

General Information

1995
CRT: 14"
Main Power Button:
1662K01901

Specifications

System:	PAL I
Picture Tube:	14" (36cm)
Tuning Range:	UHF 21 - 69 channels
Preset:	44 channels
Antenna Jack:	75 ohm DIN type
Speaker:	Dynamic 77mm round
Speaker Impedance:	8 ohm
Audio Power Output:	1 W RMS (THD 10%)
Terminals:	
Video:	Input/output 1 Vpp/75 ohm
Audio:	Input/output 300mV
Power Supply:	AC 220 - 240V 50Hz
Power Consumption:	60W
Dimensions:	365 (W) x 340 (H) x 370 (D) mm
Weight:	10.5Kg

Service Adjustments

Adjustments

Test Equipment Connections

Caution: Before making any test equipment connections to the receiver chassis, disconnect the AC power plug.

Isolation Transformer: Receiver AC power cord must be connected to an Isolation Transformer.

Oscilloscope: Set AC-DC-GND switch to AC. Set VOLTS DIV switch to .1 (if necessary, set to another range) and the TIME DIV switch to EXT. Install connecting cables between the H and V inputs and the H and V output of the IF Sweep/Marker Generator.

IF Sweep/Marker Generator: Set SWEEP WIDTH control of full CW rotation with knob pushed in; set FUNCTION switch to TV IF SWEEP; switch on 39.5MHz crystal markers; adjust MARKER output to produce usable marker size. Connect Red lead of Sweep Output Probe (PR-16a) to test point TP2; connect black lead to test point TP1. Connect Red lead of Probe Unit Detector (PR-15) to test point TP5. Black lead to test point TP6. Set SWEEP CENTRE control to 3 o'clock position with knob pushed in, then readjust to properly centre horizontal location of pattern on oscilloscope screen.

1: Adjustment: Remove the short from TPA on Main PCB, see fig a.

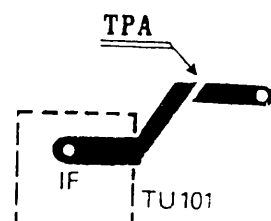


Fig a.

2: Adjustment: 39.5 MHz trap
Component: T252
Procedure: Adjust T252 to obtain a response curve that approximates the curve as in Fig b to the position the 39.5 MHz.

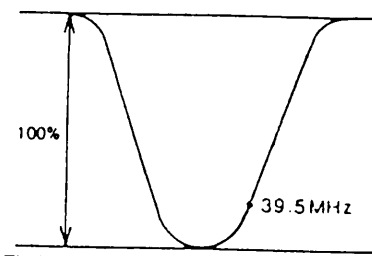


Fig b.

3: Adjustment: Connect Red lead of probe input detector (PR-15) to test point TP9 and Black to TP6.

4: Adjustment: 39.5 MHz Trap
Component: P253
Procedure: Adjust T253 to obtain a response curve that approximates the curve as in fig c.

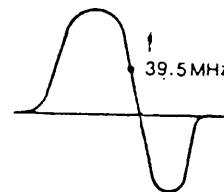


Fig c.

5: Adjustment: Connect Digital Multimeter to TP6 & TP7

6: Adjustment: AFT
Component: T253
Procedure: Adjust T253 to obtain 7.5V +/- 0.2 on Digital Multimeter.

7: Adjustment: Short the TPA on Main PCB.

8: Adjustment: Remove 100 F 16V electrolytic capacitor.

9: Adjustment: Connect Digital Multimeter to TP8 & TP6.

10: Adjustment: AGC
Component: VR251
Procedure: Adjust VR251 to obtain 6.5V +/- 0.1V on Digital Multimeter.

Caution: Use an isolation transformer when performing any service on this chassis.

Note:
CW = Clockwise
CCW = Counter Clockwise

Shutdown Circuit

When the high voltage rises, there are simultaneous increases developed at terminal 4 of the Horizontal Output Transformer (T601) and applied to pin 30 of IC301. If excessive high voltage is produced, the increased voltage developed exceeds the rating of Zener diode D485 causing the Horizontal Oscillator to stop functioning and the high voltage system is then shut down.

Horizontal Hold Adjustment

- 1: Properly tune into a local station.
- 2: Short TP21 to TP11.
- 3: Adjust the horizontal hold (VR481) to obtain minimum movement of the picture.

4: Remove the short.

