SERVICE MANUAL

Quadro

Colour Television PAL/SECAM/BG/DK

Models:

14" CTV-37V10

21" CTV-55V10

CAUTION

Before serving the chassis, read the "X-Ray Radiation Precaution", "Safety Precaution" and "Product Safety | Notice" on page 2 of this manual.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-Ray Radiation.' To avoid such hazards, the high voltage must not be above the specified limit. The normal value of the high voltage of this receiver is 24KV at zero beam current (minimum brightness) under 220V AC power source. The high voltage must not, under any circumstances, exceed 30KV.
2. Each time a receiver requires servicing, the high voltage should be checked following the High Voltage Check procedure in this manual. It is recommended the reading of the high voltage be recorded as a part of the service record, it is important to use an accurate and reliable high voltage meter.
3. The primary source of X-Ray Radiation in this TV Receiver is the picture tube. For continued X-Ray Radiation protection, the replacement tube must be exactly the same type tube as specified in the part list.
4. Some parts in this receiver have special safety - related characteristics for X-Ray Radiation protection. For continued safety, parts replacement should be undertaken only after referring to the Product Safety Notice.

SAFETY PRECAUTION

Warning: Service should not be attempted by anyone unfamiliar with necessary precaution on this receiver. The following are the necessary precautions observed before servicing this chassis.

1. Since the power supply circuit of this receiver is directly connected to the AC power line, an isolation transformer should be used during any dynamic service to avoid possible shock hazard.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragment will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as: non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. When replacing parts or circuit boards, disconnect the power cord.
5. When replacing a high wattage resistor (Metal oxide film resistor) on circuit board, keep the resistor 10mm (1/2in.) away from circuit board.
6. Connection wires must be kept away from components with high voltage or high temperature.
7. If any fuse in this TV receiver is blown, replace it with the FUSE specified in the chassis part list.
8. The receiver is designed to operate with 220V(50/60Hz) AC mains.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-Ray Radiation protection afforded by them cannot necessarily be obtained by using replacement components rated for high wattage, etc. Replaced parts which have these special safety characteristics are identified in this manual and its supplements, electrical components having such features are shaded on the schematic diagram and the part list.

Before replacing any of these components, read the part list in this manual carefully. The use of substitute replacement parts, which do not have the same safety characteristics, as specified in the part list may create shock, fire, and X-Ray Radiation or other hazards.

ALIGNMENT INSTRUCTION (3Y01)

1. Please notice the following before alignment and equipment:
   - 1-1 Don't short any two soldering points, which should not be shorted and don't touch any components, which should not be touched.
   - 1-2 Please pull out plug before equipment.
   - 1-3 For safety reasons, all components equipped or replaced should be identical with BOM.
   - 1-4 Must be warm up for 30 minutes or more and degauss CRT thoroughly with demagnetizer before alignment.
   - 1-5 The data of EEPROM must be stored before the adjustment for main chassis.

2. Tools and equipment for adjustment
   - 2-1 small "-" screwdriver
   - 2-2 screwdriver without inductance
   - 2-3 Pattern Generator
   - 2-4 DC Regulated power supply
   - 2-5 Digital Voltmeter
   - 2-6 Sweep Signal Generator
   - 2-7 20MHz 2-channel Oscilloscope

3. Signal condition

ITEMS	LOGO	PICTURE CARRIER	PATTERN	SYSTEM	SOUND MODE	REMARK
1	CHN-1CH	49.75MHz	PHILIPS PATTERN	PAL-I	1KHz	
2	WE-6CH	182.25MHz	RED PATTERN	PAL-B/G	L: -------- R:400Hz	STEREO/ TELETEXT
3	CHN-12CH	216.25MHz	GREY SCALE /COLOR BAR	SECAM-D/K	SWEEP SOUND	
4	CHN-13CH	471.25MHz	CROSS HATCH PATTERN	PAL-D/K	1KHz	
5	USA-33CH	585.25MHz	COLOR BAR	NTSC-M	--------	WITHOUT SOUND CARRIER
6	--------	751.25MHz	MONOSCOPE PATTERN	PAL-I	SWEEP SOUND	
7	--------	85.25MHz	GREY SCALE /COLOR BAR	SECAM-L'	1KHz	SYS-2
8	WE-S20CH	294.25MHz	Semi-COLOR BAR	PAL-B/G	A:400Hz B:1KHz	DOUBLE SOUND CARRIER

4. Adjust for main chassis

4-1 PIF Adjustment (38.9MHz)

