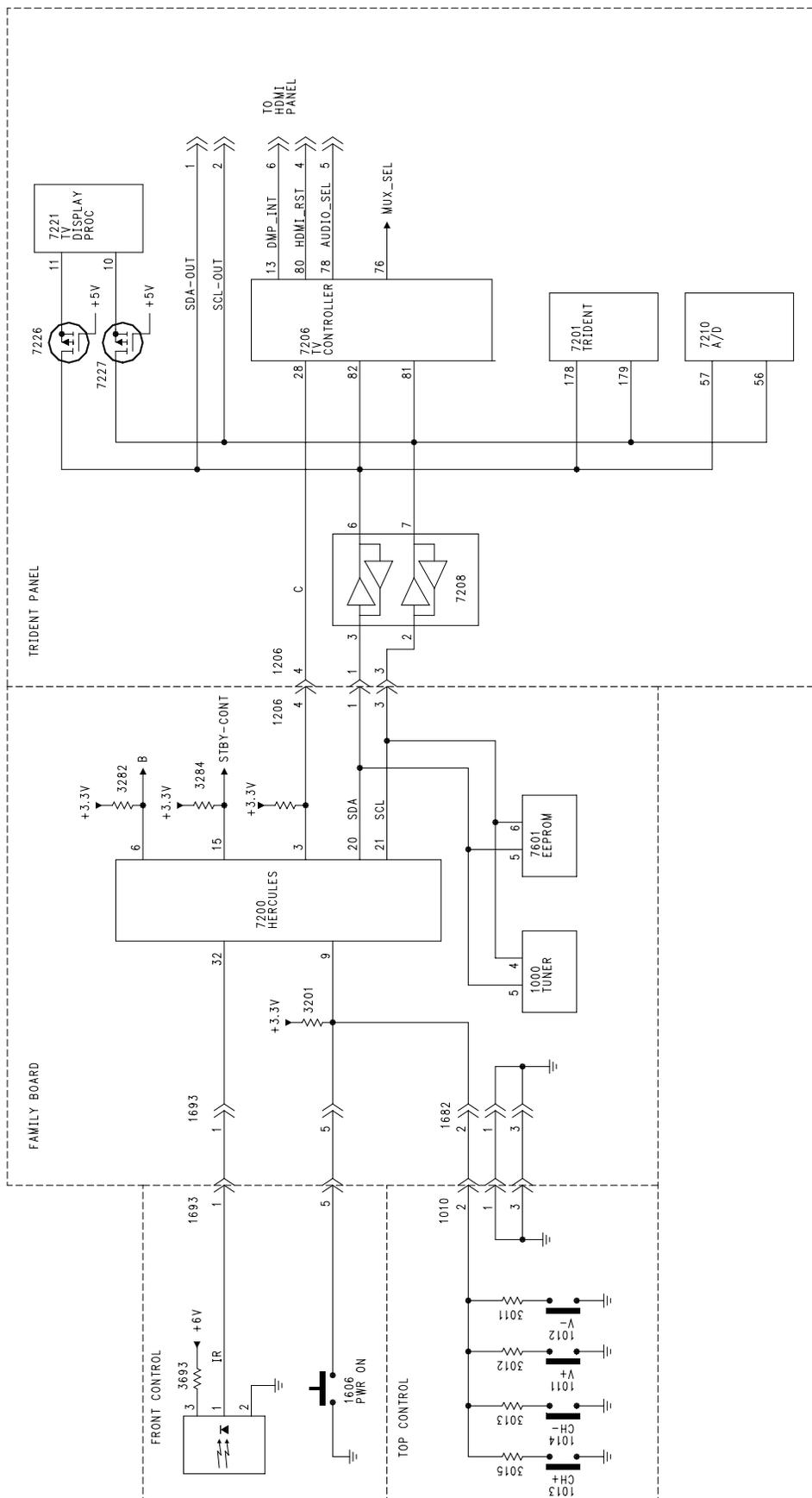


FIGURE 7 - CONTROL

Video Signal flow overview (Figure 8)

There are two sections in the set for processing video. The 1fH section using the Hercules processes NTSC signals.

The Tuner is controlled by the microprocessor in the Hercules. IF from the Tuner is fed to the Hercules chip for detection and demodulation. AV1, AV2, Side, and 1fH Component video is also fed to the Hercules, IC 7200. If an NTSC signal is selected by the Remote or Keyboard, the selected CVBS (Composite Video) is output on two lines. One CVBS line goes to the Trident chip, IC 7201, located on the HD panel. CVBS_TXT is fed to IC 7206 on the HD panel which detects Closed Caption text or teletext. This IC also generates the OSD (On Screen Display).

If the signal applied to the set is a 2fH signal or better, it is applied to either the YpbPr Component input or the HDMI input. These signals are fed to a selector switch located on the HD panel, IC 7205. The selected component or RGB signal is fed to the A/D converter, IC 7210. This signal is fed to the Trident IC 7201 which enhances the picture and scales it to 1080i. Analog RGB out from the Trident IC is fed to the Display Processor, IC 7221, which performs the picture control functions and inserts the OSD. The output of 7221 is fed to the CRT panel.

The option settings for the Source selection can be found in Option settings in the SAM mode.

