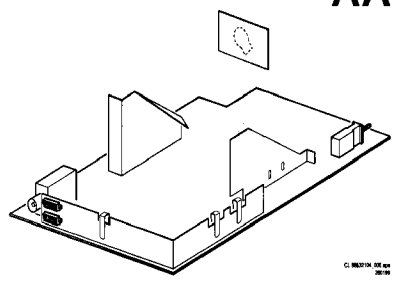
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Service
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Service



Service Manual

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1 Technical Specifications

Mains voltage	:	90V - 276Vac; 50-60Hz

Maximum power consumption

- 25" : 75W +/- 10%
- 28" : 90W +/- 10%
- 29" : 90W +/- 10%

Standby power consumption	:	6W +/- 10%
Colour Synchronisation	:	
Sub-carrier pull in range	:	+/- 300Hz
Horizontal Synchronisation	:	
Catching range	:	+/- 600 Hz
Holding range	:	+/- 1200 Hz
Vertical Lock Range	:	49 Hz - 61Hz
Tuners	:	UV 1316/AI-2 (PAL/SECAM)

2.1 Specification of the terminal sockets

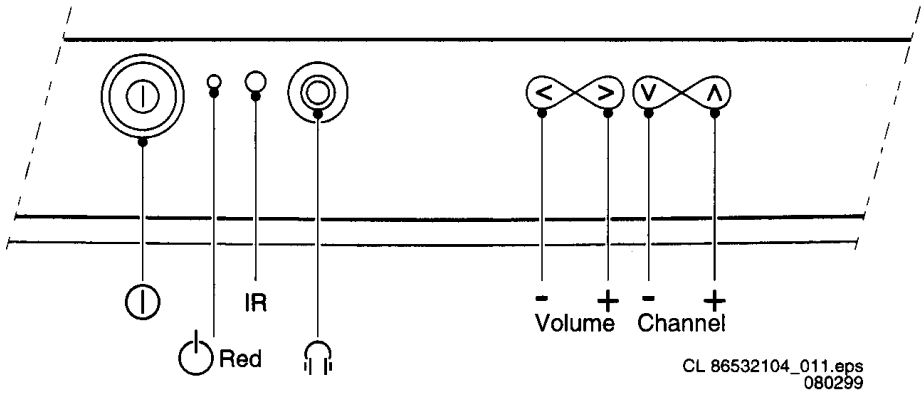


Figure 2-1

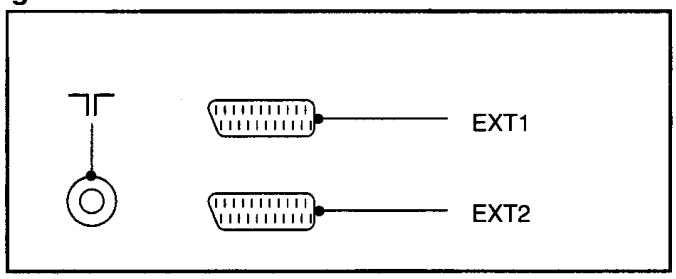


Figure 2-2

2.1.1 *Scart 1: CVBS(in/out) + RGB(in) - tuner at output*

1-	Audio Out R (0.5Vrms <= 1kΩ)	
2-	Audio In R (0.2-2Vrms >= 10kΩ)	
3-	Audio Out L (0.5Vrms <= 1kΩ)	
4-	Earth screen	
5-	Earth screen	
6-	Audio In L (0.2-2Vrms >= 10kΩ)	
7-	Blue (0.7Vpp/75Ω)	
8-	CVBS status (INT = 0-2V, EXT(16:9) = 4.5-7V, EXT(4:3) = 9.5-12V)	
9-	Earth screen	
10-	-	
11-	Green (0.7Vpp/75Ω)	
12-	-	
13-	Earth screen	
14-	Earth screen	
15-	Red (0.7Vpp/75Ω)	
16-	FBL (>0.9V RGB mode)	
17-	Earth screen	
18-	Earth screen	
19-	CVBS	
20-	CVBS (1Vpp/75Ω)	
21-	Earth screen	

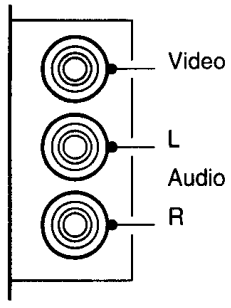
2.1.2 *Scart 2: CVBS (in/out) + SVHS(in)*

Input = EXT2 => output = tuner

Input = tuner/EXT1 => output = tuner/EXT1

1-	Audio Out R (0.5Vrms <= 1kΩ)	
2-	Audio In R (0.2-2Vrms >= 10kΩ)	
3-	Audio Out L (0.5Vrms <= 1kΩ)	
4-	Earth screen	
5-	Earth screen	
6-	Audio In L (0.2-2Vrms >= 10kΩ)	
7-	-	
8-	CVBS status (INT = 0-2V, EXT(16:9) = 4.5-7V, EXT(4:3) = 9.5-12V)	
9-	Earth screen	
10-	-	
11-	-	
12-	-	
13-	Earth screen	
14-	Earth screen	
15-	C (300mVpp/75Ω)	
16-	-	
17-	Earth screen	
18-	Earth screen	
19-	CVBS	
20-	CVBS/Y (1Vpp/75Ω)	
21-	Earth screen	

2.1.3 *Cinch - audio/video in*



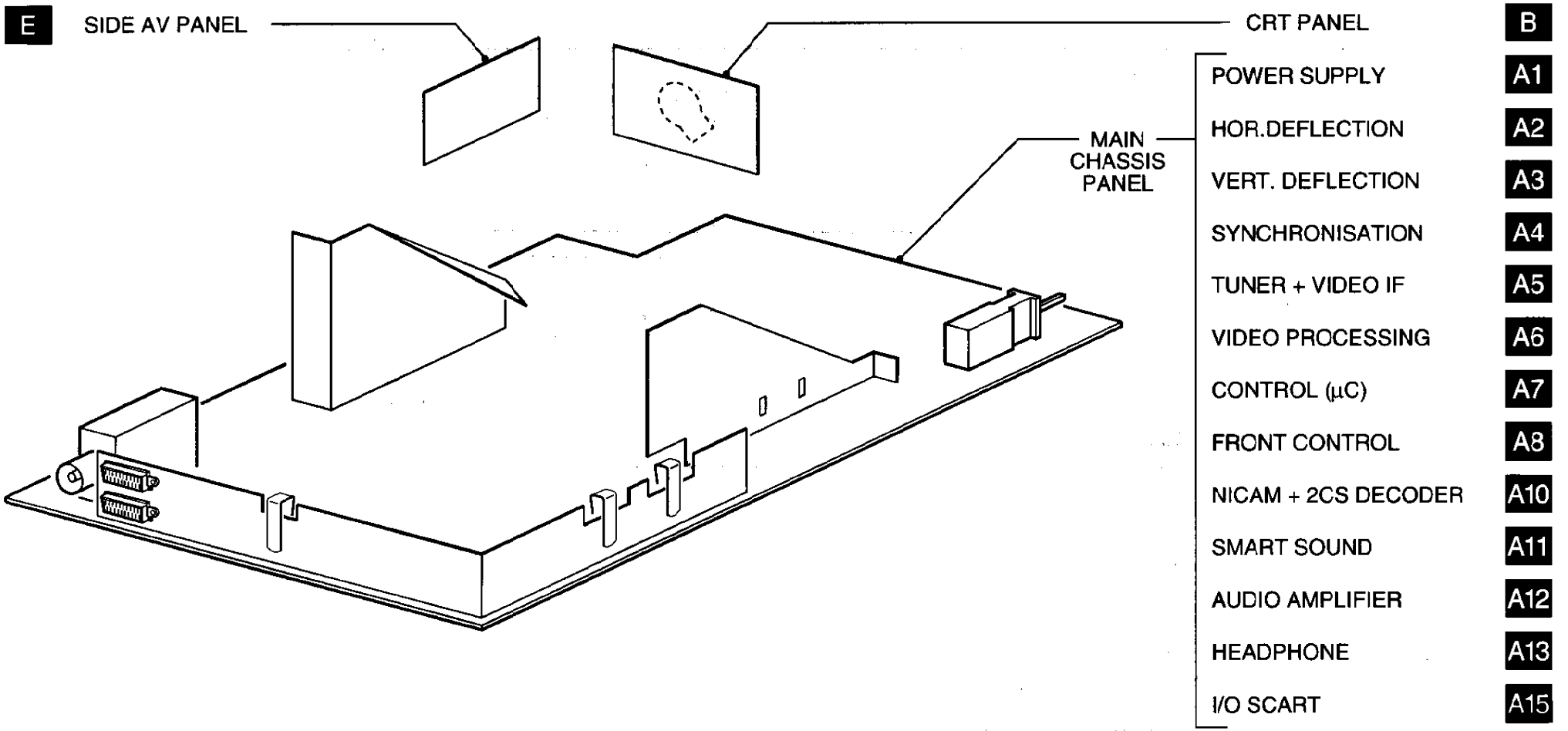
1-	CVBS (yellow)(1Vpp 75Ω)	
2-	Audio L (red) (0.2-2Vrms 10kΩ)	
3-	Audio R (white) (0.2-2Vrms 10kΩ)	

2.1.4 *Headphone*

1-	8-600Ω (4mW)	

2 Connection facilities and chassis overview

2.2 PCB location drawing



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3 Safety and maintenance instructions

3.1 Safety instructions for repairs



Figure 3-1

1. Safety regulations require that during a repair:
   - the set should be connected to the mains via an isolating transformer;
   - safety components, indicated by the symbol (see fig. 3.1), should be replaced by components identical to the original ones;
   - when replacing the CRT, safety goggles must be worn.

2. Safety regulations require that after a repair the set must be returned in its original condition. In particular attention should be paid to the following points.
   - As a strict precaution, we advise you to resolder the solder joints through which the horizontal deflection current is flowing, in particular:
     - all pins of the line output transformer (LOT);
     - fly-back capacitor(s);
     - S-correction capacitor(s);
     - line output transistor;
     - pins of the connector with wires to the deflection coil;
     - other components through which the deflection current flows.

     Note: This resoldering is advised to prevent bad connections due to metal fatigue in solder joints and is therefore only necessary for television sets older than 2 years. The wire trees and EHT cable should be routed correctly and fixed with the mounted cable clamps.

   - The insulation of the mains lead should be checked for external damage.
   - The mains lead strain relief should be checked for its function in order to avoid touching the CRT, hot components or heat sinks.
   - The electrical DC resistance between the mains plug and the secondary side should be checked (only for sets which have a mains isolated power supply). This check can be done as follows:
     - unplug the mains cord and connect a wire between the two pins of the mains plug;
     - set the mains switch to the on position (keep the mains cord unplugged!);
     - measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 MΩ and 12 MΩ;
     - switch off the TV and remove the wire between the two pins of the mains plug.

   - The cabinet should be checked for defects to avoid touching of any inner parts by the customer.

3.2 Maintenance instruction

It is recommended to have a maintenance inspection carried out by a qualified service employee. The interval depends on the usage conditions:

- When the set is used under normal circumstances, for example in a living room, the recommended interval is 3 to 5 years.
- When the set is used in circumstances with higher dust, grease or moisture levels, for example in a kitchen, the recommended interval is 1 year.
- The maintenance inspection contains the following actions:
  - Execute the above mentioned 'general repair instruction'.
  - Clean the power supply and deflection circuitry on the chassis.
  - Clean the picture tube panel and the neck of the picture tube.

3.3 Warnings



1. ESD
   All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
   - complete kit ESD3 small table mat, wristband, connectionbox, extensioncable and earthcable 4822 310 10671
   - wristband tester 4822 344 13999

2. In order to prevent damage to ICs and transistors, all high-voltage flashovers must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 3.2 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is 0V (after approx. 30s).
3. Together with the deflection unit and any multipole unit, the flat square picture tubes used from an integrated unit. The deflection and the multipole units are set optimally at the factory. Adjustment of this unit during repair is therefore not recommended.
4. Be careful during measurements in the high-voltage section and on the picture tube.
5. Never replace modules or other components while the unit is switched on.
6. When making settings, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.
7. Wear safety goggles during replacement of the picture tube

3.4 Notes

1. The direct voltages and oscillograms should be measured with regard to the tuner earth , or hot earth as this is called (see fig. 3.3)
2. The direct voltages and oscillograms shown in the diagrams are indicative and should be measured in the Service Default Mode (see chapter 8) with a colour bar signal and stereo sound (L:3 kHz, R:1 kHz unless stated otherwise) and picture carrier at 475.25 MHz.
3. Where necessary, the oscillograms and direct voltages are measured with and without aerial signal. Voltages in the power supply section are measured both for normal operation and in standby . These values are indicated by means of the appropriate symbols (see fig. 3.3).
4. The picture tube PWB has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.
5. The semiconductors indicated in the circuit diagram and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

6. Manufactured under license from Dolby Laboratories Licensing Corporation.
7. DOLBY, the double D symbol and PRO LOGIC are trademarks of Dolby Laboratories Licensing Corporation.

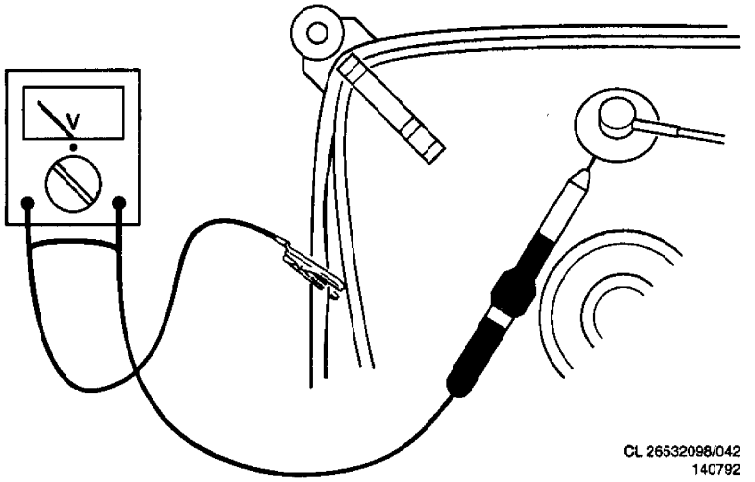


Figure 3-2

tuner earth tuner aarde la masse du tuner Tuner-Erde massa del tuner tierra del sintonizador	hot earth hete aarde la terre directe heißen Erde massa calda tierra caliente
with aerial signal met antenne signaal avec signal d'antenne mit Antennensignal con segnale d'antenna con la señal de antena	without aerial signal zonder antenne signaal sans signal d'antenne .ohne Antennensignal senza segnale d'antenna sin la señal de antena
normal condition normaal bedrijf fonctionnement normal normaler Betrieb funzionamento normale funcionamiento normal	stand by stand by position de veille in Bereitschaft modo di attesa posición de espera

Figure 3-3

4 Mechanical instructions

4.1 Service positions

See figure 4.1 for the service position.

1. Disconnect the connecting cable feeding the right-hand speaker, also disconnect the degaussing cable.
2. The mono-carrier is removed by pushing the two centre clips (1) at both chassis brackets outwards and pulling the panel forward. (2)
3. Flip the mono-carrier over so that the component side of the board faces towards the CRT.
4. Slide the metal heat sink underneath the left chassis bracket (3) until the carrier is locked in position.

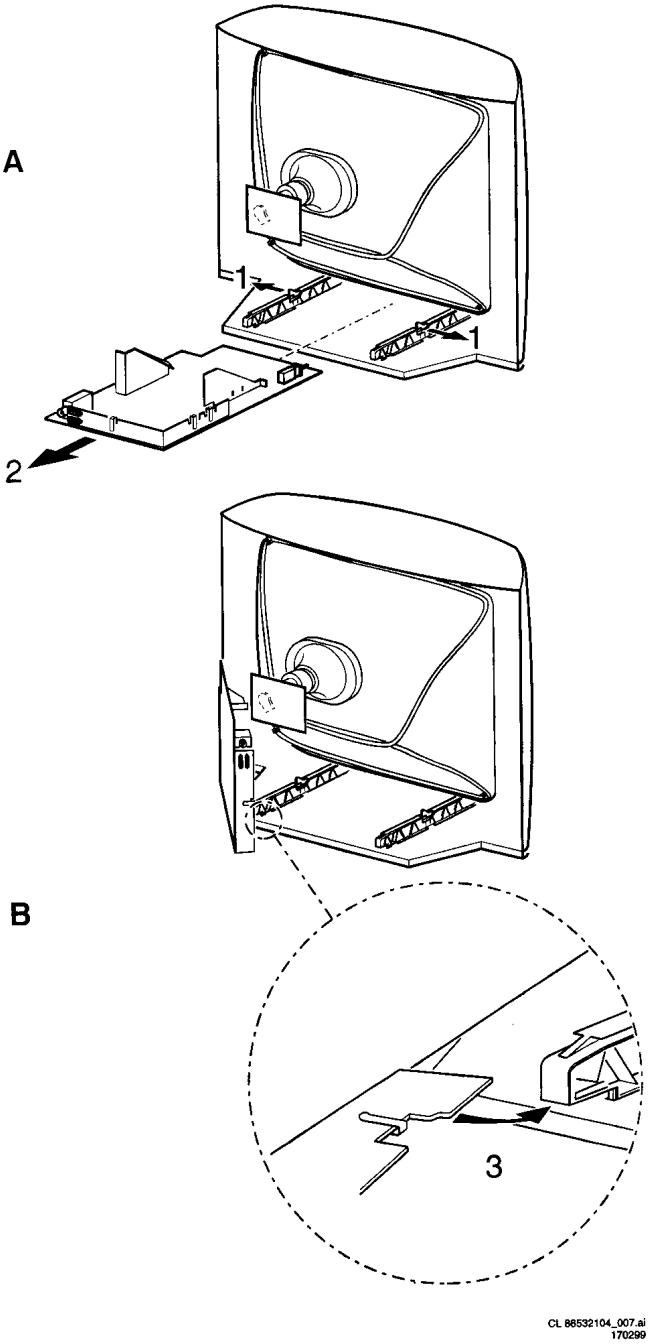


Figure 4-1

5 Fault finding and repair tips

This chapter includes information covering:

5.1 Test points
5.2 Service Modes and Dealer Service Tool (DST)
5.3 The menus and submenus
5.4 Error code buffer and error codes
5.5 The "blinking LED" procedure
5.6 Trouble shooting tips
5.7 Customer service mode
5.8 Compair
5.9 Ordering Compair

5.1 Test points

The L9.1E chassis is equipped with easily identifiable test points. These are clearly marked on the PCB. The test points refer to specific functional blocks, these are:

- A1-A2-A3, etc.: Test points for the Nicam + 2CS decoder / Audio amplifier
- C1-C2-C3, etc.: Test points for the control circuit / front control
- F1-F2-F3, etc.: Test points for the vertical deflection circuit
- I1-I2-I3, etc.: Test points for the intermediate frequency circuit
- L1-L2-L3, etc.: Test points for the horizontal deflection circuit
- P1-P2-P3, etc.: Test points for the power supply
- S1-S2-S3, etc.: Test points for the synchronisation circuit
- V1-V2-V3, etc.: Test points for the video processing circuitry / CRT panel

Measurements are performed under the following conditions:

Video: colour bar signal; audio: 3kHz left, 1kHz right

5.2 Service modes and Dealer Service Tool (DST)

For easy installation and diagnosis, the dealer service tool (DST) RC7150 can be used. When there is no picture (to access the error code buffer via the OSD). The DST can enable the set to display the entire contents of the error code buffers by using the flashing LED procedure.

Important Note: The L9.1E does not incorporate two way Infra red communication.

The part number for the DST (RC7150) is 4822 218 21232.

5.2.1 Installation features for the dealer

The dealer can use the RC7150 for programming the TV-set with presets. 10 Different program tables can be programmed into the DST via a GFL TV, MD or MG set (downloading from the TV to the DST; for example see the GFL service manuals) or by the DST-I (DST interface; part number 4822 218 21277). For an explanation of the installation features of the DST, please see the directions of use for use of the DST (for the L9.1E chassis, download code 4 should be used).

5.2.2 Diagnosis features for the servicer

L9.1E models can be put into either of the two available service modes by using the RC7150. These are the Service Default Mode (SDM) and the Service Alignment Mode (SAM).

5.2.3 Service Default Mode (SDM)

The purpose of the SDM is:

- Used to provide a pre defined situation (pre-defined parameters), so that the same measurements can be obtained as per the service manual.
- Overrides the 5V protection when the internal method of SDM is used (connecting together pin 24 and pin 25).
- starts the LED flashing procedure
- Setting up of options codes
- Inspect the error buffer

Entering the SDM:

- By transmitting the "DEFAULT" command with the RC7150 Dealer Service Tool (this works both while the set is in normal operation mode or in the SAM)
- Standard RC sequence 062596 followed by the key "MENU"
- By connecting test-points M25 and M24s together (on the mono-carrier) while switching on the set. After switching on the set the link should be removed (Caution!! By entering the SDM mode you Override the 5V protections).

Exit the SDM:

Switch the set to Standby or press EXIT on the DST (the error buffer is also cleared).

Note: When the mains power is switched off while the set is in SDM, the set will switch to SDM immediately when the mains is switched on again. (The error buffer will be cleared).

The SDM sets the following pre-defined conditions:

- Pal/Secam sets: tuning at 475.25 PAL (For France select the L'-signal)

Volume level is set to 25% (of the maximum volume level). Other picture and sound settings are set to 50%. The following functions are "ignored" in SDM since they interfere with diagnosing/repairing a set. "Ignoring" means that the event that is triggered is not executed, the setting remains unchanged.

- (Sleep)Timer
- Blue mute
- Auto switch off
- Hotel or Hospitality Mode
- Child lock or Parental lock
- Skipping, blanking of "Not favourite" present/channels
- Automatic storing of Personal Preset settings
- Automatic user menu time-out

All other controls operate normally.

5.2.4 Special functions in SDM

Access to normal user menu

Pressing the "MENU" button on the remote control will enter the normal user menu (TV lock, Installation, Brightness, colour and contrast) while "SMD" remains displayed in top of screen). Pressing the "MENU" key again will return to the last SDM status.

Error buffer

Pressing the "OSD" button of the remote control shows all OSD (incl. error buffer).

Access to SDM

By pressing the "CHANNEL DOWN" and "VOLUME DOWN" buttons on the local keyboard simultaneously the set switches from SDM to SAM or pressing "ALIGN" on the DST

5 Fault finding and repair tips

In the SDM the following information is displayed on the screen:

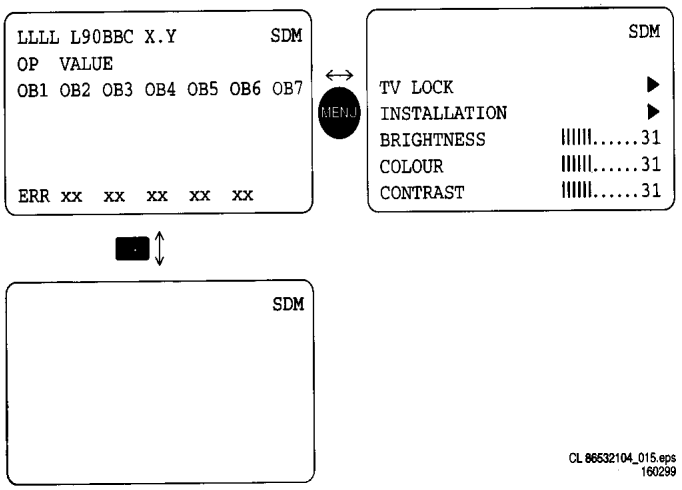


Figure 5-1 : Service Default Mode screens and structure

Explanation notes/references:

(1) "LLLL" Operation hours timer (hexadecimal)

(2) Software identification of the main micro controller (L90BBC X.Y)

- L90 is the chassis name for L9.0E
- BBC is a 2 letter and 1 digit combination that indicates the software type and the supported languages:
- X = (main version number)
- Y = (subversion number) BB = (range specification)

(3) "SDM" To indicate that the TV set is in de service mode

(4) "OP" Options Code consist of 2 characters. It is possible to change each option code

"VALUE" The value of the selected option (ON/OFF or a combination of 2 letters)

"XXX" Value of the options bytes (OB1 .. OB7)

"ERR" The last five detected errors; The left most number indicates the most recent error detected.