Vertical Size and Linearity Adjustment

- 1: Adjust vertical size control (VR701) so that the picture fills the picture opening from top to bottom and is proportionate to the width.
- 2: Adjust vertical linearity (VR702) so that the picture has no distortion all over the screen.

Focus Adjustment

Adjust focus control on the horizontal output transformer (T601) for maximum overall definition and fine picture detail.

Sub-Bright Adjustment

- 1: Connect test pattern generator to EXT antenna socket.
- 2: Connect positive lead of voltmeter to TP10 and negative lead to TP4.
- 3: Set contrast to minimum and brightness to maximum.
- 4: Adjust APC (VR301) to obtain 8.4V on the voltmeter.

APC Adjustment

- 1: Connect colour bar generator to EXT antenna socket.
- 2: Connect positive lead of voltmeter to TP10 and negative lead to TP11.
- 3: Adjust APC (VR301) to obtain 8.4V on the voltmeter.

RF AGC Adjustment

- 1: Connect TV channel signal generator (adjust output level to channel 21 60dBu) to EXT antenna socket.
- 2: Connect positive lead of DC voltmeter to TP7 and the negative lead to TP6.
- 3: Adjust VR251 so that the DC voltmeter reading is 6.0V +/- 0.1V.

SIF DET Adjustment

- 1: Connect monoscope (input 60dBu), sound (mod freq. 400Hz deviation 50kHz DEV) generator to EXT antenna socket.
- 2: Connect positive lead of Distortion meter to speaker + and negative lead to speaker -.
- 3: Adjust T251 to min distortion and max output level.

On Screen Display Position Adjustment

- 1: Connect colour bar generator to EXT antenna socket.
- 2: Press the pre-set button (S114) to enter pre-setting mode. Band indication, channel position number and bars appear on the screen.
- 3: Adjust VR113 so that the right and left side of bars are the same, as shown in fig. 1.

Fig 1.

Burst Cleaning Adjustment

- 1: Connect colour bar generator to EXT antenna socket.
- 2: Connect oscilloscope to TP12 (R-Y output) and TP11 (ground).
- 3: Adjust T402 so that the waveform becomes maximum as shown in fig. 2.

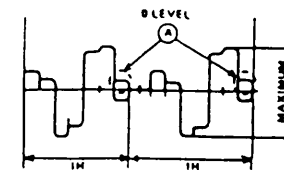


Fig 2.

Chroma Level Adjustment

- 1: Connect colour bar generator to EXT antenna socket.
- 2: Connect oscilloscope to TP12 (R-Y output) and TP11 (ground).
- 3: Adjust A to 0 level with VR306 as shown in fig. 3.

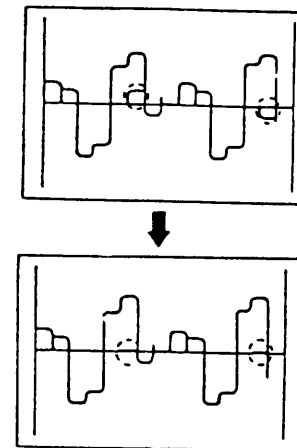


Fig 3.

Phase Adjustment

- 1: Connect colour bar generator to EXT antenna socket.
- 2: Connect oscilloscope to TP12 (R-Y output) and TP11 (ground).
- 3: Adjust T403 so that the waveform may be the same as shown in fig. 4.

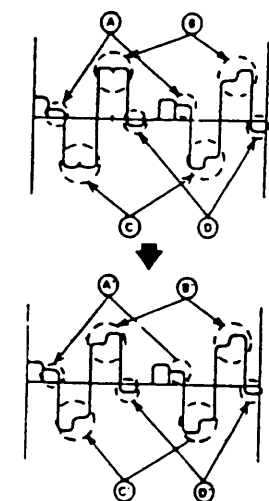


Fig 4.

Colour Purity Adjustment

For best results it is recommended that the purity adjustment be made in the final receiver location. If the receiver will be moved perform this adjustment with the faceplate facing East. The receiver must have been operating 15 minutes prior to this

procedure and the faceplate of the CRT must be at room temperature. The following procedure is recommended while using Dot/Bar Generator.

