

SERVICE MANUAL

SVD800 HD

SVD800 HD Millennium

SVD800 Teatro

CRT VIDEO PROJECTOR

1° Edition April 2001



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1. Safety and regulations

Introduction

- The instruction given in this manual are meant for service engineers only. A good knowledge of electronics and mechanical engineering is absolutely necessary to repair and maintain the SVD800HD projector.

Important notes

- Should any question after reading this manual arise, please contact your local SIM2 distributor, who will be glad to help you.
- In the interest of our customers we keep on improving the product. Therefore SIM2 reserves the right to change all technical specifications and further information provided in this manual at any time without prior notice.

About this manual

- This manual is intended for those who are doing repairing work and maintenance on the SVD800HD.
- This manual has the following goals: to enable technicians to perform the necessary maintenance and repair work to keep the unit in good operating condition.
- In case of relevant changes, the information provided in this manual could be updated with the issue of technical notes.

Safety information

- This projector has been made in compliance with **EN 60950** standard relative to the safety of information technology equipment.
- This projector has been made in compliance with **EN 50082-1** (Generic immunity law), **EN61000-3-2** (Limits for Harmonic current emission), **EN55022** (Limits and measuring methods of radio disturbance produced by information technology equipment), **EN6100-3-3** (Limits- section 3 Limitation of Voltage Fluctuation and Flicker in low voltage supply system for equipment with rated current SYMBOL 163\{f “Symbol” 16A).
- The accessible metal parts are connected to the power socket round terminal. When installing make sure the ground cable is properly connected and use only the power cable and extension leads supplied with the unit. The unit must be grounded. Interruption of the protective conductors inside or outside the unit, or disconnecting protective earthing may cause possible danger and malfunction of the unit.
- SVD800HD may only be maintained and serviced by qualified persons who are familiar with the machine.
- Always disconnect the cable plug from the mains socket for those service operations that need complete cut off of the machine.
- To avoid damage, fire or electrical shock, do not expose the unit to rain or damp.
- Do not lead any kind of liquid spill inside the unit.

- Do not let any kind of objects through the ventilation slits in the cabinet of the projector as they could touch the high voltage components and cause a short circuit that could, in turn, cause fire or electrical shock hazards.
- If any object or liquid does get inside the projector take the power cable out of the socket immediately.
- Observe instruction, regulation and notes provided in this service instruction.
- It is distributor's responsibility to ensure proper qualification of personnel working with the machine.
- Observe all CAUTION notes applied out or inside the unit. Keep them clean and in readable condition.
- Observe all local safety regulation regarding the handling of electric/electronic equipment.

2. General information

- For all information/instruction concerning the installation and the adjustment of the unit, please refer to the "User's and installation manual", provided with each unit.
- Model and Serial number indications are located on the projector rear side label. Record the Serial Number in the space below and refer to it for future Information/Service request to SIM2 customer service.
- Any part should be replaced using only original SIM2 spare parts. Failure to follows this advice can lead to a deterioration of the unit's performances, electrical damage, fire and electrical shock hazards and will also invalidate the guarantee.

3. SERVICE ADJUSTMENT

Factory conditions:

- ceiling-front installation
- screen 90"
- Signal: unless otherwise specified use internal HATCH COARSE FINE (without any signal applied to the inputs slots)

PC028 MODULE: horizontal deflection

A section includes the adjustments pre-set in the Factory.

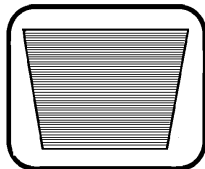
B section includes the adjustments to be performed in service when the unit is replaced.

A section (Factory adjustments)

1. Switch-off the EHT pulling out the CN12 connector, placed on the mother board under the Red CRT.
2. Adjust P1 fully clockwise and P2 fully anticlockwise.
3. Connect a digital voltmeter on TP9 and adjust P2 for a voltage of 1050 Vd.c., than disconnect the voltmeter.
4. Adjust slowly P1 till to align DL1 (the horizontal deflections will be switched-off: no signal at the anode of D2, D3 and D4).
5. Adjust P2 fully anticlockwise.
6. Switch-off and switch-on the projector
7. Adjust P2 and P3 as described on B section.

B section (service adjustments)

1. Project the Pattern signal test on the screen
2. Adjust by the full function remote control the horizontal SIZE for: H 80
3. Adjust P2 for a correct horizontal amplitude: looking through the lenses the top part of the raster must come out a little the screen (see following picture).



view through the lenses

4. Adjust P3 for a correct keystone.

PC132 MODULE: EHT and dynamic focus

A section includes the adjustments pre-set in the Factory.

B section includes the adjustments to be performed in service when the unit is replaced.

A section (Factory adjustments)

1. The adjustments have to be executed, step by step, in the same sequence described below:
2. Adjusting and Testing of the EHT Generator Circuit:
3. Connect a Digital Multimeter with High Voltage Probe to the EHT splitter (removing one EHT cable)
4. Rotate the trimmers:
5. P1 fully clockwise (average beam current protection on the three tubes)
6. P4 fully counter clockwise (EHT protection n.1 – fly-back)
7. P5 fully clockwise (EHT protection n.2)
8. Switch the mains ON.
9. Select a black-page pattern 0,7 Vpp RGB signal.
10. Adjust Contrast to 100 and Brightness to 50 and memorise these values.
11. Select a white-page pattern 0,7 Vpp RGB signal.
12. Select the 6500 °K colour temperature.
13. Wait 20' (warm-up time).
14. Switch the three CRTs OFF using the key "MUTE" on the remote control.
15. Adjust P3 for $33,5 \pm 0,1$ kV
16. Seal P3 with LOCTITE 454 adhesive.
17. Switch the three CRTs ON.
18. Verify that the EHT voltage is $33,5 \pm 0,1$ kV.
19. Switch the mains OFF.
20. Remove the High Voltage Probe from the EHT splitter and insert the EHT cable.

Adjusting and Testing of the EHT Protection Circuit:

1. Rotate P4 slowly clockwise until the protection circuit will be activated (EHT OFF and DL1 ON, after 10 seconds the projector goes to stand-by mode).
2. Rotate P4 fully counter clockwise.
3. Connect the Digital Multimeter between GND2 and TP12.
4. Switch the projector ON by remote control.
5. Measure the voltage and write the value down.
6. Connect the Digital Multimeter between GND2 and TP5.
7. Adjust P4 for a voltage $0,1 \pm 0,01$ V less than the value read on step 2.5 (this operation is equivalent to set the EHT protection N.2 threshold to $37,5 \pm 0,5$ kV).
8. Seal P4 with LOCTITE 454 adhesive.
9. Check that the voltage on TP5 is not changed after P4 sealing.
10. Rotate P1 slowly counter clockwise until the protection circuit will be activated (EHT OFF and DL1 ON, after 10 seconds the projector goes to stand-by mode).
11. Rotate P1 fully clockwise.
12. Connect the Digital Multimeter between GND2 and TP4.
13. Switch the projector ON by remote control.
14. Adjust P1 for a voltage of $4,5 \pm 0,1$ V (this operation is equivalent to set the EHT protection N.1 threshold to $37,5 \pm 0,5$ kV).
15. Seal P1 with LOCTITE 454 adhesive.
16. Check that the voltage on TP4 is not changed after P1 sealing.
17. Connect the Digital Multimeter between GND1 and TP7.
18. Adjust P5 for a voltage of $0,9 \pm 0,01$ V (this operation is equivalent to set the Average Beam Current Protection to $4,0 \pm 0,2$ mA).
19. Connect the Digital Multimeter between GND1 and TP8.
20. Set contrast to 0 by remote control.
21. Connect R64 (reference side) to ground with a wire.
22. Increase the contrast value slowly and check that the protection circuit is activated when the voltage reaches the value of $-17,0 \pm 0,5$ V (EHT OFF and DL1 ON, after 10 seconds the projector goes to stand-by mode).
23. Remove the ground-wiring from R64.
24. Seal P5 with LOCTITE 454 adhesive.

25. Connect the Digital Multimeter between GND1 and TP7.
26. Switch the projector ON by remote control.
27. Check that the voltage on TP7 ($0,9 \pm 0,01$ V) is not changed after P5 sealing.

B section (service adjustments)

1. Use white signal 100% of the screen area
2. Connect a high voltmeter to the EHT splitter (disconnecting one EHT cable)
3. Switch-off the RGB (black screen)
4. Adjust P3 for 33.5 ± 0.1 KV
5. Inject silicon rubber into P3, sealing it.
6. Switch-on the three CRT's.
7. Adjust P5 for 0.9 Vd.c. on TP7.
8. Inject silicon rubber into P5, sealing it.

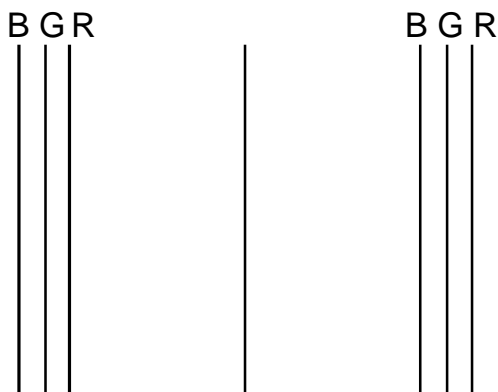
PC121 SHIFT BOARD

A section includes the adjustments pre-set in the Factory.

B section includes the adjustments to be performed in service when the unit is replaced.

A section (Factory adjustments)

1. Turn anticlockwise the cores of L1 and L5 till come out for about 1.5 cm.
2. Turn anticlockwise the core of L3 till come out for about 1 cm.
3. Select CROSS pattern.
4. Reset convergence values, using RESET ZONE (see user manual)
5. Select ZONE
6. Centre the Green raster looking through the lenses, using SHIFT control.
7. Centre the Red raster looking through the lenses, using SHIFT control.
8. Centre the Blue raster looking through the lenses, using SHIFT control.
9. Select HATCH COARSE pattern.
10. Move horizontally the Blue and Red tubes to superimpose the vertical central lines.
11. Select HATCH FINE pattern.
12. Switch-off B tube.
13. Adjust L1 to have a symmetrical convergence error of the RED at the sides (see following figure)
14. Switch-off R tube and switch-on the B tube.
15. Adjust L5 to have a symmetrical convergence error of the BLUE at the sides (see following figure)



B section: service adjustments are not requested.