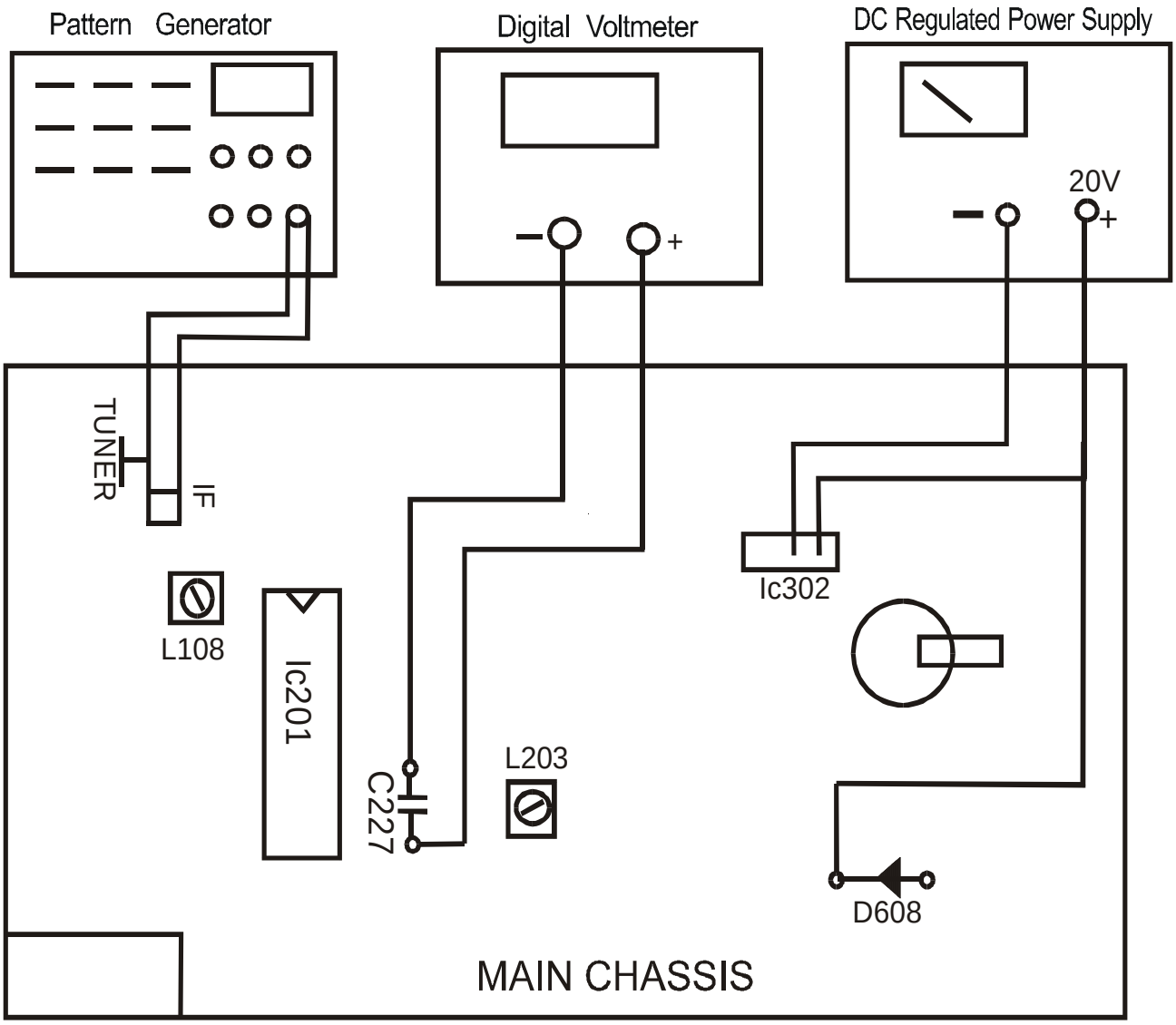


Fig.1

4-1-1 Tuner AGC connects to GND. Pattern Generator outputs 38.9MHz R.F. signal and connects to tuner IF output terminal or pin5 of saw filter.

4-1-2 Connect Digital voltmeter across C227. DC Regulated power supply positive terminal output +20V to pin1of IC302 and negative terminal of D608. DC Regulated power supply negative terminal connects to pin2 of IC302.

4-1-3 Adjust L203 coil to obtain 3.6V Digital voltage meter reading.