- 1: Check for correct location of all neck components (refer to fig. 5).
- 2: Rough-in the static convergence at the centre of the CRT as explained in the static convergence procedure.
- 3: Set contrast to minimum and brightness as far as possible without causing the picture to 'bloom'.
- 4: Rotate the red colour cut-off (VR505) and blue colour cut-off (VR502) controls to maximum CCW position.
- 5: Loosen the deflection yoke clamp screw and pull the deflection yoke toward the rear of the CRT.
- 6: Begin the following adjustment with the tabs on the round purity magnet rings set together. Slowly separate the two tabs while at the same time rotating them to adjust for a uniform green vertical band at the centre.
- 7: Carefully slide the deflection yoke forward to achieve green purity (uniform green screen).

Note: Centre purity is obtained by adjusting the tabs on the round purity magnet rings. outer edge purity is obtained by sliding the deflection yoke forward.

- 8: Check for red and blue field purity by reducing the setting of the green colour cut-off (VR503) control and alternately increasing the setting of the red and blue colour cut-off (VR505 and VR502) controls and repeat steps 2 to 7 if required.
- 9: Tighten deflection yoke clamp screw.
- 10: Perform BLACK AND WHITE ADJUSTMENT procedure.

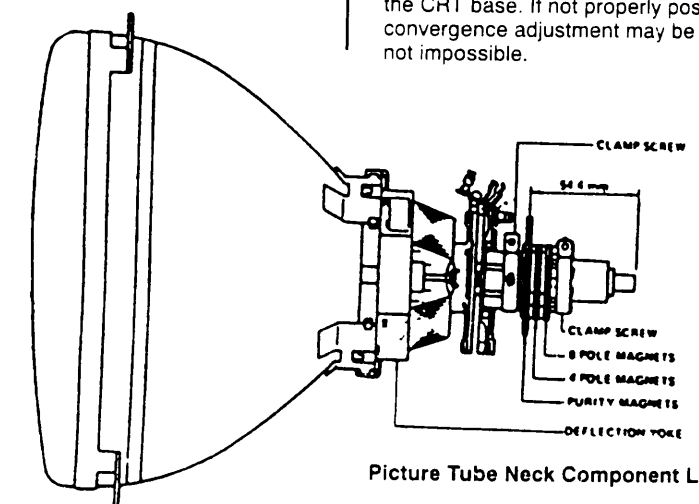


Fig 5.

Black and White Adjustment

The purpose of this procedure is to adjust the biases applied to the picture tube to obtain good black and white picture reproduction at all brightness levels while, at the same time, achieving maximum useable brightness. Proper RF AGC control adjustment must be verified prior to performing this procedure.

- 1: With antenna connected to the receiver, tune in picture on a strong received channel. Set colour to

minimum so that the receiver will not produce a colour picture while the following adjustments are being performed.

- 2: Rotate the green colour cut-off (VR504) and blue colour drive (VR501) controls to the centre of their rotation ranges.
- 3: Rotate the green colour cut-off (VR503), red colour cut-off (VR505) and blue colour cut-off (VR502) controls to the full CCW end of their rotation.
- 4: Set Service/TV switch (S301) to SERVICE position. Adjust the green colour cut-off control (VR503) for 137V DC at TP27. This voltage should be measured with an oscilloscope.
- 5: rotate the screen control (on horizontal output transformer) to the full CCW end of its rotation. Then rotate CW until a dim line of one pronounced colour (green, blue or red) is obtained.
- 6: Alternately rotate the other two colour cut-off controls CW until a dim white line is obtained.
- 7: Set Service/TV switch (S301) to TV position.
- 8: If necessary touch up adjustment of the red and blue colour drive controls (VR504 and VR501) to produce uniform monochrome picture.
- 9: If the screen does not display good white uniformity repeat steps 2 - 8.

Static Convergence Adjustment (refer to fig. 5 & 6)

Important: Before proceeding check location of the convergence magnet assembly on the neck of the CRT as shown in fig. 5. The rear edge of this assembly must be positioned an inch from the tip of the CRT base. If not properly positioned convergence adjustment may be difficult if not impossible.

Picture Tube Neck Component Location

- 1: Apply dot or crosshatch pattern from Dot/Bar Generator to receiver. Reduce setting of brightness and/or contrast controls to eliminate any blooming in pattern.
- 2: Rotate green colour cut-off control (VR503) fully counter clockwise (CCW).
- 3: Observe the blue and red pattern now appearing on the CRT screen. Locate the 4-pole magnet rings and separate their adjusting tabs approximately the width of one tab.
- 4: Rotate this pair of magnet rings as a unit, (do not change spacing between

Service Adjustments Cont'd.

