ALIGNMENT INSTRUCTION (3S10)

1. Preface

This ADJUST MANUAL is only used for 3S10 chassis, and guides to make adjust equipments. It is only a reference.

2. Instruments For Adjustment

a. TV signal generator
b. 20MHz 2-channel oscilloscope
c. Adjust jigs
d. Sweep Signal Generator(option)
e. Digital voltmeter
f. White balance adjust equipment.

3. How To Enter And Exit Factory Mode

a. Enter factory mode by pressing MENU button, AV button and ANAL button in turn or pressing the SERVICE button (*on the right of MENU button, we can add this button for easy to enter service mode in factory*). Press OK to enter Service 2.0 and Design mode.
b. Exit factory mode by pressing PP or pressing STANDBY button.

4. Chassis Adjust

4-1. VCO Adjust

a. Set TV Signal Generator to output a 38.9MHz, stranger than 80dBuv PAL color bar signal.
b. Signal inputs to TUNER's IF terminal or pin5 of SAW101 through a 0.01UF/50V capacitor
c. Connect 220V AC (50/60Hz) and Switch on power switch. Enter Service 2.0 menu.
d. Press AV button after picking out **VCO Coarse** or **VCO Fine** item by PROG+/- buttons. VCO is well adjusted automatically if the character OK appears at the bottom of screen. (If OK can not appear automatically, please fine tune LC238 and re-try again)
e. The following adjustment is suitable for TV sets with SECAM L/L' system.
   Set TV signal Generator to output a 34.4MHz Signal, set TV set to **VHF-L** band. Press AV button after picking out **VCO Coarse L1** or **VCO Fine L1** by PROG+/- buttons. The VCO of SECAM L' system is well adjusted if the character **OK** appears automatically at the bottom of screen.
   Note: After VCO is well adjusted, exit factory mode by pressing PP button at first, switch off power switch, then withdraw IF signal.

4-2. IF Trap(LC101) Adjust For RF NTSC

a. Receive RF NTSC signal.
b. Adjust LC101 until picture is best.(We also can use a sweep sigmal generator to get best the trap point)

4-3. AGC Adjust

a. Receive 60dBuV RF signal.
b. Enter Service V2.0 mode and get **Tuner AGC PAL** item, adjust PAL AGC by VOL+/- buttons until picture's noise just disappears and no distortion under 100dBuV level.
c. If TV has SECAM LL1 system, enter Service V2.0 mode and get **Tuner AGC LL1** item, adjust SECAM LL' AGC by VOL+/- buttons until picture's noise just disappears and no distortion under 100dBuV level.
c. If TV has SECAME LL1 system, press OK key to enter design menu, set AGC Gain PAL to 1,set AGC Gain LL1 to 3

4-4. Main Power Adjust (B+)

a. Switch on power switch.
b. Measure the voltage with digital voltage meter between two terminals of C615.
d. Adjust **VR601** to obtain 110+/-0.5V on the Digital Voltage meter. (The voltage will have a little difference when use difference type of CRT.ORION A51JSW91X50 CRT is 118V;HITACH CRT is 110V)

5. Complete TV General Adjust

5-1. Screen Voltage Adjust(G2).

Set TV set to factory mode without signal input. Then press MUTE button, a horizontal line appears.

a. Adjust the "SCREEN" knob of FBT until a horizontal line is just can be seen.
b. Pressing MUTE button to exit one line mode.

5-2. Focus Adjust

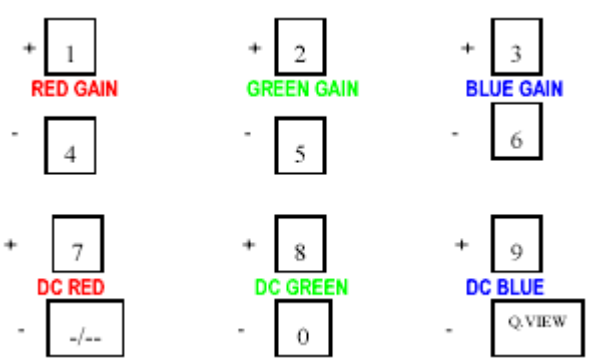
a. Receive CROSS HATCH PATTERN, set picture to Dynamic statue by pressing PP button.
b. Adjust the "FOCUS" knob of FBT to get a most clear picture.

5-3. White Balance Adjust.