The MENU UP or MENU DOWN command can be used to select the next/previous option; The MENU LEFT and MENU RIGHT command can be used to change the option value.

Remark: When the option-code RC = OFF, the P+ and the P- key have the same functions as the MENU UP/DOWN keys while the VOL+ and the VOL- key have the same function as the MENU LEFT/RIGHT keys. It is not possible to change the channel pre-set or to adjust the volume when in SAM/SDM menu when the option RC = OFF.

Using a L9.1E remote control, option-code RC = ON, the P+, P-, VOL- and VOL+ can be used to change the pre-set and/or to adapt the volume, while the menu-cursor keys are used to select the option and to change its value.

For an extended overview of the option codes see Chapter 8 - Options

5.2.5 *Service Alignment Mode (SAM)*

The SAM allows adjustment of the Demodulator I.F, align the white tone, adjust the picture geometry and sound adjustments.

For easy identification of the SAM mode, "SAM" is displayed in the top of the right side of the screen

Entering SAM:

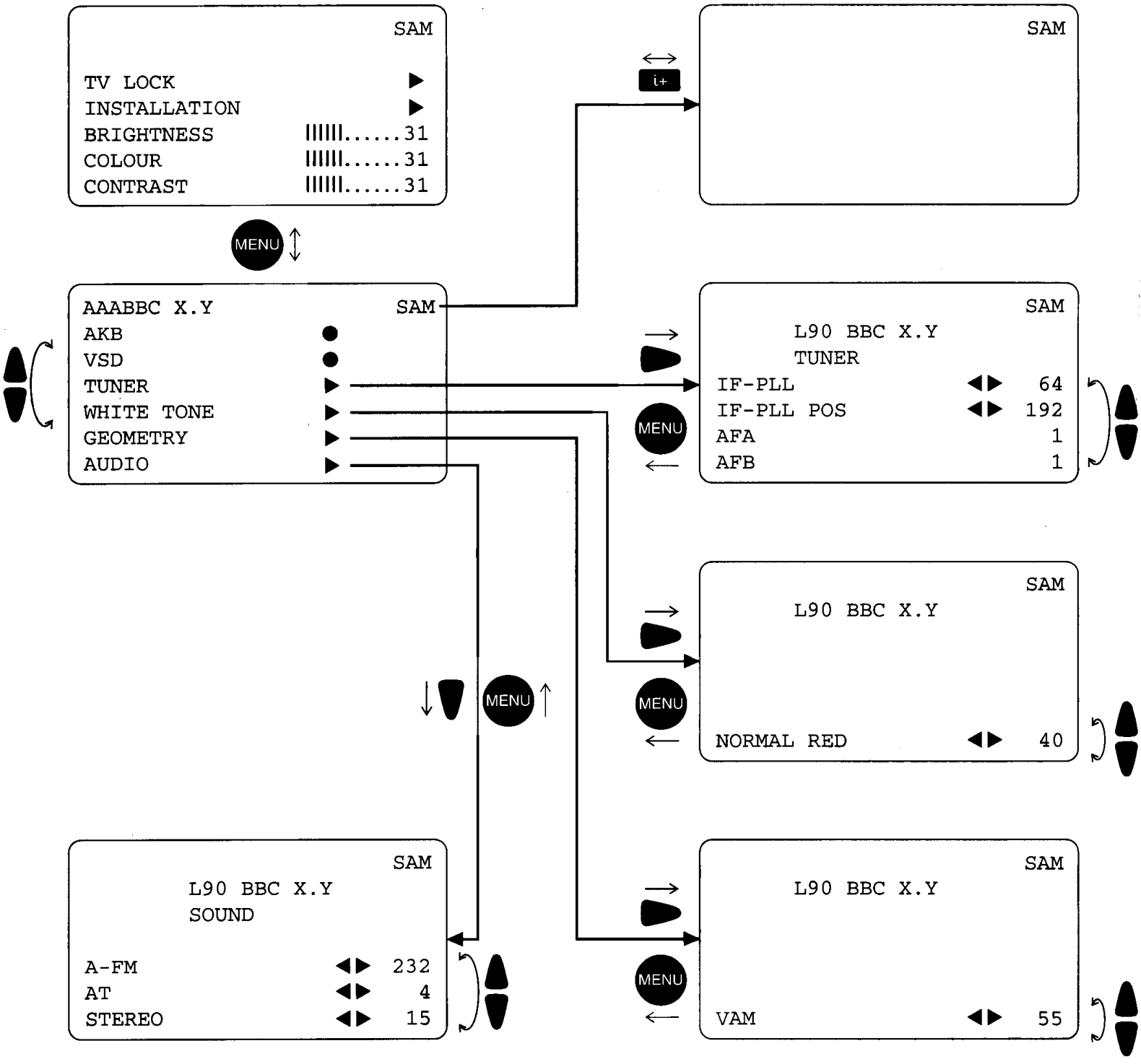
- By transmitting the "ALIGN" command with the RC7150 Dealer Service Tool
- By pressing the "CHANNEL DOWN" and "VOLUME DOWN" key on the local keyboard simultaneously when the set is in SDM
- Standard RC sequence 062596 followed by the key "OSD"
- By shorting test-point M28 and M29 on the mono-carrier while switching on the set. After switching on the set the short-circuit can be removed. (Caution!! Override of 5V protections).

Exiting the SAM:

Switch the set to standby or press EXIT on the DST (the error buffer is not cleared).

Note: When the mains power is switched off while the set is in SAM, the set will switch to SAM immediately when the mains is switched on again. (The error buffer will not be cleared).

In the SAM the following information is displayed on the screen:



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Figure 5-2 : Service Alignment Mode screens and structure

5 Fault finding and repair tips

Access to normal user menu
Pressing the "MENU" button on the remote control will enter the normal user menu (TV lock, installation, brightness, colour and contrast) while "SAM" remains displayed in top of screen. Pressing the "MENU" key again will return to the last SAM status.

Pressing the "OSD" button of the remote control shows only "SAM" in the top of screen

Access to SDM
Pressing the "DEFAULT" button on the DST

SAM menu control
Menu items (AKB, VSD, Tuner, White tone, Geometry and Sound) can be selected with the MENU Up or MENU DOWN key. Entry into the selected items (sub menus) is done by the MENU LEFT or MENU RIGHT key. The selected item will be highlighted.

With the cursor LEFT/RIGHT keys, it is possible to increase/ decease the value of the selected item.

5.3 The menus and submenus

5.3.1 Tuner sub menu

The tuner sub menu contains the following items:

- IF_PLL: PLL Alignment for all PAL/SECAM systems, excluding SECAM-LL'
- IF_PLL POS: PLL Alignment for SECAM-LL'
- IF_PLL OFFSET: Default value = 48 ; Do not align
- AFW: AFC Window
- AGC: AGC take-over point
- YD: Default value = 12 ; Do not align
- CL: Default value = 4 ; Do not align
- AFA
- AFB

The items AFA and AFB can not be selected, they are for monitoring purposes only.

The commands MENU UP and MENU DOWN are used to select the next/previous item.

The commands MENU LEFT and MENU RIGHT are used to increase/decrease the value of the selected item. The changed values will be send directly to the related hardware.

The item values are stored in NVM if this sub menu is left.

5.3.2 White tone sub menu

The white tone sub menu contains the following items:

- NORMAL RED
- NORMAL GREEN
- NORMAL BLUE
- DELTA COOL RED
- DELTA COOL GREEN
- DELTA COOL BLUE
- DELTA WARM RED
- DELTA WARM GREEN
- DELTA WARM BLUE

OSD is kept to a minimum in this menu, in order to make white tone alignment possible.

The commands MENU UP and MENU DOWN are used to select the next/previous item.

The commands MENU LEFT and MENU RIGHT are used to increase/decrease the value of the selected item. The changed values will be send directly to the related hardware.

The item values are stored in NVM if this sub menu is left.

The Contrast Plus feature (black stretch) is set to OFF when the white tone submenu is entered.

5.3.3 Audio sub menu

The audio sub menu contains the following items:

- A-FM: Default value = 232 ; Do not align
- AT: Default value = 4 ; Do not align
- STEREO: Default value = 15 ; Do not align
- DUAL: Default value = 12 ; Do not align

The sound adjustments sub menu are not available in Mono sets.

The presence of an item in the menu is dependent on the selected soundboard (option SB).

The commands MENU UP and MENU DOWN are used to select the next/previous item.

The commands MENU LEFT and MENU RIGHT are used to increase/decrease the value of the selected item. The changed values will be sent directly to the related hardware.

The item values are stored in NVM if this sub menu is left.

5.3.4 Geometry sub menu

The geometry sub menu contains the following items:

- SBL : Service blanking
- VSL : Vertical slope
- VAM : Vertical amplitude
- VSH : Vertical shift
- HSH : Horizontal shift
- VSC : Vertical S correction
- H60 : Default value = 10 ; Do not align
- V60 : Default value = 12 ; Do not align
- EWC : E-W corner
- EWT : E-W trapezium
- EWP : E-W parabola
- EWW : E-W width

5.4 Error code buffer and error codes

5.4.1 Error code buffer

The error code buffer contains all errors detected since the last time the buffer was erased. The buffer is written from left to right.

- when an error occurs that is not yet in the error code buffer, the error is written at the left side and all other errors shift one position to the right
- the error code buffer will be cleared in the following cases:
  1. exiting SDM or SAM with the "Standby" command on the remote control
  2. transmitting the commands "EXIT" with the DST (RC7150)
  3. transmitting the commands "DIAGNOSE-9-9-OK" with the DST.

- By leaving SDM or SAM with the mains switch, the error buffer is not reset.

Examples:

ERROR: 0 0 0 0 0 : No errors detected

ERROR: 6 0 0 0 0 : Error code 6 is the last and only detected error

ERROR: 5 6 0 0 0 : Error code 6 was first detected and error code 5 is the last detected (newest) error

5.4.2 Error codes

In the case of non-intermittent faults, clear the error buffer before starting the repair to prevent "old" error codes being present. If possible check the entire contents of the error buffers. In some situations an error code is only the RESULT of another error code (and not the actual cause).

Note: a fault in the protection detection circuitry can also lead to a protection.

Error 0 = No error

Error 1 = X-ray (Only for USA sets)

Error 2 = High beam current protection and E/W Horizontal protection

High beam protection active; set is switched to protection; error code 2 is placed in the error buffer; the LED will blink 2 times (repeatedly).

As the name implies, the cause of this protection is a too high beam current (bright screen with flyback lines). Check whether the +200V supply to the CRT panel is present. If the voltage is present, the most likely cause is a fault on the CRT panel. Disconnect the CRT panel to determine the cause. If the +200V voltage is not present, check R3340 (CRT panel - B), R3485 and D6485 (Horizontal Deflection - A2)

EW protection:

If this protection is active, the causes could be one of the following;

- horizontal deflection coil 5445
- linearity coil 5457
- S-correction capacitor 2466/2468
- flyback capacitor 2465
- line output stage
- short circuit of:
- flyback diode 6460
- EW transformer (bridge coil) 5465/5470 or 5463/5471 (version dependent)
- S-correction capacitor 2457
- EW power-transistor 7460 or driver-transistor 7461

Error 3 = Vertical / Frame protection

There are no pulses detected at pin 47 of the main microprocessor 7600 (panel A7).

If this protection is active, the causes could be one of the following items;

- IC 7401 is faulty
- Open circuit of vertical deflection coil
- Vlotaux +11V not present and/or Vlotaux -11V not present
- Resistor 3409

Error 4 = Sound processor I2C error (MSP3415D)

Sound processor does not respond to the micro controller

Error 5 = Bimos start-up error (POR bit)

Bimos start-up register is corrupted or the I2C line to the Bimos is always low or no supply at pin 12 of the Bimos). This error is usually detected during start-up and hence will prevent the set from starting up.

Error 6 = Bimos (TDA8844) I2C error

Note that this error may also be reported as a result of error codes 4 (in that case the Bimos might not be the actual problem)

Error 7 = General I2C error. This will occur in the following cases:

- SCL or SDA is shorted to ground
- SCL is shorted to SDA
- SDA or SCL connection at the micro controller is open circuit.

Error 8 = Microprocessor internal RAM error

The micro controller internal RAM test indicated an error of the micro controller internal memory (tested during start-up);

Error 9 = EEPROM Configuration error (Checksum error); EEPROM is corrupted.

Error 10 = I2C error EEPROM error. NV memory (EEPROM) does not respond to the micro controller

Error 11 = I2C error PLL tuner. Tuner is corrupted or the I2C line to the Tuner is low or no supply voltage present at pin 9, pin 6 or pin 7 of the tuner.

Error 12 = Black current loop instability protection. The black current could not be stabilised. The possible cause could be a defect in one or more of the RGB amplifiers, RGB guns or RGB driving signals.

5.5 The "blinking LED" procedure

The contents of the error buffer can also be made visible via the "blinking LED" procedure. This is especially useful when there is no picture. There are two methods of access:

1. When the SDM is entered, the LED will blink the number of times, equal to the value of the last (newest) error code (repeatedly).
2. With the DST all error codes in the error buffer can be made visible. Transmit the command: "DIAGNOSE x OK" where x is the position in the error buffer to be made visible x ranges from 1, (the last (actual) error) to 6 (the first error). The LED will operate in the same way as in point 1, but now for the error code on position x.

Example:

Error code position1 2 3 4 5

Error buffer:8 9 5 0 0

- after entering SDM: blink (8x) - pause - blink (8x) - etc.
- after transmitting "DIAGNOSE- 2- OK" with the DST blink (9x) - pause - blink (9x) - etc.
- after transmitting "DIAGNOSE- 3- OK" with the DST blink(5x) - pause - blink(5x) - etc.
- after transmitting "DIAGNOSE- 4- OK" with the DST nothing happens

5.6 TROUBLE SHOOTING TIPS

In this paragraph some trouble shooting tips for the deflection and power supply circuitry are described. For detailed diagnostics, use the fault finding tree or use COMPAIR.

5.6.1 *THE DEFLECTION CIRCUIT:*

1. Check that the +VBATT (140V) is present across 2551 (A1 POWER SUPPLY). If the voltage is not present, disconnect coil 5551 (A1 Power Supply) (Horizontal deflection stage is disconnected). If the voltage is present then the fault might be caused by the deflection circuit. Possible Candidates Are:
   - Transistor 7460 is faulty
   - The driver circuit around transistor 7461 is faulty
   - No horizontal drive signal coming from the BIMOS 7250-D pin 40 (A4 - Synchronisation)
2. Note: If the Collector of 7460 is shorted to the Emitter, a tripping noise will be heard from the power supply circuit.
3. To determine whether the fault is present in the horizontal deflection circuit or in the E/W circuit (A2 - Horizontal Deflection), de-solder jumper 9465 and insert a jumper into position number 9461. This disables the E/W protection. If the basic deflection stage now works correctly (parabolic picture) then the fault is present in the E/W circuit. If there is still no horizontal deflection, then the fault is present in the basic deflection circuitry.
4. The 25V-version (26" tube) and the 27V-version (29" tube) do not have an E/W correction circuit.
5. Also don't forget the protection circuits in the line output stage. If any of these circuits are activated, the set will shut down. Depending on the protection, the led will blink according to the fault defined. In order to determine which protection circuit is active, isolation of each separate circuit is necessary. These protection circuits are:
   - High beam current protection (LED blinks repetitively 2 times) - CRT panel (B)
   - E/W Horizontal protection (LED blinks repetitively 2 times) - Horizontal deflection (A2)
   - Vertical protection (LED blinks repetitively 3 times) - Vertical deflection (A3)

5.6.2 *THE POWER SUPPLY*

To trouble shoot the L9.1E SMPS, first check the Vaux voltage on C2561. If this voltage is not present, check fuse F1572 and D6560. If F1572 or D6560 is not open circuit, the problem might be caused on the primary side of the switching supply. Check the output of the bridge rectifier on the C2508 for approximately 300V DC. If this voltage is missing, check the bridge rectifier 6505 and the fuse 1500. If fuse F1500 is found to be open circuit, check MOSFET 7518 to make sure that there is no short circuit present and check R3518. If the 300V DC is present on C2508, check for a start-up voltage of approx. 13V on pin 1 of IC7520. If no start-up voltage is present, check if R3510 is open; zener 6510 is a short-circuit. It is necessary to have a feedback signal from the hot primary side of switch mode transformer T5545 at pin 8 and pin 9 for the power supply to oscillate. If this start-up voltage is present on pin 1 of IC7520 and the supply is not oscillating, check R3529 and D6540.

Check for a drive signal at the gate of MOSFET 7518, square wave signal - P2. Check pin 3 of IC7520, R3525 and D6514

To determined whether OVP is active, check whether Vaux is present at C2561.

5.7 Customer Service Mode (CSM)

All L9.1E sets are equipped with the "Customer Service Mode" (CSM). CSM is a special service mode that can be activated and deactivated by the customer, following a request from the service technician/dealer perhaps during a telephone conversation to identify the status of the set. This CSM is a 'read only' mode, therefore modifications or changes while the set is in this mode are not possible.

Entering the Customer Service Mode. The Customer Service Mode can be switched on by pressing simultaneously the button (MUTE) on the remote control and any key on the control buttons (P+, P-, VOL +, VOL -) on the TV for at least 4 seconds.

When the CSM is activated:

- picture and sound settings are set to nominal levels
- "Service unfriendly modes" are ignored

Exit the Customer Service Mode.

The Customer Service Mode will switch off after:

- pressing any key on the remote control handset (except "P+" or "P-")
- switching off the TV set with the mains switch.

All settings that were changed when CSM was activated are set back to the initial values

5.7.1 *The Customer Service Mode information screen*

The following information is displayed on screen:

- Line number for every line (to make CSM language independent)
- Operating hours
- Software version L90BBC X.Y)
- Text "CSM" on the first line
- Error buffer contents
- Option code information
- Configuration information
- Service unfriendly modes

```
1 HHHH L90BBC-X.Y                CSM
2 CODES xx xx xx xx xx
3 OP xxx xxx xxx xxx xxx xxx xxx
4 SYS: xxxxxxxxxxx
5 NOT TUNED
6 TIMER
7 LOCKED
8 (HOSPITAL) (HOTEL)
9 VOL LIM <value>
```

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080299

Figure 5-3 : Screen lay-out Customer Service Mode

SYS: xxxxxx = xxxxxx is the SYSTEM THAT IS SET FOR THIS PRESET

NOT TUNED = no ident signal present

TIMER = (SLEEP) TIMER is activated

LOCKED = Channel/preset locked via parental lock, child lock

HOTEL = HOTEL mode activated; HOSPITAL = HOSPITAL mode activated

VOL LIM > = Volume limiter activated and set to >

5.7.2 Exit

Any key (RC or local keyboard) except "channel up" / "channel down" (standby switched to standby, mains OFF switches set off, other keys switch to normal operation)

5.8 Compair

5.8.1 Introduction

Compair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. Compair is a further development on the DST service remote control allowing faster and more accurate diagnostics. Compair has three big advantages:

- Compair helps you to quickly get an understanding how to repair the L9.1E in short time by guiding you step by step through the repair procedures.
- Compair allows very detailed diagnostics (on I2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I2C commands yourself; Compair takes care of this.
- Compair speeds up the repair time since it can automatically communicate with the L9.1E (when the micro processor is working) and all repair information is directly available. When Compair is installed together with the SearchMan L9.1E electronic manual, schematics and PCBs are only a mouse-click away.

Compair consists of a Windows based fault finding program and an interface box between PC and the (defective) product. The Compair interface box is connected to the PC via a serial or RS232 cable. In case of the L9.1E chassis, the Compair interface box and the L9.1E communicate via an I2C cable (bi-directional) and via infra red communication (uni-directional; from Compair interface box to L9.1E)

The Compair fault finding program is able to determine the problem of the defective television. Compair can gather diagnostic information in 2 ways:

1. Communication to the television (automatic)
2. Asking questions to you (manually)

Compair combines this information with the repair information in its database to find out how to repair the L9.1E.

Automatic information gathering
Reading out the error buffer, Compair can automatically read out the contents of the entire error buffer.

Diagnosis on I2C level. Compair can access the I2C bus of the television. Compair can send and receive I2C commands to the micro controller of the television. In this way it is possible for Compair to communicate (read and write) to devices on the I2C busses of the L9.1E.

Manual information gathering
Automatic diagnosis is only possible if the micro controller of the television is working correctly and only to a certain extend. When this is not the case, Compair will guide you through the fault finding tree by asking you questions and showing you examples. You can answer by clicking on a link (e.g. text or an waveform pictures) that will bring you to the next step in the faultfinding process.

A question could be: Do you see snow? (Click on the correct answer)

YES / NO

An example can be: Measure testpoint I7 and click on the correct oscillogram you see on the oscilloscope

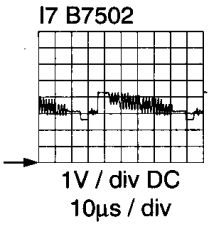


Figure 5-4

By a combination of automatic diagnostics and an interactive question/answer procedure, Compair will enable you to find most problems in a fast and effective way.

Additional features
Beside fault finding, Compair provides some additional features like:

- Uploading/downloading of presets
- Managing of preset lists
- Emulation of the Dealer Service Tool

5.8.2 Connecting the Compair interface

The Compair Browser software should be installed and setup before connecting Compair to the L9.1E. (See the Compair Browser Quick Reference Card for installation instructions.)

1. Connect the RS232 interface cable to a free serial (COMM) port on the PC and the Compair interface PC connector (connector marked with "PC").
2. Place the Compair interface box straight in front of the television with the infrared window (marked "IR") directed to the television LED. The distance between Compair interface and television should be between 0.3 and 0.6 meter. (Note: make sure that (also) in the service position, the Compair interface infra red window is pointed to the standby LED of the television set (no objects should block the infra red beam)
3. Connect the mains adapter to the connector marked "POWER 9V DC" on the Compair interface
4. Switch the Compair interface OFF
5. Switch the television set OFF with the mains switch
6. Remove the rear cover of the television set
7. Connect the interface cable (4822 727 21641) to the connector on the rear side of the Compair interface that is marked "I2C" (See Figure 5.6)
8. Connect the other end of the interface cable to the Compair connector on the monocarrier (see figure 5.7)
9. Plug the mains adapter in the mains outlet and switch ON the interface. The green and red LEDs light up together. The red LED extinguishes after approx. 1 second (the green LED remains lit).
10. Start-up Compair and select "File" menu, "Open...:; select "L9.1E Fault finding" and click "OK"
11. Click on the icon (fig. 5.5) to switch ON the communication mode (the red LED on the Compair interface wil light up)
12. Switch on the television set with the mains switch
13. When the set is in standby. Click on "Start-up in Compair mode from standby" in the Compair L9.1E fault finding tree, otherwise continue.