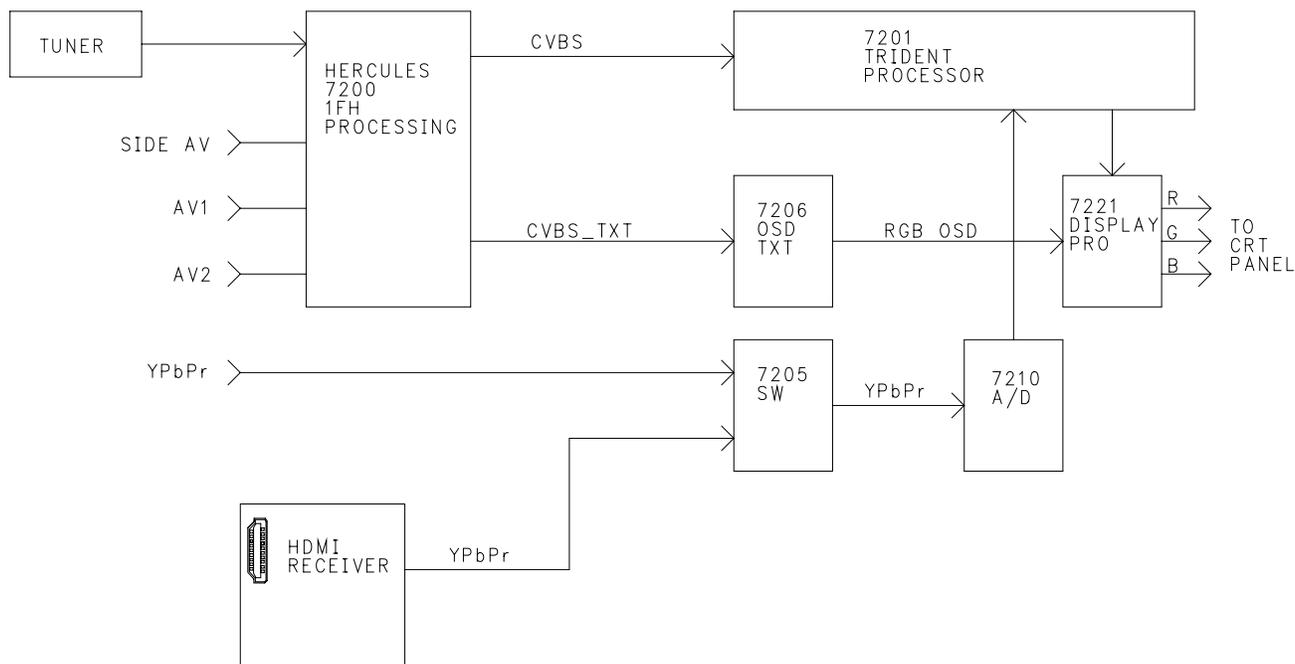


FIGURE 8 - VIDEO SIGNAL FLOW BLOCK

AV1, AV2, CVI (480i), Side, and Tuner selections are made by the Hercules chip. Selected CVBS (Composite Video) from one of these inputs is fed to the Trident panel which selects between the output of the Hercules, CVI (480p, 720p, 1080i), and the HDMI panel. The CVI input is shared by the Hercules and the HD section.

The L05HD has the following inputs in addition to the tuner RF:

- AV1 is a Composite video input.
- CVI (Component Video input) can accept 480i, 480p, 720p, or 1080i.
- AV2 accepts Composite video (CVBS) or S-Video.
- Side accepts Composite video (CVBS) or S-Video.
- HDMI (High Definition Multimedia Interface) accepts 480p, 720p, or 1080i video and audio in a digital TMDS format.

Detailed Signal flow (Figure 9)

The output of the Tuner is fed to the SAW filter, 1002, and then to 7200, Hercules, on Pins 104 and 105. The SVHS (YC) signals are combined inside 7200. IC 7200 selects between AV1, AV2, Side, and Tuner composite video. The selected composite video is output on Pin 65. Video buffered by Transistor 7211 is fed to IC 7206 located on the Trident panel which extracts Closed Caption text and Teletext information. This IC also generates the OSD (On Screen Display). Video buffered by 7212 is fed to the Trident IC which has an internal 3-D Comb Filter and A/D converter. IC 7201 rescales the picture to 1080i.

Component video is inserted into the YPbPr input located on the Family board. The HDMI panel converts the HDMI signal into an analog YPbPr format. Both of these signals are fed to the Switch, 7205 which selects between the two. The selected signal is fed to IC 7210 which performs an A/D conversion. This 24 bit signal is fed to 7201. The Scaler (Trident IC) converts the signal to a 1080i format as well as performing picture enhancement functions. DRAM ICs 7215, 7216, 7217, and 7218 stores picture data for the Scaler as it is being processed. An internal D/A conversion circuit outputs the 1080i signal in an RGB format on Pins 27, 28 and 29. Horizontal and Vertical sync is output on Pins 34 and 35.

The RGB signal from the Scaler is fed to the TV Display Processor, 7221. RGB is output from this IC to the CRT panel. Horizontal and Vertical drive is output to the Family board.

TV Display Processor (Refer to Figure 5)

IC 7221 is used in a large number of Philips chassis for a long period of time. RGB is inserted in Pins 30, 31, and 32. These signals are converted to a YUV format before being fed to the Color level control. RGB from 7206 is inserted on Pins 35, 36, 37, and 38. The signal then goes to a Brightness and Controls control circuit. RGB to the CRT panel is output on Pins 40, 41, and 42. During warm up, a cathode calibration signal is fed to the CRT panel on the RGB lines. This signal is then fed back to