PC226 MODULE: sync processor

A section includes the adjustments pre-set in the Factory.

B section includes the adjustments to be performed in service when the unit is replaced.

A section (Factory adjustments)

1. Short circuit jumper J3.
 2. Connect a frequency counter to TP8 HDRIVE.
 3. Switch-on the video projector.
 4. Select RGB slot without any signal applied to it.
 5. Adjust P2 for the horizontal frequency into 14.8 KHz and 14.9 KHz range.
 6. Connect a frequency counter to pin 37 of C.I.21.
 7. Adjust P1 for the vertical frequency into 36 Hz and 37 Hz range.
 8. Switch-off the projector
 9. Remove jumper J3.
 10. Short circuit jumper J4.
 11. Connect a frequency counter to TP8 HDRIVE.
 12. Switch-on the projector.
 13. Select RGB slot without any signal applied to it.
 14. Adjust P3 for the horizontal frequency into 105.7 KHz and 106.5 KHz range.
 15. Remove jumper J4.
- Check the correct PATTERN PHASE (see service menu)

B section: service adjustments are not requested.

PC131 MODULE: video processor

A section includes the adjustments pre-set in the Factory.

B section includes the adjustments to be performed in service when the unit is replaced.

A section (Factory adjustments)

1. *Adjusting and Testing of the total (three CRTs active) Average Beam Current Limitation Circuit*
 - 1.1 Switch the mains ON.
 - 1.2 Adjust P1 and P2 fully anticlockwise.
 - 1.3 Select a white-page pattern 0,7Vpp RGB signal.
 - 1.4 Adjust Contrast to 100 and Brightness to 50 and memorise these values.
 - 1.5 Connect a Digital Multimeter between GND1 and TP8 (PC132 board).
 - 1.6 Adjust P1 (PC131) for $-13,0 \pm 0,1$ V (this operation is equivalent to set the average beam current limitation circuit of three tubes to $3,0 \pm 0,1$ mA).
 - 1.7 Switch the projector OFF by remote control.
 - 1.8 Seal P1 with LOCTITE 454 adhesive.
 - 1.9 Switch the projector ON by remote control.
 - 1.10 Check that the voltage on TP8 is not changed after P1 sealing.
2. *Adjusting and Testing of the single CRT Average Beam Current Limitation Circuit*
 - 2.1 Connect the Digital Multimeter between GND1 and TP8 (PC132).
 - 2.2 Switch the Red and the Blu CRTs OFF using the keys R and B of the remote control.
 - 2.3 Adjust P2 (PC131) for $-8,0 \pm 0,1$ V (this operation is equivalent to set the average beam current limitation circuit of a single tube to $2,1 \pm 0,1$ mA).
 - 2.4 Switch the projector OFF by remote control.
 - 2.5 Seal P2 with LOCTITE 454 adhesive.
 - 2.6 Switch the projector ON by remote control.
 - 2.7 Check that the voltage on TP8 is not changed after P2 sealing.
 - 2.8 Remove the Digital Multimeter probes.

A section (service adjustments)

1. *Adjusting and Testing of the total (three CRTs active) Average Beam Current Limitation Circuit*
 - 1.1 Switch the mains ON.
 - 1.2 Adjust P1 and P2 fully anticlockwise.
 - 1.3 Select a white-page pattern 0,7Vpp RGB signal.
 - 1.4 Adjust Contrast to 100 and Brightness to 50 and memorise these values.
 - 1.5 Connect a Digital Multimeter between GND1 and TP8 (PC132 board).
 - 1.6 Adjust P1 (PC131) for $-13,0 \pm 0,1$ V (this operation is equivalent to set the average beam current limitation circuit of three tubes to $3,0 \pm 0,1$ mA).
 - 1.7 Switch the projector OFF by remote control.
 - 1.8 Seal P1 with LOCTITE 454 adhesive.
 - 1.9 Switch the projector ON by remote control.
 - 1.10 Check that the voltage on TP8 is not changed after P1 sealing.
2. *Adjusting and Testing of the single CRT Average Beam Current Limitation Circuit*
 - 2.1 Connect the Digital Multimeter between GND1 and TP8 (PC132).
 - 2.2 Switch the Red and the Blu CRTs OFF using the keys R and B of the remote control.
 - 2.3 Adjust P2 (PC131) for $-8,0 \pm 0,1$ V (this operation is equivalent to set the average beam current limitation circuit of a single tube to $2,1 \pm 0,1$ mA).
 - 2.4 Switch the projector OFF by remote control.
 - 2.5 Seal P2 with LOCTITE 454 adhesive.
 - 2.6 Switch the projector ON by remote control.
 - 2.7 Check that the voltage on TP8 is not changed after P2 sealing.
 - 2.8 Remove the Digital Multimeter probes.

M459X POWER SUPPLY

A section includes the adjustments pre-set in the Factory.

B section includes the adjustments to be performed in service when the unit is replaced.

A section (Factory adjustments)

1. Switch-on the projector.
2. Switch-off the RGB tubes.
3. (*) Adjust RV1 on main power supply board for $+6.25 \text{ Vd.c.} \pm 50\text{mV}$ between pins 6-7 of a CRT socket (PC029)
4. Adjust RV2 on B410.4 module, positioned vertically on main power supply board for $+15.5 \text{ Vd.c.} \pm 200\text{mV}$ on pin 1 of the CN20 connector placed on the mother board.
5. Adjust RV1 on B410.4 module, positioned vertically on main power supply board for $+ 70 \pm 1\text{Vd.c.}$ to the anode of D3, placed on PC132 (EHT & dynamic focus module).

(*) Note. The heater lines have a voltage of about 100 V higher than the ground.

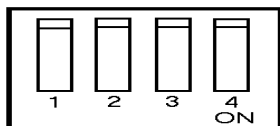
B section (service adjustments)

1. Switch-on the projector.
2. Switch-off the RGB tubes.
3. (*) Adjust RV1 on main power supply board for $+6.25 \text{ Vd.c.} \pm 50\text{mV}$ between pins 6-7 of a CRT socket (PC029)
4. Adjust RV2 on B410.4 module, positioned vertically on main power supply board for $+15.5 \text{ Vd.c.} \pm 200\text{mV}$ on pin 1 of the CN20 connector placed on the mother board.
5. Adjust RV1 on B410.4 module, positioned vertically on main power supply board for $+ 70 \pm 1\text{Vd.c.}$ to the anode of D3, placed on PC132 (EHT & dynamic focus module).
6. Check the following line:
 - $+ 210 \pm 5\text{Vd.c.}$ at the pin 3 of CN17 mother board connector.

(*) Note. The heater lines have a voltage of about 100 V higher than the ground.

PC097 MICRO BOARD

1. When replace the micro board pay attention to use the EEPROM C.I.20 of the old board into the new one, otherwise it's necessary to do again all type of adjustments, such as white & black, convergence and so on.
2. Positions of the DIP switch SW02:



Original setting

With Eprom (C.I.29) version <1.31

- 1-OFF = user mode.
- 1-ON = factory service mode
- 2-OFF = fan protection enabled
- 2-ON = fan protection disabled
- 3-not used in service (it must be set in OFF position)
- 4-not used in service (it must be set in OFF position)

3. Adjust the potentiometer placed on R126 position to centre the OSD: use MEMORY MANAGER the largest menu and horizontal frequency towards the maximum of range.

Note. Usually in service no adjustments are requested. If introducing a new microprocessor board the OSD will appear not correctly centred carry out the adjustment as at the step 3.

4. Waveform PC339.0

VGA input signal 32K 50Hz

Install the board on t the extension card and power on the unit.

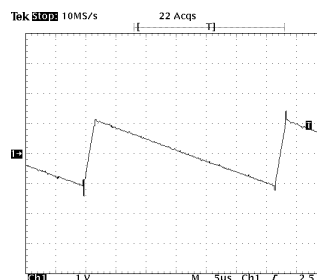
If DL1 on Convergence amplifier board PC324 lights, power off the unit, remove CN102 and CN103 on convergence board and power on the unit.

Adjust H size and V size to maximum value.

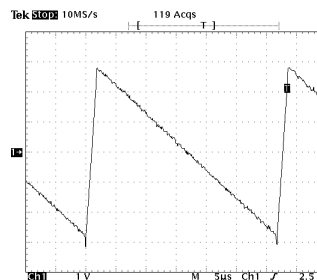
Using a scope with 1/10 probe verify the following wave forms.

