TV4K-NICAM/A2/TXT

COLOUR TELEVISION RECEIVER

SERVICE MANUAL

SPECIFICATION

- SYSTEM PAL/SECAM,B/G,I,NICAM/A2
- POWER INPUT AC 170-245V(50/60Hz)
- POWER CONSUMPTION 85W
- AERIAL IMPEDANCE 75OHM UNBALANCED
- TUNER VOLTAGE SYNTHESIZER TUNING
- RECEIVING CHANNELS VHF-L E2-S6
  VHF-H S7-S41
  UHF E21-E69
- PROGRAMME MAX.99 PROGRAM MEMORIES
- PICTURE TUBE 25",28",110°
- SOUND OUTPUT 3.0W X2
- SPEAKER 8W 8 OHM X2
- AV JACKS FULL SCART ×2

CAUTION: Before servicing the chassis, read the "Safely Precaution".
"X -Ray radiation Precaution" and "Product Safety Notice" in 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 be specified limit. The normal value of the high voltage of this receiver is 26.5KV +/-2KV under 230V AC power source. The high voltage must not exceed 29KV.

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 used in this TV receiver.
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 the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING: Service should not be attempted by anyone unfamiliar with the necessary Precautions on this receiver.
The following are the necessary precautions to be 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 fragments will be violently expelled. Use shatterproof 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: nonmetallic 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 voltage resistor (metal oxide resistor) on circuit hoard, keep the resistor APP. 10mm(1/2 in.) 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 parts list.
8. The receiver is designed to operate with 230V(50Hz) AC mains.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics are often passed unnoticed by a visual inspection and the X-RAY RADIATON protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, X-RAY RADIATION or other hazards.

GENERAL ADJUSTMENT

AUTOMATIC DEGAUSSING

An automatic degaussing coil is attached around the picture tube, degaussing the tube properly in about one second after the set is switched on. If the receiver is moved or faced on a different direction, the power must be switched off at least 15 minutes in order that the automatic degaussing circuit operated properly. External degaussing is necessary if the automatic degassing proves ineffective after the set is moved.

B+ ADJUSTMENT

CAUTION: To avoid X-ray hazards and result in a nominal display width, B+ voltage must be set in the scale of 140.0V+/-1.0V.

1. Make sure the AC power supply is 230V, 50Hz.
2. Switch on the TV receiver, tune in an active channel.
3. Measure the voltage between C641 on Main P.C. Board by DC voltmeter.
4. Set contrast, brightness, color to maximum.
5. Adjust VR631 on Main P. C. Board for B+140.0V+/-1.0V voltage reading.

HIGH VOLTAGE CHECK

CAUTION: There is no high voltage adjustment in this chassis, B+140V voltage directly relates to the high voltage. The high voltage does not exceed 29KV under any conditions.

1. Connect an accurate high voltage meter to the second anode cap of the picture tube.
2. Turn on the receiver, set brightness and contrast to minimum (Zero beam current).
3. Make sure the high voltage does not exceed 29KV.
4. NO matter whether the luminance, contrast and chrominance controls are set to maximum or minimum, the high voltage must be kept under 29KV.

FOCUSING

Receive a TV test pattern signal; adjust controls for optimum picture. Adjust Focus Control for a well-defined, sharpest display in the center area of the screen.

Service controlled Function

The Service-1 mode is entered by pressing the “SERVICE” key when the TV is in ON condition and not in any Menu mode. In service mode, by pressing “OK” key Service-2 is accessed , by pressing “Enter” key again Service-3 and Service-4 is accessed. By pressing “PP” key, we come out of Service mode.

The items within the Service-1 mode can be accessed using UP / DOWN keys and the selected item can be varied using LEFT / RIGHT keys. The parameters controlled in the Service-1 menu

are :

a) Red Gain (0 ... 63)
b) DC Red (0 .... 63)
c) Green Gain (0 .... 63)

d) DC Green (0 .... 63)
e) Blue Gain (0 .... 63)
f) DC Blue (0 .... 63)
g) Apr Threshold (0 ….)
g) LOGO (the first show the length of logo, and the followed is the logo)

When in Service-1 menu ,if "OK" key is pressed , Service-2 menu appears and the display is as follows.The parameters controlled in the Service-2 menu are :

a) Tuner AGC (0 ... 63)
b) Horizontal position 50 Hz(0 ... 63)
c) Vertical position 50 Hz (0…15) - not using
d) Vertical position 60 Hz (0…15) - not using
e) Vertical amplication 50 Hz (0…63) - not using
f) Vertical amplication 60 Hz (0…63) - not using
g) Bright Max (0…63)
h) Bright Min (0…63)
i) Sub Tint (0…63)
j) VCO Coarse (0 ... 15)
k) VCO Fine (0 ... 127)
l) VCO Coarse L1(0 ... 15)
m) VCO Fine L1(0 ... 127)