Receive black & white pattern (PAL SYSTEM)

a. Set picture to Standard statue, adjust white balance equipment to get 2cd/m2 at low brightness and 100cd/ m2 at high brightness.
b. Enter white balance adjust mode of factory mode. Two probes of white balance equipment close up the low brightness and high brightness area.
c. Adjust **Red Gain, Green Gain**, **Blue Gain**; **DC Red**, **DC Green, (DC Blue is better to fixed to 64)** using remote handset to meet factory requirement. Button's function refers to the following table.

Remote handset:



5-4. Horizontal/Vertical Central Adjust

a. Receive MONOSCOPE PATTERN.
b. Get **H Position** item, use VOL+/- buttons to set H center of the picture to meet factory requirement.
c. Vertical central can not be adjusted by IIC bus. But we can use a 1.5K /2W resistor (R312 or R311)or omit it to adjust it

5-5. SUB-Brightness Adjust

a. Receive GREY SCALE/COLOR BAR pattern.
b. Enter Service V2.0 mode.
c. Press PROG +/- buttons to select **Bright Max**. Set a fixed value by VOL+/- buttons (The value will be difference when use difference type of CRT.. ORION A51JSW91X50 CRT is 63).
d. Press ANAL button to get **Bright Min** item and bright, contrast, color become zero automatically. Press VOL+/- buttons to make the second darkness bar of GREY SCALE part loom. Press PIC again to exit this mode

5-6. Vertical Amplitude Adjust

a. PAL system: adjust under **VAMP 50**.
b. NTSC system: adjust under **VAMP 60**.

5-7 Sub-Tint adjust

a. Receive NTSC RF signal. Set main Tint to center (zero).
b. Set TV set in SERVEICE V2.0 mode and get **Sub Tint** item.
c. Adjust SubTint using VOL+/- buttons until tint is best.

5-8 Set Picture's Standard Data

1. Adjust brightness/contrast/colour to the best mode you think Standard should be.
2 Enter white balance adjust mode, then press S.MODE key, MCU will store current brightness/contrast/colour data into Standard

5-9 Apr Threshold Adjust

It is at the item of white balance adjustment menu. Apr means Automatic RGB Peak Regulation. It is used to increase the contrast of pictures with low contrast and avoid clipping at RGB output for picture with high peak amplitudes. Chang it's value to get perfect contrast quality of picture. It maybe different when use different CRT.(ORION A51JSW91X50 CRT sets 15)

5-10 E-W correction And H-Wide Adjust For Pure Flat CRT

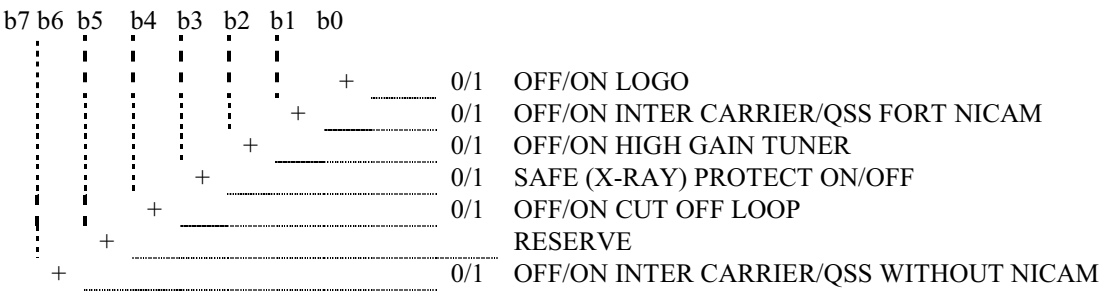
a. Receive cross pattern and set picture in Standard mode use PP key
b. Adjust VR801 to set picture's wide
c. Adjust VR802 to get a good linear pattern
d. Adjust VR801 to set picture's wide if it is changed after adjust VR802