4-2 System NTSC Adjust(L108)

4-2-1 Tuner AGC connects to GND. Connect Sweep Signal Generator to tuner IF output terminal. Sweep oscilloscope V-IN terminal connects to C109. And connect Q102 'b' pole to the power terminal of R104 through a 10K? resistor.(shown in FIG.2)

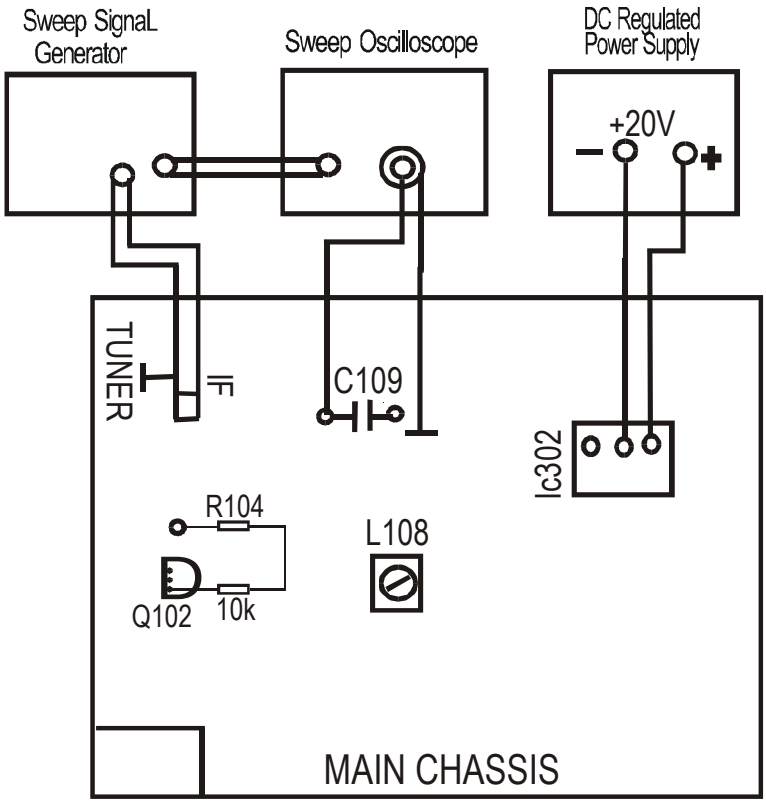
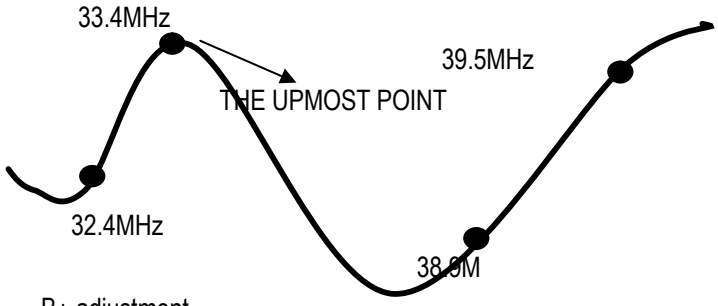


FIG.2

4-2-2 Apply +20V DC across IC302 as shown in FIG.2.

4-2-3 Adjust L108 to obtain waveform as following. There will be no alignment to it without NTSC system.



4-3 B+ adjustment

4-3-1 Disconnect horizontal load. Connect a light bulb (100 W) AC 250V across C321.

4-3-2 Connect 220V AC 50Hz to CN601 and switch on power switch.

4-3-3 Test the voltage with digital voltage meter between C321 two terminals.

4-3-4 Adjust VR601 to obtain +110V +/- 0.5V.

4-4 AGC alignment

4-4-1 Receive 60dB +/- 2dB RF signal. Connect Digital voltmeter positive terminal to AGC terminal of TUNER and negative terminal to GND.

4-4-2 Press “MENU" key twin, till the PICTURE MENU appears, then press “Q.VIEW” or “RETURN” key, “MUTE” key to turn on CPU. TV SET will go to factory mode. Press “TIMER” key to go to the next factory menu. Go to “MENU 3” status by this means.

4-4-3 Select RF.AGC by pressing “CH+” or "PROG+" and "CH-" or "PROG-" keys. Adjust “VOL+” and "VOL-“ keys to obtain 4V Digital voltage meter reading.

4-4-4 Press “MENU” key to exit factory mode.

5. COMPLETE MACHINE GENERAL ADJUSTMENT

5-1 Go to factory mode according to 4-4-2 before warm up line.

5-2 Focus Adjustment.

5-1-1 Receive monoscope pattern.

5-1-2 Set TV to work in dynamic status.

5-1-3 Adjust the focus knob of FBT to get the clearest picture.

5-3 Screen Voltage Adjustment.

5-3-1 Go to factory mode “MENU 2” status according to 4-4-2.