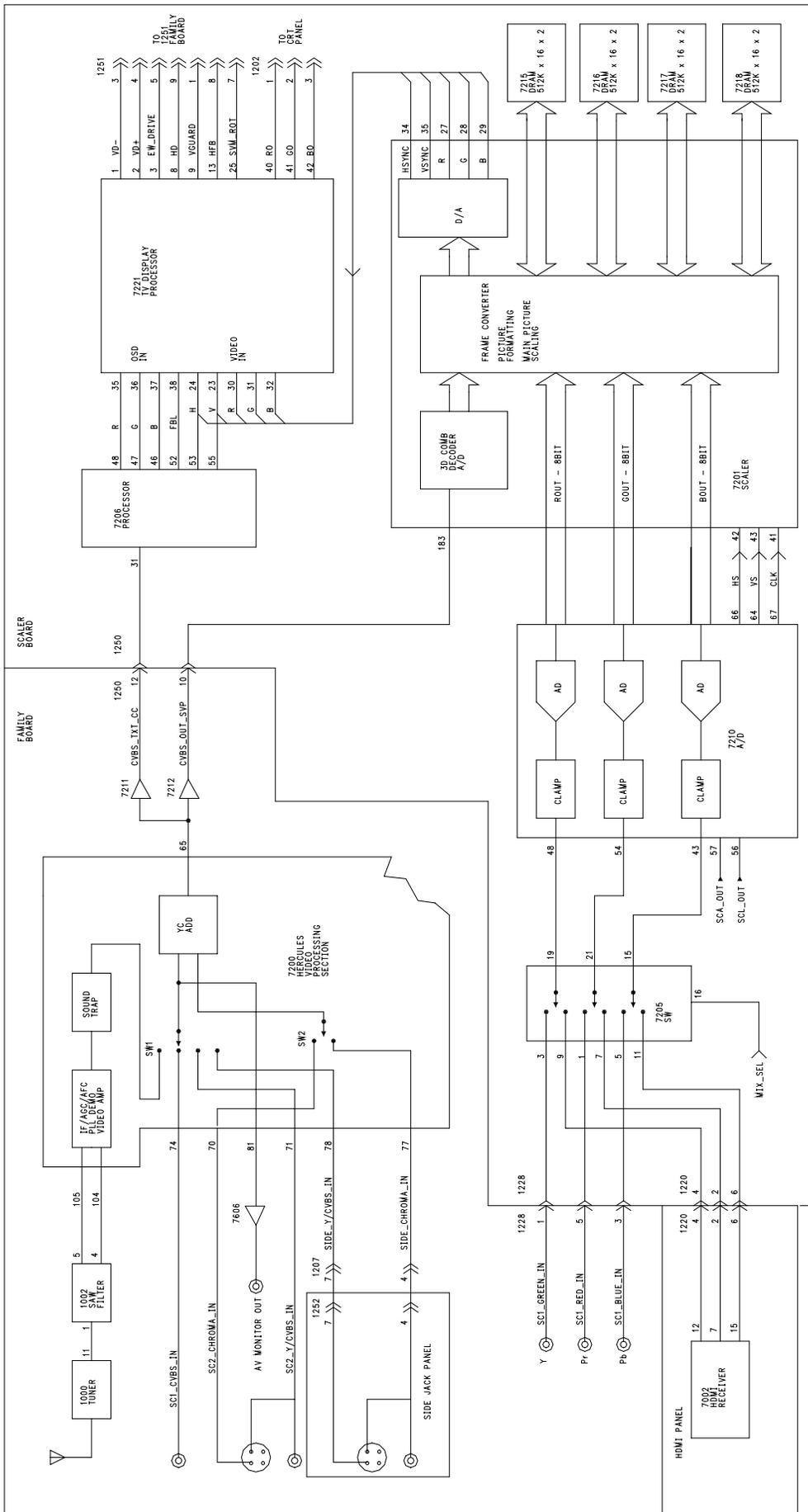


FIGURE 9 - DETAILED VIDEO SIGNAL FLOW BLOCK

CRT panel (Figure 10)

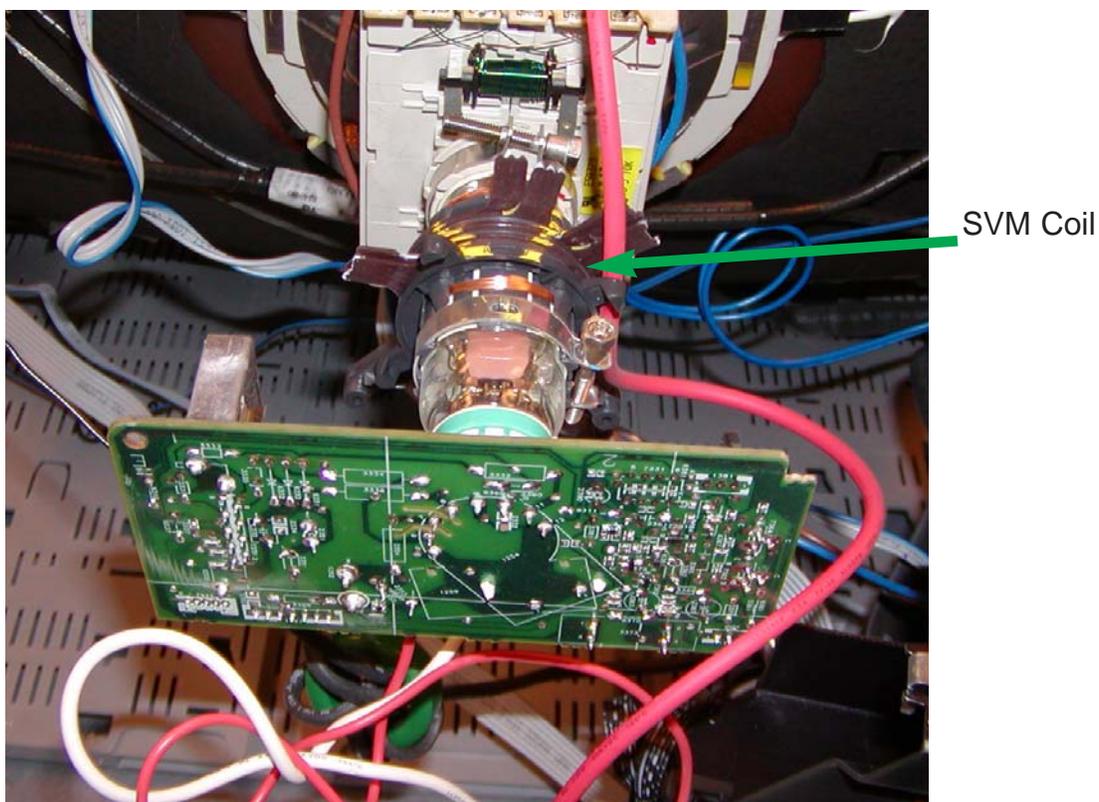
RGB is fed to the CRT panel on connector 1331. The CRT panel for the L05HD has a single chip CRT drive circuit. RGB is fed to 7330 on Pins 1, 2, and 3. Signal is output to the CRT on Pins 7, 8, and 9. BC_INFO or Cutoff on Pin 5 is fed back to the TV Signal Processor on the Trident panel. The IC is powered by a 200 volt supply on Pin 6.

DC operating voltages for the CRT panel are located on connector 1351. The Filament voltage is located on Pin 2. The 200VA voltage on Pin 5 powers 7330. The VBAT voltage on Pin 3 and the +12V_LOT voltage on Pin 6 powers the SVM circuit.

SVM (Figure 11)

There are two coils on the deflection coil in addition to the Vertical and Horizontal winding. The SCAVEM coil (Scan Velocity Modulation) sharpens the edges between light and dark transitions.

The SVM_ROT signal drives both the SCAVEM and the Rotation coil. The SCAVEM circuit is powered by the Vbatt and +12V_LOT supplies. Capacitor 2376 blocks the dc Rotation signal to prevent it from entering the SCAVEM circuit. Capacitor 2381 blocks the higher frequency SCAVEM signal to prevent it from affecting the Rotation drive.