The VCO status bar at the bottom of the screen appears only if either VCO Coarse item or VCO Fine item is selected. The VCO status is read from the Read register of STV2248 and guides whether to Increase / Decrease the VCO registers to attain VCO OK Status.
For doing VCO adjustment , Feed a 38.9MHZ Carrier as IF input and adjust VCO Coarse and fine parameters to get VCO OK Status.
If the cursor is in VCO Coarse or Fine , and the display shows VCO OK status, then pressing of "MENU" key will automatically put VCO fine to the Centre of the +60 to -60 KHz window.
For doing VCO L1 adjustment ,Feed a 33.9 MHZ carrier as IF input and adjust VCO Coarse L1 and VCO Fine L1 to get VCO OK Status.
If the cursor is in VCO Coarse L1 or Fine L1 , and the display shows VCO OK status, then pressing of "MENU" key will automatically put VCO fine for L1 to the Centre of the +60 to -60 KHz window.

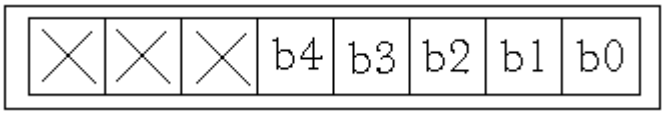
When in Service-2 menu ,if "OK" key is pressed , Service-3 menu appears and the display is as follows.
The parameters controlled in the Service-3 menu are :

a) V SAW 50 (0 ... 63)
b) V SAW 60 (0 ... 63)
c) V SH (0…31)
d) V SC (0…15)
e) V CC (0…15)
f) EW VDC (0…31)
g) EW AMP (0…31)
h) EW SHAPE (0…31)
i) EW TRAP (0…31)

When in Service-3 menu ,if “OK” key is pressed , Service-4 menu appears and the displayis as follows:

AGC Gain (00 ... 03)
Option 1 (50)
Option 2 (00)
Option 3 (06)
Option 4 (27)
Option 5 (00)
ST Text (00 ... 15)
H POS OSD (001 ... 255)
V POS OSD (01 ... 63)
H POS TXT (001 ... 255)
V POS TXT (01 ... 63)

By pressing “PP” key in Service mode ,we come out of Service mode.
The items within the design mode (Design Parameters) can be accessed using UP / DOWN keys and the selected item can be varied using LEFT / RIGHT keys. The parameters controlled in this mode are as follows:
a) AGC Gain (0 ... 3)
b) OPTIONS:



OPTION1:
B5=p/n/s crystals application (0=2 crystals, 1=1 crystals)
b4 = Cutoff Loop (0= OFF, 1=ON) (reg0c)
b3 = Safety_Reset (reg15)
b2 = Super tuner (0 = OFF , 1= ON)
b1 = Sound Demod (0 = Intercarrier/MONO, 1 =QSS/NICAM) (reg06, reg04 and reg02)
b0 = logo display

OPTION2:
b4 = Color 6dB (0 = OFF , 1 = ON) (reg11)
b3 = APR Feature (0 = ON , 1= OFF) (reg10)
b2 = Black Strech (0 = ON , 1= OFF) (reg0b)
b1 = Auto Flesh (0 = ON , 1= OFF) (reg14)
b0 = Coring (0 = ON , 1 = OFF) (reg0f)

OPTION3:
b4 = PIF overmodulation (0 = OFF, 1= ON) (reg01)
b3 = Market_France---secam LL’ (0=OFF,1=ON)
b2 = Manual/Auto cutoff (0/1) (reg 0d)
b1 = Mute pin low/high –to contol the speaker(0/1)
b0 = TDA7449/TDA7439 (0/1)

OPTION4:
b5 = VHF/UHF SELECTION (0 = VHF+UHF, 1=UHF)
b4 = SCART2 (0=OFF,1=ON)
b3 = RGB (0 = OFF, 1= ON)