5 Fault finding and repair tips



Figure 5-5

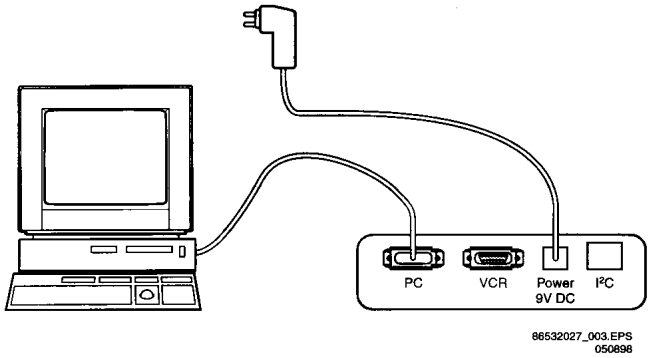


Figure 5-6

The set has now started up in Compair mode. Follow the instruction in the L9.1E fault finding tree to diagnose the set. Note that the OSD works but that the actual user control is disabled

5.8.3 Preset installation

Presets can be installed in 2 ways with the L9.1E.

- Via infra red
  - only sending TO the television
  - the rearcover does NOT have to be removed

Click on "File" "Open" and select "TV - use Compair as DST" to use infra red

- Via cable
  - sending TO the television and reading FROM the television
  - the rearcover has to be removed

Click on "File" "Open" and select "L9.1E fault finding" to use the cable

Presets can be installed via menu "Tools", "Installation", "Presets".

5.9 Ordering Compair

Compair order codes:

- Starterkit Compair+SearchMan software + Compair interface (excluding transformer): 4822 727 21629
- Compair interface (excluding transformer): 4822 727 21631
- Compair transformer (continental) Europe: 4822 727 21632
- Compair transformer United Kingdom: 4822 727 21633
- Starterkit Compair software: 4822 727 21634
- Starterkit SearchMan software: 4822 727 21635
- Starterkit Compair+SearchMan software: 4822 727 21636
- Compair CD (update): 4822 727 21637
- SearchMan CD (update): 4822 727 21638
- Compair interface cable (for L9.1E): 4822 727 21641

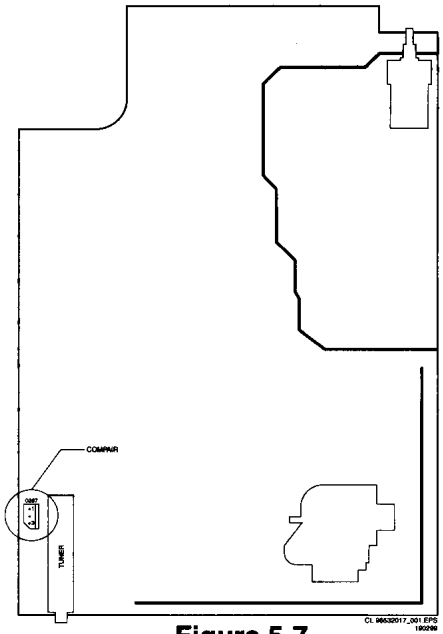


Figure 5-7

START
Connect a pattern generator to the arial input.
Set Patt.gen. to 475,25 MHz, colourbar, stereosound, PAL B/G (for France SECAM I).
Put the Mainsswitch : on.
In normal conditions the set will start with the Red LED blinking for one second in full intensity, one time then after a few seconds more in half intensity while the picture and sound will appear.

Remark :
In normal operation the Red LED lights in half intensity and in standby-mode the LED lights in full intensity

Does the red LED blink for one second in full intensity, one time ?
No → Does the red LED light in full intensity continuously ?
No → Is the Power supply hicking ?
No → Any secondary voltage present ?
No → (A1); <P1> present?
No → 1 1 1 1 Check/Replace (A1); SW0231,F1500,D6505 Note: If F1500 is defective, then also check R3503

Yes → Do picture and sound appear properly ?
No → A
Yes → Ensure communication with the RC, Check/Replace (A8);IC7680 Put the set into the Service Default Mode either via the DST or by pressing the buttons on the RC in the following order :062596<MENU>, or via the service pins

An error code is indicated by the blinking LED via the SDM.
n-times blinking means error n.
See also chapter 5.5 for detailled information

Is there an error indication ?
No → Set is OK Check / correct Options list via CSM see chapter 5.5 of this manual for details
Yes → B

Yes → 1 1 1 D
The load of the power supply is too high.
Isolate each branch of the load one by one, until the hicking disappear.
Continue with the fault finding for the branch, which causes the overload.
The branches are:
(A1); AudioSupply
+VBATT
MainSupply
Vaux

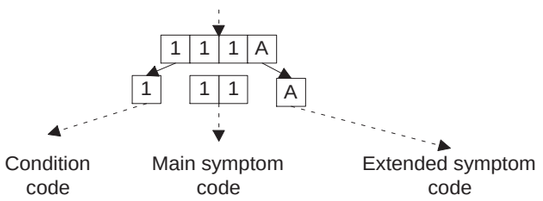
Yes → 1 7 1 3 Check (A7); <C1>,<C4(reset)> 3V3, Check/Replace TS7603,TS7604 IC7600 X1660 (A8);LED6690

(A1); <P1> present?
Yes → (A1); <P2> startpuls present?
No → (A1);<P3> Voltage present?
No → 1 1 1 1 Check/Replace (A1); D6540,C2540,D6510, R3510,R3529
Yes → 1 1 1 A Check/Replace (A1); IC7520 R3525

Yes → (A1); voltage on TR5545 pin9 present ?
No → 1 1 1 1 Check/Replace (A1); TS7518,L5552
Yes → 1 1 1 A Check/Replace (A1); L5540,D6540,C2540 Vaux,F1572,L5573,D6560 IC7581

Note 1:

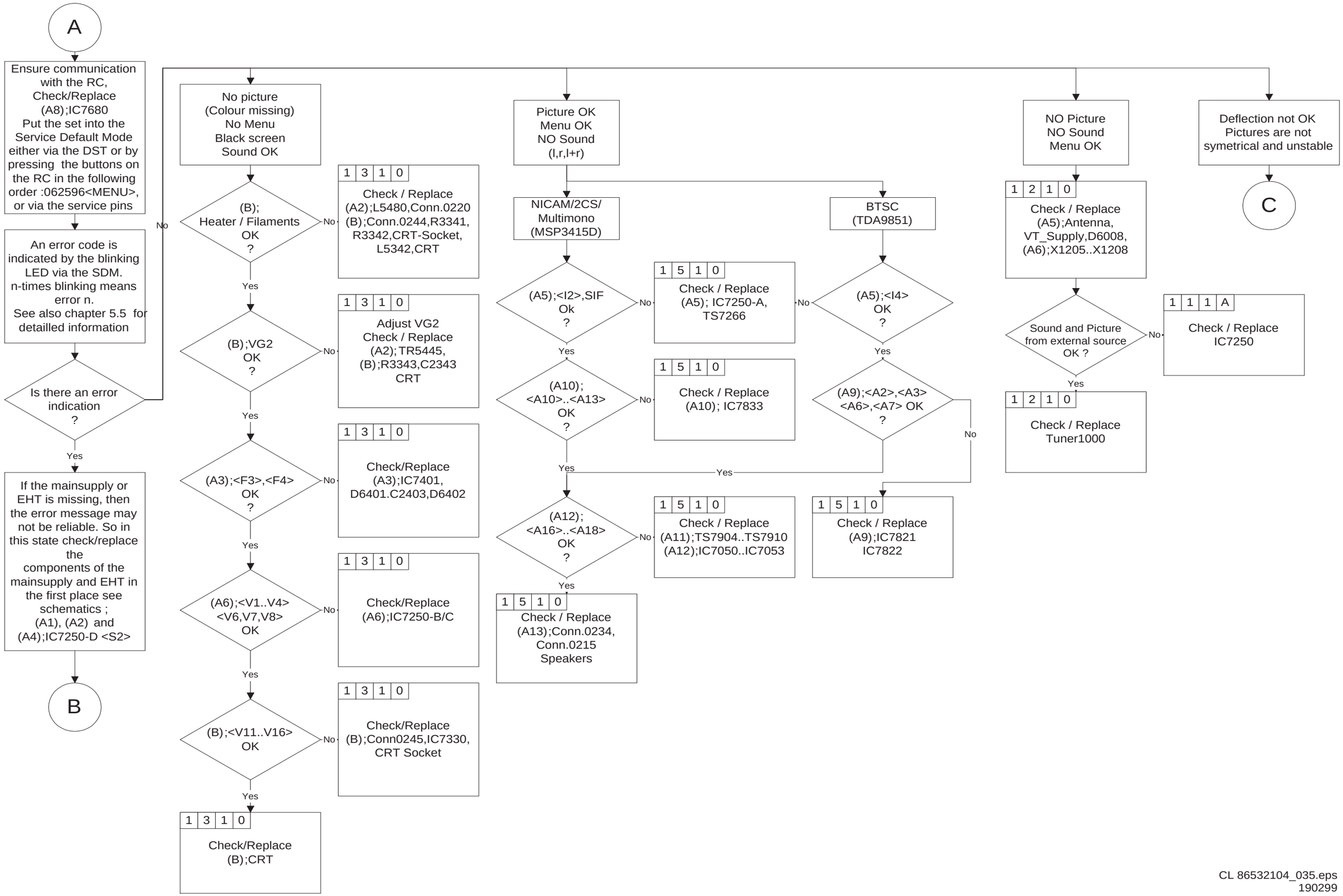
IRIS SYMPTOM CODE



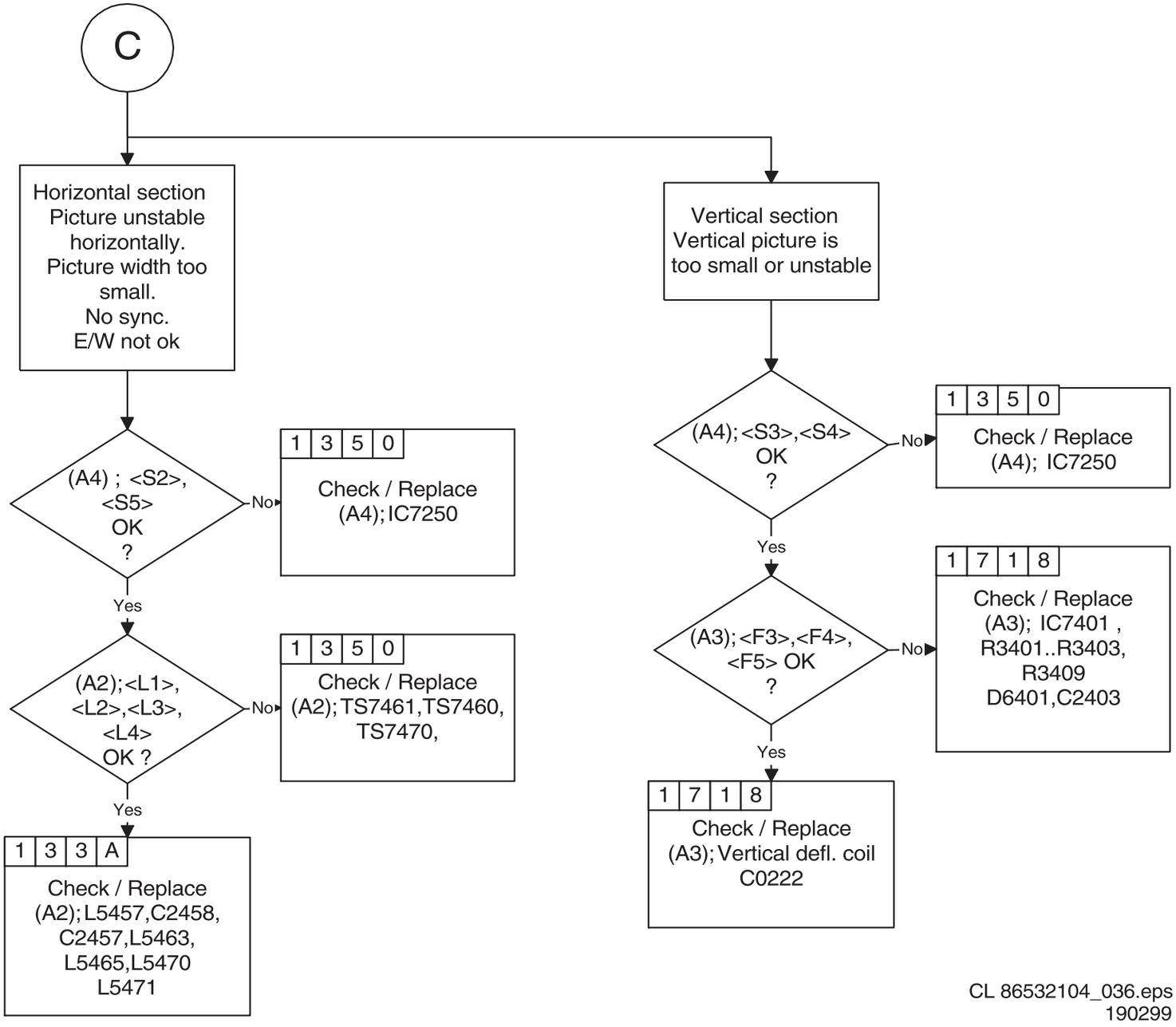
Note 2:

(A1) means Drawing A1
<P1> means Test point P1

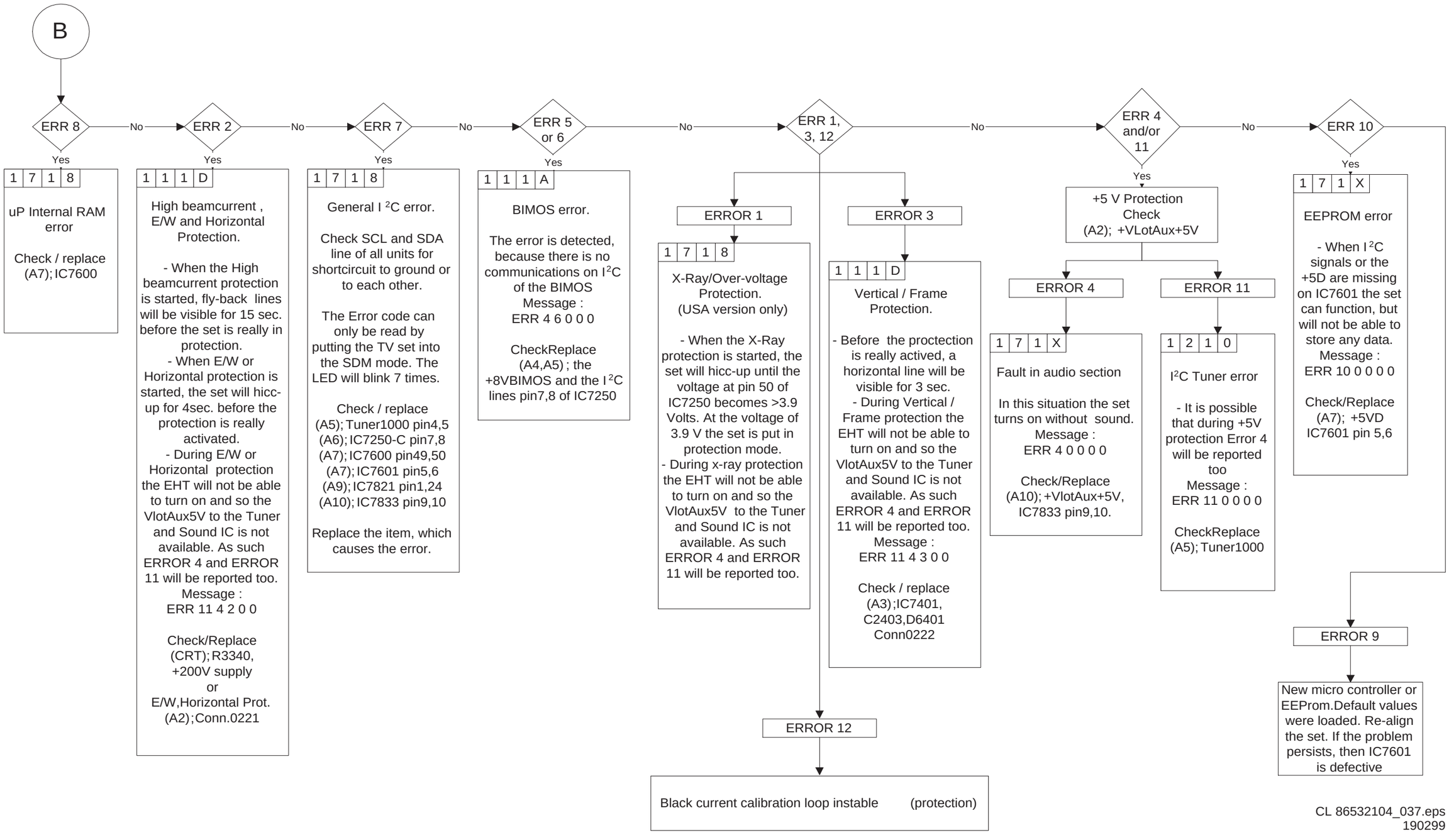
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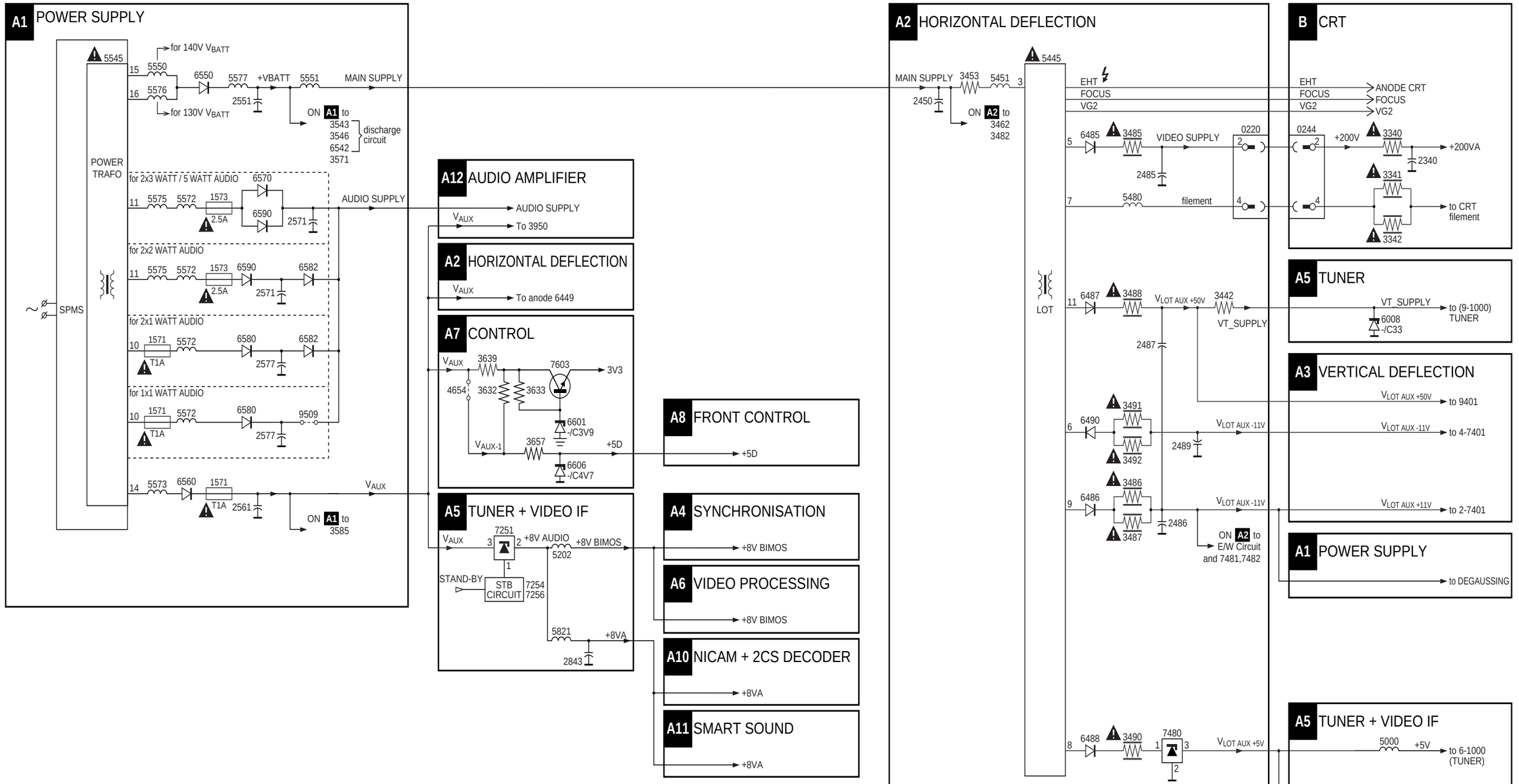
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190299



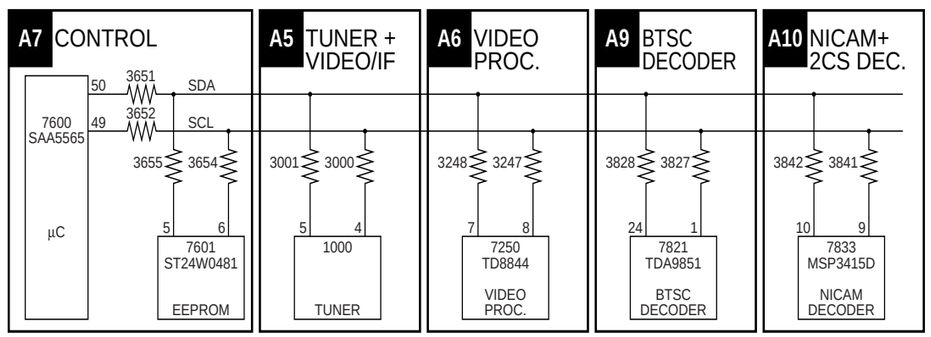
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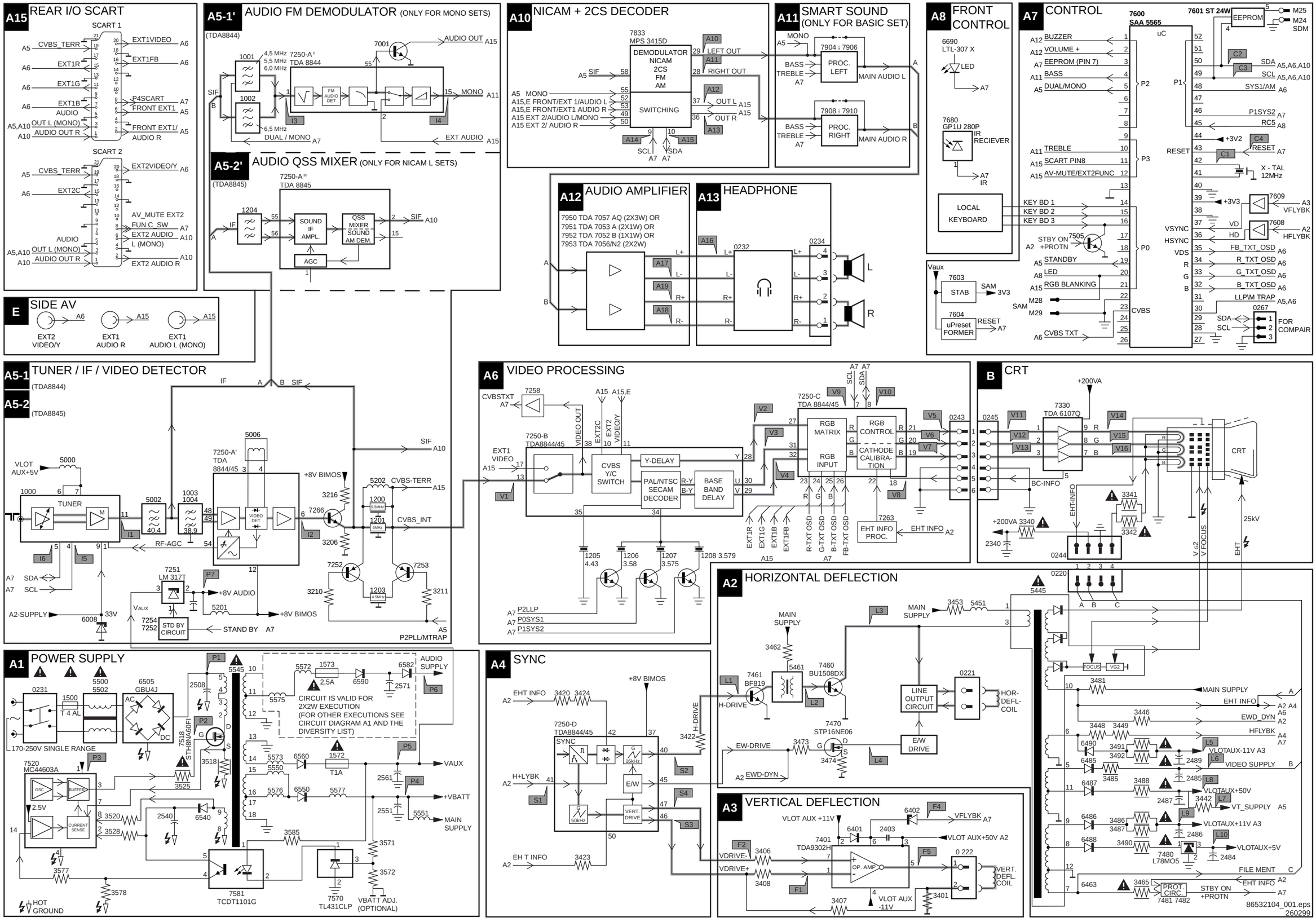
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IIC BUS INTERCONNECTION DIAGRAM



