

## General Information

### 20" CTR with SCART Covers Models:

Onwa K9320 IF / K9620 IF  
KA120 IF / KA220 IF  
KA320 IF

## Specifications

System:	PAL-I
Destination:	UK
Channel Coverage UHF:	21 - 69
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:	33.5 MHz
Chroma:	35.07 MHz
Vision/Sound Separation:	6 MHz
Sensitivity UHF:	80 $\mu$ V
Output Power	MAXIMUM: 2 W
	10% THD: .5 W
C.R.T.:	20" (51 cm) Diagonal
Speaker:	2" x 3
Antenna Impedance:	75 Ohm
Power Consumption:	80 Watts
Power Source:	180 - 240 V

## Service Adjustments

### Alignment Instruction

Please read before attempting service

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

#### Test equipment

- 1: VIF Sweep Generator
- 2: SIF Sweep Generator
- 3: Colour Bar/Dot/Cross Hatch Generator
- 4: DC Power Supply (14V)
- 5: Oscilloscope
- 6: Vacuum Tube Voltmeter
- 7: Volt Ohmmeter
- 8: High Voltage Meter
- 9: Ampere Meter (0.5 Class, DC 3mA Max.)
- 10: Demagnetizing Coil
- 11: Philips Pattern Generator
- 12: Frequency Counter
- 13: Continuous Waveform Generator

#### Tank Coil Alignment

#### Preparation Step (see fig.2)

- 1: Connect OUTPUT lead of VIF Sweep Generator between TP103 (Pin 4 of

- 2: IC101) and ground.
- 3: Connect lead of FROM DET between TP106 (Pin 19 of IC101) and ground.
- 4: Apply a +14V DC across C423 (+).
- 5: Apply a +5.2V DC dummy AGC bias to TP104 (Pin 1 of IC101). (See Fig.1)

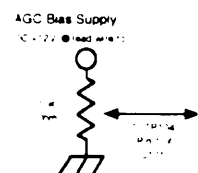


Fig 1.

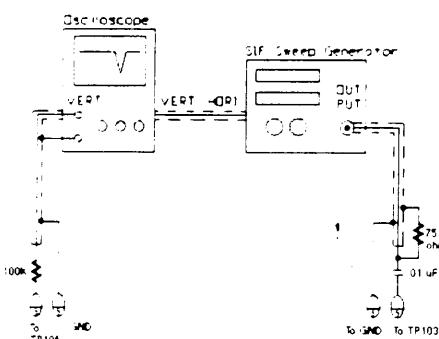


Fig 2.

#### Alignment Step (see fig.3)

- 1: Set output level to 6Vp-p.
- 2: Adjust T104 (TANK COIL) to obtain maximum amplitude of response at 38.9MHz as in Fig.3.

Fig 3.

#### VIF Alignment

#### Preparation Step (see fig.4)

- 1: Connect output lead of VIF Sweep Generator between tuner test point TP and tuner case.
- 2: Connect resistor (100 Ohm) between TP109 and TP120.
- 3: Connect lead of FROM DET between TP106 (Pin 19 of IC101) and ground.
- 4: Apply a +14V DC across C423 (+).
- 5: Apply a +5.2V DC dummy AGC bias to TP104 (Pin 1 of IC101).

#### Alignment

- 1: Adjust AGC bias voltage for maximum amplitude of waveform.
- 2: Adjust the level of Sweep Generator to achieve 2Vp-p output.
- 3: Increase the output level of Sweep Generator in 30dBuV.
- 4: Adjust AGC bias voltage to achieve 5Vp-p output (on Oscilloscope).
- 5: Adjust tuner convertor coil to obtain the waveform as shown in Fig.4.

#### AFC Alignment

#### Preparation Step (see fig.5)

- 1: Connect the signal output of Sweep/Market Generator to TP101.
- 2: Connect the vertical input terminal of Sync. Oscilloscope to TP105.

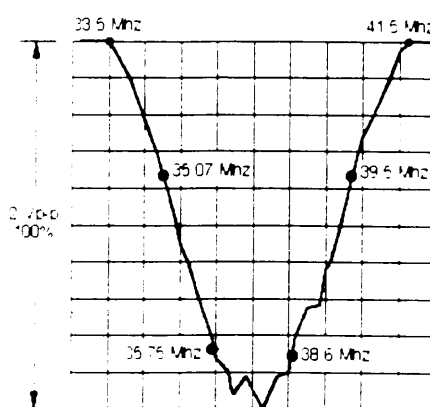


Fig 4.

- 3: Apply a +14V DC across C423 (+).
- 4: Apply a +5.2V DC to TP104 (Pin 1 of IC101).