DESIGN FOR ST92195 AND SET OPTIONS

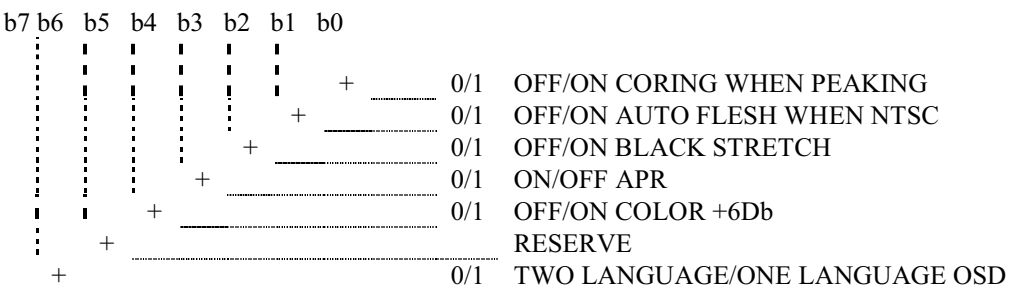
OPERATING:
Use MENU+AV+ANAL key to enter factory mode, OK key to enter Service 2.0 mode and Design mode. Use PP key to exit Factory mode. Use PROG+/- keys to select adjust item, use VOL+/- keys to set data.

AGC Gain: usually set to zero.
The initializations of Option1-5 are zero.

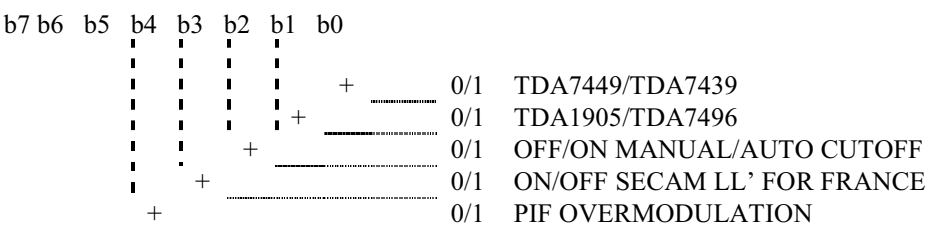
Option 1:



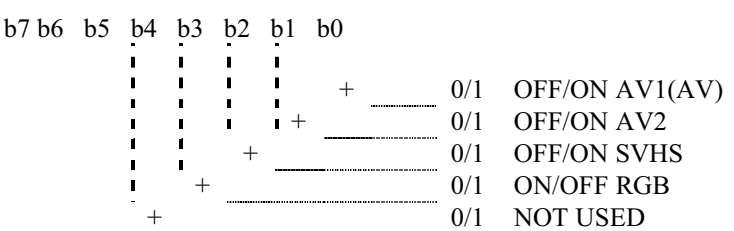
Option 2:



Option 3:



Option 4:



Option 5:
(Only used for TVs with teletext)
Used to select teletext languages for different area use

b0 = enable the remote controller to change Run_Time_Mode_Choice use “MENU” key

b1, b2 = “Run_Time_Mode_Choice” ---------- set to 0/2/4/6!!
Teletext languages option

MCU1

0:	ENGLISH, CYR2_LAT_Twist, SWEDISH, CZECH, ENGLISH, SERBIAN, LETTISH, AR_LAT_Twist
1:	POLISH, CYR2_LAT_Twist, ESTONIAN, CZECH, ENGLISH, SERBIAN, LETTISH, RUMANIAN
2:	ENGLISH, CYR2_LAT_Twist, SWEDISH, CZECH, ENGLISH, SERBIAN, LETTISH, FARSI_LAT_Twist
3:	POLISH, CYR2_LAT_Twist, SWEDISH, CZECH, ENGLISH, SERBIAN, LETTISH, FARSI_LAT_Twist

MCU2

0:	ENGLISH, FRENCH, SWEDISH, TURKISH, GERMAN, PORTUGUESE, ITALIAN, RUMANIAN
1:	ENGLISH, CYR2_LAT_Twist, SWEDISH, CZECH, GERMAN, CYR3_LAT_Twist, ITALIAN, RUMANIAN
2:	POLISH, FRENCH, SWEDISH, CZECH, GERMAN, SERBIAN, LETTISH, RUMANIAN
3:	POLISH, CYR2_LAT_Twist, ESTONIAN, TURKISH, GERMAN, CYR3_LAT_Twist, LETTISH, RUMANIAN

Notes:

CYR2_LAT_Twist:	Russian
Swedish:	Swedish/Hungarian
Czech:	Czech/Slovak
Lettish:	lettish/Lithuanian
Serbian:	Serbian/croarian/slovanian
FARSI_LAT_Twist :	Persian

Note for option:
Option1: b4----always set 0

Option2:
b0---- usually set 0 can reduce picture’s noise
b1--- usually set 0 can auto revise tint of NTSC
b2--- usually set 0 make picture’s contrust better
b3--- usually set 0 make picture’s contrust better
b4--- usually set 0 enlarge colour