- 5: tabs), to minimise the separation between the blue and red dots (lines).
6: If the blue and red dots are not completely converged at this point, readjust the spacing between the two tabs to complete convergence of the blue and red dots. Thus producing magenta dots.
7: Rotate green colour cut-off control clockwise (CW) until proper green level is restored and observe the magenta (B/R) and green pattern now appearing on the screen.
8: Locate the 6 pole magnet rings and separate their adjusting tabs approximately the width of one tab.
9: Rotate this pair of magnet rings as a unit (do not change spacing between tabs) to minimise the separation between the magenta (B/R) and green dots (lines).
10: If the magenta and green dots (lines) are not completely converged at these points, readjust the spacing between the two tabs to complete convergence of the magenta and green dots (lines).
11: If necessary repeat steps 8, 9 and 10 until proper convergence is obtained. To prevent accidental mis-adjustment of the magnets, apply a strip of paint across all six rings and on the neck of the CRT.

Dynamic Convergence
(refer to fig. 7)

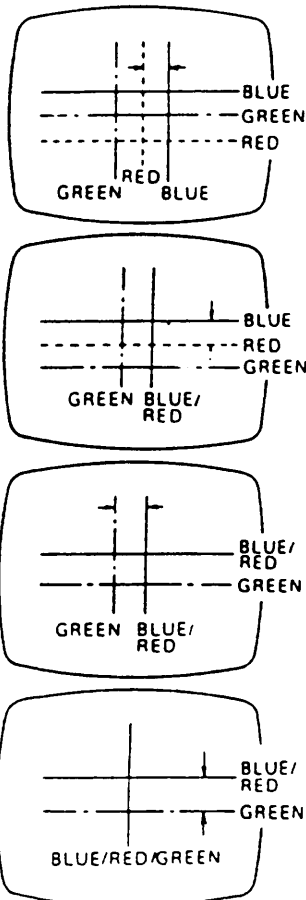


Fig 6.

