

General Information

1995
CRT: 20"
Door Flap: 219-A12001-XX
Main Power Button:
292-A12001-01

Specifications

System:	PAL-I
Destination:	UK
Channel Coverage UHF:	21- 69 CH
Frequency Range UHF:	471.25 - 855.25 MHz
Scanning Lines:	625 lines
	Horizontal: 15625 Hz
	Vertical: 50 Hz
IF Frequency :	Video: 39.5 MHz
	Sound: 33.5MHz
Vision/Sound Separation:	Chroma: 35.07MHz
Sensitivity:	6 MHz
Output Power:	UHF: 80uV
	Max: 2W
	10% THD: 1.5W
CRT:	20" (51 cm) Diagonal
Speaker:	2" x 3 1/2"
Antenna Impedance:	75 ohm
Power consumption:	80 Watts
Power Source:	180 - 240 V
Teletext Sensitivity:	100 uV

Service Adjustments

Alignment Instructions

Please Read Before Attempting Service

- Never disconnect any leads while receiver is in operation.
- Disconnect all power before attempting any repairs.
- Do not short any portion of the circuit while the power is on.
- For safety reasons, all parts replaced should be identical (for parts and part numbers see parts list).
- Before alignment the set must be pre-heated for 30 minutes or more to erase magnetism thoroughly from CRT front chassis frame by erase coil.

Test Equipment

- VIF Sweep Generator.
- SIF Sweep generator.
- Colour Bar/Dot/Crosshatch Generator.
- DC Power Supply (14V).
- Oscilloscope.
- Vacuum Tube Voltmeter.
- Volt Ohmmeter.
- High Voltage Meter.
- Ampere Meter (0.5 class, DC 3mA max.).
- Demagnetising Coil.
- Phillips Pattern Generator.
- Frequency Counter.
- Continuous waveform Generator.

Tank Coil Alignment

Preparation Step (see fig 1)

- Connect output lead of VIF sweep

- generator between TP103 (pin 4 of IC101) and Ground.
- Connect lead of FROM DET between TP106 (pin 19 of IC101) and Ground.
- Apply a +14V DC across C423 (+).
- Apply a +5.2V dummy AGC bias to TP104 (pin 2 of IC101) (see fig1).

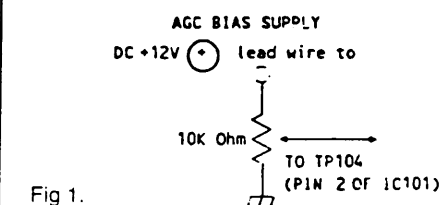


Fig 1.

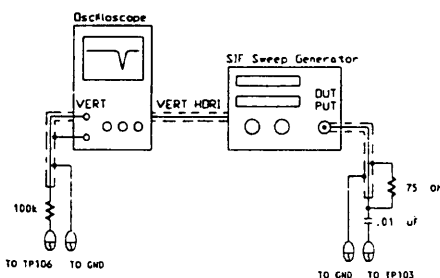


Fig 2.

Alignment Step (see fig 3)

- Set output level to 6Vp-p.
- Adjust T104 (Tank Coil) to obtain maximum amplitude of response at 39.5 MHz as in fig 3.

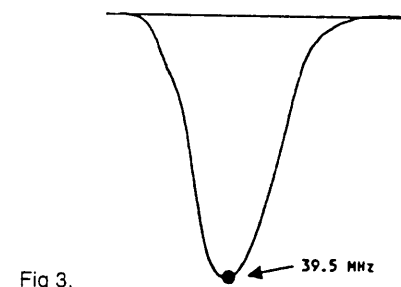


Fig 3.

VIF Alignment

Preparation Step (see fig 4)

- Connect output lead of VIF sweep generator between tuner test point TP and tuner case.
- Connect resistor (100 ohm) between TP109 and TP120.
- Connect lead of FROM DET between TP106 (pin 19 of IC101) and Ground.
- Apply a +14V DC across C423 (+).
- Apply a +5.2C DC dummy AGC bias to TP104 (pin 2 of IC101).

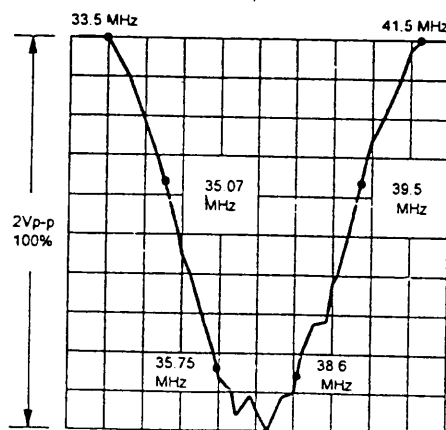


Fig 4.