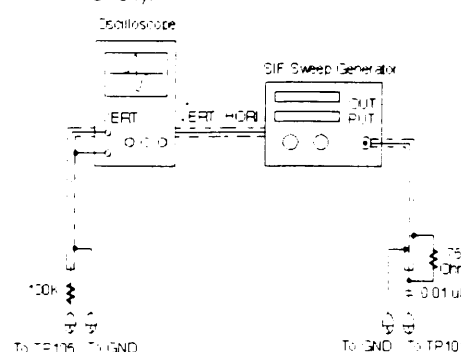


Fig 5.

#### Alignment Step

- 1: Adjust the output level of Sweep Generator in 30-40dB.
- 2: Adjust waveform to 6Vp-p.
- 3: Adjust T105 (AFC COIL). For waveform as shown in Fig.6.

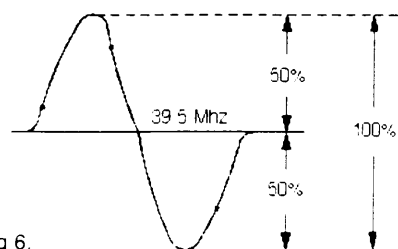


Fig 6.

#### SIF Alignment

#### Preparation Step (See fig.7)

- 1: Connect output lead of SIF Sweep Generator between TP107 (Pin 18 of IC101)
- 2: Connect lead of FROM DET between TP108 (Pin 8 of IC101).
- 3: Supply DC +14V to C423 (+).
- 4: Connect TP104 to GND (Pin 1 of IC101).

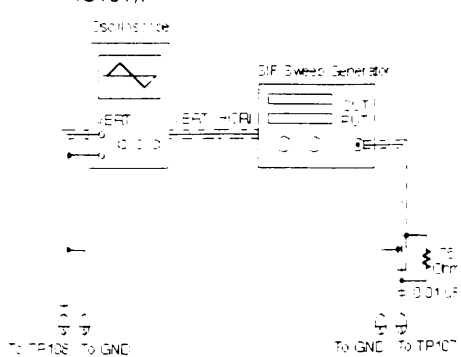


Fig 7.

#### Alignment Step

- 1: Adjust output of Sweep Generator to achieve 5Vp-p between markers of 100KHz.
- 2: Adjust T103 so that sound carrier is centered as in Fig.8.
- 3: Confirm the waveform as in Fig.8. NOTE: Input Level: 90dB.

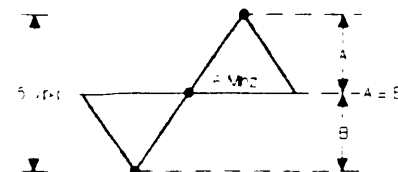


Fig 8.

#### Colour Demodulator Alignment, Delay Line Alignment

- 1: Receive Philips Pattern.
- 2: Set Contrast control to minimum position.
- 3: Set Colour control to maximum position.
- 4: Connect Oscilloscope to TP301 (B-out).
- 5: Adjust CT301 to obtain the waveform as in Fig.9.
- 6: Adjust VR305 to obtain the waveform as in Fig.9.
- 7: Adjust T301 to obtain the waveform as in Fig.9.

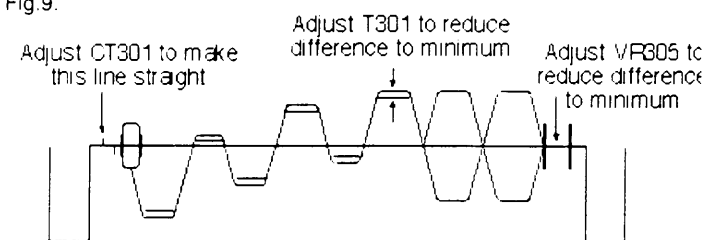


Fig 9.

#### B+ Adjustment

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

#### Vertical Circuit Adjustment

- 1: Without RF input signal connect the Frequency Counter between V-DEFLECTION YOKE and GROUND.
- 2: Adjust V-HOLD (VR303) to the reading 44Hz.
- 3: Receive Monoscope Pattern.
- 4: Adjust V-SIZE (VR401) control to obtain a normal picture.

#### Horizontal Circuit Adjustment

- 1: Receive Monoscope Pattern input signal 80dBuV.
- 2: IC302 (Pin 28,29) short by 1K Ohm resistor.
- 3: Adjust VR302 to obtain the picture running at center.
- 4: Remove the 1K Ohm resistor.
- 5: Adjust VR301 to change the horizontal of the pattern for center.