B1 CRT PANEL

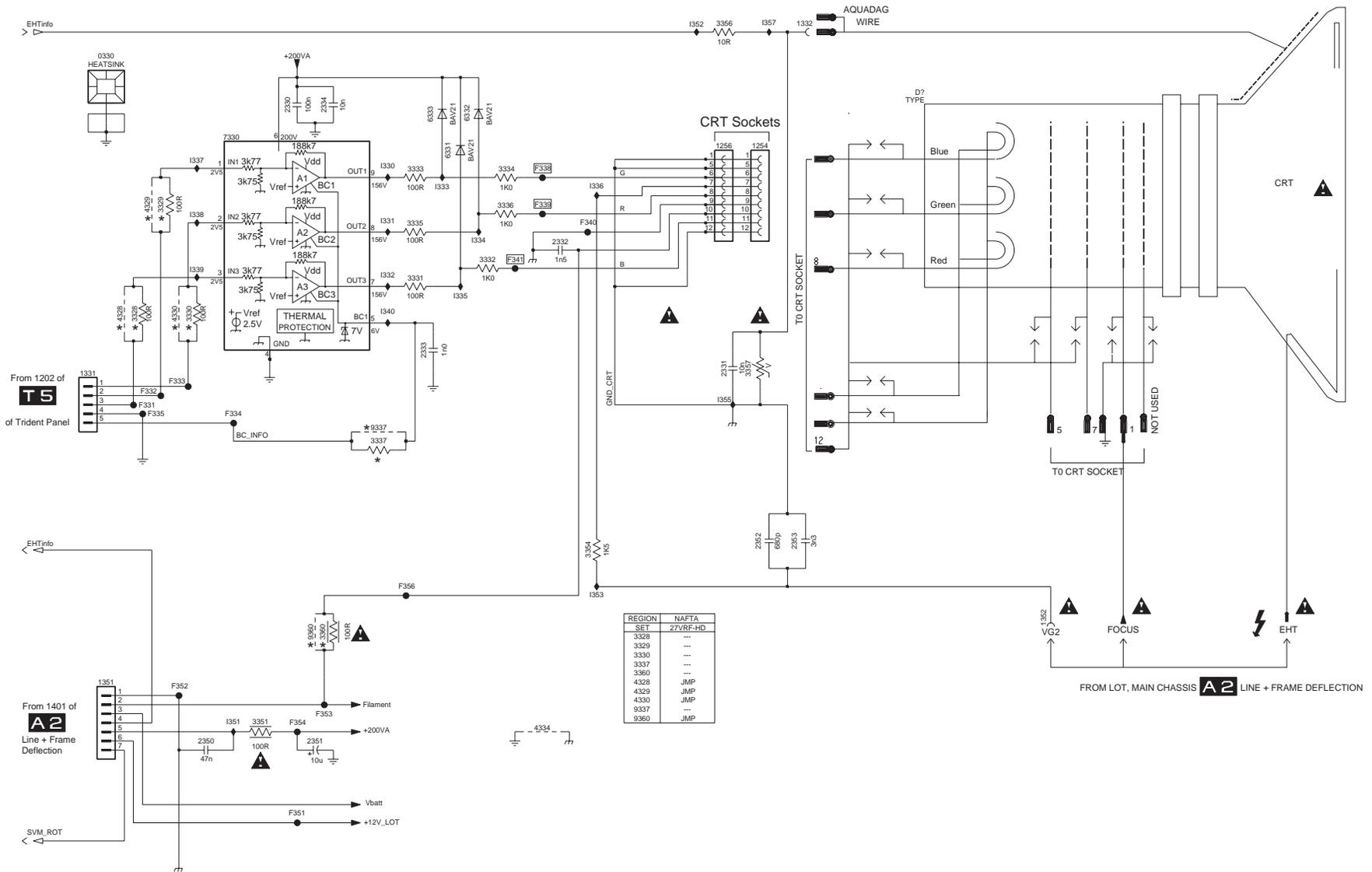


FIGURE 10 - CRT PANEL

REGION	NAFTA
SET	27VRF-HD
4331	---
5331	100 PM10
5361	100MHZ 50R
9361	---

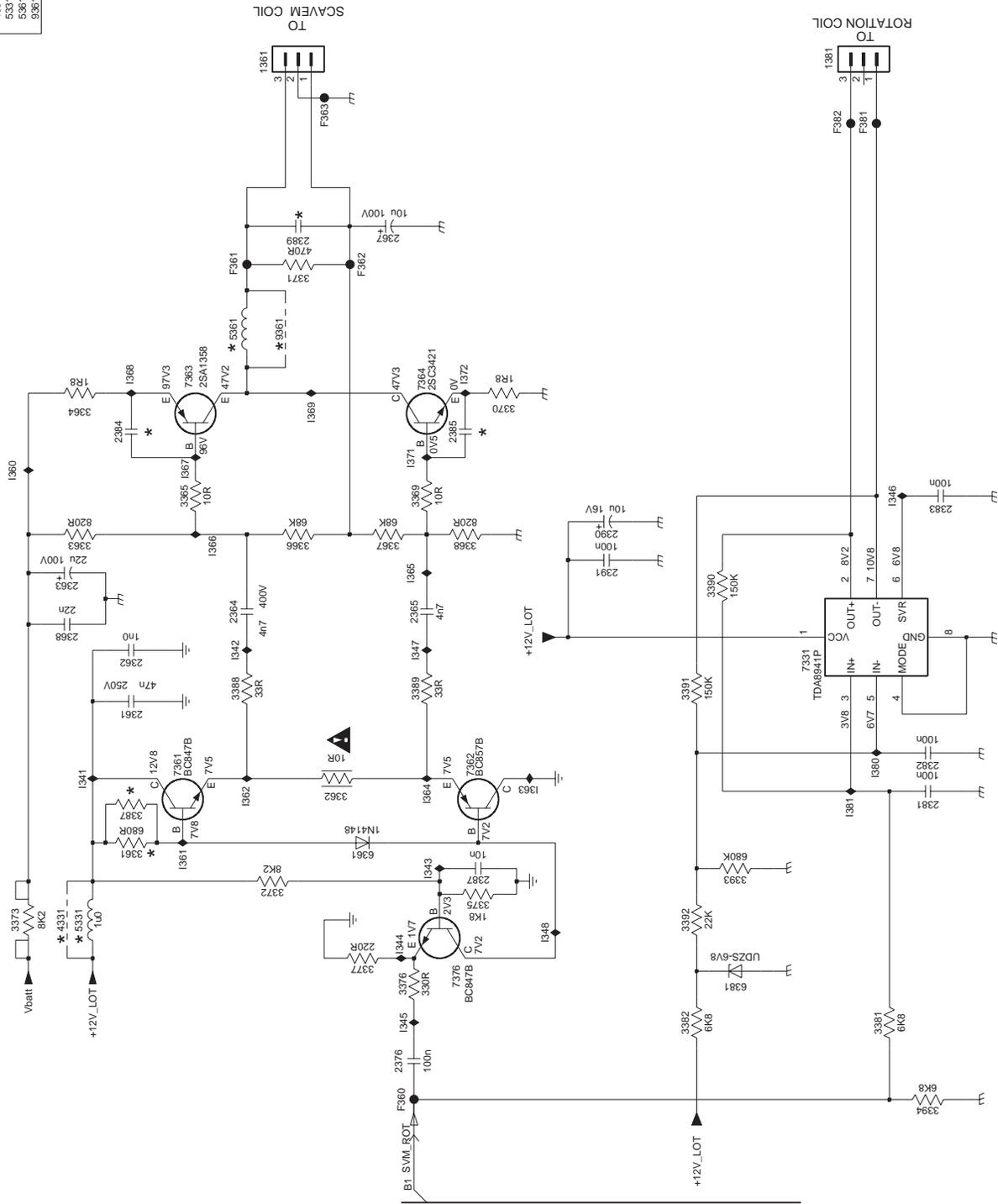


FIGURE 11 - SVM AND ROTATION

Audio (Figure 12)

All audio processing and control is performed by the Hercules IC 7200 located on the main board.