5-3-2 Select “V-KILL” by pressing “CH+” or "PROG+" and "CH-" or "PROG-" keys..

5-3-3 Press and hold on the “VOL+” key all the time, Adjust the screen knob of FBT to get a horizontal faintness beam line. Then release "VOL+" key.

5-4 White Balance Adjustment (Applied in factory only)

5-4-1 Set the TV set to AV mode. Receive black white pattern (Color Temperature test pattern).

5-4-2 Insert 6 Pin Service flat cable into CN002. Press adjustment keys, and then go to automatic white balance adjustment.

5-4-3 After adjusting well, remove the 6 Pin Service flat cable.

5-4(1) White Balance adjustment (Applied when servicing)

5-4(1)-1 Set the TV set to AV mode. Receive black white pattern (Color Temperature test pattern).

5-4(1)-2 Put the test probe 1 of CRT color analyzer (CA-100) on the Low Bright area and the test probe 2 on the High Bright area. Adjust bright and contrast to get 5nit of low bright area and 80 nit of high bright area.

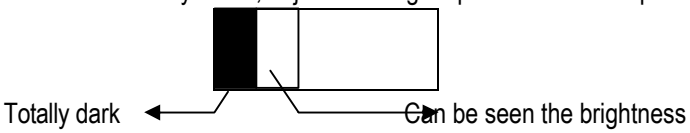
5-4(1)-3 Go to factory mode “MENU2” according to 4-4-2. Obtain Low Bright area to x=281and y=311 by adjusting R.bias and B.bias. Obtain High Bright area to x=281and y=311 by adjusting R.drive and B.drive. Obtain both area to x=281 and y=311 by adjusting the two status repeatedly.

5-5 Sub-bright adjustment

5-5-1 Receive GREY SCALE signal. (PHILIPS PM54200, 11 STEP)

5-5-2 Set TV at normal mode.

5-5-3 Get into factory mode, adjust sub-bright option to make the picture same as below.



5-6 Vertical Size and PinCushion Adjustment

5-6-1 Receive monoscope pattern. Set TV standard status. Adjust V.size to obtain picture’s vertical redisplay ratio more than 90% in factory mode “MENU1”.

5-6-2 Receive cross hatch pattern. Set TV standard status. Adjust V.LINE and V.SC to obtain picture’s vertical pin cushion a good status in factory mode “MENU1”.

5-6-3 Receive cross hatch pattern. Set TV standard status. In factory mode “MENU1” adjust V.POSITION to obtain picture’s vertical center at the center of CRT screen.

5-7 Horizontal Center Adjustment

Receive PHILIPS PATTERN. Set TV standard status. Adjust H.PHASE to obtain horizontal center at the center of CRT screen.

5-8 Secam color decoder alignment.

Receive the GREY SCALE /COLOR BAR signals. Enter into the factory mode. Adjust the values of Secam R-Y DC and Secam B-Y DC to make the gray scale to the normal color.

5-9 COLOR PURITY ADJUSTMENT

5-9-1 Before color purity adjustment, Warm up the TV set over 15 minutes and fully degauss.

5-9-2 Receive pure white signal in AV status and set the TV receiver dynamic.

5-9-3 Go to factory mode “MENU2”. After write down the values of R-BIAS and B-BIAS, set the values of R-BIAS and B-BIAS zero.

5-9-4 Loosen the clamp screw of the deflection yoke and pull the deflection yoke towards color purity magnetic loop.

5-9-5 Adjust color purity magnetic loop to make the green area at the center of CRT screen.

5-9-6 Slowly push the deflection yoke toward the front of CRT and set it where a uniform green field is obtained. Tighten the clamp screw of the deflection yoke.

5-9-7 Restore the values of R-BIAS, G-BIAS and B-BIAS.

5-10 CONVERGENCE ADJUSTMENT

5-10-1 Receive a dotted pattern. Set the TV receiver dynamic.

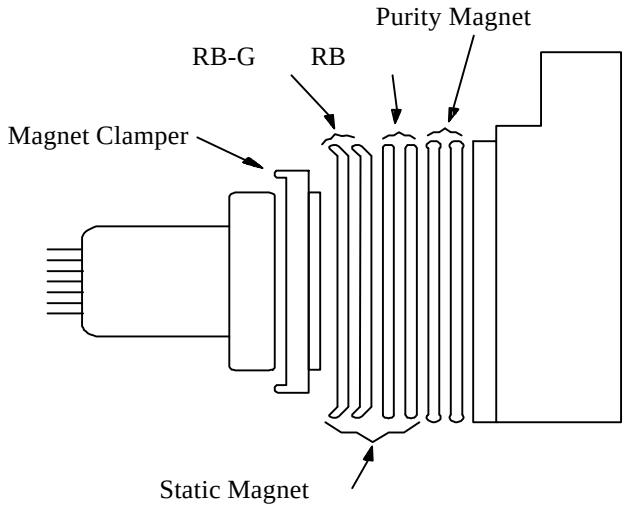
5-10-2 Loose the convergence magnet clamper and align red with blue dots at the center of the screen by rotating (R, B) static convergence magnets.