#### White Balance Adjustment

- 1: Receive a Monoscope Pattern picture signal.
- 2: Turn the red, green and blue LOW LIGHT (VR501, VR502, VR503) controls to middle position and turn the DRIVE (VR504, VR505) control to middle position.
- 3: Turn the Screen control on the FBT to minimum position.
- 4: Set the Sub-Brightness (VR304) control to middle position, then set the Contrast control, Brightness control and Colour control to minimum position.
- 5: Set the Service (S401) to "SERVICE" position.

- 6: Connect volt meter to the emitter of Q505 and GND, and adjust Sub-Brightness control to the reading of DC 1.4V.
- 7: Slowly turn the Screen control clockwise to the point where a horizontal line just illuminates.
- 8: Adjust VR501 to get a red horizontal line on CRT.
- 9: Adjust VR502 to get a yellow horizontal line on CRT.
- 10: Adjust VR503 to get a white horizontal line on CRT.
- 11: Reset the Service Switch (S401) to normal position and turn Brightness control to middle position.
- 12: Adjust Drive (VR504, VR505) control to obtain a uniform white picture.

#### Focus Adjustment

- 1: Set Contrast control to maximum position and Brightness control to middle position.
- 2: Adjust Focus control (on the FBT) to obtain a sharpest picture on the CRT.

#### RF AGC

- 1: Connect a TV signal (471.25 MHz).

- 9: Slowly push the deflection yoke towards bell of CRT and set it where a uniform green field is obtained.
- 10: Tighten the clamp screw of the deflection yoke.

#### On Screen Adjustment (see fig.10)

- 1: Receive the Monoscope Pattern.
- 2: Adjust ON SCREEN (VR601) for adjust the lettering to center of CRT.



Fig 10.

#### Convergence Adjustment (see fig.11)

- 1: Receive a crosshatch pattern.
- 2: Unfix the convergence magnet clumper and align red with blue dots at the center of the screen by rotating (R.B) static convergence magnets.
- 3: Align Red/Blue with green dots at the center of the screen by rotating (RB-G) static convergence magnet.
- 4: Fix the convergence magnets by turning the clumper.
- 5: Remove the DY wedges and slightly tilt the deflection yoke horizontally and vertically to obtain the good overall convergence.
- 6: Fix the deflection yoke by wedges.
- 7: If purity error is found, follow "PURITY ADJUSTMENT" instructions.