NOTE: All wave forms H have a time base of 32 us
 All wave forms V have a time base of 20 ms

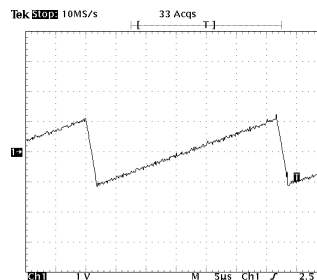
TP110 N1 from 2.2 to 2.5 Vpp Ramp HS+



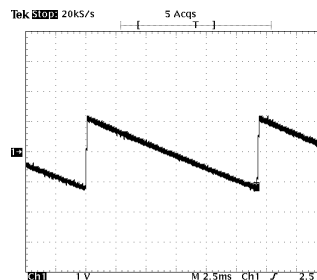
TP110 N2 from 5.5 to 6.2 Vpp Ramp H-saw



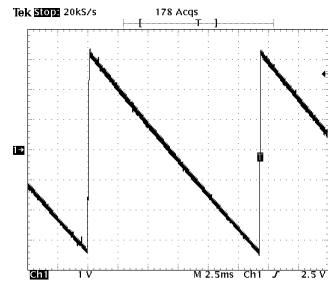
TP103 N3 from 2.2 to 2.5 Vpp Ramp HS-



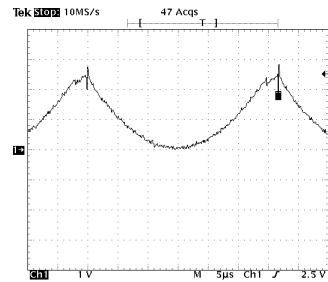
TP103 N4 from 2.2 to 2.5 Vpp Ramp VS+



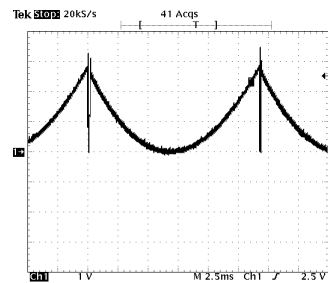
TP112 N2 from 5.5 to 6.3 Vpp Ramp V-saw



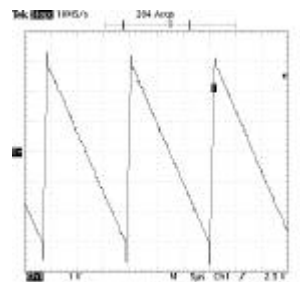
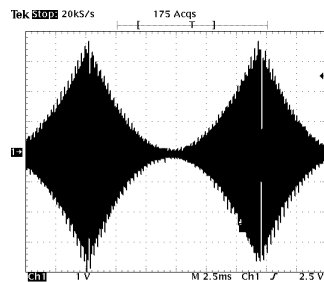
TP103 N1 from 2.5 to 2.7 Vpp Parabola H-par



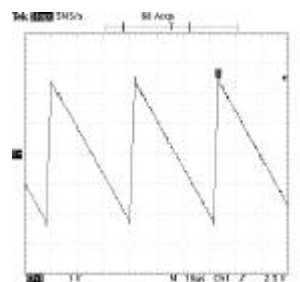
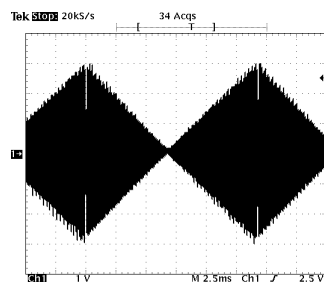
TP103 N2 from 2.3 to 2.8 Vpp Parabola V-par



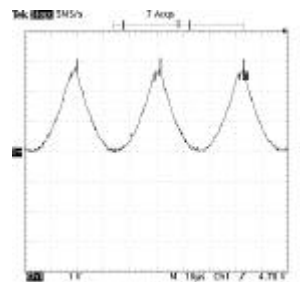
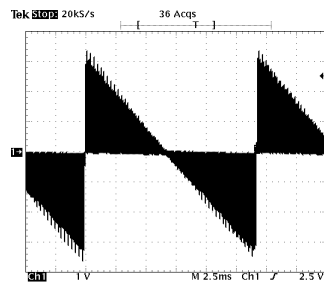
TP104 N1 from 5.5 to 7 Vpp V pin



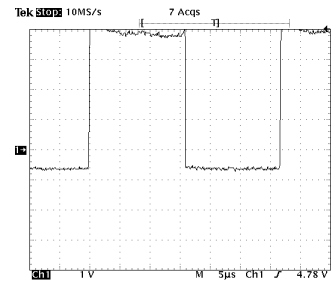
TP104 N2 from 5.5 to 6.5 Vpp V key



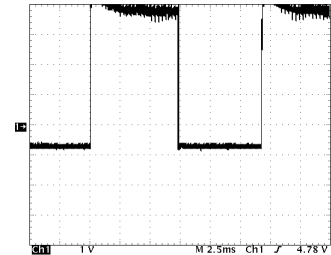
TP104 N2 from 5.5 to 6.7 Vpp H-pin



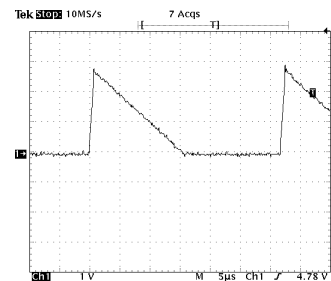
TP111 N1 from +4Vpp to -0.7Vpp H/2



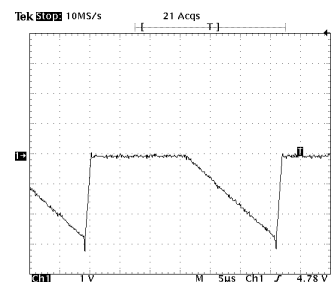
TP111 N2 from +4Vpp to -0.7Vpp V/2



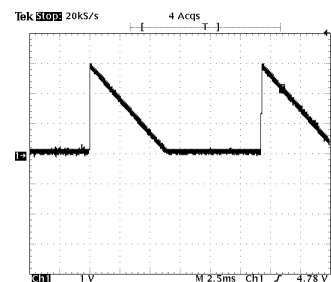
TP106 N1 Ramp H+ H-saw L
Width from 2.5 to 3.2 Vpp
From 0 to peak max 200mv



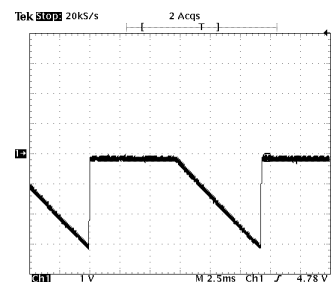
TP106 N2 Ramp H- H-saw R
Width from 2.5 to 3.2 Vpp
From 0 to peak max 200mv



TP107 N1 Ramp V+ V-saw L
Width from 2.5 to 3.2 Vpp
From 0 to peak max 100mv

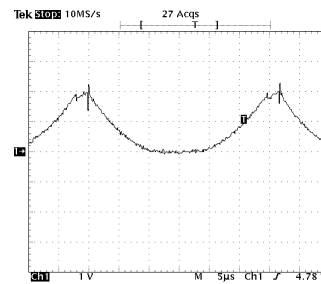


TP107 N2 Ramp V- VsawR
Width from 2.5 to 3.2 Vpp
From 0 to peak max 100mv



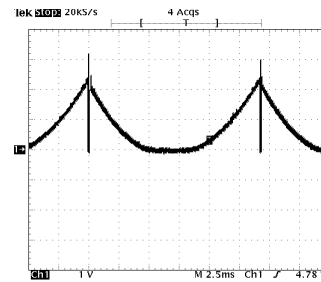
TP105 N1 from 2 to 2.5 Vpp

Parabola H+

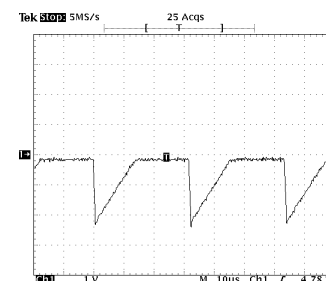
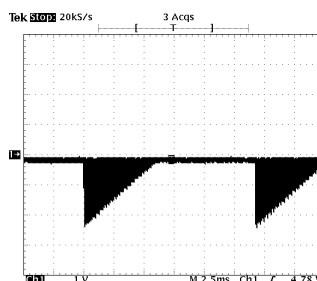


TP105 N2 from 2 to 2.5 Vpp

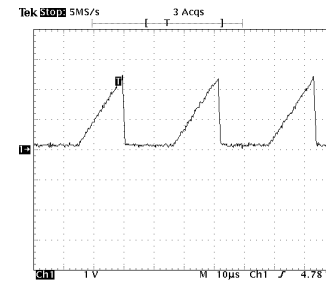
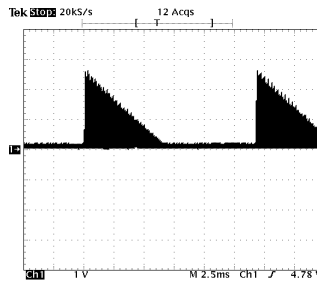
Parabola V+



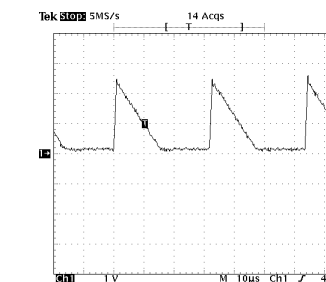
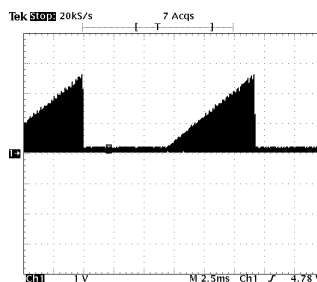
TP108 N1 from 2 to 2.5 Vpp Corners
From 0 to peak Max 200 mv



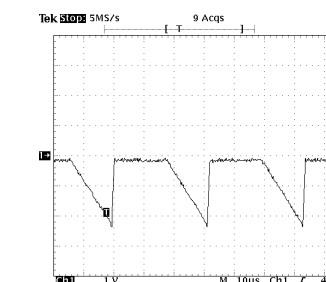
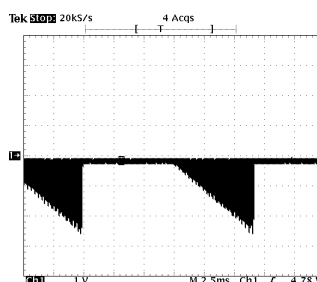
TP108 N2 from 2 to 2.5 Vpp Corners
From 0 to peak
Max 200 mv



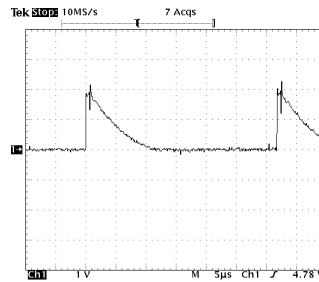
TP108 N3 From 2 a 2.5 Vpp Corners
From 0 to peak
Max 200 mv



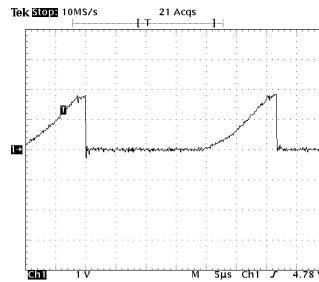
TP108 N4 from 2 to 2.5 Vpp Corners
From 0 to peak
Max 200 mv



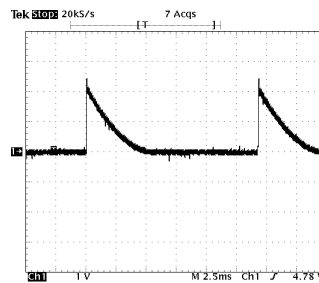
TP109 N1 from 2 a 2.5 Vpp H pc L



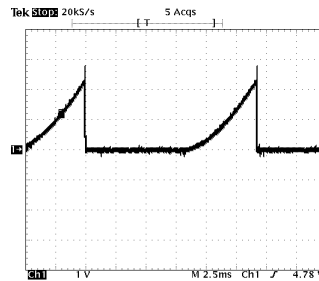
TP109 N2 from 2 to 2.5 Vpp H pc R



TP109 N3 from 2 to 2.5 Vpp V pc L



TP109 N4 from 2 to 2.5 Vpp V pc R



5. PROTECTION CIRCUITRY

EHT Protection Circuit (PC132 board):

This protection circuit is designed against the increasing of EHT caused by electronic components faults.