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A15 REAR I/O SCART
SCART 1
CVBS_TERR
EXT1R
EXT1G
EXT1B
AUDIO
OUT L (MONO)
AUDIO OUT R
EXT1VIDEO
EXT1FB
P4SCART
FRONT EXT1
FRONT EXT1/ AUDIO R
SCART 2
EXT2VIDEO/Y
EXT2C
AV_MUTE EXT2
FUN C_SW
EXT2 AUDIO L (MONO)
EXT2 AUDIO R
A5-1' AUDIO FM DEMODULATOR (ONLY FOR MONO SETS)
(TDA8844)
7250-A II TDA 8844
4,5 MHz 5,5 MHz 6,0 MHz
6,5 MHz
DUAL / MONO
AUDIO OUT
EXT AUDIO
MONO
SIF
A5-2' AUDIO QSS MIXER (ONLY FOR NICAM L SETS)
(TDA8845)
7250-A III TDA 8845
SOUND IF AMPL.
QSS MIXER SOUND AM DEM.
AGC
A10 NICAM + 2CS DECODER
7833 MPS 3415D
DEMODULATOR NICAM 2CS FM AM
SWITCHING
LEFT OUT
RIGHT OUT
OUT L
OUT R
SCL
SDA
A11 SMART SOUND (ONLY FOR BASIC SET)
PROC. LEFT
PROC. RIGHT
BASS
TREBLE
MAIN AUDIO L
MAIN AUDIO R
A8 FRONT CONTROL
6690 LTL-307 X
LED
7680 GP1U 280P
IR RECIEVER
LOCAL KEYBOARD
A7 CONTROL
7600 SAA 5565
uC
7601 ST 24W
EEPROM
BUZZER
VOLUME +
EEPROM (PIN 7)
BASS
DUAL/MONO
TREBLE
SCART PIN8
AV-MUTE/EXT2FUNC
KEY BD 1
KEY BD 2
KEY BD 3
STBY ON +PROTN
STANDBY
LED
RGB BLANKING
CVBS TXT
SDA A5,A6,A10
SCL A5,A6,A10
SYS1/AM A6
P1SYS2 A7
RC5 A8
+3V2
RESET A7
X - TAL 12MHz
+3V3
VD
HD
FB_TXT_OSD A6
R_TXT_OSD A6
G_TXT_OSD A6
B_TXT_OSD A6
LLP\M TRAP A5,A6
FOR COMPAIR
VSYNC
HSYNC
VDS
CVBS
P0
P1
P2
P3
Vaux
7603 STAB
SAM 3V3
7604 uPreset FORMER
RESET A7
E SIDE AV
EXT2 VIDEO/Y
EXT1 AUDIO R
EXT1 AUDIO L (MONO)
A12 AUDIO AMPLIFIER
7950 TDA 7057 AQ (2X3W) OR
7951 TDA 7053 A (2X1W) OR
7952 TDA 7052 B (1X1W) OR
7953 TDA 7056/N2 (2X2W)
A13 HEADPHONE
0234
L
R
A5-1 TUNER / IF / VIDEO DETECTOR
(TDA8844)
A5-2
(TDA8845)
TUNER
7250-A' TDA 8844/45
VIDEO DET
VLOT AUX+5V
RF-AGC
+8V BIMOS
+8V AUDIO
STAND BY A7
7251 LM 317T
STD BY CIRCUIT
A2-SUPPLY
P2LLP/MTRAP
A6 VIDEO PROCESSING
7250-B TDA8844/45
CVBS Y/C SWITCH
Y-DELAY
PAL/NTSC SECAM DECODER
BASE BAND DELAY
RGB MATRIX
RGB CONTROL
RGB INPUT
CATHODE CALIBRA-TION
EHT INFO PROC.
EHT INFO A2
P2LLP
P0SYS1
P1SYS2
B CRT
7330 TDA 6107Q
CRT
BC-INFO
EHT-INFO
+200VA
25kV
V-f2
V-FOCUS
EHT
A1 POWER SUPPLY
170-250V SINGLE RANGE
7520 MC44603A
7518 STH6NA60FI
CIRCUIT IS VALID FOR 2X2W EXECUTION (FOR OTHER EXECUTIONS SEE CIRCUIT DIAGRAM A1 AND THE DIVERSITY LIST)
AUDIO SUPPLY
VAUX
+VBATT
MAIN SUPPLY
HOT GROUND
7581 TCDT1101G
7570 TL431CLP
VBATT ADJ. (OPTIONAL)
A4 SYNC
7250-D TDA8844/45
SYNC
E/W
VERT. DRIVE
H-DRIVE
EW-DRIVE
EW-DWD
EH T INFO
A2 HORIZONTAL DEFLECTION
MAIN SUPPLY
LINE OUTPUT CIRCUIT
HOR-DEFL-COIL
E/W DRIVE
7460 BU1508DX
7461 BF819
7470 STP16NE06
A3 VERTICAL DEFLECTION
7401 TDA9302H
OP. AMP
VERT. DEFL. COIL
VLOT AUX +11V
VLOT AUX -11V
VLOT AUX+50V A2
VFLYBK A7
EHT INFO PROC.
7480 L78MO5
PROT. CIRC.
STBY ON +PROTN
FILE MENT
VLOTAUX-11V A3
VIDEO SUPPLY
VLOTAUX+50V
VT_SUPPLY A5
VLOTAUX+11V A3
VLOTAUX+5V
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S1 H FLYBK
1V / div DC
20µs / div

V3
0.5V / div AC
20µs / div

C2 SDA uP
1V / div DC
20µs / div

P1 ⏻
50V / div DC
5ms / div

L5 V_{LOT} AUX-11
2V / div DC
5ms / div

A10 LEFT OUT
0.2V / div AC
0.2ms/div

A19 L-
0.2V / div AC
0.2ms/div

S2 HDRIVE
0.2V / div DC
20µs / div

V4
0.5V / div AC
20µs / div

C3 SCL uP
1V / div DC
10µs / div

P2 ⏀
2V / div DC
10µs / div

L9 V_{LOT} AUX+11
2V / div DC
5ms / div

A11 RIGHT OUT
0.2V / div AC
0.5ms / div

S3 VDRIVE+
1V / div DC
5ms / div

V5
0.5V / div AC
20µs / div

V11 R
1V / div DC
10µs / div

P2 ⏻
2V / div DC
10µs / div

L1 ⏻ 0.3V DC
L3 ⏻ 138V DC
L6 190 V DC
L7 ⏀ 32.5V DC
L7 ⏻ 28V DC
L8 ⏀ 46V DC
L8 ⏻ 30V DC
L10 5V DC

A12 AUDIO OUT L/MONO
0.5V / div AC
0.2ms / div

S4 VDRIVE-
1V / div DC
5ms / div

V6
0.5V / div AC
20µs / div

V12 G
1V / div DC
10µs / div

P3 ⏀ 15V DC
P3 ⏻ 12V DC
P4 ⏀ 138V DC
P4 ⏻ 138V DC
P5 ⏀ 11.8V DC
P5 ⏻ 9.8V DC
P6 ⏀ 16V DC
P6 ⏻ 13.8V DC
P7 8V DC

A13 AUDIO OUT R
0.5V / div AC
0.5ms / div

I2
0.5V / div AC
20µs / div

V7
0.5V / div AC
20µs / div

V13 B
1V / div DC
10µs / div

F1 VDRIVE +
0.5V / div DC
5ms / div

A14 SCL 7833
1V / div DC
10µs / div

I5 SCL TUNER
1V / div DC
10µs / div

V8
2V / div DC
20µs / div

V14
50V / div DC
10µs / div

L1 ⏀ HDRIVE
0.1V / div DC
20µs / div

F2 VDRIVE-
0.5V / div DC
5ms / div

A15 SDA 7833
1V / div DC
20µs / div

I6 SDA TUNER
1V / div DC
20µs / div

V9 SCL 7250
1V / div DC
10µs / div

V15
50V / div DC
10µs / div

L2
2V / div DC
20µs / div

F3
10V / div DC
5ms / div

A16 R+
0.2V / div AC
0.5ms / div

V1 CVBS-INT
0.5V / div AC
20µs / div

V10 SDA 7250
1V / div DC
20µs / div

V16
50V / div DC
10µs / div

L3 ⏀
100V / div DC
20µs / div

F4 V FLYBK
2V / div DC
5ms / div

A17 R-
0.2V / div AC
0.5ms / div

V2
0.5V / div AC
20µs / div

C1
1V / div DC
0.5µs / div

P1 ⏀
50V / div DC
5ms / div

L4
5V / div DC
5ms / div

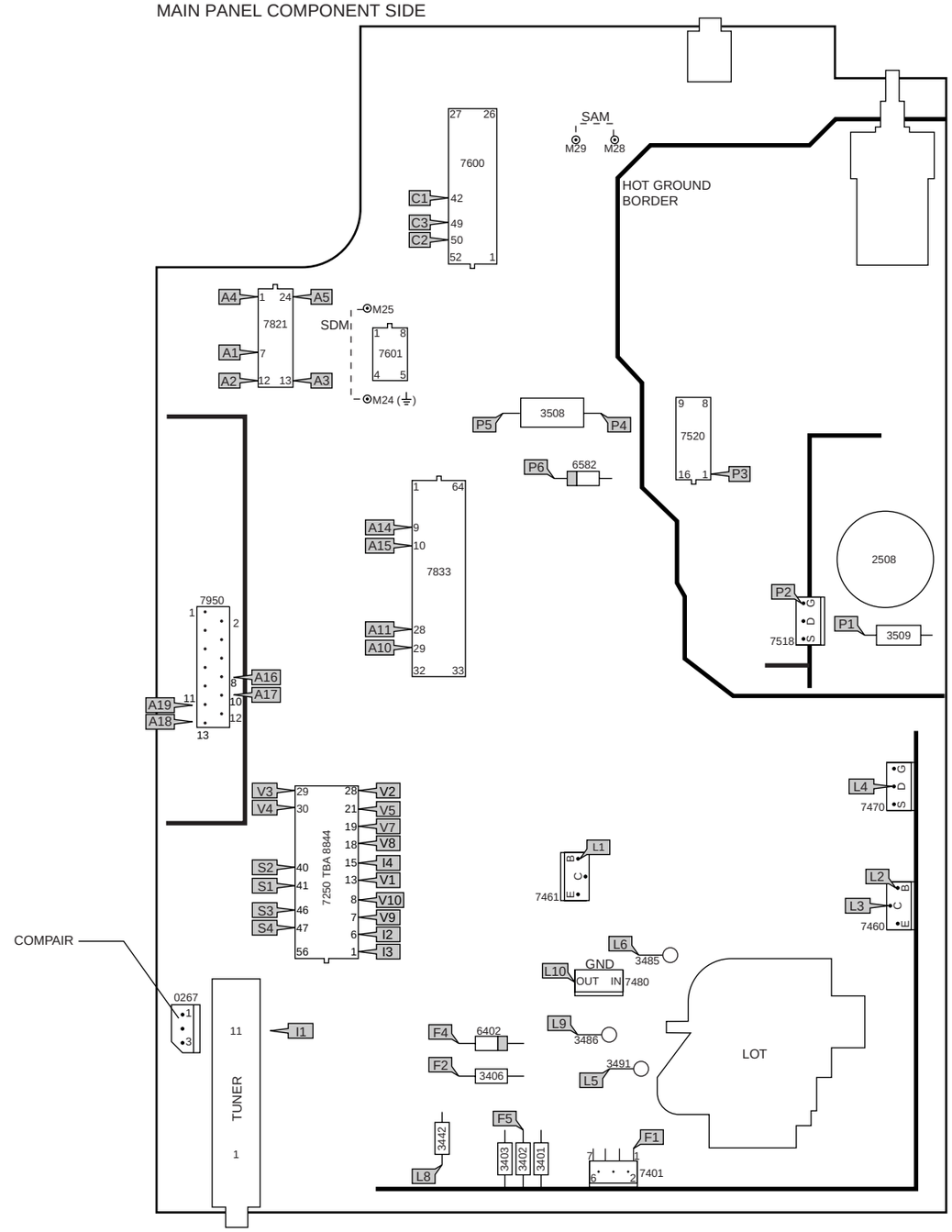
F5
0.5V / div DC
5ms / div

A18 L+
0.2V / div AC
0.2ms / div

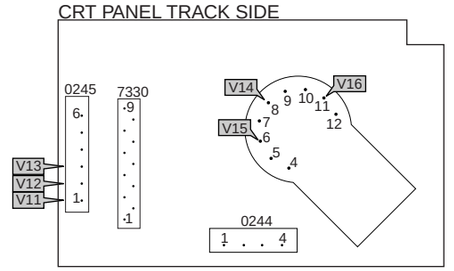
→ = 0V

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190299

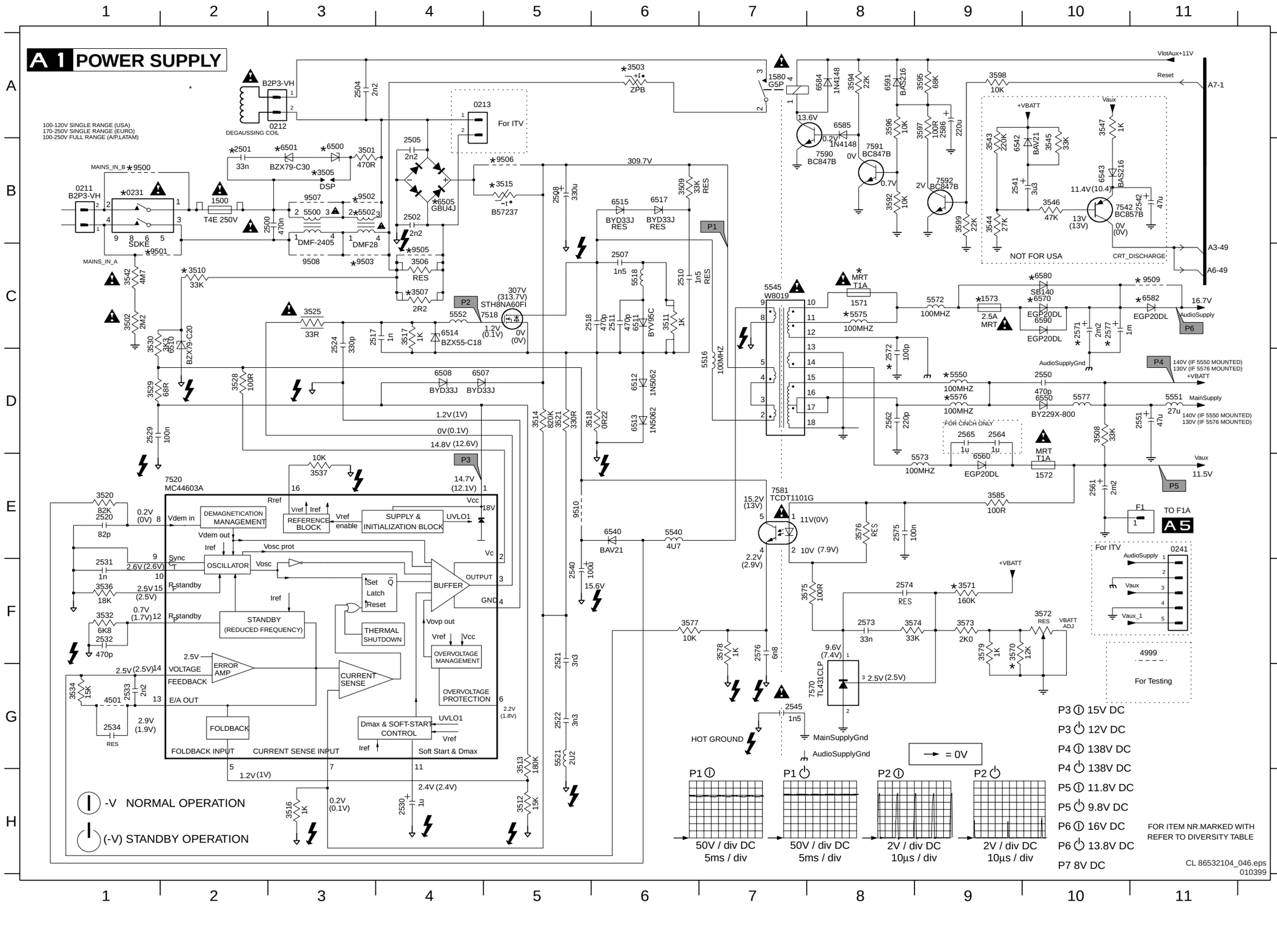
MAIN PANEL COMPONENT SIDE



CRT PANEL TRACK SIDE



CL 86532104_018A.EPS
260299



F1 E11
0211 B1
0212 A3
0213 A4
0231 B1
0241 E11
1500 B2
1571 C8
1572 E10
1573 C9
1580 A7
2500 B3
2501 B2
2502 B4
2504 A3
2505 A4
2507 C6
2508 B5
2510 C6
2511 C6
2517 C3
2518 C5
2520 E1
2521 F5
2522 G5
2524 C3
2529 D1
2530 H4
2531 F1
2532 F1
2533 G1
2534 G1
2540 F5
2541 B9
2542 B11
2545 G7
2550 D10
2551 D11
2561 E10
2562 D8
2564 D9
2565 D9
2571 C10
2572 D8
2573 F8
2574 F8
2575 E8
2576 F7
2577 C10
2586 A9
3501 B3
3502 C1
3503 A6
3505 B3
3506 C4
3507 C4
3508 D10
3509 B6
3510 C2
3511 C6
3512 H5
3513 G5
3514 D5
3515 B5
3516 H3
3517 C4
3518 D6
3520 E1
3521 D5
3525 C3
3528 D2
3529 D1
3530 C1
3532 F1
3534 G1
3536 F1
3537 E3
3542 C1
3543 B9
3544 B9
3545 B10
3546 B10
3547 A10
3570 F9
3571 F9
3572 F10
3573 F9
3574 F8
3575 F8
3576 E8
3577 F6
3578 F7
3579 F9
3585 E9
3592 B8
3594 A8
3595 A9
3596 A8
3597 A9
3598 A9
3599 B9
4501 G1
4999 F11
5500 B3
5502 B3
5516 D7
5518 C6
5521 G5
5540 E6
5545 C7
5550 D9
5551 D11
5552 C4
5572 C9
5573 E9
5575 C8
5576 D9
6500 B3
6501 B3
6505 B4
6507 D4
6508 D4
6510 C2
6511 C6
6512 D6
6513 D6
6514 C4
6515 B6
6517 B6
6540 E6
6542 B9
6543 B10
6550 D10
6560 D9
6570 C10
6580 C10
6582 C11
6585 A8
6590 C10
7518 C4
7520 E2
7542 B10
7570 G8
7581 E7
7590 B8
7591 B8
7592 B9
9500 B1
9501 C1
9502 B3
9503 C4
9505 C4
9506 B5
9507 B3
9508 C3
9509 C11
9510 E5