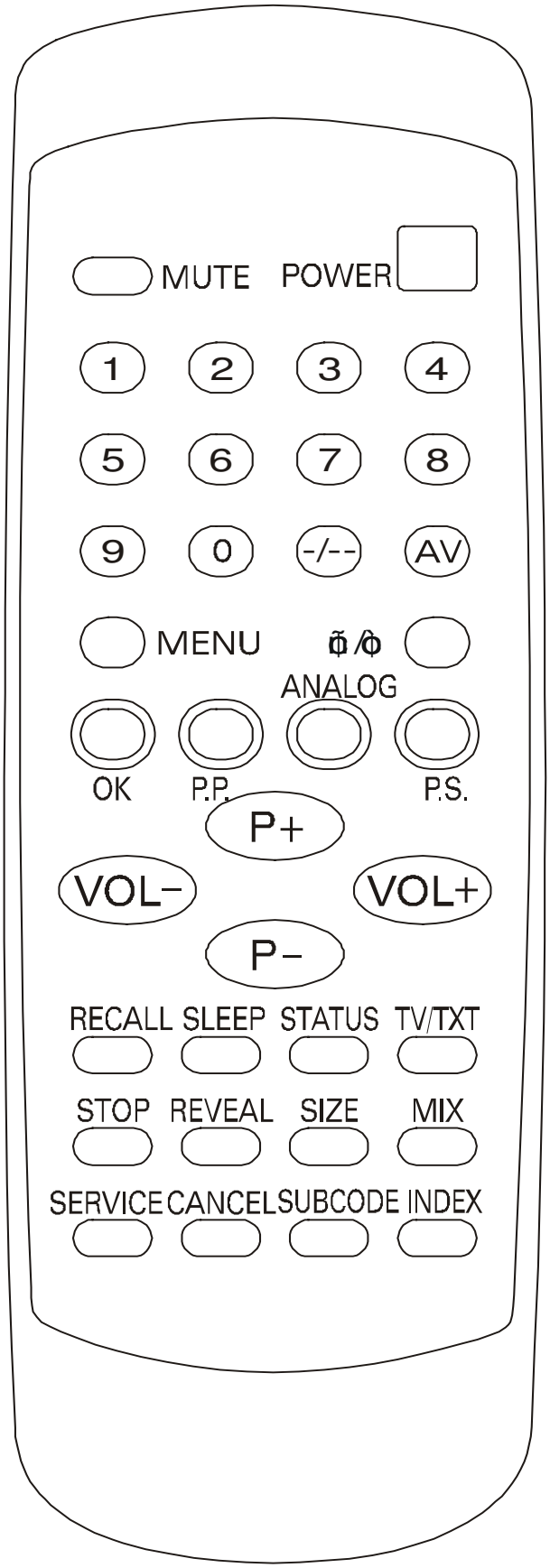
b2 = SVHS (0 = OFF, 1= ON)
b1 = AV2 (0 = OFF, 1= ON)
b0 = AV1 (0 = OFF, 1= ON)

OPTION5:----------please contact ST if you have something not clear here!!
b4,b5,b6 used for the autogain(GainDacTable/ Adoffset/ADslope)
b3 = GainDacTable/ Adoffset/ADslope changed permission
b1,b2 used for the "Run_Time_Mode_Choice"
b0 = Run_Time_Mode_Choice remote control permission
b4,b5,b6
ROM_M6_P_valid | OSDEPROM_M6_R_valid | ROM_M6_R_valid | EPROM_M6_R_valid (7-4)
EPROM_M6_R_valid | ROMLESS_H5_P_valid | ROM_H5_P_valid | EPROM_M6_A_valid (3-0)
/* note: ROMLESS_M6_R_valid == ROM_M6_R_valid*/
b1,b2
0: ENGLISH, FRENCH, SWEDISH, TURKISH, GERMAN, PORTUGUESE, ITALIAN, RUMANIAN
1: POLISH, FRENCH, ESTONIAN, CZECH, GERMAN, SERBIAN, LETTISH, RUMANIAN
2: ENGLISH, FRENCH, SWEDISH, CZECH, GERMAN, PORTUGUESE, LETTISH, RUMANIAN
3: ENGLISH, FRENCH, SWEDISH, TURKISH, GERMAN, PORTUGUESE, LETTISH, RUMANIAN

service command:

1) "PP"----exit
2) "OK"---- switch between the service menu
3) "AV"---- auto VCO adjust
4) "MUTE" ---- one line gain
5) "ANALOG" ---- sub brightness adjust

* The "AV2" should not be set while the "RGB" is set on.


MUTE
POWER
1
2
3
4
5
6
7
8
9
0
-/--
AV
MENU
ANALOG
OK
P.P.
P.S.
P+
VOL−
VOL+
P−
RECALL
SLEEP
STATUS
TV/TXT
STOP
REVEAL
SIZE
MIX
SERVICE
CANCEL
SUBCODE
INDEX

CTV2811N-JL TXT/NICAM SCHEMATIC DIAGRAM

NOTE: SUBJECT TO CHANGE WITHOUT NOTICE

⚠ CRITICAL PARTS