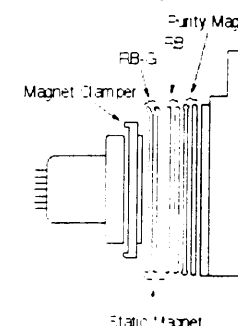
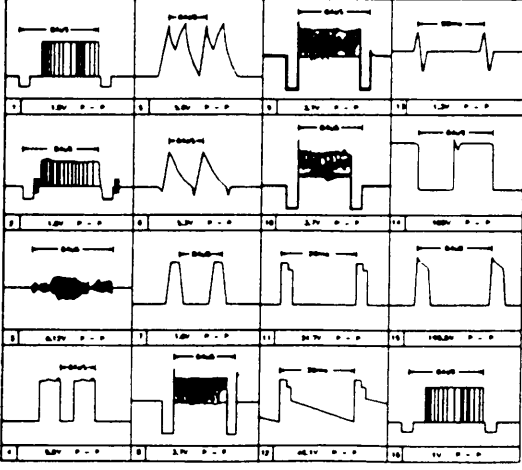
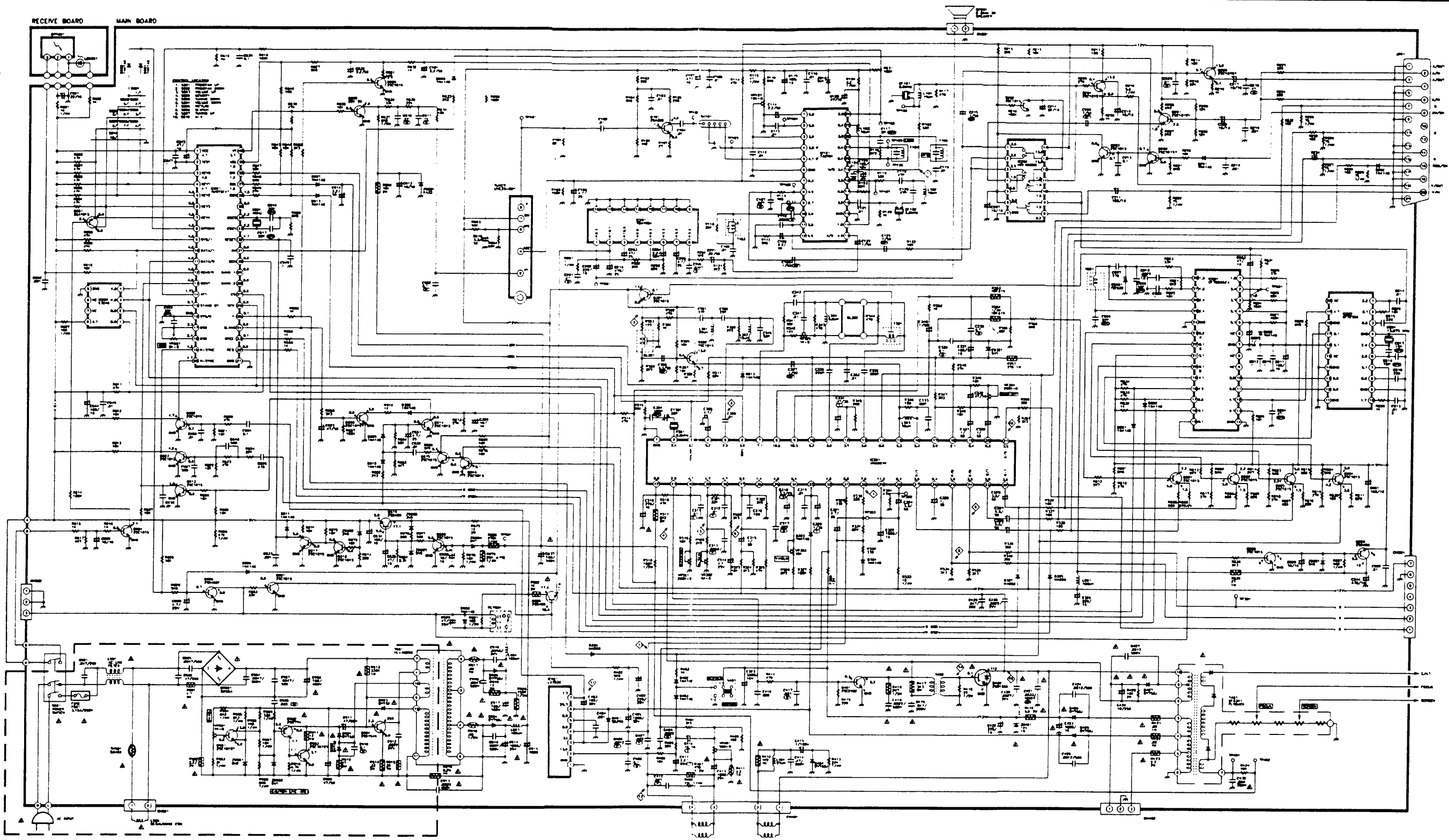


Fig 11.

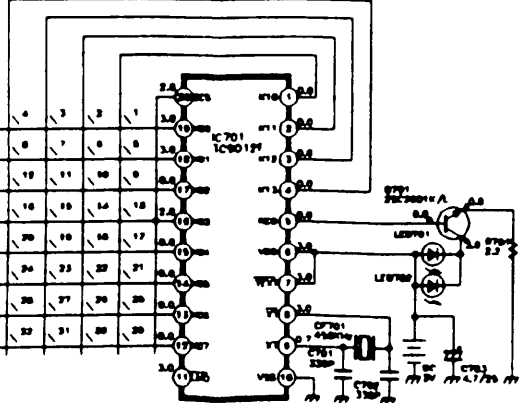
#### Convergence Adjustment

- 1: Audio output right channel: 0.4V  $\pm$  0.2V (1 KHz)
- 2: Audio input right channel: 0.4V  $\pm$  0.2V (1 KHz)
- 3: Audio output left channel: 0.4V  $\pm$  0.2V (1 KHz)
- 4: Audio common earth
- 5: Blue earth
- 6: Audio left channel input: 0.4V  $\pm$  0.2V (1 KHz)
- 7: Blue component input: 0.7Vp-p 0.3Vp-p
- 8: Slow commutation input: 9V-12V input (video switch) Green earth
- 9: Red earth
- 10: Green component input: 0.7Vp-p  $\pm$  0.3Vp-p
- 11: Red earth
- 12: Red component input: 0.7Vp-p  $\pm$  0.3Vp-p
- 13: Fast commutation input: 0.6V-3V input (R.G.B. switch)
- 14: Video earth
- 15: Fast commutation earth
- 16: Video output: 1Vp-p  $\pm$  0.3Vp-p (75 Ohm)
- 17: Video or synchro. Input: 1Vp-p  $\pm$  0.3Vp-p (75 Ohm) input
- 18: Plug screening

Main  
Diagram



Remote  
Control  
Diagram



CRT  
Diagram