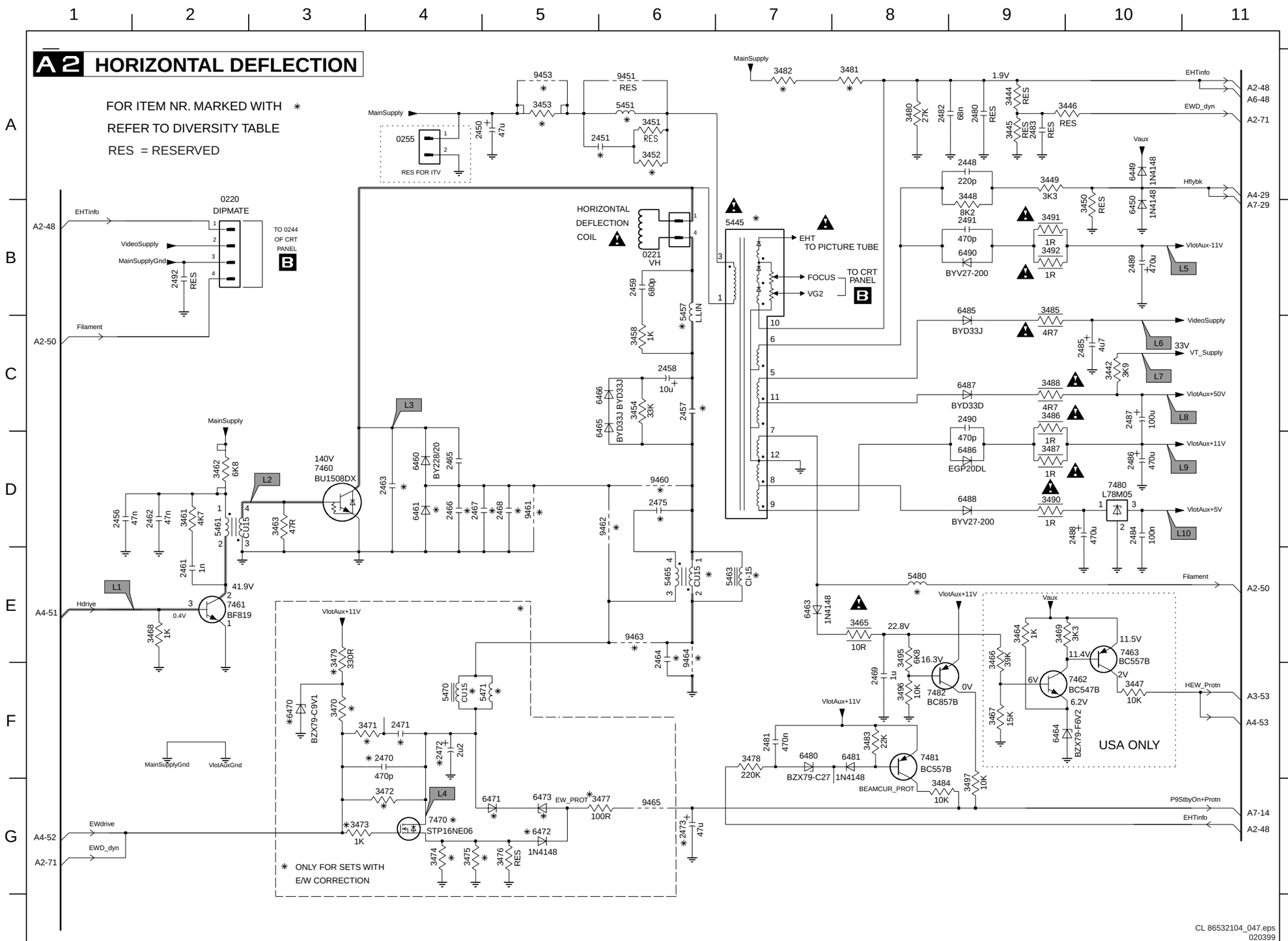
DIVERSITY TABLE FOR POWER SUPPLY

DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH *																		
ITEM	FR_CIS 25I/29I AP	LR USA	FR_NONCIS AP	HR 25I/29I EUROPE	HR_CIS 25I/29I AP	PS_FR_US	PS_FR_LA	HR 25I/29I CHINA	PS_FR NONCIS IND	ITV	140V VBATT	130V VBATT	2X3w/5w AUDIO	2X1w AUDIO	1X1w AUDIO	2X2w AUDIO	INDIA SVBW006ER
0231	YES	---	YES	YES	YES	---	YES	YES	---	YES	---	---	---	---	---	---	---
1571	---	---	---	---	---	---	---	---	---	---	---	---	---	T1.0A	T1.0A	---	---
1573	---	---	---	---	---	---	---	---	---	---	---	---	T2.5A	---	---	T2.5A	T2.5A
2501	---	---	YES	---	---	---	YES	---	YES	---	---	---	---	---	---	---	---
2508	330/400V	470/200V	330/400V	220/400V	220/400V	330/400V	330/400V	220/450V	330/450V	220/400V	---	---	---	---	---	---	---
2561	3300u	1000u	3300u	3300u	3300u	1000u	3300u	3300u	3300u	---	---	---	---	---	---	---	---
2571	---	---	---	---	---	---	---	---	---	---	---	---	2200/25V	---	---	2200/25V	2200/25V
2572	---	330p	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2577	---	---	---	---	---	---	---	---	---	---	---	---	---	1000/16V	1000/16V	---	---
3503	220V/9R	110V/10R	220V/9R	220V/9R	220V/9R	220V/9R	220V/9R	220V/9R	---	220V/9R	---	---	---	---	---	---	---
3505	YES	YES	---	YES	YES	YES	---	YES	---	---	---	---	---	---	---	---	---
3507	---	---	---	2R2/5w	2R2/5w	---	---	2R2/5w	---	2R2/5w	---	---	---	---	---	---	---
3510	33K/3w	33K/3w	33K/3w	68K/3w	68K/3w	33K/3w	33K/3w	68K/3w	33K/3w	---	---	---	---	---	---	---	---
3515	NTC 2R5	NTC 2R5	NTC 2R5	---	---	NTC 2R5	NTC 2R5	---	NTC 2R5	---	---	---	---	---	---	---	---
3570	---	---	---	---	---	---	---	---	---	---	10K	15K	---	---	---	---	---
3571	---	---	---	---	---	---	---	---	---	---	160K	150K	---	---	---	---	---
5502	DMF2810	---	---	DMF2820	DMF2820	---	---	DMF2820	---	---	---	---	---	---	---	---	---
5550	---	---	---	---	---	---	---	---	---	---	YES	---	---	---	---	---	---
5575	---	---	---	---	---	---	---	---	---	---	---	---	YES	---	---	YES	YES
5576	---	---	---	---	---	---	---	---	---	---	---	YES	---	---	---	---	---
6500	---	---	BZX79-C30	---	---	---	BZX79-C30	---	BZX79-C30	---	---	---	---	---	---	---	---
6501	---	---	BZX79-C30	---	---	---	BZX79-C30	---	BZX79-C30	---	---	---	---	---	---	---	---
6505	GBU6JL	GBU6JL	GBU6JL	GBU4JL	GBU4JL	GBU6JL	GBU6JL	GBU4JL	GBU6JL	---	---	---	---	---	---	---	---
6570	---	---	---	---	---	---	---	---	---	---	---	---	EGP20D	---	---	---	---
6580	---	---	---	---	---	---	---	---	---	---	---	---	---	SB140	BYV27-200	---	EGP20D
6582	---	---	---	---	---	---	---	---	---	---	---	---	EGP20D	---	---	EGP20	EGP20
6590	---	---	---	---	---	---	---	---	---	---	---	---	EGP20D	---	---	EGP20D	EGP20D
9500	---	YES	---	---	---	YES	---	---	---	---	---	---	---	---	---	---	---
9501	---	YES	---	---	---	YES	---	---	---	---	---	---	---	---	---	---	---
9502	---	YES	YES	---	---	YES	YES	---	YES	---	---	---	---	---	---	---	---
9503	---	YES	YES	---	---	YES	YES	---	YES	---	---	---	---	---	---	---	---
9505	YES	YES	YES	---	---	YES	YES	---	YES	---	---	---	---	---	---	---	---
9506	---	---	---	YES	YES	---	---	YES	---	YES	---	---	---	---	---	---	---
9509	---	---	---	---	---	---	---	---	---	---	---	---	---	YES	YES	---	---

DIVERSITY TABLE FOR HORIZONTAL DEFLECTION

DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH *						
ITEM	PHILIPS TUBE 25"/28" BLD EAST-WEST	HUA FEI TUBE 25" EAST-WEST	PHILIPS TUBE 25"/28" BLS EAST-WEST	PHILIPS TUBE 25V (26") NO EAST-WEST	PHILIPS TUBE 27V (29") NO EAST-WEST	PHILIPS TUBE 27V (29") EAST-WEST
2451	15n	15n	15n	15n	15n	15n/ 12n China
2457	390n	390n	390n	390n	390n	360n
2463	1n	1n	820p	470p	680p	820p/1n China
2464	---	---	---	---	---	2u2
2465	9n1	9n1	9n1	10n	10n	10n
2466	10n	10n	10n	---	---	---
2467	---	---	---	---	---	22n
2468	18n	18n	18n	---	---	33n
2470	470p	470p	470p	---	---	470p
2471	470n	470n	470n	---	---	---
2472	2u2	2u2	2u2	---	---	2u2
2473	47u	47u	47u	---	---	47u
2475	560n	560n	510n	---	---	---
425 (A4)	56k	56k	56k	150k	120k	150k
3452	33R	33R	33R	22R	22R	22R
3453	---	---	---	4R7	4R7	---
3470	33k	33k	33k	---	---	33k
3471	220k	220k	220k	---	---	---
3472	100k	100k	120k	---	---	82k
3473	1k	1k	1k	---	---	1k
3474	3R3	3R3	3R3	---	---	4R7
3475	3R3	3R3	3R3	---	---	4R7
3477	100R	100R	100R	---	---	100R
3479	330R	330R	330R	---	---	330R
3481/82	Refer to	part list	videocontrol	Depends on	country.	
5445	242253102325	312813820681	242253102324	242253102326 USA:242253102327	242253102326 China:312813820691	242253102326
5451	33uH	33uH	33uH	27uH	27uH	27uH
5457	312813853111	312813853111	312813853111	312813853241	312813853241	312813853241
5463	---	---	---	---	---	312813834021
5465	312813834011	312813834011	312813834011	---	---	---
5470	311233830531	311233830531	311233830531	---	---	---
5471	---	---	---	---	---	1mH
5480	33uH	56uH	33uH	27uH	27uH	27uH/47uH China
6461	BYW95C/20	BYW95C/20	BYW95C/20	---	---	BYW95C/20
6470	BZX79-C9V1	BZX79-C9V1	BZX79-C9V1	---	---	BZX79-C9V1
6471	1N4148	1N4148	1N4148	---	---	---
6472	1N4148	1N4148	1N4148	---	---	1N4148
6473	BZX79-C39	BZX79-C39	BZX79-C39	---	---	---
7470	STP16NE	STP16NE	STP16NE	---	---	STP16NE
9453	YES	YES	YES	---	---	YES
9460	---	---	---	YES	YES	YES
9461	---	---	---	YES	YES	---
9462	YES	YES	YES	---	---	---
9463	---	---	---	---	---	YES
9464	YES	YES	YES	---	---	---

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0220 B2
0221 B6
0255 A4
2448 A9
2450 A5
2451 A6
2456 D1
2457 C6
2458 C6
2459 B6
2461 E2
2462 D2
2463 D4
2464 E6
2465 D4
2466 D4
2467 D5
2468 D5
2469 F8
2470 F4
2471 F4
2472 F4
2473 G6
2475 D6
2480 A9
2481 F7
2482 A9
2483 A9
2484 D10
2485 C10
2486 D10
2487 C10
2488 D10
2489 B10
2490 C9
2491 B9
2492 B2
3442 C10
3444 A9
3445 A9
3446 A10
3447 F10
3448 A9
3449 A9
3450 B10
3451 A6
3452 A6
3453 A5
3454 C6
3458 C6
3461 D2
3462 D2
3463 D3
3464 E9
3465 E8
3466 E9
3467 F9
3468 E2
3469 E10
3470 F3
3471 F4
3472 G4
3473 G4
3474 G4
3475 G4
3476 G5
3477 G6
3478 F7
3479 E3
3480 A8
3481 A8
3482 A7
3483 F8
3484 G9
3485 B9
3486 C9
3487 D9
3488 C9
3490 D9
3491 B9
3492 B9
3495 E8
3496 F8
3497 G9
5445 B7
5451 A6
5457 B6
5461 D2
5463 E7
5465 E6
5470 F4
5471 F5
5480 E8
6449 A10
6450 B10
6460 D4
6461 D4
6463 E7
6464 F10
6465 C6
6466 C6
6470 F3
6471 G5
6472 G5
6473 G5
6480 F7
6481 F8
6485 B9
6486 D9
6487 C9
6488 D9
6490 B9
7460 D3
7461 E2
7462 F10
7463 E10
7470 G4
7480 D10
7481 F8
7482 F8
9451 A6
9453 A5
9460 D6
9461 D5
9462 D6
9463 E6
9464 E6
9465 G6

L1 ⏀ HDRIVE
0.1V / div DC
20µs / div

L2
2V / div DC
20µs / div

L3 ⏀
100V / div DC
20µs / div

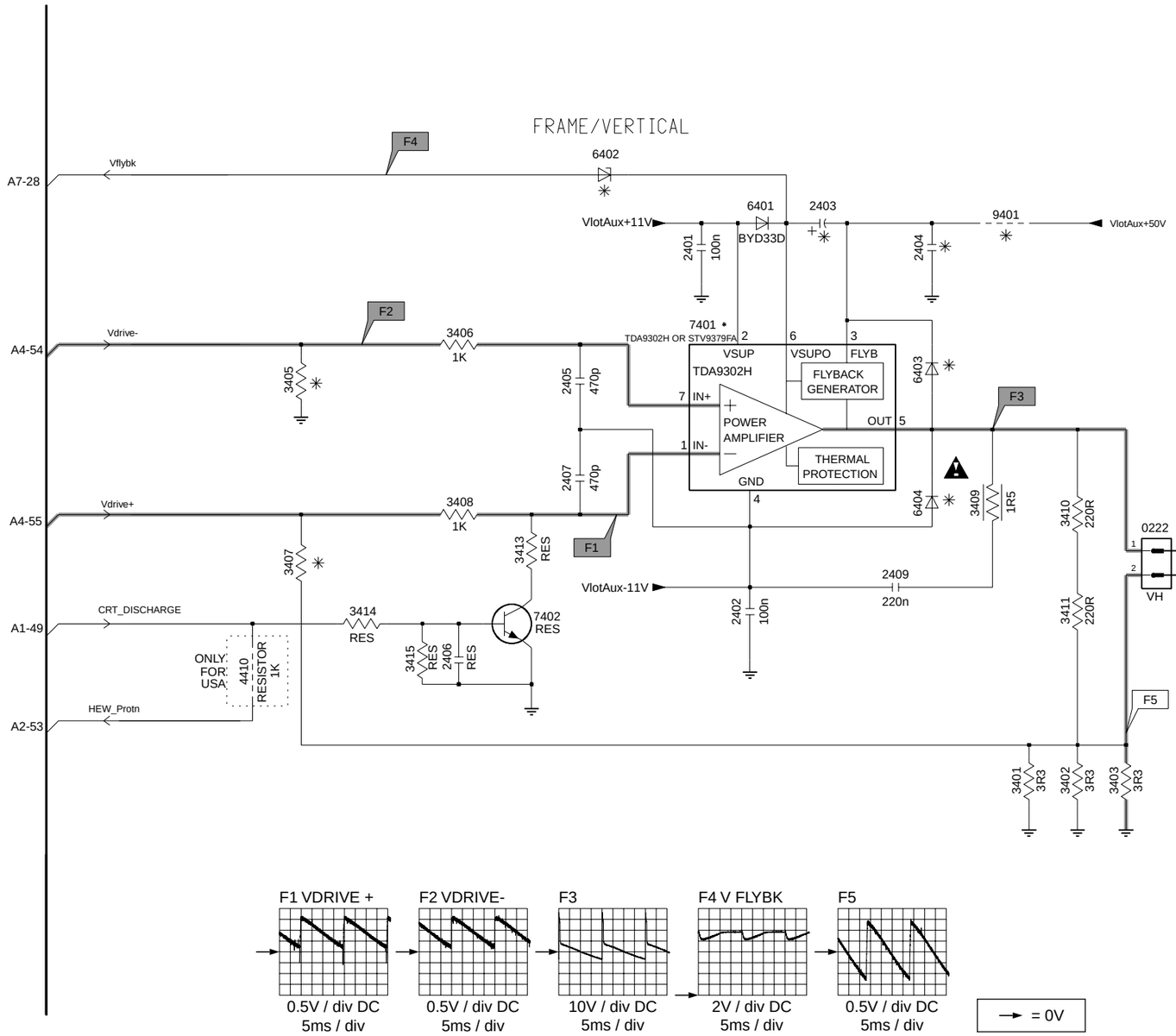
L4
5V / div DC
5ms / div

L5 V_{LOT} AUX-11
2V / div DC
5ms / div

L9 V_{LOT} AUX+11
2V / div DC
5ms / div

L1 ⏀ 0.3V DC
L3 ⏀ 138V DC
L6 190 V DC
L7 ⏀ 32.5V DC
L7 ⏻ 28V DC
L8 ⏀ 46V DC
L8 ⏻ 30V DC
L10 5V DC
→ = 0V

A3 VERTICAL DEFLECTION



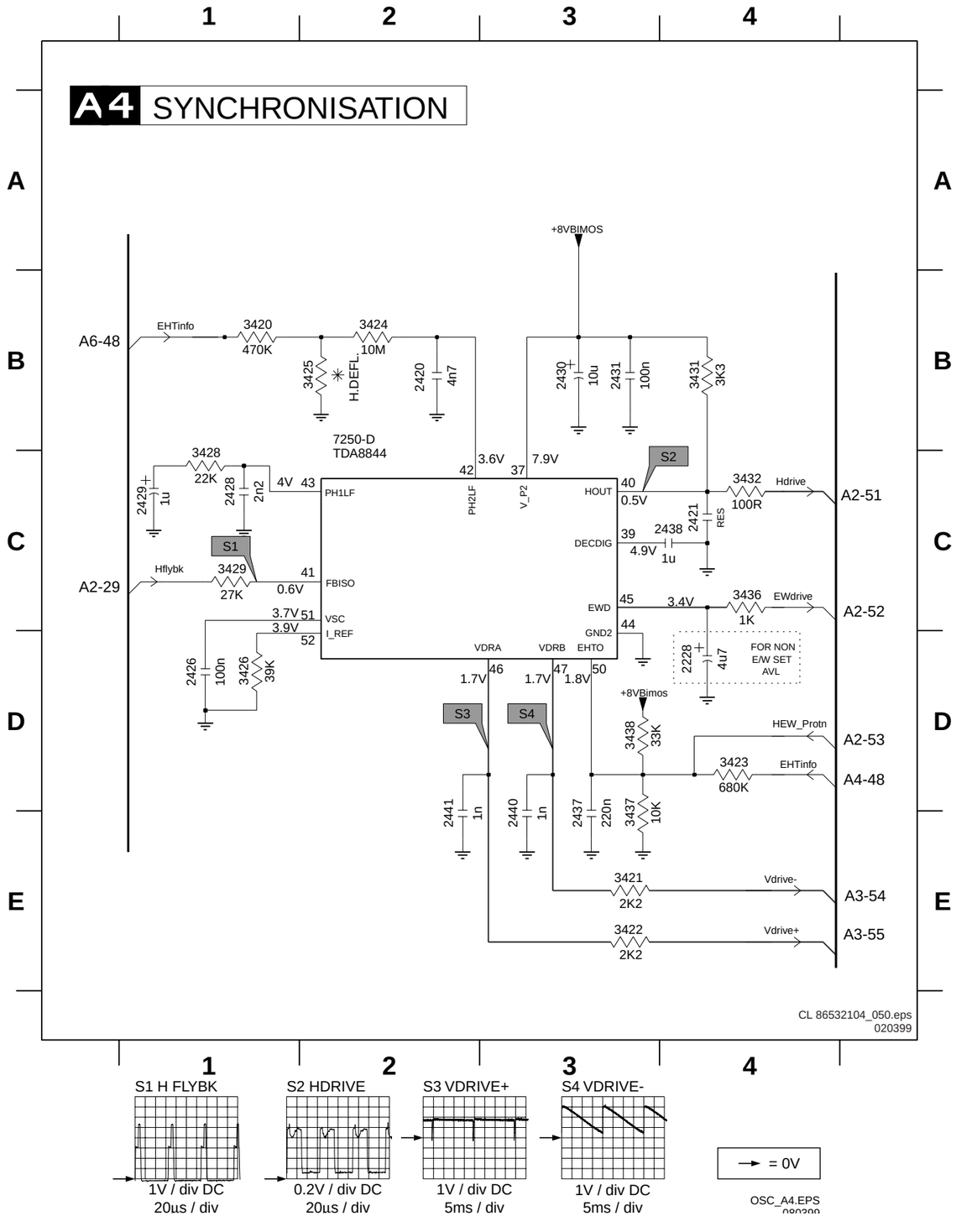
DIVERSITY TABLE FOR ALL ITEM NO. MARKED WITH *

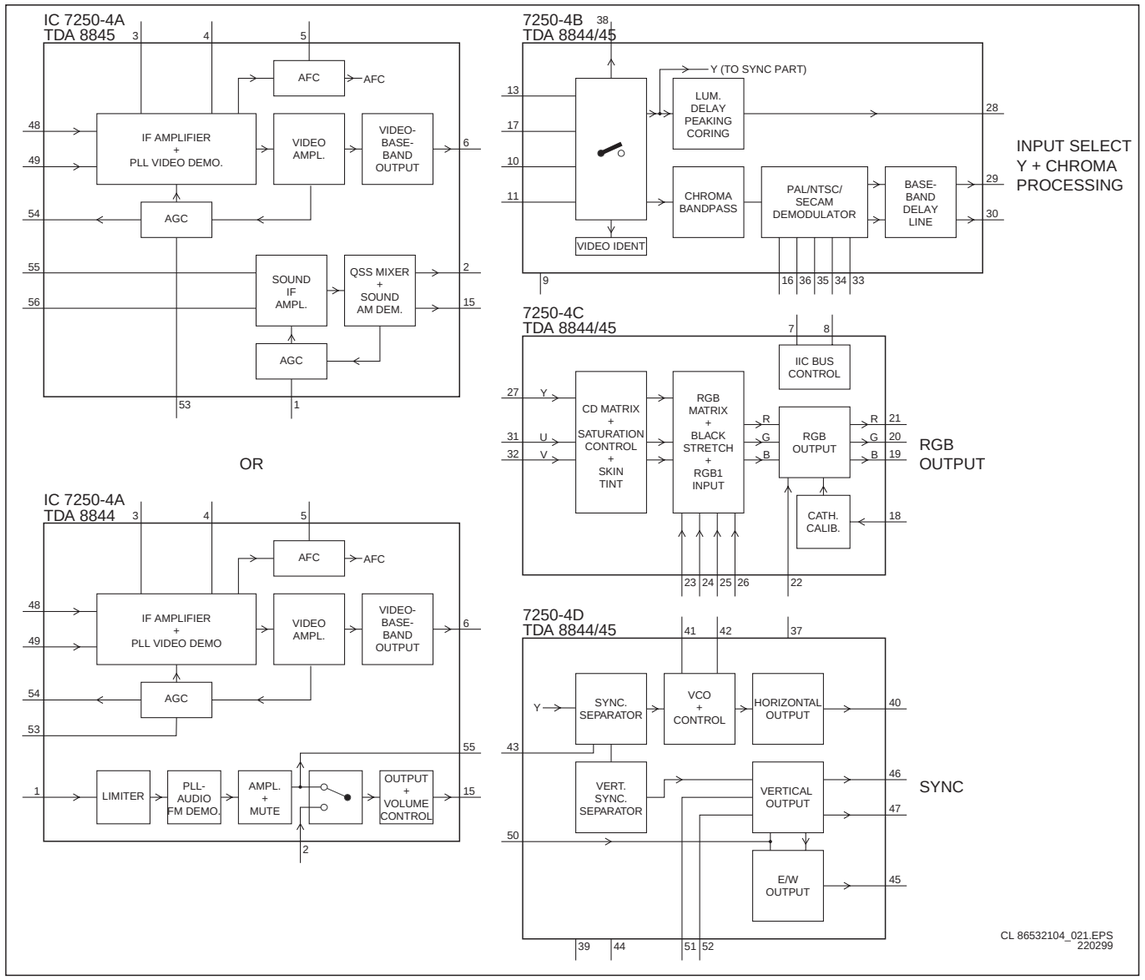
ITEM	TUBES WITH SADDLE COIL (BLD / BLS / HF)	TUBES WITH TOROID COIL (25V / 27V / NON PH.)
2403	100u	---
2404	---	220n
3405	2k2	1k8
3407	2k2	1k8
6402	BZX79-C18	BZX79-C33
6403	---	BYD33D
6404	---	BYD33D
7401	TDA9302H	STV9379FA
9401	---	YES

0222 E8
2401 C5
2402 E6
2403 C6
2404 C7
2405 D5
2406 E4
2407 D5
2409 E7
3401 F7
3402 F8
3403 F8
3405 D3
3406 C4
3407 E3
3408 D4
3409 D7
3410 E8
3411 E8
3413 E4
3414 E3
3415 E4
4410 E3
6401 C6
6402 B5
6403 D7
6404 D7
7401 C5
7401A B11
7402 E4
9401 C7