5-10-3 Align Red/Blue with green dots at the center of the screen by rotating (RB-G) static convergence magnet.

5-10-4 Remove the DY wedges and slightly tilt the deflection yoke horizontally and vertically to obtain the good overall convergence. Fix them after the good overall convergence got.

5-10-5 Fix the convergence magnets by turning the clamper.

5-10-6 If purity error is found, follow “PURITY ADJUSTMENT” instructions.



Appendix: If customer logo is needed, please set LOGO ON 1 and CUS.LOGO (or CUSTOM LOGO) 1 at the SERVICE MODE. Change the data of E²prom to get the custom logo with special implement (I2C converter Board and Computer). Please see the details as following.

Method to Write Data for Custom Logo

The are total 12 characters that can be input into E²prom and display on the TV. The address range of E²prom (24C04) is from 170H-17BH. The following table shows the code input character.

Character	Data Code	Character	Data Code
'0'	30H	'K'	4BH
'1'	31H	'L'	4CH
'2'	32H	'M'	4DH
'3'	33H	'N'	4EH
'4'	34H	'O'	4FH
'5'	35H	'P'	50H
'6'	36H	'Q'	51H
'7'	37H	'R'	52H
'8'	38H	'S'	53H
'9'	39H	'T'	54H
'A'	41H	'U'	55H
'B'	42H	'V'	56H
'C'	43H	'W'	57H
'D'	44H	'X'	58H
'E'	45H	'Y'	59H
'F'	46H	'Z'	5AH
'G'	47H	'/'	2FH
'H'	48H	'.'	2EH
'I'	49H	'*'	40H
'J'	4AH	' '	09H