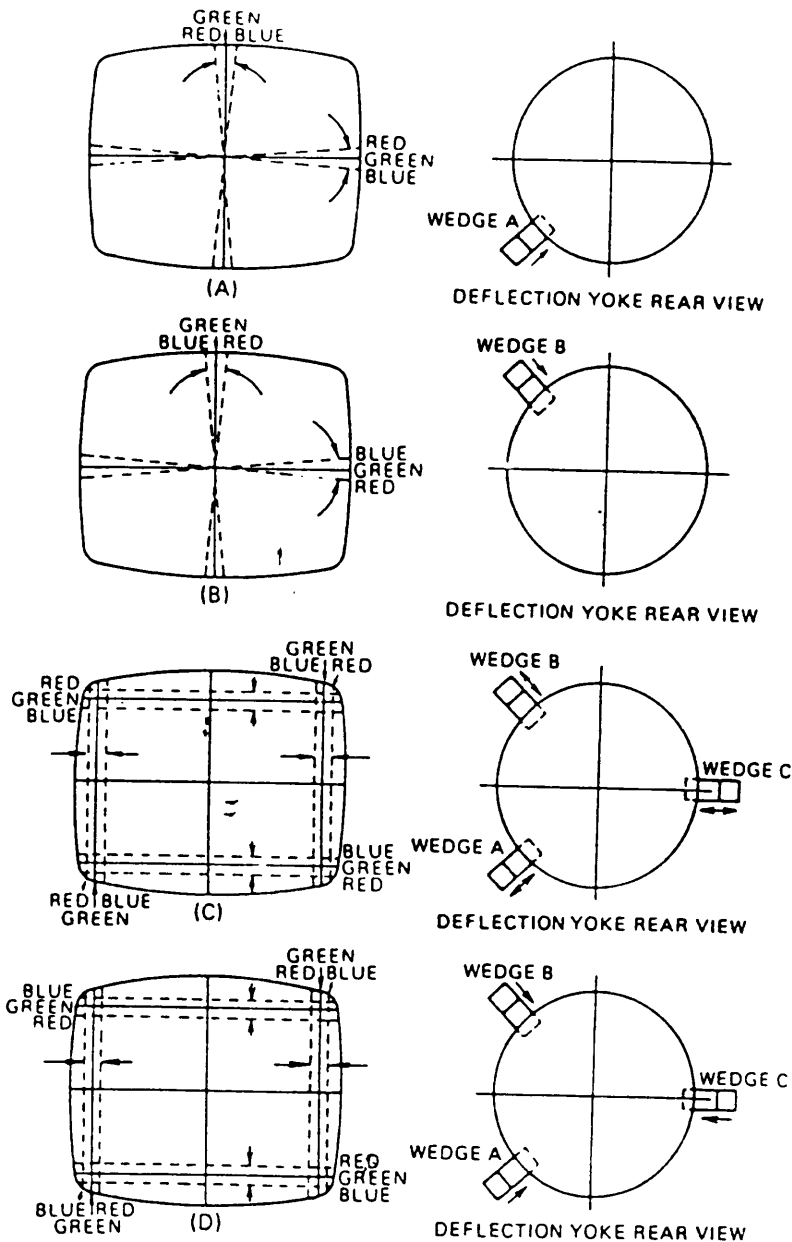
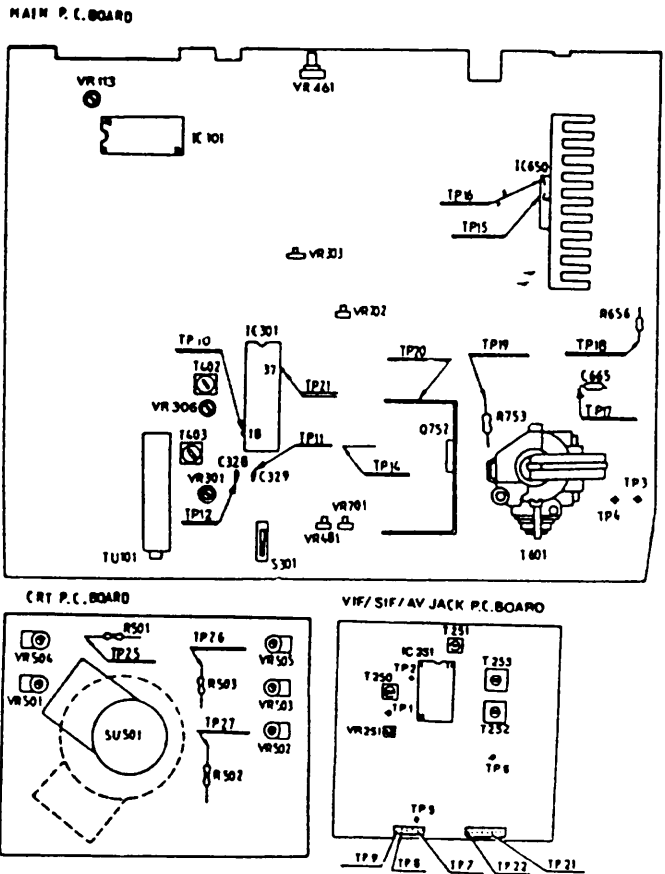


Fig 7.

- Dynamic Convergence (convergence of the three colour fields at the edges of the CRT screen) is accomplished by proper insertion and positioning of three rubber wedges between the edge of the deflection yoke and the funnel of the CRT. This is accomplished in the following manner:
- 1: Switch receiver on and allow it to warm up for 15 minutes.
 - 2: Apply crosshatch pattern from Dot/Bar Generator to receiver. Observe spacing between lines around edges of CRT screen.
 - 3: For the mis-convergence shown in fig. 7a tilt the deflection yoke down and insert wedge A between deflection yoke and CRT.
 - 4: For the mis-convergence shown in fig. 7b tilt the deflection yoke up and insert wedge B between deflection yoke and CRT.

- 5: For the mis-convergence shown in fig. 7c, tilt left side of the deflection yoke and slightly insert the wedge between the deflection yoke and CRT. Then deeply insert wedges A and B between deflection yoke and CRT.
- 6: For the mis-convergence shown in fig. 7d, tilt right side of the deflection yoke and deeply insert wedge C between deflection yoke and CRT. Then slightly insert and/or extract wedges A and B between deflection yoke and CRT.
- 7: Alternatively change spacing between, and depth of inserting of, the three wedges until proper dynamic convergence is obtained.
- 8: Use a strong adhesive tape to firmly secure each of the three rubber wedges to the funnel of the CRT.



Main Diagram