The EHT Splitter in conjunction to the resistor R37 divide the EHT and the resulting voltage is buffered by IC5B, divided by R58, P4, R66 and it is applied to the positive input of the IC6A-pin7 Integrated Circuit (Test Point TP5), which works as voltage comparator.

On the negative input of IC6A-pin6 (TP12), it's applied a voltage of 0,89 V, available from the resistive divider R55 and R56.

If the EHT value increases and the voltage on IC6A-pin7 comparator exceeds the voltage on pin6, the output of IC6A-pin1 is commuted to +12 V, the voltage on IC6B-pin5 increases over the reference voltage threshold of 5,1 V applied on IC6B-pin4 from DZ1, the output of IC6B-pin2 goes to +12V and the protection circuit is activated, the protection circuit sequence of operations is described here below:

When the voltage on IC6B-pin5 exceeds the voltage on it's negative input, the IC6B-pin2 output goes to +12 V, the protection is activated and the voltage comparator latches itself through D20.

The output voltage of IC6B-pin2 is applied to the transistor T7-base by D15, and T7 goes to ON state and DL1 is switched ON.

The T7-emitter voltage is applied to the T2-base and it goes to ON state therefore the EHT driver signal is switched OFF and the EHT is latched to zero.

The voltage on IC6B-pin2 through the R83-R84 divider is reduced to +5V and applied to the Microprocessor, and, after about 10 seconds, it switches the projector to Stand-By mode.

Fly-back Voltage Protection Circuit (PC132 board):

This circuit is designed to protect the EHT circuitry against excessive fly-back voltage, it is a second protection circuit in case of faults on the precedent circuit.

The fly-back voltage of the EHT circuit is rectified by D7, filtered by C17,R17, C16 and divided by R42, R43 and P1, then it's applied to the positive input of IC 6C-pin9, which is operating as voltage comparator.

On the negative input of the same IC6C-pin8, it's applied a reference voltage of +5,1 V by DZ1.

If the fly-back voltage increases and the voltage on pin9 exceeds the voltage on pin8, the voltage output of IC6C-pin14 goes to +12 V and the protection circuit is activated:

Through R46 and D18 the voltage output on IC6C-pin14 is OR connected to IC6B-pin5 input which is operating as a voltage comparator.

Automatic Beam Current Limit Protection Circuit (PC132 board):

This protection circuit is designed against the CRTs excessive beam currents that may happen in case of faults on the video amplifiers or in the beam current sensing / limitation circuits of the video board PC131.

The resistors R63 and R100 are operating as current to voltage converters on the secondary circuits of the fly-back transformers, if the converted voltage, available on TP8, exceeds the threshold voltage value of - 17,0 V, the protection is activated:

The voltage detected on TP8 is divided by R62 – P5 and then it's applied to the transistor T9-base, this transistor is ON on the normal operating state.

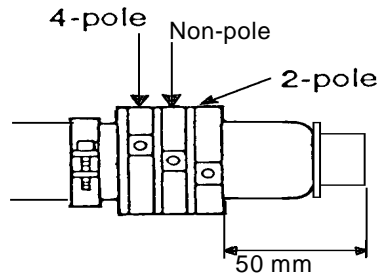
An increasing of the beam current is converted in an increasing of the negative voltage, which drives T9 to the OFF state, and its collector goes to the level of +12 V. This voltage, through R59 and D22 is OR connected to IC6B-pin5 input, activating this voltage comparator.

The protection circuit sequence of operation is the same as reported on points 1.1 – 1.4.

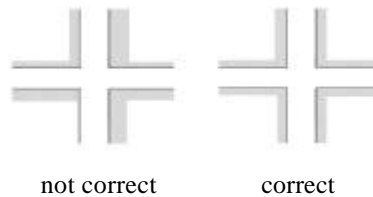
6. SERVICE ADJUSTMENTS

These adjustments are performed when particular components (CRT, yoke, etc.) have been replaced.

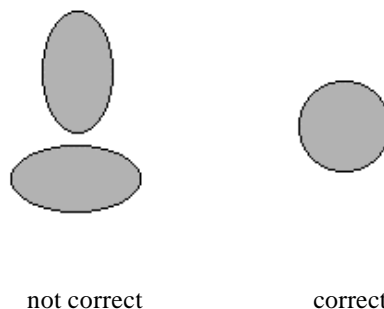
2/4 POLE ADJUSTMENT



1. Select VGA or RGB slot, without any signal applied.
2. Select the HATCH COARSE test pattern, using the TEST button on the full function remote control.
3. Project the pattern on the replaced CRT, using R, G and B buttons.
4. Align the centre of the CRT raster with the centre of the screen by SHIFT control (see User Manual).
5. Adjust the focus potentiometer of the corresponding CRT completely in anti-clockwise.
6. Adjust the 2 pole magnet till the flare is equal on both sides of the vertical and horizontal lines (see following figure).



7. Select the DOT COARSE test pattern, using the TEST button on the full function remote control.
8. Adjust the focus potentiometer of the replaced CRT slightly clockwise.
9. Adjust the 4-pole magnet till the dots have the best circular shape in the centre of the screen (see following figure).

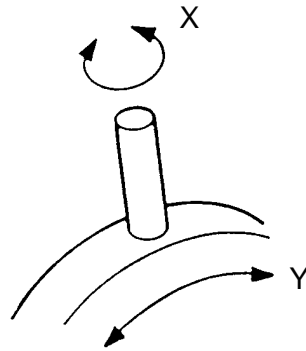


Note. Repeat the 2-pole and 4-pole magnets alignments if necessary, because they influence each other.

10. Select the HATCH COARSE test pattern, using the TEST button on the full function remote control.

- 11. Adjust the focus till the flare disappear from the lines.

How to adjust the 2/4 pole



X: adjusts the power of magnetic force

Y: adjusts the direction of the magnetic force

SERVICE SETTING

Conditions:

Signal generator at 32 KHz horizontal frequency.

White window 50% of the screen.

Set the **DIP switch SW02** on the micro board (with projector switched-off): switch **no. 1 in ON position**. The projector will work in SERVICE MODE., .

To exit from SERVICE MODE: switch-off the projector and restore the DIP switch SW02 on the micro board:

- 1: OFF
- 2: OFF
- 3: OFF
- 4: OFF

Note: for a complete description of SW02 see paragraph regarding the PC097 micro board.

Use a signal window WHITE TEST PATTERN 100% modulated.

Press VID.S button, the following MENU will appear:

- VIDEO MENU -
- QSD MANAGER
- UPC MANAGER
- INPUT SETINGS
- BLANKINGS
- EHT NOISE RED.
- WHITE MENU

1 To exit from this MENU, press the EXIT button, or press the ESC button. The projector will return to the external video signal.

Use the ↑ or ↓ cursor button to select WHITE MENU.

WHITE MENU

This menu permits to change the three color temperature sets, presetted in Factory, at 3200°K, 6500°K and 9300°K.

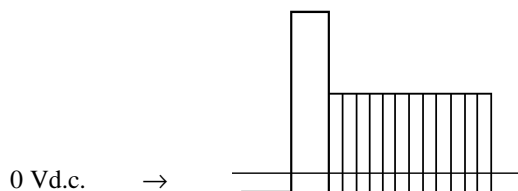
- WHITE MENU -
- SET TO 3200° K
- SET TO 6500° K
- SET TO 9300° K
- SET TO USER° K
- SET TO BANK
- EDIT PRESET
- RESTORE PRESET
- CUT-OFF TIMING

1. Use the - or - cursor button to select 6500 °K of colour temperature and then press ENTER.
2. Use the - or - cursor button to select EDIT PRESET, pressing ENTER will be displayed

- G1 G2 PRESET -			
6500° K			
	R	G	B
TARGET	23	23	23
DAC	77	77	77
ADC	23	23	23

3. Connect an oscilloscope probe to G1 of the green tube, TPG1 test point (use 100:1 probe).
4. Select green tube pressing Gsel button.
5. Using - or - cursor button adjust the cut-off level to 25 V.

- cut-off: 25 V.



6. Repeat the previous operations 3, 4 and 5 for the Red and for the Blue.
7. Adjust sequentially the three G2 potentiometers to obtain 23 ± 5 value for each ADC relative to the R, G and B.
8. Press ENTER, will be displayed

- WHITE BALANCE - 6500° K			
	R	G	B
BLACK	53	30	56
WHITE	67	76	61

9. Use a signal WINDOW WHITE TEST PATTERN 100% modulated (50% of the screen area).
10. Adjust the contrast to 100 and brightness to 0.
11. Connect an oscilloscope probe to the cathode of the **GREEN** tube, TPK test point (use 100:1 probe): adjust the WHITE of the green for 150Vpp.
12. Disconnect the oscilloscope probe from the cathode of the green CRT.
13. Use a signal WINDOW WHITE TEST PATTERN 20% modulated (50% of the screen area).
14. Adjust contrast to 80 and brightness to 50.
15. Select colour temperature 6500° K on the COLOR ANALYSER
16. Press B button and with - or $\bar{\text{~}}$ cursor button adjust for the correct BLACK value (looking on the COLOR ANALYZER).
17. Press R button and with - or $\bar{\text{~}}$ cursor button adjust for the correct R BLACK value (looking on the COLOR ANALYZER).