SERVISNI MENU ZA TV 55V10/37V10
shassis: 3Y/4Y01

MENU 1

V. SIZE 20
V. POS 33
V. LINE 10
V. SC 0
H. PHASE 13
H. BLK 0
PATTERN 0
H. FREQ 25

MENU 3

RF. AGC 15
VIF. SYS 1
SND. TRAP 7
VIDEO LEVEL 0 (4)
FM LEVEL 0
R. B. BALANCE 8
DIGITAL OSD 0

MENU 2

V. KILL 0
R. C. 128
G. C. 180
B. C. 125
R. D. 48
G. D. 10
B. D. 63
COLLOR TEST 0

MENU 4

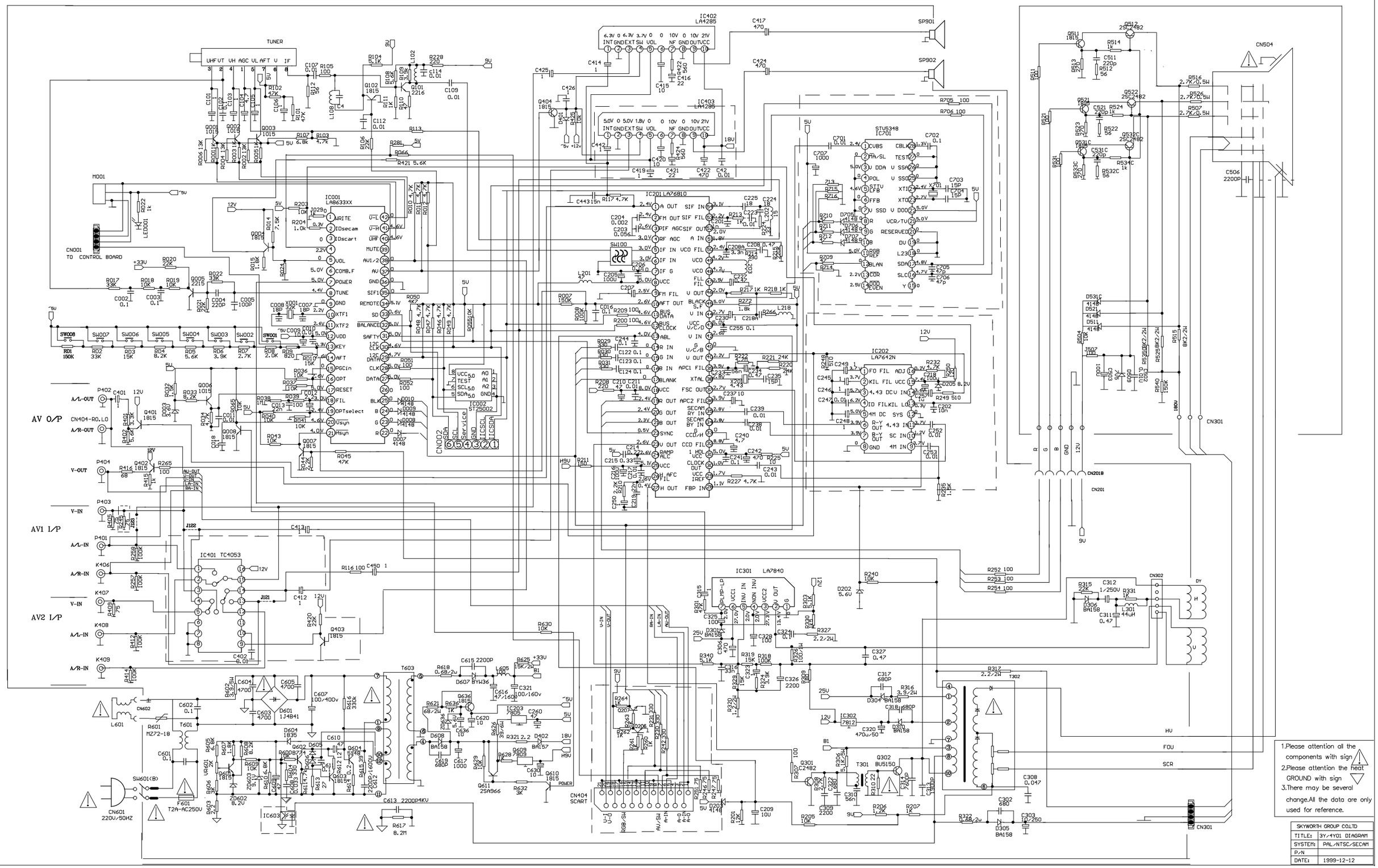
SUB_BRI 123
OSD CONT 100
B. GAM SEL 0
RG GAM DEF 0
SCM B_Y DC 8
SCM R_Y DC 4
BLUE BLACK 1
C/E OSD 0