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2228 D4	2426 D1	2430 B3	2438 C4	3420 B1	3423 D4	3426 D1	3431 B4	3437 E3
2420 B2	2428 C1	2431 B3	2440 E3	3421 E3	3424 B2	3428 C1	3432 C4	3438 D3
2421 C4	2429 C1	2437 E3	2441 E2	3422 E3	3425 B2	3429 C1	3436 C4	7250-D B2





A5 TUNER+VIDEO IF

★	BG	BG/DK	I/DK	M MONO	NON-DBX M.BTSC	NICAM L	
2005	100P	100P	82P	330P	330P	—	
2006	82P	82P	47P	82P	82P	—	
2018	10n	10n	10n	10n	10n	—	
2202	3n9	3n9	3n9	4n7	180P	—	
3010	—	—	—	560R	560R	—	
3021	680R	680R	680R	1K	1K	—	
3200	560R	560R	560R	560R	560R	—	
1001	5.5	5.5	6.0	4.5	4.5	—	
1002	—	6.5	6.5	—	—	—	
2245	—	—	—	—	—	4u7	
2203	10u	10u	10u	10u	10u	—	
2204	100P	100P	100P	100P	100P	—	
4002	—	—	—	—	—	Jmp	
4008	—	Jmp	—	—	—	—	
4011	—	—	—	—	—	Jmp	
4202	—	—	—	—	—	Jmp	
4224	—	Jmp	—	—	—	—	

F1A B1	5004 C3	7251 E6	9000 B6
0240 A9	5006 D6	7252 F6	9002 A6
1000 A2	5201 C11	7253 F6	9003 D3
1001 A7	5202 E9	7254 G6	9004 F3
1002 B7	5821 C11	7256 G6	9005 C10
1003 E4	6003 C4	7266 E7	
1004 F4	6004 C4	7701 G2	
1200 E9	6005 B6	7702 H3	
1201 E9	6006 B6	9000 B6	
1203 F9	6007 D3	9002 A6	
1204 G5	6008 A3	9003 D3	
2001 B4	6701 F2	9004 F3	
2002 D4	6702 G2	9005 C10	
2003 B4	7000 B7		
2004 D5	7001 H4		
2005 B6	7250-A E6		
2006 B8	7251 C10		
2008 C2	7252 F8		
2009 D2	7253 F9		
2010 D3	7254 D10		
2011 A3	7256 D9		
2012 C5	7266 E7		
2013 B4	7701 G2		
2014 C3	7702 H3		
2015 H4	9000 B6		
2016 A3	9002 A6		
2018 F3	9003 D3		
2200 F5	9004 F3		
2201 F5	9005 C10		
2202 F5			
2203 F6			
2204 G6			
2205 F6			
2206 D6			
2207 D7			
2208 C10			
2210 D6			
2225 E7			
2245 D6			
2843 C11			
3000 C2			
3001 C2			
3010 A6			
3013 D4			
3014 C4			
3015 D4			
3016 D4			
3017 A6			
3018 B6			
3019 C6			
3020 B7			
3021 B8			
3023 C2			
3024 F2			
3026 G2			
3027 G3			
3028 G4			
3029 H4			
3200 F6			
3201 F6			
3203 C10			
3204 D10			
3205 E7			
3206 F7			
3208 E8			
3209 D9			
3210 G8			
3211 G9			
3212 E9			
3213 F10			
3214 F7			
3215 C10			
3216 D7			
3217 F7			
3702 F3			
3703 F3			
3705 G3			
3708 G2			
3960 C10			
4000 G5			
4002 G6			
4003 C5			
4004 C3			
4005 C6			
4006 H4			
4007 E3			
4008 F3			
4009 F4			
4011 F3			
4201 F5			
4202 F5			
4204 D7			
4213 E3			
4214 D8			
4224 F2			
4225 G2			
5000 B4			
5002 E2			
5003 G5			

CL 86532104_051.eps
030399

A6 VIDEO PROCESSING

ITEM	BINORMA	FOURMA	CHINA	OTHERS
1205	3M575	4M433	4M433	4M433
2217	15P	28P	220P	18P
2220	15P	15P	220P	15P
4206	-	JMP	-	-
4212	JMP	-	JMP	JMP

3265 - FOR 25"/77 ONLY

FOR LATAM ONLY

CL 86532104_052.eps
020399

0243 C11
1205 E3
1206 E3
1207 E4
1208 E4
2209 D2
2211 D2
2212 C3
2213 C3
2214 E2
2215 E2
2216 E2
2217 E3
2218 E4
2219 E4
2220 E4
2221 E5
2222 E5
2223 E3
2226 E9
2227 F9
2247 E8
2248 E8
2249 F8
3218 C2
3219 C2
3220 D2
3222 F5
3223 F5
3224 E5
3225 D5
3228 B3
3231 F7
3232 E7
3233 E7
3243 F8
3246 F10
3247 B7
3248 B8
3249 E10
3250 F9
3251 E10
3252 D10
3253 G9
3257 C10
3258 C10
3259 D10
3263 B10
3265 E10
3266 D10
3267 F7
4205 D3
4206 D4
4207 B2
4212 E4
6211 E10
6212 F9
6213 E9
6263 C10
6264 C10
6265 C10
7250-B C2
7250-C C9
7257 F4
7258 B2
7259 F4
7261 E5
7263 E9
9230 E7
9231 E7
9232 F7
9233 G7
9235 E9

V1 CVBS-INT: 0.5V / div AC, 20µs / div
V2: 0.5V / div AC, 20µs / div
V3: 0.5V / div AC, 20µs / div
V4: 0.5V / div AC, 20µs / div
V5: 0.5V / div AC, 20µs / div
V6: 0.5V / div AC, 20µs / div
V7: 0.5V / div AC, 20µs / div
V8: 2V / div DC, 20µs / div
V9 SCL 7250: 1V / div DC, 10µs / div
V10 SDA 7250: 1V / div DC, 20µs / div
→ = 0V

A 7 CONTROL

Regulator/Reset Circuit

4654 - NOT FOR ITV

	Europe	A/P	Brazil	USA
3608	8K2	2K2	2K2	2K2
3613	DEL	8K2	8K2	8K2
3615	DEL	DEL	DEL	10K
3675	270R	150R	150R	150R
3676	270R	150R	150R	150R
3677	270R	150R	150R	150R
3686	DEL	8K2	8K2	8K2
4601	ADD	DEL	DEL	DEL
4653	ADD	DEL	DEL	DEL
6602	BAT85	JMP	JMP	JMP
6603	BAT85	JMP	JMP	JMP
6604	BAT85	JMP	JMP	JMP
6605	BAT85	JMP	JMP	JMP
9600	JMP	JMP	-	-

9906 SAM
9929 GND
SERVICE MODE

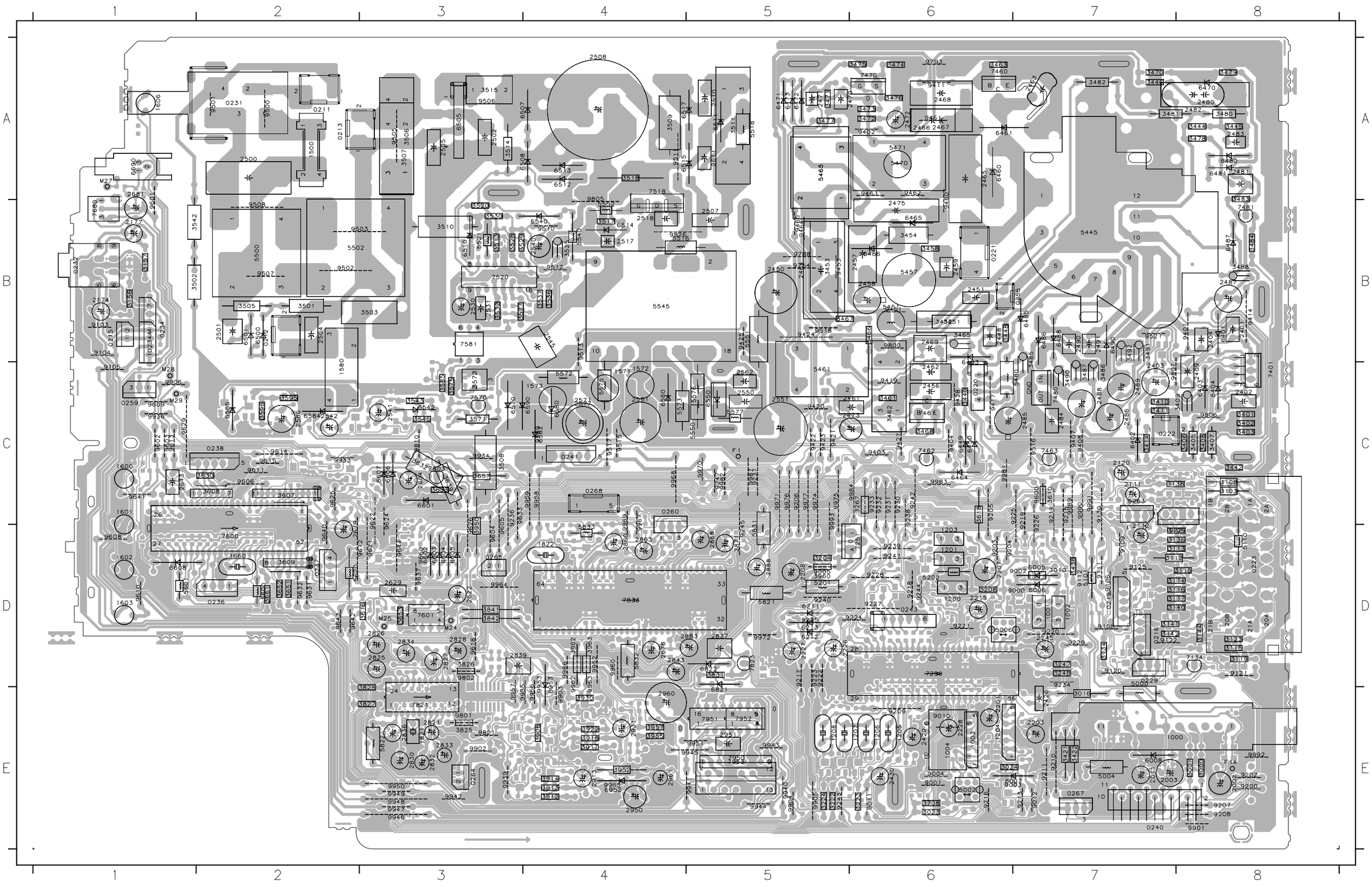
Horizontal & Vertical Pulse Derivation Circuits

C1 — 1V / div DC, 0.5µs / div
C2 SDA uP — 1V / div DC, 20µs / div
C3 SCL uP — 1V / div DC, 10µs / div

= 0V

CL 86532104_053.eps 020399

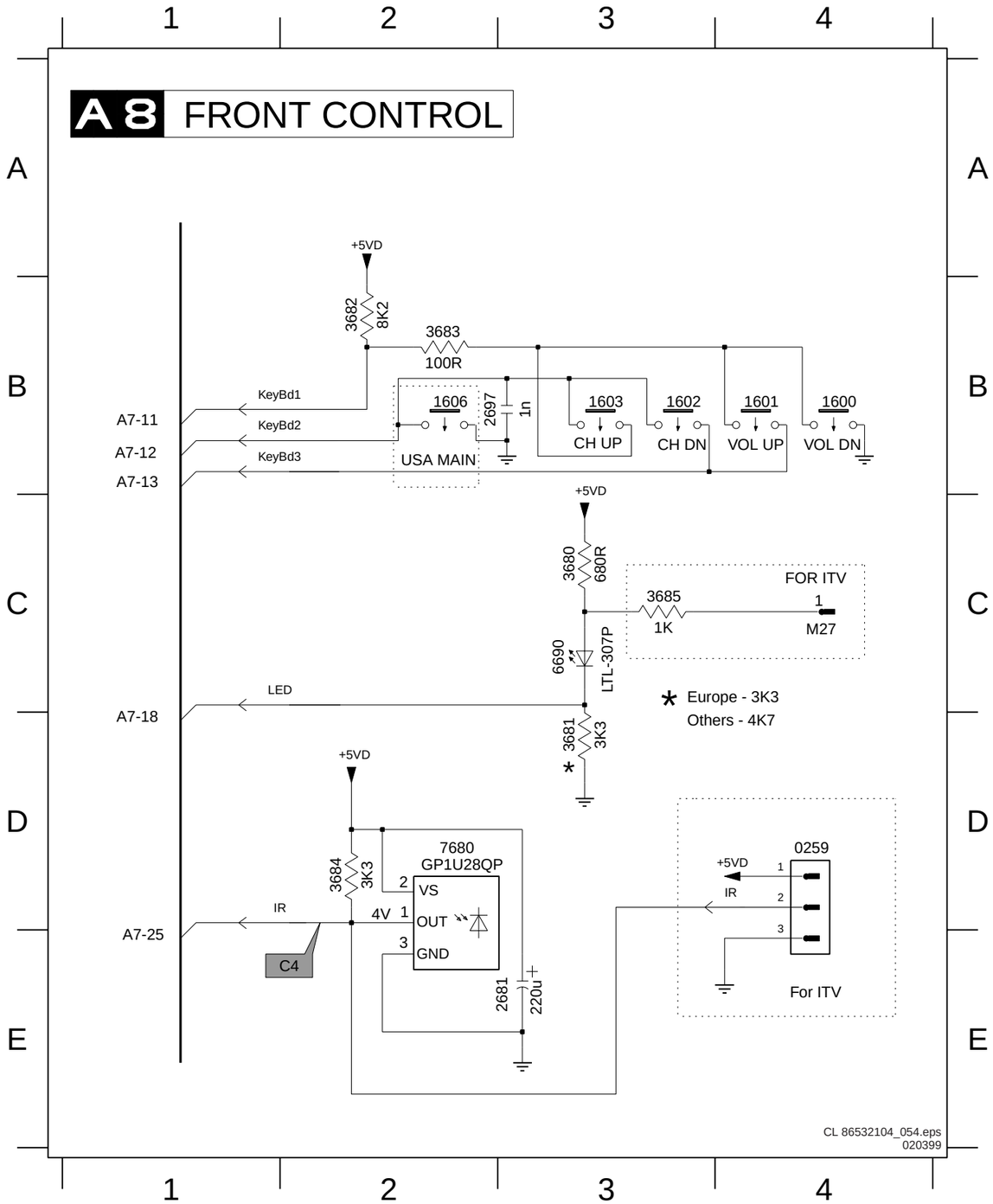
M24 A8	3671 F10	3607-J C4	3654 A10
M25 A8	3672 G7	3608-A F4	3655 A10
M28 G4	3673 G7	3608-B F4	3657 B1
M29 G4	3674 E8	3608-C E4	3660 C5
0236 B11	3675 F8	3608-D E4	3661 C9
0237 C10	3676 F8	3608-E E4	3662 D9
0238 B10	3677 G8	3608-F D4	3663 D10
0267 B11	3686 D5	3609-A B6	3664 D10
1660 D7	4601 D4	3609-B A7	3665 D9
2604 B2	4650 D7	3609-C B7	3666 E9
2609 D5	4653 C5	3609-D B7	3667 E10
2612 F4	4654 B1	3609-E B7	
2613 F4	5600 D7	3609-F C7	
2614 F5	5601 E7	3609-G C7	
2615 F5	5620 A10	3610 D4	
2616 B8	6601 B2	3611 A6	
2617 B8	6602 F9	3612 C4	
2618 C8	6603 F9	3613 D4	
2619 A6	6604 F9	3614 D4	
2620 D8	6605 G9	3615 C4	
2621 D8	6606 B1	3616 G6	
2622 B2	6607 B1	3617 B4	
2623 D10	6608 E10	3618 B4	
2624 E10	7600 B5	3619 B4	
2625 E8	7601 A10	3620 D4	
2626 F8	7603 B2	3628 E5	
2627 F8	7604 C2	3629 F4	
2628 G8	7605 E2	3630 F4	
2629 A11	7608 E9	3631 F5	
2630 F7	7609 D9	3632 B1	
2631 C1	9600 D4	3633 B2	
2632 B1	9660 F9	3634 B2	
2633 D8		3635 B1	
2679 D7		3636 C1	
3607-A B4		3637 E2	
3607-B A4		3639 A1	
3607-C A4		3649 A8	
3607-D B4		3650 B8	
3607-E B4		3651 B8	
3607-H C4		3652 B8	
3607-I C4		3653 A10	

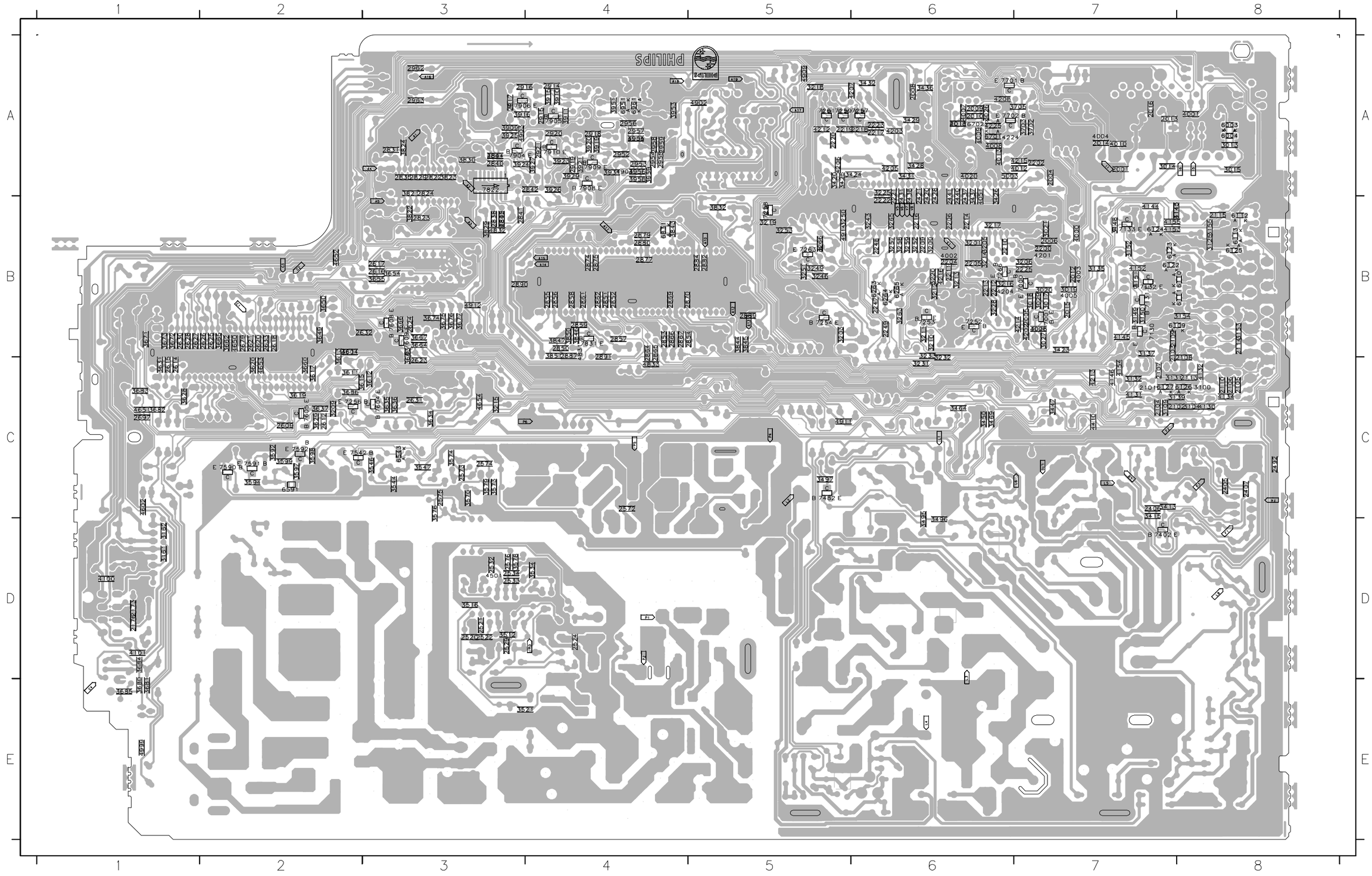


F1	C5	2619	D2	3575	C3	6953	D4	9609	C1										
F1A	E8	2622	D3	3577	B3	7134	D8	9610	D1										
M24	D3	2629	D3	3585	C3	7250	D6	9611	C2										
M25	D3	2681	B1	3595	C2	7251	C6	9612	C2										
M27	A1	2821	E3	3596	C2	7401	C8	9613	C1										
M28	C1	2825	D3	3607	C2	7460	A6	9614	C2										
M29	C1	2826	D3	3608	C2	7461	C6	9615	C2										
0211	A2	2827	D3	3609	D2	7462	D7	9618	D3										
0212	B2	2828	D3	3610	C2	7463	C7	9621	D3										
0213	A2	2830	E3	3616	D3	7470	A6	9622	C3										
0215	B1	2832	E3	3618	C6	7480	C7	9624	C3										
0216	D7	2833	E3	3630	C2	7481	B8	9625	C2										
0219	D7	2834	D3	3632	C3	7518	B4	9626	D3										
0220	C6	2836	E3	3633	C3	7520	D3	9629	C1										
0221	B6	2837	D3	3639	C3	7570	D3	9631	C2										
0222	C7	2839	D3	3651	D2	7581	B3	9632	D2										
0223	D8	2843	D4	3652	D2	7600	D2	9634	C3										
0227	C8	2860	D4	3653	D3	7601	D3	9637	C3										
0229	D7	2863	D4	3657	C3	7603	C3	9640	D2										
0231	A2	2868	D5	3661	D2	7680	B1	9641	C1										
0232	B1	2871	D5	3708	E6	7821	C3	9642	D2										
0234	B1	2878	D4	3825	E3	7825	D5	9643	D2										
0234A	B1	2883	D5	3826	D3	7833	D4	9644	D3										
0236	D2	2888	D5	3827	E3	7950	E5	9650	C3										
0237	D2	2913	E4	3828	E3	7951	E5	9754	B5										
0238	C2	2931	E4	3831	D5	7952	E5	9788	B5										
0240	E7	2950	E4	3841	D3	7953	E5	9793	A6										
0241	C4	2951	E5	3842	D3	9000	D7	9800	A6										
0243	D6	2960	E4	3908	E4	9001	E6	9801	E3										
0255	B6	2961	E4	3912	E4	9002	D7	9802	D3										
0259	C1	3000	E8	3913	E4	9003	D7	9805	B4										
0260	D4	3001	E8	3914	E4	9004	E6	9806	C8										
0263	C7	3010	D7	3917	E4	9005	D5	9807	C7										
0264	E3	3016	E7	3918	E4	9010	E6	9810	C3										
0265	D3	3023	E6	3922	E4	9011	E6	9821	E3										
0267	E7	3024	E6	3930	E4	9012	E7	9901	E8										
0268	A4	3103	D8	3950	D3	9103	B1	9902	D3										
1000	E7	3105	D8	3952	E4	9104	B1	9903	E4										
1001	D7	3108	C8	3955	E4	9105	C1	9904	E5										
1002	D7	3112	D7	3957	E4	9108	D7	9905	E5										
1003	E6	3113	D8	3960	D5	9108	D7	9906	C1										
1004	E6	3114	D8	3962	D4	9109	D7	9933	C2										
1200	D6	3115	D8	3963	D4	9111	D7	9934	C3										
1201	D6	3116	D8	5000	E7	9112	D7	9936	C1										
1203	D6	3117	D8	5002	E6	9120	D7	9939	E3										
1204	E6	3118	D8	5004	E7	9121	D8	9940	E5										
1205	E6	3119	D8	5006	D6	9122	D7	9941	E5										
1206	E6	3123	D8	5101	D7	9125	D7	9942	E3										
1207	E5	3134	D7	5110	D8	9130	C7	9943	E5										
1208	E5	3136	D8	5201	D5	9200	E8	9944	E5										
1500	A2	3138	C7	5202	D6	9202	E8	9945	E5										
1571	C4	3140	D8	5445	B7	9203	D6	9946	E3										
1572	C4	3141	D7	5451	B6	9204	D6	9947	E3										
1573	C4	3142	D7	5457	B6	9205	C6	9948	E3										
1580	C2	3144	D8	5461	C5	9206	C5	9949	E3										
1600	C1	3156	B1	5463	A5	9207	E8	9950	E3										
1601	C1	3157	B1	5465	A5	9208	E8	9951	E5										
1602	D1	3204	D5	5470	A6	9209	E6	9952	D4										
1603	D1	3208	D6	5471	A6	9210	E7	9953	D4										
1606	A1	3221	E5	5480	C6	9211	E7	9955	E4										
1660	D2	3223	E5	5500	B2	9213	E7	9956	E4										
1821	E3	3224	E5	5502	B2	9214	C7	9957	E3										
1822	D4	3247	D7	5518	B5	9215	C7	9958	C4										
2002	C8	3248	D7	5518	A5	9216	E6	9959	C4										
2003	E7	3267	C6	5521	B3	9217	D5	9960	D4										
2011	E7	3401	C8	5540	B4	9218	D6	9962	D4										
2111	C7	3402	C8	5545	B4	9219	C7	9963	D4										
2112	D7	3403	C8	5550	C5	9220	D7	9964	D3										
2120	C7	3405	C8	5551	B5	9221	D6	9965	E4										
2174	B1	3406	C8	5552	C4	9222	D5	9966	E4										
2177	B1	3407	C8	5572	C4	9223	D5	9967	C4										
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2401	B8	3444	A8	5631	D5	9233	C6	9981	C6										
2402	C8	3445	A8	5632	D4	9234	D7	9982	C5										
2403	C7	3446	A7	5633	D4	9235	D5	9983	C6										
2404	B8	3448	B6	6005	D7	9236	C3	9984	C6										
2409	C8	3449	C6	6006	D7	9237	C5	9987	C5										
2426	E7	3451	B6	6007	E7	9238	C6	9989	C7										
2429	E6	3452	B6	6008	E7	9239	D6	9990	C7										
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2448	B8	3454	B6	6212	D5	9241	C6	9992	E8										
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2462	C6	3468	C6	6460	A6	9403	C6												
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2490	B7	3501	B2	6511	A5	9465	B5												
2491	B7	3502	B1	6512	A4	9500	A2												
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2550	C5	3530	B3	6604	D3	9526	B4												
2551	C5	3532	B3	6605	D3	9600	C7												
2561	C4	3536	B4	6606	C3	9601	B1												
2562	C5	3537	B4	6607	C3	9602	C1												
2571	C4	3542	B1	6608	D1	9603	C1												
2577	C4	3543	C3	6690	A1	9604	D3												
2586	C2	3545	C3	6821	D5	9605	C2												
2604	C3	3571	C3	6822	D5	9606	C2												
2613	C1	3572	C3	6952	E4	9608	D1												