Note. Don't adjust G value.

18. Use a signal window WHITE TEST PATTERN 60% modulated (50% of the screen area).
19. Press Bsel button and with - or $\bar{\text{~}}$ cursor button adjust for the correct B WHITE value (looking on the COLOR ANALYZER).
20. Press Rsel button and with - or $\bar{\text{~}}$ cursor button adjust for the correct R WHITE value (looking on the COLOR ANALYZER).

Note. Don't adjust G value.

21. Repeat the operations from 16 to 20 till the BLACK and WHITE values don't change.

Note. Adjusting the WHITE values could change the BLACK values and vice versa..

22. Select a signal window WHITE TEST PATTERN 20% modulated.
 23. Adjust the brightness to 80, then press EXIT.
 5. Press INFO and successively RGB buttons to display the gains of the RGB channels, that will appear to left side of the black and white values.

- WHITE BALANCE -				
6500° K				
92		R	G	B
100	BLACK	53	50	53
84	WHITE	65	90	65

25. Press B button to select B channel and with - or $\bar{\text{~}}$ cursor buttons adjust the gain for the correct BLACK value (looking on the COLOR ANALYZER).
 6. Press R button to select R channel and with - or $\bar{\text{~}}$ cursor button adjust the gain for the correct B BLACK value (looking on the COLOR ANALYZER).

Note. Don't adjust G value.

27. Press EXIT. To memorise immediately press MEMO, will appear:

COLOR TEMPERATURE MEMORIZED!

or pressing EXIT will appear:

INIT ALL BANKS TO6500?

press ENTER to memorise or EXIT to return to WHITE BALANCE menu without to store.

Note: pressing ENTER will be stored 6500°K into all banks from 00 till 29.

30. **For 3200°K** (select like items 1 and 2) repeat the same operations from 8 to 29, taking the Red CRT as reference: 150 Vpp on Red cathode and adjust only Green and Blue values to obtain the correct Black and White levels.
 31. **For 9300°K** (select like items 1 and 2) repeat the same operations from 8 to 29, taking the Green CRT as reference: 150 Vpp on Green cathode and adjust only Blue and Red values to obtain the correct Black and White levels.

Note. The bank SET TO USER °K is charged in Factory at 6500°K.

RESTORE PRESET

This function is useful to restore the colour temperature of the three sets adjusted in Factory at 3200°K, 6500°K and 9300°K when have been changed in User mode.

Note. When change the colour temperature set into WHITE MENU will change the Factory setting.

From the WHITE BALANCE menu select RESTORE PRESET, using the - or $\bar{\text{~}}$ cursor button, and press the ENTER button. The following indication will appear.

WARNING !
RESTORE OLD XXXX°K TEMP ?

Press ENTER to confirm, will appear:

OLD DATA RESTORED !

CUT-OFF TIMING

This menu permits to determine the condition of the automatic cut-off.

From the WHITE BALANCE menu select CUT-OFF TIMING using the - or $\bar{\text{~}}$ cursor button and press the ENTER button. The following menu will appear.

- CUT-OFF TIMING	
FIRST CUT-OFF AFTER	20
SECOND CUT-OFF AFTER	40
CUT-OFF EVERY	10
NUM CYCLES	100
CUT-OFF ENABLE	NO
CUT-OFF WINDOW	OFF

Use the - or $\bar{\text{~}}$ cursor button to select the item and \leftarrow or Ⓜ button to change the value of the selected item.

- FIRST CUT-OFF AFTER: may be changed from 02 to 30 min.
- SECOND CUT-OFF AFTER: may be changed from 02 to 30 min.
- CUT-OFF EVERY: may be changed from 02 to 30 min.
- NUM CYCLES: may be changed from 050 (~2 sec.) - 100 -150 - 200 till 250 (~ 10 sec.).
- CUT-OFF ENABLE: ON or OFF (when ON permits all cycles)
- CUT-OFF WINDOW: ON or OFF

Note. When the CUT-OFF WINDOW is selected ON permits, pressing RESET button, to see if all "cut-off circuits" are working correctly (with video projector out any menu), looking at the following window that will appear on the screen:

DAC	ADC
97	23
78	23
69	23

SERVICE MENU

Press the **000** button for a long time to enter into MAIN MENU, the following menu will appear.

- MAIN MENU
- VIDEO MENU
- OPTIONS
- INSTALL MENU
- SERVICE MENU

Use the - or **←** cursor to select SERVICE MENU then press ENTER, the following menu will appear.

- SERVICE MENU
- PATTERN PHASE
- WAVEFORM TEST

This menu permits to adjust the horizontal phase of the internal Pattern Signal and to check the automatic waveform test.

PATTERN PHASE

Select the RGB input without any signal applied to it.

Use the **→** or **Ⓜ** cursor button to adjust the horizontal phase from 00 till 99.

The pattern have to be centred on the tubes, looking through the lenses.

PATTERN	PHASE
CRT: RGB	
H. VALUE:	XX

Escaping from this menu, if any changes are made on settings, the projector will ask if the changes have to be memorised, with the following message:

MEMORIZE PATTERN PHASE?

Press ENTER to memorize the new adjustment or EXIT to maintain the previous value.

WAVEFORM TEST

This menu is used as test only; it shows automatically all adjustments that can be performed by the full remote control. From the SERVICE MENU select the WAVE FORM BOARD item using the - or + cursor button and then press the ENTER button. The following menu will appear:

- WAVE FORM BOARD -
-ZONE WAVETEST
- REGISTRATIONS WT
- FOCUS WAVETEST
- PICTURE WAVETEST
ZONE WAVETEST

It shows the convergence adjustments (see ZONE in the User manual): after three adjustments it stops, press **Ⓜ** cursor button to continue or **→** cursor button to repeat the last three adjustments.

REGISTRATIONS WT

It shows the Registrations relative to geometry adjustments (see ZONE in the User manual); after three adjustments it stops, press **Ⓜ** cursor button to continue or **→** cursor button to repeat the last three adjustments.

FOCUS WAVETEST

It shows the adjustments relative to dynamic focus and focus phase); press **Ⓜ** cursor button to continue or **→** cursor button to repeat the last three adjustments.

PICTURE WAVETEST

It shows the black/white adjustments for the three CRT's and contrast, brightness, saturation and hue adjustments; after three adjustments it stops, press **Ⓜ** cursor button to continue or **→** cursor button to repeat the last three adjustments.

PICTURE WAVETEST

To reach this menu select OPTION, pressing OPT button, then MISCELLANEUS, at the end WORKING TIME.

This menu permits to know how long the projector and each CRT worked. In Service when replace one CRT reset the relative time, as follow:

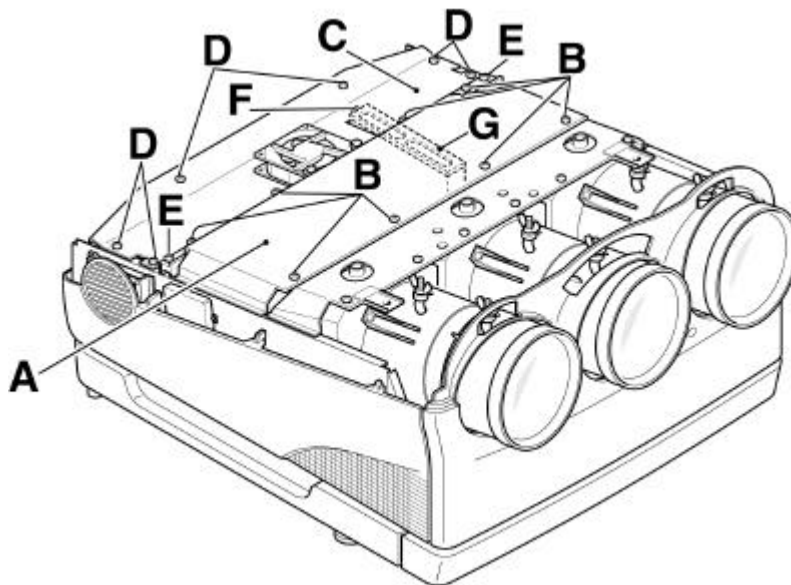
- with - or $\bar{\quad}$ button select the CRT replaced
- press RESET button, will appear

WARNING!
RESET XXX WORKING TIME?

Pressing ENTER the selected CRT will be reset to 0000.

7. SDG UPC2000 INSTALLATION PROCEDURE

- Check the projector EEprom release : press the INFO key on the remote control and read the “SOFTWARE REL.” on page 2/2. If SOFTWARE REL. is 6.04 or lower, replace the EEprom using the one supplied in the kit, otherwise nothing has to be done.
- Switch off the projector and remove the power cable
- Remove the top plastic cover (see: par. 4.2.1 page 16 of the Instruction Manual).
- Remove the top aluminum cover (A) by unscrewing 8 screws (B).
- Remove the bottom aluminum cover (C) by unscrewing 6 screws (D).
- Unscrew the 2 screws (E) at the side of the convergence heat sink and lift it.
- Unscrew the screws (F) on the top of the UPC holder.
- Insert UPC in the channels (G) and press it down.
- Replace EEprom if necessary : unscrew the screws and remove the aluminum cover of microprocessor board PC328 (the board is vertically mounted near the UPC board), extract the board, find out the integrated circuit labeled IC29, replace IC29 with the other one provided in the up-converter kit.
- Remount the microprocessor board
- Reposition all the aluminum cover and the screws.
- NOTE: When repositioning the bottom aluminum cover be careful to insert correctly the two LED 21 e 22 in the holes (see page 6 pict. 3 of the Instruction Manual).
- Close the top plastic cover and the two screws.
- In order to use the UPC converter with the RC3100 remote see par. 3 page 8 and par. 3.14 page 11 of the Instruction Manual, and with the RC3000 remote, see par.5 page 25 of the Instruct. Manual.