Audio is included in the HDMI bit-stream. Digital audio from 7002 is fed to IC 7011, Audio DAC. Audio from 7011 is fed to IC 7050, switch, which has only one input since the second input is not used in the HD version. The output of 7050 is fed to the Hercules IC located on the Main board. Audio for the CVI input should be inserted into AV1. Audio is output from the Hercules on Pins 68 and 69 to the Audio Amplifier, IC 7990. This is a two channel 20 watt amplifier.

Audio output

Main audio is output on Pins 68 and 69 and fed to the audio amplifier 7990. The audio amplifier is a dual 10 watt amplifier. It is powered by the +VAUDIO and -VAUDIO supplies. These are +16 and -16 volts. To mute the amplifier, the VOL_MUTE line goes Low switching transistor 7992 Off switching transistor 7991 On. The output of the amplifier is fed to the Side Jack panel.

Monitor audio is output on Pins 66 and 67 of 7200. These outputs are muted by the STBY_CONT and POWER DOWN lines. The POWER DOWN line is High during normal operation. As the set powers off, this line goes Low, switching 7993 Off. Transistor 7104 then switches On to mute the output. The STBY_CONT line goes High when the set is

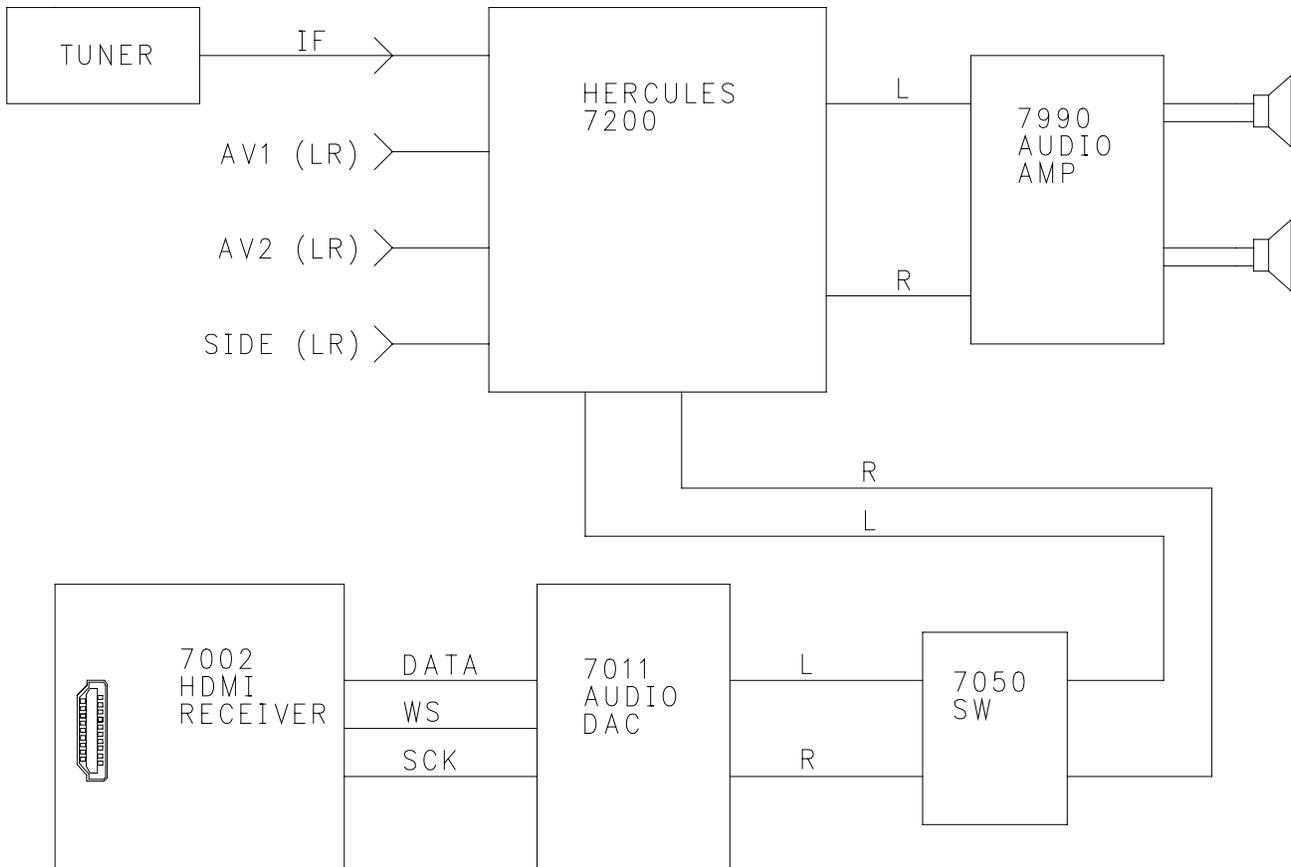


FIGURE 12 - AUDIO BLOCK

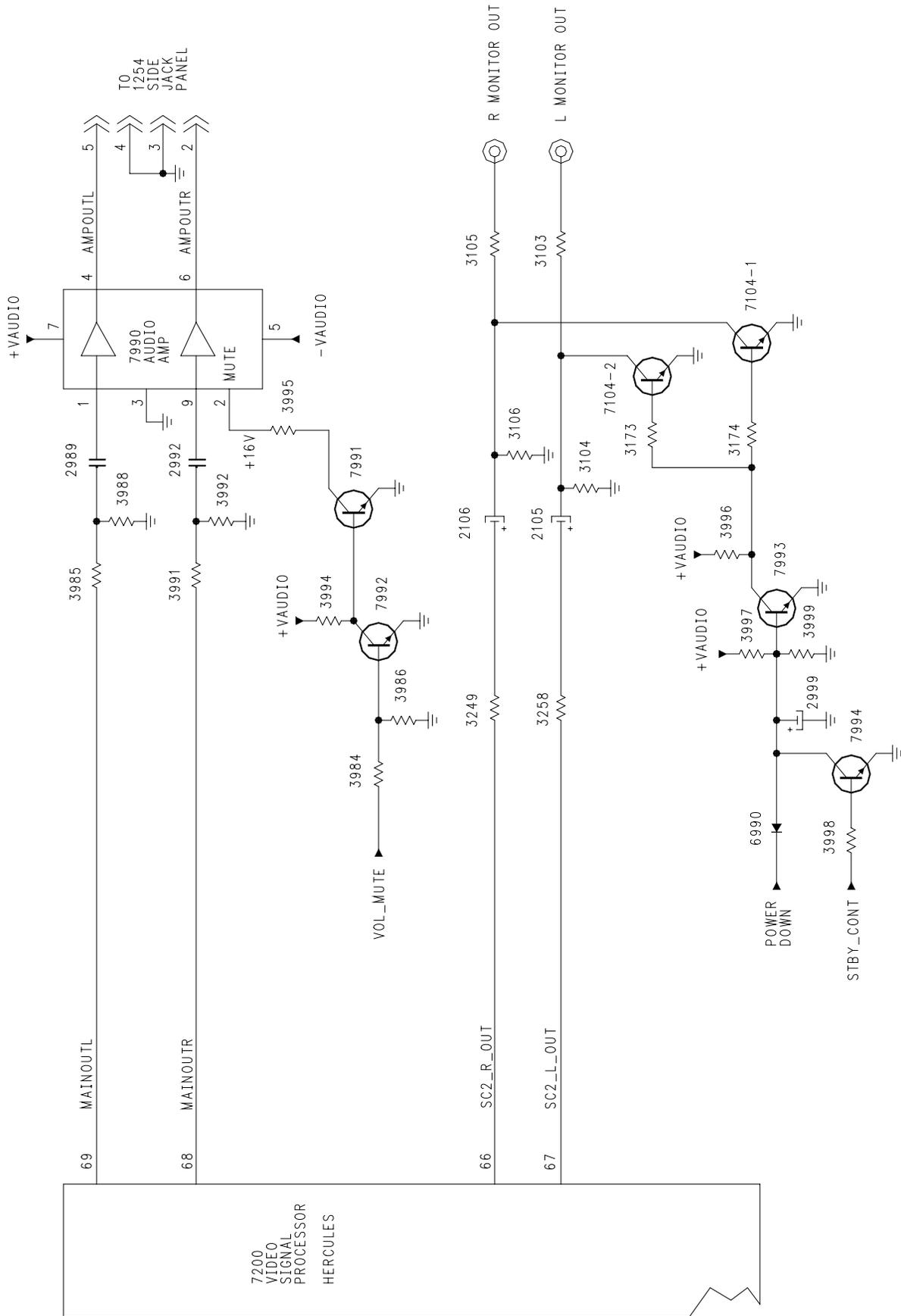


FIGURE 13 - AUDIO OUTPUT

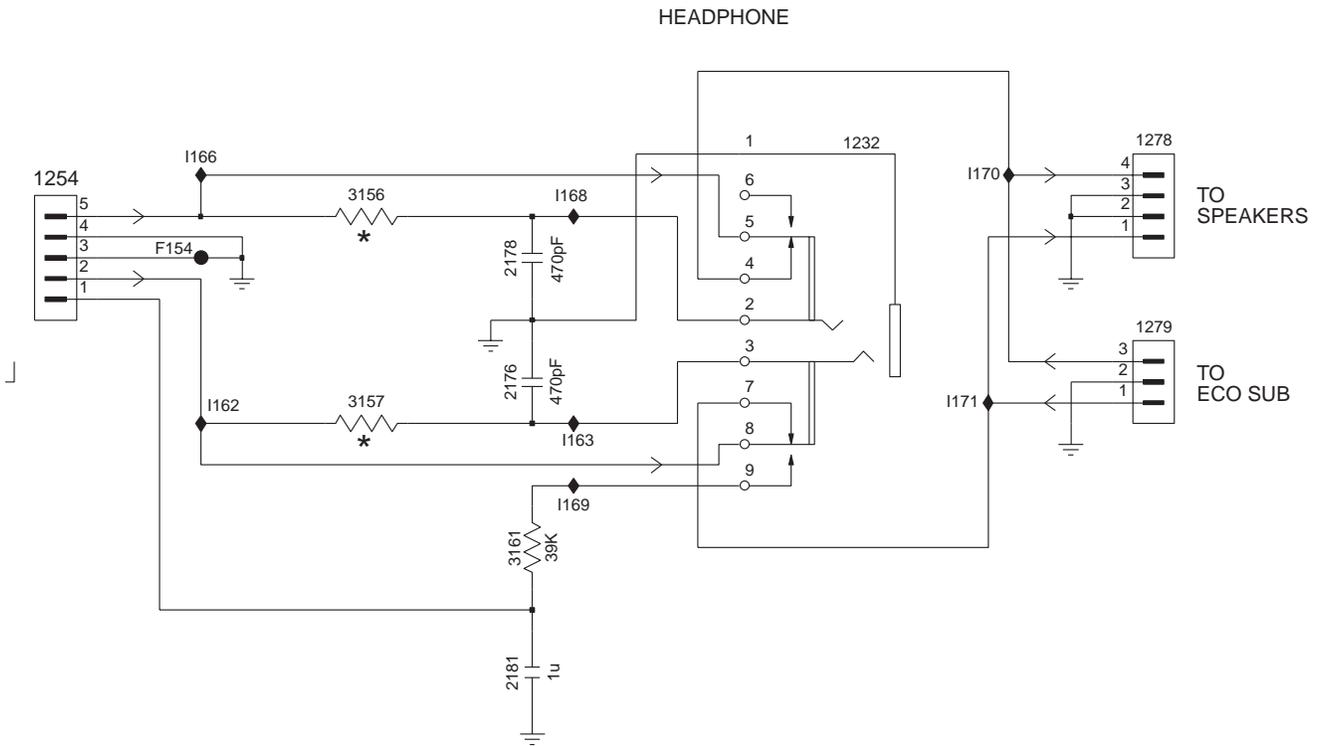


FIGURE 14 - SIDE JACK PANEL

turned Off turning 7994 On, muting the output. Capacitor 2999 delays the turn-on of 7993 to prevent a pop in the speaker at set turn On.