MAIN-MAPT. eps
260299

M27 C4 1600 B4 1602 B3 1606 B2 2697 B2 3681 D3 3683 B2 3685 C3 7680 D2
0259 D4 1601 B4 1603 B3 2681 E2 3680 C3 3682 B2 3684 D2 6690 C3

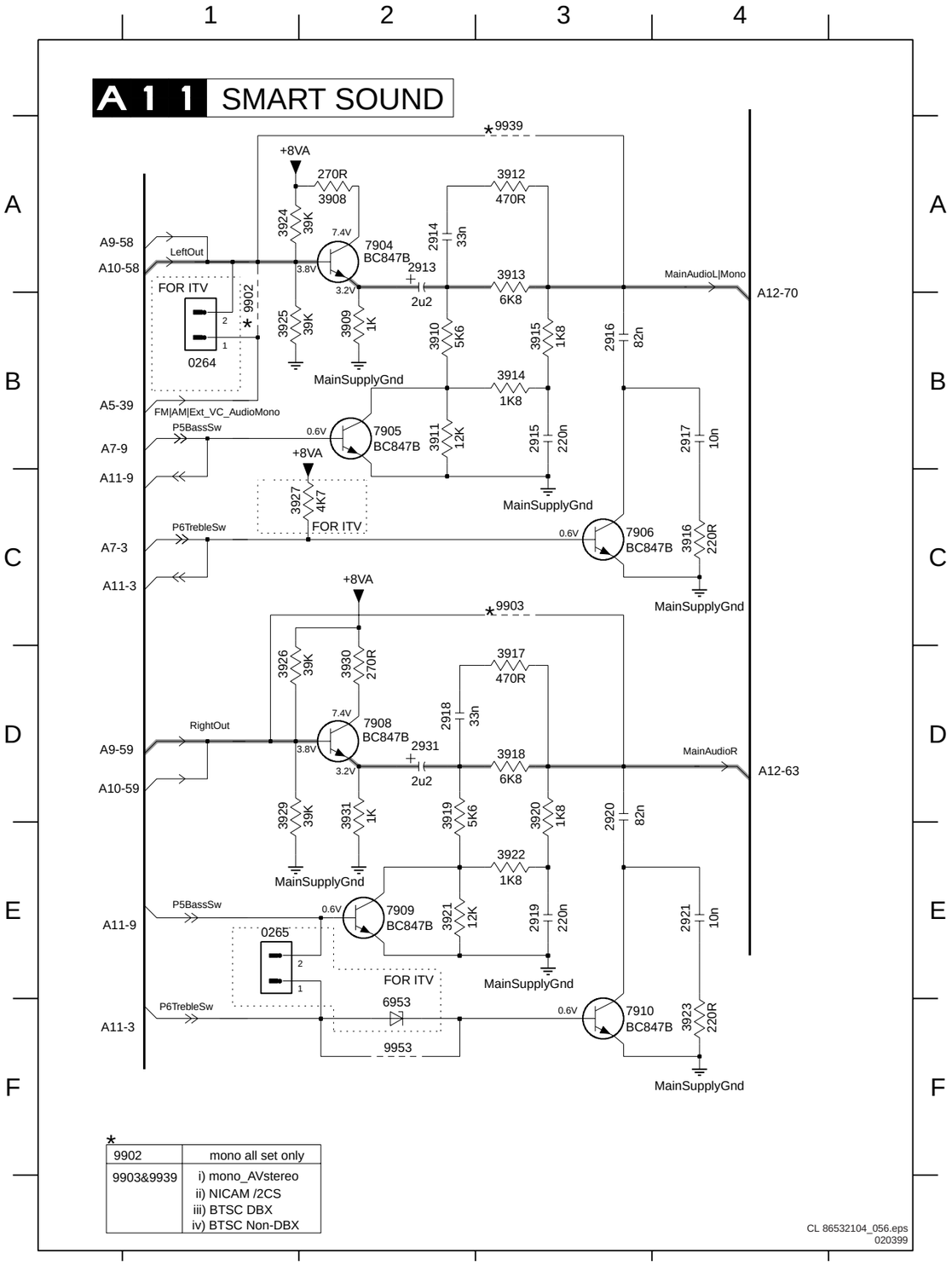



PHILIPS
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D
E

1101 C8 2870 B4 3635 C3 6127 C7
1102 C8 2874 B4 3636 C3 6263 B6
1103 B8 2875 B4 3637 C2 6264 B6
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1105 B8 2879 B4 3650 B2 6543 C3
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1133 B8 2920 A4 3675 B3 7253 B6
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2001 A7 2953 A4 3680 F1 7257 A6
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2006 B7 2956 A4 3683 C1 7261 A5
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2009 A6 2958 A4 3685 F1 7266 B6
2010 A6 2959 A4 3686 C2 7402 D7
2012 B7 2962 A3 3702 A7 7482 C5
2013 A7 2963 A3 3703 A7 7542 C2
2014 A7 3013 A8 3705 A7 7590 C2
2015 B7 3014 A7 3821 A3 7591 C2
2016 A7 3015 A8 3822 B3 7592 C3
2018 A6 3017 B7 3823 A3 7604 C3
2101 C7 3018 B7 3824 A3 7605 C2
2102 C7 3019 B7 3829 B3 7608 B3
2103 B7 3020 B7 3830 A3 7609 B3
2104 C7 3021 B7 3832 B5 7701 A6
2105 C8 3026 A6 3843 B4 7702 A6
2106 C8 3027 B7 3844 B5 7842 A3
2107 C7 3028 B7 3845 B5 7851 B4
2108 C8 3029 B7 3846 B4 7904 A3
2109 B7 3100 C8 3847 B4 7905 A4
2110 C8 3104 C8 3850 B4 7906 A3
2113 B8 3109 C7 3851 B4 7908 A4
2114 B8 3125 B8 3909 A3 7909 A4
2115 B8 3131 C7 3910 A4 7910 A4
2173 D1 3132 C7 3911 A4
2176 D1 3135 B7 3915 A4
2200 B7 3137 B7 3916 A3
2202 A7 3139 C7 3919 A4
2204 B6 3148 B7 3920 A4
2205 B6 3149 B7 3921 A4
2206 B6 3149 B7 3923 A4
2209 B6 3150 B7 3924 A3
2210 B6 3151 B7 3925 A3
2211 B6 3152 B7 3926 A4
2212 B6 3153 B8 3927 A4
2213 B6 3154 B8 3929 A4
2214 B6 3155 B8 3931 A4
2216 B6 3161 D1 3951 A4
2217 A6 3162 D1 3953 A4
2218 A6 3200 B6 3954 A4
2219 A5 3201 B6 3956 A4
2220 A5 3203 B6 3958 A4
2221 B6 3205 B6 3959 A4
2222 B6 3206 B7 4000 B7
2223 A6 3209 C2 4001 A8
2225 B7 3210 B6 4002 B6
2247 B6 3211 B6 4003 B7
2248 B6 3212 B6 4004 A7
2249 B6 3213 B6 4005 B7
2405 C8 3214 B6 4006 B7
2406 C7 3215 C3 4007 A6
2407 C8 3216 B6 4008 A6
2420 B6 3217 B6 4009 A6
2421 B6 3218 A5 4010 A7
2426 B6 3219 B5 4011 A6
2431 B6 3220 B6 4012 A7
2437 B6 3225 A6 4013 A6
2438 B6 3226 B6 4020 A6
2440 B6 3231 C6 4051 B6
2441 B6 3232 C6 4100 D1
2492 C8 3233 B6 4101 D1
2520 D3 3243 B6 4130 C6
2521 D3 3246 B5 4131 C7
2522 D3 3249 B5 4132 C8
2524 D4 3250 B5 4134 C8
2529 D3 3251 B5 4143 B7
2533 D3 3252 B5 4144 B7
2534 D3 3253 B5 4145 B7
2532 D3 3257 B6 4146 C7
2572 C4 3258 B6 4152 B7
2573 C3 3259 B6 4153 B7
2574 C3 3263 B6 4154 C7
2575 C3 3265 B6 4155 B7
2576 D3 3266 B5 4201 B7
2609 C2 3413 C7 4202 B7
2612 C2 3415 C7 4203 A6
2614 C1 3420 A5 4204 B6
2615 C1 3423 B7 4205 A6
2616 B3 3424 A6 4206 A5
2617 B3 3425 A5 4207 A6
2618 B2 3426 B6 4208 A6
2620 B2 3428 A6 4212 A5
2621 B2 3429 A6 4213 C7
2623 C3 3431 A6 4214 B7
2624 B3 3432 A6 4215 A7
2625 B2 3436 A6 4216 B6
2626 B2 3437 B6 4224 A6
2627 B1 3447 C7 4225 A6
2628 B1 3450 C6 4410 C7
2630 B1 3464 C6 4501 D3
2631 C3 3469 C6 4601 B2
2632 B3 3495 D6 4602 C1
2633 B2 3496 D6 4650 B2
2679 B2 3497 C5 4651 C1
2697 C1 3512 D3 4652 B2
2822 A3 3516 D3 4653 A4
2823 B3 3521 F3 4654 C3
2824 A3 3534 D4 4801 A3
2825 A3 3544 C3 4802 B3
2831 A3 3546 C3 4831 B4
2835 A3 3547 C3 4832 B3
2838 B3 3570 C3 4833 C4
2840 A3 3573 C3 4902 A5
2841 B3 3574 C3 4903 A3
2842 A4 3576 C3 4904 A4
2844 A3 3578 D3 4905 A4
2845 B3 3579 C3 4909 A5
2850 B4 3592 C2 4911 C5
2851 B4 3594 C3 4912 B5
2852 B4 3597 C2 4914 B5
2853 B4 3598 C2 4999 F1
2854 B5 3599 C2 5003 A6
2855 B4 3611 C2 6003 A8
2856 B4 3612 C3 6004 A8
2857 B4 3613 B2 6109 B8
2858 B4 3614 B2 6110 B8
2859 B4 3615 C2 6111 B8
2861 B4 3617 C2 6112 B8
2862 B4 3619 C2 6113 B8
2864 B4 3620 C2 6122 B7
2865 B4 3628 C1 6123 B7
2866 B4 3629 C2 6124 B7
2867 B4 3631 C1 6125 B8
2869 B4 3634 C3 6126 C8

MAIN-MAPB.eps
260299

0264 B1 2915 B3 2919 E3 3908 A2 3912 A3 3916 C4 3920 D3 3924 A1 3929 D1 7904 A2 7909 E2 9939 A3
0265 E1 2916 B3 2920 D3 3909 B2 3913 A3 3917 D3 3921 E2 3925 B1 3930 D2 7905 B2 7910 F3 9953 F2
2913 A2 2917 B4 2921 E4 3910 B2 3914 B3 3918 D3 3922 E3 3926 D1 3931 D2 7906 C3 9902 B1
2914 A2 2918 D2 2931 D2 3911 B2 3915 B3 3919 D2 3923 F4 3927 C2 6953 E2 7908 D2 9903 C3

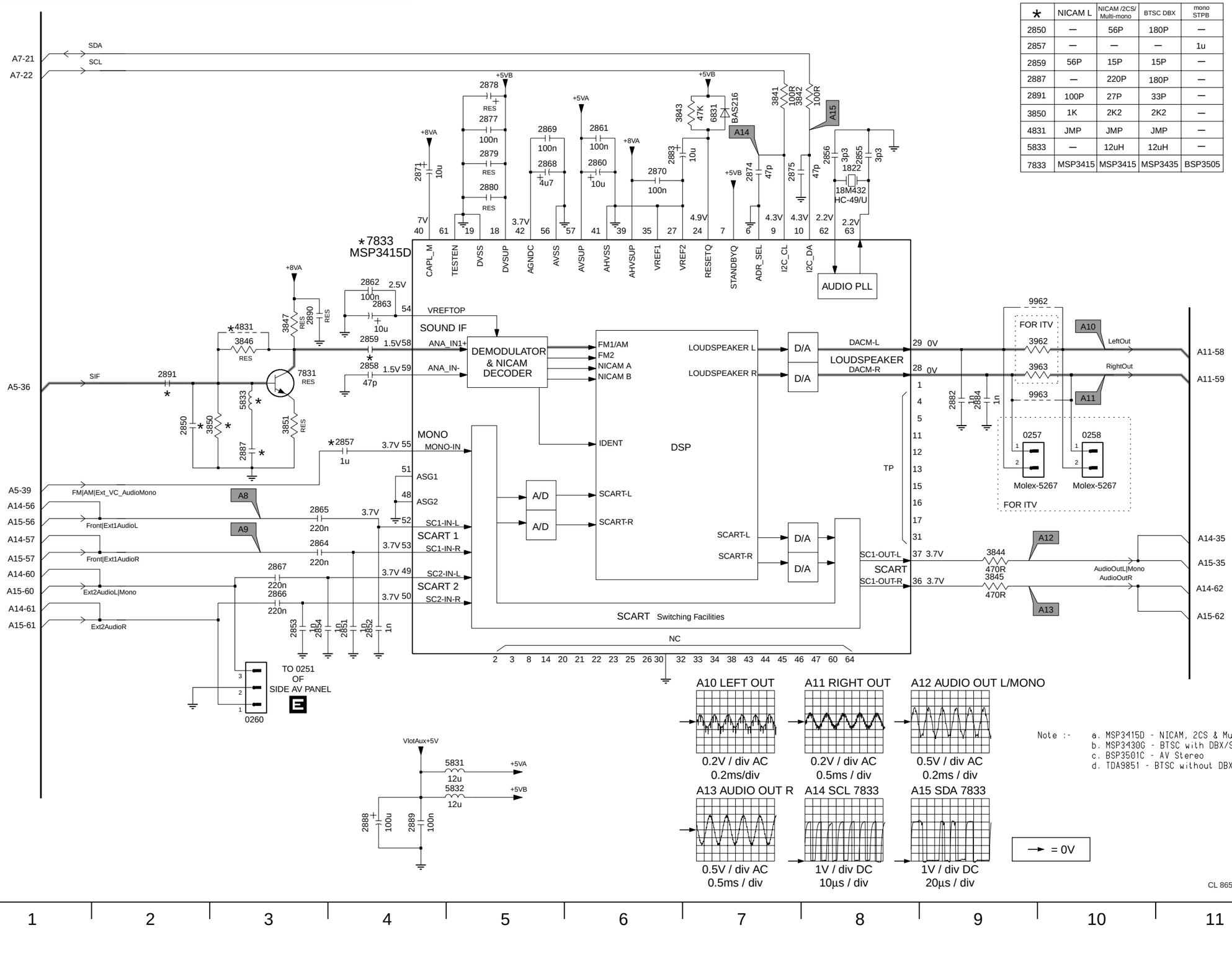


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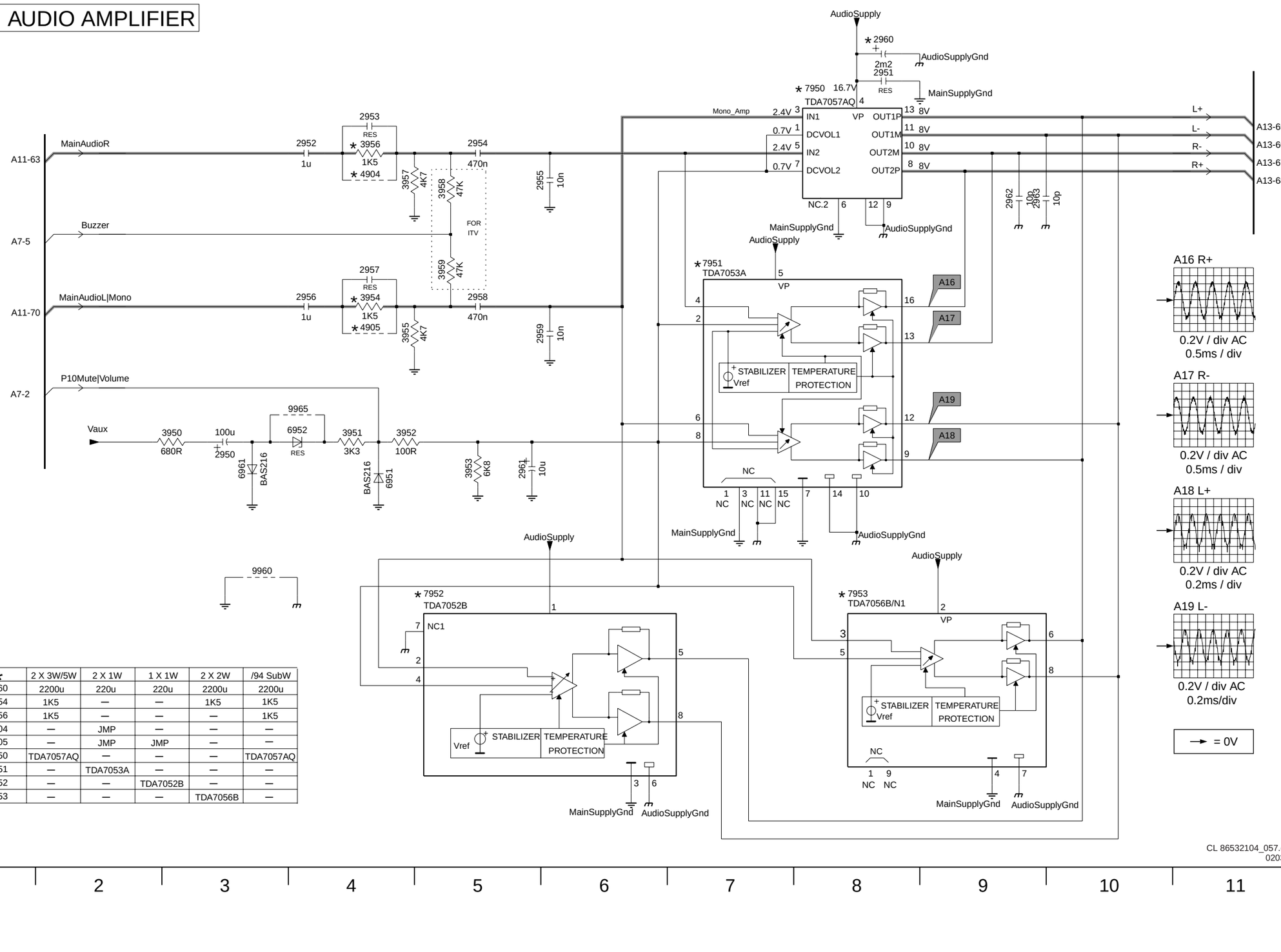
A10 NICAM+2CS DECODER / BTSC DBX

*	NICAM L	NICAM /2CS/ Multi-mono	BTSC DBX	mono STPB
2850	–	56P	180P	–
2857	–	–	–	1u
2859	56P	15P	15P	–
2887	–	220P	180P	–
2891	100P	27P	33P	–
3850	1K	2K2	2K2	–
4831	JMP	JMP	JMP	–
5833	–	12uH	12uH	–
7833	MSP3415	MSP3415	MSP3435	BSP3505

0257 E9
0258 E10
0260 G3
1822 B8
2850 E2
2851 F4
2852 F4
2853 F3
2854 F3
2855 B8
2856 B8
2857 E4
2858 D4
2859 D4
2860 B6
2861 B6
2862 C4
2863 C4
2864 F3
2865 E3
2866 F3
2867 F3
2868 B5
2869 B5
2870 B6
2871 B4
2874 B7
2875 B7
2877 B5
2878 B5
2879 B5
2880 B5
2882 D9
2883 B6
2884 D9
2887 E3
2888 H4
2889 H4
2890 D3
2891 D2
3841 B7
3842 B7
3843 B6
3844 F9
3845 F9
3846 D3
3847 D3
3850 E3
3851 E3
3962 D10
3963 D10
4831 D3
5831 G5
5832 H5
5833 D3
6831 B7
7831 D3
7833 C4
9962 C10
9963 D10



A12 AUDIO AMPLIFIER



*	2 X 3W/5W	2 X 1W	1 X 1W	2 X 2W	/94 SubW
2960	2200u	220u	220u	2200u	2200u
3954	1K5	—	—	1K5	1K5
3956	1K5	—	—	—	1K5
4904	—	JMP	—	—	—
4905	—	JMP	JMP	—	—
7950	TDA7057AQ	—	—	—	TDA7057AQ
7951	—	TDA7053A	—	—	—
7952	—	—	TDA7052B	—	—
7953	—	—	—	TDA7056B	—