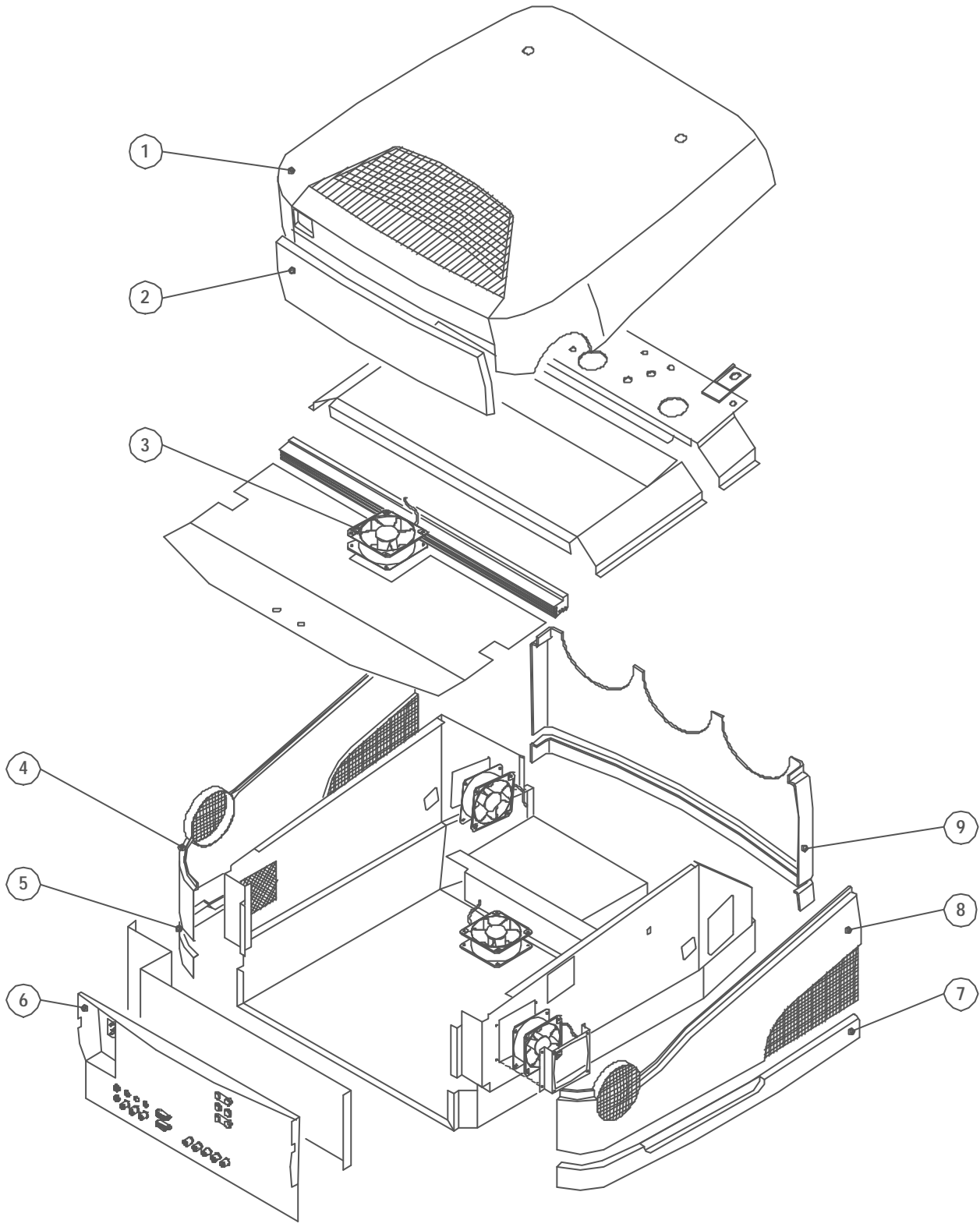
8. SPARE PARTS LIST

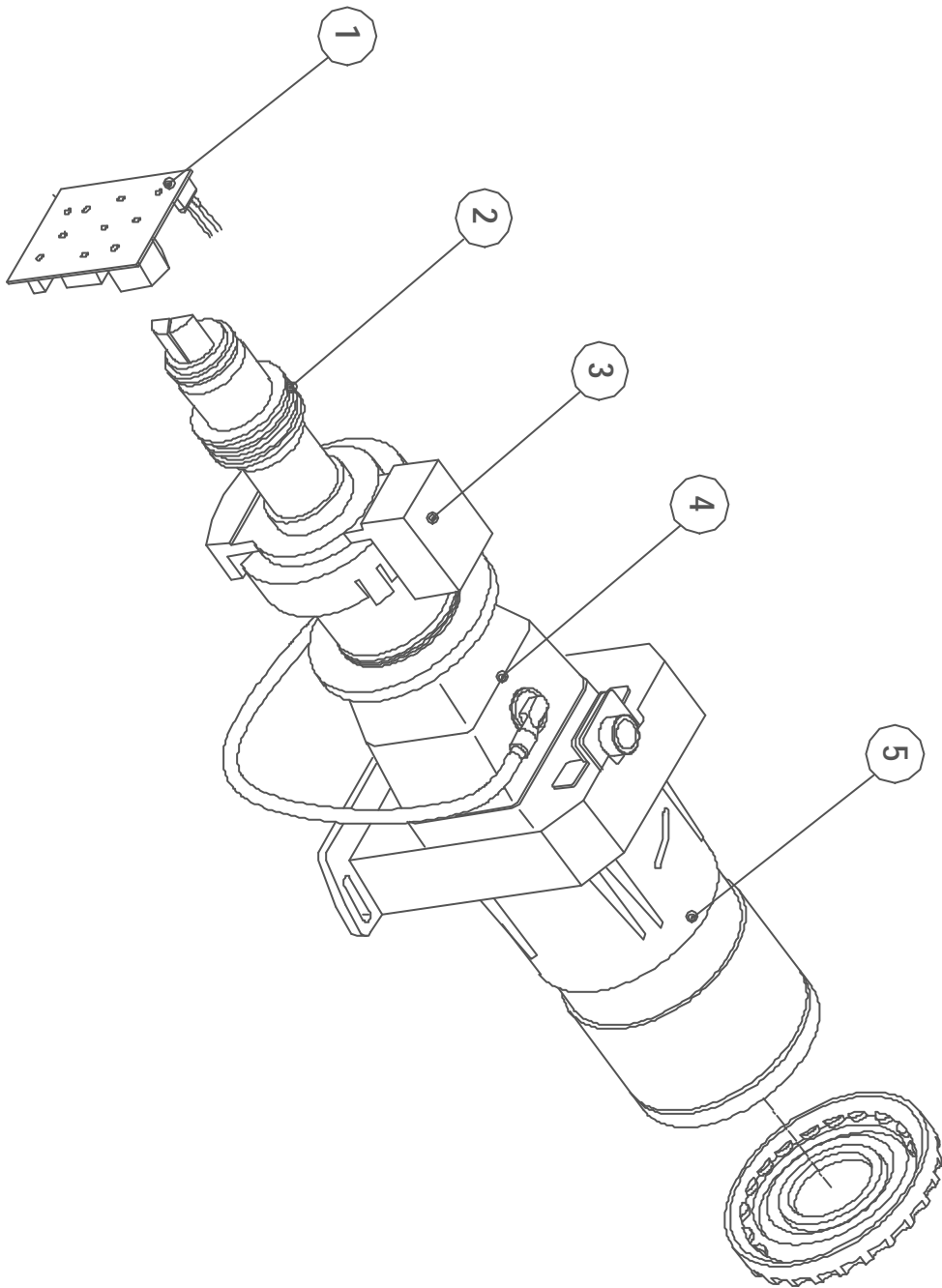
How to find the correct part number		
Choice the desired ITEM number and matches it with the Technical Code column; the technical code is printed on to the back panel label.	Example 1 ITEM 1with TC850136003 Part number 800186000	Example 2 ITEM 1 with TC850136019 Part number 800186200

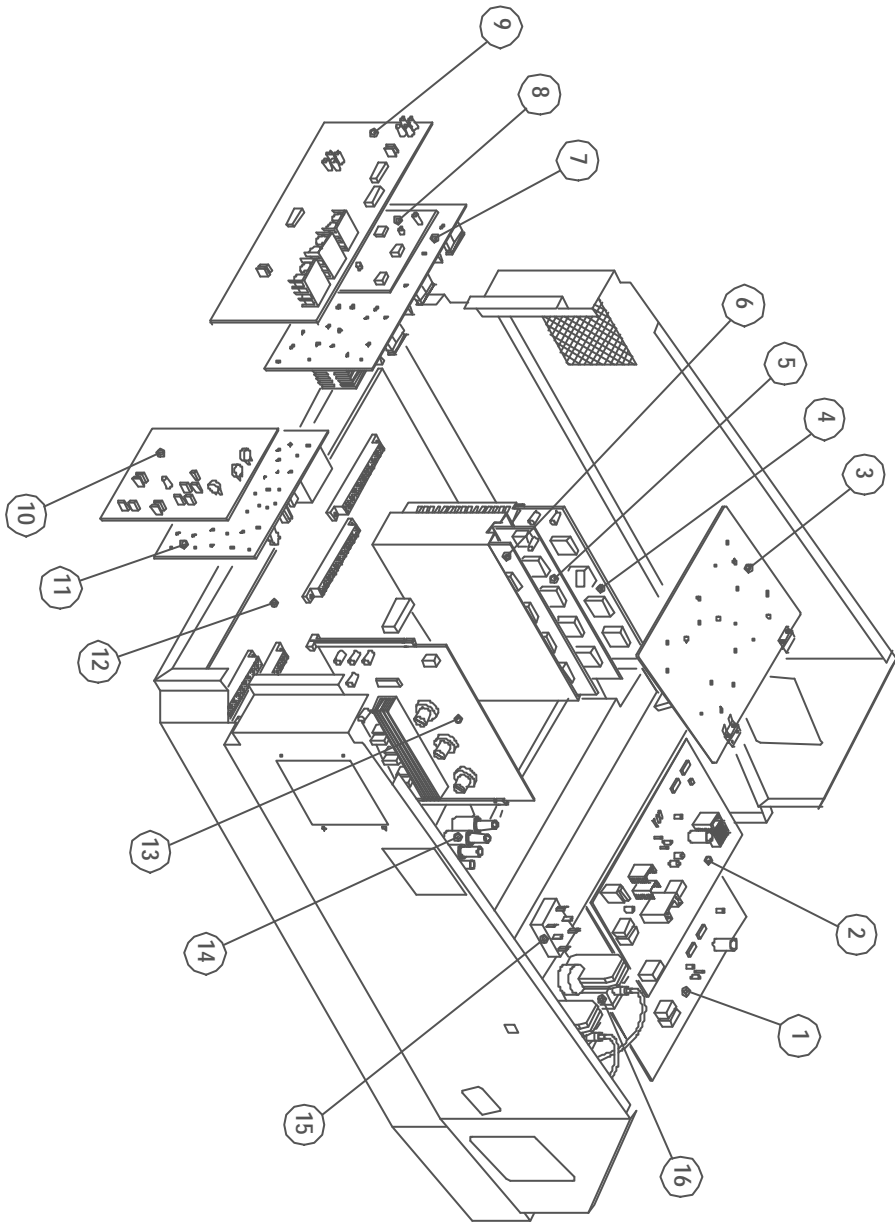
SPARE PART LIST table 3/3 "CRT tubes"