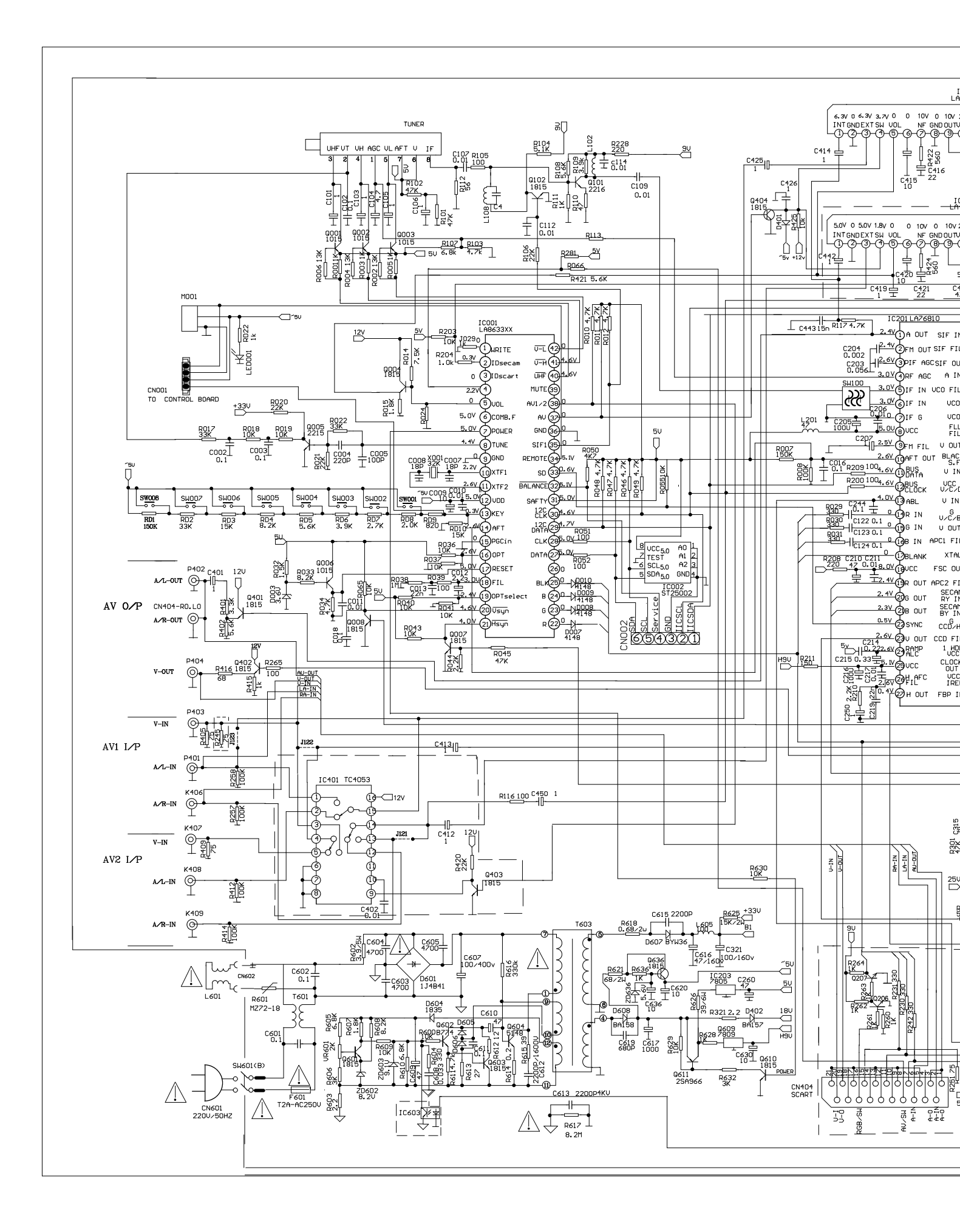
OPTION

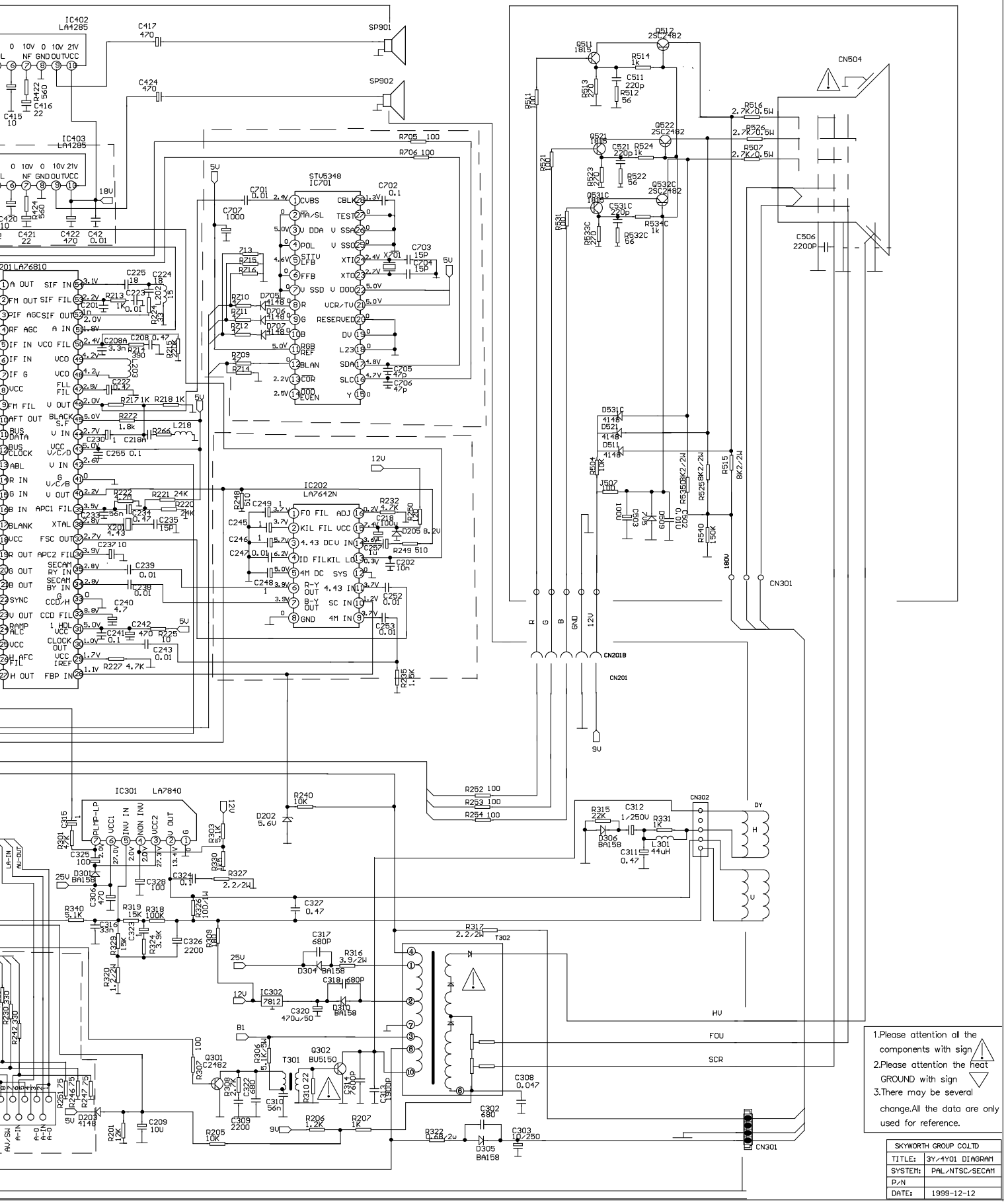
2 AV CH 0
C. SYS. SEL 1
TXT ON 1
MONITOR OUT 0
LOGO ON 1 (0)
CUSTOM LOGO 1 (0)
N P00 VLT 1
TUNER TYPE 0