Alignment

- Adjust AGC bias voltage for maximum amplitude of waveform.
- Adjust the level of sweep generator to achieve 2Vp-p output.
- Increase the output level of sweep generator in 30dBuV.
- Adjust AGC bias voltage to achieve 5Vp-p output (on oscilloscope).
- Adjust tuner converter coil to obtain the waveform as shown in fig 4..

AFC Alignment

Preparation Step (see fig 5)

- Connect the signal output of sweep/ marker generator to TP101.
- Connect the vertical input terminal of sync. oscilloscope to TP105.
- Apply a +14V DC across C423 (+).
- Apply a 5.2V DC to TP104 (pin 2 of IC101).

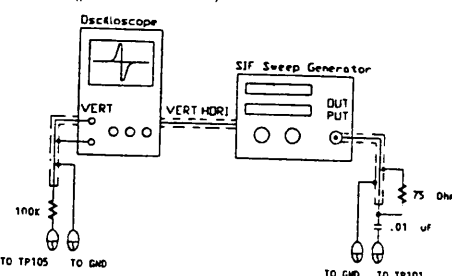


Fig 5.

Alignment Step

- Adjust the output level of sweep generator in 30 dBdB.
- Adjust waveform to 6Vp-p.
- Adjust T105 (AFC coil) for waveform as shown in fig 6.

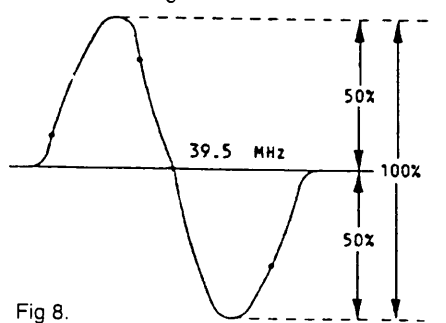


Fig 6.

SIF Alignment

Preparation Step (see fig 7)

- Connect output lead of SIF sweep generator between TP107 (pin 18 of IC101).
- Connect lead of FROM DET between TP108 (pin 8 of IC101).
- supply DC +14V to C423 (+).
- Connect TP104 to Ground (pin 2 of IC101).

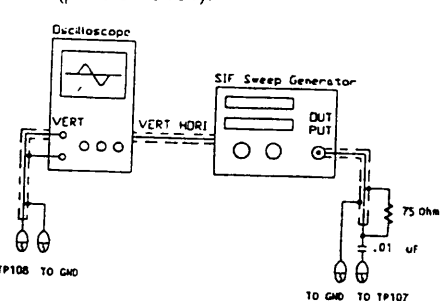


Fig 7.

Alignment Step

- Adjust output of sweep generator to achieve 5Vp-p between markers of 100KHz.
- Adjust T103 so that the sound carrier is centred as in fig 8.
- Confirm the waveform as in fig 8.

Note: Input level: 90dB.

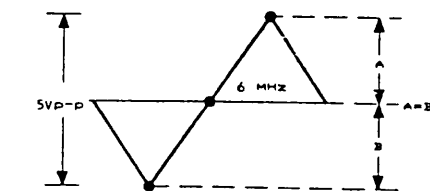


Fig 8.

Colour Demodulator Alignment, Delay Line Alignment

- Receive Phillips pattern.
- Set contrast control to minimum position.
- Set colour control to maximum.
- Connect oscilloscope to TP301 (B-out).
- Adjust CT301 to obtain the waveform as in fig 9.
- Adjust VR305 to obtain the waveform as in fig 9.
- Adjust T301 to obtain the waveform as in fig 9.

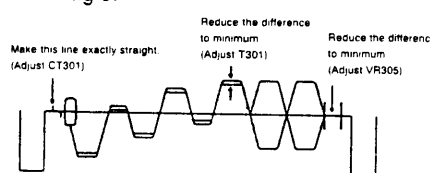


Fig 9.

B+ Adjustment

- Connect the digital voltmeter to TP901.
- Adjust semi-fixed resistor VR901 until meter reading DC 115V.