Side Jack panel (Figure 14)

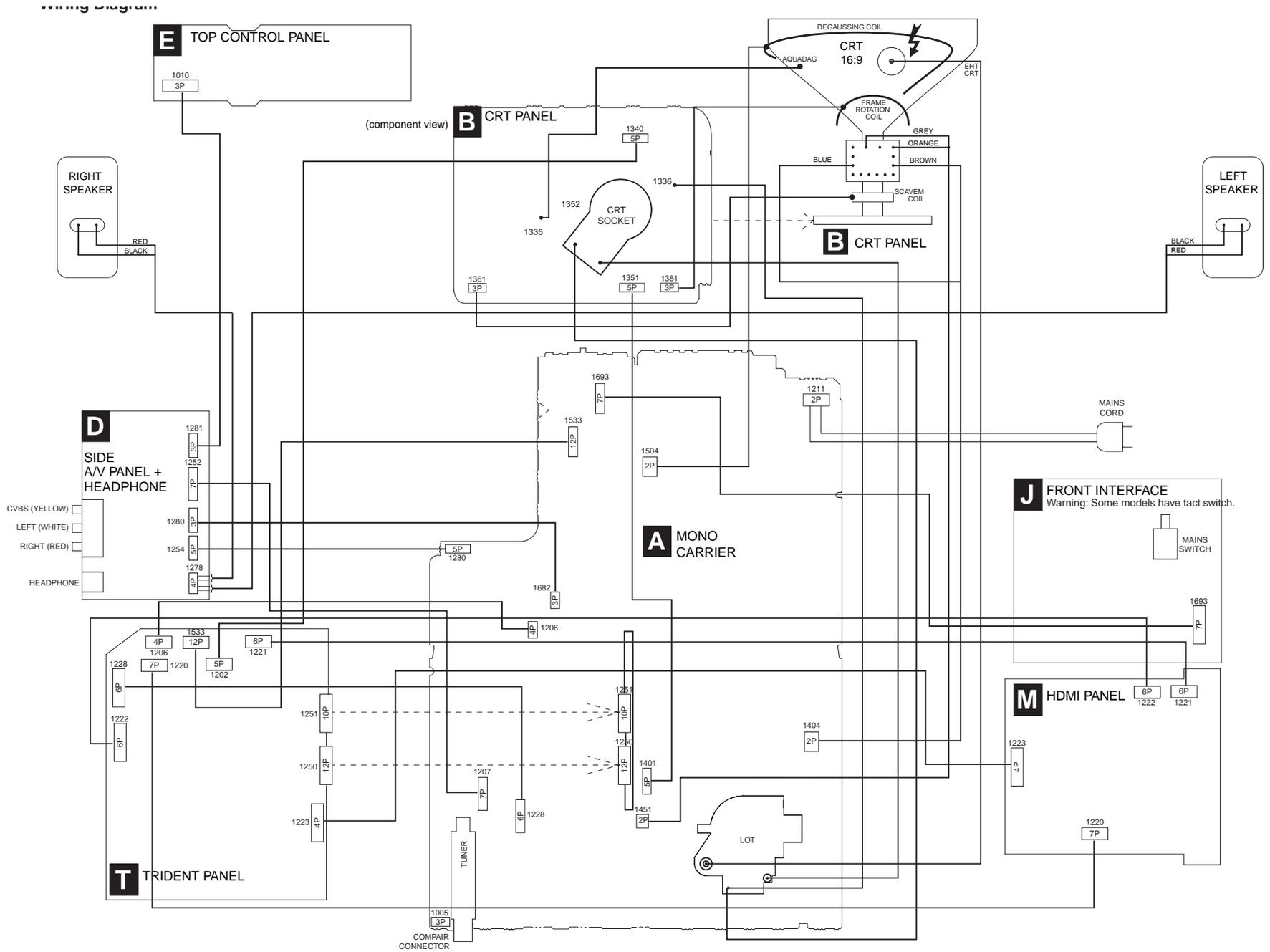
The output of the audio amplifier is fed to the Headphone Jack located on the Side Jack panel. The output to the speakers is switched Off when a headphone plug is inserted.

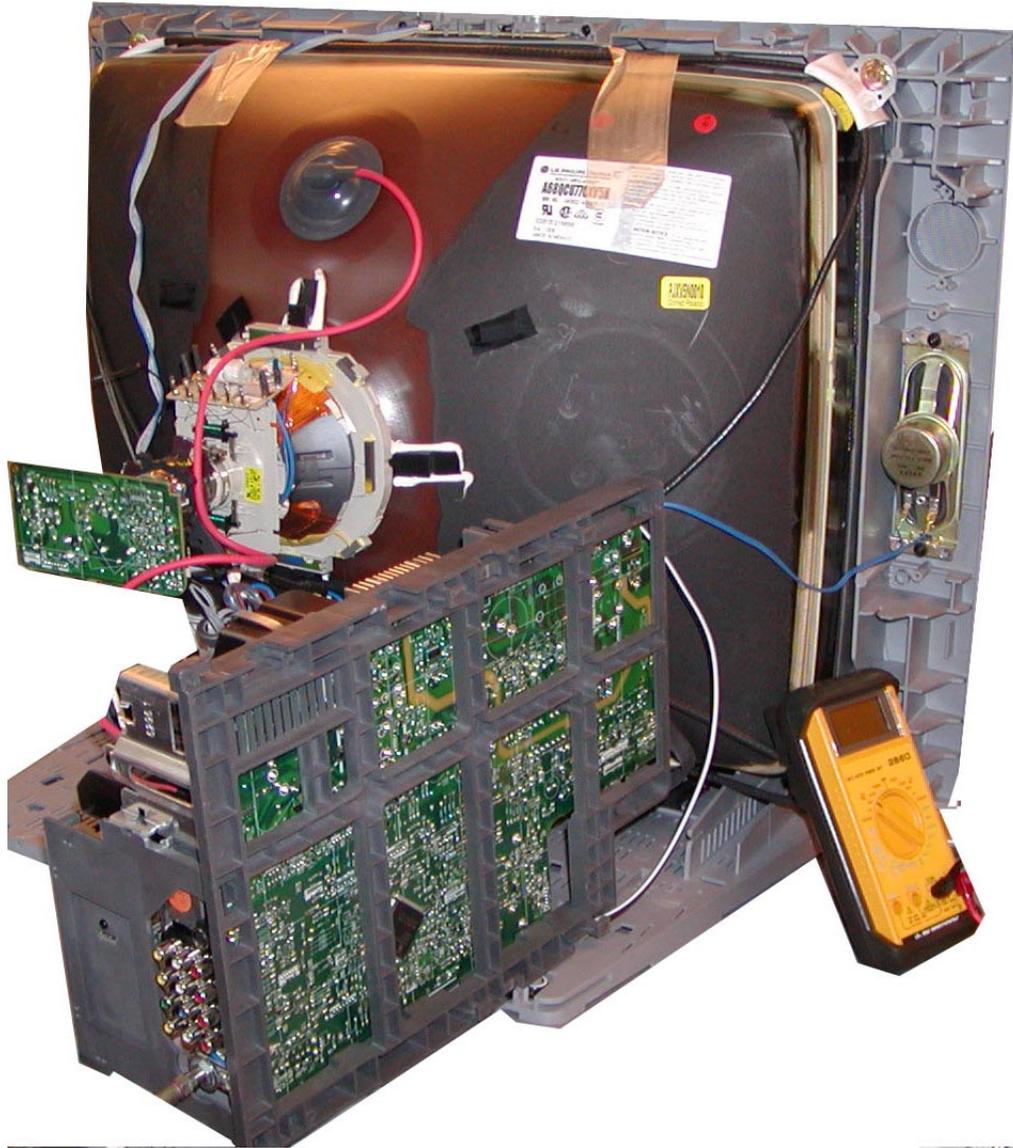
Finding the defective panel (Figures 15 and 16)