Option3:
b0---- always set 0
b1--- MCU's MUTE pin output voltage select. Set to 0 when use TDA1905(MUTE=0V), set to 1 when use TDA7496(MUTE=5V)
b2--- always set 0
b3--- usually set 0
b4--- usually set 0

Option4:
Only one AV input: b0=1 b2=0
Two AVs input : b0=1 b1=1
When SCART need, b0=1 b3=1

HPOS OSD: OSD left and right position, set to 001
VPOS OSD: OSD up, and under position, set to 01
HPOS TXT: teletext character left and right position
VPOS TXT: teletext character above and under position

LOGO set:
1 Set OPTION1 b0=1.
2 The last item of white balance adjustment mode is used to set LOGO there are most 12 characters to select .Use PROG+/-, VOL+/- buttons to change character. The highest bit means LOGO characters' number, it can be set among 1, 2, 3, 4, 5, 6, 789ABC.

Note:
The data of the above adjustment is written into IC002(24C08EEPROM).
IC002 used on the product line must be well written data. If use a blank EEPROM (the interior data are set to FF) or not suitable for 3S10 chassis' EEPROM, it will be initialized (all data set to 00) and the special data will be written automatically when switch AC power on at the first few seconds. The values are following:

White Balance Adjust Menu	
Red Gain	32
DC Red	063
Green Gain	32
DC Gain	063
Blue Gain	32
DC Blue	063
Apr Threshold	10
LOGO	6

Service V2.0		| Desing	
Tuner AGC	32	| AGC Gain	00
H Position	32	| Option1	00
V Position	32	| Option2	00
VAMP 50	32	| Option3	00
VAMP 60	32	| Option4	00
Bright Max	63	| Option5	00
Bright Min	00	| ST Ttext	00
Sub Tint	32	| HPOS OSD	001
VCO Coarse	05	| VPOS OSD	01
VCO Fine	63	| HPOS TXT	057
VCO Coarse L1	05	| VPOS TXT	
VCO Fine L 1	080	|	

*** The above values are automatically initializations. The purpose is to convenient for service out of factory. IC002 must be re-adjusted before being used in assembly line.**

**** In factory, we can set one chip of EEPROM as a model first and copy it to others.**

Procedure for 3S10 Chassis (Only for reference)

1. **Touch up line:**
   a. B+ voltage adjust
   b. VCO adjust
   c. IF trap adjust for NTSC-M system.

   This can be done in FA line according to your option. We can adjust LC101 to get perfect NTSC-M system picture's quality and no disturbance of SIF signal.

2. **Final Assembly Line:**
   a. Screen and Focus voltage adjust
   b. TAGC adjust
   c. White balance adjust
   d. H/V central and V Amp 50 adjust for PAL
   e. Bright Min adjust
   f. V AMP 60 and Sub Tint for NTSC

AV UNIT

SIDE AV IN

MONO AUDIO.

CRT BOARD ASS.
PCB:5800-C3S101

*CRT

*TUNER

IC001
ST92185
(MCU)

IC201
STV2248
(IF/VIDEO/CHROMA/DEFLECT)

IC301
TDA8174A (VERTICAL AMP.)

Keys & ir. receiver.

*Only for pure flat CRT.