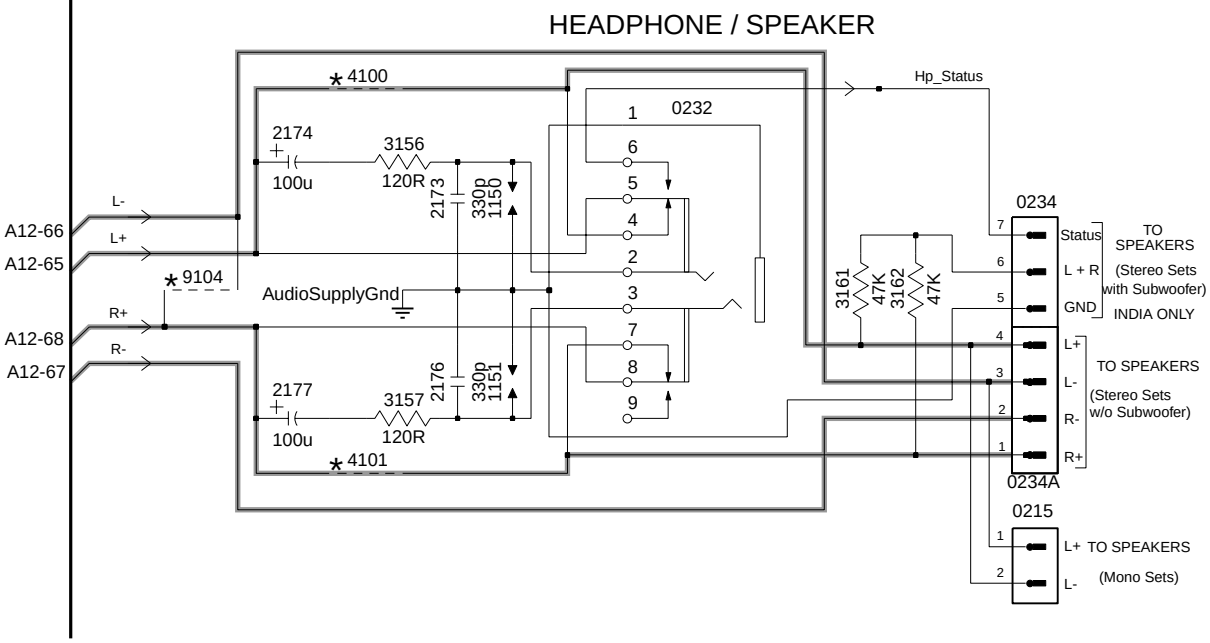
2950 D3
2951 A8
2952 B4
2953 B4
2954 B5
2955 B6
2956 C4
2957 C4
2958 C5
2959 C6
2960 A8
2961 D5
2962 B9
2963 B9
3950 D3
3951 D4
3952 D4
3953 D5
3954 C4
3955 C4
3956 B4
3957 B4
3958 B5
3959 C5
4904 B4
4905 C4
6951 D4
6952 D4
6961 D3
7950 A8
7951 C7
7952 E5
7953 E8
9960 E3
9965 D4

0215 D4 0234 C4 1150 C2 2173 C2 2176 C2 3156 B2 3161 C4 4100 B2 9104 C1
0232 B3 0234A D4 1151 C2 2174 B1 2177 C1 3157 C2 3162 C4 4101 D2

A13 HEADPHONE

NOTE: India: 0232
0234

Other regions: 0232
0234(stereo)
0215(mono)



ITEM	W/O HEADPHONE		WITH HEADPHONE	
	STEREO	MONO	STEREO	MONO
4100	JMP	JMP	-	-
4101	JMP	-	-	-
9104	-	-	-	JMP

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A15 I/O SCART

SCART 1
0223-A

Audio R O/P
Audio R I/P
Audio L O/P
Audio L I/P
RGB B I/P
RF/SVHS Switching
RGB G I/P
RGB R I/P
RGB FB I/P
CVBS O/P
Video 1 I/P

SCART 2
0223-B

Audio R O/P
Audio R I/P
Audio L O/P
Audio L I/P
RF/Video2 Switching
SVHS C I/P
CVBS O/P
Video 2/SVHS Y I/P

(From 3845 NICAM)
(To 2864 NICAM
To 2839 BTSC)
(From 3844 NICAM
From 9226-4006//3028 Tuner)
(To 2865 NICAM)

AudioOutR
Front|Ext1AudioR
AudioOutL|Mono
Front|Ext1AudioL
ExtAudioMono
Ext1B
P4ScartPin8|SVHS
Ext1G
Ext1R
Ext1FB
RGB_Blanking
Ext1Video
Ext2AudioR
Ext2AudioL|Mono
AV_Mute|Ext2Func_SW
Ext2C
CVBS_Terr
Ext2Video|Y

ITV 0219
Ext1R
Ext1G
Ext1B
Ext1FB

0216
Ext2C
VideoOut
Ext2Video|Y

0263
AudioOutR
AudioOutL|Mono

TO 0252 OF SIDE AV PANEL
TO 0253 OF SIDE AV PANEL

VIotAux+5v

# FOR MONO	
4132	ADD
4134	ADD
2120	ADD

* FOR SIDE CINCH	
0227	ADD
0229	ADD
2107	DEL
2109	DEL
2113	DEL
2114	DEL
3131	DEL
3132	DEL
3136	DEL
3137	DEL
3142	DEL
4143	DEL
6124	DEL

CL 86532104_060.eps
020399

0216 B10
0219 A10
0223-A A1
0223-B E1
0227 E4
0229 H6
0263 C10
1101 B4
1102 B3
1103 B4
1104 C2
1105 C2
1106 D2
1107 D4
1108 D4
1109 D3
1110 B3
1111 F2
1112 E2
1113 F2
1114 G2
1115 G2
1117 H2
1118 E2
1132 E2
1133 G4
2101 B3
2102 B5
2103 B3
2104 B5
2105 B2
2106 B4
2107 F3
2108 B2
2109 F3
2110 B4
2111 A4
2112 B4
2113 F2
2114 F2
2115 G6
2120 B7
3100 A3
3103 B5
3104 B5
3105 B3
3108 B5
3109 B5
3112 C3
3113 C4
3114 D4
3115 D4
3116 C3
3117 D3
3118 D4
3119 D5
3123 E2
3125 E4
3131 E3
3132 F3
3134 G5
3135 F6
3136 F3
3137 F3
3138 C4
3139 C4
3140 G3
3141 G3
3142 H3
3144 G4
3145 G6
3148 D8
3149 E6
3150 E6
3151 E7
3152 E8
3153 G4
3154 G5
3155 G5
4132 B2
4134 B4
4143 G6
4144 H4
5101 F5
5110 G7
6109 C2
6110 D2
6111 D4
6112 D4
6113 E2
6122 G2
6123 G4
6124 H2
6125 D3
6126 A3
6127 B3
7130 E5
7131 E6
7132 E7
7133 E7
7134 G5
9112 F6

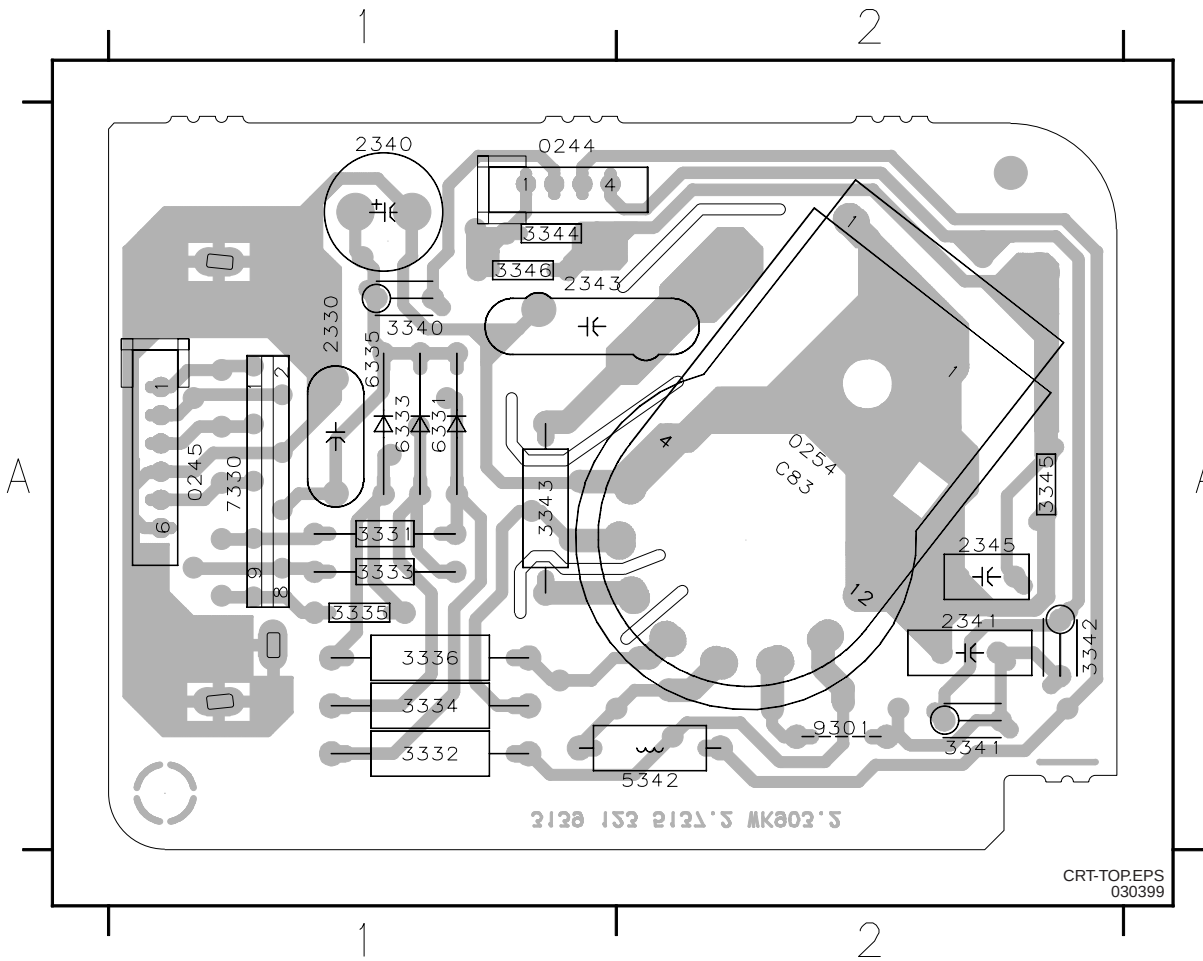
B CRT PANEL

+200VA
2330 100n
6331 BAV21
6333 BAV21
6335 BAV21
3335 100R
3333 100R
3331 100R
3336 1K
3334 1K
3332 1K
V14
V15
V16
5342 22u
0254
CRT Socket
C81
AQUADAG WIRE
T0 CRT SOCKET 0254
Blue
Green
Red
NOT USED
T0 CRT SOCKET 0254
VG2
FOCUS
EHT
FROM LOT, MAIN CHASSIS A2
7330
TDA6107Q
Vdd
188k7
IN1 3k77
IN2 3k77
IN3 3k77
2V5
3k75
Vref
A1 BC1
A2 BC2
A3 BC3
OUT1 9 140V
OUT2 8 140V
OUT3 7 140V
BCI 5 6V
Vref 2.5V
THERMAL PROTECTION
7V
GND 4
3341 1R
3342 1R
2341 3n3
2345 1n
3345 V
3343 1K5
2343 3n3
V11
V12
V13
0245
TO 0243 OF 6 (VIDEO PROCESSING)
FROM RGB PROCESSING
BC_INFO
GNDSS
0244
TO 0220 OF 2 (HORIZONTAL DEFLECTION)
EHT_INFO
+200V
GNDLS
FF
FROM LINE DEFLECTION
3344 22R
3346 22R
3340 10R
2340 10u
+200VA

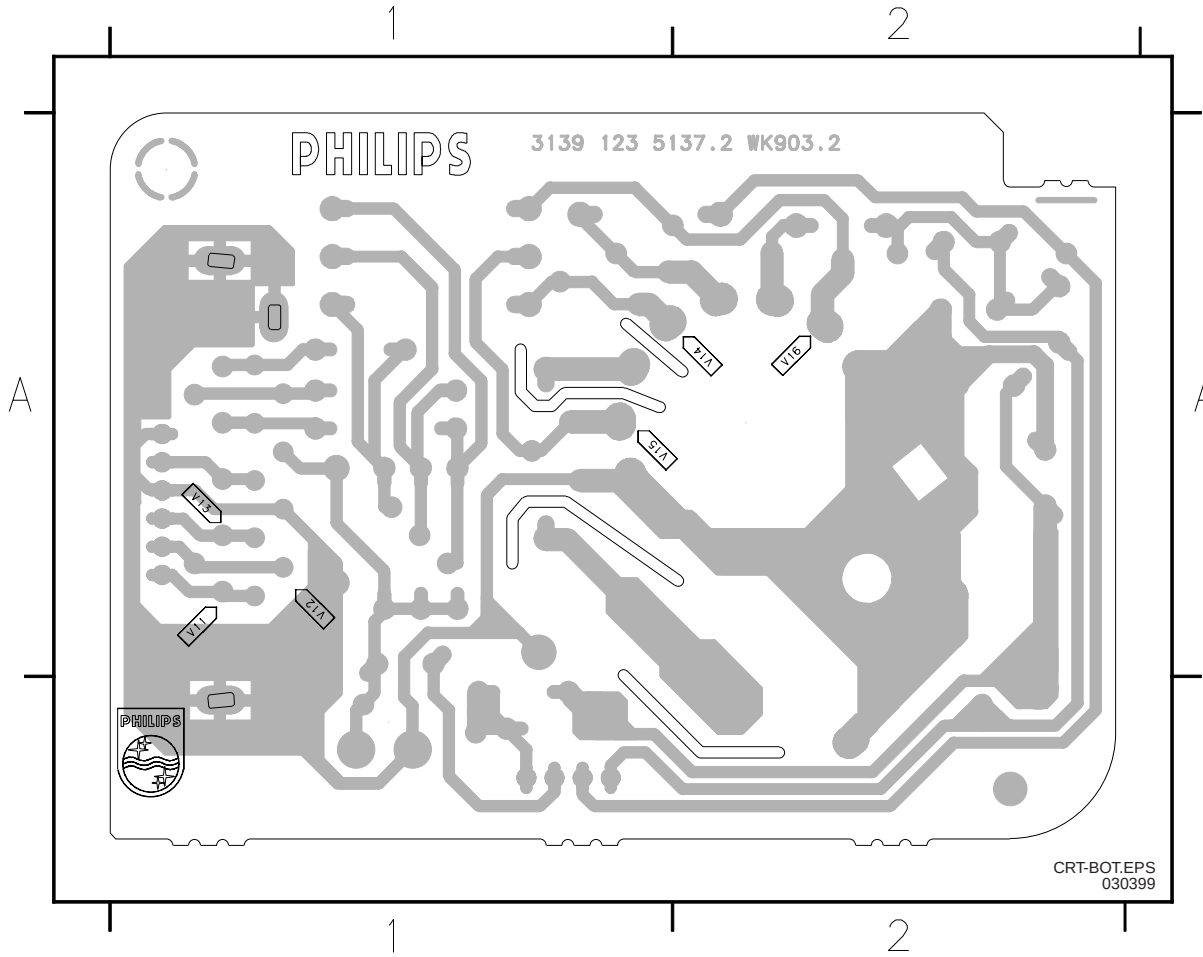
V11 R 1V / div DC 10µs / div
V12 G 1V / div DC 10µs / div
V13 B 1V / div DC 10µs / div
V14 50V / div DC 10µs / div
V15 50V / div DC 10µs / div
V16 50V / div DC 10µs / div
= 0V

CL 86532104_061.eps 020399

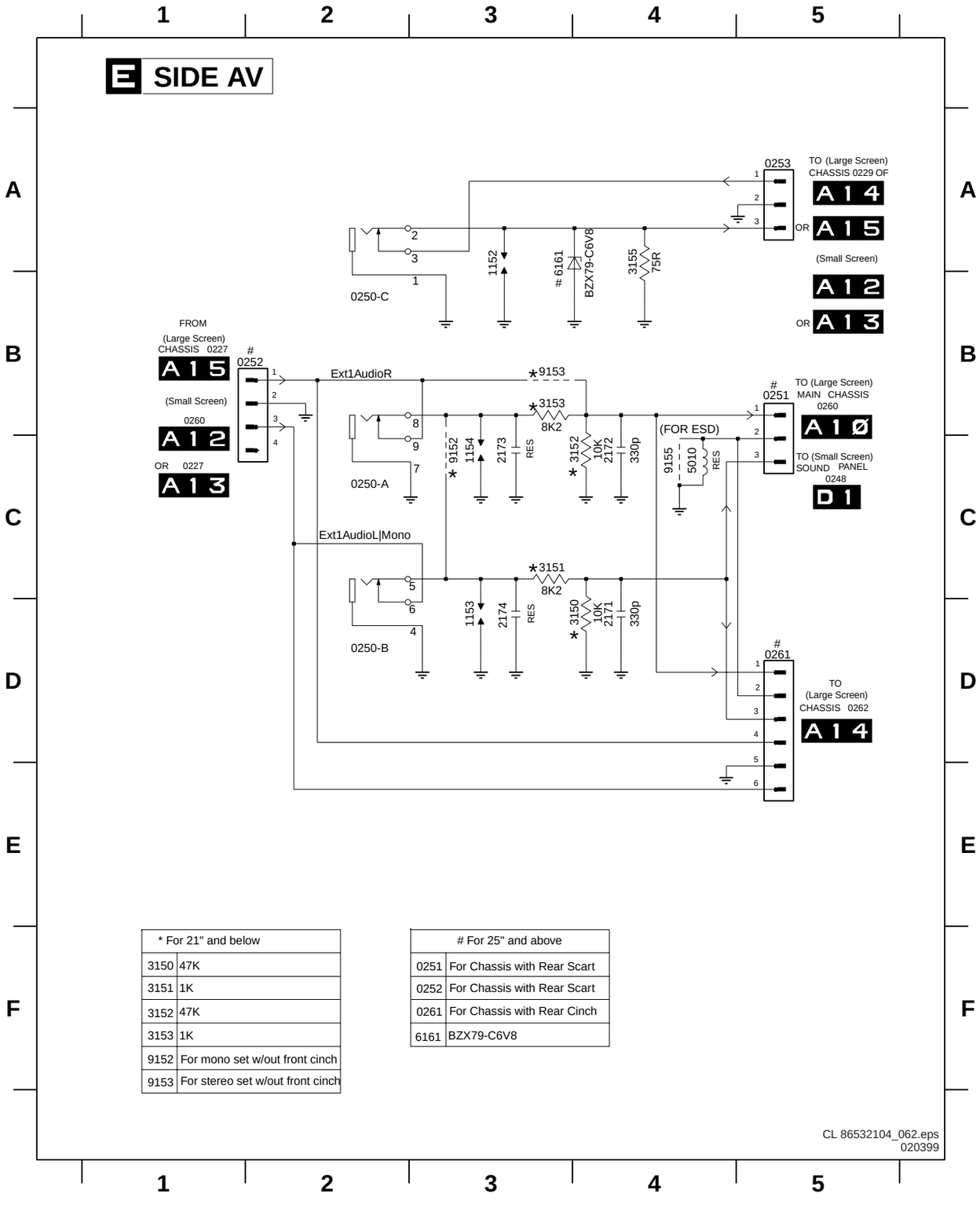
C81 A7
0244 F1
0245 E1
0254 A6
2330 A4
2340 G2
2341 D6
2343 E6
2345 D6
3331 B4
3332 B5
3333 B4
3334 B5
3335 B4
3336 B5
3340 G2
3341 C5
3342 D5
3343 E6
3344 F6
3345 D6
3346 F6
5342 C5
6331 A4
6333 A4
6335 A5
7330 C2



C83 A2
0244 A1
0245 A1
0254 A2
2330 A1
2340 A1
2341 A2
2343 A1
2345 A2
3331 A1
3332 A1
3333 A1
3334 A1
3335 A1
3336 A1
3340 A1
3341 A2
3342 A2
3343 A1
3344 A1
3345 A2
3346 A1
5342 A2
6331 A1
6333 A1
6335 A1
7330 A1
9301 A2



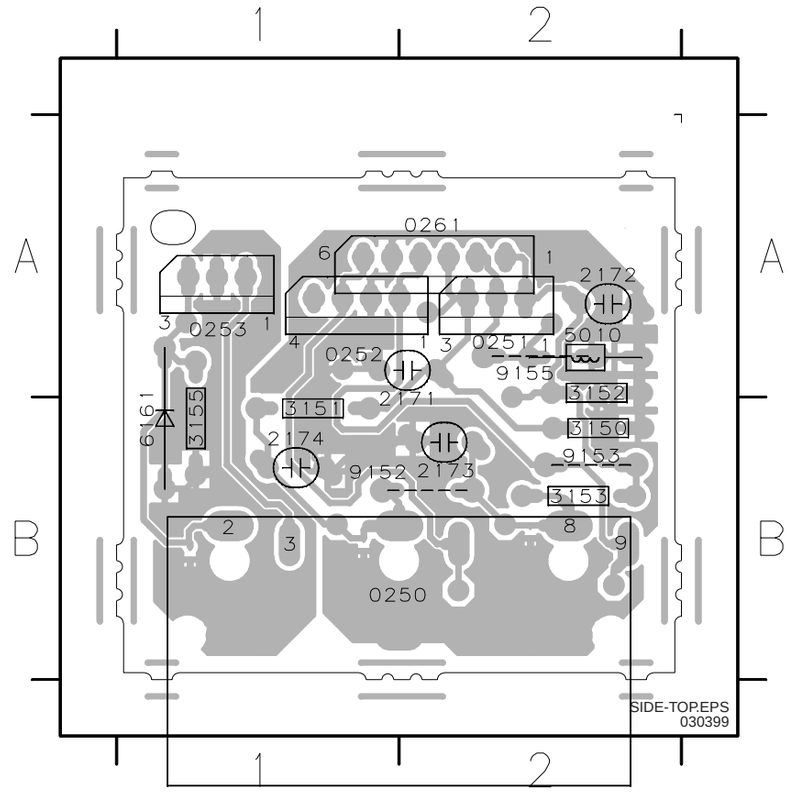
0250-A C2 0250-C B2 0252 B2 0261 D5 1153 D3 2171 D4 2173 C3 3150 D4 3152 C4 3155 A4 6161 A3 9153 B3
0250-B D2 0251 B5 0253 A5 1152 A3 1154 C3 2172 C4 2174 D3 3151 C3 3153 B3 5010 C4 9152 C3 9155 C4



* For 21" and below	
3150	47K
3151	1K
3152	47K
3153	1K
9152	For mono set w/out front cinch
9153	For stereo set w/out front cinch

# For 25" and above	
0251	For Chassis with Rear Scart
0252	For Chassis with Rear Scart
0261	For Chassis with Rear Cinch
6161	BZX79-C6V8

CL 86532104_062.eps 020399



0250	B1
0251	A2
0252	A1
0253	A1
0261	A2
2171	B2
2172	A2
2173	B2
2174	B1
3150	B2
3151	B1
3152	A2
3153	B2
3155	B1
5010	A2
6161	B1
9152	B1
9153	B2
9155	A2