When troubleshooting the set, the defective panel requiring replacement or additional repair must be located. The Power supplies, Deflection, 1fH inputs, and Audio outputs are located on the Family board. The 2fH, CRT drive, and Deflection drive circuits are located on the Trident board.

If the set turns On without a picture or sound, first check the power supplies located on the Family board. If the set comes On, then shuts Off, there may be a problem with the shut-down circuits which are located on the Family board. If the picture is missing, but sound and high voltage are present, the problem may be located on the Trident panel.

FIGURE 15 - CONNECTOR INTERCONNECT





SERVICE POSITION

Service Alignment Mode SAM (Figure 17)

Making changes in the settings requires entering the SAM. To enter SAM, press 0 6 2 5 9 6 Info on the remote control. Use the cursor-up and cursor-down buttons to highlight a selection. Press the cursor-right, cursor-left buttons, or enter a value to make changes. Refer to the Service manual for additional information on the SAM.

```

00071 L5AUS1 0.13
ERR 0 0 0 0 0
OP 128 008 012 000 251 016 004
CLEAR ►
OPTIONS _____
AKB _____ ON/OFF
TUNER _____ IFPLL 50
WHITE TONE _____ AGC 25
GEOMETRY _____
      HORIZONTAL _____
      VERTICAL _____
          SBL OFF HP 8
          VSH 59 HB 8
          VAM 70 HSH 92
          VSC 44 EWW 57
          VX 0 EWP 18
          VSL 121 EWT 65
          VL 19 VCP 18
          LCP 18
          EWS 15
          EWC 21
          COOL _____ DELTACOOOL RED -8
          DELTACOOOL BLUE 16
          NORMAL _____ NORMAL RED 85
          NORMAL BLUE 85
          WARM _____ DELTAWARM RED 14
          DELTAWARM BLUE 31
          RED_CUTOFF 128
          GREEN_CUTOFF 128
          BLUE_CUTOFF 128
          PWL 0
  
```

FIGURE 17 - SERVICE ALIGNMENT MODE

Abbreviation list

Description

1080i	1080 visible lines, interlaced
1080p	1080 visible lines, progressive scan
480i	480 visible lines, interlaced
480p	480 visible lines, progressive scan
ADC A/D	Analogue to Digital Converter
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
AM	Amplitude Modulation
AV	Audio Video
C-FRONT	Chrominance front input
CBA	Circuit Board Assembly (or PWB)
ComPair	Computer aided rePair
CSM	Customer Service Mode
CVBS	Composite Video Blanking and Synchronization
CVBS-EXT	CVBS signal from external source (VCR, VCD, etc.)
CVBS-INT	CVBS signal from Tuner
CVBS-MON	CVBS monitor signal
CVBS-TER-OUT	CVBS terrestrial out
DAC	Digital to Analogue Converter
DFU	Directions For Use: owner's manual
DNR	Dynamic Noise Reduction
DRAM	Dynamic RAM
DSP	Digital Signal Processing
DTS	Digital Theatre Sound
DVD	Digital Video Disc
EEPROM	Electrically Erasable and Programmable Read Only Memory
EPLD	Electronic Programmable Device
EXT	EXTERNAL (source), entering the set by cinches (jacks)
FBL	Fast Blanking: DC signal accompanying RGB signals
FLASH	FLASH memory
FM	Field Memory / Frequency Modulation
FMR	FM Radio
FRC	Frame Rate Converter
FRONT-C	Front input chrominance (SVHS)
FRONT-DETECT	Front input detection
FRONT-Y_CVBS	Front input luminance or CVBS (SVHS)
H	H_sync to the module
HD	High Definition
HDMI	High Definition Multimedia Interface
HP	HeadPhone
I2C	Integrated IC bus
I2S	Integrated IC Sound bus

IC	Integrated Circuit
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in 'pairs', causing line flicker.
IR	Infra Red
IRQ	Interrupt ReQuest
Last Status	The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according the customers wishes
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LINE-DRIVE	Line drive signal
LVDS	Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication.
MPEG	Motion Pictures Experts Group
NVM	Non Volatile Memory: IC containing TV related data (for example, options)
OSD	On Screen Display
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
RAM	Random Access Memory
RC	Remote Control transmitter
RC5	Remote Control system 5, the signal from the remote control receiver
RGB	Red, Green, and Blue. The primary colour signals for TV. By mixing levels of R, G, and B, all colors (Y/C) are reproduced.
RGBHV	Red, Green, Blue, Horizontal sync, and Vertical sync
ROM	Read Only Memory
SAM	Service Alignment Mode
SIF	Sound Intermediate Frequency
SC	SandCastle: two-level pulse derived from sync signals
SCL	CLock Signal on I2C bus
SDA	DAta Signal on I2C bus
SDRAM	Synchronous DRAM
SIF	Sound Intermediate Frequency
STBY	STandBY
VGA	Video Graphics Array
XTAL	Quartz crystal
YPbPr	Component video (Y= Luminance, Pb/Pr= Colour difference signals)
Y/C	Luminance (Y) and Chrominance (C) signal
Y-OUT	Luminance-signal