Ulaz u servisni menu:

1. Stisnuti MENU dva puta
2. Stisnuti Q.VIEW
3. Stisnuti MUTE
4. Menu-i se mjenjeju sa tipkom TIMER (sat na daljinskom)


TUNER
IC402 LA4285
IC403 LA4285
SP901
SP902
IC001 LA8633XX
IC201 LA76810
STV5348 IC701
IC202 LA7642N
IC301 LA7840
IC401 TC4053
IC603 7805
IC302 7812
CN001 TO CONTROL BOARD
CN002 ST25002
CN404 SCART
CN504
CN301
CN201
CN2018
CN601 220V/50HZ
CN602
AV O/P
AV1 I/P
AV2 I/P
A/L-OUT
A/R-OUT
V-OUT
V-IN
A/L-IN
A/R-IN
SW001
SW002
SW003
SW004
SW005
SW006
SW007
SW008
SW100
SW601(B)
F601 T2A-AC250V
T601
T602
T603
T301
T302
L601
L201
L301
L718
HU
FOU
SCR
POWER
1.Please attention all the components with sign
2.Please attention the heat GROUND with sign
3.There may be several change.All the data are only used for reference.
SKYWORTH GROUP CO.LTD
TITLE: 3Y/4Y01 DIAGRAM
SYSTEM: PAL/NTSC/SECAM
P/N
DATE: 1999-12-12


TUNER
UHF VT VH AGC VL AFT V IF
IC001 LA8633XX
WRITE
IDsecam
IDscart
VOL
COMB.F
POWER
TUNE
GND
XTF1
XTF2
VDD
KEY
AFT
PGCin
OPT
RESET
FIL
OPTselect
Vsyn
Hsyn
U-L
U-H
UHF
MUTE
AV1/2
AV
GND
SIF1
REMOTE
SD
BALANCE
SAFTY
I2C CLK
I2C DATA
CLK
DATA
BLK
B
G
R
IC002 ST25002
VCC 5.0
TEST
SCL 5.0
SDA 5.0
A0
A1
A2
GND
SCL
Service
TICSCL
TICSDA
IC201 LA76810
A OUT
FM OUT
PIF AGC
RF AGC
IF IN
IF IN
IF G
VCC
FM FIL
AFT OUT
BUS DATA
BUS CLOCK
ABL
R IN
G IN
B IN
BLANK
VCC
R OUT
G OUT
B OUT
SYNC
V OUT
RAMP
ALC
VCC
H AFC
H OUT
IC401 TC4053
CN404 SCART
CN601 220V/50HZ
CN602
CN001 TO CONTROL BOARD
AV 0/P
AV1 I/P
AV2 I/P
A/L-OUT
A/R-OUT
V-OUT
A/L-IN
A/R-IN
V-IN
P401
P402
P403
P404
K406
K407
K408
K409
L601
T601
T603
F601 T2A-AC250V
SW601(B)
IC603



1.Please attention all the components with sign ⚠
2.Please attention the heat GROUND with sign ▽
3.There may be several change.All the data are only used for reference.

SKYWORTH GROUP CO.LTD	
TITLE:	3Y/4Y01 DIAGRAM
SYSTEM:	PAL/NTSC/SECAM
P/N	
DATE:	1999-12-12