Vertical Circuit Adjustment

- Without RF input signal, connect the frequency counter between V-Deflection Yoke and Ground.
- Adjust V-Hold (VR303) to the reading 44Hz.
- Receive a monoscope pattern.
- Adjust V-Size (VR401) control to obtain a normal picture.

Horizontal Circuit Adjustment

- Receive monoscope pattern input signal 80dBuV.
- IC301 (pin 28, 29) short by 1K ohm resistor.
- Adjust VR302 to obtain the picture running at centre.
- Remove the 1K ohm resistor.
- Adjust VR301 to change the horizontal of the pattern for centre.

Teletext Picture Alignment

- Receive a pattern with a teletext signal.
- Select a teletext page.
- Connect an oscilloscope to TP801.
- Without the RF signal.
- Adjust T801 to obtain the TV horizontal sync.
- Exactly the same as teletext sync. as shown in fig 10.

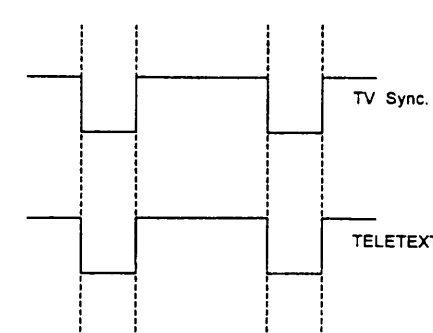


Fig 10.

White Balance Adjustment

- Receive a monoscope pattern picture signal.
- Turn the red, green and blue LOW LIGHT (VR501, VR502, VR503) controls to middle position and turn the DRIVE (VR504, VR505) control to middle.
- Turn the screen control on the FBT to minimum position.
- Set the sub-brightness (VR304) control to middle position, then set the contrast and colour control to minimum position.
- Connect voltmeter to the emitter of Q505 to Ground and adjust sub-brightness control to the reading of DC 1.4V.
- Set the service (S401) to "SERVICE" position.
- Slowly turn the screen control clockwise to the point where a horizontal line just illuminates.
- Adjust VR501 to get a red horizontal line on CRT.
- Adjust VR502 to get a yellow horizontal line on CRT.
- Adjust VR503 to get a white horizontal line on CRT.
- Reset the service switch (S401) to normal position and turn brightness control to middle position.
- Adjust DRIVE (VR504, VR505) control to obtain a uniform white picture.

Focus Adjustment

- Set contrast control to maximum position and brightness control to middle position.
- Adjust focus control (on the FBT) to obtain the sharpest picture on the CRT.

RF AGC

- Connect a TV signal (471.25 MHz, 60dB) from centre system to the tuner.
- A digital voltmeter is connected to the AGC terminal of tuner (pin 4).
- Adjust VR101 until the voltmeter reads 4.8V.

Sub-Brightness Alignment

- Receive a monoscope pattern.
- Set controls as follows:
Brightness: MIN. position.
Contrast: MIN. position.
Colour: MIN. position.
- Adjust Sub-Brightness (VR304) control until light just appears on the screen.

Colour Purity Adjustment (see fig. 12)

Before all adjustments described below are attempted, V-Hold, H-Hold, V-High, B+ Voltage and Focusing Adjustment must be completed.

- Place the TV receiver facing North or South.
- Plug in the receiver and turn it on.
- Operate the TV receiver for over 30 minutes.
- Fully degauss the TV receiver by using an external degaussing coil.
- Receive a crosshatch pattern and adjust the static convergence control roughly.
- Loosen the clamp screw of the deflection yoke and pull the deflection yoke towards you.
- Fully turn the red and blue drive (VR503, VR505) controls counter-clockwise.
- Adjust the purity magnets so that green field is obtained at the centre of the screen.
- Slowly push the deflection yoke towards bell of CRT and set it where a uniform green field is obtained.
- Tighten the clamp screw of the deflection yoke.

On Screen Adjustment (see fig 11)

- Receive the monoscope pattern.
- Adjust On Screen (VR601) for adjust the lettering to centre of CRT.

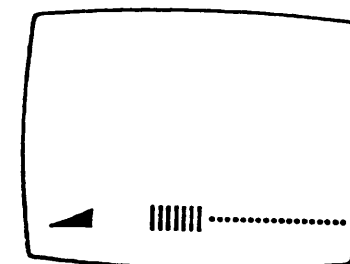


Fig 11.