BAND SWITCH LOGIC TABLE

NORMAL TUNER

	13 VL	11 VH	10 UHF
L BAND	1	0	0
H BAND	0	1	0
U BAND	0	0	1

HIGHT GAIN TUNER

	13 VL	11 VH	10 UHF
L BAND	0	1	0/1
H BAND	1	0	0/1
U BAND	1	1	0/1

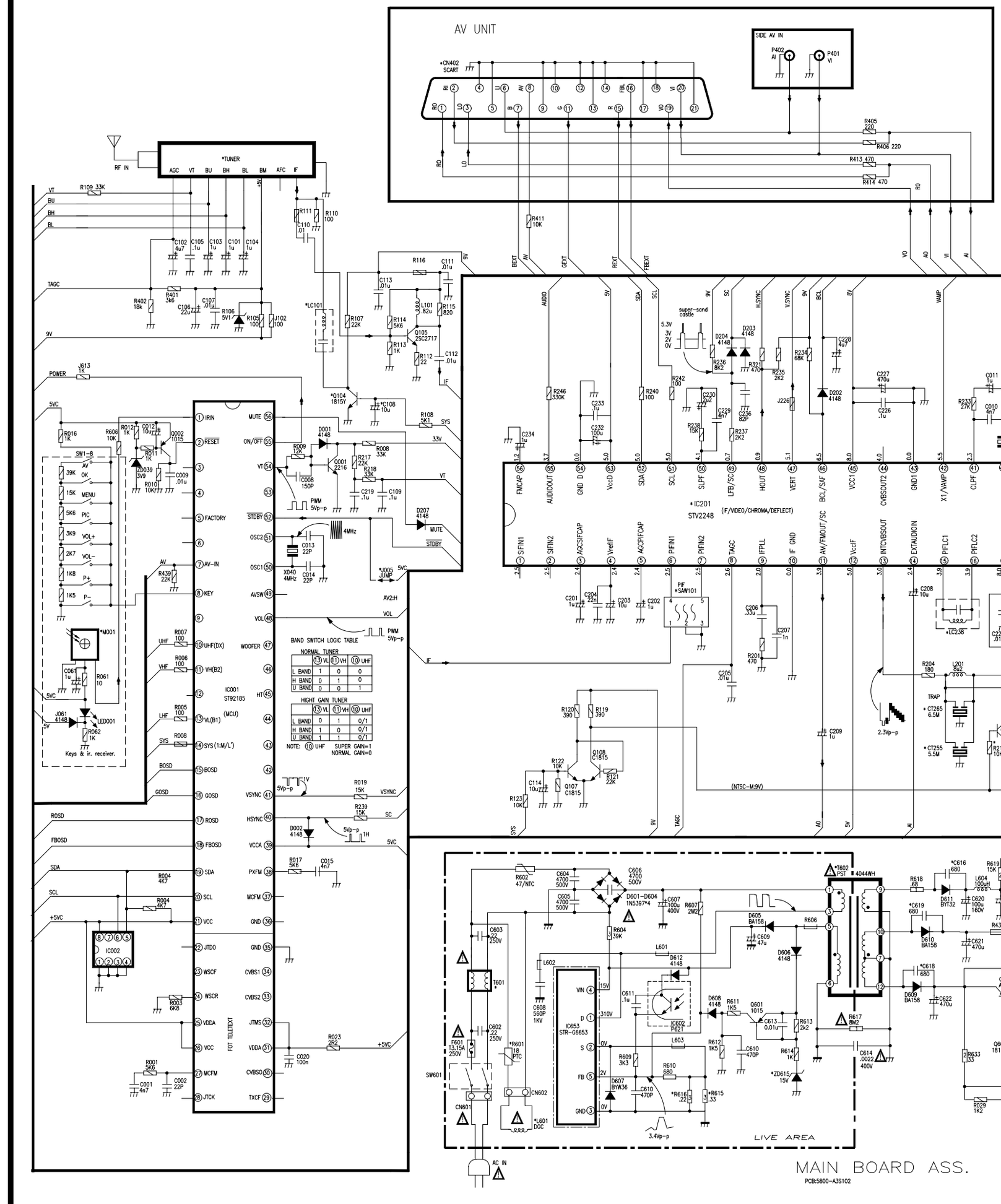
NOTE: 10 UHF SUPER GAIN=1 NORMAL GAIN=0

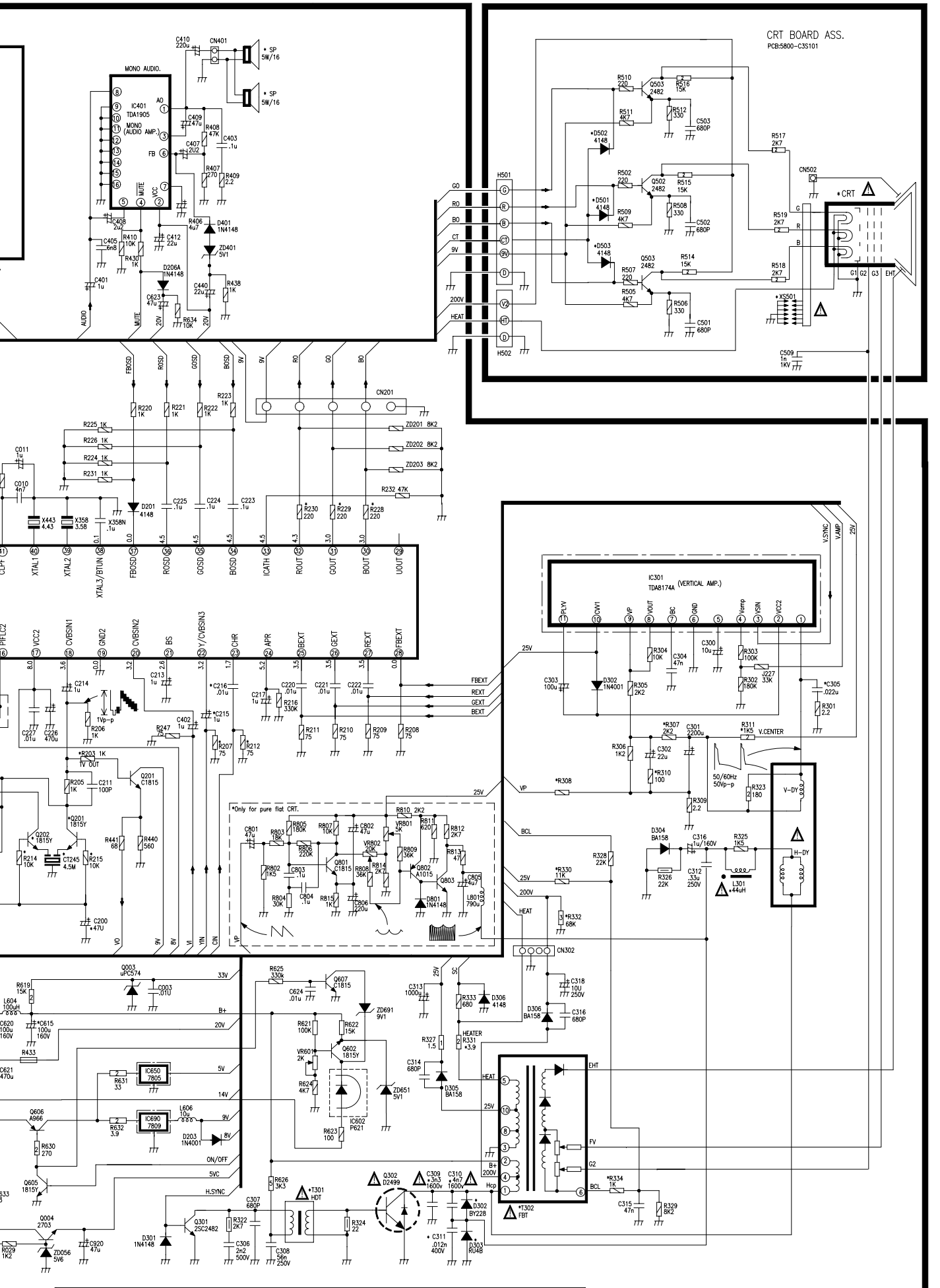
LIVE AREA

MAIN BOARD ASS.
PCB:5800-A3S102

NOTE: (1)ALL CAPACITORS ARE IN F;ALL RESISTORS ARE IN OHM;ALL COILS ARE IN H AND CRYSTALS ARE IN Hz.
(2)THE AREA ENCLOSED BY — — — IS LIVE AREA AND DIRECTLY CONNECTED WITH AC MAIN VOLTAGE.
THE DEVICES WITH ⚠ ARE SAFETY CRITICAL DEVICES;THE DEVICES WITH * AER SUBJECT TO CHANGE OR OMIT ACCORDING AS DIFFERENT TV SETS.
(3) THIS DIGRAM IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

TITLE:	SCHEMATIC DIGRAM FOR 3S10 CHASSIS
SYSTEM:	PAL/SECAM/BG/DK//NTSC-M/SCART
P/N:	
REV DATE: FEB 25.2002	DROWN BY: HSX


AV UNIT
SIDE AV IN
P402 AI
P401 VI
*CN402 SCART
*TUNER
RF IN
AGC VT BU BH BL BM AFC IF
*IC201
STV2248
(IF/VIDEO/CHROMA/DEFLECT)
*IC001
ST92185
(MCU)
FDT TELETEXT
IC002
IC653
STR-G6653
*T602
PST 4044WH
T601 *
SW1-8
Keys & ir. receiver.
BAND SWITCH LOGIC TABLE
NORMAL TUNER
HIGHT GAIN TUNER
NOTE: ⑩ UHF SUPER GAIN=1 NORMAL GAIN=0
LIVE AREA
AC IN
MAIN BOARD ASS.
PCB:5800-A3S102



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