ITEM	DESCRIPTION	TC	TC	TC	TC	TC	TC	TC
		850136000	850136003	850136005	850136007	850136009	850136011	850136013
1	CRT video board	800186000	800186000	800186000	800186000	800186000	800186100	800186100
2	Astig. magnet assembly	722044000	722044000	722044000	722044000	722044000	722044000	722044000
3	Yokes assembly	702024000	702024000	702024000	702024000	702024000	702024000	702024000
4 RED	Red CRT tube	710111000	710111000	710111000	710111000	710111000	710111000	710111000
4 GREEN	Green CRT tube	710112000	710112000	710112000	710112000	710112000	710112000	710112000
4 BLUE	Blue CRT tube	710113000	710113000	710113000	710113000	710113000	710113000	710113000
5	Proj. lens (front cover incl.)	782089000	782089000	782089000	782089000	782089000	782089000	782089000

ITEM	DESCRIPTION	TC	TC	TC	TC	TC	TC	TC
		850136014	850136015	850136017	850136019	850136021	850123023	850123025
1	CRT video board	800186200	800186200	800186200	800186200	800186200	800186200	800186200
2	Astigmatism magnet assembly	722044000	722044000	722044000	722044000	722044000	722044000	722044000
3	Yokes assembly	702024000	702024000	702024000	702024000	702024000	702024000	702024000
4 RED	Red CRT tube	710111000	710111000	710111000	710111000	710111000	710111000	710111000
4 GREEN	Green CRT tube	710112000	710112000	710112000	710112000	710112000	710112000	710112000
4 BLUE	Blue CRT tube	710113000	710113000	710113000	710113000	710113000	710113000	710113000
5	Projection lens (front cover included)	782089000	782089000	782089000	782089000	782089000	782089000	782089000







9. SVD800HD SPARE PART LIST

SVD800HD spare part list table 1/3 "E.stetics"

ITEM	DESCRIPTION	TC 850136000	TC 850136003	TC 850136005	TC 850136007	TC 850136009	TC 850136011	TC 850136013
1	Top cover	412663100	412663100	412663100	412663100	412663100	412663100	412663100
2	Back cover	480137000	480137000	480137000	480137000	480137000	480137000	480137000
3	Cooling fan	840179000	840179100	840179100	840179100	840179100	840179100	840179100
4	Right top cover	412669000	412669000	412669000	412669000	412669000	412669000	412669000
5	Right bottom cover	410113000	410113000	410113000	410113000	410113000	410113000	410113000
6	Back methallic panel	490228000	490228100	490228100	490228100	490228100	490228100	490228100
7	Left bottom cover	410112000	410112000	410112000	410112000	410112000	410112000	410112000
8	Left top cover	412672000	412672000	412672000	412672000	412672000	412672000	412672000
9	Front cover	423899000	423899000	423899001	423899001	423899001	423899001	423899001
10	Front bottom cover	420111000	420111000	420111000	420111000	420111000	420111000	420111000

ITEM	DESCRIPTION	TC 850136014	TC 850136015	TC 850136017	TC 850136019	TC 850136021	TC 850123023	TC 850123025
1	Top cover	412663100	412663100	412663100	412663100	412663100	412663100	412663100
2	Back cover	480137000	480137000	480137000	480137000	480137000	480137000	480137000
3	Cooling fan	840179100	840179100	840179100	840179100	840179100	840179100	840179100
4	Right top cover	412669000	412669000	412669000	412669000	412669000	412669000	412669000
5	Right bottom cover	410113000	410113000	410113000	410113000	410113000	410113000	410113000
6	Back methallic panel	490228100	490228100	490228100	490228100	490228100	490228100	490228100
7	Left bottom cover	410112000	410112000	410112000	410112000	410112000	410112000	410112000
8	Left top cover	412672000	412672000	412672000	412672000	412672000	412672000	412672000
9	Front cover	423899001	423899001	423899001	423899001	423899001	423899001	423899001
10	Front bottom cover	420111000	420111000	420111000	420111000	420111000	420111000	420111000

SVD800HD spare part list table 2/3 "Electronic boards"

ITEM	DESCRIPTION	TC 850136000	TC 850136003	TC 850136005	TC 850136007	TC 850136009	TC 850136011	TC 850136013
1	Power supply	790117000	790117100	790117100	790117100	790119200	790119200	790119200
2	EHT & Dyn Focus PC132	800187000	800187100	800187100	800187100	800187100	800187100	800187100
3	Power convergence PC324	800182000	800182000	800182000	800182000	800182000	800182000	800182000
4	UPC PC122							
5	Microprocessor PC328	800189100	800189100	800189100	800189100	800189100	800189100	800189100
5a	EPROM with software	931590524 (vers. 603)	931590524 (vers. 603)	931590524 (vers. 603)	931590524 (vers. 603)	931590530 (vers. 6.04)	931590531 (vers. 6.05)	931590531 (vers. 6.05)
5b	EEPROM with factory datas	931590525	931590525	931590525	931590525	931590525	931590525	931590525
6	Waveform PC116	805073102	805073102	800195000	800195000	800195000	-----	-----
6	Waveform PC339	-----	-----	-----	-----	-----	800004000	800004010
7	Video processor PC131	805157203	800196000	800196000	800196000	800196000	800196000	800196000
8	Sync processor PC226	800190000	800190100	800190100	800190100	800190100	800190200	800190200
9	Input PC322	800169000	800169100	800169100	800169100	800169100	800169100	800169200
10	Vertical deflection PC098	805063100	800193000	800193000	800193000	800193000	800193100	800193110
11	Horizontal deflection PC028	805064101	800194000	800194000	800194000	800194000	800194000	800194000
12	Mther board PC323	800181000	800181100	800181100	800181100	800181100	800181100	800181100
13	Hor. Shift & Prot PC121	805083100	805083100	805083100	805083100	805083200	805083200	805083200
14	EHT distributor	540161000	540161000	540161000	540161000	540161000	540161000	540161000
15	Potentiometer block	550107000	550107000	550107000	550107000	550107000	550107000	550107000
16	FBT PC326	800185000	800185000	800185000	800185000	800185000	800185100	800185100

ITEM	DESCRIPTION	TC 850136014	TC 850136015	TC 850136017	TC 850136019	TC 850136021	TC 850123023	TC 850123025
1	Power supply	790119200	790119200	790119200	790119200	790119200	790119200	790119200
2	EHT & Dyn Focus PC132	800187100	800187100	800187100	800187100	800187100	800187100	800187100
3	Power convergence PC324	800182000	800182000	800182000	800182000	800182000	800182000	800182000
4	UPC PC122							
5	Microprocessor PC328	800189100	800189100	800189100	800189100	800189100	800189100	800189100
5a	EPROM with software	931590531 (vers. 6.05)	931590531 (vers. 6.05)	931590531 (vers. 6.05)	931590531 (vers. 6.05)	931590531 (vers. 6.05)	931590531 (vers. 6.05)	931590531 (vers. 6.05)
5b	EEPROM with factory datas	931590525	931590525	931590525	931590525	931590525	931590525	931590525
6	Waveform PC116	-----	-----	-----	-----	-----	-----	-----
6	Waveform PC339	800004010	800004010	800004010	800004010	800004010	800004010	800004010
7	Video processor PC131	800196200	800196200	800196200	800196200	800196200	800196210	800196210
8	Sync processor PC226	800190200	800190200	800190300	800190300	800190300	800190300	800190300
9	Input PC322	800169200	800169210	800169210	800169210	800169210	800169210	800169210
10	Vertical deflection PC098	800193110	800193110	800193110	800193110	800193110	800193110	800193110
11	Horizontal deflection PC028	800194000	800194000	800194000	800194000	800194000	800194000	800194000
12	Mther board PC323	800181100	800181100	800181200	800181200	800181200	800181200	800181200
13	Hor. Shift & Prot PC121	805083200	805083200	805083200	805083200	805083200	800037000	800037000
14	EHT distributor	540161000	540161000	540161000	540161000	540161000	540161000	540161000
15	Potentiometer block	550107000	550107000	550107000	550107000	550107000	550107000	550107000
16	FBT PC326	800185200	800185200	800185200	800185200	800185200	800185200	800185200

SVD800HD spare part list table 3/3 "CRT tubes"