Convergence Adjustment (see fig 12)

- Receive a crosshatch pattern.
- Unfix the convergence magnet clamber and align red with blue dots at the centre of the screen by rotating (R, B) static convergence magnets.
- Align red/blue with green dots at the centre of the screen by rotating (R, B) static convergence magnets.
- Fix the convergence magnets by turning the clamber.
- Remove the DY wedges and slightly tilt the deflection yoke horizontally and vertically to obtain good overall convergence.
- Fix the deflection yoke by wedges.
- If purity error is found, follow "Purity Adjustment" instructions.

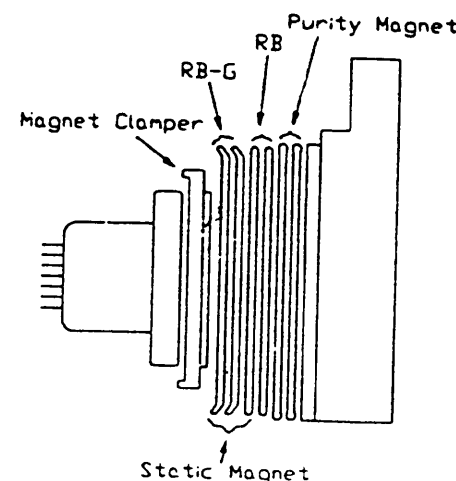


Fig 12.

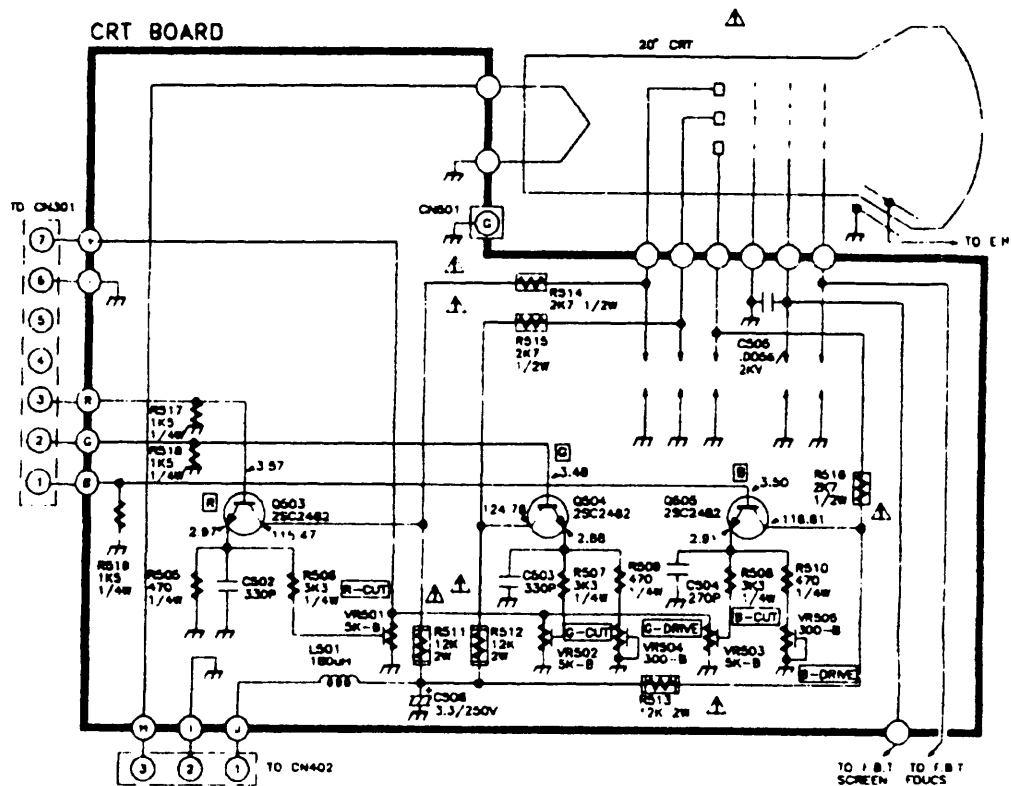
The diagram illustrates a receiver circuit, organized into two main sections: the **RECEIVE BOARD** (top) and the **MAIN BOARD** (bottom).

RECEIVE BOARD: This section contains the front-end stages of the receiver. It includes a tuning indicator (top left) with a series of lamps or LEDs, a detector and amplifier stage (center) featuring a vacuum tube, and a power supply section (bottom left) with a transformer and filter components. The circuit is heavily populated with capacitors and resistors, with values such as 100K, 10K, 1K, 100, 10, 1, and 0.1 specified.

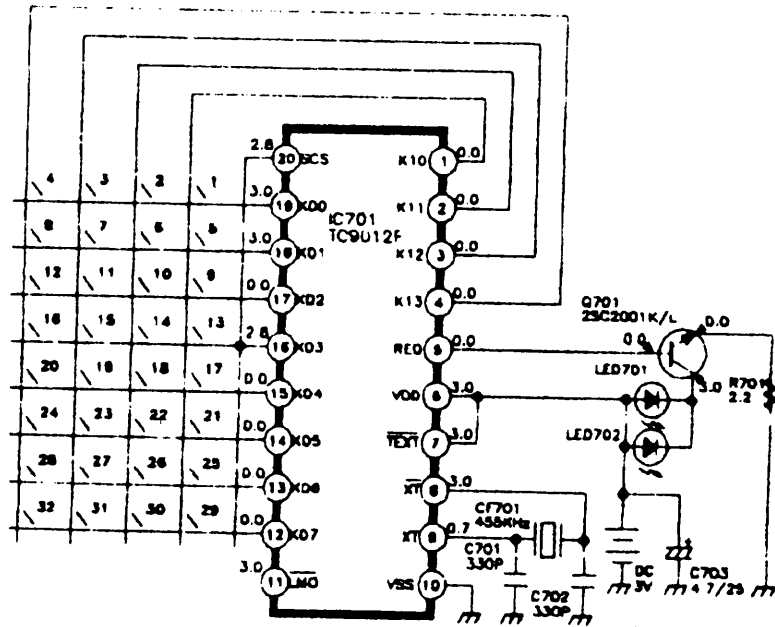
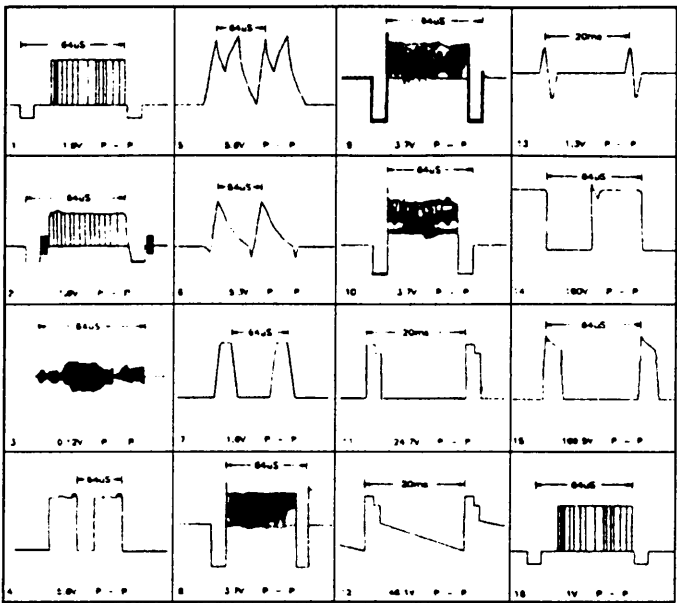
MAIN BOARD: This section contains the core processing and output stages. It includes a detector and amplifier stage (center) with a vacuum tube, a power supply section (bottom right) with a transformer and filter, and a tuning indicator (top right) with a series of lamps or LEDs. The circuit is heavily populated with capacitors and resistors, with values such as 100K, 10K, 1K, 100, 10, 1, and 0.1 specified.

The diagram shows a complex network of interconnecting lines, including power lines, signal lines, and ground connections. Various components are labeled with alphanumeric codes, and the overall layout is dense and detailed.

CRT
Diagram



Waveforms



Remote
Control
Diagram

Location Commands	
1.	0
2.	1
3.	2
4.	3
5.	4
6.	5
7.	6
8.	7
9.	8
10.	9
11.	STAND-BY
12.	TV / TTX
13.	TV/AV
14.	- / -
15.	VOL UP / LIST
16.	VOL DN / FLOP
17.	PICTURE
18.	RECALL / INDEX
19.	-
20.	LARGE
21.	MUTE
22.	SLEEP
23.	PRO UP / PG UP
24.	PRO DN / PG DN
25.	NORMAL / HOLD
26.	SUB-PAGE
27.	MIX
28.	REVEAL
29.	RED
30.	GREEN
31.	YELLOW
32.	CYAN

Wiring Diagram