ITEM	DESCRIPTION	TC 850136000	TC 850136003	TC 850136005	TC 850136007	TC 850136009	TC 850136011	TC 850136013
1	CRT video board	800186000	800186000	800186000	800186000	800186000	800186100	800186100
2	Astigmatism magnet assy	722044000	722044000	722044000	722044000	722044000	722044000	722044000
3	Yokes assembly	702024000	702024000	702024000	702024000	702024000	702024000	702024000
4 R	Red CRT tube	710111000	710111000	710111000	710111000	710111000	710111000	710111000
4 G	Green CRT tube	710112000	710112000	710112000	710112000	710112000	710112000	710112000
4 B	Blue CRT tube	710113000	710113000	710113000	710113000	710113000	710113000	710113000
5	Projection lens (front cover included)	782089000	782089000	782089000	782089000	782089000	782089000	782089000

ITEM	DESCRIPTION	TC 850136014	TC 850136015	TC 850136017	TC 850136019	TC 850136021	TC 850123023	TC 850123025
1	CRT video board	800186200	800186200	800186200	800186200	800186200	800186200	800186200
2	Astigmatism magnet assy	722044000	722044000	722044000	722044000	722044000	722044000	722044000
3	Yokes assembly	702024000	702024000	702024000	702024000	702024000	702024000	702024000
4 R	Red CRT tube	710111000	710111000	710111000	710111000	710111000	710111000	710111000
4 G	Green CRT tube	710112000	710112000	710112000	710112000	710112000	710112000	710112000
4 B	Blue CRT tube	710113000	710113000	710113000	710113000	710113000	710113000	710113000
5	Projection lens (front cover included)	782089000	782089000	782089000	782089000	782089000	782089000	782089000

SVD800 Millennium spare part list table 1/3 "Estetics"

ITEM	DESCRIPTION	TC 850009000	TC 850009002	TC 850009004	TC 850009006	TC 850009008	TC 850009010	TC 850009012	TC 850009014
1	Top cover	410007000	410007000	410007000	410007000	410007000	410007000	410007000	410007000
2	Back cover	480013000	480013000	480013000	480013000	480013000	480013000	480013000	480013000
3	Cooling fan	840179100	840179100	840179100	840179100	840179100	840179100	840179100	840179100
4	Right top cover	410002000	410002000	410002000	410002000	410002000	410002000	410002000	410002000
5	Right bottom cover	150003000	150003000	150003000	150003000	150003000	150003000	150003000	150003000
6	Back methallic panel	490228100	490228100	490228100	490228100	490228100	490228100	490228100	490228100
7	Left bottom cover	150002000	150002000	150002000	150002000	150002000	150002000	150002000	150002000
8	Left top cover	410003000	410003000	410003000	410003000	410003000	410003000	410003000	410003000
9	Front cover	420001000	420001000	420001000	420001000	420001000	420001000	420001000	420001000
10	Front bottom cover	150001000	150001000	150001000	150001000	150001000	150001000	150001000	150001000

SVD800HD spare part list table 2/3 "Electronic boards"

ITEM	DESCRIPTION	TC 850009000	TC 850009002	TC 850009004	TC 850009006	TC 850009008	TC 850009010	TC 850009012	TC 850009014
1	Power supply	790117200	790117200	790117200	790117200	790117200	790117200	790117200	790117200
2	EHT/Dyn Focus PC132	800187100	800187100	800187100	800187100	800187100	800187100	800187100	800187100
3	Power conv. PC324	800182000	800182000	800182000	800182000	800182000	800182000	800182000	800182000
4	UPC PC122								
5	Microprocessor PC328	800189100	800189100	800189100	800189100	800189100	800189100	800189100	800189100
5a	EPROM with software 6.05	931590531	931590531	931590531	931590531	931590531	931590531	931590531	931590531
5b	EEPROM with factory datas	931590525	931590525	931590525	931590525	931590525	931590525	931590525	931590525
6	Waveform PC116	-----	-----	-----	-----	-----	-----	-----	-----
6	Waveform PC339	800004010	800004010	800004010	800004010	800004010	800004010	800004010	800004010
7	Video proc. PC131	800196200	800196200	800196200	800196200	800196200	800196200	800196210	800196210
8	Sync proc. PC226	800190200	800190200	800190300	800190300	800190300	800190300	800190300	800190300
9	Input PC322	800014000	800014010	800014010	800014010	800014010	800014010	800014010	800014010
10	Vert. deflection PC098	800193110	800193110	800193110	800193110	800193110	800193110	800193110	800193110
11	Hor. deflection PC028	800194000	800194000	800194000	800194000	800194000	800194000	800194000	800194000
12	Mother board PC323	800181100	800181100	800181200	800181200	800181200	800181200	800181200	800181200
13	Hor.Shift/Prot PC121	805083200	805083200	805083100	805083100	805083200	805083200	800037000	800037000
14	EHT distributor	540161000	540161000	540161000	540161000	540161000	540161000	540161000	540161000
15	Potentiometer block	550107000	550107000	550107000	550107000	550107000	550107000	550107000	550107000
16	FBT PC326	800185000	800185000	800185000	800185000	800185000	800185000	800185000	800185000

SVD800 Millennium spare part list table 3/3 "CRT tubes"

ITEM	DESCRIPTION	TC 850009000	TC 850009002	TC 850009004	TC 850009006	TC 850009008	TC 850009010	TC 850009012	TC 850009014
1	CRT video board	800186200	800186200	800186200	800186200	800186200	800186200	800186200	800186200
2	Astig. magnet assy	722044000	722044000	722044000	722044000	722044000	722044000	722044000	722044000
3	Yokes assembly	702024000	702024000	702024000	702024000	702024000	702024000	702024000	702024000
4 R	Red CRT tube	710111000	710111000	710111000	710111000	710111000	710111000	710111000	710111000
4 G	Green CRT tube	710112000	710112000	710112000	710112000	710112000	710112000	710112000	710112000
4 B	Blue CRT tube	710113000	710113000	710113000	710113000	710113000	710113000	710113000	710113000
5	Projection lens	782089000	782089000	782089000	782089000	782089000	782089000	782089000	782089000

SVD800HD Teatro spare part list table 1/3 "Estetics"

ITEM	DESCRIPTION	TC 850063000	TC 850063002
1	Top cover	412663200	412663200
2	Back cover	480137000	480137000
3	Cooling fan	840179100	840179100
4	Right top cover	412669000	412669000
5	Right bottom cover	410113000	410113000
6	Back methallic panel	490228100	490228100
7	Left bottom cover	410112000	410112000
8	Left top cover	412672000	412672000
9	Front cover	423899001	423899001
10	Front bottom cover	420111000	420111000

SVD800HD Teatro spare part list table 2/3 "Electronic boards"

ITEM	DESCRIPTION	TC 850062000	TC 850062000
1	Power supply	790117200	790117200
2	EHT & Dyn Focus PC132	800187100	800187100
3	Power convergence PC324	800182000	800182000
4	UPC PC122		
5	Microprocessor PC328	800189100	800189100
5a	EPROM with software 6.03	931590524	931590524
5b	EEPROM with factory datas	931590525	931590525
6	Waveform PC339	800004010	800004010
7	Video processor PC131	800196210	800196210
8	Sync processor PC226	800190300	800190300
9	Input PC322	800014010	800014010
10	Vertical deflection PC098	800193110	800193110
11	Horizontal deflection PC028	800194000	800194000
12	Mother board PC323	800182000	800182000
13	Hor. Shift & Prot PC121	800037000	800037000
14	EHT distributor	540161000	540161000
15	Potentiometer block	550107000	550107000
16	FBT PC326	800185000	800185000

SVD800HD Teatro spare part list table 3/3 "CRT tubes"

ITEM	DESCRIPTION	TC 850062000	TC 850062002
1	CRT video board	800186200	800186200
2	Astigmatism magnet assy	722044000	722044000
3	Yokes assembly	702024000	702024000
4 R	Red CRT tube	710111000	710111000
4 G	Green CRT tube	710112000	710112000
4 B	Blue CRT tube	710113000	710113000
5	Projection lens	782089000	782089000

SVD800HDB Teatro spare part list table 1/3 "estetics"

ITEM	DESCRIPTION	TC 850064000	TC 850064002
1	Top cover	41001000	41001000
2	Back cover	480009100	480009100
3	Cooling fan	840179100	840179100
4	Right top cover	410002000	410002000
5	Right bottom cover	410005000	410005000
6	Back methallic panel	490228100	490228100
7	Left bottom cover	410003000	410003000
8	Left top cover	410002000	410002000
9	Front cover	420002000	420002000
10	Front bottom cover	420001000	420001000

SVD800HDB Teatro spare part list table 2/3 "Electronic boards"

ITEM	DESCRIPTION	TC 850064000	TC 850064002
1	Power supply	790117200	790117200
2	EHT & Dyn Focus PC132	800187100	800187100
3	Power convergence PC324	800182000	800182000
4	UPC PC122		
5	Microprocessor PC328	800189100	800189100
5a	EPROM with software 6.03	931590524	931590524
5b	EEPROM with factory datas	931590525	931590525
6	Waveform PC339	800004010	800004010
7	Video processor PC131	800196210	800196210
8	Sync processor PC226	800190300	800190300
9	Input PC322	800169210	800169210
10	Vertical deflection PC098	800193110	800193110
11	Horizontal deflection PC028	800194000	800194000
12	Mother board PC323	800182000	800182000
13	Hor. Shift & Prot PC121	800037000	800037000
14	EHT distributor	540161000	540161000
15	Potentiometer block	550107000	550107000
16	FBT PC326	800185000	800185000

SVD800HDB Teatro spare part list table 3/3 "CRT tubes"

ITEM	DESCRIPTION	TC 850064000	TC 850064002
1	CRT video board	800186200	800186200
2	Astigmatism magnet assy	722044000	722044000
3	Yokes assembly	702024000	702024000
4 R	Red CRT tube	710111000	710111000
4 G	Green CRT tube	710112000	710112000
4 B	Blue CRT tube	710113000	710113000
5	Projection lens	782089000	782089000